innoband
Technologies

HomePlug AV 200P-I1

User Manual

Issue 2.0

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User Manual

INNOBAND HOMEPLUG AV 200P-I1

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Product Introduction

Innoband HomePlug AV 200P-I1 is a networking device that utilizes the existing wiring system as a path to transmit data signal through the inter-conversion between digital and analog signal. With this functionality, 200P-I1 can be plugged into an electrical socket to draw power and at the same time establishing a network connection between two or more Ethernet devices.

The Innoband HomePlug AV 200P-I1 can be used to bridge any Ethernet device to your Powerline network in your home or office. With this technology, Ethernet devices in your home or office can equally share high speed data transmission rate without the need to spend excessive time and money installing expensive Ethernet cable. It can be plugged into an Ethernet port on a router to equip a network with Powerline capabilities and take advantage of the router features. The 200P-I1 can also be plugged directly into a cable or DSL modem that allows instant internet access over home Powerline to each computer equipped with a HomePlug AV certified Powerline network adapter. Innoband HomePlug AV 200P-I1 makes high-speed modem sharing as fast and simple as plugging the devices in the wall.

Features & Specifications

Protocol	TDMA, CSMA/CA
Standard	Ethernet specification: IEEE 802.3, IEEE 802.3x, IEEE 802.3u, Auto MDI/MDIX
Transmission speed	200Mbps
Optimal Coverage Range	200M
Modulation	Supports OFDM - 1155 carriers,1024 / 256/64 QAM, QPSK, BPSK and ROBO
Frequency Band	2MHz ~ 30MHz
Security	128-bit AES encryption over household power supplier grid
Device port	Ethernet RJ-45
Operation System	Windows 98_SE / Me / 2000 /XP(32 and 64 bit)/ Vista (32 and 64 bit)
RAM	128Mb
Power Supplier Specification	Input: 100~240V AC, 50~60Hz
Physical Interface	• Interface: Ethernet 10/100M (MDI/MDIX) switch • Sync button • Reset button • Power AC Plug • LED display: - 1.0 DET LED - POWER LED - PLC (Powerline Link/Act) LED - ETH (Ethernet Link/Act) LED
Dimension	112.35 X 77.70 X44.50 mm
Power Saving	Reduce power consumption by at least 60% during power saving mode.
Operating Temperature / Humidity	• Operating temperature: 0 ~ 40^0C • Storage temperature: -20 ~ 70^0C • Humidity: 5~95% non-condensing

Getting Started

Safety Warnings

1. Do not use the adapter in high humidity or high temperature environment.
2. Do not open or repair the case yourself.
3. Avoid using this product and all its accesories outdoor.
4. Place the adapter on a stable surface.
5. Only “HomePlug AV” compliant Powerline Communication (PLC) adapter for remote access is necessary.

Features - HomePlug AV 200P-I1 Ethernet Bridge

1. Physical layer data rate up to 200Mbps over existing Powerline.
2. Uses powerline technology that takes advantage of the unused bandwidth of the electrical wiring in the home.
3. Ideal for Triple Play applications such as IPTV, VoIP telephony and high-speed Internet access.
4. Support 10/100 (MDI/MDIX) Ethernet switching.
5. Compliant with the HomePlug Powerline Alliance Industry specification HomePlug AV.
6. Power supplier design inside.
7. Ideal for Residential Users.
8. Power Saving mode: When PC or other Ethenet devices are completely power off, Innoband HomePlug device will automatically enter power saving mode which will help to reduce approximately 60% of power consumption.

Hardware Overview

HomePlug AV 200P-I1

The Description of each labeled part is described in the table below.

1.0 DET LED	Blink when detect the presence of other HomePlug 1.0 devices that have the transmission rate of 14 or 85 Mbps. **Note: Due to the incompatibility of HomePlug AV 200 with HomePlug 1.0 devices, the presence of the HomePlug 1.0 devices within the powerline network will thus reduce the performance of your powerline network.**
Power LED	Lit when the power is on.
PLC (Powerline Link/Act) **LED**	Lit when a network has been established. Blink when powerline data is transmitted or received.
ETH (Ethernet Link/Act) **LED**	Lit when an Ethernet data signal is transmitted or received.
Sync Button	Used to establish a LAN network with other Ethernet devices.
Reset Button	Press this button to restore the device configuration to factory default.
Ethernet Port	Connect the HomePlug AV device with an Ethernet device (eg. PC or modem router) with the Ethernet cable included.
Power Plug / AC Power Cord	Plug into an electric socket to draw power and to form a powerline network with other HomePlug AV devices.

Sync Button Function:

There are 3 types of Sync Button trigger states:

1. **Broadcast State:** A 200P-I1 device can provide information for another 200P-I1 device to join its powerline network group (works even if it is currently the only device existing within the network group).
2. **Join State:** For an ungrouped 200P-I1 device to join an existing powerline network group.
3. Press the Sync Button on the first 200P-I1 device to turn it to Broadcast State. Then press the Sync Button of an ungrouped 200P-I1 device to turn it to a Join State.
4. **Ungroup State:** Press the Sync Button for more than 10 seconds to separate the device from its current attached network group.

HomePlug AV 200P-I1 Application Scenarios:

Scenario 1: A 200P-I1 device A wants to form a network group with another 200P-I1 device B.

You can allocate whichever device (A or B) to be the Broadcast State and the Join State.

Example:

1. Hold down the Sync Button of device A for 1~3 seconds to turn it into Broadcast State.
2. Hold down the Sync Button of device B for 1~3 seconds to turn it into Join State.
3. Wait for the Sync LED of both devices to light up then you will now have both devices being in the same network group.

Note: Once the device is plugged into the electric socket, connect it with an Ethernet cable within 60 seconds to prevent the device from Auto Power Off.

Scenario 2: A 200P-I1 device wants to join an existing network group BC

Device A wants to join a network group “BC” currently consisting of device B and device C. Any devices within the “BC” group can become the “Broadcast State” and device A will be the “Join State”.

Example:

1. Hold down the Sync Button of device B or C from the BC network group for 1~3 seconds to turn it into Broadcast State.
2. Hold down the Sync Button of device A for 1~3 seconds to turn it into Join State.
3. Wait for the Sync LED of both devices A and (B or C) to light up then you will now have device A join the BC network group.

Note: Once the device is plugged into the electric socket, connect it with an Ethernet cable within 60 seconds to prevent the device from Auto Power Off.

