# NHP5010

# **500Mbps Powerline AV Wireless N AP Router**

# **User Manual**

V1.0



# Contents

| Safety    | Pre   | cautions   | 1  |  |
|-----------|---|--|--|--|
| Overview2 |   |  |  |  |
| 2.1       | Pro   | oduct Introduction   | 2  |  |
| Hardwa    | are l   | Description and Device Connection  | 3  |  |
| 3.1       | LE  | D Status Description and Pushbutton Description  | 3  |  |
| 3.2       | Inte  | erface and Switch Description  | 6  |  |
| 3.3       | Ha  | rdware Installation  | 6  |  |
| 3.3       | 3.1   | System Requirements  | 6  |  |
| 3.3       | 3.2   | Before You Begin   | 7  |  |
| 3.3       | 3.3   | Connecting the Device  | 7  |  |
| 3.4       | Ор  | peration Range   | 8  |  |
| 3.5       | Im  | proving the Transmission Performance of Network  | 8  |  |
| Configu   | uring   | g the LAN PC   | 9  |  |
| Web Co    | onfi  | guration   | 14   |  |
| 5.1       | Lo  | gging In to the PLC Wireless Router  | 14   |  |
| 5.2       | Se  | tup  | 15   |  |
| 5.2       | 2.1   | Wizard   | 15   |  |
| 5.2       | 2.2   | Internet Setup   | 33   |  |
| 5.2       | 2.3   | Wireless Setup   | 41   |  |
| 5.2       | 2.4   | LAN Setup  | 52   |  |
| 5.2       | 2.5   | Time and Date  | 54   |  |
| 5.2       | 2.6   | Logout   | 54   |  |
| 5.3       | Ad  | vanced Settings  | 55   |  |
| 5.3       | 3.1   | DoS Protection   | 55   |  |
| 5.3       | 3.2   | Access Control   | 56   |  |
| 5.3       | 3.3   | Advanced Wireless  | 67   |  |
| 5.3       | 3.4   | Advanced Network   | 73   |  |
| 5.3       | 8.5   | PLC Setting  | 89   |  |
| 5.3       | 8.6   | Logout   | 91   |  |
| 5.4       | Ma  | aintenance   | 91   |  |
| 5.4       | l.1   | Device Management  | 91   |  |
| 5.4       | 1.2   | Backup and Restoration   | 93   |  |
| 5.4       | 1.3   | Firmware Update  | 94   |  |
| 5.4       | 1.4   | Configuration Update   | 100  |  |
| 5.4       | 1.5   | Log Settings   | 105  |  |
|           | Safety<br>Overvie<br>2.1<br>Hardwa<br>3.1<br>3.2<br>3.3<br>3.3<br>3.3<br>3.3<br>3.3<br>3.3<br>3.3<br>3.3<br>3.3 | Safety Pre<br>Overview .<br>2.1 Pre<br>Hardware<br>3.1 LE<br>3.2 Int<br>3.3 Ha<br>3.3.1<br>3.3.2<br>3.3<br>3.4 Op<br>3.5 Im<br>Configurin<br>Web Confi<br>5.1 Lo<br>5.2 Se<br>5.2.1<br>5.2.2<br>5.2.3<br>5.2.4<br>5.2.5<br>5.2.6<br>5.3 Ad<br>5.3.1<br>5.3.2<br>5.3.3<br>5.3.4<br>5.3.5<br>5.3.6<br>5.3.4<br>5.3.5<br>5.3.6<br>5.4 Ma<br>5.4.1<br>5.4.2<br>5.4.3<br>5.4.4<br>5.4.5 | Safety Precautions         Overview         2.1       Product Introduction         Hardware Description and Device Connection         3.1       LED Status Description and Pushbutton Description         3.2       Interface and Switch Description         3.3       Hardware Installation         3.3.1       System Requirements         3.3.2       Before You Begin         3.3.3       Connecting the Device         3.4       Operation Range         3.5       Improving the Transmission Performance of Network         Configuration       5.1         5.1       Logging In to the PLC Wireless Router         5.2       Setup         5.2.1       Wizard         5.2.2       Internet Setup         5.2.3       Wireless Setup         5.2.4       LAN Setup         5.2.5       Time and Date         5.2.6       Logout         5.3       Advanced Settings         5.3.1       Dos Protection         5.3.2       Access Control         5.3.3       Advanced Wireless         5.3.4       Advanced Wireless         5.3.5       PLC Setting         5.3.6       Logout         5.4 |  |

| 5.4.6       | Diagnostics                         |     |
|-------------|-------------------------------------|-----|
| 5.4.7       | Logout                              |     |
| 5.5 St      | atus                                |     |
| 5.5.1       | Device Information                  |     |
| 5.5.2       | LAN Client                          | 110 |
| 5.5.3       | Routing Table                       | 110 |
| 5.5.4       | Logout                              | 111 |
| 5.6 He      | elp                                 | 112 |
| 6 Using the | Security Pushbutton                 | 113 |
| 6.1 Fo      | rming a HomePlug AV Logical Network | 113 |
| 6.2 Jo      | ining an AVLN Network               | 114 |
| 6.3 Le      | aving an AVLN Network               | 115 |
| Appendix A  | Troubleshooting                     | 117 |
| Appendix B  | Specifications                      | 119 |

# About the User Manual

This user manual mainly describes how to install and configure the NHP5010 PLC wireless router.

Our company reserves the right to modify this manual for product upgrade or other causes without notifying users in advance. This user manual is only for reference.

# Organization

| This user manual is | organized as follows: |
|---------------------|-----------------------|
|---------------------|-----------------------|

| Chapter                   | Description                                      |
|---------------------------|--|
| Chapter 1 Safety          | Provide safety precaution information.           |
| Precautions               |  |
| Chapter 2 Overview        | Provide a general overview of the NHP5010        |
|                           | PLC wireless router, and the packing list.       |
| Chapter 3 Hardware        | Mainly describe the hardware of the PLC          |
| Description and Device    | wireless router and the procedure for connecting |
| Connection                | the wireless router.                             |
| Chapter 4 Configuring the | Describe how to configure your PC and wireless   |
| LAN PC                    | connection.                                      |
| Chapter 5 Web             | Describe how to log in to the PLC wireless       |
| Configuration             | router and configure the parameters in the Web   |
|                           | pages.   |
| Chapter 6 Using the       | Describe how to add a device to an existing      |
| Security Pushbutton       | network or remove a device from an existing      |
|                           | network by the Security pushbutton.              |

# Features

# **PLC Features**

- Power voltage range is 100 to 240 V AC 50/60Hz.
- Support the HomePlug AV protocol and the IEEE1901 protocol.
- PLC physical link rate is up to 500Mbps.
- Support the following modulation schemes: OFDM QAM 4096/1024/256/64/16/8, QPSK, BPSK, and ROBO.
- Support 128-bit AES link encryption and user NMK authentication, for providing secure power line communication.
- Support windowed OFDM with noise mitigation based on patented line synchronization technique, for improving data integrity in noisy conditions.
- Support channel self-adaptation and channel estimation for maximizing real-time throughput.
- Support priority-based CSMA/CA channel access scheme for maximizing efficiency and throughput.
- Support four-level QoS.
- Support ToS and CoS packet classifications.
- Support IGMP multicast management session.

# **Wireless Features**

- Support IEEE802.11b, IEEE802.11g, IEEE802.11n, IEEE802.3, IEEE802.3u, IEEE802.11i and IEEE802.11e.
- Support 2T2R mode. Transmission data rate is up to 300Mbps.
- Support WEP and WPA for secure data transmission.
- Support DHCP server.
- Support version upgrade through Web page.
- Support restoring factory default settings.
- Support the following wireless security modes: WEP, WPA-PSK, WPA2-PSK, and WPA/WPA2-PSK
- Support system status display.
- Support system log.

# 1 Safety Precautions

This device is intended for connection to the AC power line. Before using this product, please read the following precautions:

- Follow all warnings and instructions marked on the product.
- Unplug the device from the wall outlet before cleaning. Use a dry cloth for cleaning. Do not use liquid cleaners or aerosol cleaners.
- Do not put this product near water.
- Do not put this product near a radiator or heat source.
- Do not use an extension cord between the device and the AC power source.
- Only a qualified technician should service this product. Opening or removing covers may result in exposure to dangerous voltage points or other risks.
- Unplug the device from the wall outlet and refer the product to qualified service personnel for the following conditions:
  - If liquid has been spilled into the product
  - If the product has been exposed to rain or water
  - If the product does not operate normally when the operating instructions are followed
  - If the product exhibits a distinct change in performance

# 2 Overview

# 2.1 Product Introduction

Thank you for purchasing the NHP5010PLC wireless router.

The NHP5010 PLC wireless router is compatible with the HomePlug AV, IEEE1901 and 802.11b/g/n protocols. It supports CCK and OFDM modulation schemes. Its PLC physical link rate is up to 500Mbps, and its wireless physical rate is up to 300Mbps in the 802.11n mode.

The NHP5010PLC wireless router supports 128-bit AES link encryption of power line communication and wireless security modes including WEP, WPA-PSK, WPA2-PSK, and WPA/WPA2-PSK, which provide secure and reliable communication for users.

# 3 Hardware Description and Device Connection

# 3.1 LED Status Description and Pushbutton Description

There are 5 LED indicators on the front panel of the PLC wireless router. By observing their status, you can check whether the device runs normally.



| LED<br>Indicator | Color  | Status  | Description                                     |
|------------------|--------|---------|---|
|                  | Green  | On      | System runs normally.                           |
|                  |        |         | System is resetting.                            |
| Power            | Green  | Blink   | System is in the process of password            |
|                  |        |         | synchronization.                                |
|                  | -      | Off     | Device is powered off or system is down.        |
|                  | Green  | On      | Connection via the LAN1 interface succeeds.     |
|                  | Create | <b></b> | Data is being transmitted via the LAN1          |
| LAN1             | Green  | BIINK   | interface.                                      |
|                  |        | Off     | No connection is established via the LAN1       |
|                  | -      |         | interface.                                      |
|                  | Create | On      | Connection via the LAN2/WAN interface           |
|                  | Green  |         | succeeds  |
|                  | Green  | Blink   | Data is being transmitted via the LAN2/WAN      |
| LANZ/WAN         |        |         | interface.                                      |
|                  | -      | Off     | No connection is established via the            |
|                  |        |         | LAN2/WAN interface.                             |
|                  | Croon  | On      | PLC transmission rate equals to or is greater   |
|                  | Green  |         | than 40Mbps.                                    |
|                  | Orange | On      | PLC transmission rate is between 20Mbps and     |
| Dete             |        |         | 40Mbps.   |
| Dala             | Red    | On      | PLC transmission rate is smaller than or equals |
|                  |        |         | to 20Mbps.                                      |
|                  |        | Off     | Device is not connected to the power line       |
|                  | -      |         | network.  |
|                  | Green  | On      | WLAN is enabled.                                |
|                  | Green  | Blink   | Wireless data is being transmitted.             |
|                  | -      | Off     | WLAN is disabled.                               |
| WLAN/WPS         | 0      | On      | WLAN is enabled and WPS connection              |
|                  | Orange |         | succeeds.                                       |
|                  | Oronge | Dlink   | WPS negotiation is in progress and wireless     |
|                  | Orange | Blink   | data is being transmitted.                      |

The following table describes the status of LED indicators on the front panel:

| Button   | Description   |  |  |  |
|----------|---|--|--|--|
|          | It is used to set the status of the device members.                 |  |  |  |
|          | • Press and hold the <b>Security</b> pushbutton for more than 10    |  |  |  |
|          | seconds to exit the current network and generate a random           |  |  |  |
| Security | password of network member.   |  |  |  |
|          | • Press and hold the <b>Security</b> pushbutton for less than 3     |  |  |  |
|          | seconds, and then the PLC wireless router becomes a                 |  |  |  |
|          | member of the existing AVLN.  |  |  |  |
| Deast    | Press the Reset pushbutton for more than 3 seconds and then         |  |  |  |
| Resel    | release it. System restores the factory default settings.           |  |  |  |
|          | It has the following functions:                                     |  |  |  |
|          | • Press the <b>WPS</b> pushbutton for less than 3 seconds to enable |  |  |  |
| WPS      | the negotiation of PBC mode.  |  |  |  |
|          | • Press the <b>WPS</b> pushbutton for more than 5 seconds to        |  |  |  |
|          | enable or disable WLAN.   |  |  |  |

The following table describes pushbuttons on the front panel:

# 3.2 Interface and Switch Description



The following table describes interfaces and switch on the PLC wireless router:

| Interface | Description  |
|-----------|--|
|           | RJ45 LAN interface, for connecting a hub, switch, or |
| LANT      | computer on a LAN.                                   |
|           | RJ45 LAN interface, for connecting a hub, switch, or |
| LANZ/WAN  | computer on a LAN.                                   |
| OFF ON    | Turn on or turn off the device.                      |

# 3.3 Hardware Installation

# 3.3.1 System Requirements

Before installing the device, please ensure that the following items are ready:

- At least one Ethernet RJ45 cable (10Base-T/100Base-T)
- One NHP5010 PLC wireless router
- One PLC device for PLC communication
- A PC that is installed with the TCP/IP protocol and can access the Internet.

# 3.3.2 Before You Begin

Before you install the device, please pay attention to the following items:

- When the device is connected to a computer, hub, router, or switch, the Ethernet cable should be shorter than 100 meters.
- Place this device on a stable surface or support. Do not put this device on the ground.
- Keep the device clean. Keep away the device from direct sunshine. Avoid any metal in the device.
- Place the device in the center of the placement area, and try to optimize the wireless coverage.

# 3.3.3 Connecting the Device

To connect the device, do as follows:

- Step 1 Connect one end of the RJ45 cable to the LAN interface of the PLC wireless router.
- Step 2 Connect the other end of the RJ45 cable to your PC.
- Step 3 Insert the power plug of the device into the wall socket directly.

# 3.4 Operation Range

The operation range of the PLC wireless router depends on the actual environment. The path and effect of signal transmission may vary with the deployment in a house or an office. In theory, the maximum PLC transmission distance can reach 300 meters. But for the practical application, the PLC transmission distance may vary due to the number of PLC devices connected to the power line network. For wireless transmission, straight transmission distance in the open air for some devices can reach 300 meters and indoor transmission distance can reach 100 meters.

# 3.5 Improving the Transmission Performance of Network

In order to improve the transmission performance of network, it is recommended that you insert the power plug of the device into the wall socket directly. Do not use the patch board.



# 4 Configuring the LAN PC

By default, the DHCP server is enabled. The LAN IP address of the PLC wireless router is **192.168.99.1** and the subnet mask is **255.255.255.0**.

## Dote:

The configuration steps and figures on Windows XP are depicted as an example. The configuration process may vary depending on operation system of your PC.

To manually set the network adapter on Windows XP system, do as follows:

Step 1 Right-click the icon of My Network Places and choose Properties from the menu. The Network Connections window appears.



Step 2 Right-click the network adapter icon and choose Properties from the menu. The Local Area Connections Properties window appears.

| S Network Connections                    |                            |         |
|--|----------------------------|---------|
| File Edit View Favorites To              | ols Advanced Help          | <b></b> |
| 🜀 Back 👻 🌍 👻 🏂                           | Search 🌮 Folders 🔛 -       |         |
| Address 🔕 Network Connections            |                            | 💌 🄁 Go  |
|  | Sroadband                  |         |
| Network Tasks 🛛 🛞                        |                            |         |
| Create a new connection                  | 200 - C                    |         |
| Set up a home or small<br>office network |                            |         |
| Change Windows<br>Firewall settings      |                            |         |
| Disable this network<br>device           | adsl                       |         |
| Repair this connection                   |                            |         |
| Rename this connection                   | LAN or High-speed Internet |         |
| View status of this<br>connection        |                            |         |
| Change settings of this                  |                            |         |
| connection                               | Disable                    |         |
|  | Repair                     |         |
| Other Places                             | Ridge Connections          |         |
| 🚱 Control Panel                          |                            |         |
| My Network Places                        | Create Shortcut            |         |
| My Documents                             | Rename                     |         |
| Vy Computer                              | Properties                 |         |
|  |                            |         |
| Details 🛞                                |                            |         |
| Local Area Connection                    | ×                          |         |

## Dote:

If multiple network cards are installed on your PC, a window other than the **Local Area Connections Properties** window may appears.

Step 3 Double-click Internet Protocol (TCP/IP) and the Internet Protocol (TCP/IP) Properties window appears.

| 🕂 Local Area Connection Properties 🛛 🔹 🛛   |  |  |  |  |
|--|--|--|--|--|
| General Advanced   |  |  |  |  |
| Connect using:   |  |  |  |  |
| Broadcom 440x 10/100 Integrated Cc   |  |  |  |  |
| This connection uses the following items:  |  |  |  |  |
| Glient for Microsoft Networks     P. Glient for Microsoft Networks     P. B QoS Packet Scheduler     P. Thternet Protocol (TCP/IP)   |  |  |  |  |
| Install Uninstall Properties   |  |  |  |  |
| Description<br>Transmission Control Protocol/Internet Protocol. The default<br>wide area network protocol that provides communication<br>across diverse interconnected networks. |  |  |  |  |
| Show icon in notification area when connected ✓ Notify me when this connection has limited or no connectivity  |  |  |  |  |
| OK Cancel  |  |  |  |  |

Step 4 Select Use the following IP address and enter the IP address of the network adapter. Set the IP address to 192.168. 99.X ('X' is a number in the range of 2 to 254) and set the subnet mask to 255.255.255.0. Configure the default gateway and IP addresses of the DNS servers according to your actual network, or leave them blank. After setting the parameters, click OK.

| ou can get IP settings assigned (<br>is capability. Otherwise, you nee<br>le appropriate IP settings. | automatically if your network suppo<br>d to ask your network administrator | rts<br>Tor |
|---|--|------------|
| O Obtain an IP address automa   | tically  |            |
| O Uge the following IP address  |  |            |
| IP address  | 192.168.99.123   |            |
| Sybnet mask:  | 255.255.255.0  |            |
| Default gateway:  | 192.168.99.1   |            |
| C Oblan DNS server address  | adocutically   |            |
| Use the following DNS serve   | r addesses   |            |
| Enferred DNS server.  | 1 4 4 M  |            |
| Alternate DNS server  |  |            |
| Beause nus server   | Adgener  |            |

Step 5 Ping the default IP address of the PLC wireless router, to check whether the current connection between your PC and the PLC wireless router is normal. Choose Start > Run from the desktop and enter ping
 192.168.99.1. See the following figure:

| Run   | ? 🛛  |
|-------|--|
|       | Type the name of a program, folder, document, or<br>Internet resource, and Windows will open it for you. |
| Open: | ping 192.168.99.1  |
|       | OK Cancel Browse   |

Dote:

**192.168.99.1** in the ping command is the default IP address of the LAN interface. If the IP address changes, enter the current IP address instead.

**Step 6** If your PC can ping through the default IP address of the PLC wireless router, the following page appears, indicating that the connection between your PC and the PLC wireless router is normal:

| C:\WINDOWS\system32\ping.exe   | - O X |
|--|-------|
| Pinging 192.168.99.1 with 32 bytes of data:<br>Reply from 192.168.99.1: byte=32 time=Ins TIL=64<br>Reply from 192.168.99.1: byte=32 time=Ins TIL=64<br>Reply from 192.168.99.1: bytes=32 time=Ins TIL=64<br>Feally from 192.168.99.1: bytes=32 time=Ins TIL=64 | -     |

# 5 Web Configuration

This chapter describes how to log in to the PLC wireless router as a super user and how to configure the parameters in the Web pages.

# 5.1 Logging In to the PLC Wireless Router

If you log in to the PLC wireless router for the first time, do as follows:

Step 1 Open the IE browser, and enter <u>http://192.168.99.1</u> in the address bar.

| LOGIN                                   |
|---|
| Welcome to Web Management               |
|   |
| Language : English 💌                    |
| Username : admin 💌                      |
| Password : ••••                         |
| Remember my login info on this computer |
| Login                                   |

Step 2 In the login page, enter the user name and password.

Dote:

- Both the default user name and password of super user are **admin**.
- Step 3 Click Login, and the following page appears.

| ///            | SETUP                 | ADVANCED                   | MAINTENANCE               | STATUS               | HELP   |
|----------------|-----------------------|----------------------------|---------------------------|----------------------|--|
| Wizard         | SETTING UP YOUR       | INTERNET                   |                           |                      | Helpful Hints                                    |
| Internet Setup | There are two ways t  | o set up vour Internet co  | nnection. You can use th  | e Web-based Internet | If you are new to                                |
| Wireless Setup | Connection Setup Wiz  | ard or you can manually o  | configure the connection. |                      | networking and nave<br>never configured a router |
| LAN Setup      |                       |                            |                           |                      | wizard" and the router                           |
| Time and Date  | INTERNET CONNEC       | CTION WIZARD               |                           |                      | by step process to<br>successfully connect you   |
| Logout         |                       | Setup                      | Wizard                    |                      | to the internet.                                 |
|                | Note: Please refer to | the Quick Install Guide, a | nd configure the router g | adually.             | More   |
|                |                       |                            |                           |                      |  |
|                |                       |                            |                           |                      |  |
|                |                       |                            |                           |                      |  |
|                |                       |                            |                           |                      |  |
|                |                       |                            |                           |                      |  |
|                |                       |                            |                           |                      |  |
|                |                       |                            |                           |                      |  |

#### Dote:

The LAN user is allowed to access the PLC wireless router by two-level user names and passwords (admin/admin and user/user).

# 5.2 Setup

# 5.2.1 Wizard

You can set the basic network parameters for accessing the Internet by following this wizard.

To configure the wizard, do as follows:

Step 1 Choose SETUP > Wizard, and the following page appears.

| //             | SETUP                 | ADVANCED                  | MAINTENANCE                | STATUS               | HELP   |
|----------------|-----------------------|---------------------------|----------------------------|----------------------|--|
| Wizard         | SETTING UP YOUR       | RINTERNET                 |                            |                      | Helpful Hints                                    |
| Internet Setup | There are two ways    | to set up your Internet o | onnection. You can use the | e Web-based Internet | If you are new to                                |
| Wireless Setup | Connection Setup W    | izard or you can manually | configure the connection.  |                      | networking and have<br>never configured a router |
| LAN Setup      |                       |                           |                            |                      | wizard" and the router                           |
| Time and Date  | INTERNET CONNE        | CTION WIZARD              |                            |                      | by step process to                               |
| Logout         |                       | Setup                     | Wizard                     |                      | to the internet.                                 |
|                | Note: Please refer to | Userup                    | nd configure the router gr | adualy.              | Hore   |

#### Dote:

When you order the broadband service, pay attention to the Internet connection type. The PLC wireless router adopts Ethternet connection. Technical parameters of Internet connection properities are provided by your Internet service provider (ISP). For example, your ISP should tell you whether the Internet connection mode is static IP or dynamic IP, and whether the protocol used for Internet communication is DHCP or PPPoE.

Step 2 Click Setup Wizard to display the following page:

| Internet.Please follow | these steps as bellow:                |
|------------------------|---------------------------------------|
|                        | Step 1 : Change Device Login Password |
|                        | Step 2 : Set Time and Date            |
|                        | • Step 3 : Setup Internet Connection  |
|                        | Step 4 : Setup Wireless Connection    |
|                        | Step 5 : Setup Wireless Security      |
|                        | Step 6 : Save and Complete            |

**Step 3** There are 6 steps for configuring the wizard. Click **Next** to display the following page:

| STEP 1: CHANGE D                     | EVICE LOGIN PASSWORD  |
|--------------------------------------|---|
| a new password. If you to next step. | sword of the router is admin. To secure your network, PLC recommends that you should choose<br>do not wish to choose a new password now, just click Skip to continue. Click Next to proceed |
| ADMIN                                |   |
|                                      | New Password :  |
|                                      | Confirm Password :  |
| USER                                 |   |
|                                      | New Password :  |
|                                      | Confirm Password :  |
|                                      | Back Next Skip Cancel   |

#### D Note:

The password of the default super user of the PLC wireless router is **admin**. In order to ensure your network security, it is recommended to change the default password.

Step 4 In this page, you can change the password of the PLC wireless router. If you do not want to change the password, click **Next** or **Skip**. After setting the new password, click **Next** to display the following page:

| :k. From this section you can set th | a time zone that you are in and set the NTP (Network Time Protocol) Server. |
|--------------------------------------|---|
| 4E SETTING                           |   |
| Enable NTP                           | V   |
| First NTP time server :              | time.windows.com 💌  |
| Second NTP time server :             | time.nist.gov 🗸   |
|                                      |   |
| Current Router Time :                | 1971/01/01 00:20:19   |
| Time Zone :                          | (GMT +08:00) Beijing, Chongqing, Hong Kong, Urumqi 🛛                        |
|                                      | Back Next Cancel  |

Step 5 In this page, you can set the Network Time Protocol (NTP) server according to your time zone. After setting the NTP server and time zone, click Next to display the following page:

| VAN SETTI | NG                    |                                    |
|-----------|-----------------------|------------------------------------|
|           | Enable WAN            |                                    |
|           | Connection Type :     |                                    |
|           | Service Type :        | Static IP PPPoE<br>PPPoE<br>Bridge |
| онср      |                       |                                    |
|           | Hostname :            |                                    |
|           | Vendor Class ID :     |                                    |
|           | MTU :                 | 1500 (64-1500)                     |
| ONS (DOM/ | AIN NAME SERVER)      |                                    |
|           | Assignment :          | Auto O Manual                      |
|           | DNS (Primary) IP :    |                                    |
|           | DNS (Secondary ) IP : |                                    |
| ORT BIND  | ING                   |                                    |
|           | LAN Port :            | LAN1 LAN2                          |
|           | WLAN Port :           | SSID1 SSID2 SSID3 SSID4            |
|           |                       |                                    |

Step 6 The PLC wireless router supports 4 types of Internet connection: DHCP, Static IP, PPPoE, and Bridge. In this page, you can select the proper Internet connection mode and configure the relevant parameters according to the actual requirements. If you are not sure of your Internet connection mode, please contact your ISP.

