

# NC-LINK

## User Manual of 2.4G Outdoor CPE



Version V1.1

Thank you for purchasing Enterprise High Gain Outdoor CPE. This manual will instruct you how to configure and manage this CPE, enable you to use it in a perfect status. After installed the CPE, you will be able to enjoy the surfing freely.

Please check the Package before use it.

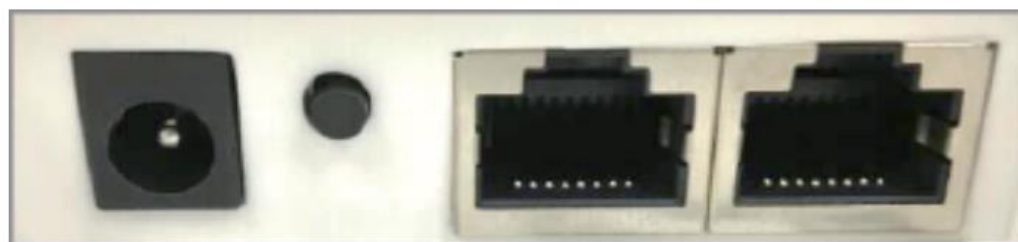
### Package Contents

Item	Description	Unit	QTY
1	Outdoor CPE	PCS	1
2	24V /1A PoE Adapter	PCS	1
3	Mounting Accessory	Set	1
4	Quick Installation Guide	PC	1
5	LAN Cable	PC	1

### Quick Installation Guide

## 1. How to connect and power on the outdoor CPE

CPE's Interface Description



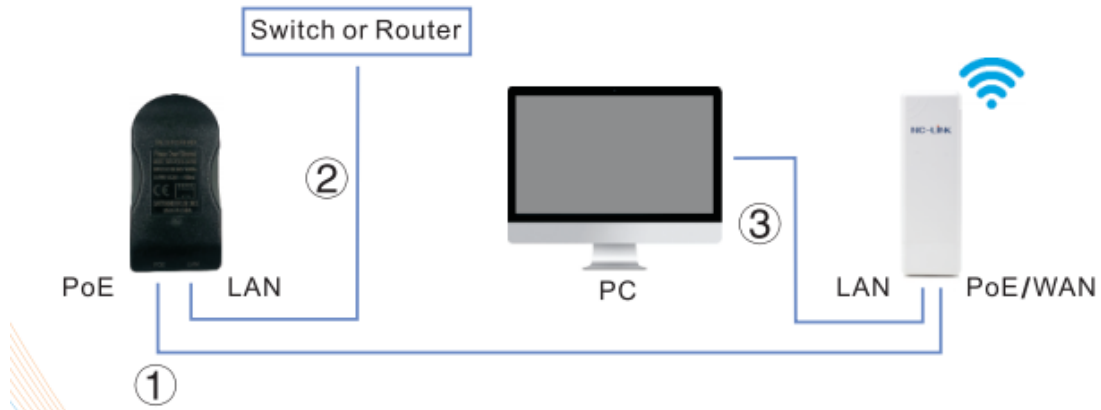
⊕ — ⊖ — ⊖ Reset LAN PoE/WAN

P1 Interface

- **Reset:** Press it for 10-15 seconds, the CPE will restore to factory default.
- **WAN:** Connect with Internet cable
- **LAN:** Connect the CPE with computer by LAN cable.
- **DC:** For Power supply, the DC's electronic standard is 12V/1A.

POE: This equipment can be powered over **Ethernet**, Connect CPE's WAN/LAN Port with PoE adapter's POE port by LAN Cable (CPE's LAN port and WAN port support the 24V PoE.)

Refer to P2 for PoE Power and CPE configure



P2 Diagram of PoE Power and CPE configure



Attention

Make sure our CPE working with included Power adapter or PoE adapter, and under right connection way, or the device will be damaged.

### Hardware Installation

Below shows the install steps:



- a) Turn the screw on the Metal Strap counter clockwise to open the Strap.



b) Slide it through the back of the device.



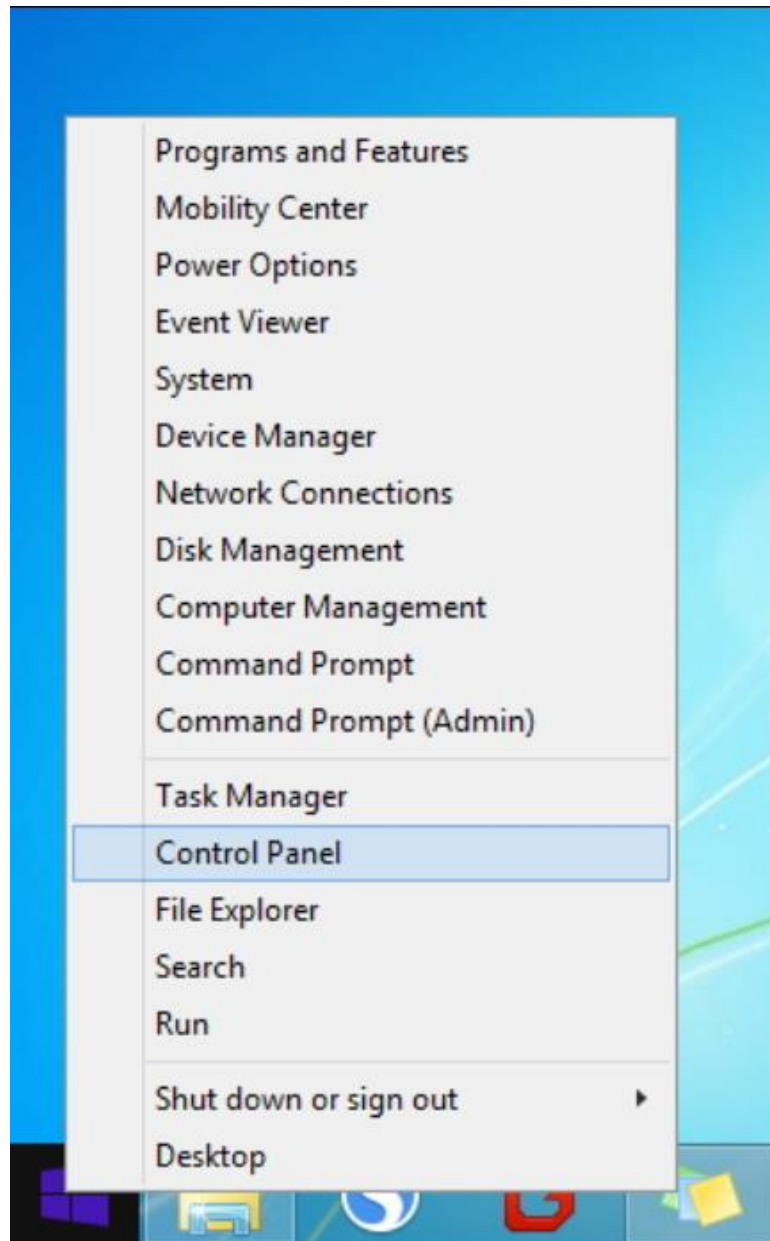
c) Wrap the Strap around the pole with a cross screwdriver to turn the screw clockwise and fasten to the pole.

## 2. CPE Start and Login

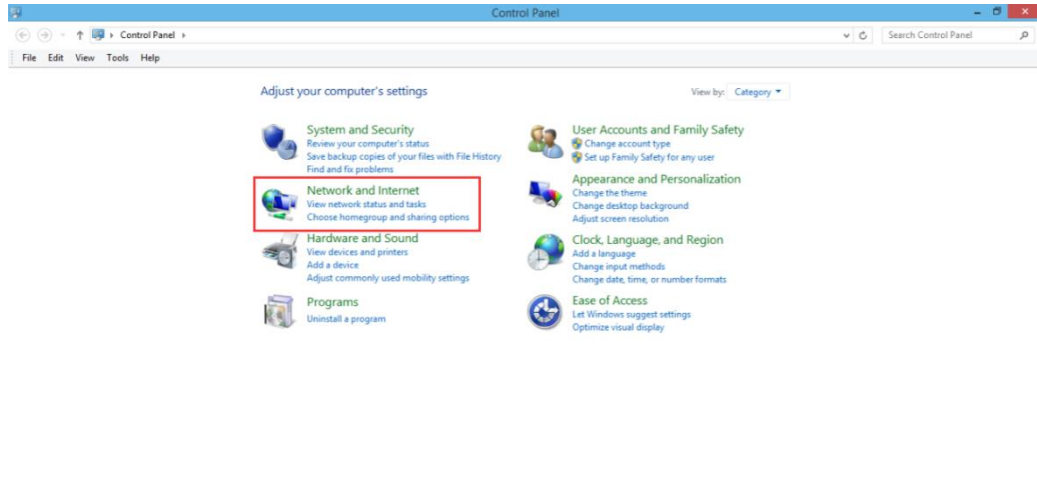
Power the CPE as P2 show

Configure the Computer's IP Address : Set the computer's IP address as **192.168.188.X** (X is number between 2-252), make it same as CPE's network segment, then set Subnet mask is **255.255.255.0**, Default gateway leave it blank, then click **OK**.