Scenario 3: A 200P-I1 device A of network group AD wants to join an existing network group BC.

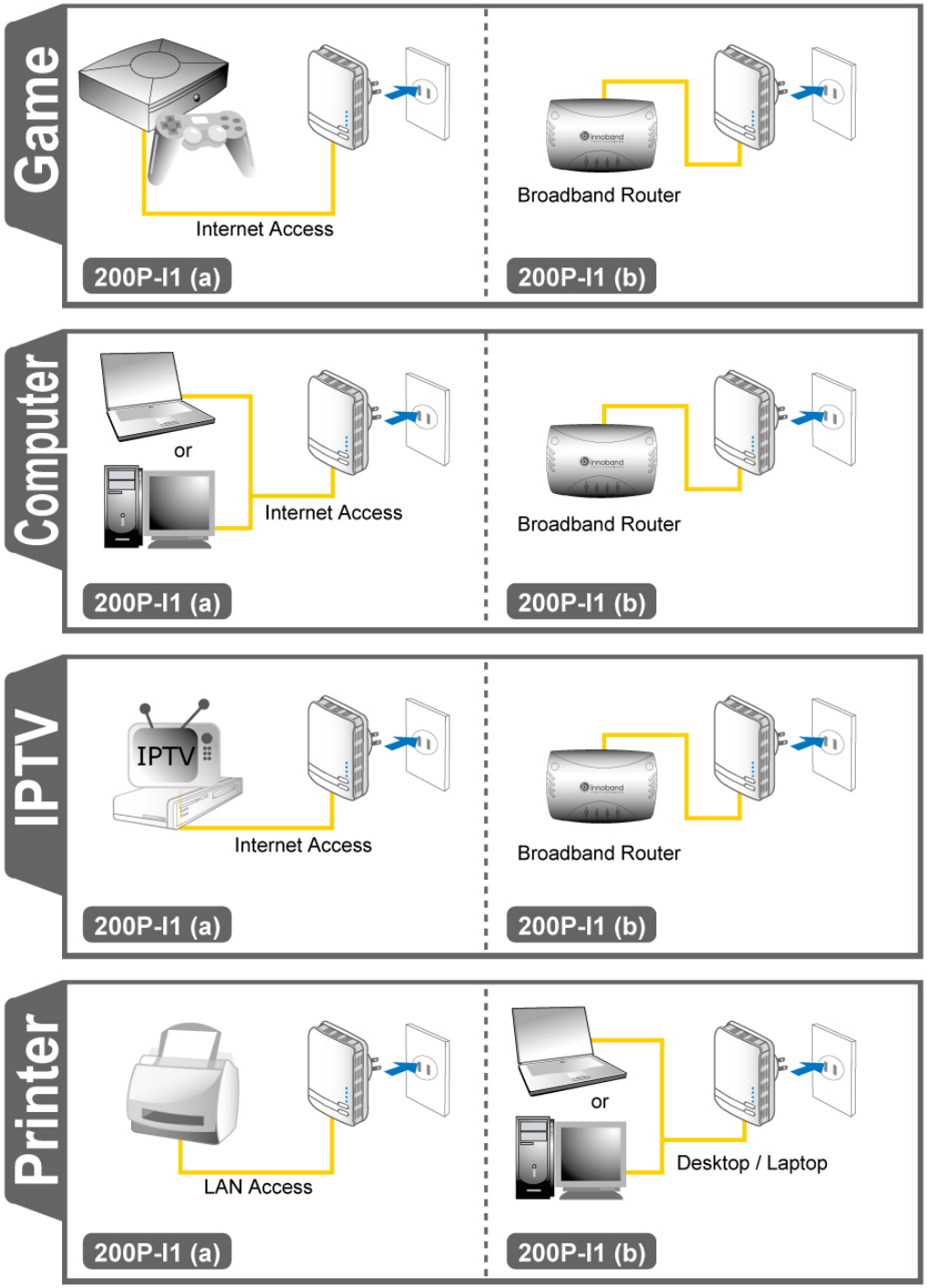
For a device which already belongs to a network group is to join with a different network group, that device has to be ungrouped from its current attached group first.

Example:

1. Hold down the Sync Button of device A for more than 10 seconds to ungroup it from network group AD.
2. Then hold down the Sync Button of device (B or C) of network group BC for 1~3 seconds to turn it to Broadcast State.
3. Hold down the Sync Button of device A again for 1~3 seconds to turn it to Join State.
4. Wait for the Sync LED of both devices A and (B or C) to light up. Now you will have device A join the network group BC.

Note: Once the device is plugged into the electric socket, connect it with an Ethernet cable within 60 seconds to prevent the device from Auto Power Off.