### (1) DHCP

If you select **DHCP**, the PLC wireless router automatically obtains the IP address, subnet mask and IP address of the gateway from the ISP. If your ISP does not provide IP network parameters, please select this mode. See the following figure:

| VAN SETT | ING                   |                         |
|----------|-----------------------|-------------------------|
|          | Enable WAN            |                         |
|          | Connection Type :     | DHCP 💌                  |
|          | Service Type :        | INTERNET V              |
| нср      |                       |                         |
|          | Hostname :            |                         |
|          | Vendor Class ID :     |                         |
|          | MTU :                 | 1500 (64-1500)          |
| NS (DOM  | IAIN NAME SERVER)     |                         |
|          | Assignment :          | Auto O Manual           |
|          | DNS (Primary) IP :    |                         |
|          | DNS (Secondary ) IP : |                         |
| ORT BIN  | DING                  |                         |
|          | LAN Port :            | LAN1 LAN2               |
|          | WLAN Port :           | SSID1 SSID2 SSID3 SSID4 |
|          |                       |                         |

# The following table describes parameters in this page:

| Field           | Description   |
|-----------------|---|
| Enable WAN      | Enable or disable the WAN connection of DHCP type.  |
| Connection Type | Select <b>DHCP</b> from the drop-down list.   |
| Service Type    | <ul> <li>INTERNET: It is mainly used for the Internet service, for example, surfing the Internet.</li> <li>TR069: It is mainly used for the TR069 service, for example, TR069 remote management.</li> <li>TR069_INTERNET: It is a mixed type, which applies to both the Internet and TR069 services.</li> </ul> |
| Hostname        | Set the host name of local computer.  |
| Vendor Class ID | Enter the vendor class ID. DHCP server assigns the IP   |

| Field                  | Description   |
|------------------------|---|
|                        | address to your router according to the vendor class ID.  |
| MTU                    | Set the maximum transmission unit (MTU). It is 1,500 bytes<br>for most Ethernet networks. But some ISPs may require<br>smaller MTUs. Do not modify the value of MTU size unless<br>it is necessary for your ISP connection. |
| Assignment             | You can manually enter the IP address of domain name server or let the DNS server automatically assign one to your router.  |
| DNS (Primary) IP       | Enter the IP address of the primary DNS server. Domain names should be resolved first by the primary DNS server.  |
| DNS (Secondary)<br>IP  | If the ISP provides another DNS server, enter its IP address<br>in this field. If the primary DNS server fails to resolve the<br>domain name, the secondary will resolve it.  |
| LAN Port               | The PLC wireless router supports 2 LAN ports, which can be bound to different interfaces.   |
| WLAN Port              | The PLC wireless router supports 4 WLAN ports, which can be bound to different interfaces.  |
| Enable VLAN<br>Tagging | If you enable VLAN tagging and the VLAN value is not '0', message will carry the VLAN ID.   |

# (2) Static IP

If your ISP provides the information of IP address, subnet mask, gateway, and DNS server, please select **Static IP**. For detailed settings, refer to your ISP.

| WAN SETTING   |                       |                         |
|---------------|-----------------------|-------------------------|
| Ena           | ble WAN               |                         |
| Cor           | nnection Type :       | Static IP 💟             |
| Ser           | vice Type :           | INTERNET V              |
| STATIC IP     |                       |                         |
| IP a          | address :             |                         |
| Sub           | onet mask :           |                         |
| Def           | ault Gateway IP :     |                         |
| МТ            | U :                   | 1500 (64-1500)          |
| DNS (DOMAIN N | AME SERVER)           |                         |
| Ass           | ignment :             | 🔿 Auto 💿 Manual         |
| DNS           | S (Primary) IP :      |                         |
| DNS           | S (Secondary ) IP :   |                         |
| PORT BINDING  |                       |                         |
| LAI           | I Port :              | LAN1 LAN2               |
| WL            | AN Port :             | SSID1 SSID2 SSID3 SSID4 |
| VLAN          |                       |                         |
|               | Fuchin VII AN Tenning |                         |

## The following table describes parameters in this page:

| Field           | Description   |
|-----------------|---|
| Enable WAN      | Enable or disable the WAN connection of static IP type.   |
| Connection Type | Select Static IP from the drop-down list.   |
| Service Type    | <ul> <li>INTERNET: It is mainly used for the Internet service, for example, surfing the Internet.</li> <li>TR069: It is mainly used for the TR069 service, for example, TR069 remote management.</li> <li>TR069_INTERNET: It is a mixed type, which applies to both the Internet and TR069 services.</li> </ul> |
| IP address      | Enter the WAN IP address provided by the ISP. Do not leave this field blank.  |

| Field              | Description  |  |
|--------------------|--|--|
|                    | Enter the WAN subnet mask provided by the ISP. It varies   |  |
| Subnet mask        | with the network types. Usually, the subnet mask is        |  |
|                    | 255.255.255.0 (Class C).                                   |  |
| Default Cateway IP | Enter the IP address of gateway provided by the ISP. This  |  |
|                    | IP address is used for connecting to the ISP.              |  |
|                    | Set the maximum transmission unit. it is 1,500 bytes for   |  |
| NATE I             | most Ethernet networks. But some ISPs may require          |  |
| WITO               | smaller MTUs. Do not modify the value of MTU size unless   |  |
|                    | it is necessary for your ISP connection.                   |  |
|                    | You can manually enter the IP address of domain name       |  |
| Assignment         | server or let the DNS server automatically assign one to   |  |
|                    | your router.   |  |
|                    | Enter the IP address of the primary DNS server. Domain     |  |
| DNS (Flinary) IF   | names should be resolved first by the primary DNS server.  |  |
| DNS (Secondary)    | If the ISP provides another DNS server, enter the IP       |  |
|                    | address of the DNS server. If the primary DNS server fails |  |
|                    | to resolve the domain name, the secondary will resolve it. |  |
|                    | The PLC wireless router supports 2 LAN ports, which can    |  |
| LANFOIL            | be bound to different interfaces.                          |  |
|                    | The PLC wireless router supports 4 WLAN ports, which can   |  |
| WLAN POIL          | be bound to different interfaces.                          |  |
| Enable VLAN        | If you enable VLAN tagging and the VLAN value is not '0',  |  |
| Tagging            | message will carry the VLAN ID.                            |  |

# (3) PPPoE

If the ISP provides the user name and password for PPPoE dialup, please select PPPoE.

| IAN SETT | TING                    |                         |
|----------|-------------------------|-------------------------|
|          | Enable WAN              | V                       |
|          | Connection Type :       | PPPoE 💌                 |
|          | Service Type :          | INTERNET                |
| РРОЕ     |                         |                         |
|          | PPPoE Account :         |                         |
|          | PPPoE Password :        |                         |
|          | Confirm Password :      |                         |
|          | Authentication Method : | AUTO 💌                  |
|          | MTU :                   | 1492 (64-1492)          |
| NS (DOM  | IAIN NAME SERVER)       |                         |
|          | Assignment :            | Auto O Manual           |
|          | DNS (Primary) IP :      |                         |
|          | DNS (Secondary ) IP :   |                         |
| ORT BIN  | DING                    |                         |
|          | LAN Port :              | LAN1 LAN2               |
|          | WLAN Port :             | SSID1 SSID2 SSID3 SSID4 |
|          |                         |                         |

The following table describes parameters in this page:

| Field           | Description   |  |
|-----------------|---|--|
| Enable WAN      | Enable or disable the WAN connection of PPPoE type.   |  |
| Connection Type | Select <b>PPPoE</b> from the drop-down list.  |  |
| Service Type    | <ul> <li>INTERNET: It is mainly used for the Internet service, for example, surfing the Internet.</li> <li>TR069: It is mainly used for the TR069 service, for example, TR069 remote management.</li> <li>TR069_INTERNET: It is a mixed type, which applies to both the Internet and TR069 services.</li> </ul> |  |

| Field                    | Description  |
|--------------------------|--|
| PPPoE Account            | Enter the user name provided by the ISP for PPPoE dialup.  |
| PPPoE Password           | Enter the password provided by the ISP for PPPoE dialup.   |
| Confirm Password         | Enter the PPPoE password again.  |
| Authentication<br>Method | You can select <b>AUTO</b> , <b>PAP</b> , <b>CHAP</b> , <b>MS-CHAP</b> , or <b>EAP</b> from the drop-down list.  |
| MTU                      | Set the maximum transmission unit. It is 1500 bytes for most<br>Ethernet networks, 1492 bytes for PPPoE connection. But<br>some ISPs may require smaller MTUs. Do not modify the<br>value of MTU size unless it is necessary for your ISP<br>connection. |
| Assignment               | You can manually enter the IP address of domain name server or let the DNS server automatically assign one to your router.   |
| DNS (Primary) IP         | Enter the IP address of the primary DNS server. Domain names should be resolved first by the primary DNS server.   |
| DNS (Secondary)<br>IP    | If the ISP provides another DNS server, enter the IP address<br>of the DNS server. If the primary DNS server fails to resolve<br>the domain name server, the secondary will resolve it.  |
| LAN Port                 | The PLC wireless router supports 2 LAN ports, which can be bound to different interfaces.  |
| WLAN Port                | The PLC wireless router supports 4 WLAN ports, which can be bound to different interfaces.   |
| Enable VLAN<br>Tagging   | If you enable VLAN tagging and the VLAN value is not '0', message will carry the VLAN ID.  |

# (4) Bridge

In the **Bridge** mode, all physical ports and wireless interfaces co-exist in the virtual interfaces.

| STEP 3: SETUP INTERNET CONNECTION<br>Use this section to configure your Internet Con-<br>contact your Internet Service Provider. | N<br>nnection type. If you are unsure of your connection method, please |  |
|--|---|--|
|  |   |  |
| Enable WAN   |   |  |
| Connection Type :  | Bridge 🗸  |  |
| Service Type :   | INTERNET 💌  |  |
| PORT BINDING   |   |  |
| LAN Port :   | LIAN1 LIAN2   |  |
| WLAN Port :  | SSID1 SSID2 SSID3 SSID4   |  |
| VLAN   |   |  |
| Enable VLAN Tagging  |   |  |
| Back Next Cancel   |   |  |

The following table describes parameters in this page:

| Description  |
|--|
| Enable or disable the WAN connection of bridge type.                                       |
| Select Bridge from the drop-down list.   |
| You can only select INTERNET.  |
| The PLC wireless router supports 2 LAN ports, which can be bound to different interfaces.  |
| The PLC wireless router supports 4 WLAN ports, which can be bound to different interfaces. |
| If you enable VLAN tagging and the VLAN value is not '0',                                  |
|  |

**Step 7** After selecting the proper Internet connection type and setting the relevant parameters, click **Next** to display the following page.

| Through this<br>Note: The w<br>parameters. | page, you can configure the SSID, bandwidth e<br>reless client configuration parameters need to b | tc.<br>e consistent with this page to modify the configuration |
|--|---|--|
| WIRELESS                                   | NETWORK SETTINGS  |  |
|  | Enable Wireless Interface   |  |
|  | Wireless Network Name (SSID) :  | Powerline  |
|  | Visibility Status :   | ⊙ Visible ○ Invisible  |
|  | Country :   | China  |
|  | 802.11 Mode :   | Mixed 802.11b/g/n 💙  |
|  | Band Width :  | 40M Upper(+)   |
|  | Window Channel  | Auto Scan(recommended) 😒                                       |

**Step 8** In this page, you can configure the wireless parameters of the PLC wireless router.

The following table describes parameters in this page:

| Field                           | Description  |  |
|---------------------------------|--|--|
| Enable Wireless<br>Interface    | Enable or disable the wireless interface.  |  |
| Wireless Network<br>Name (SSID) | The wireless network name (SSID) can contain up to 32 characters and can be letters, numerals, underlines, and any combinations of them. The SSID is case-sensitive.   |  |
| Visibility Status               | <ul> <li>If Visible is selected, the PLC wireless router broadcasts its SSID on the wireless network.</li> <li>If Invisible is selected, the PLC wireless router does not broadcast its SSID on the wireless network.</li> </ul>   |  |
| Country                         | Select the country where you are from the drop-down list.  |  |
| 802.11 Mode                     | <ul> <li>Select the appropriate wireless mode. The default is Mixed 802.11b/g/n.</li> <li>802.11b only: The maximum rate is 11Mbps.</li> <li>802.11g only: The maximum rate is 54Mbps.</li> <li>802.11n only: For 20M bandwidth, the maximum rate is 130Mbps (150Mbps for short preamble); for 40M Upper (+) or 40M Lower (-) bandwidth, the maximum rate is 270Mbps (300Mbps for short preamble)</li> </ul> |  |

| Field            | Description  |  |  |
|------------------|--|--|--|
|                  | • Mixed 802.11b/g: It is compatible with 802.11b and           |  |  |
|                  | 802.11g.   |  |  |
|                  | • Mixed 802.11n/g: It is compatible with 802.11n and           |  |  |
|                  | 802.11g.   |  |  |
|                  | • Mixed 802.11b/g/n: It is compatible with 802.11b,            |  |  |
|                  | 802.11n, and 802.11g.  |  |  |
|                  | You can set the band width only in the 802.11 mode that is     |  |  |
|                  | compatible with 802.11n. For 20M bandwidth, the maximum        |  |  |
| Band Width       | rate is 130Mbps (150Mbps for short preamble); for 40M          |  |  |
|                  | Upper (+) or 40M Lower (-) bandwidth, the maximum rate is      |  |  |
|                  | 270Mbps (300Mbps for short preamble).                          |  |  |
|                  | Select the working channel of the wireless network. The        |  |  |
| Wiroloss Channel | default is Auto Scan, which indicates that the wireless router |  |  |
|                  | automatically searches for the best channel among the          |  |  |
|                  | available channels.  |  |  |

Step 9 After setting the wireless parameters, click **Next** to display the following page.

| STEP 5: SETUP WIRELESS SECURITY<br>To protect your privacy you can configure wireless security<br>including: WEP, WPA, WPA2, WPA and WPA2 Mixed, W<br>higher level of security. | features. This device supports three wireless security modes<br>EP is the original wireless encryption standard. WPA provides a |
|---|---|
| WIRELESS SECURITY MODE  |   |
| Wireless Security Mode :  | ione  |
| Back  | VPA-PSK<br>VPA2-PSK<br>VPA2-PSK<br>JPAAVPA3-PSK   |

Step 10 In this page, you can set the wireless security modes.

The PLC wireless router provides the following 5 types of wireless security modes: None, WEP, WPA-PSK, WPA2-PSK, and WPA/WPA2-PSK.

#### (1) None

Select **None** from the drop-down list of wireless security mode to display the following page.

| STEP 5: SETUP WIRELESS SECURITY<br>To protect your privacy you can configure wireless<br>including: WEP, WPA, WPA2, WPA and WPA2 M<br>higher level of security. | security features. This device supports three wireless security modes<br>lxed. WEP is the original wireless encryption standard. WPA provides a |
|---|---|
| WIRELESS SECURITY MODE  |   |
| Wireless Security Mode :  | None  |

**None** means that data encryption is not adopted, the network is not secure, and any station can access the network. This option is not recommended.

## (2) WEP

Select **WEP** from the drop-down list of wireless security mode to display the following page.

| To protect your privacy you can configure wirele<br>ncluding: WEP、WPA、WPA2、WPA and WPA2<br>higher level of security.   | ess security features. This device supports three wireless security modes<br>Mixed. WEP is the original wireless encryption standard. WPA provides a   |
|--|--|
| WIRELESS SECURITY MODE   |  |
| Wireless Security Mode   | WEP 💌  |
| WEP  |  |
| If you choose the WEP security option this devi  | ce will ONLY operate in Legacy Wireless mode (802.11B/G).  |
| WEP is the wireless encryption standard. To use<br>stations. For 64 bit keys you must enter 10 hex<br>into each key box. A hex digit is either a numbe<br>set the authentication type to "Shared Key" wh | It you must enter the same kev(s) into the router and the wireless<br>digits into each key box. For 128 bit keys you must enter 26 hex digits<br>r form 0 to 90 ra letter from A to F. For the most secure use of WEP<br>ien WEP is enabled. |
| You may also enter any text string into a WEP k<br>the ASCII values of the characters. A maximum<br>13 characters for 128 bit keys.  | xey box, in which case it will be converted into a hexadecimal key using<br>of 5 text characters can be entered for 64 bit keys, and a maximum of  |
| WEP Key Length :   | 64 bit 💉 (length applies to all keys)  |
| Default Tx Key :   | 1 💌  |
| WEP Key Format :   | HEX (10 characters) 💌  |
| WEP Key1 :   | 6666666666   |
| WEP Key2 :   | 7777777777   |
| WEP Key3 :   | 8888888888   |
| WEP Key4 :   | 9999999999   |
|  |  |

The following table describes parameters related to the WEP mode:

| Field           | Description  |  |
|-----------------|--|--|
| WER Koy Longth  | Select the encryption length of WEP key. You can select 64     |  |
| WEP Key Length  | bit or 128 bit.  |  |
| Default Tx Key  | Select one from the four keys as the default key of the        |  |
|                 | wireless network.  |  |
|                 | • When the key format is 64 bit, you need to enter 5           |  |
| WEP Key         | ASCII characters or 10 hexadecimal digits.                     |  |
| Format          | • When the key format is <b>128 bit</b> , you need to enter 13 |  |
|                 | ASCII characters or 26 hexadecimal digits.                     |  |
| WEP Key 1/2/3/4 | Set 64-bit or 128-bit key according to the key format.         |  |
| Authentication  | Select the proper authentication mode. You can select Open     |  |
|                 | or Share Key.  |  |

# (3) WPA-PSK

Select **WPA-PSK** from the drop-down list of wireless security mode to display the following page.

| STEP 5: SETUP WIRELESS SECURITY  | STEP 5: SETUP WIRELESS SECURITY   |  |  |  |
|--|---|--|--|--|
| To protect your privacy you can configure wireless security features. This device supports three wireless security modes<br>including: WEP. WPA. WPA2. WPA and WPA2 Mixed. WEP is the original wireless encryption standard. WPA provides a<br>higher level of security.   |   |  |  |  |
| WIRELESS SECURITY MODE   |   |  |  |  |
| Wireless Security Mode :   | WPA-PSK   |  |  |  |
| WPA  |   |  |  |  |
| Use WPA or WPA2 mode to achieve a balance of strong security and best compatibility. This mode uses WPA for<br>legacy clients while maintaining higher security with stations that are WPA2 capable. Also the strongest client that the<br>client supports will be used. For best security, use WPA2 only mode. This mode uses AES(CMP) cipher and legacy<br>stations are not allowed access with WPA security. For maximum compatibility, use WPA2 Only. This mode use TKIP<br>cipher. Some gaming and legacy devices work only in this mode. |   |  |  |  |
| WPA Mode -   | WPA-Personal V  |  |  |  |
| Encryption Mode :<br>Group Key Update Interval :   | TKIP AES Both     [100     (60 - 65535)   |  |  |  |
| PRE-SHARED KEY   |   |  |  |  |
| Pre-Shared Key :   | 1234567890<br>The pre-shared key should be 8 to 63 ASCII, or 64 hexadecimal<br>numbers. |  |  |  |
|  |   |  |  |  |

The following table describes parameters related to the WPA mode:

| Field                        | Description  |
|------------------------------|--|
| WPA Mode                     | Only WPA-Personal is available.  |
| Encryption Mode              | Only <b>TKIP</b> is available.   |
| Group Key<br>Update Interval | Set the update interval of group key.  |
| Pre-shared Key               | Set the pre-shared key. The PLC wireless router uses this key to authenticate the identity of workstation. |

# (4) WPA2-PSK

Select **WPA2-PSK** from the drop-down list of wireless security mode to display the following page.

| TEP 5: SETUP WIRELESS SECURITY  |   |
|---|---|
| To protect your privacy you can configure wireless secunduding: WEP, WPA, WPA2, WPA and WPA2 Mixed higher level of security.  | urity features. This device supports three wireless security modes<br>. WEP is the original wireless encryption standard. WPA provides a  |
| WIRELESS SECURITY MODE  |   |
| Wireless Security Mode :  | WPA2-PSK  |
| WPA2  |   |
| Use WPA or WPA2 mode to achieve a balance of stro<br>legacy clents while maintaining higher security with stat<br>clent supports will be used. For best security, use WPA<br>stations are not allowed access with WPA security. For<br>cipher. Some gaming and legacy devices work only in th<br>To achieve better wireless performance use WPA2 On | ng security and best compatibility. This mode uses WPA for<br>tions that are WPA2 capable. Also the strongest cipher that the<br>A2 Only mode. This mode uses AES(CCMP) cipher and legacy<br>maximum compatibility, use WPA Only. This mode use TKIP<br>his mode.<br>Also are also as a strong and a strong and a strong and a<br>security mode (or in other words AES cipher). |
| WPA Mode :  | WPA2-Personal 💙   |
| Encryption Mode :   | ◯ TKIP  |
| Group Key Update Interval :   | 100 (60 - 65535)  |
| PRE-SHARED KEY  |   |
| Pre-Shared Key :  | 1234567890<br>The pre-shared key should be 8 to 63 ASCII, or 64 hexadecimal<br>numbers.   |
| Back  | numbers.<br>Next Cancel   |

#### The following table describes parameters related to the WPA2 mode:

| Field            | Description                           |
|------------------|---------------------------------------|
| WPA Mode         | Only WPA2-Personal is available.      |
| Encryption Mode  | Only <b>AES</b> is available.         |
| Group Key Update | Set the update interval of group key. |

| Field          | Description  |
|----------------|--|
| Interval       |  |
| Pre-shared Key | Set the pre-shared key. The PLC wireless router uses this key to authenticate the identity of workstation. |

## (5) WPA/WPA2-PSK

Select **WPA/WPA2-PSK** from the drop-down list of wireless security mode to display the following page.

| STEP 5: SETUP WIRELESS SECURITY  |   |  |  |  |
|--|---|--|--|--|
| To protect your privacy you can configure wireless security features. This device supports three wireless security modes<br>including: WEP, WPA, WPA2, WPA and WPA2 Mixed, WEP is the original wireless encryption standard. WPA provides a<br>higher level of security.   |   |  |  |  |
| WIRELESS SECURITY MODE   |   |  |  |  |
| Wireless Security Mode :   | WPA/WPA2-PSK 💌  |  |  |  |
| WPA/WP2 MIXED  |   |  |  |  |
| legacy clients while maintaining higher security with<br>client supports will be used. For best security, use<br>stations are not allowed access with WPA security,<br>cipher. Some gaming and legacy devices work only<br>To achieve better wireless performance use WPA2 | stations that are WPA2 capable. Also the strongest coher that the<br>WPA2 Only mode. This mode uses AES(CCMP) coher and legacy<br>For maximum compatbility, use WPA Only. This mode use TKIP<br>in this mode.<br>2 Only security mode (or in other words AES cipher). |  |  |  |
| WPA Mode :   | WPA/WP2 Mixed-Personal 💌  |  |  |  |
| Encryption Mode :  | ◯ TKIP ◯ AES ⑧ Both   |  |  |  |
| Group Key Update Interva   | (60 - 65535)  |  |  |  |
| PRE-SHARED KEY   |   |  |  |  |
| Pre-Shared Key :   | 1234567890<br>The pre-shared key should be 8 to 63 ASCII, or 64 hexadecimal<br>numbers.   |  |  |  |
| Bac  | k Next Cancel   |  |  |  |

#### The following table describes parameters related to the WPA/WPA2 Mixed mode:

| Field            | Description   |  |
|------------------|---|--|
| WPA Mode         | Only WPA/WPA2 Mixed-Personal is available.                |  |
| Encryption Mode  | You can only select Both. Both indicates that it is       |  |
|                  | compatible with <b>TKIP</b> or <b>AES</b> .               |  |
| Group Key Update | Set the update interval of group key.                     |  |
| Interval         |   |  |
| Pre-shared Key   | Set the pre-shared key. The PLC wireless router uses this |  |
|                  | key to authenticate the identity of workstation.          |  |
**Step 11** After selecting the proper wireless security mode and its relevant parameters, click **Next** to display the following page.

|                                 | iouny securitys.       |
|---------------------------------|------------------------|
| ETUP SUMMARY                    |                        |
| Fime Settings :                 | Enable                 |
| Protocol :                      | DHCP                   |
| Wireless Network Name (SSID) :  | Powerline              |
| Wireless Channel :              | Auto Scan(recommended) |
| 302.11 Mode : Mixed 802.11b/g/n |                        |
| Wireless Security Mode :        | None                   |

Step 12 In this page, you can view the configuration information of the PLC wireless router. If you want to modify some settings, click Back. If you want to make the settings take effect, click Complete.

#### Dote:

In any configuration page of Wizard, you can click **Back** to modify the previous settings, or click **Cancel** to exit the page.

# 5.2.2 Internet Setup

#### Choose SETUP > Internet Setup, and the following page appears.

|                | SETUP           | ADVA                 | ICED           | MAINTENANCE           | S  | TATUS  | HELP   |
|----------------|-----------------|----------------------|----------------|-----------------------|--|--------|--|
| Wizard         | WAN SETTING     | S                    |                |                       |  |        | Helpful Hints                                    |
| Internet Setup | Through the con | nection list, you ca | n see the esta | ablishment of the WAN | connectio  | n.     | When configuring the                             |
| Wireless Setup |                 |                      |                |                       |  |        | Internet, be sure to                             |
| LAN Setup      | CONNECTION      | LIST                 |                |                       |  |        | Internet Connection<br>Type.                     |
| Time and Date  | Status          | Name                 | Protocol       | Service Type          | Edit   | Delete | If you are unsure of which                       |
| Logout         | Enabled         | 1_INTERNET_R         | PPPoE          | INTERNET              | E  | 9      | option to choose and<br>having trouble accessing |
|                | Add             |                      |                |                       | the Internet through the<br>router, Please verify them<br>with your Internet<br>Service Provider (ISP)<br>if needed. |        |  |
|                | DEFAULT GAT     |                      |                |                       |  |        | More   |
|                | · ·             | Jerault Gateway      | Mode : 🙂       | Auto 💛 Manual         |  |        |  |
|                |                 | Current Default G    | ateway : No    | Default Gateway       |  |        |  |
|                |                 |                      | Apply          | Refresh               |  |        |  |
|                |                 |                      |                |                       |  |        |  |

This device supports Internet access modes. In this page, you can add multiple WAN connections and set the default gateway mode. You can manually or automatically set the default gateway mode. If you select **Manual**, you need to select a proper WAN connection from the drop-down list, except the bridge WAN connections.

Click Add to display the following page.

| ///            | SETUP                 | ADVANCED                | MAINTENANCE                 | STATUS           | HELP   |
|----------------|-----------------------|-------------------------|-----------------------------|------------------|--|
| Wizard         | WAN                   |                         |                             |                  | Helpful Hints  |
| Internet Setup | When you configure t  | he router to access the | Internet, you must select t | he appropriate   | When configuring the                                   |
| Wireless Setup | connection type so th | at the data from the LA | N port can be transmitted t | hrough the bound | Internet, be sure to                                   |
| LAN Setup      | With connection.      |                         |                             |                  | Internet Connection<br>Type.                           |
| Time and Date  | WAN SETTING           |                         |                             |                  | If you are unsure of which                             |
| Logout         | Enable WAN            |                         | <b>V</b>                    |                  | option to choose and<br>having trouble accessing       |
|                | Connection Type       | :                       | DHCP 💌                      |                  | the Internet through the<br>router, Please verify them |
|                | Service Type :        |                         | Static IP                   |                  | Service Provider (ISP)                                 |
|                |                       |                         | Bridge                      |                  | More   |
|                | DHCP                  |                         |                             |                  | THOLE  |
|                | Hostname :            |                         |                             |                  |  |
|                | Vendor Class ID       | :                       |                             |                  |  |
|                | MTU :                 |                         | 1500 (6-                    | 4-1500)          |  |
|                | DNS                   |                         |                             |                  |  |
|                | Domain Name Se        | rver Assignment :       | Auto O Manual               |                  |  |
|                | Domain Name Se        | rver (Primary) IP :     |                             |                  |  |
|                | Domain Name Se        | rver (Secondary ) IP :  |                             |                  |  |
|                | PORT BINDING          |                         |                             |                  |  |
|                | LAN Port :            |                         | LAN1 LAN2                   |                  |  |
|                | WLAN Port :           |                         | SSID1 SSID2 SSI             | D3 🔲 SSID4       |  |
|                |                       |                         |                             |                  |  |
|                | VLAN                  |                         |                             |                  |  |
|                | Enable VLA            | N Tagging               |                             |                  |  |
|                |                       | Apply                   | Cancel                      |                  |  |

The PLC wireless router supports four types of Internet connection modes. The Internet connection modes contain **DHCP**, **Static IP**, **PPPoE**, and **Bridge**. In this page, you can select the proper Internet connection mode and configure the relevant parameters according to the actual requirements.

