Tenda

User Guide

AV1000 Gigabit Powerline Adapter

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Preface

Thank you for purchasing our product. This user guide will help you finish installation and configuration.

Technical Support

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Chapter 1 About the PLC Product

1.1 Overview

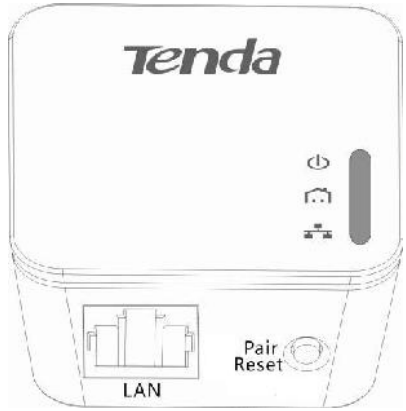
Gigabit Powerline adapter is designed for online video/audio player, web camera, IPTV and other high bandwidth applications. It adopts electrical circuit to transmit Internet data with electrical power, which in a sense reduces the Ethernet cable cost and easily extends network coverage to where the electrical power can get within the valid range. The rate of this powerline adapter is up to 1000Mbps, giving a guarantee of a more fluent online playing experience.

1.2 Package Contents

- AV1000 Gigabit Powerline Adapter
- Install Guide
- Ethernet Cable

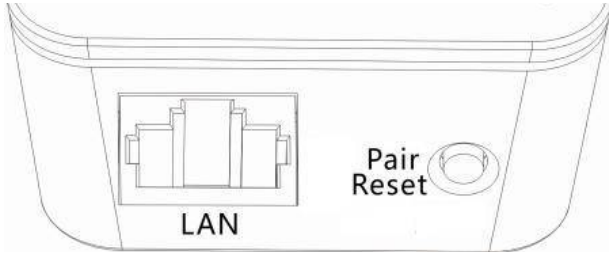
If any of the items above is missing or damaged, please contact the dealer for immediately replacement.

1.3 LED



LED	Status	Description
Power	Off	The device is NOT receiving electrical power.
	Solid	The device is receiving electrical power correctly.
	Blinking	The device is working in energy saving mode.
PLC	Off	The device has not paired with other powerline adapter(s).
	Solid	The device has paired with a powerline adapter.
	Blinking	The device is pairing with a powerline adapter.
LAN	Off	Ethernet cable is connected improperly, or not connected.
	Solid	Ethernet cable is connected properly, but no data is being transmitted.
	Blinking	Transmitting data

1.4 Interface/Button



LAN: For connecting to the Internet, a PC, or other network device via an Ethernet cable.
Pair/Reset: Press it for 1-3 seconds to pair with other adapters; and press it for more than 6 seconds, the PLC LED will blink 3 times continually and the adapter restores to factory default settings.

1.5 Installation Notes

Read this guide before you operate this device, pay close attention to below notes.

- Make sure that there are no flammable objects or conductive objects around the device.
- The device will produce amount of heat during its running. Please make sure it is placed in a well-ventilated environment and keep it away from water or any other liquid.
- DO NOT expose the device to the sun or other strong heat source directly.
- DO NOT expose the device to corrosive substances (such as acid and alkali, etc.).
- DO NOT place any object on the device.
- Keep ventilator clean and unblocked. The foreign substances may cause short circuit, even worse, cause fire or damage to the device.

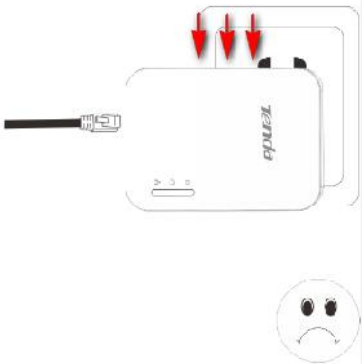
- If you plug the powerline adapter into an outlet of a power strip, for better performance, ensure no other devices like hair drier, electric iron, or fridge are connecting to the same power strip.
- Remember to unplug the device from power supply when:
  1) In a lightning and storm weather.
  2) You are ready to clean the device.
  3) The device is out of use.
- Without professional help, do not open the device's shell/outer case.

Chapter 2 Hardware Installation

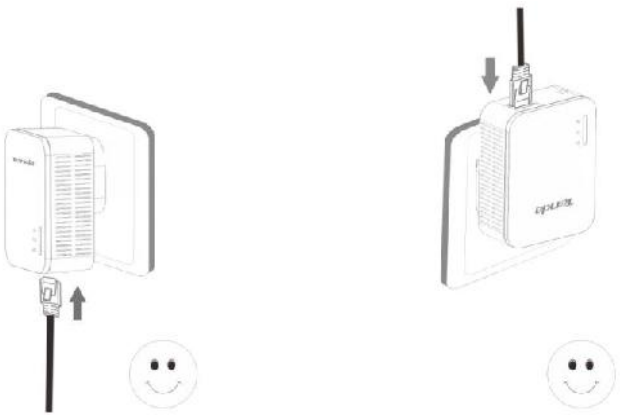
After finishing this part settings, you can get to the Internet.

Attention

Do not use the Powerline adapter in this way (vents straight down):



The powerline adapter can only be used in this direction:



2.1 Preparation

Before connecting, please prepare the followings:

- At least two Powerline adapters
- Ethernet cables for connecting to the Internet, PC, etc.
- User client, such as PC (desktop or laptop), and set-top box to enjoy Internet experience. (not included in the package)

2.2 Connection

The followings are two application examples. Take the corresponding one to refer according to your needs.

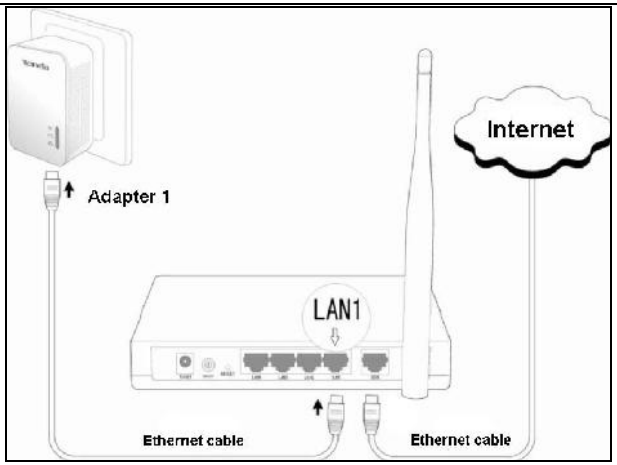
A. PC Application Connection

Scene Reconstruction:

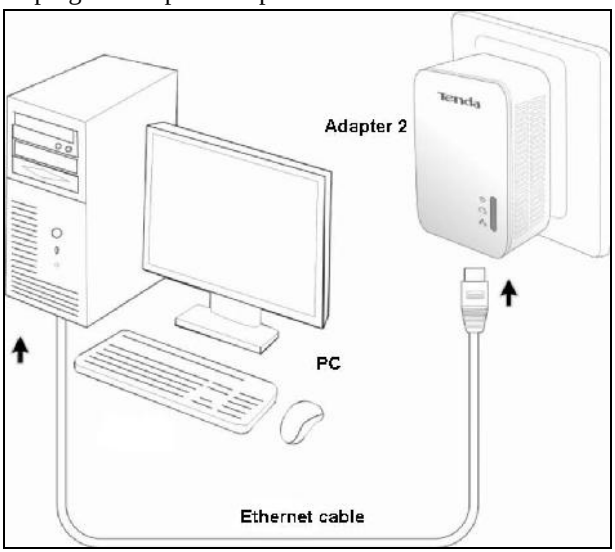
You live in a two-story house. And you have a networked router which is placed on the first floor, a desktop PC located on the second floor, and two powerline adapters not installed. You want to connect the PC to the networked router for Internet access without long and complex cabling. Now you can make the PC access the Internet through powerline adapters.