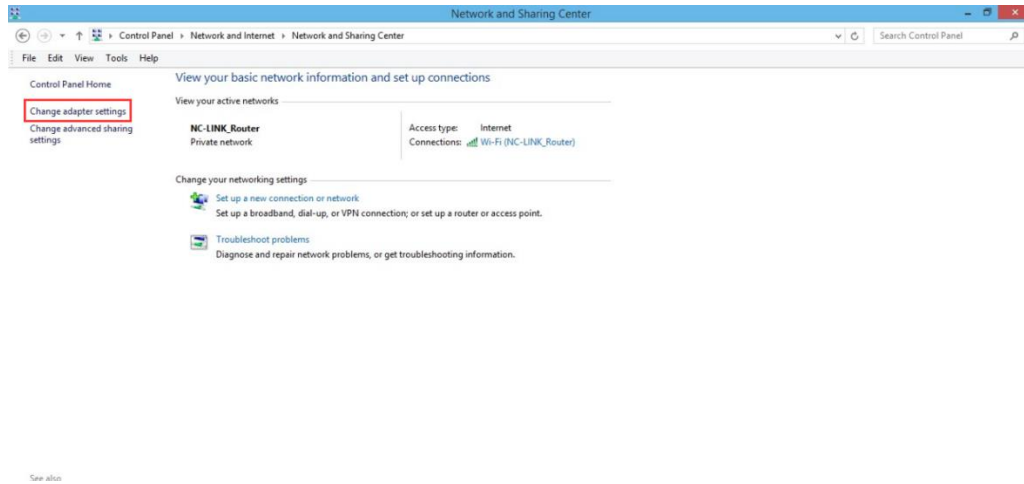
Follow below steps for wired configuration. (Window 8.1 is an example)



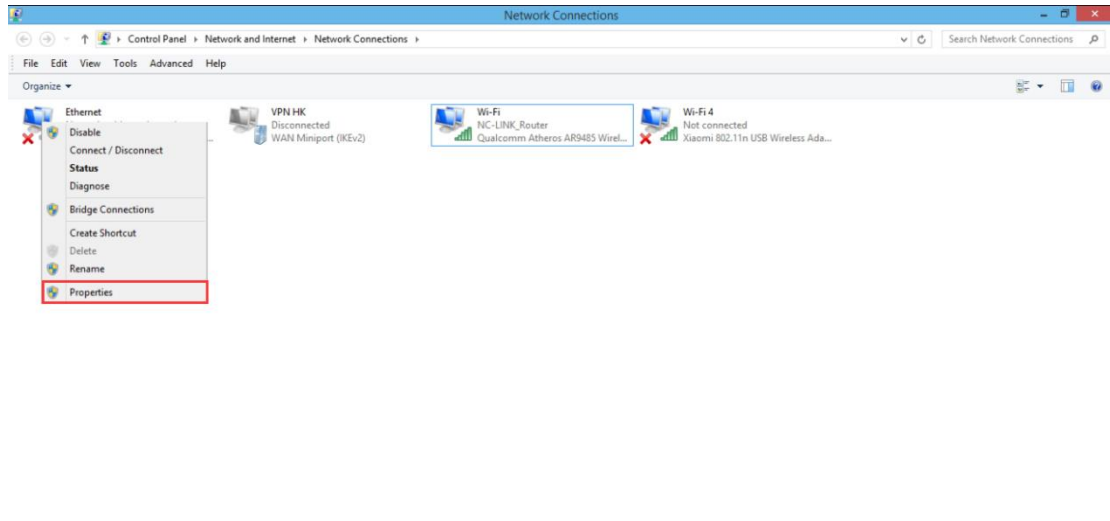
P3 Enter Control Panel



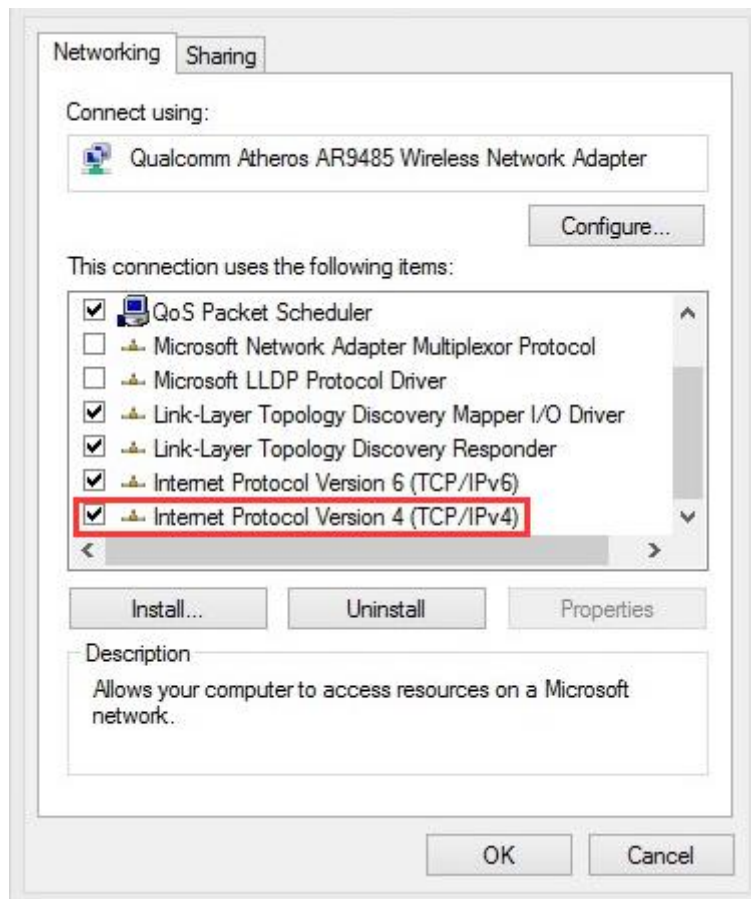
## P4 Network and Internet



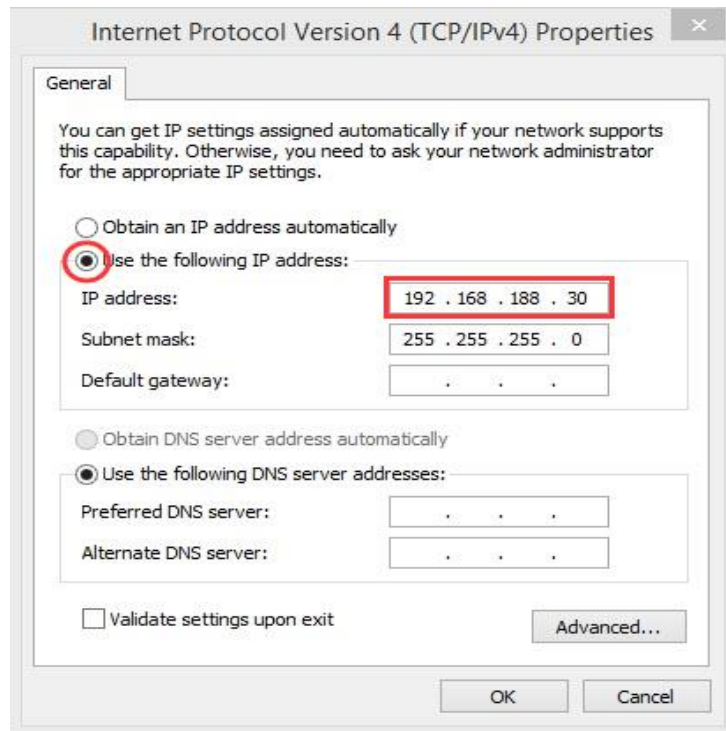
## P5 Change Adapter Setting



Right click Ethernet and select **Properties**

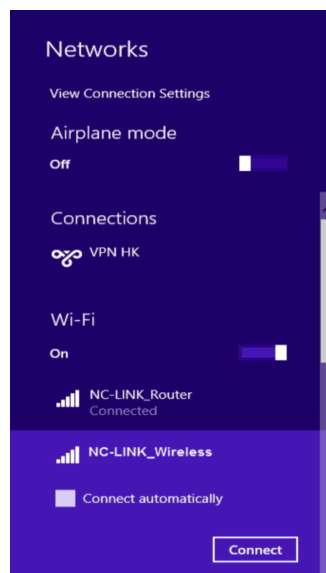


Select IPv4 and click Properties



Select fixed IP and set a IP in same subnet with CPE

If you want to connect our CPE by wireless after IP address configuration, pls right click **Wireless networking Connection**, then **View Available Wireless Networks**, our CPE's default **SSID** is **NC-Link\_Wireless**, **passwords: 66666666**, Click **Refresh network list** , double click the correct SSID and input the passwords, if have, then **connect**.



P7 CPE Wireless Connection

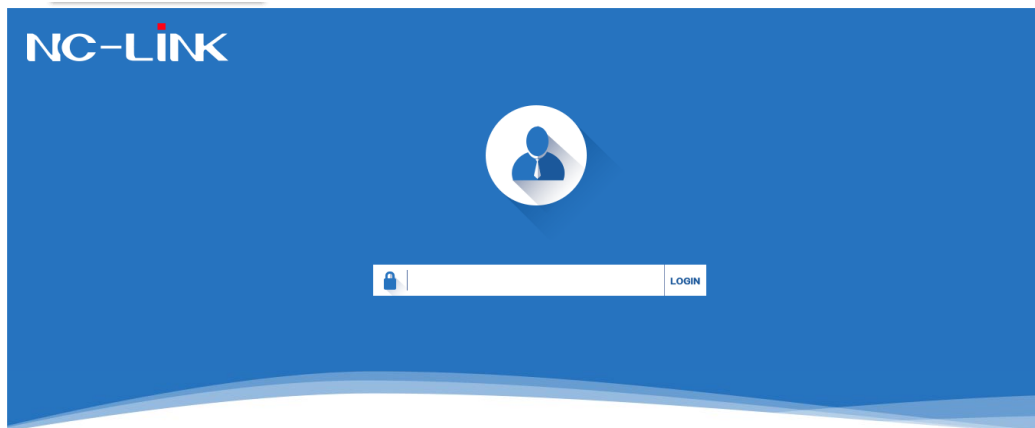




If your computer with build in 802.11b/g/n wireless adapter, but can't search the available wireless networking after refresh, please contact with computer supplier or after-sale department after appear following points:

1. Right click **My Network Places**, select **Properties**, appear **Local Area Connection** or **Other Connection**, No **Wireless Network Connection**
2. There is **Wireless Network Connection** in **My Network Places**, Show **General** and **Advanced** after right click **Wireless Network Connection** and select **Properties**, but no **Wireless Network Configuration** in Window

Login the CPE: Open your web browser, type in **192.168.188.253** in the address bar, enter the **Password: admin**, which you can found on the label attached to the device, click **LOGIN**