Application Illustration



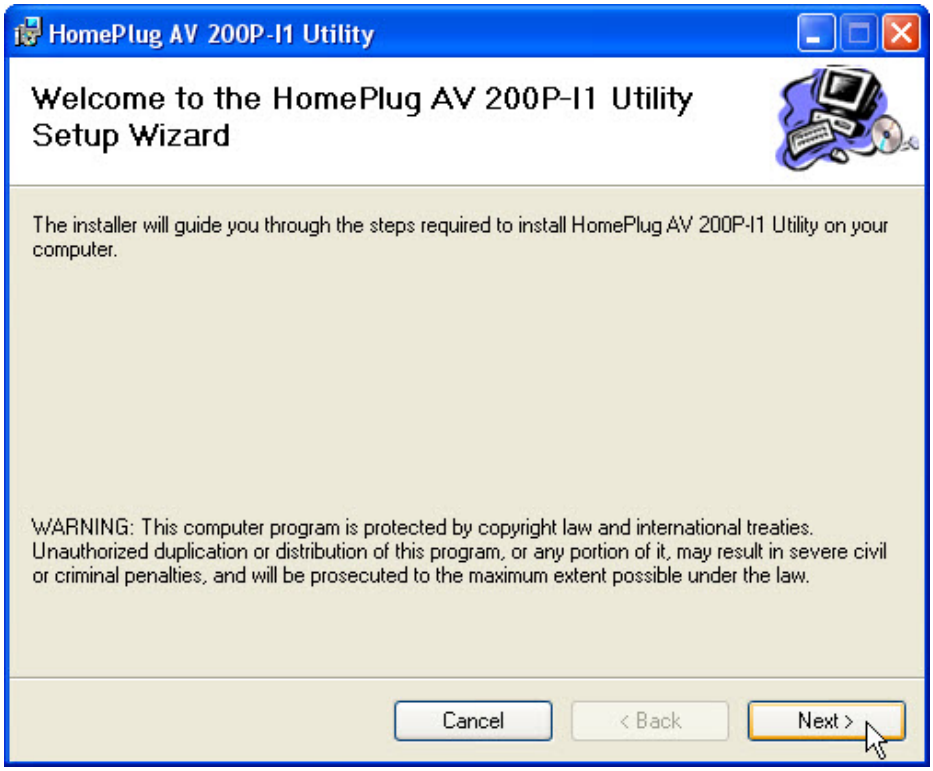
Installation Procedures

1. Place the HomePlug AV 200P-I1 auto-installation CD into your CD/DVD ROM drive

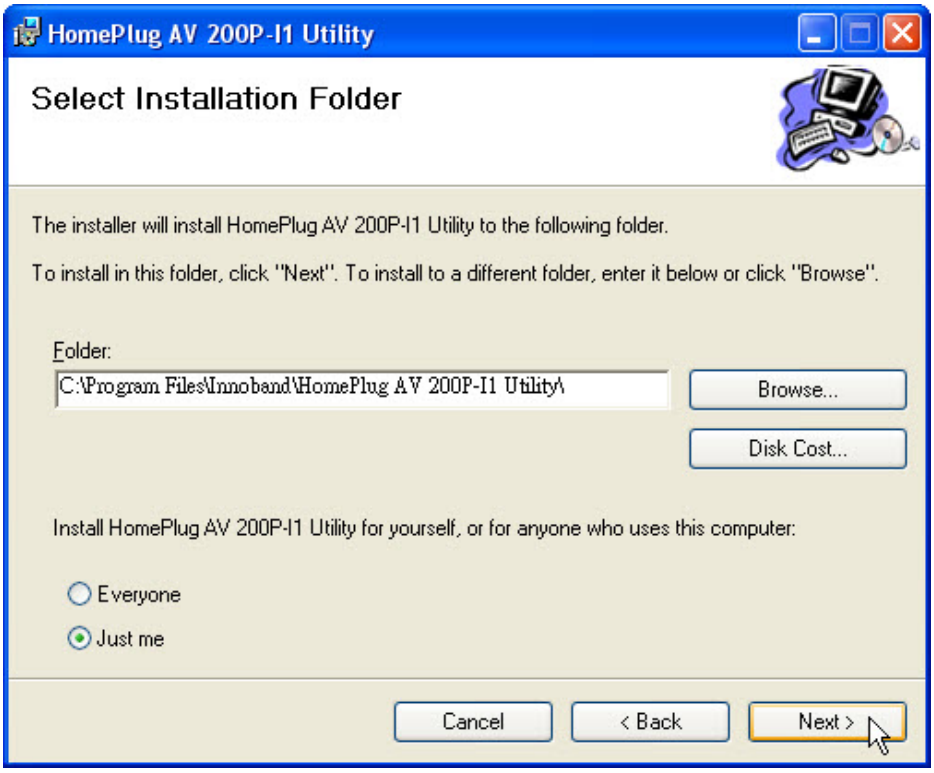
2. Click on **Utility for Easy Installation**.

HomePlug AV 200P-I1 Utility Installation

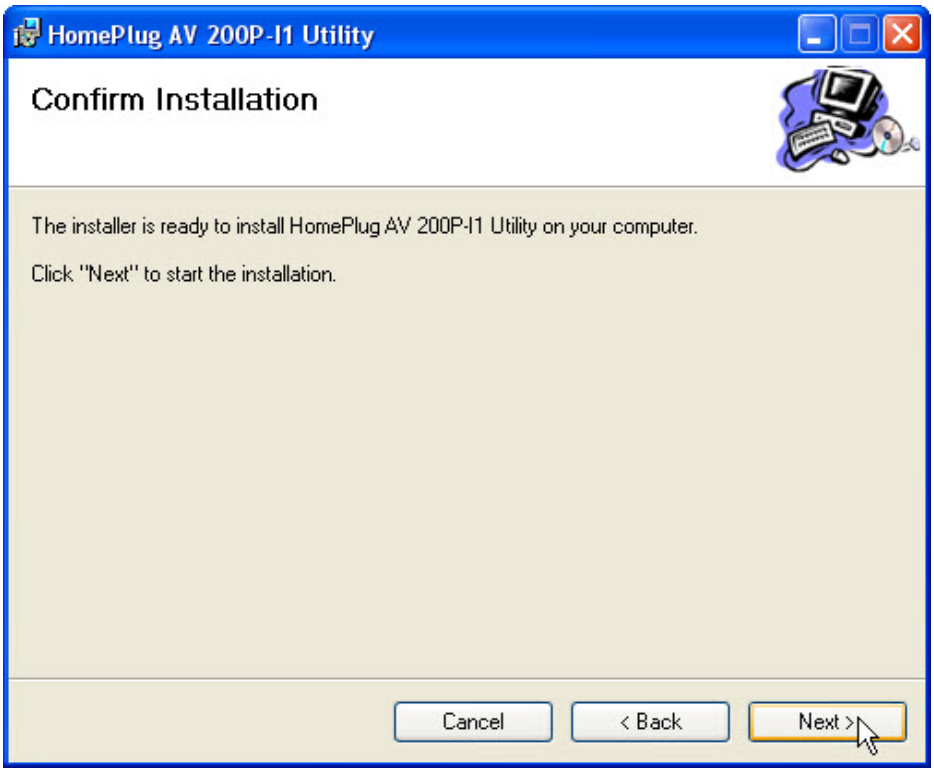
1. After clicking on **Install HomePlug AV 200P-I1 Utility,** the installation wizard will appear. Click Next >