Procedure:

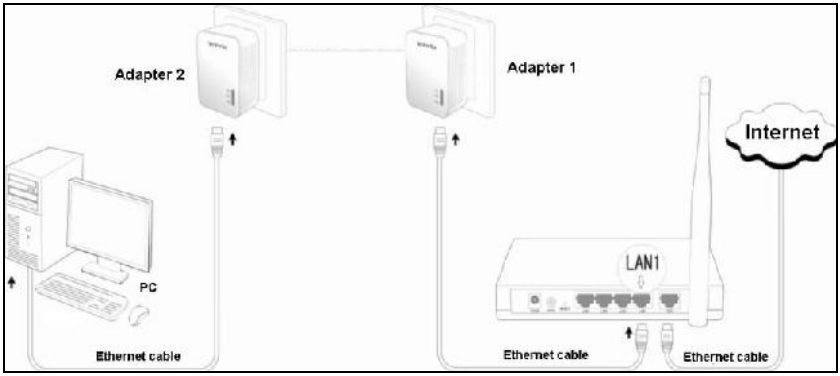
Step 1: Connect the LAN port of Adapter 1 (Powerline Adapter 1) to a LAN port of networked router using an Ethernet cable. And then plug the adapter to a power socket.



Step 2: Connect the LAN port of Adapter 2 (Powerline Adapter 2) to the network interface of your desktop PC using an Ethernet cable. And then plug the adapter to a power socket.



Step 3: Once both two adapters are connected to the same power electrical circuit, they are pairing with each other automatically. When both PLC LEDs display solid, the two adapters can access the Internet.



Step 4: If you cannot access the Internet after above connection, configure your PC to **Obtain an IP address automatically** and **Obtain DNS server automatically**. Please refer to **Appendix 1 Configure Your PC** for details.

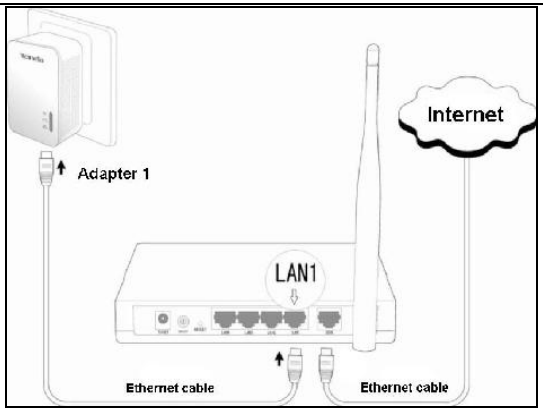
B. Set-top Box Application Connection

Scene Reconstruction:

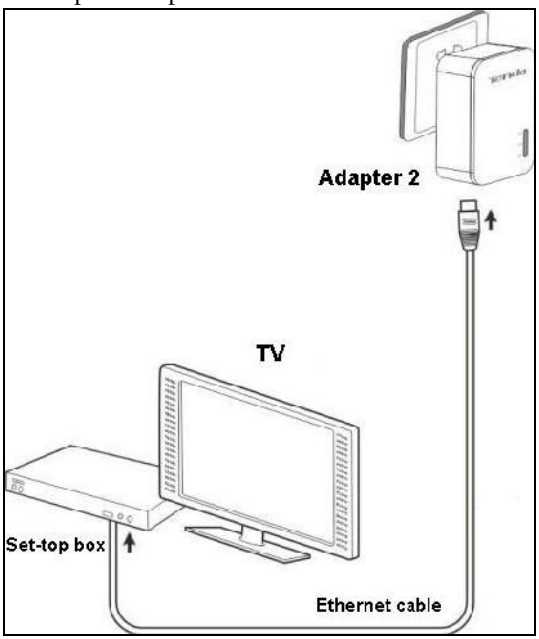
You live in a two-story house. You have a set-top box and a TV which are located in the sitting room of the second floor, and a networked router which is located on the first floor. Now you want to enjoy an online movie.

Precedence:

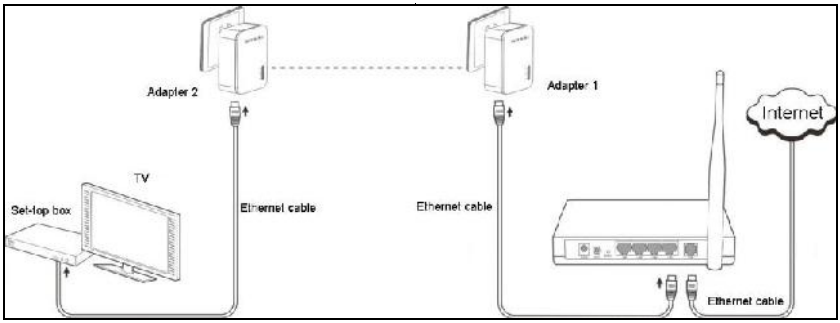
Step 1: Connect the LAN port of Adapter 1 (Powerline Adapter 1) to the LAN port of networked router using an Ethernet cable. And then plug the adapter to a power socket.



Step 2: Connect the LAN port of Adapter 2 (Powerline Adapter 2) to the network interface of set-top box using an Ethernet cable. And then plug the adapter to a power socket.



Step 3: The two adapters will automatically negotiate with each other once you turn on them. When LEDs on both adapters display solid, it indicates that the two adapters have paired with each other successfully and you can enjoy an online movie now.



Tip

After the cable connection, you may need to configure your IPTV for specific application. Please refer to your manual guide of IPTV.

2.3 Verify Physical Connection

If cable connection and PC/IPTV configurations are successfully finished, and you still cannot share an Internet playing. You need to check the followings:

- Connection to power supply: If LED displays normal, it indicates the powerline adapter connects to power source correctly; if not, please check.
- LAN connection: If LED displays normal, it indicates the powerline adapter has connected to a device like a PC, or a router, etc.
- PLC connection: If LED displays normal, it indicates the powerline adapter has paired with other powerline adapter(s) successfully. If not, please reset the powerline adapter to factory default.

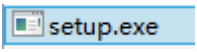
Chapter 3 Management Software

3.1 UI Installation

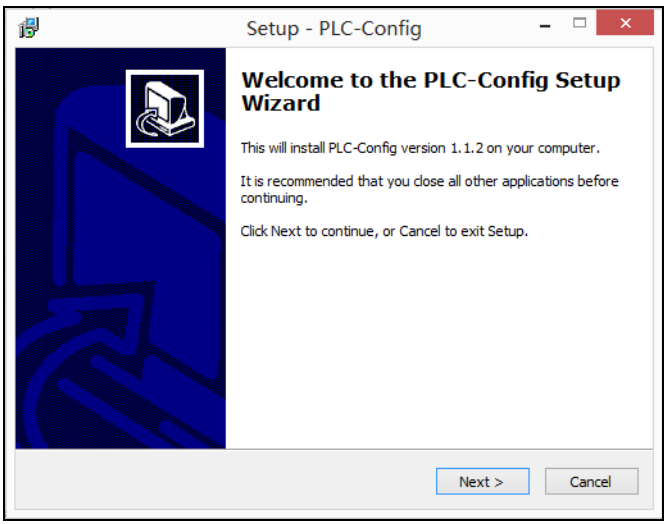
This section instructs how to install the device's UI.

If you are a Windows 8 user, simply follow steps below. If you are using other operation systems, instructions herein are also good for your references.
PLC-Config Installation: (Make sure that you have downloaded P1000 management software from http://www.tendacn.com)

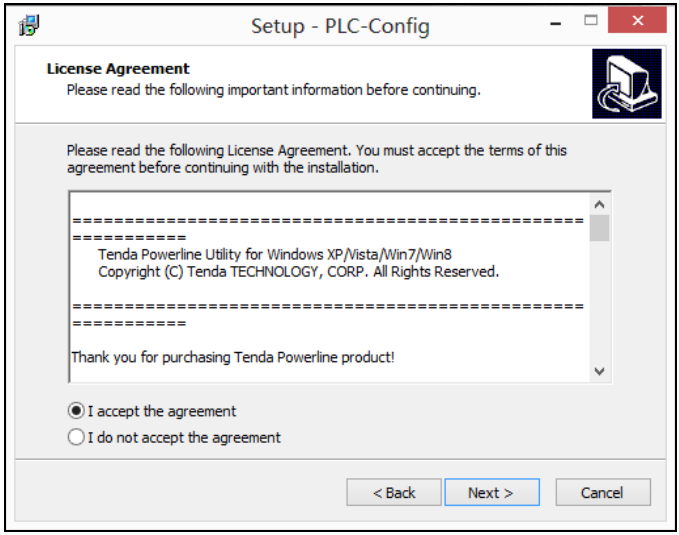
1. Double click setup.exe file you have downloaded from our website to run P1000 management software.