#### (1) DHCP

If you select DHCP, the PLC wireless router automatically obtains the IP address, subnet mask, and IP address of the gateway from the ISP. If the ISP does not provide any IP network parameters, please select this mode. See the following figure:

|                | SETUP                             | ADVANCED                 | MAINTENANCE              | STATUS                 | HELP  |
|----------------|-----------------------------------|--------------------------|--------------------------|------------------------|---|
| Wizard         | WAN                               |                          |                          |                        | Helpful Hints   |
| Internet Setup | When you configure th             | e PLC router to access   | the Internet, you must   | select the appropriate | When configuring the PLC  |
| Wireless Setup | connection type so that           | at the data from the LAI | N port can be transmitte | d through the bound    | Internet, be sure to  |
| LAN Setup      |                                   |                          |                          |                        | Internet Connection   |
| Time and Date  | 💌 Enable Wan                      |                          |                          |                        | If you are unsure of which  |
| Logout         | Connection Type<br>Service Type : | :                        |                          |                        | option to choose and<br>having trouble accessing<br>the Internet through the<br>router, Please verify them<br>with your <b>Internet</b> |
|                | DHCP                              |                          |                          |                        | if needed.  |
|                | Hostname :                        |                          |                          | 1                      | More  |
|                | Vendor Class ID :                 |                          |                          |                        |   |
|                | MTU :                             |                          | 1500                     | (64-1500)              |   |
|                |                                   |                          |                          |                        |   |
|                | DNS                               |                          |                          |                        |   |
|                | Domain Name Ser                   | ver Assignment :         | € Auto C Manual          |                        |   |
|                | Domain Name Ser                   | rver (Primary) IP :      |                          |                        |   |
|                | Domain Name Ser                   | ver (Secondary ) IP :    |                          |                        |   |
|                | PORT BINDING                      |                          |                          |                        |   |
|                | LAN Port :                        |                          | LAN1 LAN2                |                        |   |
|                | WLAN Port :                       |                          |                          | SSID3 🗆 SSID4          |   |
|                |                                   |                          |                          |                        |   |
|                | VLAN                              |                          |                          |                        |   |
|                | Enable VLAN                       | l Tagging                |                          |                        |   |
|                |                                   | Apply                    | Cancel                   |                        |   |

The following table describes parameters in this page:

| Field           | Description   |  |  |
|-----------------|---|--|--|
| Enable WAN      | Enable or disable the WAN connection of DHCP type.  |  |  |
| Connection Type | Select <b>DHCP</b> from the drop-down list.   |  |  |
| Service Type    | <ul> <li>INTERNET: It is mainly used for the Internet service, for example, surfing the Internet.</li> <li>TR069: It is mainly used for the TR069 service, for example, TR069 remote management.</li> <li>TR069_INTERNET: a mixed type, which applies to both the Internet and TR069 services.</li> </ul> |  |  |
| Hostname        | Set the host name of local computer.  |  |  |

| Field               | Description  |
|---------------------|--|
| Vandar Class ID     | Enter the vendor class ID. DHCP server assigns the IP      |
| Vendor Class ID     | address to your router according to the vendor class ID.   |
|                     | Set the maximum transmission unit. It is 1500 bytes for    |
| МТП                 | most Ethernet networks. But some ISPs may require          |
| MITO                | smaller MTUs. Do not modify the value of MTU size unless   |
|                     | it is necessary for your ISP connection.                   |
| Domain Namo         | You can manually enter the IP address of domain name       |
| Sonvor Assignment   | server or let the DNS server automatically assign one to   |
| Server Assignment   | your router.   |
| Domain Name         | Enter the IP address of the primary DNS server. Domain     |
| Server (Primary) IP | names should be resolved first by the primary DNS server.  |
| Domain Name         | If the ISP provides another DNS server, enter the IP       |
| Server (Secondary)  | address of the DNS server. If the primary DNS server fails |
| IP                  | to resolve the domain name, the secondary will resolve it. |
| LAN Port            | The PLC wireless router supports 2 LAN ports, which can    |
|                     | be bound to different interfaces.                          |
| W/LAN Port          | The PLC wireless router supports 4 WLAN ports, which can   |
| WLAN FOIL           | be bound to different interfaces.                          |
| Enable VLAN         | If you enable VLAN tagging and the VLAN value is not '0',  |
| Tagging             | message will carry the VLAN ID.                            |

# (2) Static IP

If the ISP provides the information of the IP address, subnet mask, gateway, and DNS server, please select **Static IP**. For detailed settings, refer to your ISP.

| ///            | SETUP                  | ADVANCED                 | MAINTENANCE                  | STATUS          | HELP   |
|----------------|------------------------|--------------------------|------------------------------|-----------------|--|
| Wizard         | WAN                    |                          |                              |                 | Helpful Hints  |
| Internet Setup | When you configure t   | the router to access the | Internet, you must select th | e appropriate   | When configuring the                                   |
| Wireless Setup | connection type so the | nat the data from the LA | N port can be transmitted th | rough the bound | Internet, be sure to                                   |
| LAN Setup      | WAN connection.        |                          |                              |                 | Internet Connection                                    |
| Time and Date  | WAN SETTING            |                          |                              |                 | If you are unsure of which                             |
| Logout         | Enable WAN             |                          |                              |                 | option to choose and<br>having trouble accessing       |
|                | Connection Type        | e:                       | Static IP 💌                  |                 | the Internet through the<br>router, Please verify them |
|                | Service Type :         |                          | INTERNET 💌                   |                 | with your Internet<br>Service Provider (ISP)           |
|                |                        |                          |                              |                 | if needed.   |
|                | STATIC IP              |                          |                              |                 | More   |
|                | IP address :           |                          |                              |                 |  |
|                | Subnet mask :          |                          |                              |                 |  |
|                | Default Gateway        | / IP :                   |                              |                 |  |
|                | MTU :                  |                          | 1500 (64                     | -1500)          |  |
|                | DNS                    |                          |                              |                 |  |
|                | Domain Name Sc         | anvor Accignment :       | Auto 🛞 Magual                |                 |  |
|                | Domain Name Se         | erver (Primary) IP :     | Auto                         |                 |  |
|                | Domain Name Se         | erver (Secondary ) IP :  |                              |                 |  |
|                |                        |                          |                              |                 |  |
|                | PORT BINDING           |                          |                              |                 |  |
|                | LAN Port :             |                          | LAN1 LAN2                    |                 |  |
|                | WLAN Port :            |                          | SSID1 SSID2 SSID             | 3 🔲 SSID4       |  |
|                |                        |                          |                              |                 |  |
|                | VLAN                   |                          |                              |                 |  |
|                | Enable VLA             | N Tagging                |                              |                 |  |
|                |                        | Apply                    | Cancel                       |                 |  |

#### The following table describes parameters in this page:

| Field           | Description   |  |  |  |
|-----------------|---|--|--|--|
| Enable WAN      | Enable or disable the WAN connection of static IP type.   |  |  |  |
| Connection Type | Select Static IP from the drop-down list.   |  |  |  |
| Service Type    | <ul> <li>INTERNET: It is mainly used for the Internet service, for example, surfing the Internet.</li> <li>TR069: It is mainly used for the TR069 service, for example, TR069 remote management.</li> <li>TR069_INTERNET: It is a mixed type, which applies to both the Internet and TR069 services.</li> </ul> |  |  |  |

| Field               | Description  |
|---------------------|--|
| ID address          | Enter the WAN IP address provided by the ISP. It cannot be |
| IF address          | null.  |
|                     | Enter the WAN subnet mask provided by the ISP. It varies   |
| Subnet mask         | depending on the network type. Usually, the subnet mask is |
|                     | 255.255.255.0 (Class C).                                   |
| Dofault Catoway IP  | Enter the IP address of the gateway provided by the ISP.   |
| Delault Galeway IF  | This IP address is used for connecting to the ISP.         |
|                     | Set the maximum transmission unit. It is 1500 bytes for    |
| MTH                 | most Ethernet networks. But some ISPs may require          |
| WITO                | smaller MTUs. Do not modify the value of MTU size unless   |
|                     | it is necessary for your ISP connection.                   |
| Domain Name         | You can manually enter the IP address of domain name       |
| Server Assignment   | server or let the DNS server automatically assign one to   |
| Server Assignment   | your router.   |
| Domain Name         | Enter the IP address of the primary DNS server. Domain     |
| Server (Primary) IP | names should be resolved first by the primary DNS server.  |
| Domain Name         | If the ISP provides another DNS server, enter the IP       |
| Server (Secondary)  | address of the DNS server. If the primary DNS server fails |
| IP                  | to resolve the domain name, the secondary will resolve it. |
| LAN Port            | The PLC wireless router supports 2 LAN ports, which can    |
|                     | be bound to different interfaces.                          |
| W/LAN Port          | The PLC wireless router supports 4 WLAN ports, which can   |
|                     | be bound to different interfaces.                          |
| Enable VLAN         | If you enable VLAN tagging and the VLAN value is not '0',  |
| Tagging             | message will carry the VLAN ID.                            |

# (3) PPPoE

If the ISP provides the user name and password for PPPoE dialup, please select **PPPoE**.

|                | SETUP                                    | ADVANCED                | MAINTENANCE                  | STATUS                                    | HELP   |
|----------------|--|-------------------------|------------------------------|---|--|
| Wizard         | WAN                                      |                         |                              |   | Helpful Hints                                    |
| Internet Setup | When you configure t                     | he router to access the | Internet, you must select ti | he appropriate                            | When configuring the                             |
| Wireless Setup | connection type so th<br>WAN connection. | at the data from the LA | N port can be transmitted t  | hrough the bound                          | Internet, be sure to<br>choose the correct       |
| LAN Setup      |  |                         |                              |   | Internet Connection<br>Type.                     |
| Time and Date  | WAN SETTING                              |                         |                              |   | If you are unsure of which                       |
| Logout         | Enable WAN                               |                         |                              |   | option to choose and<br>having trouble accessing |
|                | Connection Type                          | :                       | PPPoE 💌                      |   | router, Please verify them                       |
|                | Service Type :                           |                         | INTERNET 💌                   |   | Service Provider (ISP)<br>if needed.             |
|                | РРРОЕ                                    |                         |                              |   | More   |
|                | PPPoE Account :                          |                         |                              |   |  |
|                | PPPoE Password                           | 1:                      |                              |   |  |
|                | Confirm Passwor                          | rd :                    |                              |   |  |
|                | Authentication I                         | Method :                | AUTO 💌                       |   |  |
|                | MTU :                                    |                         | 1492 (12                     | 28-1492)                                  |  |
|                | DNS                                      |                         |                              |   |  |
|                | Domain Name Se                           | rver Assignment :       | Auto     Manual              |   |  |
|                | Domain Name Se                           | erver (Primary) IP :    |                              |   |  |
|                | Domain Name Se                           | rver (Secondary ) IP :  |                              |   |  |
|                | DORT RINDING                             |                         |                              |   |  |
|                |  |                         |                              |   |  |
|                | LAN PORT :                               |                         |                              |   |  |
|                | WLAN POPU:                               |                         |                              | PD 100 100 100 100 100 100 100 100 100 10 |  |
|                | VLAN                                     |                         |                              |   |  |
|                | Enable VLA                               | N Tagging               |                              |   |  |
|                | L  | Apply                   | Cancel                       | ,   |  |

#### The following table describes parameters in this page:

| Field           | Description   |  |  |
|-----------------|---|--|--|
| Enable WAN      | Enable or disable the WAN connection of PPPoE type.   |  |  |
| Connection Type | Select <b>PPPoE</b> from the drop-down list.  |  |  |
| Service Type    | <ul> <li>INTERNET: it is mainly used for the Internet service, for example, surfing the Internet.</li> <li>TR069: It is mainly used for the TR069 service, for example, TR069 remote management.</li> <li>TR069_INTERNET: It is a mixed type, which applies to both the Internet and TR069 services.</li> </ul> |  |  |

| Field                                   | Description  |
|---|--|
| PPPoE Account                           | Enter the user name provided by the ISP for PPPoE dialup.  |
| PPPoE Password                          | Enter the password provided by the ISP for PPPoE dialup.   |
| Confirm Password                        | Enter the PPPoE password again.  |
| Authentication<br>Method                | You can select <b>AUTO</b> , <b>PAP</b> , <b>CHAP</b> , <b>MS-CHAP</b> , or <b>EAP</b> from the drop-down list.  |
| ΜΤυ                                     | Set the maximum transmission unit. It is 1500 bytes for<br>most Ethernet networks, 1492 bytes for PPPoE connection.<br>But some ISPs may require smaller MTUs. Do not modify<br>the value of MTU size unless it is necessary for your ISP<br>connection. |
| Domain Name<br>Server Assignment        | You can manually enter the IP address of domain name server or let the DNS server automatically assign one to your router.   |
| Domain Name<br>Server (Primary) IP      | Enter the IP address of the primary DNS server. Domain names should be resolved first by the primary DNS server.   |
| Domain Name<br>Server (Secondary)<br>IP | If the ISP provides another DNS server, enter the IP<br>address of the DNS server. If the primary DNS server fails<br>to resolve the domain name server, the secondary will<br>resolve it.   |
| LAN Port                                | The PLC wireless router supports 2 LAN ports, which can be bound to different interfaces.  |
| WLAN Port                               | The PLC wireless router supports 4 wireless WLAN ports, which can be bound to different interfaces.  |
| Enable VLAN<br>Tagging                  | If you enable VLAN tagging and the VLAN value is not '0', message will carry the VLAN ID.  |

# (4) Bridge

In the **Bridge** mode, all physical ports and wireless interfaces co-exist in the virtual interfaces.

| ///            | SETUP                 | ADVANCED                     | MAINTENANCE                 | STATUS            | HELP   |
|----------------|-----------------------|------------------------------|-----------------------------|-------------------|--|
| Wizard         | WAN                   |                              |                             |                   | Helpful Hints  |
| Internet Setup | When you configure t  | he router to access the 1    | internet, vou must select t | the appropriate   | When configuring the                                   |
| Wireless Setup | connection type so th | at the data from the LAN     | I port can be transmitted f | through the bound | router to access the<br>Internet, be sure to           |
| LAN Setup      | WAN connection.       | Internet Connection<br>Type. |                             |                   |  |
| Time and Date  | WAN SETTING           |                              |                             |                   | If you are unsure of which                             |
| Logout         | Enable WAN            |                              | V                           |                   | option to choose and<br>having trouble accessing       |
|                | Connection Type       | :                            | Bridge 💌                    |                   | the Internet through the<br>router, Please verify them |
|                | Service Type :        |                              | INTERNET 💌                  |                   | with your Internet<br>Service Provider (ISP)           |
|                |                       |                              |                             |                   | if needed.   |
|                | PORT BINDING          |                              |                             |                   | More   |
|                | LAN Port :            |                              | LAN1 LAN2                   |                   |  |
|                | WLAN Port :           |                              | SSID1 SSID2 SSI             | ID3 🔲 SSID4       |  |
|                |                       |                              |                             |                   |  |
|                | VLAN                  |                              |                             |                   |  |
|                | Enable VLA            | N Tagging                    |                             |                   |  |
|                |                       | Apply                        | Cancel                      |                   |  |

The following table describes parameters in this page:

| Field                  | Description  |  |  |
|------------------------|--|--|--|
| Enable WAN             | Enable or disable the WAN connection of bridge type.                                       |  |  |
| Connection Type        | Select Bridge from the drop-down list.   |  |  |
| Service Type           | ou can only select <b>INTERNET</b> .   |  |  |
| LAN Port               | The PLC wireless router supports 2 LAN ports, which can be bound to different interfaces.  |  |  |
| WLAN Port              | The PLC wireless router supports 4 WLAN ports, which can be bound to different interfaces. |  |  |
| Enable VLAN<br>Tagging | If you enable VLAN tagging and the VLAN value is not '0', message will carry the VLAN ID.  |  |  |

After setting the parameters, click **Apply** to save the settings.

# 5.2.3 Wireless Setup

Choose **SETUP** > **Wireless Setup**, and the following page appears.

|                | SETUP                   | ADVANCED   | MAINTENANCE                  | STATUS               | HELP   |
|----------------|-------------------------|--|------------------------------|----------------------|--|
| Wizard         | WIRELESS SETUP          |  |                              |                      | Helpful Hints                                    |
| Internet Setup | This section allows vo  | u to setup your wireless r   | network on the router dev    | ice.                 | 1. Every device in the                           |
| Wireless Setup |                         |  |                              |                      | same wireless network<br>must use the same SSID. |
| LAN Setup      | WIRELESS BASIC          |  |                              |                      | 2. To avoid wireless                             |
| Time and Date  | This setting is designe | ed to assist you in connec   | ting your wireless device to | o your router. Click | specific and different                           |
| Logout         | the button below to     | begin the basics settings.   |                              |                      | 3 Make sure security                             |
|                |                         | used by every device in<br>the same wireless network<br>is compatible with the<br>wireless AP. |                              |                      |  |
|                | WIRELESS SECUR          | ITY  |                              |                      | More   |
|                | Configure your wireles  | ss security settings.  |                              |                      |  |
|                |                         |  |                              |                      |  |
|                | WPS                     |  |                              |                      |  |
|                | Configure your WPS s    |  |                              |                      |  |
|                |                         | N  | IPS                          |                      |  |

## 5.2.3.1 Wireless Basic Settings

Choose Wirelss Setup > Wireless Basic on the left pane or click Wireless Basic in the WIRELESS SETUP page to display the following page.

|                | SETUP                    | ADVANCED   | MAINTENANCE              | STATUS | HELP  |  |  |
|----------------|--------------------------|--|--------------------------|--------|---|--|--|
| Wizard         | WIRELESS BASICS          | Helpful Hints  |                          |        |   |  |  |
| Internet Setup | Through this page, yo    | u can configure the SSID   | bandwidth etc            |        | Changing your Wireless  |  |  |
| Wireless Setup | Note: The wireless clie  | Note: The wireless client configuration parameters need to be consistent with this page to |                          |        |   |  |  |
| LAN Setup      | modify the configuration | on parameters.   |                          |        | wireless network. We<br>recommend that you                                  |  |  |
| Time and Date  |                          |  |                          |        | name that does not  |  |  |
| Logout         | WIRELESS NETWO           | RK SETTINGS  |                          |        | information.  |  |  |
|                | Enable Wireless I        | nterface   | <b>V</b>                 |        | We recommend that you<br>enable Auto Scan Channel<br>so that the router can |  |  |
|                | Wireless Network         | Name (SSID) :  | Powerline                |        | your wireless network.  |  |  |
|                | Visibility Status :      |  | ⊙ Visible ○ Invisible    |        | More  |  |  |
|                | Country :                |  | China 💙                  |        |   |  |  |
|                | 802.11 Mode :            |  | Mixed 802.11b/g/n 💌      |        |   |  |  |
|                | Band Width :             |  | 40M Upper(+) 🔽           |        |   |  |  |
|                | Wireless Channel         | :  | Auto Scan(recommended) 🔽 |        |   |  |  |
|                |                          | Apply  | Cancel                   |        |   |  |  |

In this page, you can configure the basic wireless parameters.

#### The following table describes parameters in this page:

| Field                           | Description  |  |  |  |  |
|---------------------------------|--|--|--|--|--|
| Enable Wireless<br>Interface    | Enable or disable the wireless interface.  |  |  |  |  |
| Wireless Network<br>Name (SSID) | The wireless network name (SSID) can contain up to 32 characters and can be letters, numerals, underlines, and any combinations of them. The SSID is case-sensitive.   |  |  |  |  |
| Visibility Status               | <ul> <li>If Visible is selected, the PLC wireless router broadcasts its SSID on the wireless network.</li> <li>If Invisible is selected, the PLC wireless router does not broadcast its SSID on the wireless network.</li> </ul>   |  |  |  |  |
| Country                         | Select the country where you are from the drop-down list.  |  |  |  |  |
| 802.11 Mode                     | <ul> <li>Select the appropriate wireless mode. The default is Mixed 802.11b/g/n.</li> <li>802.11b only: The maximum rate is 11Mbps.</li> <li>802.11g only: The maximum rate is 54Mbps.</li> <li>802.11n only: For 20M bandwidth, the maximum rate is 130Mbps (150Mbps for short preamble); for 40M Upper (+) or 40M Lower (-) bandwidth, the maximum rate is 270Mbps (300Mbps for short preamble).</li> <li>Mixed 802.11b/g: It is compatible with 802.11b and 802.11g.</li> <li>Mixed 802.11b/g/n: It is compatible with 802.11n and 802.11g.</li> <li>Mixed 802.11b/g/n: It is compatible with 802.11b, 802.11n, and 802.11g.</li> </ul> |  |  |  |  |
| Band Width                      | Only in the 802.11 mode that is compatible with 802.11n, can<br>you set the band width. For <b>20M</b> bandwidth, the maximum<br>rate is 130Mbps (150Mbps for short preamble); for <b>40M</b><br><b>Upper (+)</b> or <b>40M Lower (-)</b> bandwidth, the maximum rate is<br>270Mbps (300Mbps for short preamble).  |  |  |  |  |
| Wireless Channel                | Select the working channel of the wireless network. The default is <b>Auto Scan</b> , which indicates that the PLC wireless router automatically searches for the best channel among the available channels.   |  |  |  |  |

After setting the parameters, click Apply to save the settings.

## 5.2.3.2 Wireless Security Settings

Choose Wirelss Setup > Wireless Security on the left pane or click Wireless Security in the WIRELESS SETUP page to display the following page.

|                | SETUP                    | ADVANCED  | MAINTENANCE                         | STATUS             | HELP   |  |  |  |
|----------------|--------------------------|---|-------------------------------------|--------------------|--|--|--|--|
| Wizard         | WIRELESS SECURI          | тү  |                                     |                    | Helpful Hints                                  |  |  |  |
| Internet Setup | To protect your privac   | v vou can configure wirek   | ess security features. Th           | is device supports | If you have enabled                            |  |  |  |
| Wireless Setup | three wireless security  | Wireless Security, make<br>sure you write down WEP                                  |                                     |                    |  |  |  |  |
| LAN Setup      | che original wireless en | the original wireless encryption standard. WPA provides a higher level of security. |                                     |                    |  |  |  |  |
| Time and Date  | WIRELESS SECURI          | TY MODE   |                                     |                    | information on any<br>wireless device that you |  |  |  |
| Logout         | Wireless S               | Security Mode :   | None                                |                    | connect to your wireless<br>network.           |  |  |  |
|                |                          |   | None<br>WEP                         |                    | More   |  |  |  |
|                |                          | Apply   | WPA-PSK<br>WPA2-PSK<br>WPA/WPA2-PSK |                    |  |  |  |  |
|                |                          |   |                                     |                    |  |  |  |  |
|                |                          |   |                                     |                    |  |  |  |  |
|                |                          |   |                                     |                    |  |  |  |  |
|                |                          |   |                                     |                    |  |  |  |  |
|                |                          |   |                                     |                    |  |  |  |  |
|                |                          |   |                                     |                    |  |  |  |  |

Wireless security settings are very important in protecting the wireless base stations on your network and wireless communication between your router and wireless network. The PLC wireless router provides 5 types of wireless security modes, which contain None, WEP, WPA-PSK, WPA2-PSK, and WPA/WPA2-PSK. (1) None

Select **None** from the drop-down list of wireless security mode to display the following page.

| //             | SETUP                   | ADVANCED   | MAINTENANCE                  | STATUS          | HELP  |
|----------------|-------------------------|--|------------------------------|-----------------|---|
| Wizard         | WIRELESS SECUR          | ΙΤΥ  |                              |                 | Helpful Hints                                       |
| Internet Setup | To protect your privat  | v vou can configure wire                           | ess security features. This  | device supports | If you have enabled                                 |
| Wireless Setup | three wireless security | Wireless Security, make<br>sure you write down WEP |                              |                 |   |
| LAN Setup      | the original wreless er | ICTYPCION SCANDARD, WPA                            | provides a higher lever of s | econcy.         | you have configured. You<br>will need to enter this |
| Time and Date  | WIRELESS SECUR          | ITY MODE   |                              |                 | information on any<br>wireless device that you      |
| Logout         | Wireless                | Security Mode :                                    | None                         |                 | connect to your wireless<br>network.                |
|                |                         | ,,   | ,                            |                 | More  |
|                |                         | Apply  | Cancel                       |                 |   |

**None** means data encryption is not adopted and the network is not secure. Any station can access the network. This option is not recommended.

# (2) WEP

Select **WEP** from the drop-down list of wireless security mode to display the following page.

| ///            | SETUP   | ADVANCED  | MAINTENANCE  | STATUS   | HELP   |  |  |
|----------------|---|---|--|--|--|--|--|
| Wizard         | WIRELESS SECUR  | WIRELESS SECURITY   |  |  |  |  |  |
| Internet Setup | To protect your privat  | y you can configure wire  | eless security features. This  | device supports  | If you have enabled                                |  |  |
| Wireless Setup | three wireless security   | modes including: WEP.   | WPA, WPA2, WPA and V   | WPA2 Mixed. WEP is   | Wireless Security, make<br>sure you write down WEP |  |  |
| LAN Setup      | cite original wireless er   | ecuricy.  | you have configured. You<br>will need to enter this                                      |  |  |  |  |
| Time and Date  | WIRELESS SECUR  | ITY MODE  |  |  | information on any<br>wireless device that you     |  |  |
| Logout         | Wireless  | Security Mode :   | WEP 💌  |  | connect to your wireless<br>network.               |  |  |
|                | WEP   |   |  |  | Hore   |  |  |
|                | If you choose the WE<br>mode (802.11B/G).   |   |  |  |  |  |  |
|                | WEP is the wireless er<br>router and the wireles<br>box. For 128 bit keys<br>number from 0 to 9 o<br>authentication type to |   |  |  |  |  |  |
|                | You may also enter ar<br>a hexadecimal key usir<br>can be entered for 64  | iy text string into a WEP<br>ig the ASCII values of th<br>bit keys, and a maximur | key box, in which case it w<br>e characters. A maximum o<br>m of 13 characters for 128 l | vil be converted into<br>of 5 text characters<br>bit keys. |  |  |  |
|                | WEP Key   | Length :  | 64 bit 🔽 (length applies to  | o all keys )   |  |  |  |
|                | Default T   | x Key :   | 1 🗸  |  |  |  |  |
|                | WEP Key   | Format :  | HEX (10 characters) 💙  |  |  |  |  |
|                | WEP Key   | 1:  | 6666666666   |  |  |  |  |
|                | WEP Key   | 2:  | 7777777777   |  |  |  |  |
|                | WEP Key:  | 3:  | 8888888888   |  |  |  |  |
|                | WEP Key   | 4:  | 9999999999   |  |  |  |  |
|                | Authenti  | cation :  | Open 💌   |  |  |  |  |
|                |   | Apply   | Cancel   |  |  |  |  |

# The following table describes parameters related to the WEP mode:

| Field           | Description   |  |  |  |  |
|-----------------|---|--|--|--|--|
| WER Koy Longth  | Select the encryption length of WEP key. You can select 64        |  |  |  |  |
| WEF Key Lengin  | bit or 128 bit.   |  |  |  |  |
| Default Ty Kay  | Select one from the four keys as the default key of the           |  |  |  |  |
| Delault TX Key  | wireless network.   |  |  |  |  |
|                 | • When the key format is 64 bit, you need to enter 5              |  |  |  |  |
| WEP Key         | ASCII characters or 10 hexadecimal digits.                        |  |  |  |  |
| Format          | • When the key format is <b>128 bit</b> , you need to enter 13    |  |  |  |  |
|                 | ASCII characters or 26 hexadecimal digits.                        |  |  |  |  |
| WEP Key 1/2/3/4 | Set 64-bit or 128-bit key according to the key format.            |  |  |  |  |
| Authoritication | Select the proper authentication mode. You can select <b>Open</b> |  |  |  |  |
| Authentication  | or Share Key.   |  |  |  |  |

# (3) WPA-PSK

Select **WPA-PSK** from the drop-down list of wireless security mode to display the following page.

| ///            | SETUP  | ADVANCED                   | MAINTENANCE  | STATUS                 | HELP   |
|----------------|--|----------------------------|--|------------------------|--|
| Wizard         | WIRELESS SECURI  | (ТУ                        |  |                        | Helpful Hints                                  |
| Internet Setup | To protect your privac   | v vou can configure wirele | ess security features. Thi                           | is device supports     | If you have enabled                            |
| Wireless Setup | three wireless security  | WPA2 Mixed. WEP is         | Wireless Security, make<br>sure you write down WEP   |                        |  |
| LAN Setup      | the original wireless en   | ICTYPTION Standard, WPA p  | provides a higher level or                           | security.              | you have configured. You                       |
| Time and Date  | WIRELESS SECURI  | ITY MODE                   |  |                        | information on any<br>wireless device that you |
| Logout         | Wireless S   | Security Mode :            | WPA-PSK  |                        | connect to your wireless<br>network.           |
|                |  |                            |  |                        | More   |
|                | WPA  |                            |  |                        |  |
|                | Use WPA or WPA2 m<br>mode uses WPA for le<br>WPA2 capable. Also th<br>security, use WPA2 O<br>allowed access with W<br>TKIP cipher. Some gar<br>To achieve better wire<br>cipher). |                            |  |                        |  |
|                | WPA Mod  | le:                        | WPA-Personal 💌                                       |                        |  |
|                | Encryptio  | n Mode :                   | ● TKIP ○ AES ○ Both                                  |                        |  |
|                | Group Key  | y Update Interval :        | 100 (  | (60 - 65535)           |  |
|                | PRE-SHARED KEY   |                            |  |                        |  |
|                | Pre-Share  | ed Key :                   | 1234567890   |                        |  |
|                |  | T<br>F                     | The pre-shared key should be<br>nexadecimal numbers. | e 8 to 63 ASCII, or 64 |  |
|                |  | Apply                      | Cancel   |                        |  |

#### The following table describes parameters related to the WPA mode:

| Field           | Description   |  |  |
|-----------------|---|--|--|
| WPA Mode        | Only WPA-Personal is available.                           |  |  |
| Encryption Mode | Only <b>TKIP</b> is available.                            |  |  |
| Group Key       | Cat the undate interval of group lieu                     |  |  |
| Update Interval | Set the update interval of group key.                     |  |  |
| Dra abarad Kay  | Set the pre-shared key. The PLC wireless router uses this |  |  |
| Pre-snared Key  | key to authenticate the identity of workstation.          |  |  |

# (4) WPA2-PSK

# Select **WPA2-PSK** from the drop-down list of wireless security mode to display the following page.

|                | SETUP  | ADVANCED  | MAINTENANCE  | STATUS   | HELP   |  |  |  |  |
|----------------|--|---|--|--|--|--|--|--|--|
| Wizard         | WIRELESS SECUR   | Helpful Hints   |  |  |  |  |  |  |  |
| Internet Setup | To protect your privat   | If you have enabled   |  |  |  |  |  |  |  |
| Wireless Setup | three wireless security  | sure you write down WEF   |  |  |  |  |  |  |  |
| LAN Setup      | che original wireless ei   | you have configured. You  |  |  |  |  |  |  |  |
| Time and Date  | WIRELESS SECUR   | ITY MODE  |  |  | information on any<br>wireless device that you |  |  |  |  |
| Logout         | Wireless   | Wireless Security Mode : WPA2-PSK V   |  |  |  |  |  |  |  |
|                | WPA2   |   |  |  | More   |  |  |  |  |
|                | Use WPA or WPA2 r<br>mode uses WPA for le<br>WPA2 capable. Also ti<br>security, use WPA2 c<br>allowed access with W<br>TKIP cipher. Some ga<br>To achieve better wir<br>cipher).<br>WPA Moo<br>Encryptic<br>Group Ke | node to achieve a balance<br>gacy clients while manb<br>e strongest clients while manb<br>hy mode. This mode u<br>(PA security: For maximu<br>ming and legacy devices<br>eless performance use W<br>de :<br>n Mode :<br>y Update Interval : | te of strong security and be<br>aning higher security with s<br>the client supports will be<br>ses AES(CCIMP) cipher and i<br>mic compatibility, use <b>WPA</b> work<br>only in this mode.<br><b>(WPA2-Personal ♥</b><br>(TKIP ● AES Both<br>100 (6) | est compatibility. This<br>trations that are<br>used. For best<br>legacy stations are not<br><b>Only</b> . This mode use<br>for in other words AES<br>to -65535) |  |  |  |  |  |
|                | PRE-SHARED KEY   |   |  |  |  |  |  |  |  |
|                | Pre-Shar   | ed Key :  | 1234567890<br>The pre-shared key should be<br>hexadecimal numbers.   | 8 to 63 ASCII, or 64   |  |  |  |  |  |
|                |  | Apply   | Cancel   |  |  |  |  |  |  |

# The following table describes parameters related to the WPA2 mode:

| Field           | Description   |
|-----------------|---|
| WPA Mode        | Only WPA2-Personal is available.                          |
| Encryption Mode | Only <b>AES</b> is available.                             |
| Group Key       | Set the undete interval of group key                      |
| Update Interval | Set the update interval of group key.                     |
| Due shound Key  | Set the pre-shared key. The PLC wireless router uses this |
| Pre-snared Key  | key to authenticate the identity of workstation.          |

#### (5) WPA/WPA2-PSK

Select **WPA/WPA2-PSK** from the drop-down list of wireless security mode to display the following page.

|                | SETUP   | ADVANCED  | MAINTENANCE   | STATUS   | HELP   |
|----------------|---|---|---|--|--|
| Wizard         | WIRELESS SECURITY   |   |   | Helpful Hints  |  |
| Internet Setup | To protect your priva   | cy you can configure wire   | eless security features. This   | s device supports  | If you have enabled                            |
| Wireless Setup | three wireless securit  | y modes including: WEP.   | WPA、WPA2、WPA and  | WPA2 Mixed. WEP is   | sure you write down WEP                        |
| LAN Setup      | che original wreless e  | neryption standard, wea   | provides a higher lever of a  | security.  | you have configured. You                       |
| Time and Date  | WIRELESS SECUR  | ITY MODE  |   |  | information on any<br>wireless device that you |
| Logout         | Wireless  | Security Mode :   | WPA/WPA2-PSK  |  | connect to your wireless<br>network.           |
|                | WPA/WPA2MIX   |   |   |  |  |
|                | Use WPA or WPA2 for<br>mode uses WPA for<br>WPA2 capable. Also t<br>security, use WPA2<br>allowed access with V<br>TKIP cipher. Some ga<br>To achieve better will<br>cipher). | mode to achieve a balance<br>gacy clients while maint;<br>he strongest cipher that<br><b>Dnly</b> mode. This mode u<br>VPA security. For maximu<br>ming and legacy devices<br>reless performance use <b>W</b> | te of strong security and by<br>aning higher security with<br>the client supports will be<br>see AES(CCMP) clipher and<br>im compatibility, use <b>WPA</b><br>work only in this mode.<br>/ <b>IPA2 Only</b> security mode | est compatibility. This<br>stations that are<br>used. For best<br>legacy stations are not<br><b>Only</b> . This mode use<br>(or in other words AES |  |
|                | WPA Mo  | de :  | WPA/WPA2 Mixed-Personal   | ~  |  |
|                | Encryptic   | on Mode :   | ◯ TKIP ◯ AES  |  |  |
|                | Group Ke  | ey Update Interval :  | 100 (   | 60 - 65535)  |  |
|                | PRE-SHARED KEY  | ,   |   |  |  |
|                | Pre-Shar  | ed Key :  | 1234567890<br>The pre-shared key should be<br>becadecimal numbers.  | e 8 to 63 ASCII, or 64   |  |
|                |   | Apply   | Cancel  |  |  |

#### The following table describes parameters related to the WPA/WPA2 Mixed mode:

| Field           | Description   |
|-----------------|---|
| WPA Mode        | Only WPA/WPA2 Mixed-Personal is available.                |
| Enoruption Mode | You can only select Both. Both indicates that it is       |
| Encryption wode | compatible with <b>TKIP</b> or <b>AES</b> .               |
| Group Key       | Cat the undate interval of group lieur                    |
| Update Interval | Set the update interval of group key.                     |
| Pre-shared Key  | Set the pre-shared key. The PLC wireless router uses this |
|                 | key to authenticate the identity of workstation.          |

After setting the parameters, click **Apply** to save the settings.