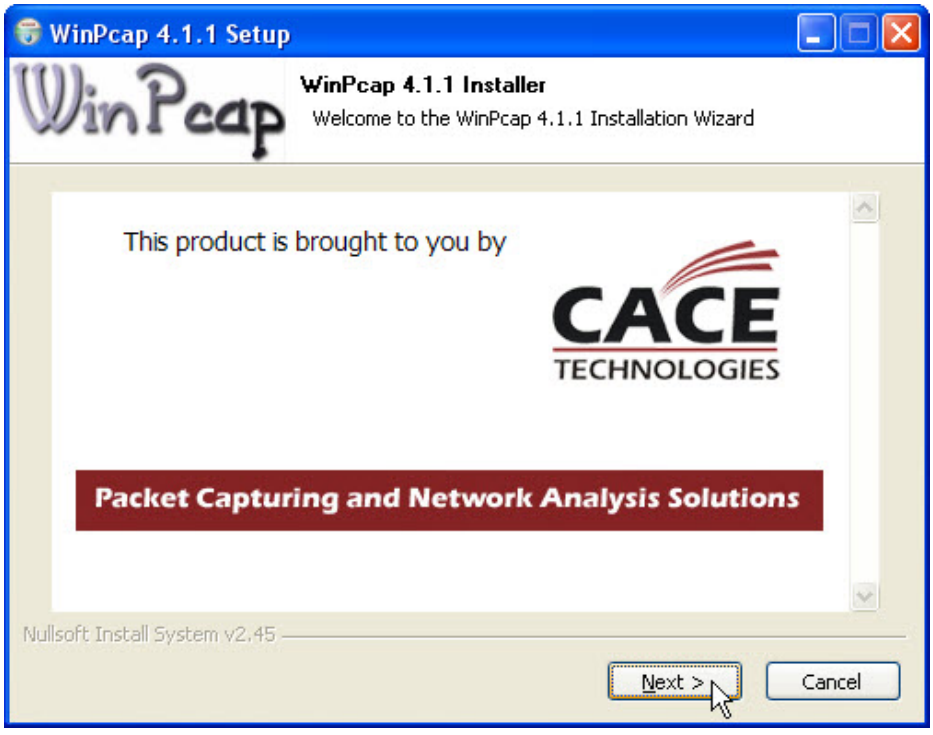
3. You may define the location of the installation folder using the Browser or use the default location. In addition, you can also choose to install HomePlug AV 200P-I1 Utility only for yourself or for all the users who share your PC. When all necessary items are properly selected, click Next > to proceed.



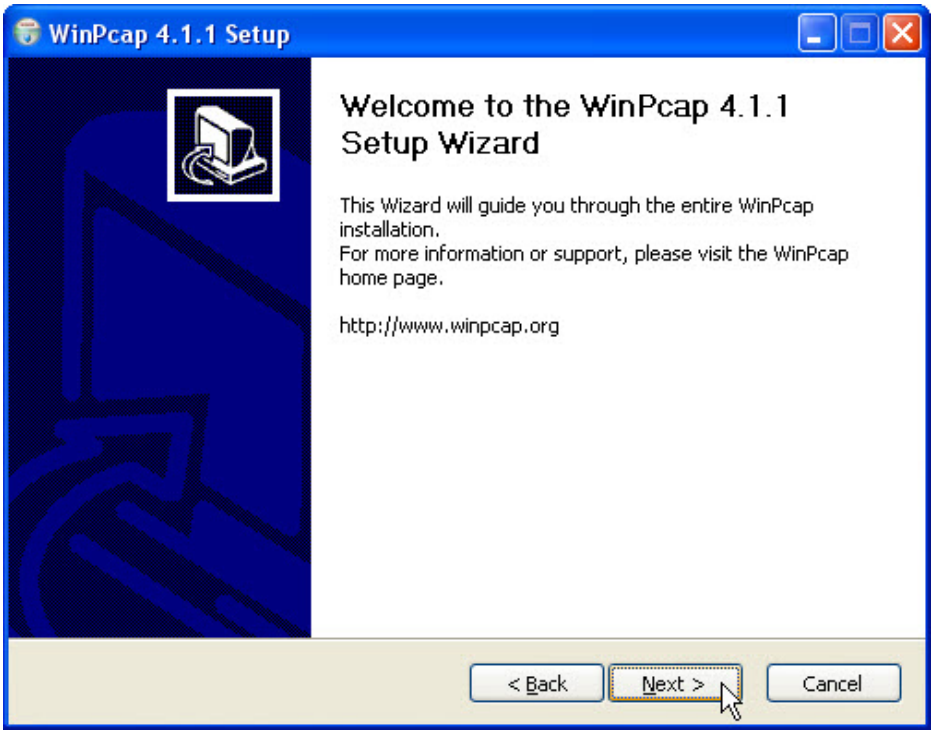
4. Click Next > to confirm and start the installation.



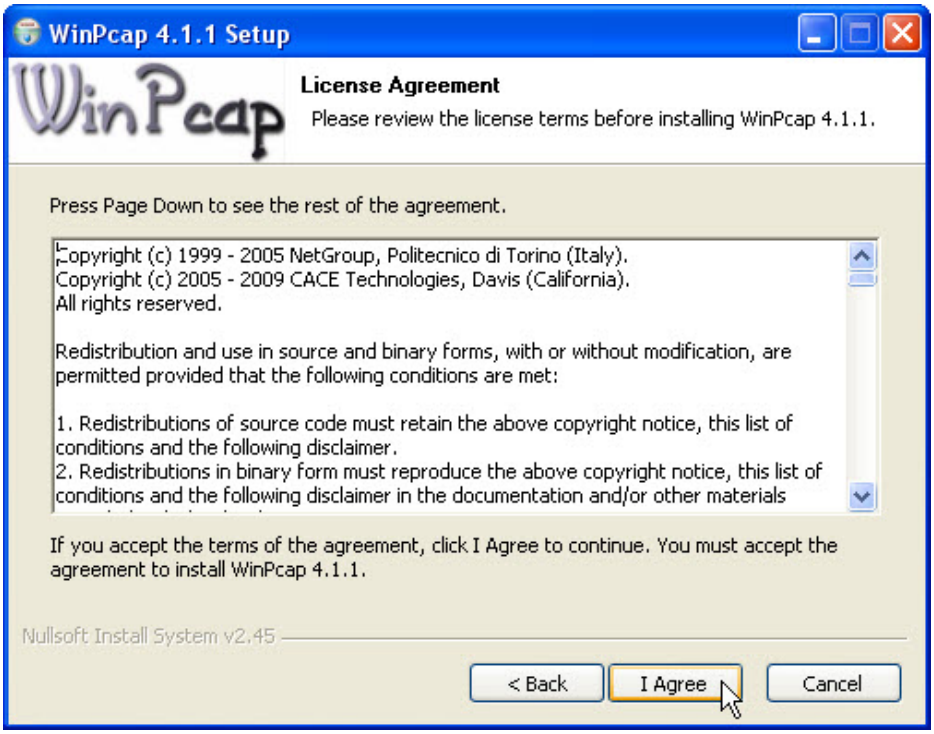
5. WinPcap window will popup if your computer has not yet installed any version of the software before. Click Next > to comfirm the installation.