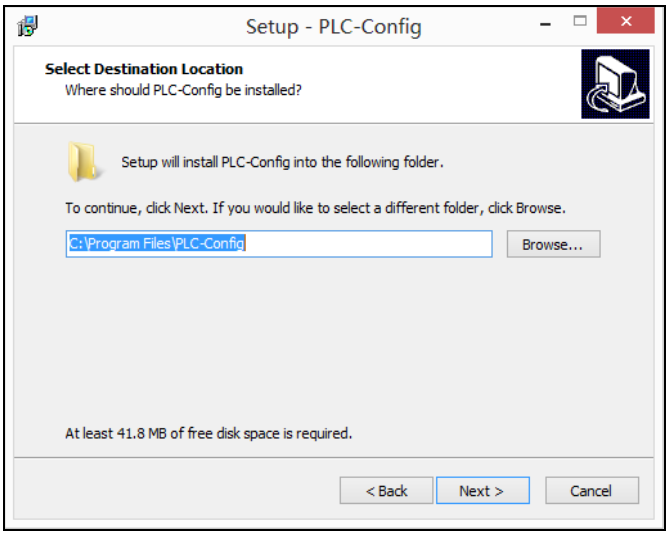
2. Click **Next** on below screen.



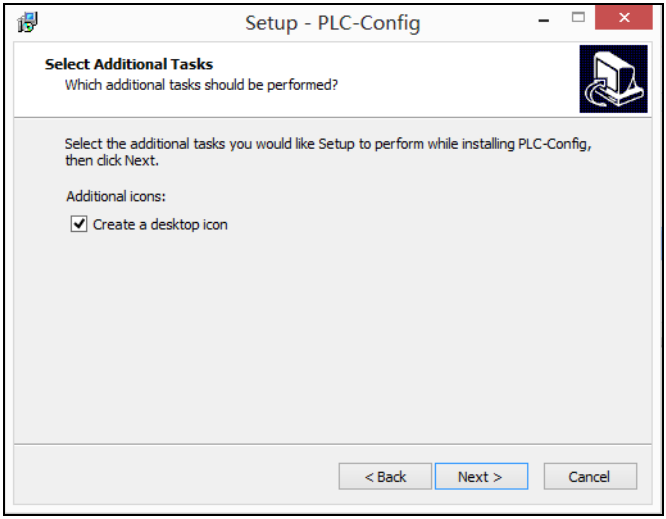
3. After you read the license agreement shown as below, and then select "**I accept the agreement**" and click **Next**.



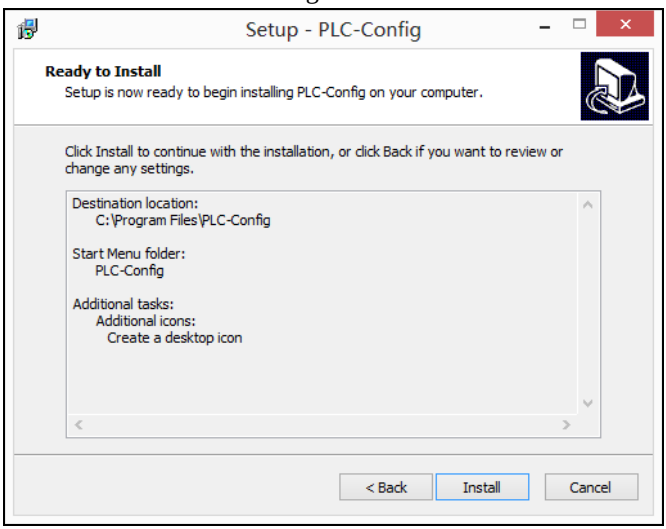
4. Click **Browse…** on below screen to locate where to install and click **Next** to go forwards.



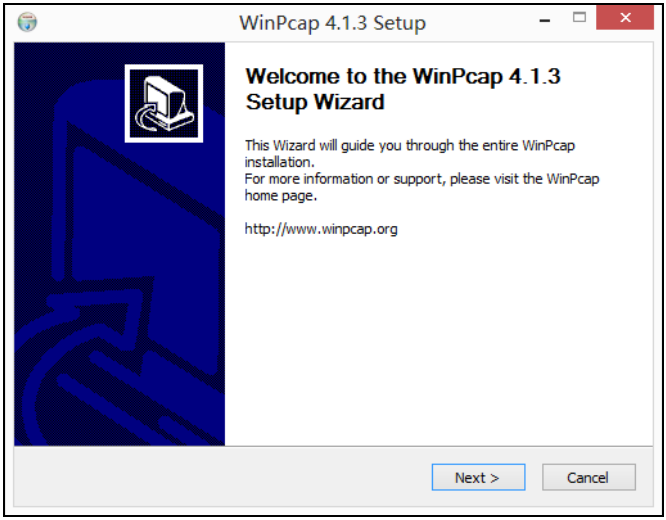
5. Keep clicking **Next** till below screen displays. And then check **Create a desktop icon** and click **Next**.



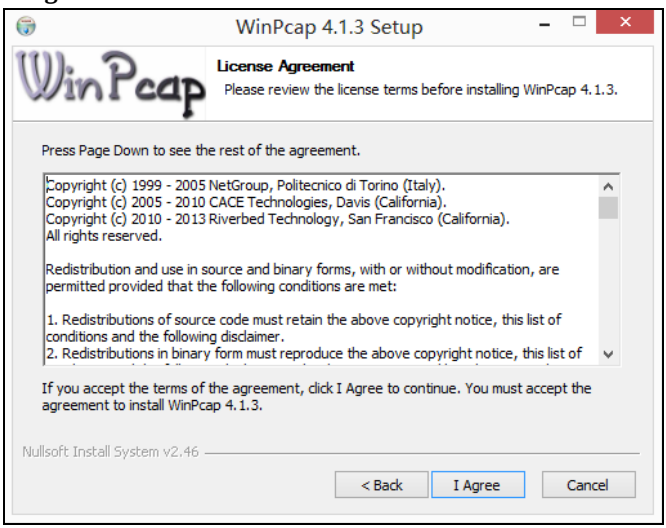
6. Click **Install** to install PLC-Config.



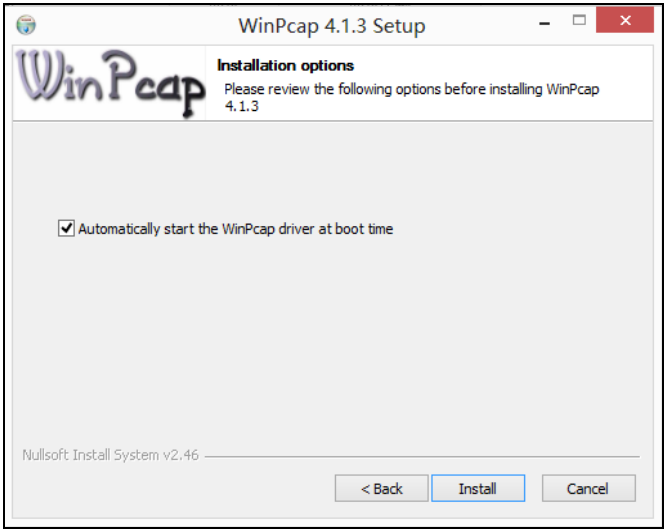
7. WinPcaP Setup Wizard will be displayed as below. Click **Next** to go forwards.



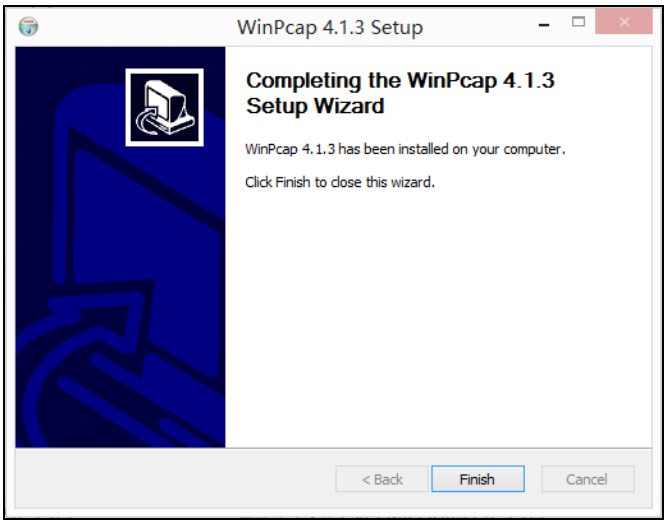
8. Click **I Agree**.