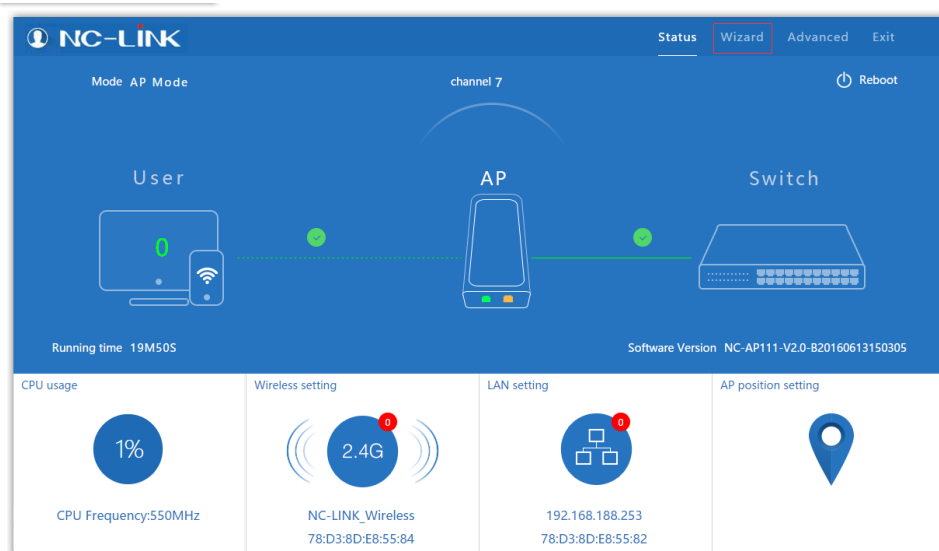


Version NC-AP111-V2.0-B20160613150305

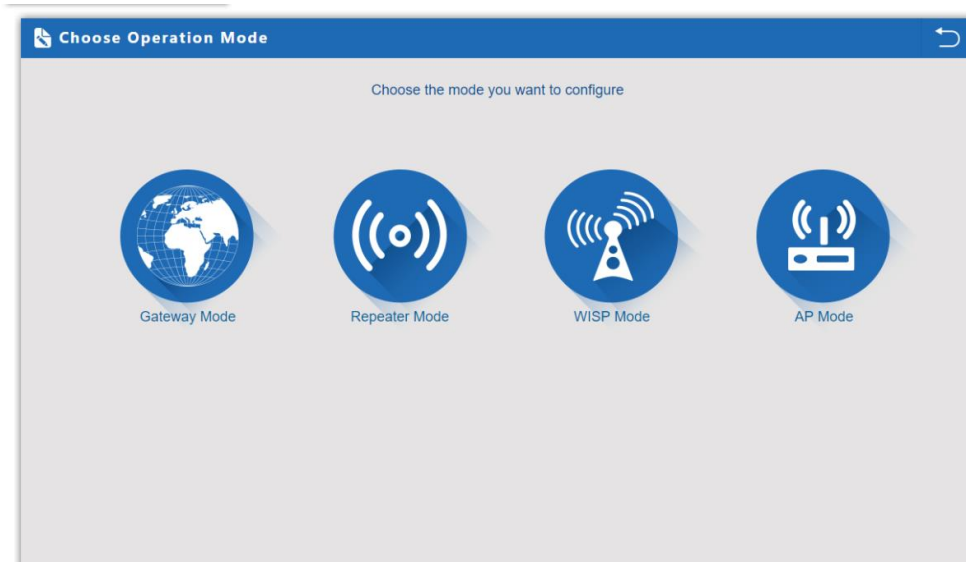
P8 Login

### 3. Setup Wizard

After successful login, you can see web management page of the CPE, go to **Wizard** on the top menu.



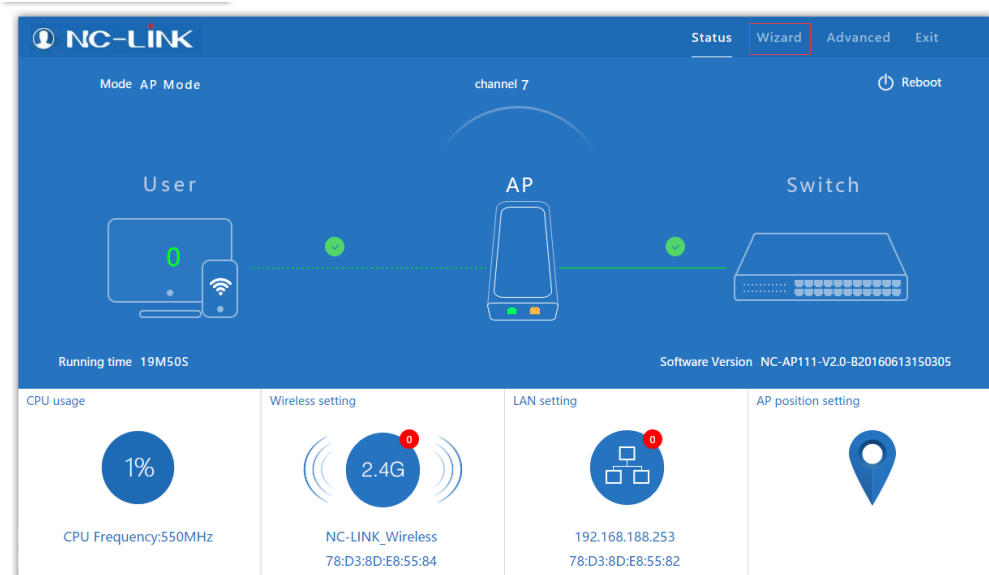
P9 Page after Login



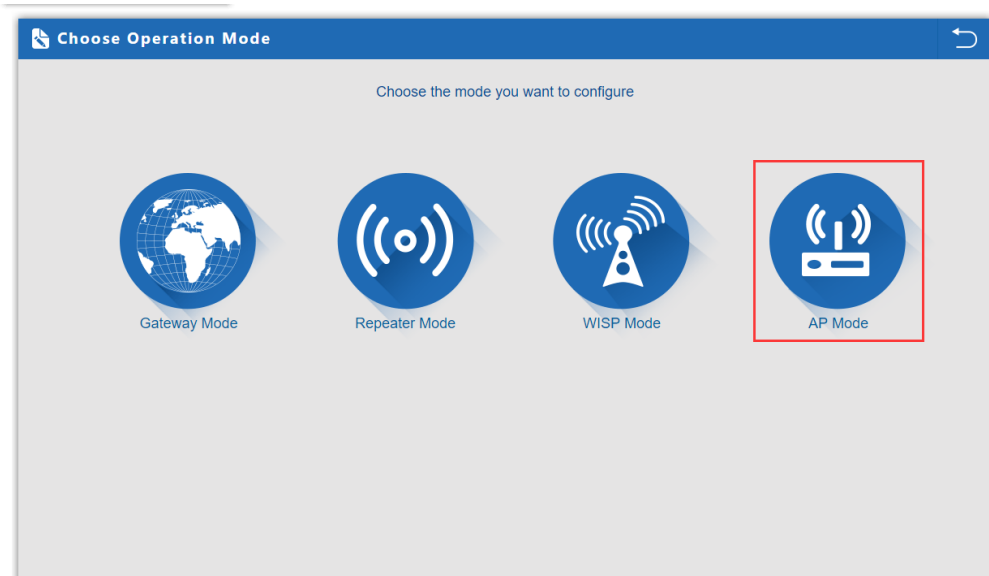
P10 Operation Mode

**Wizard Steps:**

- Choose **Wizard**



- Choose the right **Operation Mode** (Take **AP Mode** for example)



- **Wireless Setting:** configure the wireless parameter as you want, like SSID, Chanel, Encryption, Password, then **Next**

The screenshot shows the 'AP Mode' configuration interface. At the top, there are three progress steps: 'First: Wireless', 'Second: LAN', and 'Third: Complete'. The 'Wireless Settings' section is active. It includes a 'WLAN Status' toggle set to 'ON' with a 'wireless analyzer' link. Below this are fields for 'SSID' (set to 'NC-LINK\_Wireless'), 'Channel' (set to '\* 2.442 GHz (Channel 7)'), 'Encryption' (set to 'WPA/WPA2PSK\_AES'), and 'Key' (set to '66666666'). At the bottom, there are 'AP Location' and 'AP Name' text boxes, and 'Back' and 'Next' buttons.

- **LAN Setting:** configure the Internet Access Type on LAN, DHCP direct click **Next**. Static IP, input related parameter then **Next**

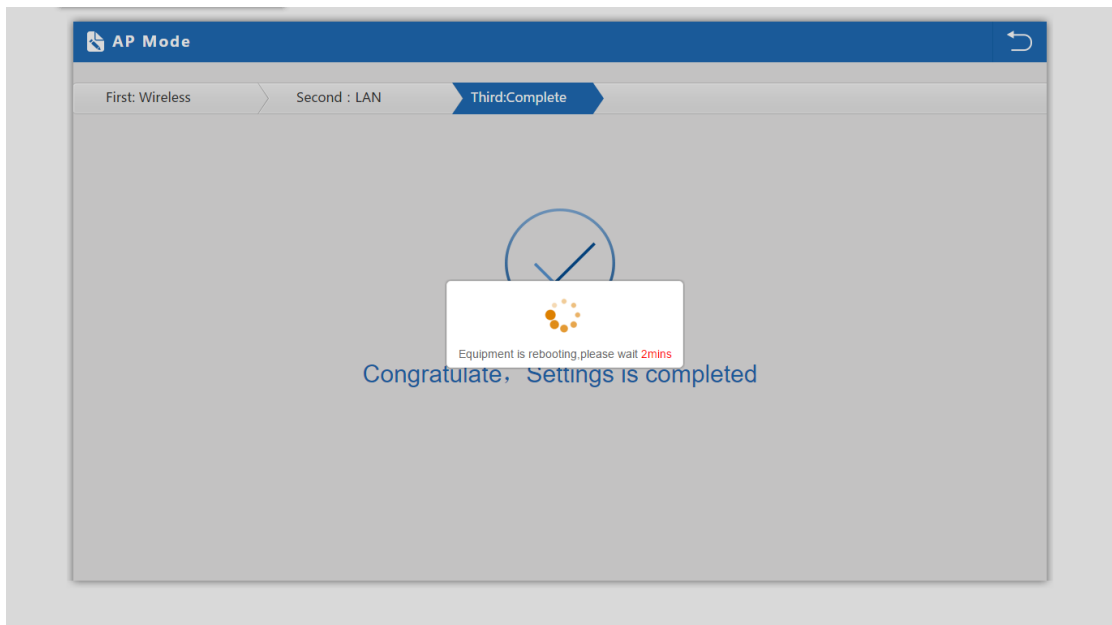
The screenshot shows the 'AP Mode' configuration interface for LAN settings. The progress steps are 'First: Wireless', 'Second: LAN', and 'Third: Complete'. The 'LAN setting' section is active, featuring an 'Access Type' dropdown menu currently set to 'DHCP'. At the bottom, there are 'Back' and 'Next' buttons.