## 5.2.3.3 WPS Settings

WPS refers to Wi-Fi Protected Setup. You can use the WPS setup function to add a wireless client to a network, without setting some specific parameters, such as

SSID, security mode, and password. To use this function, a wireless client must support WPS. If the wireless client does not support WPS, you must manually configure the wireless settings of wireless client, and ensure that its SSID and other wireless security settings are the same as that of the PLC wireless router. Choose **Wirelss Setup** > **WPS** on the left pane or click **WPS** in the **WIRELESS** 

| SETUP | page to | display t | he following | page |
|-------|---------|-----------|--------------|------|
|       |         |           |              |      |

|                | SETUP                  | ADVANCED   | MAINTENANCE             | STATUS     | HELP  |
|----------------|------------------------|--|-------------------------|------------|---|
| Wizard         | WPS                    |  |                         |            | Helpful Hints                                     |
| Internet Setup | Enable the wireless fu | nction the WPS condition                             | on must be WPA-PSK or W | PA2-PSK or | The WPS condition must                            |
| Wireless Setup | WPA/WPA2-PSK secu      | rity mode , and the SSID                             | should be broadcasted.  |            | be WPA-PSK or WPA2-PSK<br>security mode , and the |
| LAN Setup      |                        |  |                         |            | broadcasted.                                      |
| Time and Date  | WPS                    |  |                         |            | More  |
| Logout         | Wire                   | less SSID :  | Powerline 💌             |            |   |
|                | WPA                    | Mode :   | WPA2 Mixed-PSK          |            |   |
|                | WPS CONFIG             |  |                         |            |   |
|                | Enal                   | oled WPS   | V                       |            |   |
|                | Pusi<br>Inpu<br>WPS    | n Button :<br>It Station PIN :<br>5 Session Status : | PBC                     | PIN        |   |
|                |                        | Apply  | Cancel                  |            |   |

The following table describes parameters in this page:

| Field              | Description  |
|--------------------|--|
| Wireless SSID      | Select a wireless SSID from the drop-down list.            |
| WPA Mode           | Display current WPA mode.                                  |
| Enabled WPS        | Enable or disable WPS.                                     |
|                    | Click the <b>PBC</b> button in this page, and then click   |
|                    | the <b>PBC</b> button in the configuration utility page of |
| Push Button        | wireless network card or press the WPS                     |
|                    | pushbutton on the wireless network card within 2           |
|                    | minutes to finish WPS configuration.                       |
| Innut Otation DIN  | Enter the PIN code that is generated randomly by           |
| Input Station PIN  | the configuration utility of wireless card.                |
| WPS Session Status | Display current WPS connection status.                     |

# Caution:

If you want to use WPS, you must select the WPA-PSK, WPA2-PSK or WPA/WPA2-PSK mode and the SSID must be broadcasted.

WPS modes contain PBC mode and PIN mode.

# PBC Mode

Click the **PBC** button in the WPS page or press the **WPS** button on the PLC wireless router to start WPS connection.

| Push Button :        | PBC   |
|----------------------|---|
| Input Station PIN :  | PIN   |
| WPS Session Status : | WPS session in progress ==> Inprogress          |
|                      | WPS is connecting ,please wait for a moment [ ] |

Press the **WPS** button on the network card or click the **PBC** button in the configuration utility page of network card within two minutes to start WPS connection. After WPS connection is established, the following page appears. The client can now visit the LAN.

| Push Button :        | PBC                                 |
|----------------------|-------------------------------------|
| Input Station PIN :  | PIN                                 |
| WPS Session Status : | Add new device success! ==> Success |

## • PIN Mode

Enter the PIN of the network card in the WPS page (refer to the client of the network card), and then click **PIN** to start WPS connection. The following page appears:

| Push Button :        | PBC                   |                              |
|----------------------|-----------------------|------------------------------|
| Input Station PIN :  | 28388654              | PIN                          |
| WPS Session Status : | WPS session in pr     | ogress ==> Inprogress        |
|                      | WPS is connecting [ ] | g ,please wait for a moment. |

Click the **PIN** button in the configuration utility page of network card within two minutes to start WPS connection. After WPS connection is established, the following page appears. The client can now visit the LAN.

Push Button : Input Station PIN : WPS Session Status :

| PBC      |     |
|----------|-----|
| 28388654 | PIN |
|          |     |

Add new device success! ==> Success

# 5.2.4 LAN Setup

Choose **SETUP** > **LAN Setup**, and the following page appears.

|                | SETUP                    | ADVANCED                            | MAINTENANCE               | STATUS                | HELP  |
|----------------|--------------------------|-------------------------------------|---------------------------|-----------------------|---|
| Wizard         | LAN SETTINGS             |                                     |                           |                       | Helpful Hints   |
| Internet Setup | This section allows you  | to configure the LAN Se             | tup settings of your ro   | uter Blasse note that | The IP address of your  |
| Wireless Setup | this section is optional | and you should not need             | to change any of the      | settings here to get  | router is the same IP<br>address you will use to                                  |
| LAN Setup      | Note: Generally you d    | unning.<br>5 pot peed to modify the | default configuration of  | of this page          | management interface of   |
| Time and Date  | Note: Generally, you u   | o noc need to modify the            | r default configuration t | or chis page.         | already have a DHCP   |
| Logout         | ROUTER SETTING           |                                     |                           |                       | are using static IP<br>addresses on all the                                       |
|                | Router IP Addres         | is :                                | 192.168.1.1               |                       | devices on your network,<br>dick on <b>Disable DHCP</b><br>Server to disable this |
|                | Subnet Mask :            |                                     | 255.255.255.0             |                       | reature.  |
|                | Enable Gateway           | solate :                            |                           |                       | More  |
|                | DHCP SERVER              |                                     |                           |                       |   |
|                | Enable DHCP Ser          | ver                                 | ✓                         |                       |   |
|                | IP Pool Starting         | Address :                           | 192 . 168 . 1             | . 2                   |   |
|                | IP Pool Ending A         | ddress :                            | 192 . 168 . 1             | . 100                 |   |
|                | IP Pool Subnet n         | ask: 2                              | 55.255.255.0              |                       |   |
|                | DHCP Lease Time          | : [                                 | 24                        | ( 1 - 160 hours)      |   |
|                | Domain Name Se           | ver Assignment :                    | 🖲 Auto 🛛 🔘 Manual         |                       |   |
|                | Domain Name Se           | rver (Primary) IP :                 |                           |                       |   |
|                | Domain Name Se           | ver (Secondary) IP :                |                           |                       |   |
|                |                          | Apply                               | Cancel                    |                       |   |

In this page, you can configure the LAN settings of the PLC wireless router. You can modify the IP address of the LAN interface according to the actual network environment. The default IP address is **192.168.99.1**. Please note that this is an optional operation. Usually, you need not to modify the default settings in this page. You may use the default settings and DHCP service to manage the IP setting of the private network. The IP address of your host is from the DHCP address pool. If you want to enable the DHCP function of the PLC wireless router on the LAN, the network segment of DHCP IP pool of PLC wireless router must be the same as that of the IP address of your host. If the IP network segment of the PLC wireless router changes, the network segment of the DHCP IP pool will also change automatically.

| Field             | Description  |  |  |
|-------------------|--|--|--|
| Router IP Address | Set the IP address that a LAN user uses to access the router. The default IP is <b>192.168.99.1</b> . You can change it if |  |  |
|                   | necessary.   |  |  |
| Subnet Mask       | Subnet mask of the LAN interface. You can enter a different  |  |  |
|                   | subnet mask according to the actual network environment.   |  |  |
| Enable Gateway    | After the gateway isolation is enabled, PCs on the LAN side  |  |  |
| Isolate           | cannot communicate with each other directly among  |  |  |
| 1301010           | different gateways.  |  |  |
| Enable DHCP       | Enable or disable the DHCP server  |  |  |
| Server            |  |  |  |
| IP Pool Starting  | The first address in a consecutive IP address peel   |  |  |
| Address           | The first address in a consecutive in address pool.  |  |  |
| IP Pool Ending    | The last address in a consecutive IP address pool  |  |  |
| Address           | The last address in a consecutive in address pool.   |  |  |
| IP Pool Subnet    | The subnet mask of the IP pool is the same as that of the  |  |  |
| Mask              | PLC wireless router.   |  |  |
|                   | After the DHCP lease time is over, the PLC wireless router   |  |  |
| DHCP Lease Time   | automatically assigns new IP addresses for all connected   |  |  |
|                   | computers.   |  |  |
| Domain Name       | You can manually enter the IP address of domain name   |  |  |
| Server Assignment | server or let the DNS server automatically assign one to   |  |  |

The following table describes parameters in this page:

| Fiel                | d    | Description   |
|---------------------|------|---|
|                     |      | your router.  |
| Domain N            | lame | Enter the IP address of the primary DNS server. Domain    |
| Server (Primary) IP |      | names should be resolved first by the primary DNS server. |
| Domain N            | ame  | If the ISP provides another DNS server, enter the IP      |
| Server (Secondary)  |      | address of DNS server. If the primary DNS server fails to |
| IP                  |      | resolve the domain name, the secondary will resolve it.   |

After setting the parameters, click **Apply** to save the settings.

# 5.2.5 Time and Date

Choose SETUP > Time and Date, and the following page appears.

|                | SETUP                  | ADVANCED  | MAINTENANCE                  | STATUS                | HELP                |  |  |  |
|----------------|------------------------|---|------------------------------|-----------------------|---------------------|--|--|--|
| Wizard         | TIME AND DATE          |   |                              |                       | Helpful Hints       |  |  |  |
| Internet Setup | The Time Configuration | n option allows you to co   | nfigure, update, and main    | tain the correct time | Good timekeeping is |  |  |  |
| Wireless Setup | on the internal system | on the internal system clock. From this section you can set the time zone that you are in and |                              |                       |                     |  |  |  |
| LAN Setup      | set the MTP (Network   | Time Prococoly Server.  |                              |                       | More                |  |  |  |
| Time and Date  | TIME SETTING           |   |                              |                       |                     |  |  |  |
| Logout         | Enable NTP             |   | <                            |                       |                     |  |  |  |
|                | First NTP time ser     | rver :  | time.windows.com 💌           |                       |                     |  |  |  |
|                | Second NTP time        | server :  | time.nist.gov 💌              |                       |                     |  |  |  |
|                |                        |   |                              |                       |                     |  |  |  |
|                | TIME CONFIGURAT        | ION   |                              |                       |                     |  |  |  |
|                | Current Router T       | Current Router Time: 1971/01/01:50:40   |                              |                       |                     |  |  |  |
|                | Time Zone :            | (GMT+08:00) Beiji   | ng, Chongqing, Hong Kong, Ur | rumqi 💌               |                     |  |  |  |
|                |                        | Apply   | Cancel                       |                       |                     |  |  |  |

In this page, you can set the Network Time Protocol (NTP) server and your local time zone, for updating and maintaining the router time.

After enabling the Internet time servers, select the proper time servers and your local time zone, and then click **Apply** to save the settings.

When the PLC wireless router connects to the Internet, the router time will synchronize with the time of selected time zone.

# 5.2.6 Logout

Choose **SETUP** > **Logout** to log out of the Web configuration page.

# 5.3 Advanced Settings

# 5.3.1 DoS Protection

Denial-of-Service attack (DoS attack) is one of most common network attack types. DoS attack is one type of external attacks launched by hackers, and it is usually used to prevent the legal users from enjoying the service. The way of common attack is to make the system server overload or let system crash.

Choose **ADVANCED** > **DoS Protection** on the left pane to display the following page.

|                   | SETUP                   | ADVANCED                 | MAINTENANCE                 | STATUS         | HELP   |
|-------------------|-------------------------|--------------------------|-----------------------------|----------------|--|
| DoS Protection    | DOS PROTECTION          |                          |                             |                | Helpful Hints  |
| Access Control    | This allows you to pre- | vent vour router from De | nial of Service (DoS) attac | ks. DoS can be | As a sub-functionality of  |
| Advanced Wireless | checked based on you    | ir specific need.        |                             |                | IP Filter/Firewall, there<br>are 9 types of detect/<br>defense function in the |
| Advanced Network  |                         |                          |                             |                | DoS Defense setup. The<br>DoS Defense functionality                            |
| PLC Setting       | ENABLE DOS              |                          |                             |                | is disabled for default.   |
| Logout            | Enable /                | Attack Prevent           |                             |                | More   |
|                   |                         | (Apply)                  | Cancel                      |                |  |

Check Enable Attack Prevent, and the following page appears.

|                   | SETUP                  | ADVANCED                | М            | AINTENANC     | E          | STATUS     | HELP  |
|-------------------|------------------------|-------------------------|--------------|---------------|------------|------------|---|
| DoS Protection    | DOS PROTECTION         |                         |              |               |            |            | Helpful Hints                                       |
| Access Control    | This allows you to pre | vent your router from F | enial of     | Service (DoS) | attacks. I | oos can be | As a sub-functionality of                           |
| Advanced Wireless | checked based on you   | ir specific need.       |              |               |            |            | IP Filter/Firewall, there<br>are 9 types of detect/ |
| Advanced Network  |                        |                         |              |               |            |            | DoS Defense setup. The                              |
| PLC Setting       | ENABLE DOS             |                         |              |               |            |            | is disabled for default.                            |
| Logout            | Enable                 | Attack Prevent          | <b>V</b>     |               |            |            | More  |
|                   | DOS CONFIGURAT         | ION                     |              |               |            |            |   |
|                   | Icmp Ec                | ho                      |              |               |            |            |   |
|                   | Fraggle                |                         |              |               |            |            |   |
|                   | Echo Ch                | largen                  |              |               |            |            |   |
|                   | IP Land                |                         | <b>V</b>     |               |            |            |   |
|                   | Port Sc                | an                      | <b>V</b>     |               |            |            |   |
|                   | TCP Flag               | js: Set "SYN FIN"       | <b>V</b>     |               |            |            |   |
|                   | TCP Flag               | js: Set "SYN RST"       | <b>V</b>     |               |            |            |   |
|                   | TCP Flag               | js: Set "FIN RST"       | $\checkmark$ |               |            |            |   |
|                   | TCP Do                 | 5:                      | <b>V</b>     | 50            | (packets/  | second)    |   |
|                   |                        | Apply                   | Can          | cel           |            |            |   |

In this page, you can enable or disable the fire wall settings such as ICMP Echo, Fraggle, and Echo Chargen.

After setting the parameters, click **Apply** to save the settings.

# 5.3.2 Access Control

Choose **ADVANCED** > **Access Control**, and the following page appears.

|                   | SETUP  | ADVANCED   | MAINTENANCE   | STATUS  | HELP          |  |  |  |  |  |
|-------------------|--|--|---|---|---------------|--|--|--|--|--|
| DoS Protection    | ACCESS CONTROL   |  |   |   | Helpful Hints |  |  |  |  |  |
| Access Control    | This section can allow   | Click the button to go to  |   |   |               |  |  |  |  |  |
| Advanced Wireless |  | the detail setting page.   |   |   |               |  |  |  |  |  |
| Advanced Network  | MAC FILTERING  |  |   |   | PIOPE         |  |  |  |  |  |
| PLC Setting       | The MAC (Media Acce<br>based on the MAC Ad   | ess Controller) Address filte<br>dress of the network ada                            | er option is used to control<br>pter. A MAC address is a un                                 | l network access<br>nique ID assigned by                            |               |  |  |  |  |  |
| Logout            | the manufacturer of t<br>network/Internet acc  | he network adapter. This ess.  | feature can be configured   | to DENY   |               |  |  |  |  |  |
|                   |  | MAC Filter   |   |   |               |  |  |  |  |  |
|                   | DHCP FILTERING   |  |   |   |               |  |  |  |  |  |
|                   | The DHCP filter functi<br>a MAC address. It mea<br>list function is that PC  | on includes IP reserving a<br>ans that a PC which has th<br>s whose MAC are in the b | nd black list. IP reserving b<br>ne MAC is assigned the spe<br>lack list can not be assigne | inds an IP address to<br>acific IP address. Black<br>ad IP address. |               |  |  |  |  |  |
|                   |  | DHCP   | Filtering   |   |               |  |  |  |  |  |
|                   | IP FILTERING   |  |   |   |               |  |  |  |  |  |
|                   | The IP filter option is<br>This feature can be c   | used to control network a<br>onfigured to DENY netwo                                 | access based on the IP of t<br>rk/Internet access.  | the network device.   |               |  |  |  |  |  |
|                   |  | IP Fi  | Itering   |   |               |  |  |  |  |  |
|                   | PORT FILTERING   |  |   |   |               |  |  |  |  |  |
|                   | Some applications require that specific ports in the router's firewall be opened for access by<br>the remote parties. Port Filtering opens up the "Open Ports" in the firewal when an application<br>on the LAN initiates a TCP/UDP connection to a remote party using the "Port Filtering". |  |   |   |               |  |  |  |  |  |
|                   |  |  |   |   |               |  |  |  |  |  |
|                   | URL FILTERING  | URL FILTERING  |   |   |               |  |  |  |  |  |
|                   | The URL Filter option  | is used to block websites(   | i.e. www.yahoo.com).  |   |               |  |  |  |  |  |
|                   |  | URL F  | iltering  |   |               |  |  |  |  |  |

# 5.3.2.1 MAC Filtering

MAC (Media Access Control) address filter is used to filter the transmission data according to the physical address of wireless network card.

Choose Access Control > MAC Filtering on the left pane or click MAC Filter in the ACCESS CONTROL page to display the following page.

|                   | SETUP                | ADVANCED                     | MAINTENANCE                 | STATUS           | HELP                  |
|-------------------|----------------------|------------------------------|-----------------------------|------------------|-----------------------|
| DoS Protection    | MAC FILTERING        |                              |                             |                  | Helpful Hints         |
| Access Control    | The MAC (Media Acce  | ss Controller) Address filte | er option is used to contro | I network access | Enter the MAC address |
| Advanced Wireless | based on the MAC Ad  | to connect the internet.     |                             |                  |                       |
| Advanced Network  | network/Internet acc | CO DENT                      | More                        |                  |                       |
| PLC Setting       |                      |                              |                             |                  |                       |
| Logout            | MAC FILTERING        |                              |                             |                  |                       |
|                   |                      | Enable MAC Filtering         |                             |                  |                       |
|                   |                      | Apply                        | Cancel                      |                  |                       |
|                   |                      |                              |                             |                  |                       |
|                   |                      |                              |                             |                  |                       |
|                   |                      |                              |                             |                  |                       |
|                   |                      |                              |                             |                  |                       |
|                   |                      |                              |                             |                  |                       |
|                   |                      |                              |                             |                  |                       |

In this page, you can add the MAC addresses of devices to the MAC filtering list. The devices in the MAC filtering list are not allowed to access the Internet.

Check Enable MAC Filtering, and the following page appears.

|                   | SETUP                 | ADVANCED                     | MAINTENANCE  | STATUS           | HELP                  |  |  |  |
|-------------------|-----------------------|------------------------------|--|------------------|-----------------------|--|--|--|
| DoS Protection    | MAC FILTERING         |                              |  |                  | Helpful Hints         |  |  |  |
| Access Control    | The MAC (Media Acces  | ss Controller) Address filte | r option is used to contro                           | I network access | Enter the MAC address |  |  |  |
| Advanced Wireless | based on the MAC Add  | nique ID assigned by         | that you want to deny it<br>to connect the internet. |                  |                       |  |  |  |
| Advanced Network  | network/Internet acce | ss.                          | reacure can be computed                              |                  | More                  |  |  |  |
| PLC Setting       |                       |                              |  |                  |                       |  |  |  |
| Logout            | MAC FILTERING         | MAC FILTERING                |  |                  |                       |  |  |  |
|                   |                       |                              |  |                  |                       |  |  |  |
|                   |                       |                              |  |                  |                       |  |  |  |
|                   | MAC FILTERING LI      | ST                           |  |                  |                       |  |  |  |
|                   | Mac                   | Comment                      | Edit   | Delete           |                       |  |  |  |
|                   |                       | A                            | bb   |                  |                       |  |  |  |
|                   |                       |                              |  |                  |                       |  |  |  |

Click Add to display the following page.

| ///               | SETUP               | ADVANCED  | MAINTENANCE                | STATUS         | HELP                  |  |  |  |
|-------------------|---------------------|---|----------------------------|----------------|-----------------------|--|--|--|
| DoS Protection    | MAC FILTERING       |   |                            |                | Helpful Hints         |  |  |  |
| Access Control    | The MAC (Media Acc  | ess Controller) Address filte   | r option is used to contro | network access | Enter the MAC address |  |  |  |
| Advanced Wireless | based on the MAC Ar | based on the MAC Address of the network adapter. A MAC address is a unique ID assigned by |                            |                |                       |  |  |  |
| Advanced Network  | network/Internet ac | ess.  | reacure can be computed    | CO DENT        | More                  |  |  |  |
| PLC Setting       |                     |   |                            |                |                       |  |  |  |
| Logout            | MAC FILTERING       |   |                            |                |                       |  |  |  |
|                   |                     | Enable MAC Filtering  | <ul><li>✓</li></ul>        |                |                       |  |  |  |
|                   | MAC FILTERING       | IST   |                            |                |                       |  |  |  |
|                   | Mac                 |   |                            |                |                       |  |  |  |
|                   |                     | A   | dd                         |                |                       |  |  |  |
|                   | INCOMING MAC F      | ILTER   |                            |                |                       |  |  |  |
|                   |                     | MAC :   | (x                         | ******         |                       |  |  |  |
|                   |                     | Comment :   |                            |                |                       |  |  |  |
|                   |                     | Apply   | Cancel                     |                |                       |  |  |  |

The following table describes parameters in this page:

| Field   | Description                                     |  |  |  |  |  |
|---------|---|--|--|--|--|--|
| MAC     | Enter the MAC address of the device that is not |  |  |  |  |  |
| IVIAC   | allowed to access the Internet.                 |  |  |  |  |  |
| Comment | Enter the comment about the MAC filtering rule. |  |  |  |  |  |

After setting the parameters, click **Apply** to save the settings.

#### 5.3.2.2 DHCP Filtering

DHCP Filtering is used to control network access based on the IP address of the network device.

Choose Access Control > DHCP Filtering on the left pane or click DHCP Filtering in the ACCESS CONTROL page to display the following page.

|                   | SETUP                   | ADVANCED                   | MAINTENANCE                   | STATUS                | HELP   |
|-------------------|-------------------------|----------------------------|-------------------------------|-----------------------|--|
| DoS Protection    | DHCP FILTERING          |                            |                               |                       | Helpful Hints  |
| Access Control    | The DHCP filter functi  | on includes IP reserving a | nd black list. IP reserving b | inds an IP address to | The DHCP filter function                                 |
| Advanced Wireless | a MAC address. It mea   | ecific IP address. Black   | list. Static IP is to bind a  |                       |  |
| Advanced Network  | iscruticulur is chac PC | s whose MAC are in the p   | hack list carried be assigned | tu ir address.        | address, assigning a static                              |
| PLC Setting       | DHCP ENABLE             |                            |                               |                       | the bound MAC address.<br>Black list is not to assign IP |
| Logout            |                         | Enable DHCP Filter         |                               |                       | address of the PCS of the<br>bound MAC addresses.        |
|                   |                         |                            |                               |                       | More   |
|                   |                         | Apply                      | Cancel                        |                       |  |
|                   |                         |                            |                               |                       |  |
|                   |                         |                            |                               |                       |  |
|                   |                         |                            |                               |                       |  |
|                   |                         |                            |                               |                       |  |
|                   |                         |                            |                               |                       |  |
|                   |                         |                            |                               |                       |  |

#### Check Enable DHCP Filter, and the following page appears.

|                   | SETUP                    | ADVANCED   | MAINTENANCE                   | STATUS                | HELP   |  |  |
|-------------------|--------------------------|--|-------------------------------|-----------------------|--|--|--|
| DoS Protection    | DHCP FILTERING           |  |                               |                       | Helpful Hints  |  |  |
| Access Control    | The DHCP filter function | on includes IP reserving an  | nd black list. IP reserving b | inds an IP address to | The DHCP filter function                                 |  |  |
| Advanced Wireless | a MAC address. It mea    | a MAC address. It means that a PC which has the MAC is assigned the specific IP address. Black |                               |                       |  |  |  |
| Advanced Network  | ISC TURICUON IS THAT PCS | whose MAC are in the bi  | ack ist can not be assigne    | o ir address.         | address, assigning a static                              |  |  |
| PLC Setting       | DHCP ENABLE              |  |                               |                       | the bound MAC address.<br>Black list is not to assign IP |  |  |
| Logout            |                          | Enable DHCP Filter   |                               |                       | address of the PCS of the<br>bound MAC addresses.        |  |  |
|                   | ·                        |  |                               |                       | Hore   |  |  |
|                   |                          |  |                               |                       |  |  |  |
|                   | LIST OF IP ADDRE         | SS RESERVED FOR M  | 1AC                           |                       |  |  |  |
|                   | NUM                      | Static IP  | MAC Edit                      | Delete                |  |  |  |
|                   |                          | A  | bb                            |                       |  |  |  |
|                   | BLACK LIST               |  |                               |                       |  |  |  |
|                   | NUM                      | MAC  | Edit                          | Delete                |  |  |  |
|                   |                          | A  | dd                            |                       |  |  |  |

## • List of IP Address Reserved for MAC

If a MAC address of a LAN device is consistent with the specified MAC address, the PLC wireless router assigns the bound IP address to the device.