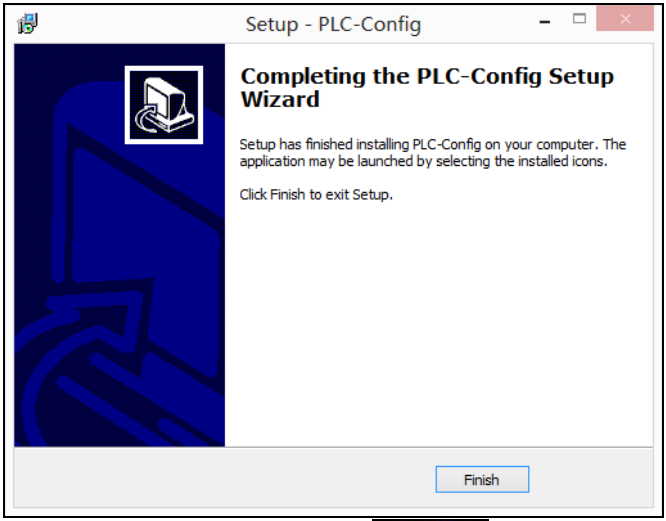
9. Click **Install**.



10. Click **Finish**.



11. Click **Finish** to complete the PLC-Config setup wizard.



12. To run the utility, simply double click 

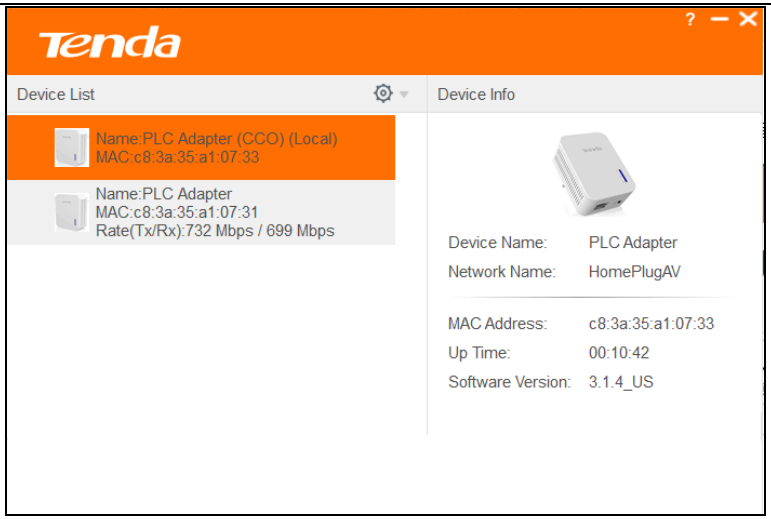
on your desktop.

3.2 Device List

This section instructs you how to configure advanced settings on the P1000 utility by using PLC-Config. Besides, you can also view other powerline adapters and their link rates on the powerline network.

After the utility is installed, double-click 

icon on your desktop to start the configuration of powerline adapters. The main interface is shown as below:



In the Device List, you can view the adapters under the same electrical circuit which have negotiated with each other.

Knowledge Center

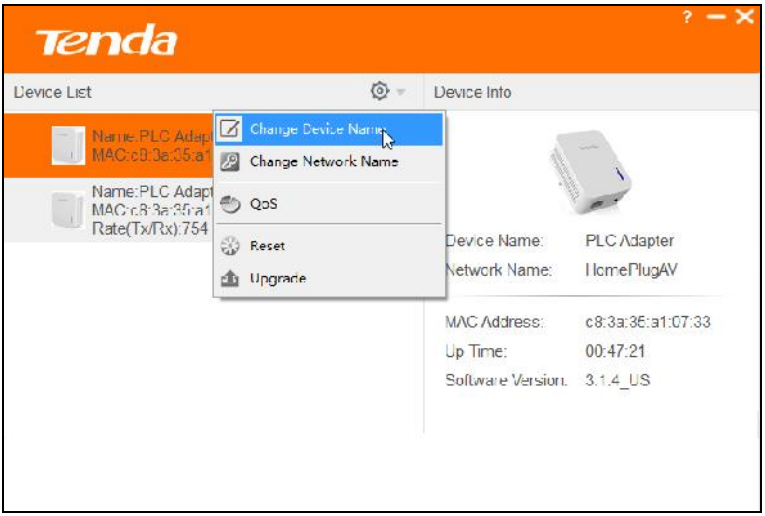
- **CCO:** Displays the adapter for managing other adapters within a powerline network. When attempting to connect to each other, adapters automatically negotiate with each other to select an adapter as CCO.
- **Device Name:** Displays the name of adapter. The default name is PLC Adapter.
- **HomePlugAV:** Displays local powerline network name. To establish a powerline network, powerline adapters must share an identical network name. Based on the network name, the powerline network is classified into 2 types: a public network, which is named "HomePlugAV"; and a private network, which is not named "HomePlugAV".
- **MAC Address:** Displays MAC address of adapter.

3.3 Change Device Name

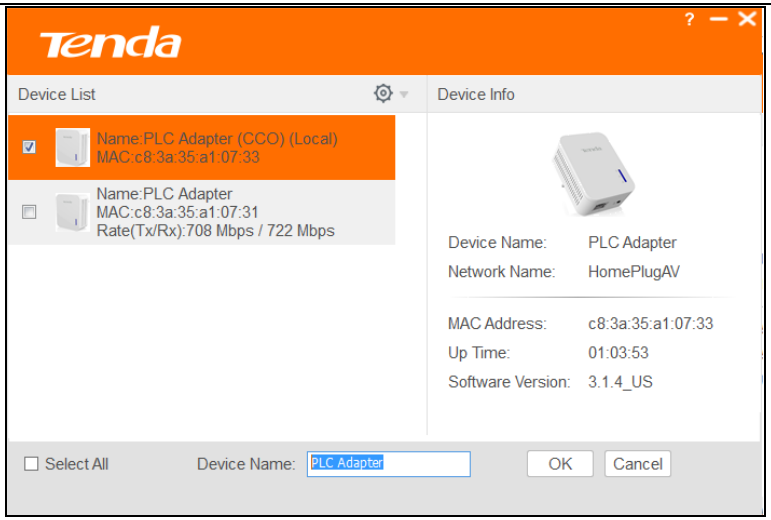
For better management, you can change the adapter's name if there are multiple adapters managed by Utility.

Configuration Procedure:

1. Click  to start configuration.
2. Select **Change Device Name**.



3. Select the adapter whose name you want to change.
4. Specify a new name in the Device Name edit box.



5. Click **OK**.

Tip

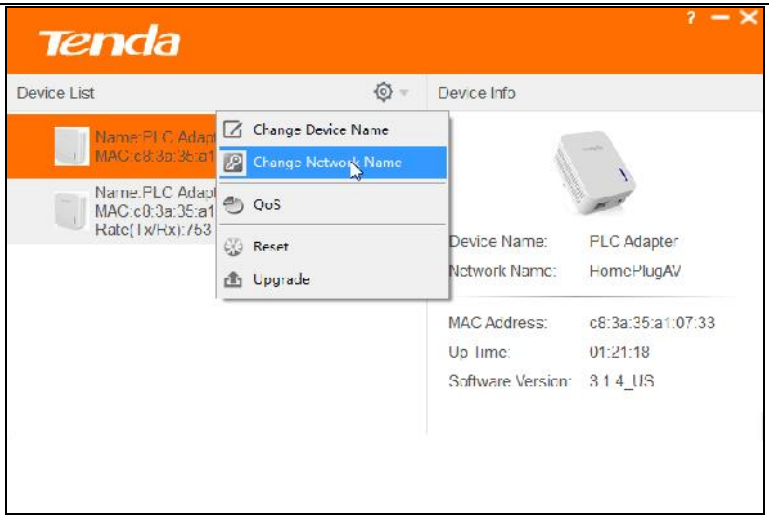
You can click **Select All** to change adapter names uniformly.