The screenshot shows the 'AP Mode' configuration interface. At the top, there are three progress steps: 'First: Wireless', 'Second: LAN', and 'Third: Complete'. The 'LAN setting' section is active. It includes the following fields:

- Access Type: Static IP (dropdown menu)
- IP: 192.168.188.253
- Subnet Mask: 255.255.255.0
- Manage server IP: 192.168.188.1

At the bottom, there are 'Back' and 'Next' buttons.

- AP Mode is configured complete, device will reboot in 2 minutes



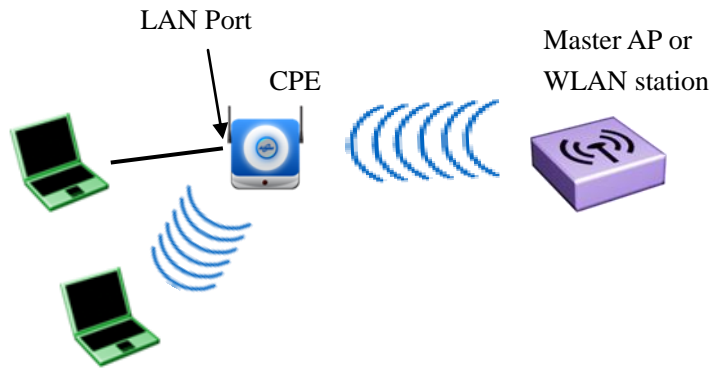
## 4. Repeater Operation Mode

**Repeater:** CPE's LAN Port, WAN Port and Wi-Fi will bridge together, CPE will broadcast an SSID outward simultaneously. Users access into CPE through LAN port or Wi-Fi, then get the IP address from AP or WLAN station.



Instruction

The CPE's default operation mode is AP Mode, the two RJ45 ports are LAN ports and PoE port under this mode.

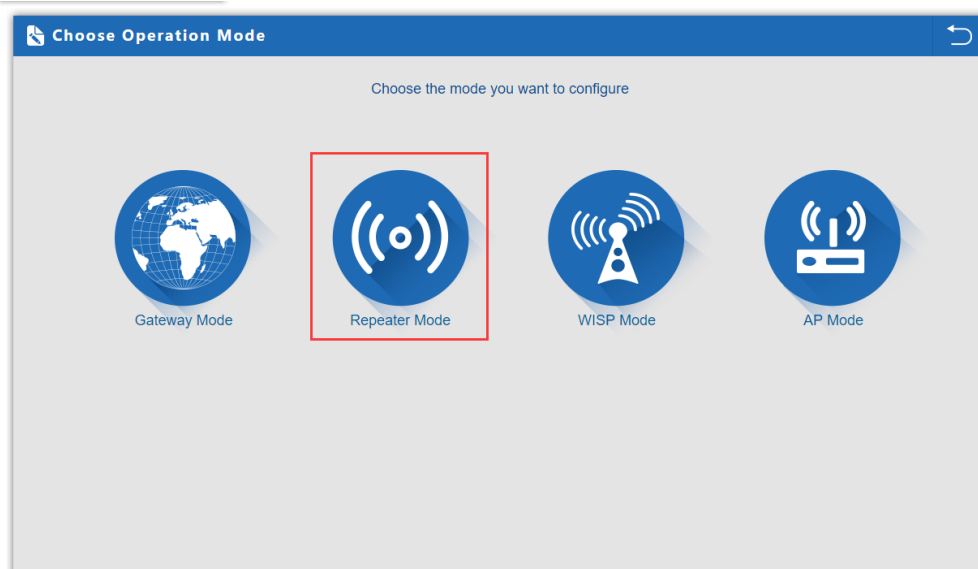


P11 Diagram of Bridge

## How to Setup Repeater Mode


### a) Select Repeater Mode

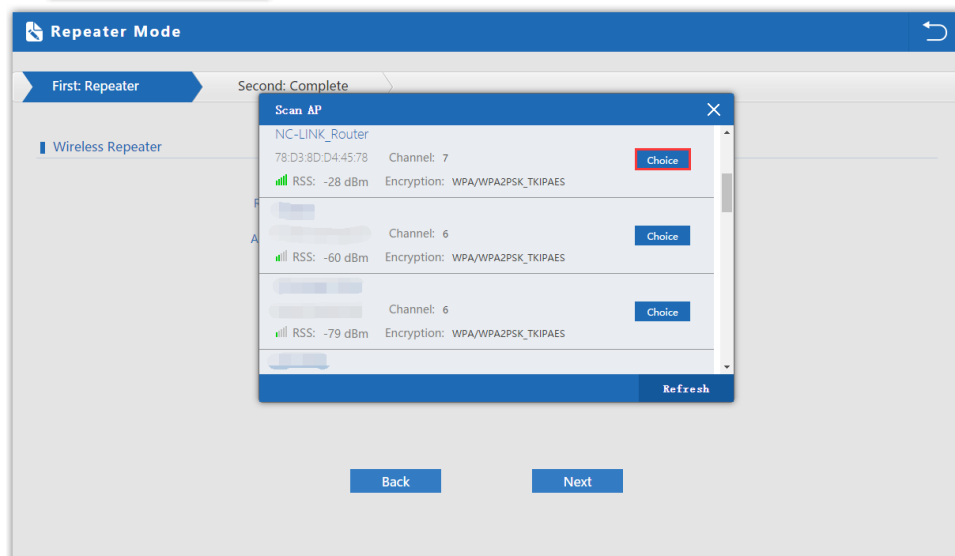
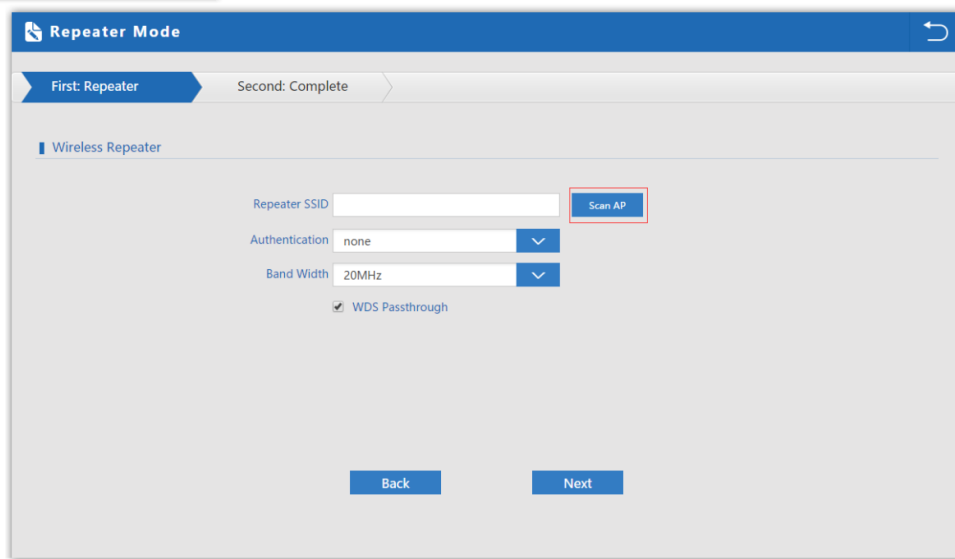
Login Web management page, click **Wizard**, choose **Repeater Mode**.



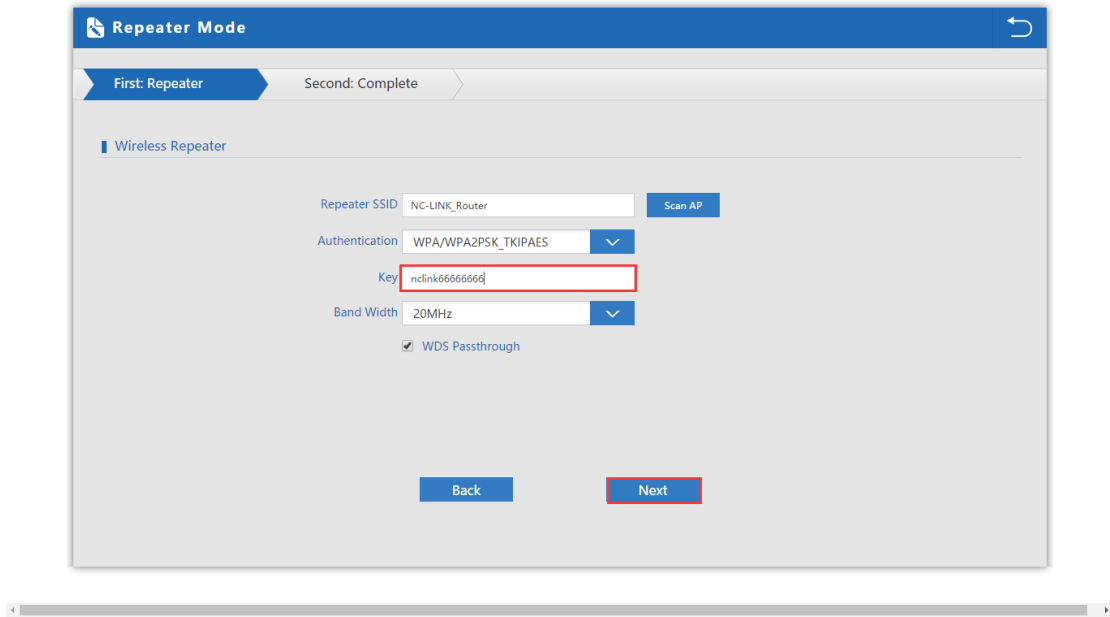
**b) Connect to AP or WLAN Station**

Click **Scan AP**, then will pop up a window as P12, take NC-Link\_Router for example, click **choose AP** and enter into a new web page P13:

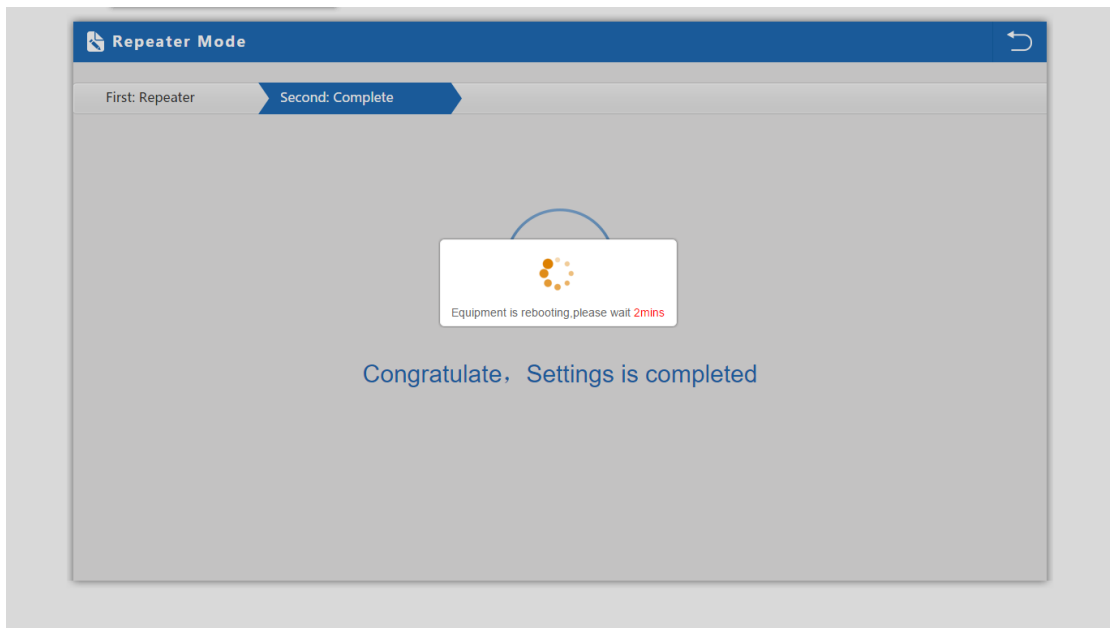
 **Instruction** If your PC can't popup the page of P11, check your Browser and see whether block it or not. Or change a browser.



P12 Scan Wireless AP



P13 Fill in the password

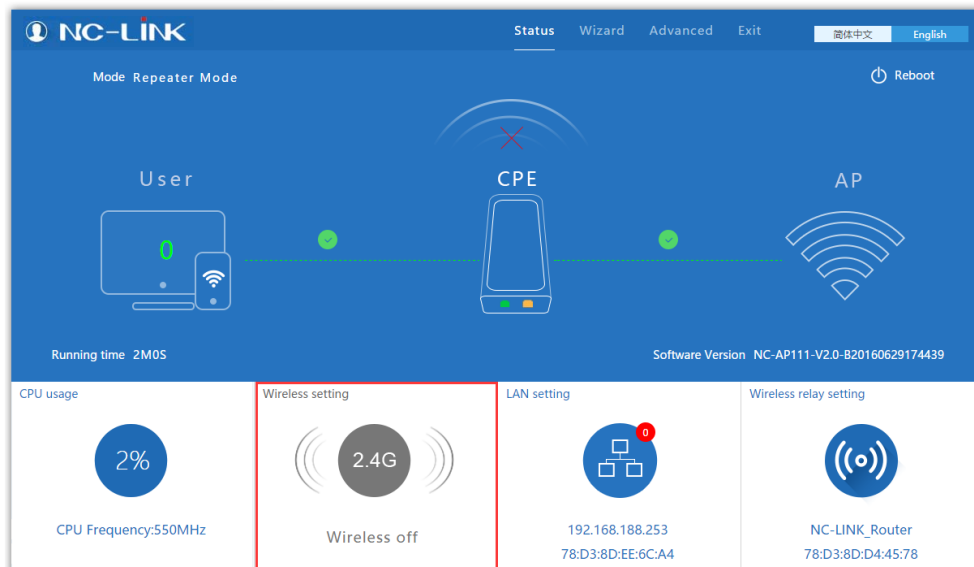


**c) Input Password and complete configuration**

Click Next after fill in the Password, the Repeater Mode configuration is complete, device will reboot in 2 minutes.

In this Repeater Mode only the LAN is Bridge with wireless signal, the Wi-Fi is still OFF.





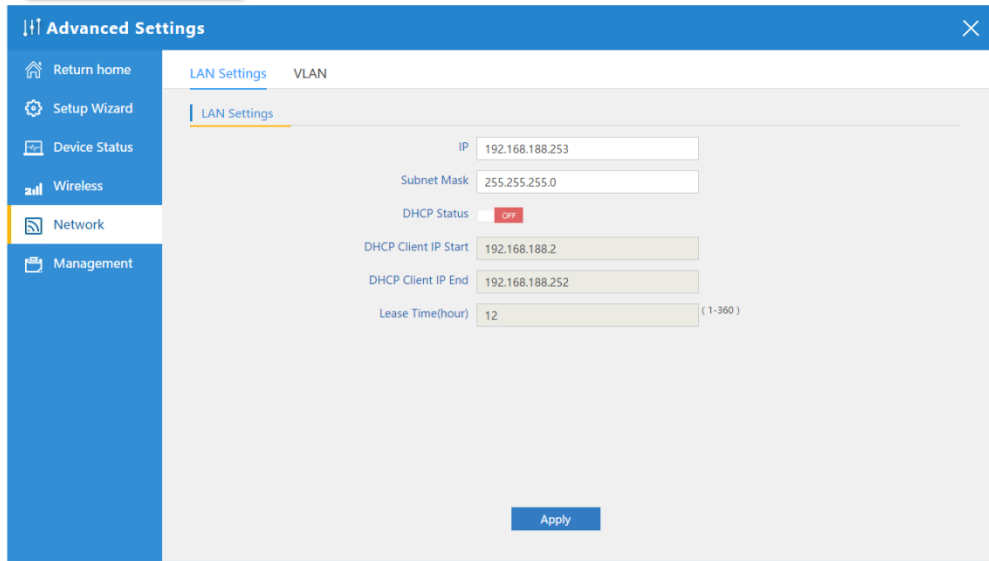
instruction

Please scan several times more if haven't find the target SSID in scan list. If can't find it still, make sure the CPE support the channel of WLAN station or AP. For example: AP's channel is Channel 14, but CPE support Channel 13. In addition, check the CPE and AP's wireless protocol to see if match. Or restore CPE to factory default.

#### d) LAN Port Setting

Click **Advanced Settings Network, LAN Settings**, the web management page will be as follow:

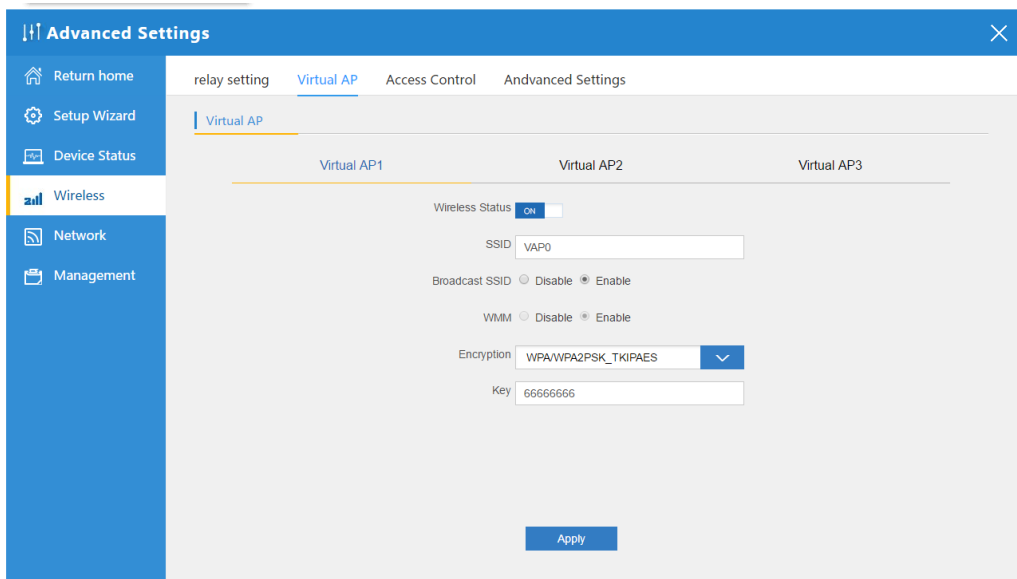
- IP address: it is CPE's management address. In Bridge Mode, the LAN port address has nothing to do with PC's IP Address. Modify it according your require. (It is not in the same network segment with Internet IP address from WAN)
- Choose **Disable** in DHCP Server, click **Apply**



#### P14 LAN Setting

##### e) Wireless Setting

Click "**Advanced Settings**" → "**Wireless**" → "**Virtual AP**", enter into the basic setting page as follow:



#### P15 Configure the Basic Setting

- **Status** is Enable, then CPE will open the Wi-Fi
- **SSID** means Service Set Identifier (Your Wi-Fi name).
- **Broadcast SSID:** Enable, SSID is visible; Disable: SSID is hidden, the user can't scan the SSID if hide, have to input it by manual.
- **Encryption:** Support None, WPA, WPA2, WPAPSK/WPA2, recommend TKIP/AES mode

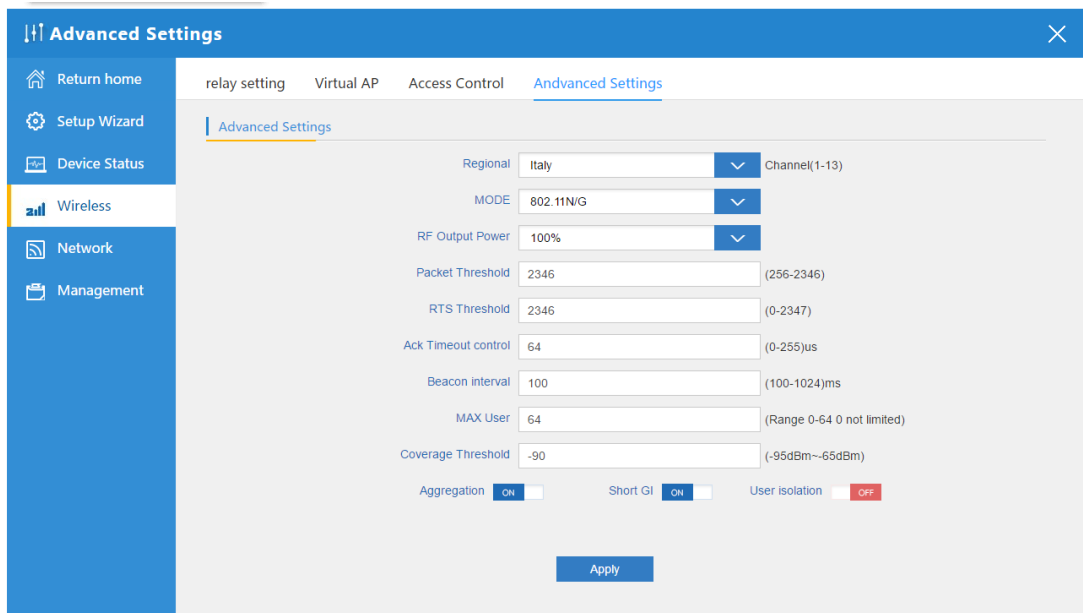


Instruction

There is no need to set Channel in Bridge Mode here, because the CPE's channel will keep it same with WLAN and AP's Channel in Bridge Mode

## f) Advanced Settings

Click "**Wireless**" → "**Advanced Setting**", will pop up a page of P16:



The screenshot shows the 'Advanced Settings' page with the following configuration details:

- Regional: Italy
- MODE: 802.11N/G
- RF Output Power: 100%
- Packet Threshold: 2346 (256-2346)
- RTS Threshold: 2346 (0-2347)
- Ack Timeout control: 64 (0-255)us
- Beacon interval: 100 (100-1024)ms
- MAX User: 64 (Range 0-64 0 not limited)
- Coverage Threshold: -90 (-95dBm~-65dBm)
- Aggregation: ON
- Short GI: ON
- User isolation: OFF

### P16 Advanced Settings

- **Regional:** set it of your country or region
- **MODE:** you can choose 802.11N/G, 802.11B/G
- **RF Output Power:** 100%, 75%, 50%, 25%, 12.5%
- **MAX user:** limit the number of connect client
- **Coverage threshold:** limit the weak signal client to connect
- Other advanced Setting: Professional installation or maintenance person can set it accordingly. General, keep it default. Click Apply after setting

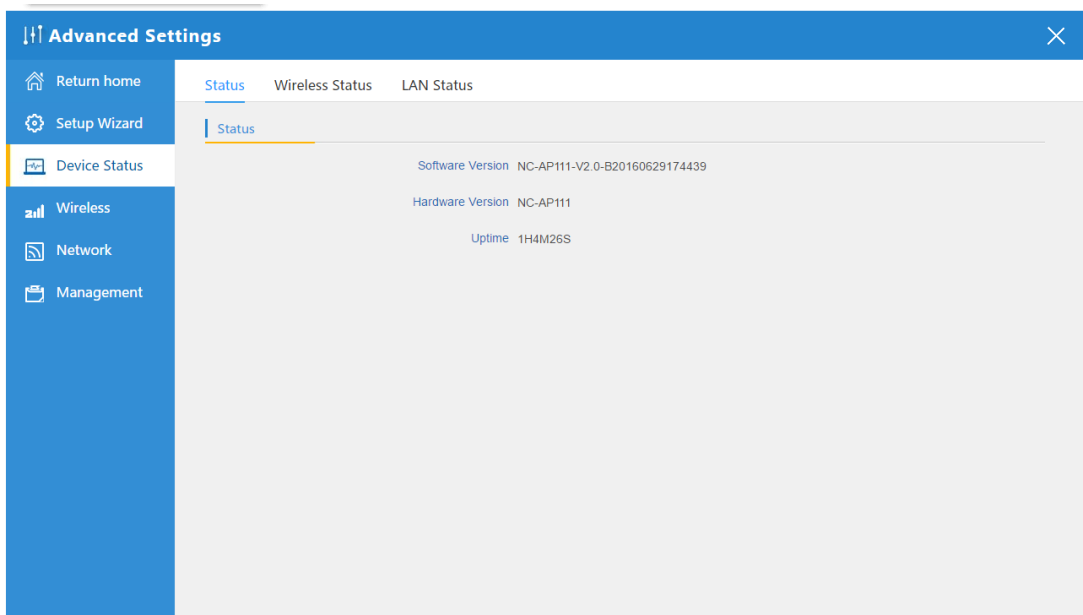


Instruction

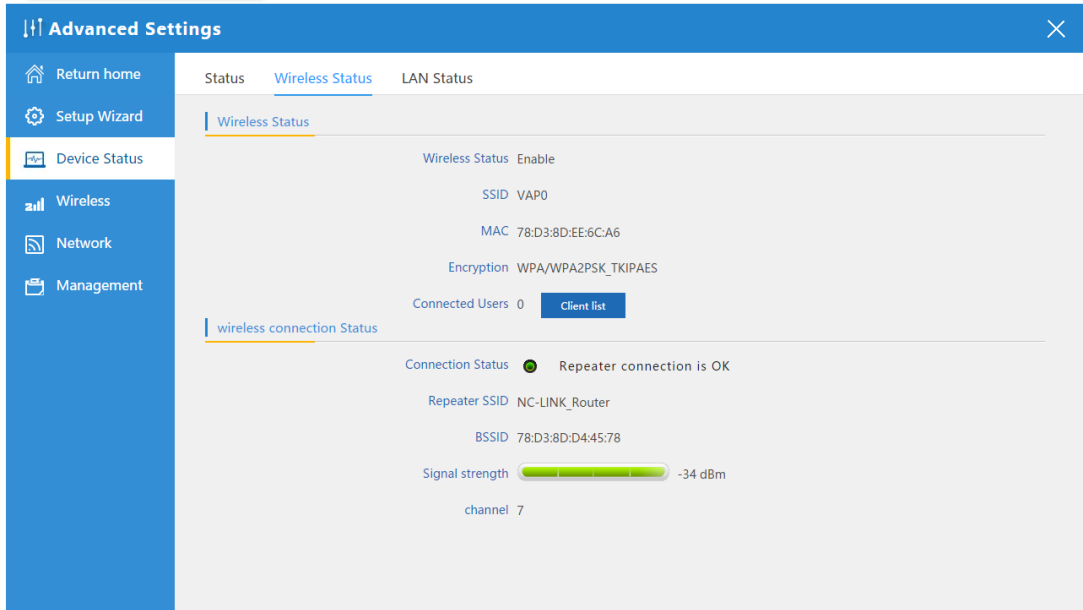
Wireless Setting is effect for the wireless signal broadcast by CPE, it should match with the WLAN station or AP's security. If the user access to CPE not via wireless, then can hide the CPE's SSID to prevent unauthorized user access.

### g) Check CPE's Status

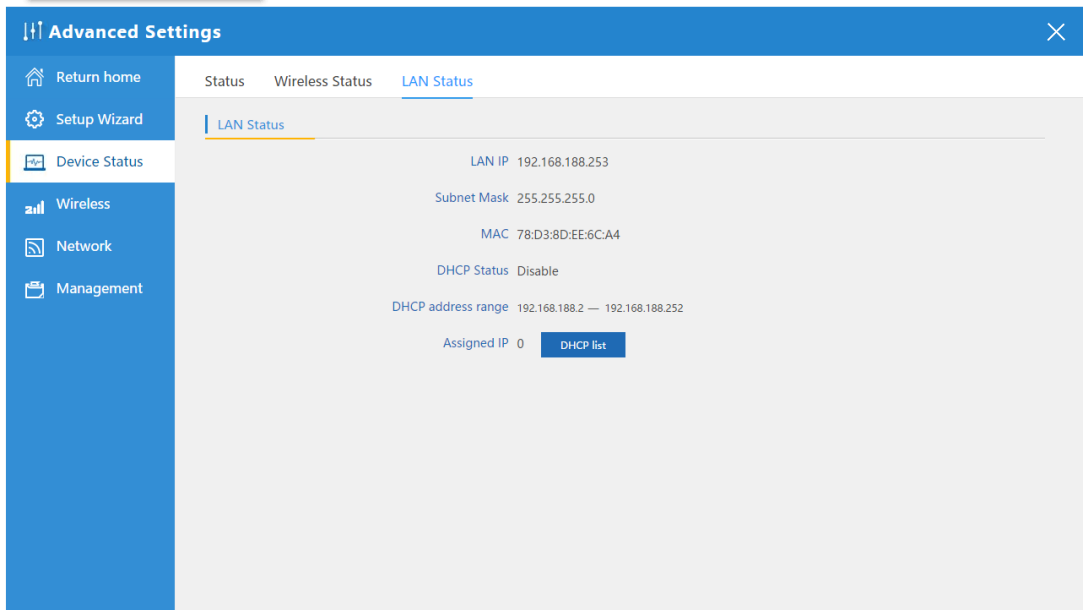
Click "**Status**" and pop up following window, which show CPE's status