Click Add under the LIST OF IP ADDRESS RESERVED FOR MAC to display the following page.

|                   | SETUP                   | ADVANCED   | MAINTENANCE                   | STATUS                | HELP   |  |  |  |
|-------------------|-------------------------|--|-------------------------------|-----------------------|--|--|--|--|
| DoS Protection    | DHCP FILTERING          |  |                               |                       | Helpful Hints  |  |  |  |
| Access Control    | The DHCP filter functi  | on includes IP reserving a   | nd black list. IP reserving h | ands an IP address to | The DHCP filter function                                 |  |  |  |
| Advanced Wireless | a MAC address. It mea   | a MAC address. It means that a PC which has the MAC is assigned the specific IP address. Black |                               |                       |  |  |  |  |
| Advanced Network  | ISC TURICUUM IS CHAC PC | s whose mad are in the b   | lack list can not be assigne  | su in autress.        | address, assigning a static                              |  |  |  |
| PLC Setting       | DHCP ENABLE             |  |                               |                       | the bound MAC address.<br>Black list is not to assign TP |  |  |  |
| Logout            |                         | Enable DHCP Filter   |                               |                       | address of the PCS of the<br>bound MAC addresses.        |  |  |  |
|                   |                         |  | -                             |                       | Hore   |  |  |  |
|                   | LIST OF IP ADDR         | ESS RESERVED FOR   | MAC                           |                       |  |  |  |  |
|                   | NUM                     | Static IP  | MAC Edit                      | Delete                |  |  |  |  |
|                   | IP ADDRESS RES          | ERVED FOR MAC  |                               |                       |  |  |  |  |
|                   |                         | IP:  |                               |                       |  |  |  |  |
|                   |                         | MAC :  |                               |                       |  |  |  |  |
|                   | L                       | Apply  | Cancel                        |                       |  |  |  |  |
|                   | BLACK LIST              |  |                               |                       |  |  |  |  |
|                   | NUM                     | MAC  | Edit                          | Delete                |  |  |  |  |
|                   |                         | A  | dd                            |                       |  |  |  |  |

The following table describes the paramters for configuring an IP address reserved for a MAC address:

| Field | Description                                       |
|-------|---|
| IP    | Enter an IP address for binding to a MAC address. |
| MAC   | Enter a MAC address for binding to an IP.         |

## Black List

The black list means that if a MAC address of a LAN device is not consistent with the specified MAC address, the PLC wireless router does not assign the bound IP address to the device.

Click Add under the BLACK LIST to display the following page.

|                   | SETUP   | ADVANCED                   | MAINTENANCE                       | STATUS                   | HELP   |
|-------------------|---|----------------------------|-----------------------------------|--------------------------|--|
| DoS Protection    | DHCP FILTERING  |                            |                                   |                          | Helpful Hints  |
| Access Control    | The DHCP filter functi                                | on includes IP reserving a | nd black list. IP reserving b     | inds an IP address to    | The DHCP filter function                                     |
| Advanced Wireless | a MAC address. It mea                                 | ans that a PC which has th | ne MAC is assigned the spe        | ecific IP address. Black | includes static IP and black<br>list. Static IP is to bind a |
| Advanced Network  | ISC TURCOON IS CHAC PC                                | s whose MAC are in the b   | lack list can not be assigne      | eu IP audress.           | address, assigning a static                                  |
| PLC Setting       | DHCP ENABLE   |                            |                                   |                          | the bound MAC address.<br>Black list is not to assign IP     |
| Logout            |   | Enable DHCP Filter         |                                   |                          | address of the PCS of the<br>bound MAC addresses.            |
|                   | LIST OF IP ADDRI<br>NUM<br>BLACK LIST<br>NUM<br>BLACK | SS RESERVED FOR I          | MAC Edit dd Edit Edit Edit Cancel | Delete<br>Delete         | Hore   |

In this page, enter the MAC address of the LAN device.

After setting the parameters, click **Apply** to save the settings.

# 5.3.2.3 IP Filtering

The IP filter function can prevent the internal users from accessing the Internet. Choose Access Control > IP Filtering on the left pane or click IP Filtering in the ACCESS CONTROL page to display the following page.

| ///               | SETUP                   | ADVANCED                  | MAINTENANCE              | STATUS              | HELP                     |
|-------------------|-------------------------|---------------------------|--------------------------|---------------------|--------------------------|
| DoS Protection    | IP FILTERING            |                           |                          |                     | Helpful Hints            |
| Access Control    | The IP filter option is | used to control network a | ccess based on the IP of | the network device. | IP Filtering is to limit |
| Advanced Wireless | This feature can be co  | onfigured to DENY netwo   | rk/Internet access.      |                     | accessing the Internet.  |
| Advanced Network  |                         |                           |                          |                     | More                     |
| PLC Setting       | ENABLE IP FILTER        | ING                       |                          |                     |                          |
| Logout            |                         | Enable IP Filtering       |                          |                     |                          |
|                   |                         | Apply                     | Cancel                   |                     |                          |

## Check Enable IP Filtering, and the following page appears.

|                   | SETUP                     | ADVANCED                  | MAINTENANCE              | STATUS              | HELP                     |
|-------------------|---------------------------|---------------------------|--------------------------|---------------------|--------------------------|
| DoS Protection    | IP FILTERING              |                           |                          |                     | Helpful Hints            |
| Access Control    | The IP filter option is u | used to control network a | ccess based on the IP of | the network device. | IP Filtering is to limit |
| Advanced Wireless | This feature can be co    | nfigured to DENY networ   | rk/Internet access.      |                     | accessing the Internet.  |
| Advanced Network  |                           |                           |                          |                     | More                     |
| PLC Setting       | ENABLE IP FILTER          | ING                       |                          |                     |                          |
| Logout            | · · · ·                   | Enable IP Filtering       | V                        |                     |                          |
|                   | IP FILTERING LIST         | (Apply)<br>UDP Re         | Cancel<br>mark Edit      | Delete              |                          |

## Click Add to display the following page.

|                   | SETUP                     | ADVANCED                  | MAINTENANCE              | STATUS              | HELP   |
|-------------------|---------------------------|---------------------------|--------------------------|---------------------|--|
| DoS Protection    | IP FILTERING              |                           |                          |                     | Helpful Hints                                  |
| Access Control    | The IR filter option is a | used to control network a | ccess based on the ID of | the network device  | IP Filtering is to limit                       |
| Advanced Wireless | This feature can be co    | nfigured to DENY networ   | k/Internet access.       | che network device. | intranet users from<br>accessing the Internet. |
| Advanced Network  |                           |                           |                          |                     | More   |
| PLC Setting       | ENABLE IP FILTER          | ING                       |                          |                     |  |
| Logout            |                           | Enable IP Filtering       | V                        |                     |  |
|                   | IP FILTERING LIST         | i i                       |                          |                     |  |
|                   | IP TCP/                   | UDP Re                    | mark Edit                | Delete              |  |
|                   |                           | A                         | bb                       |                     |  |
|                   | IP FILTERING              |                           |                          |                     |  |
|                   | 1                         | (P:                       |                          |                     |  |
|                   | 1                         | TCP/UDP :                 | Both 💌                   |                     |  |
|                   | -                         | Remark                    |                          |                     |  |
|                   |                           | Apply                     | Cancel                   |                     |  |

| Field   | Description                                    |
|---------|--|
| П       | Enter the computer IP address that needs to be |
| IP      | filtered.                                      |
| TCP/UDP | You can select TCP, UDP, or Both.              |
| Remark  | Enter the comment about the IP filtering rule. |

The following table describes parameters in this page:

After setting the parameters, click Apply to save the settings.

# 5.3.2.4 Port Filtering

The port filtering function allows you to control all data transmitted through the PLC wireless router. If a PC's port is in the specified range of port filtering, data from this port cannot be transmitted.

Choose Access Control > Port Filtering on the left pane or click Port Filtering in the ACCESS CONTROL page to display the following page.

|                   | SETUP                      | ADVANCED   | MAINTENANCE                 | STATUS                 | HELP                       |
|-------------------|----------------------------|--|-----------------------------|------------------------|----------------------------|
| DoS Protection    | PORT FILTERING             |  |                             |                        | Helpful Hints              |
| Access Control    | "Port Filtering" is a part | t of the Firewall, when th   | e "Port Filtering" function | is turned on, the list | Port filtering enables you |
| Advanced Wireless | of specified port range    | of specified port range and protocols (TCP / UDP), will be used as a blacklist, which means, LAN |                             |                        |                            |
| Advanced Network  | -side hose will hoe have   | access to WAN Side of t  | nese ports, chioùgn the     | TOP / ODP.             | More                       |
| PLC Setting       | ENABLE PORT FILT           | TERING   |                             |                        |                            |
| Logout            |                            | Enable Port Filtering  |                             |                        |                            |
|                   |                            |  |                             |                        |                            |
|                   |                            | Apply  | Cancel                      |                        |                            |
|                   |                            |  |                             |                        |                            |
|                   |                            |  |                             |                        |                            |
|                   |                            |  |                             |                        |                            |
|                   |                            |  |                             |                        |                            |
|                   |                            |  |                             |                        |                            |
|                   |                            |  |                             |                        |                            |

Check Enable Port Filtering, and the following page appears.

|                   | SETUP                      | ADVANCED  | MAINTENANCE              | STATUS                    | HELP   |
|-------------------|----------------------------|---|--------------------------|---------------------------|--|
| DoS Protection    | PORT FILTERING             |   |                          |                           | Helpful Hints  |
| Access Control    | "Port Filtering" is a part | of the Firewall, when th  | e "Port Eltering" funct  | on is turned on, the list | Port filtering enables you                                 |
| Advanced Wireless | of specified port range    | and protocols (TCP / UE   | P), will be used as a bl | acklist, which means, LAN | to control all data that can<br>be transmitted in routers. |
| Advanced Network  | -side nosc will not have   | access to wait side of t  | inese ports, through th  | e TCP / ODP.              | More   |
| PLC Setting       | ENABLE PORT FILT           | ERING   |                          |                           |  |
| Logout            | F                          | nable Port Filtering  |                          |                           |  |
|                   |                            | and the second se |                          |                           |  |
|                   |                            |   |                          |                           |  |
|                   | PORT FILTERING L           | IST   |                          |                           |  |
|                   | Port Range                 | TCP/UDP   | Remark                   | Edit Delete               |  |
|                   |                            | A   | dd                       |                           |  |
|                   |                            |   |                          |                           |  |
|                   |                            |   |                          |                           |  |

# Click **Add** to display the following page.

|                   | SETUP                      | ADVANCED   | MAINTENANCE                 | STATUS                 | HELP                       |
|-------------------|----------------------------|--|-----------------------------|------------------------|----------------------------|
| DoS Protection    | PORT FILTERING             |  |                             |                        | Helpful Hints              |
| Access Control    | "Port Filtering" is a part | t of the Firewall, when th   | e "Port Filtering" function | is turned on, the list | Port filtering enables you |
| Advanced Wireless | of specified port range    | of specified port range and protocols (TCP / UDP), will be used as a blacklist, which means, LAN |                             |                        |                            |
| Advanced Network  | -side host will hot have   | access to WAIN side of t   | nese ports, chrough the     | TCF / ODF.             | More                       |
| PLC Setting       | ENABLE PORT FILT           | ERING  |                             |                        |                            |
| Logout            |                            | Enable Port Filtering  | ~                           |                        |                            |
|                   |                            |  |                             |                        |                            |
|                   | PORT FILTERING L           | IST  |                             |                        |                            |
|                   | Port Range                 | TCP/UDP  | Remark E                    | dit Delete             |                            |
|                   |                            | A  | bb                          |                        |                            |
|                   | PORT FILTERING             |  |                             |                        |                            |
|                   |                            | Port Range :   | -                           |                        |                            |
|                   | 1                          | TCP/UDP :  | Both 💌                      |                        |                            |
|                   | 1                          | Remark :   |                             |                        |                            |
|                   |                            | Apply  | Cancel                      |                        |                            |

The following table describes parameters in this page:

| Field      | Description                                      |
|------------|--|
| Port Range | Enter the port filtering range.                  |
| TCP/UDP    | You may select TCP, UDP, or Both.                |
| Remark     | Enter the comment about the port filtering rule. |

After setting the parameters, click Apply to save the settings.

## 5.3.2.5 URL Filtering

URL filtering function is used to block some websites that you do not want the LAN users to access.

Choose Access Control > URL Filtering on the left pane or click URL Filtering in the ACCESS CONTROL page to display the following page.

|                   | SETUP                    | ADVANCED                   | MAINTENANCE                | STATUS            | HELP   |
|-------------------|--------------------------|----------------------------|----------------------------|-------------------|--|
| DoS Protection    | URL FILTERING            |                            |                            |                   | Helpful Hints                                      |
| Access Control    | This page allows you t   | o block websites. If enabl | ed, the websites listed he | re will be denied | Create a list of websites                          |
| Advanced Wireless | access to clients trying | to browse that website.    |                            |                   | that you would like the<br>devices on your network |
| Advanced Network  |                          |                            |                            |                   | to be defiled access to.                           |
| PLC Setting       | ENABLE URL FILTE         | RING                       |                            |                   | mone   |
| Logout            |                          | Enable URL Filtering       |                            |                   |  |
|                   |                          | Apply                      | Cancel                     |                   |  |

#### Check Enable URL Filtering, and the following page appears.

|                   | SETUP                    | ADVANCED                   | MAINTENANCE                | STATUS             | HELP                      |
|-------------------|--------------------------|----------------------------|----------------------------|--------------------|---------------------------|
| DoS Protection    | URL FILTERING            |                            |                            |                    | Helpful Hints             |
| Access Control    | This page allows you t   | o block websites. If enabl | ed, the websites listed he | ere will be denied | Create a list of websites |
| Advanced Wireless | access to clients trying | to browse that website.    | .,                         |                    | devices on your network   |
| Advanced Network  |                          |                            |                            |                    | More                      |
| PLC Setting       | ENABLE URL FILTE         | RING                       |                            |                    | more                      |
| Logout            | 1                        | Enable URL Filtering       |                            |                    |                           |
|                   | URL FILTERING LI         | Apply<br>ST<br>Comment     | Cancel Edit                | Delete             |                           |
|                   |                          |                            |                            |                    |                           |

Click Add to display the following page.

| ///               | SETUP   | ADVANCED   | MAINTENANCE | STATUS | HELP                      |
|-------------------|---|--|-------------|--------|---------------------------|
| DoS Protection    | URL FILTERING   |  |             |        | Helpful Hints             |
| Access Control    | This page allows you to block websites. If enabled, the websites listed here will be denied |  |             |        | Create a list of websites |
| Advanced Wireless | access to clients tryin   | that you would like the<br>devices on your network<br>to be denied access to |             |        |                           |
| Advanced Network  |   | Mana   |             |        |                           |
| PLC Setting       | ENABLE URL FILT   | PIOPE  |             |        |                           |
| Logout            |   |  |             |        |                           |
|                   | URL FILTERING LI  |  |             |        |                           |
|                   | URL   | Comment  | Edit        | Delete |                           |
|                   | Add URL FILTER  |  |             |        |                           |
|                   |   |  |             |        |                           |
|                   |   | URL :  | http://     |        |                           |
|                   |   | Comment :  |             |        |                           |
|                   | Apply Cancel  |  |             |        |                           |

The following table describes parameters in this page:

| Field   | Description                                     |  |  |
|---------|---|--|--|
| URL     | Enter the URL that needs to be filtered.        |  |  |
| Comment | Enter the comment about the URL filtering rule. |  |  |

After setting the parameters, click **Apply** to save the settings.

# 5.3.3 Advanced Wireless

Usually, it is not recommended to modify the default settings of advanced wireless configuration page. The default settings can provide the optimal wireless performance. Improper modifications may influence the wireless performance. Choose **ADVANCED** > **Advanced Wireless**, and the following page appears.
|                   | SETUP                  | ADVANCED                     | MAINTENANCE                | STATUS | HELP   |
|-------------------|------------------------|------------------------------|----------------------------|--------|--|
| DoS Protection    | ADVANCED WIRE          | LESS                         |                            |        | Helpful Hints                                |
| Access Control    | This section allows yo | u to configure advanced f    | eatures of the wireless.   |        | If you are not familiar with                 |
| Advanced Wireless |                        |                              |                            |        | the following functions,<br>keep the default |
| Advanced Network  | ADVANCED               |                              |                            |        | cases, incorrect settings                    |
| PLC Setting       | Allows you to configu  | ire advanced features of t   | he wireless LAN interface. |        | performance.                                 |
| Logout            |                        |                              |                            |        | More   |
|                   |                        | Adva                         | inced                      |        |  |
|                   | ADVANCED SECU          | RITY                         |                            |        |  |
|                   | Allows you to configu  | ire security of the wireless | LAN interface.             |        |  |
|                   |                        | Advanced                     | d Security                 |        |  |
|                   | ACCESS CONTROL         | L                            |                            |        |  |
|                   | Allows you to configu  | ire access control of the w  | rireless LAN interface.    |        |  |
|                   |                        | Access                       | Control                    |        |  |

## 5.3.3.1 Advanced Wireless Settings

Choose Advanced Wireless > Advanced on the left pane or click Advanced in the ADVANCED WIRELESS page to display the following page.

|                   | SETUP                   | ADVANCED            | MAINTENANCE                    | STATUS       | HELP   |
|-------------------|-------------------------|---------------------|--------------------------------|--------------|--|
| DoS Protection    | ADVANCED SETTIN         | GS                  |                                |              | Helpful Hints                                    |
| Access Control    | Allows you to configure | advanced features o | f the wireless LAN interfac    | e.           | It is recommended that<br>you leave these        |
| Advanced Wireless |                         |                     |                                |              | parameters at their<br>default values. Adjusting |
| Advanced Network  | ADVANCED WIRELE         | SS SETTINGS         |                                |              | them could limit the<br>performance of your      |
| PLC Setting       | Transmissio             | n Rate :            | Auto 💌                         |              | More   |
| Logout            | Transmit Po             | ower :              | 100%                           | ı            |  |
|                   | Beacon Per              | iod :               | 100                            | (20 ~ 1024)  |  |
|                   | RIS Inresh              | old :               | 2346                           | (256 ~ 2346) |  |
|                   | Fragmentat              | ion inresnoid :     | 10                             | (256 ~ 2346) |  |
|                   | Preamble T              | var.                | short 🗸                        | ](1 ~ 200)   |  |
|                   | AP Isolation            | n:                  | on 💌                           |              |  |
|                   |                         |                     |                                |              |  |
|                   | SSID                    |                     |                                |              |  |
|                   | Enable                  | SSID 1              |                                | 1            |  |
|                   | SSID 1 :                |                     | Powerline                      |              |  |
|                   | Visibility St           | atus :              |                                |              |  |
|                   | Disable WM              | M Advertise :       | Off 🗸                          |              |  |
|                   | GUEST/VIDTUAL AG        | CCESS DOINT-1       |                                |              |  |
|                   |                         |                     |                                |              |  |
|                   | SSID 2 :                | 5510 2              | Powerline2                     | 1            |  |
|                   | Visibility St           | atus :              | Visible O Invisible            | 1            |  |
|                   | User Isolati            | on :                | Off 🗸                          |              |  |
|                   | Disable WM              | M Advertise :       | Off 😒                          |              |  |
|                   | GUEST/VIRTUAL AG        | CCESS POINT-2       |                                |              |  |
|                   | Enable                  | SSID 3              |                                |              |  |
|                   | SSID 3 :                |                     | Powerline3                     | ]            |  |
|                   | Visibility St           | atus :              | Invisible $\bigcirc$ Invisible |              |  |
|                   | User Isolati            | on :                | Off 🗸                          |              |  |
|                   | Disable WM              | M Advertise :       | Off 🗸                          |              |  |
|                   | GUEST/VIRTUAL AG        | CCESS POINT-3       |                                |              |  |
|                   | Enable                  | SSID 4              |                                |              |  |
|                   | SSID 4 :                |                     | Powerline4                     | J            |  |
|                   | Visibility St           | atus :              | (1) Visible (1) Invisible      |              |  |
|                   | User Isolati            | on :                | off V                          |              |  |
|                   | Disable WM              | m Adveruse :        | (Sector) (1991)                |              |  |
|                   |                         | Apply               | Cancel                         |              |  |
|                   |                         |                     |                                |              |  |

#### The following table describes parameters in this page:

| Field                      | Description   |
|----------------------------|---|
| Transmission<br>Rate       | Set the proper transmission rate.   |
| Transmit Power             | Select the proper transmission power from the drop-<br>down list. You can select 100%, 80%, 60%, 40%, or 20%.   |
| Beacon Period              | Beacon period indicates the frequency of the PLC<br>wireless router that sends the Beacon frame. By default,<br>the PLC wireless router sends the beacon frame every<br>other 100 ms. The range is 20~1024.   |
| RTS Threshold              | Set the CTS/RTS threshold. If the length of a packet is greater than the value, the router sends an RTS frame to the destination station for negotiation. After receiving the RTS frame, the wireless station responds with a Clear to Send (CTS) frame to the router, indicating that they can communicate with each other. The default value is 2346. |
| Fragmentation<br>Threshold | Set the threshold of fragmentation length. If the length of<br>a packet is greater than the value, the packet is<br>automatically fragmented into several packets. Because<br>too many packets lead to low performance of the<br>wireless network, the value of fragmentation length<br>cannot be too small. The default value is 2346.                 |
| DTIM Interval              | DTIM interval indicates the frequency for sending the wireless packets. The range is 1~255 and the default value is 10.   |
| Preamble Type              | Set the preamble type. The default is short preamble.<br>A preamble defines the length of the CRC correction<br>block that is used for the communication between your<br>router and wireless clients. Shorter preamble should<br>apply to a network with intense traffic.   |
| AP Isolation               | <ul> <li>On indicates that the wireless clients connecting to<br/>different SSIDs cannot communicate with each other.</li> <li>Off indicates that the wireless clients connecting to<br/>different SSIDs can communicate with each other.</li> </ul>  |
| Enable SSIDT~4             | Enable of disable the wireless function.  |

| Field             | Description   |
|-------------------|---|
|                   | Set the network name. The SSID can contain up to 32           |
| SSID1~4           | characters and can be letters, numerals, underlines, and      |
|                   | any combinations of them. The SSID is case-sensitive.         |
|                   | • If Visible is selected, the PLC wireless router             |
|                   | broadcasts its SSID on the wireless network, and the          |
| Visibility Status | clients can scan the SSID.                                    |
| VISIDIIITY Status | • If Invisible is selected, the PLC wireless router does      |
|                   | not broadcast its SSID on the wireless network and            |
|                   | the clients cannot scan the SSID.                             |
|                   | On indicates that the computers wirelessly connecting to      |
|                   | the same SSID cannot communicate with each                    |
| User Isolation    | other.  |
|                   | Off indicates that the computers wirelessly connecting to     |
|                   | the same SSID can communicate with each other.                |
| Dischie WAAA      | This function is not available. If this function is disabled, |
|                   | the wireless PLC router adopts WMM to mark priority and       |
| Auventise         | to arrange the order of Wi-Fi network queues.                 |

After setting the parameters, click **Apply** to save the settings.

# A Caution:

The settings in this page only apply to professional users who have deeper understanding in the wireless LAN. If you are not aware of the impact caused by the modification, please do not modify the settings in this page.

# 5.3.3.2 Advanced Security

Choose Advanced Wireless > Advanced Security on the left pane or click Advanced Security in the ADVANCED WIRELESS page to display the following page.

|                   | SETUP                        | ADVANCED  | MAINTENANCE  | STATUS          | HELP  |
|-------------------|------------------------------|---|--|-----------------|---|
| DoS Protection    | WIRELESS SECUR               | ΙΤΥ   |  |                 | Helpful Hints                                       |
| Access Control    | To protect your privac       | y you can configure wire  | less security features. This   | device supports | If you have enabled                                 |
| Advanced Wireless | three wireless security      | three wireless security modes including: WEP, WPA, WPA2, WPA2 MXeA WEP is the additional wireless security modes including: WEP, WPA and WPA2 MXeA WEP is |  |                 |   |
| Advanced Network  | che original wireless er     | cryption standard, WPA  | provides a higher lever or a   | econcy.         | you have configured. You<br>will need to enter this |
| PLC Setting       | WIRELESS SSID                | WIRELESS SSID   |  |                 |   |
| Logout            | Select SS                    | ID :  | Powerline 💌  |                 | connect to your wireless<br>network.                |
|                   | WIRELESS SECUR<br>Wireless S | TTY MODE<br>Security Mode :<br>Apply  | None<br>None<br>WEP<br>WPA-PSK<br>WPA2-PSK<br>WPA2-PSK<br>WPA/WPA2-PSK |                 |   |

For the parameters in this page, refer to 5.2.3.2 Wireless Security Settings.

### 5.3.3.3 Access Control

Choose Advanced Wireless > Access Control on the left pane or click Access Control in the ADVANCED WIRELESS page to display the following page.

|                   | SETUP                  | ADVANCED             | MAINTENANCE | STATUS      | HELP   |
|-------------------|------------------------|----------------------|-------------|-------------|--|
| DoS Protection    | ACCESS CONTROL         |                      |             |             | Helpful Hints  |
| Access Control    | Allows you to configur | Create a list of MAC |             |             |  |
| Advanced Wireless |                        |                      |             |             | addresses that you would<br>either like to allow or deny |
| Advanced Network  | MODE                   |                      |             |             | wireless Router.   |
| PLC Setting       | Win                    | eless SSID :         | Powerline 💌 |             | More   |
| Logout            | Acc                    | ess Control Mode :   | Disable 💙   |             |  |
|                   |                        |                      |             |             |  |
|                   | WLAN FILTER LIST       | Г                    |             |             |  |
|                   | M                      | AC                   | Comment     | Edit Delete |  |
|                   |                        | A                    | .dd         |             |  |

In this page, you can configure the access control settings of the wireless LAN interface.

Click Add to display the following page.

|                   | SETUP                 | ADVANCED                 | MAINTENANCE              | STATUS           | HELP   |
|-------------------|-----------------------|--------------------------|--------------------------|------------------|--|
| DoS Protection    | ACCESS CONTROL        |                          |                          |                  | Helpful Hints  |
| Access Control    | Allows you to configu | re access control of the | wireless I AN interface. |                  | Create a list of MAC                                     |
| Advanced Wireless | , and the compo       |                          |                          |                  | addresses that you would<br>either like to allow or deny |
| Advanced Network  | MODE                  |                          |                          |                  | wireless Router.   |
| PLC Setting       | Wi                    | reless SSID :            | Powerline 💌              |                  | More   |
| Logout            | Ac                    | cess Control Mode :      | Disable 💌                |                  |  |
|                   |                       |                          |                          |                  |  |
|                   | WLAN FILTER LIS       | т                        |                          |                  |  |
|                   | M                     | IAC                      | Comment                  | Edit Delete      |  |
|                   |                       |                          | Add                      | ,                |  |
|                   | INCOMING MAC F        | ILTER                    |                          |                  |  |
|                   | MA                    | KC :                     | (xx                      | :xx:xx:xx:xx:xx) |  |
|                   | Co                    | mment:                   |                          |                  |  |
|                   |                       | Apply                    | Cancel                   |                  |  |

The following table describes parameters in this page:

| Field                  | Description  |
|------------------------|--|
| Wireless SSID          | Select a port name of wireless SSID from the drop-<br>down list. |
| Access control<br>Mode | You can select <b>Disable</b> , <b>Allow</b> , or <b>Deny</b> .  |
| MAC                    | Enter the MAC address that needs to be filtered in the WLAN.     |
| Comment                | Enter the comment about the filtering rule.                      |

After setting the parameters, click **Apply** to save the settings.

# 5.3.4 Advanced Network

Choose ADVANCED > Advanced Network, and the following page appears.



## 5.3.4.1 ALG

When trusted users in the network wish to connect to untrusted networks, ALG leads the relevant applications to the agent server of firewall. The agent server serves as an actual server of Internet to assess the request, and then it determines whether to accept the request or not according to the relevant rules of network service.

Choose **Advanced Network** > **ALG** on the left pane or click **ALG** in the **ADVANCED NETWORK** page to display the following page.

|                   | SETUP          | ADVANCED    | MAINTENANCE | STATUS | HELP          |
|-------------------|----------------|-------------|-------------|--------|---------------|
| DoS Protection    | ALG            |             |             |        | Helpful Hints |
| Access Control    | Access Control |             |             |        |               |
| Advanced Wireless |                |             |             |        | of ways ALG.  |
| Advanced Network  | ALG TABLE      |             |             |        | Hore          |
| PLC Setting       | TFTP Pa        | ss Through  | <b>v</b>    |        |               |
| Logout            | FTP Pas        | s Through   | <b>v</b>    |        |               |
|                   | рртр ра        | ass Through |             |        |               |
|                   | RTSP Pa        | ass Through | <b>V</b>    |        |               |
|                   | L2TP Pa        | iss Through |             |        |               |
|                   | H323 Pa        | ass Through |             |        |               |
|                   | SIP Pas        | s Through   |             |        |               |
|                   | IPSEC P        | ass Through |             |        |               |
|                   | L              | Apply       | Cancel      |        |               |

In this page, you may enable or disable the ALG settings, such as TFTP Pass Through, FTP Pass Through, and PPIP Pass Through.

After setting the parameters, click **Apply** to save the settings.

## 5.3.4.2 DMZ

DMZ allows all ports of a PC on your LAN to be exposed to the WAN. Enter the IP address of a PC and set the PC to be a DMZ host. Therefore, this PC is not restricted by the firewall any more. In this way, the DMZ host can have mutual unrestricted communcation with a user or server on the WAN.