3.4 Change Network Name

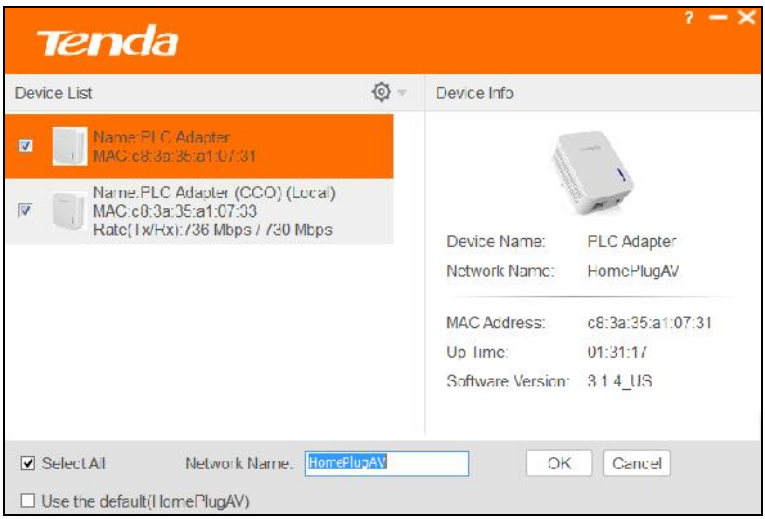
Only adapters with the same network name can form a network. Note that keep all adapters with the same network name if you want to form a network.

Configuration Procedure:

1. **Click**  to start configuration.
2. Select **Change Network Name**.



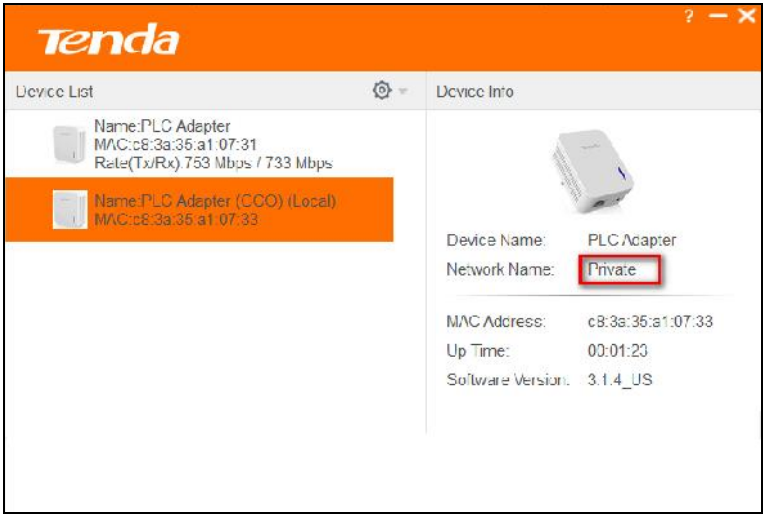
3. Specify a new network name in Network Name edit box. It is recommended to keep adapters you want to form a network with the same network name.



4. Click **OK**.

Tip

After successful network name configuration, "Private" will be displayed as Network Name, which means it is a private network.

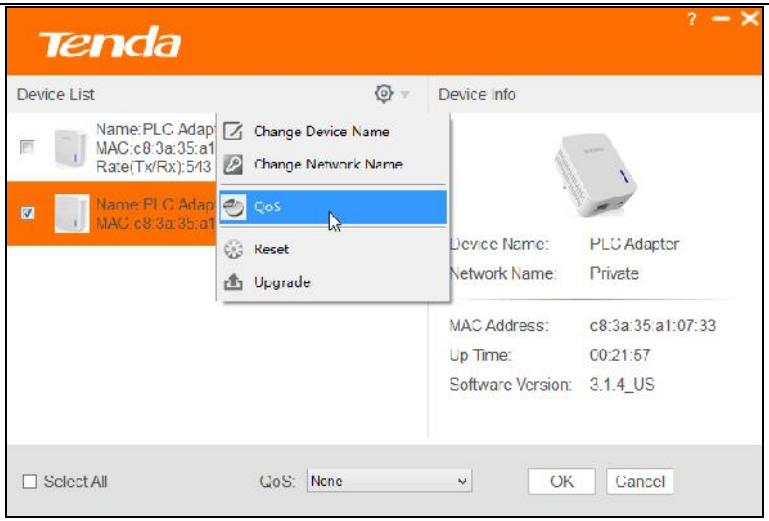


3.5 QoS

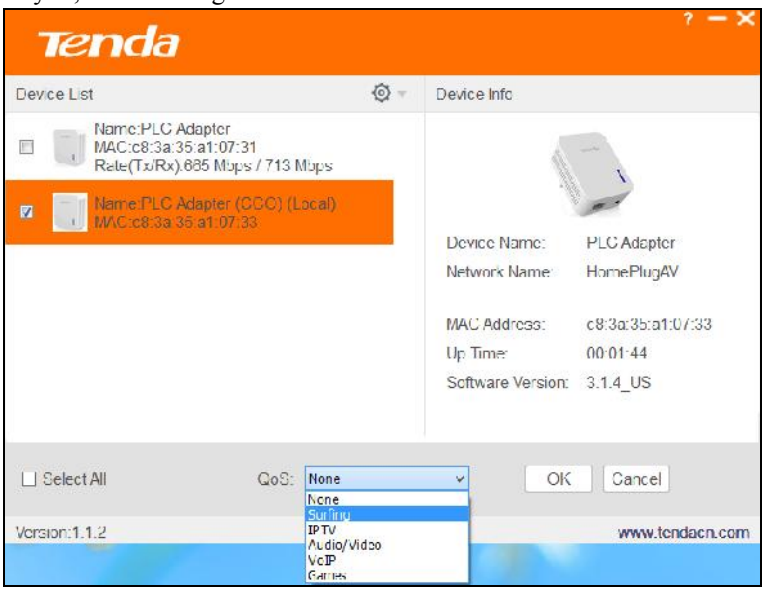
QoS prioritizes bandwidth-intensive and latency-sensitive applications and services such as Internet/IPTV/audio/video/VoIP/online game services, guaranteeing high reliability and least latency in real-time transmission of such data.

Configuration Procedure:

1. Click  to start configuration.
2. Select **QoS**.



3. Extend the drop-down list and select the application you want to give a priority to, like “Surfing”.



4. Click **OK**.

Knowledge Center

- **Surfing:** Select it to prioritize HTTP data and improve Internet surfing experience. (**Note**: Applications/services such as web video and web gaming, etc., which using HTTP protocol will also be prioritized.)
- **IPTV:** Select it to prioritize IPTV data. The device supports RTSP-compliant IPTV data prioritization. However, some IPTV devices from other manufacturers may not adopt the RTSP protocol. So if the device does not prioritize IPTV data from your IPTV device, consult your manufacturer for the protocol and port info and send it to our technical staff so that we can include it in later version for better compatibility.
- **Video/Audio:** Select it to prioritize video/audio data streaming.
- **VoIP:** Select it to prioritize VoIP data. The device supports SIP-compliant and H.32 3-compliant data prioritization. However, some VoIP devices from other manufacturers may use different protocols other than the above two. So if the device does not prioritize VoIP data from your VoIP device, consult your manufacturer for the protocol and port info and send it to our technical staff so that we can include it in later version for better compatibility.
- **Games:** Select it to prioritize and smooth gaming traffic. Please be noted that not all gaming traffic can be prioritized due to limited QoS entries.

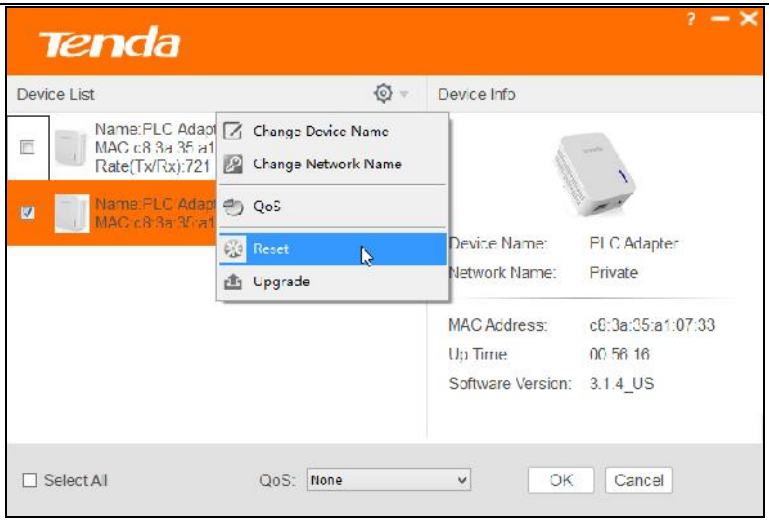
3.6 Reset

Device name will be PLC Adapter, and network name will be HomeplugAV once the device resets to factory default.