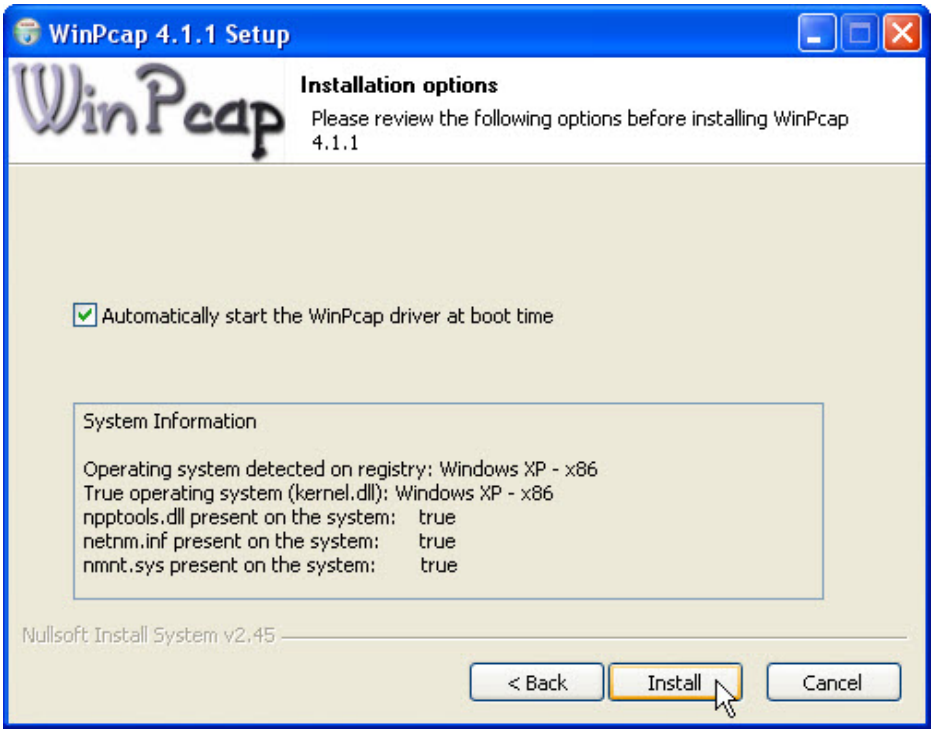
6. Click Next > to proceedthe action.



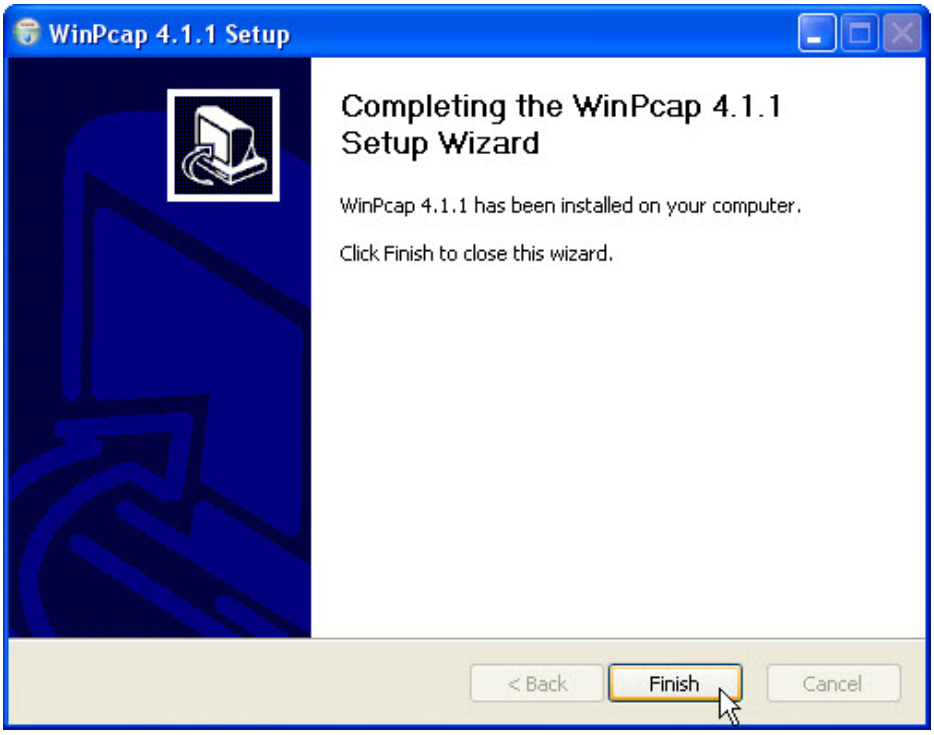
7. Click I Agree to authorize the WinPcap.



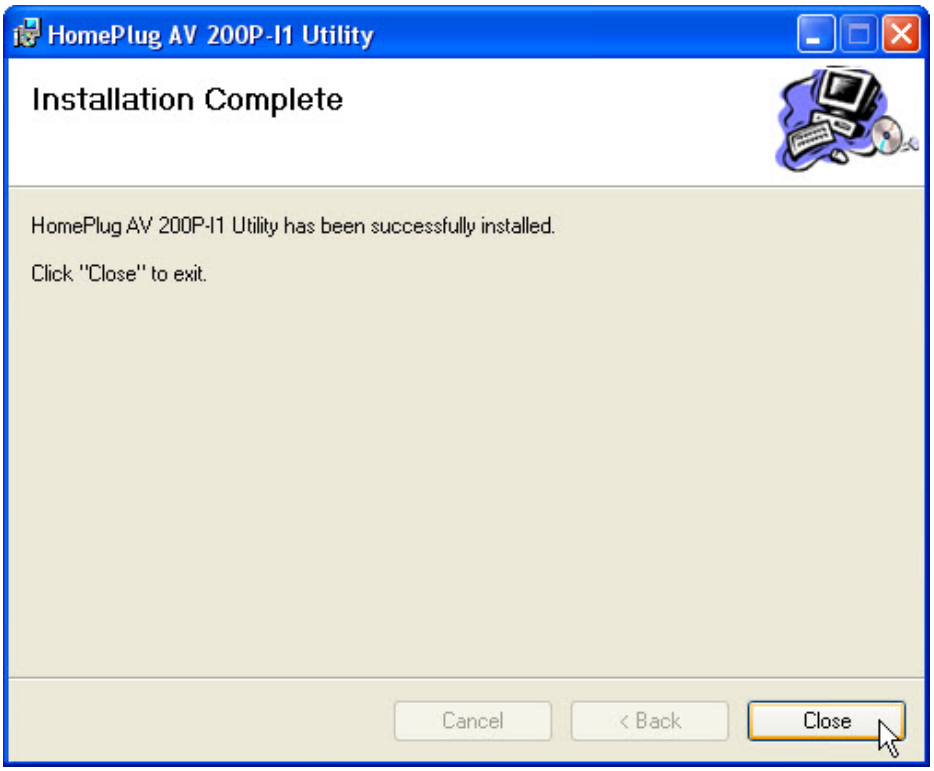
8. Click Install to start the installation.