P17 Wireless Status



### P18 Wireless Status



### P19 LAN Status

When the CPE connect with WLAN station or Wireless AP, the connect status will show **Connect**, then show SSID, MAC address, AP Signal strength

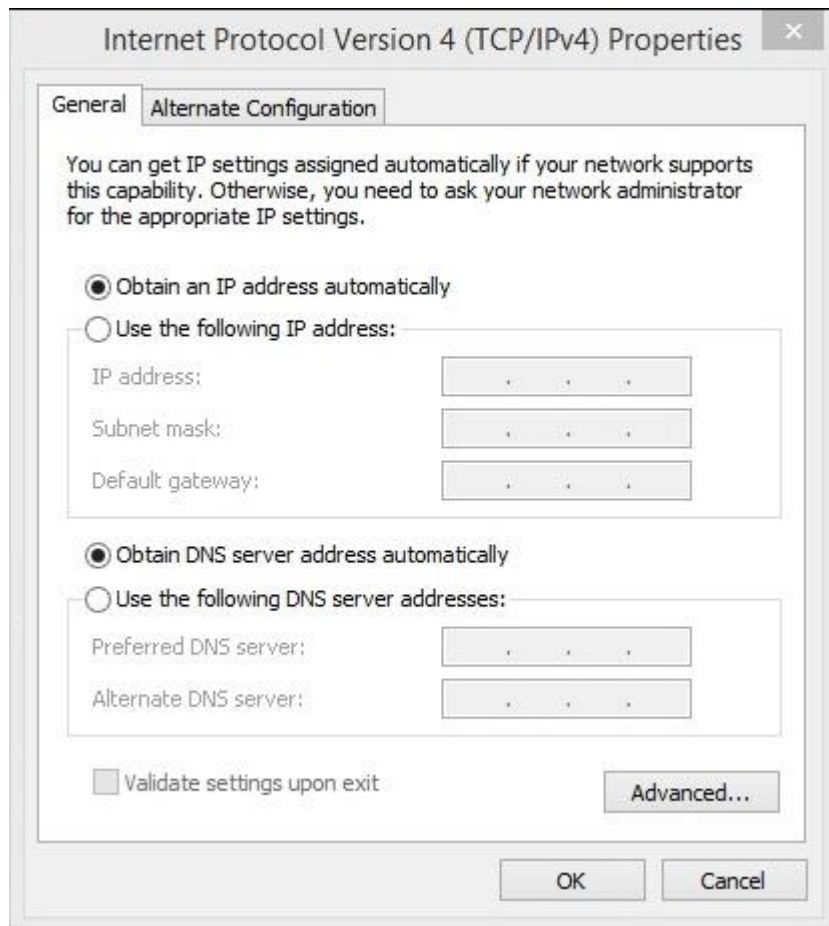


Indicator

We recommend the AP signal strength is greater than -75dBm, if signal strength weaker, CPE's bridge effect will be worse. In the condition of non-line-of-sight, the bridge effect will be worse also, adjust the CPE direction to get better signal strength and Link Quality

### h) PC Setting

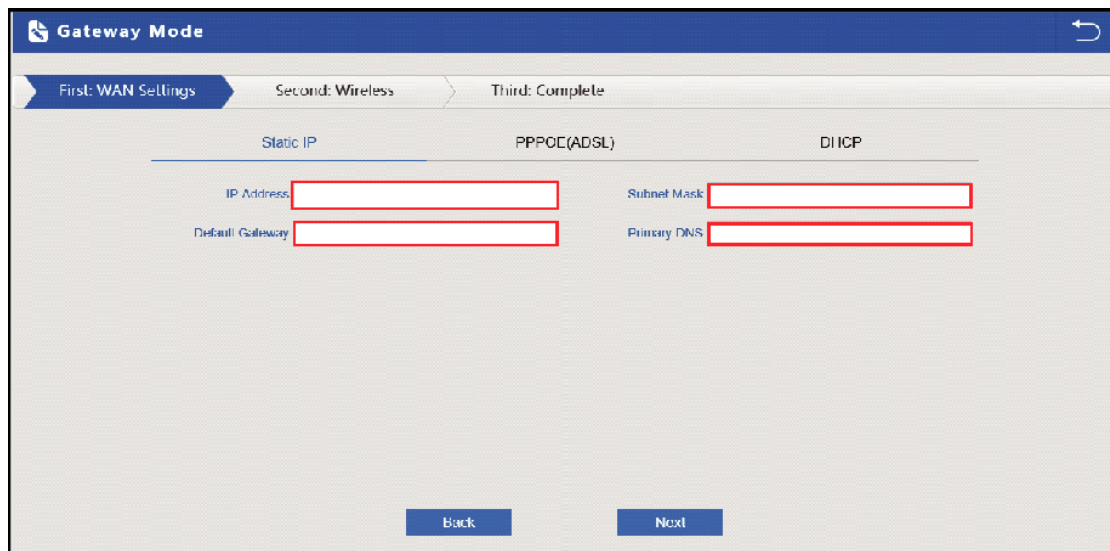
Set PC's Internet TCP/IP as **Obtain an IP address automatically**, then the PC can obtain the IP address assigned by Wireless AP or WLAN station



P20 Set PC's IP Address

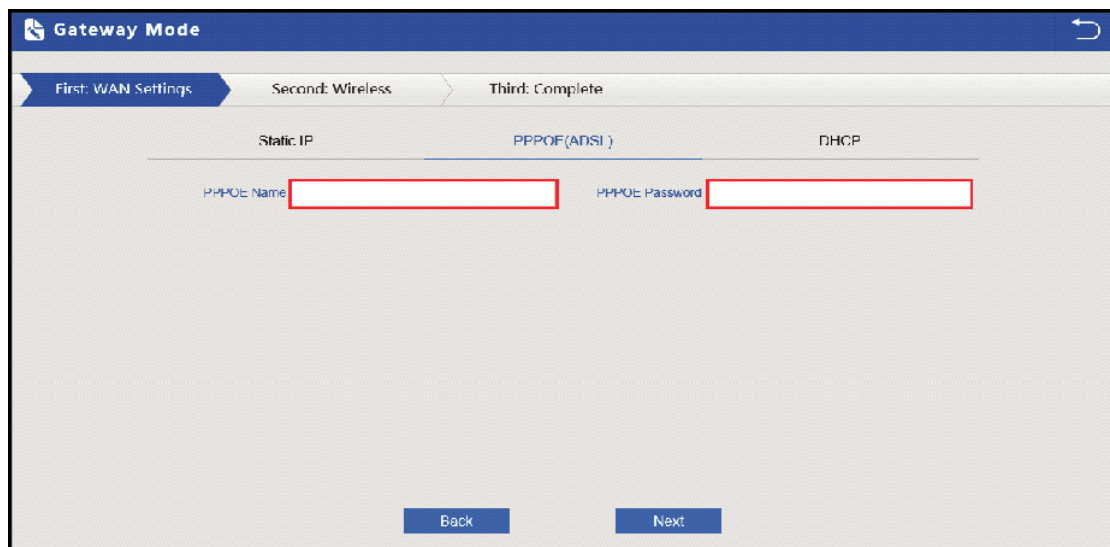
After setting finished, input Ping command to test internet connectivity.

## 5. Gateway Operation Mode



The screenshot shows the 'Gateway Mode' configuration interface. At the top, there is a blue header with the title 'Gateway Mode' and a refresh icon. Below the header, a progress bar indicates three steps: 'First: WAN Settings' (active), 'Second: Wireless', and 'Third: Complete'. The main content area is divided into three tabs: 'Static IP', 'PPPOE(ADSL)', and 'DHCP'. The 'Static IP' tab is selected and highlighted with a blue underline. Under this tab, there are four input fields: 'IP Address', 'Subnet Mask', 'Default Gateway', and 'Primary DNS'. Each input field is currently empty and has a red border. At the bottom of the page, there are two blue buttons: 'Back' and 'Next'.