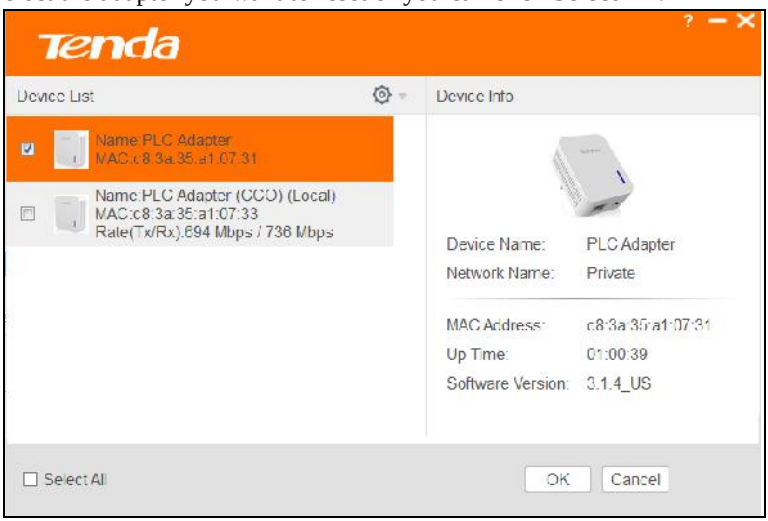
Reset config:

1 **Click**  to start configuration.

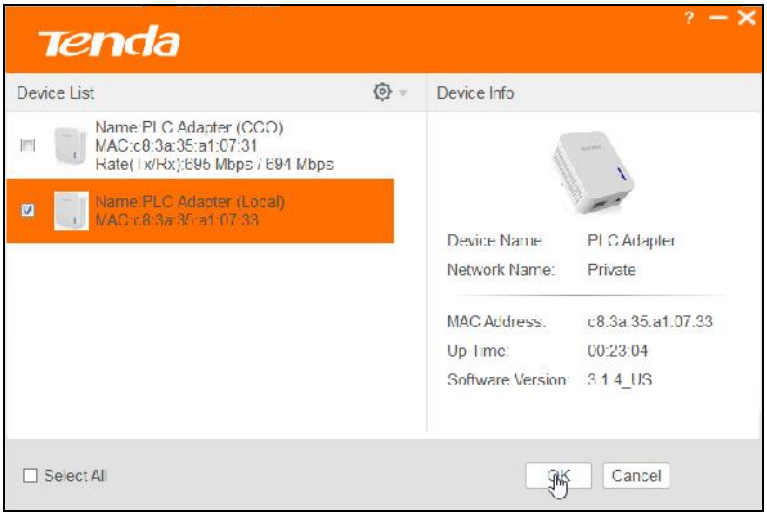
2 Select **Reset**.



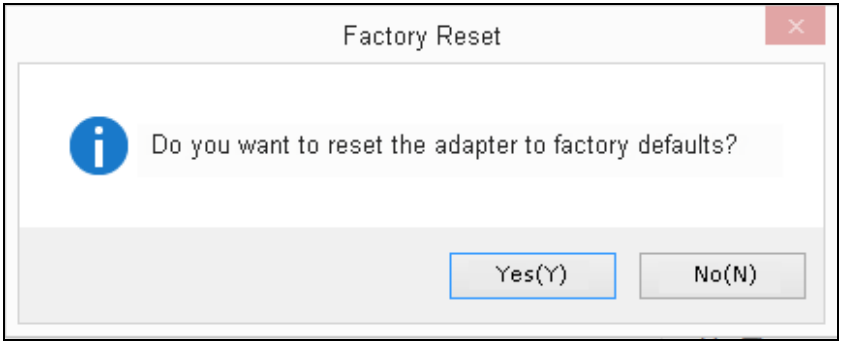
3 Select the adapter you want to reset or you can click **Select All**.



4 Click **OK**.



5 Click **Yes** on the popup dialog.

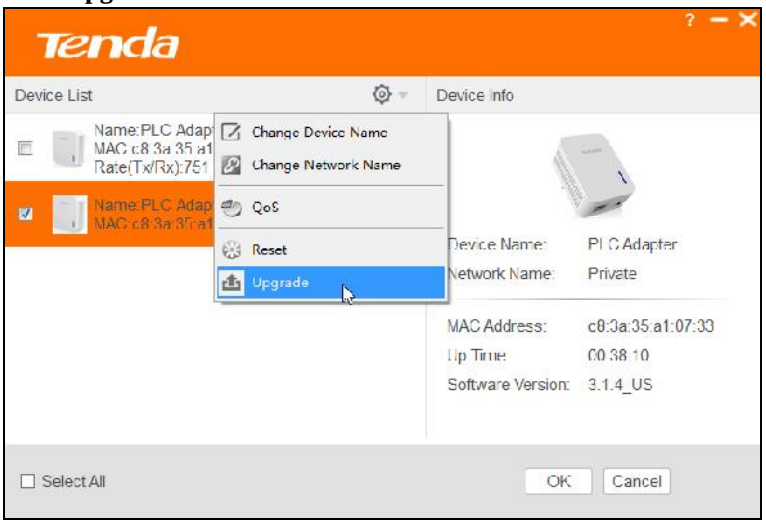


3.7 Upgrade

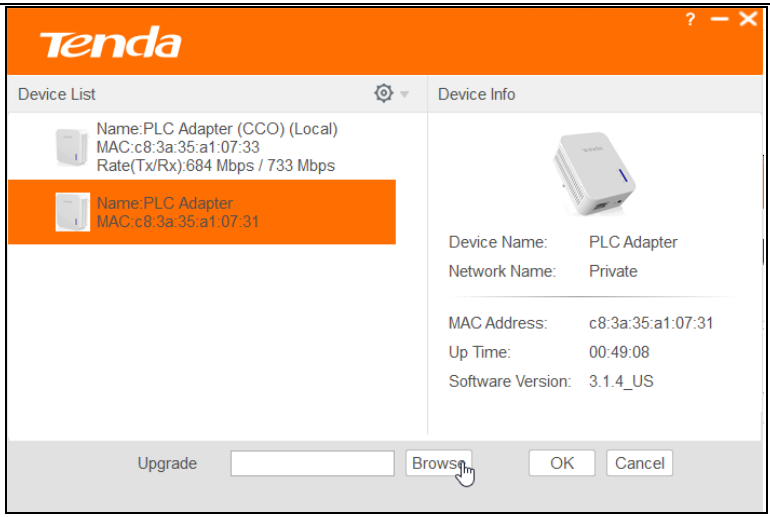
Upgrading the management software may get new functions. Please go to our website (http://www.tendacn.com) to download upgrade file.

Upgrade Procedure:

1. **Click**  to start configuration.
2. Select **Upgrade**.



3. Click **Browse** to locate and upload the upgrade file you have downloaded.



4. Click **OK** to start upgrading.

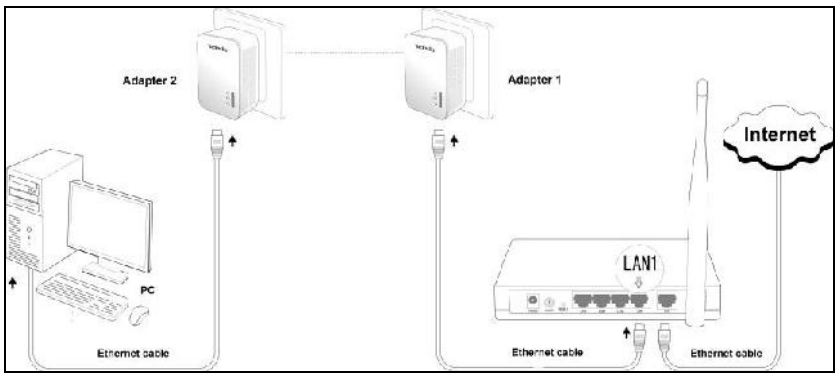
Chapter 4 Using the Pair Button

This section presents how to use the Pair hardware button to create a secure Powerline network.

Tip

Two or more powerline adapters under the same electrical circuit will automatically interconnect to create an unencrypted public network (Named "HomePlugAV").