9. Click Finish to complete the utility process.



10. Wait until the installation process is complete then press Close to complete the utility setup.



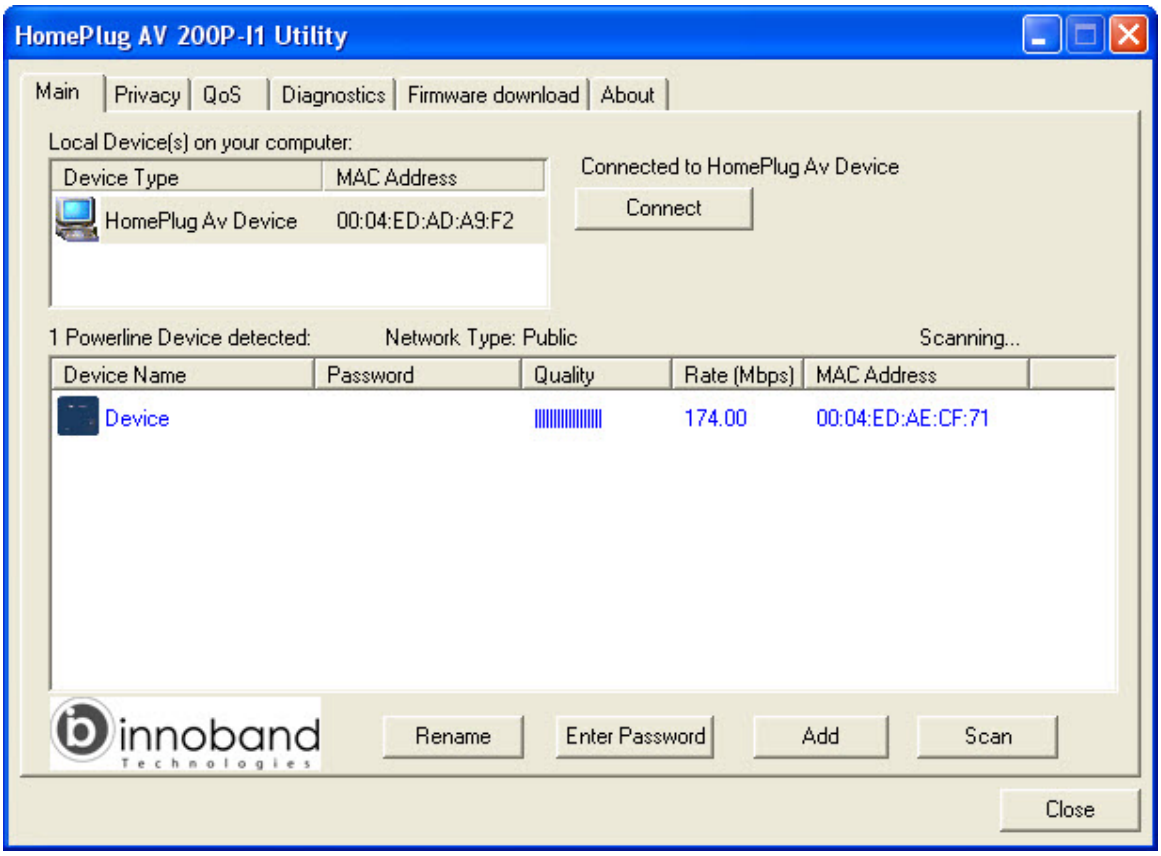
Starting HomePlug AV 200P-I1 Utility

Once the **HomePlug AV 200P-I1 Utility Setup Wizard** is installed, a shortcut will appear on the desktop. You can start the **HomePlug AV 200P-I1 Utility** by double clicking on the shortcut, or go through "**start**"→ "**All Programs**"→ "**HomePlug AV 200P-I1 Utility**" →"**HomePlug AV 200P-I1**".

Understanding 200P-I1 Utility

HomePlug AV 200P-I1 Utility consists of 4 screens accessed through 4 panel tabs. The 4 panels are **Main**, **Privacy**, **Diagnostics** QoS, Firmware Download, and **About** located on the top left corner of the program for configuration convenience.

Main Tab



The **Main Tab** Screen lists all the powerline devices connected to the host computer when the utility is running.

The **top panel** shows all local HomePlug devices connected to the computer's NIC (Network Interface Card). Normally, only one device will be seen. If there is more than one local device being connected (eg. USB / Ethernet adapter), user can select the local device by clicking on it and then click the **Connect** button to its right. The status area above the button indicates that your PC is connected to that same device. Once connected to the local device, the utility will automatically scan the power line periodically for other newly connected HomePlug devices. If no local HomePlug devices are discovered, the status area above the connect button will indicate with a message 'NO HOMEPLUG ADAPTERS DETECTED'.

The **lower panel** displays all the HomePlug remote devices, detected on the current network. The total number of remote devices connected on the same network can be found on top of the Remote device panel.

The **Network type** (Public or Private) is also displayed based on the network status of the local device. The scan status option is displayed on the top right corner above the Remote devices panel showing whether the Autoscan function is turned ON or OFF.

The following information is displayed for all devices that appear in the lower panel:
Device Name:
Show the default device name. User can change the name by either clicking on the rename button or by clicking on the name and editing in-place. An icon is usually shown with the device name.

Password (*required when creating a private network)
This column is left blank by default. The password will be displayed only after it has been created. For detail information on password setup, please refer to section on **Password Setup Procedure.** (refer to page 21)

Rate (Mbps):
Display the data transmission rate of each device.

MAC Address:
Show the Remote device MAC address.

Quality:
Display the overall quality of the data transmission rate. When the transmission rate is good, the number of line appear will increase.

Password Setup Procedure:

1. To assign a password to a specific device, select the device and click on the **Enter Password** button at the bottom of the lower panel to call up the **Set Device Password** dialog box.