Choose Advanced Network > DMZ on the left pane or click DMZ in the ADVANCED NETWORK page to display the following page.

|                   | SETUP                   | ADVANCED                    | MAINTENA          | NCE 8              | STATUS    | HELP  |
|-------------------|-------------------------|-----------------------------|-------------------|--------------------|-----------|---|
| DoS Protection    | DMZ                     |                             |                   |                    |           | Helpful Hints                                       |
| Access Control    | DMZ allows the server   | on the LAN site to be d     | rectly exposed to | the Internet for   | accessing | Enable the DMZ option                               |
| Advanced Wireless | data. Either this funct | ion or virtual server can b | e selected for ac | cessing external s | ervices.  | only as a last resort. If<br>you are having trouble |
| Advanced Network  |                         |                             |                   |                    |           | computer behind the                                 |
| PLC Setting       |                         |                             |                   |                    |           | ports associated with the                           |
| Logout            | DMZ TABLE               |                             |                   |                    |           | Advanced -> Port<br>Filtering section.              |
|                   | WAN Conr                | ection :                    | Status            | IP Address         | Edit      |   |
|                   | 1_INTER                 | NET_R                       | Disable           |                    | E         | More  |
|                   |                         | Αρρίγ                       | Cancel            |                    |           |   |

Select a WAN connection in the DMZ table and click the **Edit** icon **I** to display the following page.

|                   | SETUP                    | ADVANCED                   | MAINTENANCE                | STATUS              | HELP   |
|-------------------|--------------------------|----------------------------|----------------------------|---------------------|--|
| DoS Protection    | DMZ                      |                            |                            |                     | Helpful Hints                                |
| Access Control    | DMZ allows the server    | on the LAN site to be di   | ectly exposed to the Inte  | ernet for accessing | Enable the DMZ option                        |
| Advanced Wireless | data. Either this functi | on or virtual server can b | e selected for accessing e | xternal services.   | you are having trouble                       |
| Advanced Network  |                          |                            |                            |                     | computer behind the                          |
| PLC Setting       |                          |                            |                            |                     | ports associated with the application in the |
| Logout            | DMZ TABLE                |                            |                            |                     | Advanced -> Port<br>Filtering section.       |
|                   | WAN Conr                 | ection :                   | Status IP Ado              | dress Edit          |  |
|                   | 1_INTER                  | NET_R                      | Disable                    |                     | More   |
|                   | DMZ HOST                 |                            |                            |                     |  |
|                   | WA                       | N Connection :             | 1_INTERNET_R               |                     |  |
|                   | Ena                      | ble DMZ                    |                            |                     |  |
|                   | DM                       | Z Host IP Address :        |                            |                     |  |
|                   |                          | Apply                      | Cancel                     |                     |  |

The following table describes parameters in this page:

| Field               | Description                           |  |
|---------------------|---------------------------------------|--|
| WAN Connection      | Display current WAN connection.       |  |
| Enable DMZ          | Enable or disable DMZ function of the |  |
|                     | selected WAN connection.              |  |
| DMZ Host IP Address | Enter the IP address of DMZ host.     |  |

After setting the parameters, click Apply to save the settings.

### 5.3.4.3 QoS

QoS function allows you to set an appropriate value in the field of WAN QoS according to the actual bandwidth provided by the ISP. Reserving bandwidth is recommended, so that the gateway can reserve bandwidth for other transmission applications.

Choose Advanced Network > QoS on the left pane or click QoS in the ADVANCED NETWORK page to display the following page.

|                   | SETUP               | ADVANCED                  | MAINTENANCE   | STATUS | HELP   |
|-------------------|---------------------|---------------------------|---------------|--------|--|
| DoS Protection    | QUALITY OF SERV     | ICE                       |               |        | Helpful Hints  |
| Access Control    | Choose WAN or LAN t | o configure network traff | ic bandwidth. |        | QoS is according to the                              |
| Advanced Wireless |                     |                           |               |        | actual bandwidth offered<br>by Internet service that |
| Advanced Network  | ENABLE QOS          |                           |               |        | in WAN QoS field. Reserve                            |
| PLC Setting       | Enab                | e WAN QoS                 |               |        | recommended to enable<br>the gateway for other       |
| Logout            | Enab                | e LAN QoS                 |               |        | transmission application.                            |
|                   |                     |                           |               |        | More   |
|                   |                     | Apply                     | Cancel        |        |  |
|                   |                     |                           |               |        |  |
|                   |                     |                           |               |        |  |
|                   |                     |                           |               |        |  |
|                   |                     |                           |               |        |  |
|                   |                     |                           |               |        |  |
|                   |                     |                           |               |        |  |

## WAN QoS

Check Enable WAN QoS, and the following page appears.

|                   | SETUP               | ADVANCED                 | MAINTENANCE     | STATUS | HELP   |
|-------------------|---------------------|--------------------------|-----------------|--------|--|
| DoS Protection    | QUALITY OF SERV     | ICE                      |                 |        | Helpful Hints                                  |
| Access Control    | Choose WAN or LAN t | to configure network tra | ffic bandwidth. |        | QoS is according to the                        |
| Advanced Wireless |                     |                          |                 |        | by Internet service that                       |
| Advanced Network  | ENABLE QOS          |                          |                 |        | in WAN QoS field. Reserve                      |
| PLC Setting       | Enab                | le WAN QoS               |                 |        | recommended to enable<br>the gateway for other |
| Logout            | Enab                | le LAN QoS               |                 |        | transmission application.                      |
|                   |                     |                          |                 |        | More   |
|                   | WAN QOS             |                          |                 |        |  |
|                   | Dow                 | nstream Bandwidth :      | Full Rate       | 0 kbps |  |
|                   | Upst                | ream Bandwidth :         | Full Rate 🗸     | 0 kbps |  |
|                   |                     | Apply                    | Cancel          |        |  |

In this page, you can configure the data rate of downstream bandwidth and upstream bandwidth.

The following table describes parameters in this page:

| Field                   | Description  |
|-------------------------|--|
| Downstream<br>Bandwidth | You may select a proper rate from the drop-down list or<br>manually set a proper data rate. <b>Full Rate</b> indicates |
| Upstream<br>Bandwidth   | You may select a proper rate from the drop-down list or<br>manually set a proper data rate. <b>Full Rate</b> indicates |
|                         | that there is no limit to the upstream bandwidth.  |

### LAN QoS

Check Enable LAN QoS, and the following page appears.

|                   | SE       | тир        | ADVANCE           | D MAINTENAN            | ICE 9      | STATUS     | HELP   |
|-------------------|----------|------------|-------------------|------------------------|------------|------------|--|
| DoS Protection    | QUALIT   | Y OF SERV  | /ICE              |                        |            |            | Helpful Hints  |
| Access Control    | Choose 1 | WAN or LAN | to configure netw | ork traffic bandwidth. |            |            | QoS is according to the                              |
| Advanced Wireless |          |            | to compare notif  |                        |            |            | actual bandwidth offered<br>by Internet service that |
| Advanced Network  | ENABL    | E QOS      |                   |                        |            |            | in WAN QoS field. Reserve                            |
| PLC Setting       |          | Enal       | ole WAN QoS       |                        |            |            | recommended to enable<br>the gateway for other       |
| Logout            |          | Enal       | ble LAN QoS       |                        |            |            | transmission application.                            |
|                   |          |            |                   |                        |            |            | More   |
|                   | LAN QO   | os         |                   |                        |            |            |  |
|                   | Port     | Priority   | Flow Control      | Incoming Rate Limit    | Outgoing F | Rate Limit |  |
|                   | LAN1     | LOW 💌      | <b>V</b>          | Full 💌                 | Full       | ~          |  |
|                   | LAN2     | LOW 🔽      |                   | Full 💌                 | Full       | ~          |  |
|                   | SSID 1   | LOW 💌      | <b>V</b>          | Full 💌                 | Full       | ~          |  |
|                   | SSID2    | LOW 💌      |                   | Full 💌                 | Full       | ~          |  |
|                   | SSID3    | LOW 💌      |                   | Full 💌                 | Full       | ~          |  |
|                   | SSID4    | LOW 💌      |                   | Full                   | Full       | ~          |  |
|                   |          |            | ļ                 | Apply Cancel           |            |            |  |

In this page, you may configure the priority of the LAN interfaces, incoming and outgoing rate limits, and flow control.

The following table describes parameters in this page:

| Field                | Description   |  |
|----------------------|---|--|
| Port                 | The PLC wireless router supports 2 LAN interfaces         |  |
| Poll                 | and 4 WLAN interfaces.                                    |  |
| Priority             | You can select LOW or HIGH.                               |  |
| Flow Control         | Enable or disable the flow control.                       |  |
| In coming Data Limit | Set the incoming rate limit. Full indicates that there is |  |
| Incoming Rate Limit  | no limit to the incoming rate.                            |  |
| Outraine Data Linit  | Set the outgoing rate limit. Full indicates that there is |  |
| Outgoing Rate Limit  | no limit to the outgoing rate.                            |  |

After setting the parameters, click Apply to save the settings.

### 5.3.4.4 Static Routing

Static routing is a special routing type. Applying proper static routing rules on a network can reduce the routing problems, improve the overload of routing traffic, and increase the forwarding speed of data packets. You can set the destination IP address, subnet mask, and gateway to specify a routing rule. The destination IP address and subnet mask are used to determine a destination network or a host.

Then, the router sends the data packets to the specified destination network or host through the gateway.

Choose Advanced Network > Static Routing on the left pane or click Static Routing in the ADVANCED NETWORK page to display the following page.



In this page, you can set the static routing rules.

#### Click Add to display the following page.

|                   | SETUP                  | ADVANCED                    | MAINTENANCE               | STATUS           | HELP          |  |
|-------------------|------------------------|-----------------------------|---------------------------|------------------|---------------|--|
| DoS Protection    | STATIC ROUTE           |                             |                           |                  | Helpful Hints |  |
| Access Control    | This page allows you t | o add a specific route inte | rface. If you are not fam | iliar with these | More          |  |
| Advanced Wireless | Advanced Network se    | ttings, please read the he  | p section.                |                  |               |  |
| Advanced Network  | A maximum 16 entr      | ies can be configured.      |                           |                  |               |  |
| PLC Setting       |                        |                             |                           |                  |               |  |
| Logout            | ROUTING STATI          | CROUTE                      |                           |                  |               |  |
|                   | Destination            | Subnet Mask Gatew           | ay Metric Interfa         | ace Edit Delete  |               |  |
|                   |                        | A                           | b                         |                  |               |  |
|                   |                        |                             |                           |                  |               |  |
|                   | STATIC KOUTE AD        |                             |                           |                  |               |  |
|                   | Destinatio             | n Network Address :         |                           |                  |               |  |
|                   | Subnet M               | ask :                       |                           |                  |               |  |
|                   | Use Gatew              | ay IP Address :             |                           |                  |               |  |
|                   | Forwardin              | gmetric:                    |                           |                  |               |  |
|                   | Use Intern             | ace:                        |                           |                  |               |  |
|                   |                        | Apply                       | Cancel                    |                  |               |  |
|                   |                        |                             |                           |                  |               |  |

The following table describes parameters in this page:

| Field                          | Description  |
|--------------------------------|--|
| Destination<br>Network Address | Set the IP address of destination network.   |
| Subnet Mask                    | Set the subnet mask of the destination IP address.                                       |
| Use Gateway IP<br>Address      | Set the IP address of host or router that data packets are sent to.                      |
| Forwarding<br>Metric           | Set the number of forwarding hops that network data packets are forwarded by the router. |
| Use Interface                  | Select a local legal interface for the routing rule.                                     |

After setting the parameters, click **Apply** to save the settings.

### 5.3.4.5 RIP

RIP (Routing Information Protocol) can be used to determine the optimal path by estimating the hops of distance or the number of routing router.

Choose **Advanced Network** > **RIP** on the left pane or click **RIP** in the **ADVANCED NETWORK** page to display the following page.

|                   | SETUP                   | ADVANCED                    | MAINTENANCE                 | STATUS            | HELP  |
|-------------------|-------------------------|-----------------------------|-----------------------------|-------------------|---|
| DoS Protection    | RIP CONFIGURATI         | ON                          |                             |                   | Helpful Hints   |
| Access Control    | To activate RIP for th  | e device, select the "Enab  | iled" checkbox for Global F | RIP Mode. To      | Enabling RIP provides a                               |
| Advanced Wireless | configure an individual | interface, select the desir | red RIP version and operat  | tion, followed by | protocol that determines<br>the best path to a target |
| Advanced Network  | the configuration, and  | to start or stop RIP base   | d on the Global RIP Mode    | selected.         | in number of hops or<br>intermediate routers.         |
| PLC Setting       |                         |                             |                             |                   | More  |
| Logout            | RIP                     |                             |                             |                   |   |
|                   | Enabled                 | Interface                   | Version                     | Status            |   |
|                   |                         | 1_INTERNET_R                | Both 🛩                      | Invalid           |   |
|                   |                         | Apply                       | Cancel                      |                   |   |

In this page, you can configure the RIP parameters.

| Field     | Description  |
|-----------|--|
| Enabled   | Enable or disable RIP.   |
| Interface | Display the WAN connection name.   |
| Version   | You can select RIPV1, RIPV2 or <b>Both</b> . <b>Both</b> indicates that it is compatible with RIPV1 and RIPV2. |
| Status    | Display whether the specified RIP is valid or not.   |

The following table describes parameters in this page:

After setting the parameters, click **Apply** to save the settings.

### 5.3.4.6 UPnP

By using the Universal Plug and Play (UPnP) protocol, a host on the LAN side can require the router to realize the conversion of specific port, so that an external host can access resources on the internal host when necessary. For example, if MSN Messenger is installed on Windows ME and Windows XP operating systems, UPnP can be used for audio and video conversations. In this way, functions restricted by NAT can work properly.

Choose Advanced Network > UPnP on the left pane or click UPnP in the ADVANCED NETWORK page to display the following page.

|                   | SETUP                 | ADVANCED            | MAINTENANCE | STATUS | HELP   |  |
|-------------------|-----------------------|---------------------|-------------|--------|--|--|
| DoS Protection    | UPNP CONFIGURAT       |                     |             |        |  |  |
| Access Control    | Click the checkbox to | enable UPnP Device. |             |        | UPnP is used for many                                  |  |
| Advanced Wireless |                       |                     |             |        | Visual software. It allows                             |  |
| Advanced Network  | ENABLE UPNP           |                     |             |        | device on the network. If                              |  |
| PLC Setting       | Enable U              | PnP                 |             |        | security concern, we offer<br>the option to disable it |  |
| Logout            |                       |                     |             |        | here.  |  |
|                   | WAN Cor               | nnection :          | V           |        | More   |  |
|                   |                       | Apply               | Cancel      |        |  |  |

In this page, you can enable the UPnP function and select a WAN connection. After setting the parameters, click **Apply** to save the settings.

#### Dote:

UPnP is widely used in video and audio software. It can automatically search a device on the network. If you worry about the security problems caused by UPnP, you may disable UPnP.

## 5.3.4.7 TR069

TR-069, one of the technology specifications, comes from the Digital Subscriber Line (DSL) Forum, whose full name is "CPE WAN Management Protocol (CWMP)". TR069 defines the general frame and protocol for next-generation home network devices. By using the TR069, the PLC router can realize the remote centralized management to the home network devices such as gateway, router, and set top box from the LAN side.

The basic features of the TR-069 are as follows:

- Automatic configuration and dynamic service
- Software and hardware upgrade
- Device status and performance monitoring

Choose Advanced Network > TR069 on the left pane or click TR069 in the ADVANCED NETWORK page to display the following page.

|                   | SETUP                    | ADVANCED                      | MAINTENANCE               | STATUS           | HELP                       |
|-------------------|--------------------------|-------------------------------|---------------------------|------------------|----------------------------|
| DoS Protection    | TR-069                   |                               |                           |                  | Helpful Hints              |
| Access Control    | WAN Management Pro       | tocol (TR-069) allows a A     | uto-Configuration Server  | (ACS) to perform | Provides a means to        |
| Advanced Wireless | auto-configuration, pro  | ovision, collection, and diag | pnostics to this device.  | ()               | performance as well as set |
| Advanced Network  | Select the desired value | es and click "Apply" to co    | nfigure the TR-069 client | options.         | from WAN side.             |
| PLC Setting       |                          |                               |                           |                  | More                       |
| Logout            | TR-069 CLIENT            | CONFIGURATION                 |                           |                  |                            |
|                   | Infrom:                  |                               | Disabled O Enabled        | led              |                            |
|                   | Inform Inte              | rval:                         | 86400                     | (10-4294967295)  |                            |
|                   | ACS URL:                 |                               | http://192.168.8.123:     | 888              |                            |
|                   | ACS User Na              | me:                           | serial                    |                  |                            |
|                   | ACS Passwo               | rd:                           | ••••                      |                  |                            |
|                   | Connection               | Request Authenticatio         | n 🗹                       |                  |                            |
|                   | Connection               | Request User Name:            | admin                     |                  |                            |
|                   | Connection               | Request Password:             | ••••                      |                  |                            |
|                   | L                        | Apply                         | Cancel                    |                  |                            |

| Field                     | Description   |
|---------------------------|---|
| Inform                    | Enable or disable the informing function.             |
| Informa Inton val         | Set the informing interval for the PLC router sending |
| morm merval               | the connection request to the TR069 server.           |
|                           | Set the target path by which the PLC router sends the |
| ACS URL                   | request to the TR069 server.                          |
|                           | Enter the user name that is used for the PLC router   |
| ACS User Marrie           | logging in to the TR069 server.                       |
| ACS Decoword              | Enter the password that is used for the PLC router    |
| ACS Password              | logging in to the TR069 server.                       |
|                           | Enable or disable connection request authentication.  |
| <b>Connection Request</b> | After Connection Request Authentication is            |
| Authentication            | checked, you need to enter the username and           |
|                           | password for authentication.                          |
| <b>Connection Request</b> | Enter the user name that is used for the TR069 server |
| User Name                 | accessing the PLC router.                             |
| <b>Connection Request</b> | Enter the password that is used for the TR069 server  |
| Password                  | accessing the PLC router.                             |

The following table describes parameters in this page:

After setting the parameters, click **Apply** to save the settings.

## 5.3.4.8 Virtual Server

Firewall can prevent unexpected Internet traffic from your LAN host. The virtual server can create a channel that is through the firewall. In that case, the Internet host can communicate with a LAN host within certain port range.

Choose Advanced Network > Virtual Server on the left pane or click Virtual Server in the ADVANCED NETWORK page to display the following page.

|                   | SETUP                  | ADVANCED                    | MAINTENANCE                | STATUS                 | HELP  |
|-------------------|------------------------|-----------------------------|----------------------------|------------------------|---|
| DoS Protection    | VIRTUAL SERVER         |                             |                            |                        | Helpful Hints   |
| Access Control    | The Virtual Server fur | iction allows you to assign | a public port in your rout | er which is redirected | Enable users on Internet                                |
| Advanced Wireless | to an internal LAN IP  | address and LAN port acc    | ording to the requirement  | s. This feature is     | and other services from                                 |
| Advanced Network  | useral comoscionine :  | services such as FTF or W   | eb Servers.                |                        | as port forwarding. When                                |
| PLC Setting       | VIRTUAL SERVER         | LIST                        |                            |                        | accessing Web or FTP<br>servers through WAN IP          |
| Logout            | Status WAN             | WAN Port TCP /              | LAN Host IP Server         | Remark Edit Delete     | address, it will be routed<br>to the server with LAN IP |
|                   | Connection             | Range UDP                   | Address Port               |                        | address.  |
|                   |                        |                             | uu l                       |                        | More  |
|                   |                        |                             | kuu j                      |                        |   |
|                   |                        |                             |                            |                        |   |
|                   |                        |                             |                            |                        |   |
|                   |                        |                             |                            |                        |   |
|                   |                        |                             |                            |                        |   |
|                   |                        |                             |                            |                        |   |
|                   |                        |                             |                            |                        |   |

## Click **Add** to display the following page.

|                   | SETUP                    | ADVANCED                    | MAINTENANCE                        | STATUS                | HELP  |
|-------------------|--------------------------|-----------------------------|------------------------------------|-----------------------|---|
| DoS Protection    | VIRTUAL SERVER           |                             |                                    |                       | Helpful Hints   |
| Access Control    | The Virtual Server fund  | tion allows you to assign   | a public port in your route        | r which is redirected | Enable users on Internet  |
| Advanced Wireless | to an internal LAN IP a  | ddress and LAN port acco    | ording to the requirements         | s. This feature is    | to access the WWW, FTP<br>and other services from                   |
| Advanced Network  | userui to nost online si | ervices such as FTP of We   | eu bervers.                        |                       | as port forwarding. When  |
| PLC Setting       | VIRTUAL SERVER           | LIST                        |                                    |                       | accessing Web or FTP<br>servers through WAN IP                      |
| Logout            | Status WAN<br>Connection | WAN Port TCP /<br>Range UDP | LAN Host IP Server<br>Address Port | Remark Edit Delete    | address, it will be routed<br>to the server with LAN IP<br>address. |
|                   |                          | A                           | d                                  |                       | More  |
|                   | VIRTUAL SERVER           | FILTERING                   |                                    |                       |   |
|                   | E                        | Enable Virtual server       |                                    |                       |   |
|                   | ۱ N                      | WAN Connection(s) :         | 1_INTERNET_R                       |                       |   |
|                   | 1                        | WAN Port Range :            | · ·                                |                       |   |
|                   | ı ا                      | TCP / UDP :                 | Both 💌                             |                       |   |
|                   | L L                      | AN Host IP Address :        |                                    |                       |   |
|                   | 5                        | Server Port :               |                                    |                       |   |
|                   | F                        | Remark :                    |                                    |                       |   |
|                   | L                        | Apply                       | Cancel                             |                       |   |

| Field             | Description  |  |  |
|-------------------|--|--|--|
| Enable Virtual    | Enchle en dischle wittvel een en                       |  |  |
| Server            | Enable of disable virtual server.                      |  |  |
| MAN Connection(a) | Select a WAN connection that routes to the server on   |  |  |
| WAN Connection(s) | the LAN.   |  |  |
| WAN Port Range    | Set the WAN port mapping range.                        |  |  |
|                   | Select the protocol that server adopts. You can select |  |  |
| TCP/UDP           | TCP, UDP, or Both.                                     |  |  |
| LAN Host IP       | Enter the bast ID address of LAN interface             |  |  |
| Address           | Enter the nost IP address of LAN Interface.            |  |  |
| Server Port       | Enter the server port number that the LAN host uses.   |  |  |
| Remark            | Enter the comment about the rule.                      |  |  |

The following table describes parameters in this page:

After setting the parameters, click **Apply** to save the settings.

### 5.3.4.9 IGMP

IGMP Snooping is used for multicast management and control. When the Ethernet switch of the second layer receives the IGMP packets transmitted between the host and router, IGMP Snooping will analyze the packets to establish and maintain the address table of the MAC multicast, and then the routing multicast packets will be transmitted according to the address table of MAC multicast. In this way, it dramatically reduces the service flood on the receiving interface of unregistered multicast group.

The IGMP proxy can make the PLC wireless router intercept the IGMP message of host via the LAN interface, and then the IGMP message of host is transmitted via the WAN interface. After IGMP proxy is enabled, the PLC wireless router works as the agent server of host.

Choose Advanced Network > IGMP on the left pane or click IGMP in the ADVANCED NETWORK page to display the following page.

|                   | SETUP                   | ADVANCED  | MAINTENANCE            | STATUS | HELP   |  |  |  |
|-------------------|-------------------------|---|------------------------|--------|--|--|--|--|
| DoS Protection    | IGMP PROXY              |   |                        |        | Helpful Hints  |  |  |  |
| Access Control    | Transmission of identio | number of recipients.   | IGMP proxy enables the |        |  |  |  |  |
| Advanced Wireless | IGMP proxy enables th   | system to issue IGMP host<br>messages on behalf of                            |                        |        |  |  |  |  |
| Advanced Network  | system discovered thr   | system discovered through standard IGMP interfaces.                           |                        |        |  |  |  |  |
| PLC Setting       |                         |   |                        |        |  |  |  |  |
| Logout            | IGMP SNOOPING           | IGMP SNOOPING   |                        |        |  |  |  |  |
|                   |                         | intelligent multicast<br>forwarding (only) toward<br>those hosts, i.e. IPSTBs |                        |        |  |  |  |  |
|                   | IGMP PROXY              |   |                        |        | etc., which request to join<br>(as members of) a specific      |  |  |  |
|                   |                         | multicast group, i.e. an<br>IPTV channel etc., within<br>the broadcast domain |                        |        |  |  |  |  |
|                   | En                      | abled   | WAN Conn               | ection | (same PVC/VLAN). As a  |  |  |  |
|                   |                         |   | 1_INTERN               | ET_R   | reduces traffic flooding                                       |  |  |  |
|                   |                         | Apply   | Cancel                 |        | not registered as<br>receivers of specific<br>multicast group. |  |  |  |

In this page, you can enable or disable the IGMP Snooping and IGMP proxy.

After IGMP Snooping is enabled, only the host that has joined the multicast group can receive the multicast packets. Once the host leaves the multicast group, it cannot receive the multicast packets any more.

After IGMP Proxy is enabled, you can enable or disable the IGMP Proxy function of the selected WAN connections

After setting the parameter, click Apply to save the settings.

## 5.3.4.10 Dynamic DNS

Dynamic DNS can map a dynamic IP address to a fixed host name, and all users on the Internet can access the host by this host name. ISP assigns the IP addresses by DHCP, so it is difficult for the users to search the host by DNS. For example, if the IP address of a public Web server or VPN server is changed on the LAN, you can still find the corresponding host by the DDNS service.

Choose Advanced Network > Dynamic DNS on the left pane or click DDNS in the ADVANCED NETWORK page to display the following page.

|                   | SETUP   | ADVANCED   | MAINTENANCE               | STATUS           | HELP   |  |  |  |
|-------------------|---|--|---------------------------|------------------|--|--|--|--|
| DoS Protection    | DYNAMIC DNS   |  |                           |                  | Helpful Hints  |  |  |  |
| Access Control    | The Dynamic DNS feat  | ture allows you to host a  | server using a domain nan | ne that you have | DDNS - This stands for   |  |  |  |
| Advanced Wireless | purchased (www.xxx.   | purchased (www.xxx.com) with your dynamically assigned IP address. Most broadband Internet |                           |                  |  |  |  |  |
| Advanced Network  | friends can enter your  | in order to access a<br>dynamic IP address from  |                           |                  |  |  |  |  |
| PLC Setting       |   | anywhere in the world.   |                           |                  |  |  |  |  |
| Logout            | DYNAMIC DNS SET   | rup  |                           |                  | To use this feature, you   |  |  |  |
|                   | Enable Dynamic  | DNS  |                           |                  | DNS account from one of<br>the providers in the drop<br>down menu  |  |  |  |
|                   | Server Address :<br>Hostname :<br>Username :<br>Password :<br>Confirm Passwor | d : Apply  | Cancel                    |                  | Note: in some cases DDNS<br>service requires you to<br>open the WAN http<br>service in Maintenance -><br>Access Control -> HTTP<br>Services. |  |  |  |

In this page, you can configure the DDNS parameteres.

The following table describes parameters in this page:

| Field            | Description  |  |  |
|------------------|--|--|--|
| Enable Dynamic   | Enable or disable Dynamic DNS.                           |  |  |
| DNS              |  |  |  |
|                  | Select the proper DDNS service provider according to     |  |  |
| Server Address   | the actual situation. You may select <b>oray.cn</b> , or |  |  |
|                  | dyndns.org.  |  |  |
| Hostnomo         | Enter the host name or domain name provided by the       |  |  |
| Hostname         | DDNS service provider.                                   |  |  |
| Username         | Enter the username of DDNS account.                      |  |  |
| Password         | Enter the password of DDNS account.                      |  |  |
| Confirm Password | Enter the password of DDNS account again.                |  |  |

After setting the parameters, click **Apply** to save the settings.

# 5.3.5 PLC Setting

Choose ADVANCED > PLC Setting, and the following page appears.

|                   | SETUP   | ADVANCED   | MAINTENANCE                                  | STATUS | HELP                      |  |  |
|-------------------|---|--|--|--------|---------------------------|--|--|
| DoS Protection    | POWERLINE SETTI   | POWERLINE SETTINGS   |  |        |                           |  |  |
| Access Control    | Change Powerline sett   | tings.   |  |        | PLC Settings: You can set |  |  |
| Advanced Wireless |   | · · · ·  |  |        |                           |  |  |
| Advanced Network  | LOCAL DEVICE CO   | LOCAL DEVICE CONFIGURATION   |  |        |                           |  |  |
| PLC Setting       | Configure Local Net   | work Password  |  |        |                           |  |  |
| Logout            | Network Password:<br>Local Device MAC:<br>Model:<br>Firmware Version:<br>Low Power Mode:        | HomePlugAV<br>00:1e:e3:2f:19:bf<br>Qualcomm Atheros H<br>MAC-QCA7420-1.1.0<br>Normal | lomePlug AV Device<br>.844-01-20120919-FINAL |        |                           |  |  |
|                   | Please slect WAN<br>Note : After you si<br>effective.<br>REMOTE DEVICE O<br>Powerline Devices D |  |  |        |                           |  |  |
|                   | Alias   |  |  |        |                           |  |  |
|                   | Change Remote Net   |  |  |        |                           |  |  |
|                   | ADVANCE CONFIG  | URATION<br>Configration  |  |        |                           |  |  |
|                   |   | Apply  | Cancel                                       |        |                           |  |  |

In this page, you can configure the parameters of PLC settings.

### Local Device Configuration

The local device configuration allows you to configure the local network password, and to view the information of the local device such as local device MAC, and firmware version.

#### WAN Port Switch

WAN port switch function is used to switch the WAN interface of the PLC router. Check the **Ethernet Port**, and then the LAN2/WAN interface serves as a WAN interface. If you check **PLC Power Line**, the two LAN interfaces still serve as the LAN interfaces, and the power line interface serves as a WAN interface.

### • Remote Device Configuration

The **Remote Device Configuration** allows you to view the configuration information of the remote PLC devices and to set the network passwords of the remote devices.

You can search current remote PLC devices by clicking the Scan button.

Select **Enable** from the drop-down list of **Change Remote NetworkPwd** to display the following page.