A. To create an encrypted private network between two adapters (Adapter 1 and Adapter 2), do as follows:

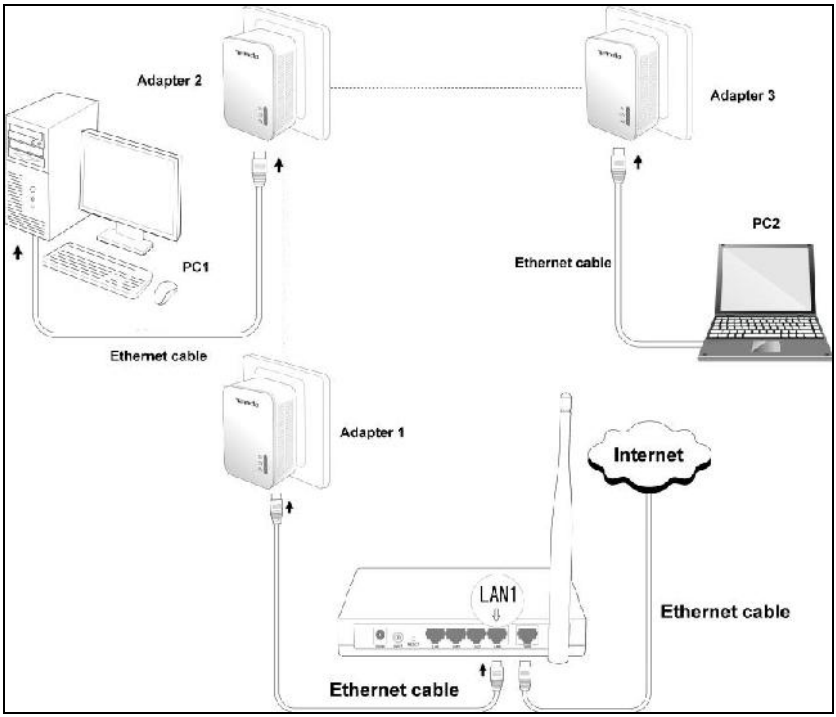


Configuration Procedure:

1. Press the Pair button on Adapter 1 for 1-3 seconds and then release it. The LED on the Adapter 1 will start blinking.
2. Within 2 minutes upon releasing Adapter 1's Pair button, press the Pair button on Adapter 2 for 1-3 seconds and then release it. The LED on the Adapter 2 will start blinking.

3. Observe the two adapters' LED status. If both LEDs on the two adapters display solid, it indicates an encrypted private powerline network is successfully created between Adapter 1 and Adapter 2.

B. To add more adapters to the encrypted private network, do as follows:



Now Adapter 1 and Adapter 2 have created a network, say Network1, and you're trying to add Adapter 3 to this network, do as follows:

1. Press the Pair button on Adapter 1 (or Adapter 2) for 1-3 seconds and then release it. The LED starts blinking, which indicates it is waiting for other powerline adapter to join Network1.
2. Within 2 minutes upon releasing Adapter 1's (or Adapter 2's) Pair button, press the Pair button on Adapter 3 for 1-3 seconds and then

release it. The  LED on Adapter 3 starts blinking, which indicates that it is negotiating with other adapter.

3. Observe the three adapters' LED status. If all  LEDs on three adapters display solid, that indicates Adapter 3 has joined Network1 successfully.

C. To disconnect an adapter from the existing powerline network, do as follows:

As displayed above, a private powerline network has been created within Adapter1, 2 and 3. And now you want to disconnect Adapter 3 from Network1. Do as follows:

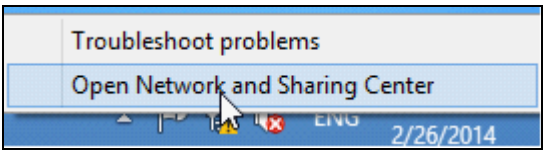
Press the Pair button on Adapter 3 for at least 6 seconds and then release it. The  LED on Adapter 3 will blink three times, which indicates the Adapter 3 will exit from Network 1, reset to the default settings and restart.

Appendix 1 Configure Your PC

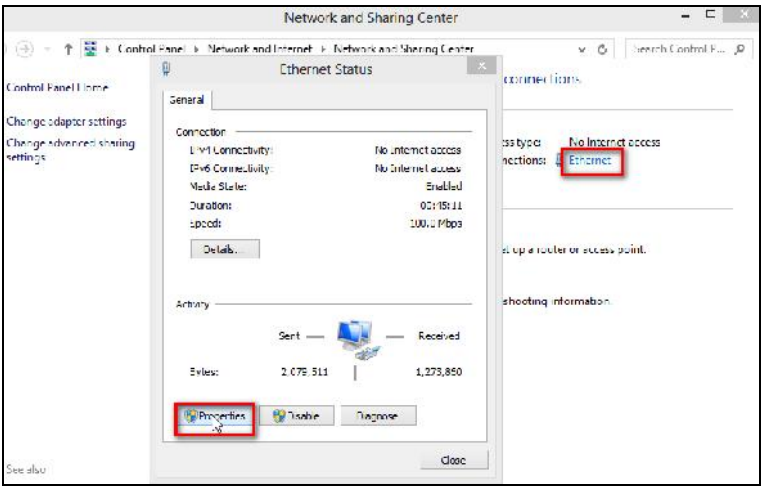
Windows 8

Step 1: Right click the icon  on the bottom right corner of your desktop.

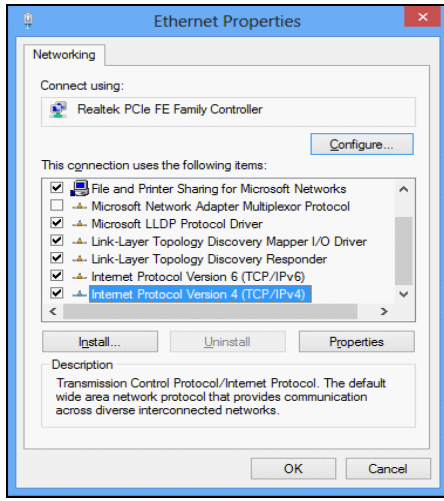
Step 2: Click **Open Network and Sharing Center**.



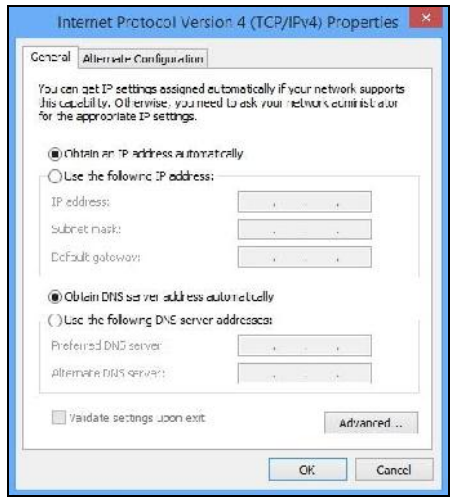
Step 3: Click **Ethernet -> Properties**.



Step 4: Find and double click **Internet Protocol Version 4(TCP/IPv4)**.



Step 5: Select **Obtain an IP address automatically** and **Obtain DNS server address automatically** and click **OK**.

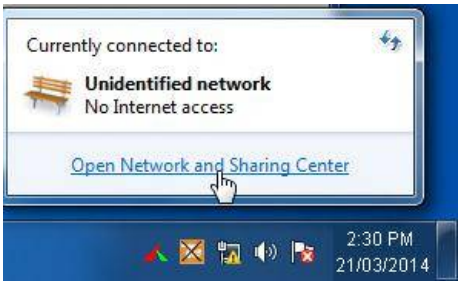


Step 6: Click **OK** on the **Ethernet Properties** window (see **Step 4** for the screenshot).

Windows 7

Step 1: Click the icon on the right bottom corner of your desktop.

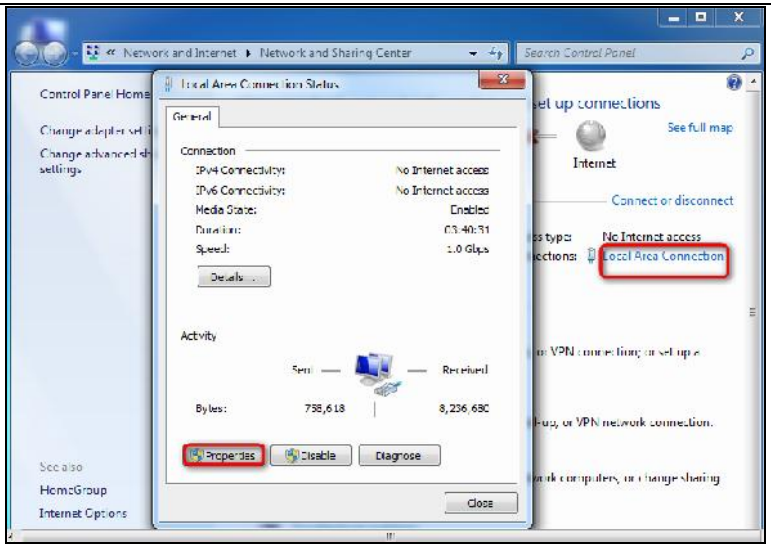
Step 2: Click **Open Network and Sharing Center**.