11. Then type in the password in the blank provided and press **OK.**

Note: The Password field accepts the Device password in any case formats, with or without dashed between them.

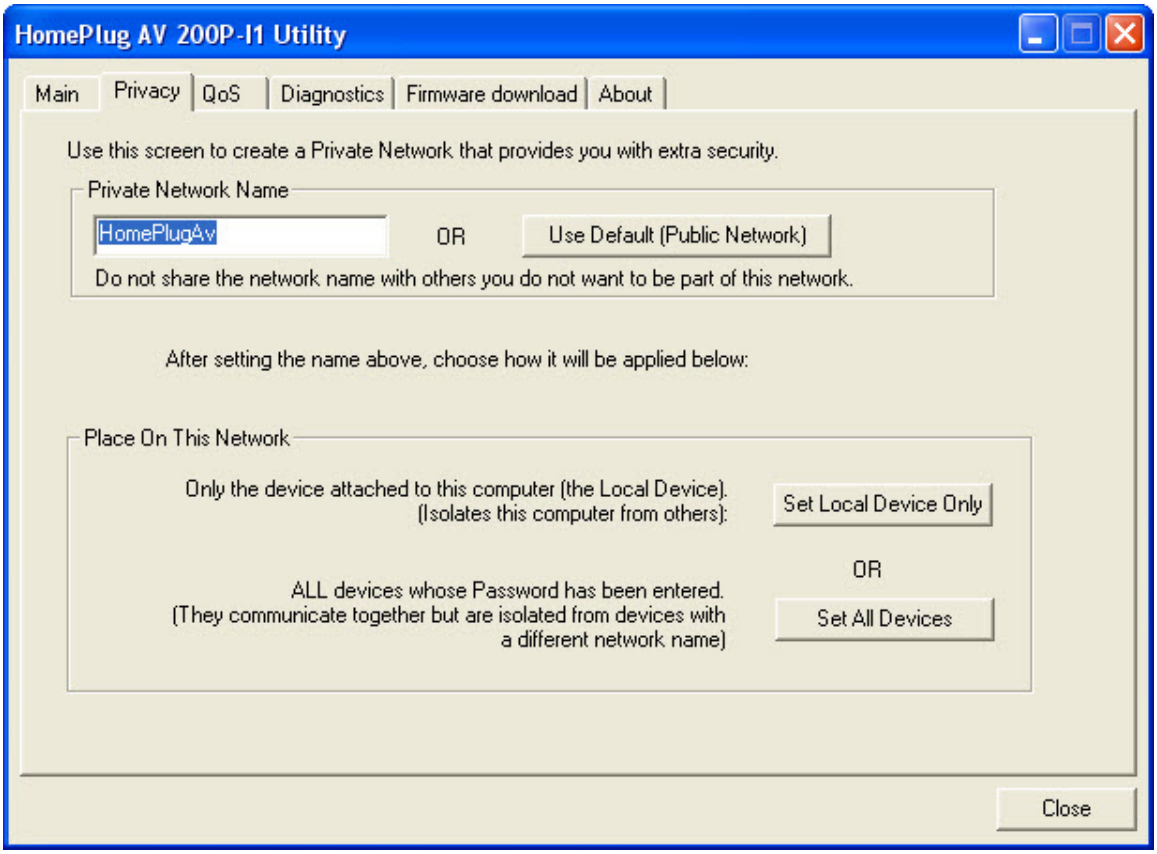
12. If the password entered is not recognized or unacceptable, an error message box will pop up prompting user to change the password.

Add New HomePlug Device to a Powerline Network
Additionally, when there is more than one powerline network present, a new HomePlug device can be added to any specific powerline network as desired.

To add a new device to a network:

1. Press the **Add** button.
2. When a **Add Device to Network** dialog box pops up, enter the name and the password of the device to be added to the network in the blank provided then press **OK**.

Privacy Tab



Privacy Tab is to allow user the convenience to manage the security of the private powerline network and to enable the adding of new HomePlug device to the private network.

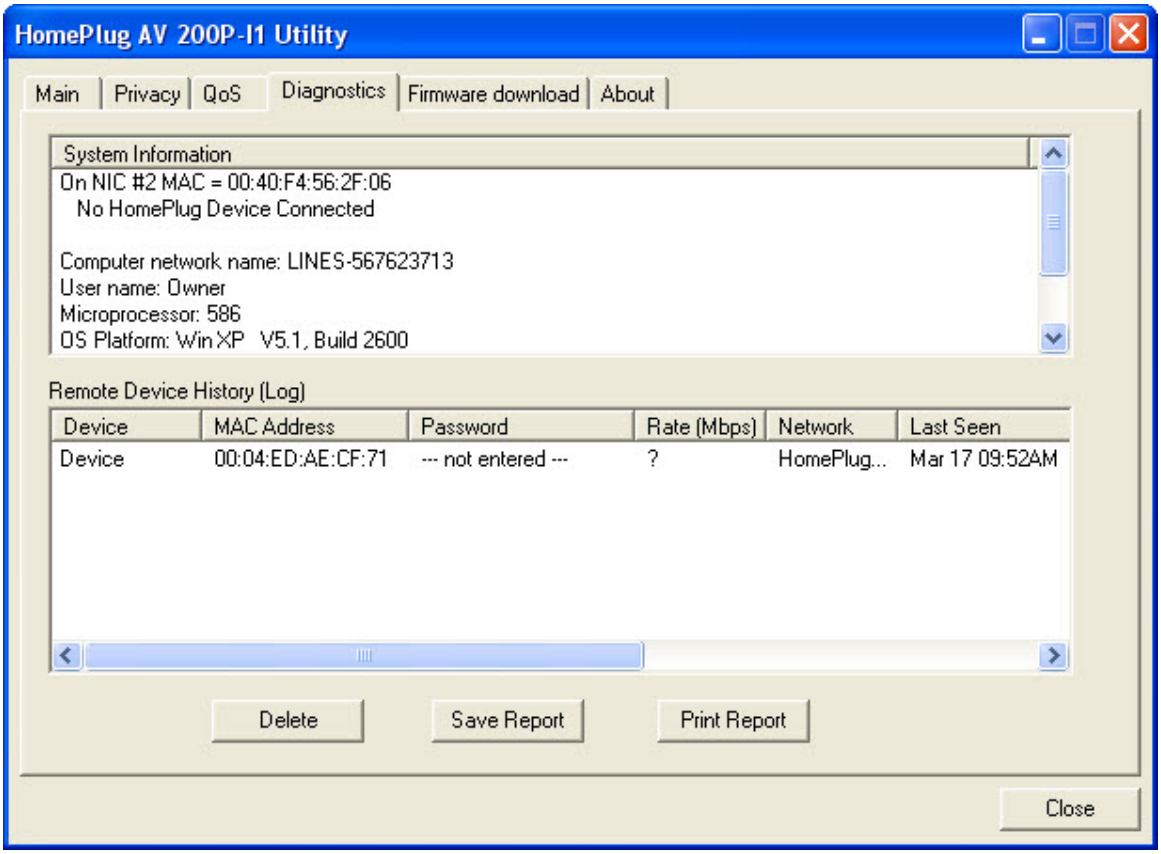
All HomePlug devices are shipped using a default logical network name “HomePlugAv”. The Privacy tab screen allows user to change its default public network type to a private network by changing the network name (network password) of devices.
The user can always reset the network type to HomePlug network (Public) by entering “HomePlugAv” as the network name or by clicking on the Use Default button.