Change Remote NetworkPwd Enable

| Device Name | Remote MAC | Password(DEK) | Remote NetworkPwd |
|-------------|------------|---------------|-------------------|
|             |            |               |                   |
|             |            |               |                   |
|             |            |               |                   |
|             |            |               |                   |
|             |            |               |                   |
|             |            |               |                   |
|             |            |               |                   |
|             |            |               |                   |

You can set the passwords of remote PLC devices according to their MAC addresses and DEKs (Device Equipment Key).

| Field   | Description  |  |  |  |  |
|---|--|--|--|--|--|
| Device Name   | Enter the device names of the remote devices.              |  |  |  |  |
| Remote MAC Enter the MAC addresses of the remote devices. |  |  |  |  |  |
| Decoverd (DEK)  | When you set the parameters of the remote devices, you     |  |  |  |  |
| Password (DEK)  | need to enter this password for authentication.            |  |  |  |  |
| Remote  | On table and the second state of the second to DLO devices |  |  |  |  |
| NetworkPwd  | Set the network passwords for the remote PLC devices.      |  |  |  |  |

The following table describes parameters in this page:

#### Dote:

You can set up to 8 network passwords for the remote PLC devices.

You can access the Internet by network password synchronization. But network passwords of the two devices for password synchronization must be the same, and either of the PLC devices must be connected to the Internet.

## Advanced Configuration

| ADVA            | ADVANCE CONFIGURATION   |        |        |          |        |        |             |             |
|-----------------|---|--------|--------|----------|--------|--------|-------------|-------------|
| << H            | << Hide Advance Configration  |        |        |          |        |        |             |             |
| QOS I           | QOS PRIORITY SETTING  |        |        |          |        |        |             |             |
| If bot<br>both, | If both VLAN Tags and TOS Bits are enabled and a frame is found that contains both,VLAN Tags will overwrite TOS Bits. |        |        |          |        |        |             |             |
| VLAN            | Byte O  | Byte 1 | Byte 2 | Byte 3   | Byte 4 | Byte 5 | Byte 6      | Byte 7      |
|                 | Normal  | Low    | Low    | V Normal | ⊻ High | Migh   | V Highest V | Highest 🗸   |
|                 | Normal N  | Low    | V Low  | V Normal | ✓ High | ✓ High | ✓ Highest V | / Highest 🗸 |
|                 |   |        | (      | Apply    | Cancel |        |             |             |

QoS priority settings in this page only apply to PLC data stream. QoS function contains VLAN tag and ToS tag. Each VLAN tag or ToS tag contains 8 bits and defines 4-level QoS priority settings.

By default, QoS priority settings are hidden.

After setting the parameters, click Apply to save the settings.

## 5.3.6 Logout

Choose ADVANCED > Logout to log out of the Web configuration page.

# 5.4 Maintenance

## 5.4.1 Device Management

Choose MAINTENANCE > Device Management, and the following page appears.

|                      | SETUP                  | ADVANCED  | MAINTENANCE  | STATUS        | HELP   |  |  |  |
|----------------------|------------------------|---|--------------|---------------|--|--|--|--|
| Device Management    | DEVICE MANAGEM         | DEVICE MANAGEMENT AND SERVICE   |              |               |  |  |  |  |
| Backup and Restore   | It is highly recommend | It is highly recommended that you create a password to keep your router secure. |              |               |  |  |  |  |
| Firmware Update      | j,                     |   |              |               |  |  |  |  |
| Configuration Update | ACCOUNT PASSW          | ORD   |              |               | accounts. Be sure to                             |  |  |  |
| Log Settings         | Userna                 | username and  |              |               |  |  |  |  |
| Diagnostics          | Curren                 | will need restore the   |              |               |  |  |  |  |
| Logout               | New Pa                 | assword :   |              |               | Enabling Remote                                  |  |  |  |
|                      | Confirm                | n Password :  |              |               | Management allows you or<br>others to change the |  |  |  |
|                      |                        | router configuration from<br>a computer on the                                  |              |               |  |  |  |  |
|                      | WEB IDLE TIME O        | WEB IDLE TIME OUT SETTINGS  |              |               |  |  |  |  |
|                      | Web Io                 | lle Time Out :  | 5 (5         | ~ 30 minutes) | More   |  |  |  |
|                      | SERVICES               |   |              |               |  |  |  |  |
|                      | Select                 | WAN Connections :   | 1_INTERNET_R |               |  |  |  |  |
|                      | Se                     | rvice   | WAN          |               |  |  |  |  |
|                      | P                      | ING   |              |               |  |  |  |  |
|                      | W                      | WW  |              |               |  |  |  |  |
|                      | TE                     | LNET  |              |               |  |  |  |  |
|                      | Т                      | FTP   |              |               |  |  |  |  |
|                      |                        | Apply   | Cancel       |               |  |  |  |  |

In this page, you can modify the password for logging in to the PLC wireless router, set Web idle timeout, and enable or disable the WAN connection service.

#### Account Password

In order to ensure the network security, it is recommended you change the default login password. Please remember the new password if you change the default password. You may write it down and keep it well for future use. If you forget the login password, you need to restore the factory default settings of the PLC wireless router. After the default settings are restored, the PLC router will lose the new settings that you configure.

#### Dote:

For the sake of network security, it is strongly recommended to change the password of **admin**. If you forget the login password, please restore the factory default settings of the PLC wireless router. The default user name and password of the super user are **admin**.

### • Web Idle Time Out Settings

Web idle timeout setting is used to set the time for system automatically exiting the Web configuration page. The range is 5~30 minutes.

#### Services

If you have established some WAN connections, you may enable or disable the service types of the selected WAN connections. You can also enable or disable the service types of remote hosts. For example, enable the Telnet service, and then the remote host can log in to the PLC wireless router by the Telnet service. After setting the parameters, click **Apply** to save the settings.

## 5.4.2 Backup and Restoration

Choose MAINTENANCE > Backup and Restore, and the following page appears.

|                      | SETUP                  | ADVANCED   | MAINTENANCE   | STATUS | HELP  |  |  |  |
|----------------------|------------------------|--|---------------|--------|---|--|--|--|
| Device Management    | BACKUP AND RES         | BACKUP AND RESTORE   |               |        |   |  |  |  |
| Backup and Restore   | Through this page, yo  | Through this page, you can backup the current configuration or restore the router to factory |               |        |   |  |  |  |
| Firmware Update      | configuration.         | configuration.   |               |        |   |  |  |  |
| Configuration Update |                        | configuration file.  |               |        |   |  |  |  |
| Log Settings         | REBOOT                 |  |               |        | You might need this file so   |  |  |  |
| Diagnostics          | Click the button below | w to reboot the router.  |               |        | configuration when you<br>need.   |  |  |  |
| Logout               |                        | Reboot   |               |        |   |  |  |  |
|                      |                        |  |               |        | Save the Setting of your<br>router configuration or<br>Restart your router. |  |  |  |
|                      | BACKUP SETTING         | S  |               |        |   |  |  |  |
|                      | You can save your rou  | uter configurations to a file  | e on your PC. |        | More  |  |  |  |
|                      |                        |  |               |        |   |  |  |  |
|                      | RESTORE DEFAUL         |  |               |        |   |  |  |  |
|                      | Restore router setting |  |               |        |   |  |  |  |
|                      |                        | Res  | tore          |        |   |  |  |  |

In this page, you can reboot the router, backup the configuration file, and restore the factory default settings of the router.

### Reboot

Click Reboot to reboot the router.

### Backup Settings

Click **Backup Setting** and select the path to save the configuration file of the router to your local PC.

#### • Restore Default Settings

Click **Restore** to restore the factory default settings of the router. You may also press the **Reset** pushbutton on the front panel for 3 seconds to restore the factory default settings of the router.



When operating in this page, do not press the Reset pushbutton.

## 5.4.3 Firmware Update

Choose MAINTENANCE > Firmware Update, and the following page appears.

|                      | SETUP                   | ADVANCED   | MAINTENANCE   | STATUS              | HELP   |  |  |  |
|----------------------|-------------------------|--|---|---------------------|--|--|--|--|
| Device Management    | FIRMWARE UPDAT          | E  |   |                     | Helpful Hints  |  |  |  |
| Backup and Restore   | The Firmware Ungrade    | section can be used to u                               | indate to the latest firmw                          | are code to improve | Firmware updates are<br>released periodically to       |  |  |  |
| Firmware Update      | functionality and perfo | functionality and performance.                         |   |                     |  |  |  |  |
| Configuration Update | NOTE: The update pro    | ocess takes about 2 minut<br>off your device before th | tes to complete, and your<br>ne undate is complete. | router will reboot. | features. If you run into a<br>problem with a specific |  |  |  |
| Log Settings         | - Sale control power    | on your doned boloro d                                 | a operations administration                         |                     | feature of the router,<br>check if updated firmware    |  |  |  |
| Diagnostics          |                         |  |   |                     | is available for your<br>router.                       |  |  |  |
| Logout               | Fir                     | mware Version :  | GE_1.00   |                     | More   |  |  |  |
|                      | Up                      | grade Mode :   |   |                     |  |  |  |  |
|                      | Se                      | lect File :<br>] Clear Config                          | TFTP<br>FTP<br>HTTP<br>HTTPS                        | Browse              |  |  |  |  |
|                      |                         |  |   |                     |  |  |  |  |
|                      |                         | Apply  | Cancel  |                     |  |  |  |  |

In this page, you can update the firmware version of the PLC wireless router. You may obtain the firmware from the local server or remote server.

#### Local Upgrade Mode

Usually, you can upgrade firmware from the local server.

If you select **LOCAL** from the drop-down list of upgrade mode, the following page appears.

| ///                  | SETUP                                       | ADVANCED   | MAINTENANCE  | STATUS               | HELP   |
|----------------------|---|--|--|----------------------|--|
| Device Management    | FIRMWARE UPDAT                              | E  |  |                      | Helpful Hints  |
| Backup and Restore   | The Firmware Upgrade                        | section can be used to                               | update to the latest firmw                           | vare code to improve | Firmware updates are<br>released periodically to       |
| Firmware Update      | functionality and perfo                     | rmance.  |  |                      | improve the functionality<br>of your router and to add |
| Configuration Update | NOTE: The update pro<br>Please DO NOT power | ocess takes about 2 minu<br>off vour device before t | ites to complete, and your<br>he update is complete. | router will reboot.  | features. If you run into a problem with a specific    |
| Log Settings         |   |  |  |                      | reature of the router,<br>check if updated firmware    |
| Diagnostics          |   |  |  |                      | is available for your<br>router.                       |
| Logout               | Fir   | mware Version :                                      | GE_1.00  |                      | More   |
|                      | Ut  | grade Mode :   | LOCAL 💌  |                      |  |
|                      | Se  | lect File :<br>] Clear Config                        |  | Browse               |  |
|                      |   | Apply  | Cancel   | J                    |  |

The following table describes parameters in this page:

| Field            | Description  |
|------------------|--|
| Firmware Version | Display current firmware version.                      |
| Upgrade Mode     | Select LOCAL.  |
| Select File      | Click Browse to navigate to the latest firmware.       |
|                  | If you check Clear Config, the PLC router restores to  |
| Clear Config     | the default settings after upgrade. Otherwise, the PLC |
|                  | router keeps the current settings.                     |

## • TFTP Upgrade Mode

If you select **TFTP** from the drop-down list of upgrade mode, the following page appears.

| //                   | SETUP                                     | ADVANCED   | MAINTENANCE  | STATUS                 | HELP   |
|----------------------|---|--|--|------------------------|--|
| Device Management    | FIRMWARE UPDA                             | TE   |  |                        | Helpful Hints  |
| Backup and Restore   | The Firmware Ungrad                       | Firmware updates are<br>released periodically to<br>improve the functionality<br>of your router and to add |  |                        |  |
| Firmware Update      | functionality and perfo                   |  |  |                        |  |
| Configuration Update | NOTE: The update pr<br>Please DO NOT nowe | rocess takes about 2 mini<br>ir off your device before t   | utes to complete, and you<br>the undate is complete. | ur router will reboot. | features. If you run into a<br>problem with a specific |
| Log Settings         |   |  |  |                        | feature of the router,<br>check if updated firmware    |
| Diagnostics          |   |  |  |                        | is available for your<br>router.                       |
| Logout               | Fi  | irmware Version :  | GE_1.00  |                        | More   |
|                      | U   | pgrade Mode :  | TFTP 💌   |                        |  |
|                      | s   | erver IP Address :   |  |                        |  |
|                      | s   | erver Port :   | 69   | (1-65535)              |  |
|                      | U   | ser Name :   |  |                        |  |
|                      | р   | assword :  |  |                        |  |
|                      | D   | irectory :   | /image.img   |                        |  |
|                      | 6   | Clear Config   |  |                        |  |
|                      |   | Apply  | Cancel   |                        |  |

The following table describes parameters in this page:

| Field             | Description  |
|-------------------|--|
| Firmware Version  | Display current firmware version.                      |
| Upgrade Mode      | Select TFTP.   |
| Server IP Address | Enter the IP address of TFTP server.                   |
| Server Port       | Enter the port number of TFTP server.                  |
| Directory         | Enter the firmware directory.                          |
|                   | If you check Clear Config, the PLC router restores to  |
| Clear Config      | the default settings after upgrade. Otherwise, the PLC |
|                   | router keeps the current settings.                     |

### • FTP Upgrade Mode

If you select **FTP** from the drop-down list of upgrade mode, the following page appears.

|                      | SETUP                                     | ADVANCED   | MAINTENANCE  | STATUS                 | HELP   |
|----------------------|---|--|--|------------------------|--|
| Device Management    | FIRMWARE UPDA                             | TE   |  |                        | Helpful Hints  |
| Backup and Restore   | The Firmware Ungrad                       | ware code to improve                                   | Firmware updates are<br>released periodically to<br>improve the functionality<br>of your router and to add |                        |  |
| Firmware Update      | functionality and perfo                   |  |  |                        |  |
| Configuration Update | NOTE: The update pr<br>Please DO NOT nowe | ocess takes about 2 minu<br>r off your device before t | ites to complete, and you<br>he undate is complete.  | ur router will reboot. | features. If you run into a<br>problem with a specific |
| Log Settings         |   |  |  |                        | feature of the router,<br>check if updated firmware    |
| Diagnostics          |   |  |  |                        | is available for your<br>router.                       |
| Logout               | Fi  | rmware Version :                                       | GE_1.00  |                        | More   |
|                      | U   | pgrade Mode :  | FTP 🔽  |                        |  |
|                      | s   | erver IP Address :                                     |  |                        |  |
|                      | s   | erver Port :   | 21   | (1-65535)              |  |
|                      | U   | ser Name :   |  |                        |  |
|                      | Р   | assword :  |  |                        |  |
|                      | D   | irectory :   | /image.img   |                        |  |
|                      | E   | Z Clear Config   |  |                        |  |
|                      |   | Apply  | Cancel   |                        |  |

The following table describes parameters in this page:

| Field             | Description  |
|-------------------|--|
| Firmware Version  | Display current firmware version.                      |
| Upgrade Mode      | Select FTP.  |
| Server IP Address | Enter the IP address of FTP server.                    |
| Server Port       | Enter the port number of FTP server.                   |
| User Name         | Enter the username for connecting to the FTP server.   |
| Password          | Enter the password for connecting to the FTP server.   |
| Directory         | Enter the firmware directory.                          |
|                   | If you check Clear Config, the PLC router restores to  |
| Clear Config      | the default settings after upgrade. Otherwise, the PLC |
|                   | router keeps the current settings.                     |

### • HTTP Upgrade Mode

If you select **HTTP** from the drop-down list of upgrade mode, the following page appears.

|                      | SETUP                                    | ADVANCED   | MAINTENANCE  | STATUS                 | HELP   |
|----------------------|--|--|--|------------------------|--|
| Device Management    | FIRMWARE UPDA                            | TE   |  |                        | Helpful Hints  |
| Backup and Restore   | The Firmware Ungrad                      | ware code to improve                                   | Firmware updates are<br>released periodically to<br>improve the functionality<br>of your router and to add |                        |  |
| Firmware Update      | functionality and perf                   |  |  |                        |  |
| Configuration Update | NOTE: The update p<br>Please DO NOT nowe | ocess takes about 2 minu<br>r off your device before t | ites to complete, and you<br>he undate is complete.  | ur router will reboot. | features. If you run into a<br>problem with a specific |
| Log Settings         |  |  |  |                        | feature of the router,<br>check if updated firmware    |
| Diagnostics          |  |  |  |                        | is available for your<br>router.                       |
| Logout               | Fi                                       | rmware Version :                                       | GE_1.00  |                        | More   |
|                      | U  | pgrade Mode :  | HTTP 💌   |                        |  |
|                      | s  | erver IP Address :                                     |  |                        |  |
|                      | s  | erver Port :   | 80   | (1-65535)              |  |
|                      | U  | ser Name :   |  |                        |  |
|                      | Р  | assword :  |  |                        |  |
|                      | D  | irectory :   | /image.img   |                        |  |
|                      | [  | 🗹 Clear Config   |  |                        |  |
|                      |  | Apply  | Cancel   |                        |  |

The following table describes parameters in this page:

| Field             | Description  |
|-------------------|--|
| Firmware Version  | Display current firmware version.                      |
| Upgrade Mode      | Select HTTP.   |
| Server IP Address | Enter the IP address of HTTP server.                   |
| Server Port       | Enter the port number of HTTP server.                  |
| User Name         | Enter the username for connecting to the HTTP server.  |
| Password          | Enter the password for connecting to the HTTP server.  |
| Directory         | Enter the firmware directory.                          |
|                   | If you check Clear Config, the PLC router restores to  |
| Clear Config      | the default settings after upgrade. Otherwise, the PLC |
|                   | router keeps the current settings.                     |

### • HTTPS Upgrade Mode

If you select **HTTPS** from the drop-down list of upgrade mode, the following page appears.

|                      | SETUP                                     | ADVANCED   | MAINTENANCE  | STATUS                 | HELP  |
|----------------------|---|--|--|------------------------|---|
| Device Management    | FIRMWARE UPDA                             | TE   |  |                        | Helpful Hints                                       |
| Backup and Restore   | The Firmware Ungrad                       | ware code to improve                                   | Firmware updates are<br>released periodically to<br>improve the functionality<br>of your router and to add |                        |   |
| Firmware Update      | functionality and perfi                   |  |  |                        |   |
| Configuration Update | NOTE: The update pr<br>Please DO NOT nowe | ocess takes about 2 mini<br>r off your device before t | utes to complete, and you<br>the undate is complete.   | ur router will reboot. | features. If you run into a problem with a specific |
| Log Settings         |   |  |  |                        | feature of the router,<br>check if updated firmware |
| Diagnostics          |   |  |  |                        | is available for your<br>router.                    |
| Logout               | Fi  | rmware Version :                                       | GE_1.00  |                        | More  |
|                      | U   | pgrade Mode :  | HTTPS  |                        |   |
|                      | s   | erver IP Address :                                     |  |                        |   |
|                      | s   | erver Port :   | 443  | (1-65535)              |   |
|                      | U   | ser Name :   |  |                        |   |
|                      | Р   | assword :  |  |                        |   |
|                      | D   | irectory :   | /image.img   |                        |   |
|                      | E   | 🗹 Clear Config   |  |                        |   |
|                      |   | Apply  | Cancel   |                        |   |

The following table describes parameters in this page:

| Field             | Description  |  |  |
|-------------------|--|--|--|
| Firmware Version  | Display current firmware version.                      |  |  |
| Upgrade Mode      | Select HTTPS.  |  |  |
| Server IP Address | Enter the IP address of HTTPS server.                  |  |  |
| Server Port       | Enter the port number of HTTPS server.                 |  |  |
| Lloor Nomo        | Enter the username for connecting to the HTTPS         |  |  |
| User Name         | server.  |  |  |
| Bacoword          | Enter the password for connecting to the HTTPS         |  |  |
| Fassword          | server.  |  |  |
| Directory         | Enter the firmware directory.                          |  |  |
|                   | If you check Clear Config, the PLC router restores to  |  |  |
| Clear Config      | the default settings after upgrade. Otherwise, the PLC |  |  |
|                   | router keeps the current settings.                     |  |  |

Click Apply, and then system begins to upgrade firmware.

After upgrade completes, the PLC wireless router automatically reboots.

Caution:

To avoid losing previous configuration of the router, save the configuration before upgrade.

During upgrade, do not power off the PLC wireless router or press the Reset pushbutton.

The default upgrade mode is Local, and it supports only the firmware with the format '.img'.

# 5.4.4 Configuration Update

Choose **MAINTENANCE** > **Configuration Update**, and the following page appears.

|                      | SETUP                   | ADVANCED                              | MAINTENANCE  | STATUS               | HELP   |  |  |  |
|----------------------|-------------------------|---------------------------------------|--|----------------------|--|--|--|--|
| Device Management    | CONFIGURATION U         | CONFIGURATION UPDATE                  |  |                      |  |  |  |  |
| Backup and Restore   | The Configuration Unc   | rade section can be used              | to undate to the latest o                          | onfiguration code to | Configuration updates are                              |  |  |  |
| Firmware Update      | improve functionality a | nd performance.                       |  |                      | improve the functionality<br>of your router and to add |  |  |  |
| Configuration Update | NOTE: The update pro    | ocess takes about 2 minut             | tes to complete, and your                          | Router will reboot.  | features. If you run into a<br>problem with a specific |  |  |  |
| Log Settings         |                         | on your denice belore a               |  |                      | feature of the router,<br>check if updated             |  |  |  |
| Diagnostics          |                         |                                       |  |                      | configuration is available<br>for your router.         |  |  |  |
| Logout               | Uj<br>Se                | igrade Mode :<br>lect File :<br>Apply | LOCAL V<br>LOCAL<br>IFIP<br>FIP<br>HITPS<br>Cancel | Browse               | Mars   |  |  |  |

In this page, you can update the configuration file of the PLC wireless router. You may obtain the configuration file from the local server or remote server.

#### Local Upgrade Mode

Usually, you can upgrade configuration file from the local server.

If you select **LOCAL** from the drop-down list of upgrade mode, the following page appears.

| ///                | SETUP   | ADVANCED                                   | MAINTENANCE               | STATUS                | HELP  |
|--------------------|---|--|---------------------------|-----------------------|---|
| Device Management  | CONFIGURATION U   | PDATE                                      |                           |                       | Helpful Hints   |
| Backup and Restore | The Configuration Upgrade section can be used to update to the latest configuration code to |  |                           |                       | Configuration updates are<br>released periodically to<br>improve the functionality. |
| Firmware Update    | NOTE: The update pro  | na pendimance.<br>ocess takes about 2 minu | ites to complete, and you | r Router will reboot. | of your router and to add<br>features. If you run into a                            |
| Log Settings       | Please DO NOT power   | off your device before t                   | he update is complete.    |                       | feature of the router,<br>check if updated  |
| Diagnostics        |   |  |                           |                       | for your router.  |
| Logout             | Up  | grade Mode :                               | LOCAL 💌                   |                       | More  |
|                    | Se  | lect File :                                |                           | Browse                |   |
|                    |   | Apply                                      | Cancel                    |                       |   |
|                    |   |  |                           |                       |   |
|                    |   |  |                           |                       |   |

The following table describes parameters in this page:

| Field        | Description  |  |  |
|--------------|--|--|--|
| Upgrade Mode | Select LOCAL.  |  |  |
| Select File  | Click Browse to navigate to the latest configuration |  |  |
| Select Tile  | file.  |  |  |

### • TFTP Upgrade Mode

If you select **TFTP** from the drop-down list of upgrade mode, the following page appears.

|                      | SETUP                   | ADVANCED   | MAINTENANCE                                       | STATUS                | HELP   |
|----------------------|-------------------------|--|---|-----------------------|--|
| Device Management    |                         |  |   |                       | Helpful Hints  |
| Backup and Restore   | The Configuration Linc  | rade section can be used   | to undate to the latest                           | configuration code to | Configuration updates are  |
| Firmware Update      | improve functionality a | nd performance.  | to update to the latest                           | comparation code to   | released periodically to<br>improve the functionality<br>of your router and to add<br>features. If you run into a<br>problem with a specific |
| Configuration Update | NOTE: The update pro    | ocess takes about 2 minur  | tes to complete, and you<br>be undate is complete | r Router will reboot. |  |
| Log Settings         | These be not point      | Mease DO NOT power on your device before the update is complete. |   |                       | feature of the router,<br>check if updated   |
| Diagnostics          |                         |  |   |                       | configuration is available<br>for your router.   |
| Logout               | Uţ                      | ograde Mode :  | TFTP 💌  |                       | More   |
|                      | Se                      | erver IP Address :   |   |                       |  |
|                      | Se                      | erver Port :   | 69 (  | (1-65535)             |  |
|                      | Us                      | er Name :  |   |                       |  |
|                      | Pa                      | issword :  |   |                       |  |
|                      | Di                      | rectory :  | /config.xml                                       |                       |  |
|                      |                         | Apply  | Cancel  |                       |  |

| Field             | Description                                |
|-------------------|--|
| Upgrade Mode      | Select TFTP.                               |
| Server IP Address | Enter the IP address of TFTP server.       |
| Server Port       | Enter the port number of TFTP server.      |
| Directory         | Enter the directory of configuration file. |

The following table describes parameters in this page:

## • FTP Upgrade Mode

If you select **FTP** from the drop-down list of upgrade mode, the following page appears.

|                      | SETUP                                  | ADVANCED   | MAINTENANCE               | STATUS                | HELP   |
|----------------------|--|--|---------------------------|-----------------------|--|
| Device Management    | CONFIGURATION U                        | PDATE  |                           |                       | Helpful Hints  |
| Backup and Restore   | The Configuration Ling                 | rade section can be used   | to undate to the latest o | configuration code to | Configuration updates are                              |
| Firmware Update      | improve functionality and performance. |  |                           | comigaration code to  | improve the functionality                              |
| Configuration Update | NOTE: The update pro                   | ocess takes about 2 minut  | tes to complete, and your | r Router will reboot. | features. If you run into a<br>problem with a specific |
| Log Settings         | Piease DO NOT (DOWER                   | Please DU NUT power off your device before the update is complete. |                           |                       | feature of the router,<br>check if updated             |
| Diagnostics          |  |  |                           |                       | configuration is available<br>for your router.         |
| Logout               | Up                                     | grade Mode :   | FTP 💌                     |                       | More   |
|                      | Se                                     | rver IP Address :  |                           |                       |  |
|                      | Se                                     | rver Port :  | 21 (                      | 1 - 65535 )           |  |
|                      | Us                                     | er Name :  |                           |                       |  |
|                      | Pa                                     | issword :  |                           |                       |  |
|                      | Di                                     | rectory :  | /config.xml               |                       |  |
|                      |  | Apply  | Cancel                    |                       |  |

#### The following table describes parameters in this page:

| Field             | Description  |  |  |
|-------------------|--|--|--|
| Upgrade Mode      | Select FTP.  |  |  |
| Server IP Address | Enter the IP address of FTP server.                  |  |  |
| Server Port       | Enter the port number of FTP server.                 |  |  |
| User Name         | Enter the username for connecting to the FTP server. |  |  |
| Password          | Enter the password for connecting to the FTP server. |  |  |
| Directory         | Enter the directory of configuration file.           |  |  |

#### • HTTP Upgrade Mode

If you select **HTTP** from the drop-down list of upgrade mode, the following page appears.

|                      | SETUP                                       | ADVANCED   | MAINTENANCE                                       | STATUS                | HELP   |
|----------------------|---|--|---|-----------------------|--|
| Device Management    | CONFIGURATION U                             | IPDATE   |   |                       | Helpful Hints  |
| Backup and Restore   | The Configuration Unc                       | rade section can be used                               | to undate to the latest i                         | configuration code to | Configuration updates are<br>released periodically to  |
| Firmware Update      | improve functionality a                     | nd performance.  |   |                       | improve the functionality<br>of your router and to add<br>features. If you run into a<br>problem with a specific |
| Configuration Update | NOTE: The update pri<br>Please DO NOT power | ocess takes about 2 minut<br>off your device before th | tes to complete, and you<br>be undate is complete | r Router will reboot. |  |
| Log Settings         | These botter power                          | on your denice before a                                |   |                       | feature of the router,<br>check if updated   |
| Diagnostics          |   |  |   |                       | configuration is available<br>for your router.   |
| Logout               | Up  | ograde Mode :  | HTTP 💌  |                       | More   |
|                      | Se  | erver IP Address :                                     |   |                       |  |
|                      | Se  | erver Port :   | 80 (  | 1 - 65535 )           |  |
|                      | Us  | er Name :  |   |                       |  |
|                      | Pa  | issword :  |   |                       |  |
|                      | Di  | rectory :  | /config.xml                                       |                       |  |
|                      |   | Apply  | Cancel  |                       |  |

The following table describes parameters in this page:

| Field             | Description   |  |  |
|-------------------|---|--|--|
| Upgrade Mode      | Select HTTP.  |  |  |
| Server IP Address | Enter the IP address of HTTP server.                  |  |  |
| Server Port       | Enter the port number of HTTP server.                 |  |  |
| User Name         | Enter the username for connecting to the HTTP server. |  |  |
| Password          | Enter the password for connecting to the HTTP server. |  |  |
| Directory         | Enter the directory of configuration file.            |  |  |

#### • HTTPS Upgrade Mode

If you select **HTTPS** from the drop-down list of upgrade mode, the following page appears.
| ///                  | SETUP                                       | ADVANCED  | MAINTENANCE  | STATUS    | HELP   |
|----------------------|---|---|--|-----------|--|
| Device Management    | CONFIGURATION U                             | PDATE   |  |           | Helpful Hints                                  |
| Backup and Restore   | The Configuration Upg                       | Configuration updates are<br>released periodically to |  |           |  |
| Firmware Update      | improve functionality a                     |   | improve the functionality<br>of your router and to add |           |  |
| Configuration Update | NOTE: The update pro<br>Please DO NOT power | features. If you run into a problem with a specific   |  |           |  |
| Log Settings         | · · · ·                                     |   |  |           | feature of the router,<br>check if updated     |
| Diagnostics          |   |   |  |           | configuration is available<br>for your router. |
| Logout               | Սբ  | grade Mode :  | HTTPS 💌  |           | More   |
|                      | Se  | rver IP Address :                                     |  |           |  |
|                      | Se  | rver Port :   | 443  | (1-65535) |  |
|                      | Us  | er Name :   |  |           |  |
|                      | Pa  | ssword :  |  |           |  |
|                      | Di  | rectory :   | /config.xml  |           |  |
|                      |   |   |  |           |  |

The following table describes parameters in this page:

| Field             | Description                                    |  |  |
|-------------------|--|--|--|
| Upgrade Mode      | Select HTTPS.                                  |  |  |
| Server IP Address | Enter the IP address of HTTPS server.          |  |  |
| Server Port       | Enter the port number of HTTPS server.         |  |  |
| Lloor Nomo        | Enter the username for connecting to the HTTPS |  |  |
| User Marrie       | server.  |  |  |
| Password          | Enter the password for connecting to the HTTPS |  |  |
| r assworu         | server.  |  |  |
| Directory         | Enter the directory of configuration file.     |  |  |

Click **Apply**, and then system begins to upgrade configuration file.