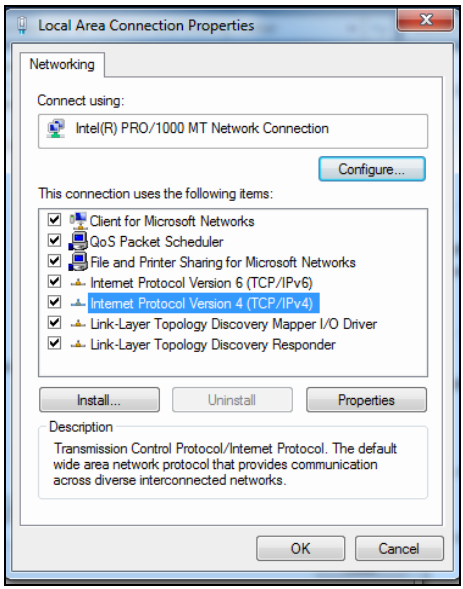
Tip

If you cannot find the icon on the right bottom corner of your desktop, follow steps below: Click **Start -> Control Panel -> Network and Internet -> Network and Sharing Center**.

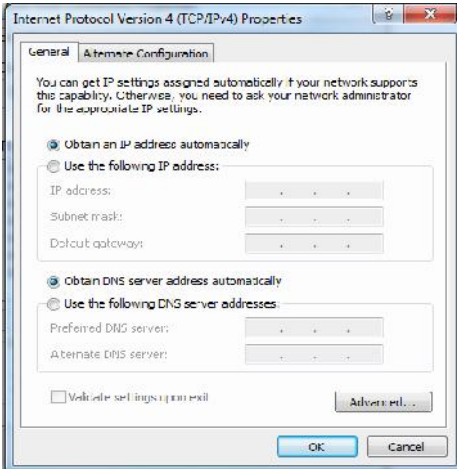
Step 3: Click **Local Area Connection -> Properties**.



Step 4: Find and double click **Internet Protocol Version 4(TCP/IPv4)**.



Step 5: Select **Obtain an IP address automatically** and **Obtain DNS server address automatically** and click **OK**.

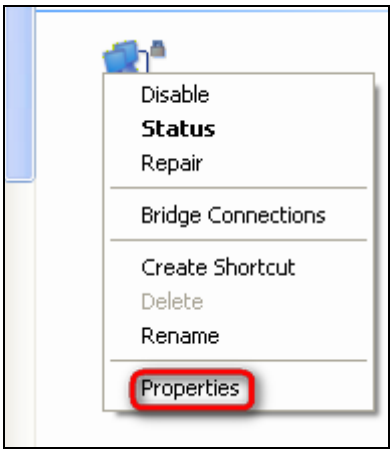


Step 6: Click **OK** on the **Local Area Connection Properties** window (see **Step 4** for the screenshot).

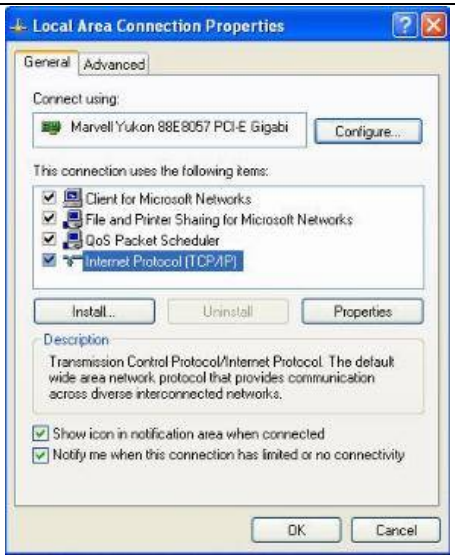
Windows XP

Step 1: Right click **My Network Places** on your desktop and select **Properties**.

Step 2: Right click **Local Area Connection** and select **Properties**.



Step 3: Scroll down to find and double click **Internet Protocol (TCP/IP)**.



Step 4: Select **Obtain an IP address automatically** and **Obtain DNS server address automatically** and click **OK**.

Step 5: Click **OK** on the **Local Area Connection Properties** window (see **Step 3** for the screenshot).

Appendix 2 FAQs

Here some questions come with solutions. If your problem is still unsolved, please go to our website (*www.tendacn.com*) for help or mail your questions to our support (*support@tenda.com.cn).*

Q1: What is powerline networking?
A1: Powerline network technology upgrades your existing electric wiring, enabling transmission of both network data and electric power in a single powerline at a high speed of up to 1000Mbps. It characterizes low cost, high-speed and better stability without new network cable required.

Q2: Can a single powerline adapter establish a powerline network?
A2: Sorry, it cannot. A minimum of two powerline adapters are required. One is used to connect to an ADSL Modem or Router, and the other is to a PC.

Q3: Can I just plug one powerline adapter into a wall outlet to access the Internet?
A3: Sorry, you cannot. You must connect one more such adapter to an Internet-enabled ADSL Modem or Router, and another one to a PC. When the two adapters interconnect successfully, you can access the Internet.

Q4: Do I need to install a utility to use the device?
A4: No. The device is plug-and-play powerline adapter. Two such devices connected to the same electricity meter are able to interconnect automatically, no configuration required. Yet, there is still an included utility for advanced features such as QoS, private network, etc. See **User Guide** for details.

Q5: How many powerline adapters at most can be included under a single electricity meter?
A5: Up to 9 adapters. However, you can create numerous private networks under the same electrical circuit.

Q6: What is the maximum distance that two powerline adapters can transfer?

A6: Up to 300m can be reached with least interference. However transmission rate decreases gradually beyond 100m.

Q7: What main advantages does a powerline adapter have over a wireless device?
A7: The powerline adapter is a plug-and-play device, requiring no configuration. While, wireless signal not only is easily to be affected adversely by obstacles like walls and ceilings but also delivers harmful electromagnetic wave.

Q8: Can powerline devices of different brands communicate with each other?
A8: Yes. This Tenda powerline adapter complies with HomePlugAV standard and thus can communicate with other manufacturers' HomePlugAV-compliant powerline devices.

Q9: Will the powerline network get disconnected upon blackout?
A9: Yes. The powerline network delivers data over electric wiring via electricity. Without presence of electricity, data transmission by powerline adapters is impossible.

Q10: Would it be dangerous to use the powerline adapter in a thunderstorm?
A10: The adapter's internal thunder-/lightning-proof facility protects PC or other devices connected from any potential and harmful thunder or lightning attacks even when the building where the adapter lies is unfortunately thunderstorm-struck.

Appendix 3 Technical Specifications

Hardware Specifications		
Standards		RJ45: IEEE 802.3, IEEE 802.3u; IEEE 802.3ab PLC: HomePlugAV2
Max Transmission Distance		300m powerline
Max Number of powerline adapters (under a single electricity meter)		Up to 9
Compatibility		HomePlugAV IEEE1901
Transmission Rate		PLC:1000Mbps; RJ45:10/100/1000Mbps
Button		1*Pair/Reset
LEDs		1*Power LED 1*PLC LED 1*LAN LED
Input Power		AC 100V-240V 50/60Hz
Dimensions	**L（mm）**	82
	W（mm）	60
	H（mm）	54.5
Security		128-bit AES encryption
Operating Temperature		0℃~40℃
Storage Temperature		-40℃~70℃
Operating Humidity		10%~90%RH Non-condensing
Storage Humidity		5%~90%RH Non-condensing

Appendix 4 Safety and Emission Statement

CE Mark Warning

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

NOTE: (1) The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. (2) To avoid unnecessary radiation interference, it is recommended to use a shielded RJ45 cable.

FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: (1) The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. (2) To avoid unnecessary radiation interference, it is recommended to use a shielded RJ45 cable.