Static IP, input the information provided by ISP

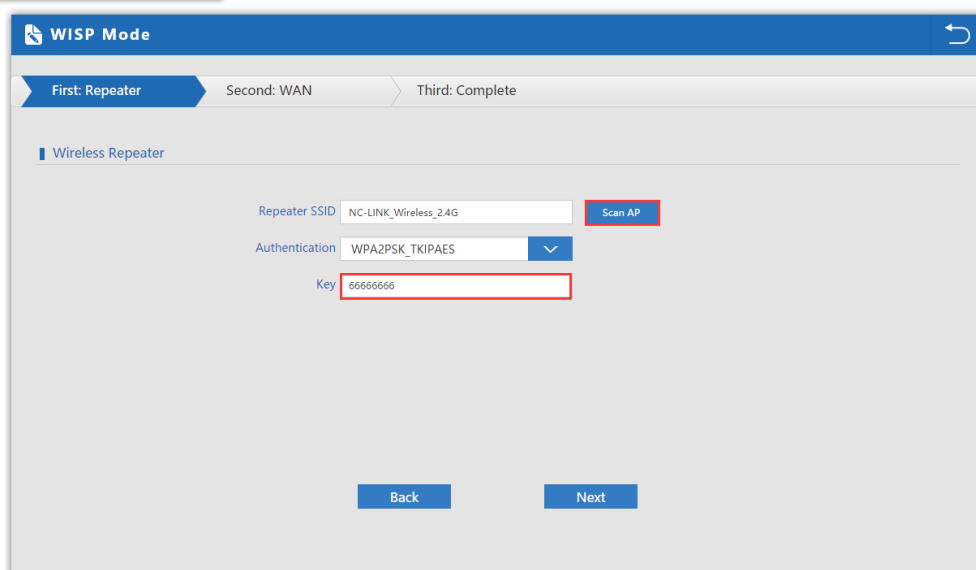
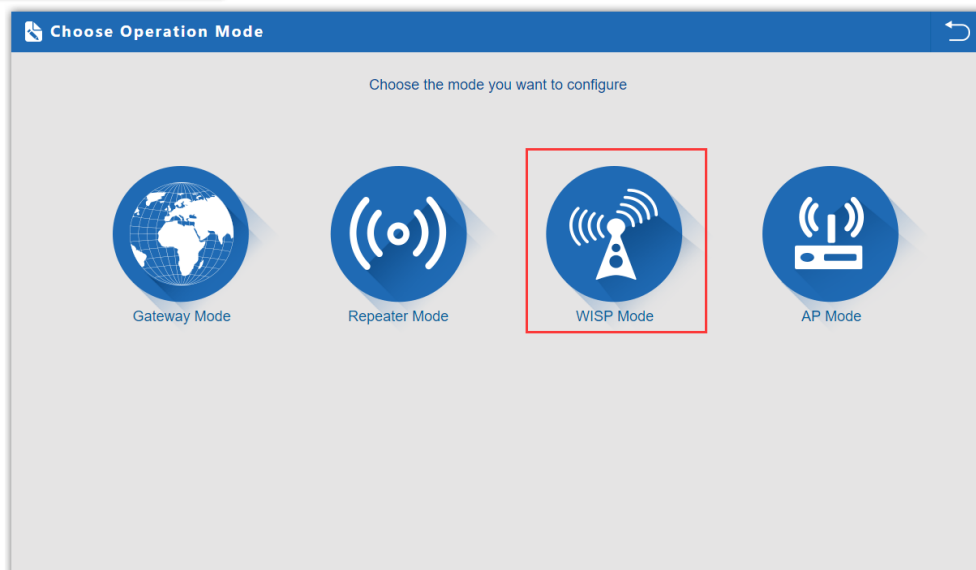


The screenshot shows the 'Gateway Mode' configuration interface, similar to the previous one. The 'PPPOE(ADSL)' tab is selected and highlighted with a blue underline. Under this tab, there are two input fields: 'PPPOE Name' and 'PPPOE Password'. Both input fields are currently empty and have a red border. At the bottom of the page, there are two blue buttons: 'Back' and 'Next'.

PPPOE, fill in the username and password provided by ISP

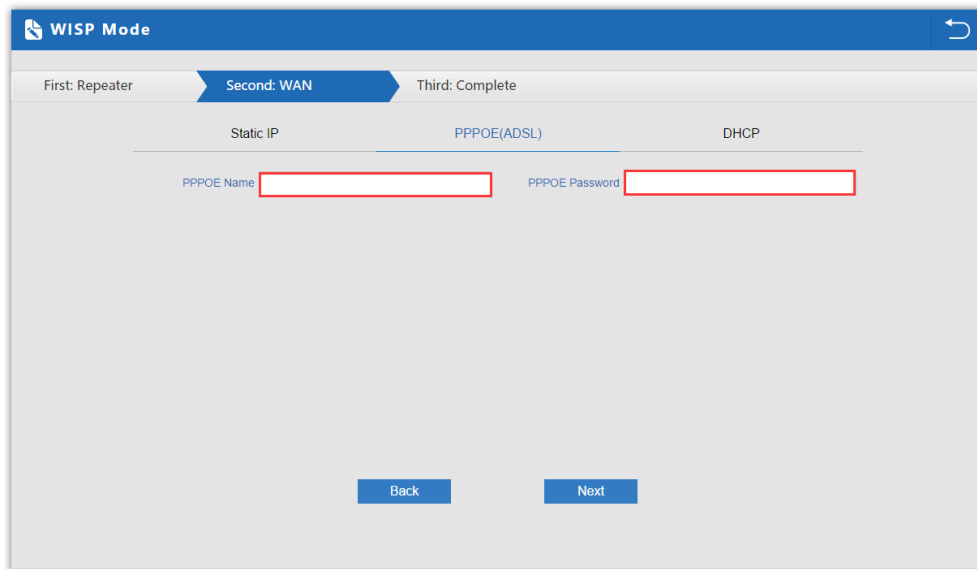
If you access type is DHCP, then you can get the IP address automatically

## 6. WISP Operation Mode



Set like in Repeater Mode, Scan AP and select the signal to repeat and fill in the password



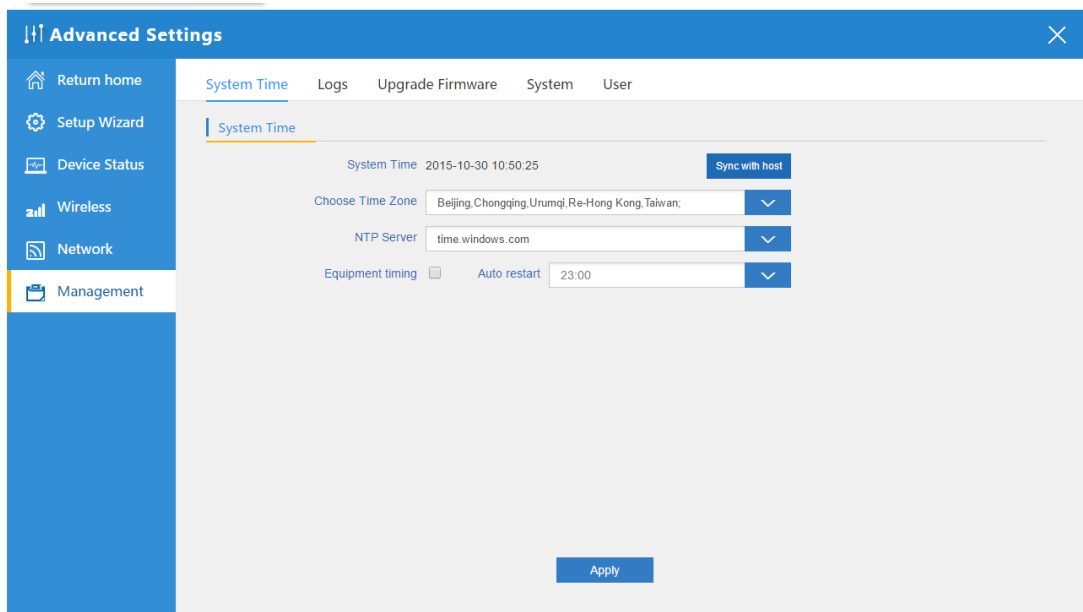


The screenshot shows the 'WISP Mode' configuration interface. At the top, there are three steps: 'First: Repeater', 'Second: WAN' (which is currently active), and 'Third: Complete'. Below the steps, there are three tabs: 'Static IP', 'PPPOE(ADSL)', and 'DHCP'. The 'PPPOE(ADSL)' tab is selected. Under this tab, there are two input fields: 'PPPOE Name' and 'PPPOE Password', both of which are currently empty. At the bottom of the page, there are two buttons: 'Back' and 'Next'.

Fill in the information according to the Access Type. DHCP is no need, just click **Next**. Then the setting is completed, device will reboot.

## 7. Management Page

Click "**Management**" and enter into the management page:



The screenshot shows the 'Advanced Settings' page, specifically the 'System Time' section. The page has a blue header with the title 'Advanced Settings' and a close button. On the left side, there is a navigation menu with options: 'Return home', 'Setup Wizard', 'Device Status', 'Wireless', 'Network', and 'Management' (which is highlighted). The main content area shows the 'System Time' settings. The current system time is '2015-10-30 10:50:25', with a 'Sync with host' button. Below this, there are three dropdown menus: 'Choose Time Zone' (set to 'Beijing, Chongqing, Urumqi, Re-Hong Kong, Taiwan'), 'NTP Server' (set to 'time.windows.com'), and 'Equipment timing' (with an 'Auto restart' checkbox and a dropdown set to '23:00'). An 'Apply' button is located at the bottom of the page.

P21 Management

- System Time: Set CPE's time
- Logs: the system logs can be enable or disable, user can view the system log
- Upgrade Firmware: Upgrade new firmware to access stable function for CPE
- System: from here you can reload the backup file to restore the system, or restore to factory default, reboot the CPE through firmware
- User: Set the CPE's User Name and Password



Indicator

How to restore factory fault by **Reset** Button from CPE: Press the Reset button 15 seconds, the CPE system will reboot and restore to factory settings.

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## 8. Troubleshooting

Form 1 Symptoms and Treatment

Symptoms	Treatment
Power indicator does not light	Check the POE port and LAN Port connection, the right connection way is PoE adapter PoE Port link to CPE's LAN, PoE adapter LAN Port link to PC, please refer to P2 above.
Can't login CPE through WEB management	Make sure PC and CPE's IP Address in same network segment, can test the CPE connectivity through Ping IP address: PC start-input " <b>cmd</b> " in Run, then <b>ping 192.168.188.253</b> Restore the CPE to factory default to login Make sure there isn't any equipment take IP address 192.168.188.253 in CPE's networking Check your computer and network cable to avoid any problem, recommend to use unshielded twisted pair 10/100M Ethernet cable.
CPE can't connect with Wireless AP (connection status show un-connect)	Scan AP one more time Make sure CPE Connect (11b/g/n) is right setting. make sure the Authentication and key between CPE and Wireless AP are matched Maybe the wireless AP's signal strength is weaker than -75dBm, recommend the signal strength is more than -75dBm.
Can't find the AP after scan	Scan it several times more Make sure CPE support the AP's channel, such as <b>12,13,14</b> channel. Restore the CPE to factory setting, scan and manage it again.
CPE connect with wireless AP, but pc can't connect to Internet	Check the PC's IP address and DNS setting. If CPE's WAN setting is Dynamic IP, set the PC's TCP/IP as Obtain an IP address automatically; If CPE's WAN Setting is Static IP, consult with ISP for right IP address and DNS address
Restore CPE	Power CPE, press RESET button 15 seconds, the CPE will reboot and restore to factory default.