After upgrade completes, the PLC wireless router automatically reboots.

# A Caution:

During upgrade, do not power off the router or press the Reset pushbutton.

The PLC wireless router supports only the firmware with the format '.xml'.

# 5.4.5 Log Settings

Choose MAINTENANCE > Log Settings, and the following page appears.

|                      | SETUP                | ADVANCED                                 | MAINTENANCE   | STATUS   | HELP   |
|----------------------|----------------------|--|---|----------|--|
| Device Management    | SYSTEM LOG           |  |   |          | Helpful Hints                                    |
| Backup and Restore   | The System Lon optio | ns allow you to send log i               | nformation to a system loc                              | 1 Server | A System Logger (syslog)                         |
| Firmware Update      | The system bog optio | , 301701.                                | the logs in one place from<br>different courses. If the |          |  |
| Configuration Update | ENABLE LOG           |  |   |          | LAN includes a syslog server, you can use this   |
| Log Settings         |                      | Enable Log                               | <b>V</b>  |          | option to send the router's logs to that server. |
| Diagnostics          |                      | 2  |   |          | More   |
| Logout               |                      | Mode :                                   | Local 💌   |          |  |
|                      | 5                    | Server IP Address :<br>Server UDP Port : | Local<br>Remote<br>Both                                 |          |  |
|                      |                      | Apply Cancel                             | View System Log   |          |  |

In this page, you can enable or disable the log function. After enabling the log function, you can set 3 types of system log modes. The log modes contain **Local**, **Remote**, and **Both**.

- When you select Local, the events are recorded in the local memory.
- When you select **Remote**, the events are sent to the remote system log server with specified IP address and UDP port.
- When you select **Both**, the events are recorded in the local memory or sent to the remote system log server with specified IP address and UDP port.

Click the View System Log button to display the following page.

| ///                  | SETUP                                  | ADVANCED                                | MAINTENANCE                            | STATUS    | HELP  |                 |
|----------------------|--|---|--|-----------|---|-----------------|
| Device Management    | LOGS VIEW                              |   |  |           | Helpful Hints                                     |                 |
| Backup and Restore   | This page allows you                   | to view system loas.                    |  |           | The system log will re<br>activities of the route | cord<br>r.      |
| Firmware Update      |  |   |  |           | Depending on the am<br>of detail you include it   | ount<br>n the   |
| Configuration Update | SYSTEM LOG                             |   |  |           | log, your router can o<br>keep a limited number   | only<br>r of    |
| Log Settings         | Manufacturer:                          | PLC NIFT                                |  | ^         | log entries due to rou<br>memory constraints.     | iter            |
| Diagnostics          | ProductClass:                          | 200M PLC WIFI                           |  |           | You can configure the                             |                 |
| Logout               | SerialNumber:<br>IP: 192.168.1.        | 001ee32f19bf<br>1                       |  |           | details you want to in<br>in Maintenance -> Sy    | iclude<br>istem |
|                      | HWVer: Gpn2.8P<br>SWVer: R2B010D       | 61A-C_WIFI-V0.02<br>01                  |  |           | Log.  |                 |
|                      |  | 2012 10 17 15.12.                       | 09 [6] avaloat                         | haaraara  | More  |                 |
|                      | [Subscriber] M                         | ethod:[CfgBkp] Par                      | a:[] Result:[0000                      | 0000]     |   |                 |
|                      | XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX | 2012-10-17 15:12:<br>ethod:[CfgBkn] Par | 23 -[6] - syslog:<br>a:[] Result:[0000 | Accessor: |   |                 |
|                      | *****                                  | 2012-10-17 15:12:                       | 53 -[5] - syslog:                      | Accessor: |   |                 |
|                      | [CPE] Method:[<br>success              | AUTH] Para:[] Resu                      | ult:[] User admin                      | login     |   |                 |
|                      | ******                                 | 2012-10-17 15:54:                       | 37 -[5] - syslog:                      | Accessor: |   |                 |
|                      | timeout and au                         | AUTHJ Para:[] Kesu<br>to logout         | ut:[] User admin :                     | session   |   |                 |
|                      | XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX | 2012-10-17 15:54:                       | 39 -[5] - syslog:                      | Accessor: |   |                 |
|                      | success                                | AUINJ PALA:[] RESU                      | iit:[] User admin                      | IUGIN     |   |                 |
|                      |  |   |  |           |   |                 |
|                      |  | Ret                                     | resh                                   |           |   |                 |
|                      |  |   |  |           |   |                 |

In this page, you can view the system log. Click **Refresh** to refresh system log.

### 5.4.6 Diagnostics

Choose **MAINTENANCE** > **Diagnostics**, and the following page appears.

|                      | SETUP                               | ADVANCED  | MAINTENANCE                         | STATUS  | HELP          |  |  |  |
|----------------------|-------------------------------------|---|-------------------------------------|---------|---------------|--|--|--|
| Device Management    | DIAGNOSTICS                         |   |                                     |         | Helpful Hints |  |  |  |
| Backup and Restore   | This section allows you             | Click the button to go to the detail setting page.                        |                                     |         |               |  |  |  |
| Firmware Update      |                                     | More  |                                     |         |               |  |  |  |
| Configuration Update | PING                                |   |                                     |         |               |  |  |  |
| Log Settings         | Ping diagnostics sends              | Ping diagnostics sends "ping" packets to test a computer on the Internet. |                                     |         |               |  |  |  |
| Diagnostics          |                                     |   |                                     |         |               |  |  |  |
| Logout               |                                     | Ping  |                                     |         |               |  |  |  |
|                      | TRACEROUTE<br>Traceroute diagnostic | s sends packets to determ   | nine the routers on the In<br>route | ternet. |               |  |  |  |

### 5.4.6.1 Ping Diagnosis

The ping diagnosis allows you to test a connection between 2 hosts in the same network or in different networks in simple ways. If the command ping is successful, it means that there is a correct physical as well as a logical connection between 2 hosts on any network. (Unless if there is a firewall interfering somewhere in between.)

Choose **Diagnostics** > **Ping** on the left pane or click **Ping** in the **DIAGNOSTICS** page to display the following page.

|                      | SETUP                  | ADVANCED                | MAINTENANCE          | STATUS          | HELP                    |
|----------------------|------------------------|-------------------------|----------------------|-----------------|-------------------------|
| Device Management    | PING DIAGNOSIS         |                         |                      |                 | Helpful Hints           |
| Backup and Restore   | Ping Test sends "ning" | nackets to test a comp  | iter on the Internet |                 | "Ping" checks whether a |
| Firmware Update      | Fing resc serius ping  |                         | is running.          |                 |                         |
| Configuration Update | PING HOST              |                         |                      |                 | More                    |
| Log Settings         |                        | Pina Host :             | 192.168.1.1          |                 |                         |
| Diagnostics          |                        | Number of Ping :        | 5 (                  | 1 - 100 )       |                         |
| Logout               |                        | -<br>Ping Packet Size : | 56 (                 | 1 - 5600 bytes) |                         |
|                      |                        | WAN Connection :        | 1_INTERNET_R         | ,               |                         |
|                      |                        |                         |                      |                 |                         |
|                      |                        | Test                    | Stop                 |                 |                         |
|                      | RESULT                 |                         |                      |                 |                         |
|                      |                        |                         |                      | ~               |                         |
|                      |                        |                         |                      |                 |                         |
|                      |                        |                         |                      |                 |                         |
|                      |                        |                         |                      |                 |                         |
|                      |                        |                         |                      |                 |                         |
|                      |                        |                         |                      | ~               |                         |
|                      |                        |                         |                      |                 |                         |

In this page, you can set the parameters of Ping diagnosis.

The following table describes parameters in this page:

| Field            | Description   |
|------------------|---|
| Ping Host        | Enter the IP address of the host that connects to the LAN interface of the PLC wireless router. |
| Number of Ping   | Set the number of ping packet.  |
| Ping Packet Size | Set the length of the ping packet.  |
| WAN Connection   | Select a WAN interface for ping diagnosis.  |

After finishing the settings, click the **Test** button, and then the result of ping diagnosis is displayed in the page. Click **Stop** button to stop ping diagnosis.

### 5.4.6.2 Traceroute Diagnosis

Traceroute diagnosis is used to find out which path a packet takes to reach its destination. It is a nice way to see which router it passes and which network it crosses to reach its destination.

Choose **Diagnostics** > **Traceroute** on the left pane or click **Traceroute** in the **DIAGNOSTICS** page to display the following page.

| ///                  | SETUP                 | ADVANCED                 | MAINTENANCE                | STATUS | HELP                |
|----------------------|-----------------------|--------------------------|----------------------------|--------|---------------------|
| Device Management    | TRACEROUTE DIA        |                          | Helpful Hints              |        |                     |
| Backup and Restore   | Traceroute diagnostic | s sends nackets to deter | nine the routers on the Ir | itemet | "Traceroute" checks |
| Firmware Update      |                       | the Internet is running. |                            |        |                     |
| Configuration Update | TRACEROUTE HOS        | т                        |                            |        | More                |
| Log Settings         |                       | Host :                   | 192.168.1.1                |        |                     |
| Diagnostics          |                       | Max TTL :                | 30                         | 1-128) |                     |
| Logout               |                       | Wait times :             | 5 (                        | 2-60s) |                     |
|                      | RESULT                | Tracerou                 | te Stop                    |        |                     |

In this page, you can set the parameters of Traceroute diagnosis.

The following table describes parameters in this page:

| Field      | Description  |
|------------|--|
| Host       | Enter the IP address of host that performs the operation of tracing routing.   |
| Max TTL    | Set the maximum TTL (Time to Live). You can estimate<br>the number of routers that data packet passes from the<br>source host to the destination host according to the TTL<br>value. |
| Wait times | Enter the waiting time.  |

After finishing the settings, click the **Traceroute** button, and then the result of Traceroute diagnosis is displayed in the page. Click **Stop** button to stop Traceroute diagnosis.

### 5.4.7 Logout

Choose **MAINTENANCE** > **Logout** to log out of the Web configuration page.

## 5.5 Status

# 5.5.1 Device Information

Choose **STATUS** > **Device Info**, and the following page appears.

|               | SETUP                    | ADVANCED  | MAINTENANCE                     | STATUS | HELP                  |
|---------------|--------------------------|---|---------------------------------|--------|-----------------------|
| Device Info   | DEVICE INFO              | Helpful Hints   |                                 |        |                       |
| LAN Clients   | All of your laternation  | This page displays all the  |                                 |        |                       |
| Routing Table | version is also displaye | information of the router,<br>including WAN, LAN,<br>status, and other detailed |                                 |        |                       |
| Logout        | SYSTEM INFO              |   |                                 |        | Information.          |
|               | Model Name :             |   | GPN2.8P61A-C                    |        | version, MAC address, |
|               | Time and Date :          |   | 1971-01-01 01:27:39             |        | IP and etc.           |
|               | Firmware Version :       |   | GE 1.00                         |        | Mana                  |
|               | Hardware Version :       |   | Gpn2.8P61A-C_WIFI-V0.02         |        | HUTC                  |
|               |                          |   |                                 |        |                       |
|               | WAN PORT INFOR           | MATION  |                                 |        |                       |
|               | WAN Connection :         |   | 1_INTERNET_R                    |        |                       |
|               | Factory Default MAC      | Address :   | 00:1e:e3:2f:19:c2               |        |                       |
|               | Net Link :               |   | Disconnected(PPPoE)             |        |                       |
|               | IP address :             |   |                                 |        |                       |
|               | Subnet mask :            |   |                                 |        |                       |
|               | Default Gateway :        |   |                                 |        |                       |
|               | Domain Name Server       | r:  |                                 |        |                       |
|               | LAN PORT INFORM          | MATION  |                                 |        |                       |
|               | Mac address              |   | 00-12-26-100                    |        |                       |
|               | TD Address:              |   | 00110100110                     |        |                       |
|               | Euboot Macla             |   | 255 255 255 0                   |        |                       |
|               | Subilec Hask.            |   | 200.200.200.0                   |        |                       |
|               | WIRELESS LAN IN          |   |                                 |        |                       |
|               | Wireless Radio :         |   | Enabled                         |        |                       |
|               | Wireless Network Nar     | me (SSID) :   | Powerline 💌                     |        |                       |
|               | BSSID :                  |   | 00:1E:E3:2F:19:C1               |        |                       |
|               | 802.11 Mode :            |   | Mixed 802.11b/g/n               |        |                       |
|               | Wireless Channel :       |   | Auto Scan(recommended)          |        |                       |
|               | Wireless Security Mo     | de :  | WAP2 Mixed                      |        |                       |
|               | DHCP SERVER INF          | ORMATION  |                                 |        |                       |
|               | DHCP Server              |   | Enabled                         |        |                       |
|               | IP Pool Range :          |   | 192, 168, 1, 2-192, 168, 1, 100 |        |                       |
|               | Lease Time :             |   | 24 Hour                         |        |                       |
|               | Domain Name Server       | r:  | 192.168.1.1                     |        |                       |
|               |                          |   |                                 |        |                       |
|               |                          | Re  | freeh                           |        |                       |
|               |                          | Re  | liesii                          |        |                       |

In this page, you can view basic information of the PLC wireless router, such as the information of WAN and LAN interfaces, wireless LAN information and DHCP server Information.

Click **Refresh** to refresh the information in this page.

### 5.5.2 LAN Client



|               | SETU   | JP                        | ADVAN                                     | CED  | MAINT              | ENANCE                  | STATUS                      | HELP  |
|---------------|--|---------------------------|---|--|--------------------|-------------------------|-----------------------------|-------|
| Device Info   | LAN CLIE   | Helpful Hints             |   |  |                    |                         |                             |       |
| LAN Clients   | In this sect   | This is a list of all LAN |   |  |                    |                         |                             |       |
| Routing Table | 211 CHO DOC  | connected to your         |   |  |                    |                         |                             |       |
| Logout        | WIRELES  | More                      |   |  |                    |                         |                             |       |
|               | SSID   | Packets<br>Sent           | Packets<br>Received                       | Errors<br>Sent   | Errors<br>Received | Discard<br>Packets Sent | Discard Packets<br>Received | riure |
|               | Powerline  | 0                         | 0   | 0  | 0                  | 313                     | 0                           |       |
|               | Powerline2   | 0                         | 0   | 0  | 0                  | 0                       | 0                           |       |
|               | Powerline3   | 0                         | 0   | 0  | 0                  | 0                       | 0                           |       |
|               | Powerline4   | 0                         | 0   | 0  | 0                  | 0                       | 0                           |       |
|               | Device<br>Name   | Packets<br>Sent           | Packets<br>Received                       | Errors<br>Sent   | Errors<br>Received | Discard<br>Packets Sent | Discard Packets<br>Received |       |
|               | LAN1   | 316                       | 0   | 0  | 0                  | 0                       | 0                           |       |
|               | LAN2   | 3542                      | 3414                                      | 0  | 0                  | 0                       | 0                           |       |
|               | DHCP CLIENTS<br>Hostname IP Ad<br>g1544d 192.1<br>unknown 192.16 |                           | IP Address<br>192.168.1.2<br>192.168.1.12 | MAC Address           2         00:22:19:04:fe:26           23         00:00:29:7f:3d:76 |                    |                         | Live Time (s)<br>81046<br>0 |       |
|               |  |                           |   | Ret  | iresh              |                         |                             |       |

In this page, you can view the status information of wireless clients, Ethernet clients, and DHCP clients.

Click Refresh to refresh the information in this page.

### 5.5.3 Routing Table

Choose STATUS > Routing Table, and the following page appears.

|               | SETUP                | ADVAN                    | CED     | MAINTENANCE |        |         | STATUS    | HELP          |
|---------------|----------------------|--------------------------|---------|-------------|--------|---------|-----------|---------------|
| Device Info   | ROUTING TABLE        |                          |         |             |        |         |           | Helpful Hints |
| LAN Clients   | This table is showin | Displays the list of the |         |             |        |         |           |               |
| Routing Table | information created  | More                     |         |             |        |         |           |               |
| Logout        | DEVICE INFO          | ROUTE                    |         |             |        |         |           | - Hore        |
|               | Destination          | Netmask                  | Gateway | Flags       | Metric | Service | Interface |               |
|               | 192.168.1.0          | 255.255.255.0            | 0.0.0.0 | U           | 0      | 0       | br 1      |               |
|               |                      |                          | Refree  | sh          |        |         |           |               |

In this page, you can view the routing information of the PLC wireless router.

Click **Refresh** to refresh the information in this page.

### 5.5.4 Logout

Choose STATUS > Logout to log out of the Web configuration page.

# 5.6 Help

Viewing the help information can help you know more about each configuration page of the PLC wireless router.

Choose **HELP**, and the following page appears.

|             | SETUP  | ADVANCED   | MAINTENANCE | STATUS | HELP |
|-------------|--|------------|-------------|--------|------|
| Menu        |  |            |             |        |      |
| Setup       | HELP MENU                                    |            |             |        |      |
| Advanced    | <u>Setup</u> <u>Advanced</u>                 |            |             |        |      |
| Maintenance | Maintenance     Status                       |            |             |        |      |
| Status      |  |            |             |        |      |
|             | SETUP  |            |             |        |      |
|             | <u>Wizard</u> <u>Internet Setup</u>          |            |             |        |      |
|             | Wireless Setup     LAN Setup                 |            |             |        |      |
|             | <u>Time and Date</u>                         |            |             |        |      |
|             | ADVANCED                                     |            |             |        |      |
|             | <u>Access Control</u>                        |            |             |        |      |
|             | <u>Access Control</u> Advanced Wireles       | s          |             |        |      |
|             | Advanced Networ     DLC Sotting              | k          |             |        |      |
|             | • <u>FCC Setund</u>                          |            |             |        |      |
|             | MAINTENANCE                                  |            |             |        |      |
|             | Device Manageme     Reduce and Deste         | <u>ent</u> |             |        |      |
|             | Eirmware Update                              |            |             |        |      |
|             | <u>Configuration Upp</u> <u>Log Settings</u> | late       |             |        |      |
|             | Diagnostics                                  |            |             |        |      |
|             | STATUS                                       |            |             |        |      |
|             | Device Info                                  |            |             |        |      |
|             | LAN Clients     Routing Table                |            |             |        |      |
|             |  |            |             |        |      |

In this page, you can click the menu that you are interested in to view the detailed information.

# 6 Using the Security Pushbutton

This chapter describes how to add new devices to, or remove old devices from a HomePlug AV logical network (AVLN). Both can be accomplished by using a **Security** (NMK) pushbutton.

Operation progress and outcome can be monitored by observing the behaviors of the Power and Data LED indicators.

# 6.1 Forming a HomePlug AV Logical Network

When two devices (A and B) with different NMK values are connected to the same power line, you want them to form a logical network. Do as follows:

- Step1 Press the Security pushbutton on A or B for at least 10 seconds. The device will reset and restart with a random NMK.
- Step2 Press the Security pushbutton on the first device A for less than 3 seconds.
- Step3 Press the Security pushbutton on the second device B for less than 3 seconds. Press the pushbutton on B within 2 minutes

**Step4** Wait for the connection to complete.

The Power LED indicators on both devices will flash evenly at 1-second interval until the operation succeeds or fails. If the connection is successful, the Power and Data LED indicators on both devices illuminate steadily. If the connection is failed, the Power LED indicators on both devices still illuminate steadily, but the Data LED indicators on both devices go out. In that case, please repeat Step1 to Step4.



### 6.2 Joining an AVLN Network

Assume that a network exists, a new device, the 'joiner', wants to join the network. Any device on the existing network can become the 'adder'.

- Step1 Press the Security pushbutton on the 'joiner' for at least 10 seconds. The device will reset and restart with a random NMK.
- Step2 Press the Security pushbutton on the 'joiner' for less than 3 seconds.
- Step3 Press the Security pushbutton on any network device for less than 3 seconds, making it the 'adder'. Please press this pushbutton within 1 minute.
- Step4 Wait for the connection to complete.

The Power LED indicators on both devices will flash at 1-second interval until the process succeeds or fails. If the connection is successful, the Power and Data LED indicators on both devices illuminate steadily. If the connection is failed, the Power LED indicators on both devices still illuminate steadily, but the Data LED indicators on both devices go out. In that case please repeat Step1 to Step4.



# 6.3 Leaving an AVLN Network

Assume that a network exists. If you want to remove one device, the 'leaver' from an AVLN network, or remove the device from the existing network and have it join another logical network, do as follows:

- Step1 Press the Security pushbutton on the 'leaver' for more than 10 seconds. The device will reset and restart with a random NMK.
- Step2 Wait for reset to complete.

The Power LED indicator on the 'leaver' will momentarily extinguish during reset and flash during restart, then illuminate steadily. The 'leaver' is removed from the existing network successfully.

Once the process completes, you may disconnect the device from the medium or join it to another logical network on the same medium.



# Appendix A Troubleshooting

#### Why all the LED indicators are off?

Check the connection between the power adapter and power socket.

- (1) Check the connection between the power adapter and power socket.
- (2) Check whether the device is turned on.

#### Why the LAN1 or LAN2/WAN indicator is off?

- Check the connection between your PLC wireless router and computer, hub, or switch.
- (2) Check the running status of your computer, hub, or switch, and verify whether they run normally or not.
- (3) Check the network cable that is connected to the PLC wireless router and other devices.

#### Why you fail to access the Web page?

Follow the steps below to check the connection between the computer and the device:

- Click start > Run and enter ping command ping 192.168.99.1 (the IP address of PLC wireless router).
- (2) If you fail to access the PLC wireless router, check the following settings:
  - The network cable type
  - The connection between your router and the computer
  - TCP/IP settings of PC

#### How to restore factory defaults after carrying out the incorrect configuration?

 Press the **Reset** pushbutton for more than 3s and then release it. The PLC wireless router restores the factory default settings.

- (2) The default IP address of the PLC wireless router is **192.168.99.1** and the subnet mask is **255.255.255.0**.
- (3) The user name and password of the super user are **admin**.
- (4) The user name and password of the common user are **user**.

# Appendix B Specifications

| PLC Module Specification |   |  |  |  |
|--------------------------|---|--|--|--|
| Chip                     | Qualcomm Atheros AR7420/AR1540                        |  |  |  |
| Firmware                 | Support North America/Europe/APAC/Japan               |  |  |  |
|                          | HomePlug AV   |  |  |  |
| Ducto col                | IEEE1901  |  |  |  |
| Protocol                 | IEEE 802.3 10/100 Ethernet (100Mbps)                  |  |  |  |
|                          | IEEE 802.3u Fast Ethernet                             |  |  |  |
| PLC Rate                 | 500Mbps   |  |  |  |
| Signal Band              | 2~68MHz   |  |  |  |
|                          | Support OFDM 4096/1024/256/64/16/8-QAM, QPSK,         |  |  |  |
| Modulation Mode          | BPSK, and ROBO  |  |  |  |
| Encryption               | 128-bit AES   |  |  |  |
|                          | Support four-level QoS                                |  |  |  |
| QoS                      | Support VLAN priority                                 |  |  |  |
|                          | Support ToS and CoS packet classifications            |  |  |  |
| Operation Mode           | Support priority-based CSMA/CA channel access scheme  |  |  |  |
| Multicast                | Support IGMP management multicast session.            |  |  |  |
| Wi-Fi Module Spec        | ification   |  |  |  |
| Chip                     | Qualcomm Atheros AR9341                               |  |  |  |
| Flash Memory             | 64Mbps  |  |  |  |
| DDR SDRAM:               | 256Mbps   |  |  |  |
| Drate col                | IEEE 802.11b/g/n                                      |  |  |  |
| PTOLOCOI                 | IEEE 802.3/3x/3u                                      |  |  |  |
| Wireless                 | 2.4 GHz~2.484 GHz                                     |  |  |  |
| Frequency Range          |   |  |  |  |
| Channel                  | 1~13  |  |  |  |
|                          | 11b: 11/5.5/2/1Mbps                                   |  |  |  |
| Wireless Signal          | 11g: 54/48/36/24/18/12/9/6Mbps                        |  |  |  |
| Rate                     | 11n: up to 300Mbps in 40MHz mode and up to 150Mbps in |  |  |  |
|                          | 20MHz mode.   |  |  |  |
| Output Bower             | 11b: 16~17 dBm  |  |  |  |
|                          | 11g: 14~17 dBm  |  |  |  |

|                      | 11n: 11~16 dBm  |  |  |  |  |
|----------------------|---|--|--|--|--|
| Dessiving            | 11b: 11Mbps/-84dBm                                      |  |  |  |  |
| Receiving            | 11g: 54Mbps/-75dBm                                      |  |  |  |  |
| Sensitivity          | 11n: 300Mbps/-64dBm                                     |  |  |  |  |
| Operation Mode       | 2Tx/2Rx   |  |  |  |  |
| Multiple SSID        | Up to 4 BSSIDs  |  |  |  |  |
| Coouritu             | WEP, WPA-PSK, WPA2-PSK, and WPA/WPA2-PSK                |  |  |  |  |
| Security             | SSID hiding   |  |  |  |  |
| Authentication       | MAC address access control list                         |  |  |  |  |
| System Specification |   |  |  |  |  |
|                      | Power: Indicate power status.                           |  |  |  |  |
|                      | LAN1: Indicate the connection status of LAN1 interface. |  |  |  |  |
| LED Indicator        | LAN2/WAN: Indicate the connection status of LAN2/WAN    |  |  |  |  |
| LED Indicator        | interface.  |  |  |  |  |
|                      | Data: Indicate PLC rate.                                |  |  |  |  |
|                      | WLAN/WPS: Indicate WLAN and WPS connection status.      |  |  |  |  |
| Dower Cooket         | Support power sockets of English-style, European-style, |  |  |  |  |
| Power Sockel         | Japanese-style, and Chinese-style.                      |  |  |  |  |
| Ethernet Port        | 2 x RJ45 for 10/100 Ethernet (Auto MDI/MDI-X)           |  |  |  |  |
| Antenna              | PCB-Antenna x 2   |  |  |  |  |
|                      | Security: Set the status of device members.             |  |  |  |  |
|                      | Reset: Restore factory default settings.                |  |  |  |  |
| Dutton               | WPS: Press this pushbutton for less than 3 seconds to   |  |  |  |  |
| DULION               | enable the negotiation of PBC mode. Press this          |  |  |  |  |
|                      | pushbutton for more than 5 seconds to enable or         |  |  |  |  |
|                      | disable WLAN.   |  |  |  |  |
| Software Upgrade     | Support software upgrade by Web page.                   |  |  |  |  |
| Consumption          | 6.5W  |  |  |  |  |
| Environment Requ     | irements  |  |  |  |  |
| Operating            | 0~40°C  |  |  |  |  |
| Temperature          |   |  |  |  |  |
| Storage              | 40.7020   |  |  |  |  |
| Temperature          | -10~70°C  |  |  |  |  |
| Operating            | 10%~85%, non-condensing                                 |  |  |  |  |
| Humidity             |   |  |  |  |  |
| Storage Humidity     | 5%~90%, non-condensing                                  |  |  |  |  |

NHP5010 User Manual

| Rated Input              | 100~240 V AC, 50/60Hz            |  |  |  |
|--------------------------|----------------------------------|--|--|--|
| EMC and Safety           |                                  |  |  |  |
| Compliance               | FCC Part 15 Class B, CE          |  |  |  |
| Safety                   | 1.0                              |  |  |  |
| Authentication           |                                  |  |  |  |
| Green Standard           | RoHS                             |  |  |  |
| Physical Characteristics |                                  |  |  |  |
| Dimension                | L × W × H: 107mm × 62mm × 48.5mm |  |  |  |
| Weight                   | 180g                             |  |  |  |