Note: Changing the network name to anything other than HomePlugAv will show the network type on the main screen as Private.

Set Local Device Only button can be used to change the network name (network password) of the local device. If a new network password is entered, all associated devices seen on the Main Tab prior to this will be no longer present in the new network, rendering the local device unable to communicate with other devices in its previous network.

Set All Devices button is used to change the logical network of all devices that appear on the Main tab screen whose Device Password had been entered for the same logical network. A dialog window will appear to report the success of this operation. For devices whose device passwords were not entered, this operation will fail and will report a failure message.

Diagnostics Tab



The **Diagnostics Tab** screen shows System information and a history of all remote devices seen over a period of time.
The **Upper panel** shows technical data concerning software and hardware present on the host computer which were used for communication via HomePlug device on the Powerline network. The data includes the following:

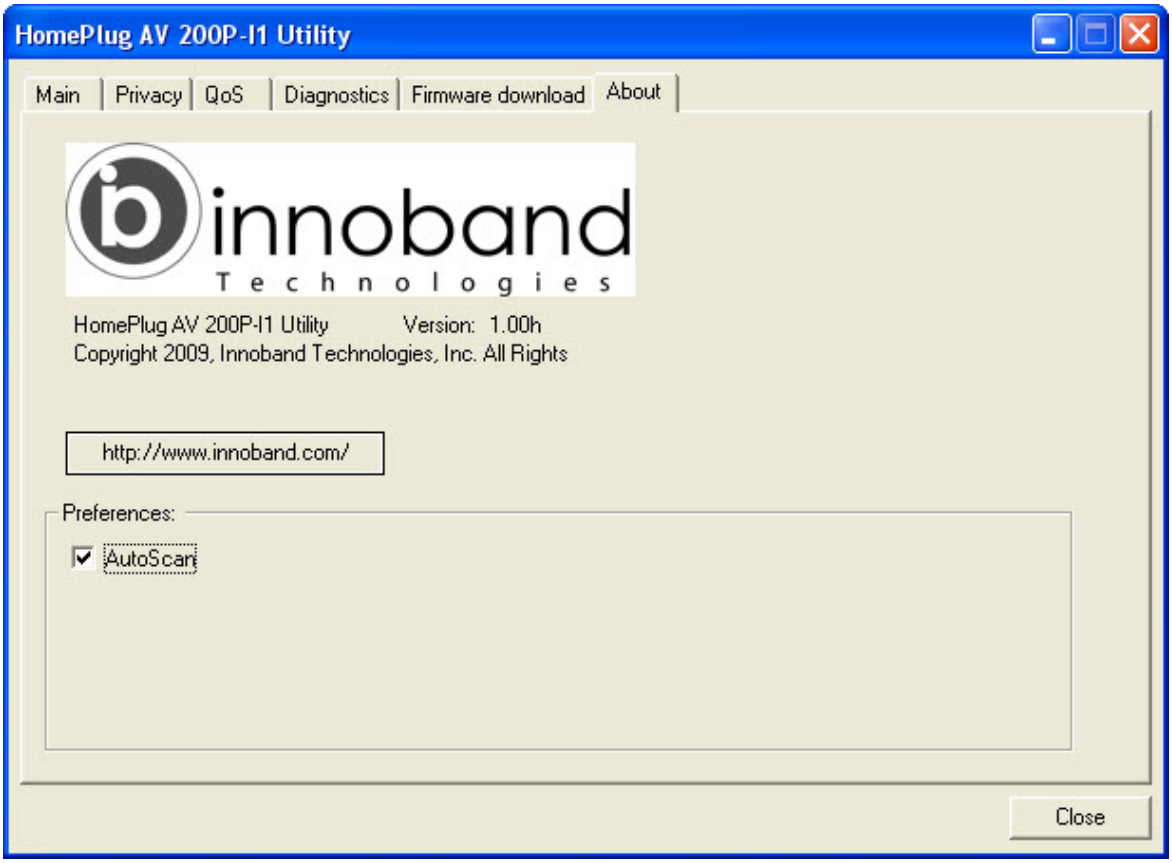
- Operating System Platform/Version
- Host Network Name
- User Name
- MAC Address of all NICs (Network interface card) connected to the host
- Identify versions of all Driver DLLs and Libraries used (NDIS) and optionally
- MAC Firmware Version
- MAC addresses of all devices connected locally to the host
- Version of the Configuration Utility
- Vendor name
- Microprocessor

The **Lower panel** contains a history of all remote devices seen on the computer over a certain period of time. All devices that were on the powerline network are listed here along with a few other parameters. Devices that are active on the current logical network will show a transfer rate in the Rate column; devices on other networks, or devices that may no longer exist are shown with a “?” in the Rate column. The following remote device information is available from the diagnostics screen:

- Device Alias Name
- Device MAC Address
- Device Password
- Device Last known rate
- Device Last Known Network name
- Vendor name
- Date device last seen on the network
- MAC Firmware version
- Number of dropped connections
- Number of loss connection
- The highest transmission rate recorded
- The lowest transmission rate recorded
- Total data sent

The diagnostics information displayed may be saved to a text file for later use, or can be printed for reference for a technical support call. Devices, which are not part of the network anymore, can be deleted using the delete button. A dialog window pops up with a confirmation message if we try to delete a device whose password has been entered.

About Tab



The **About** screen shows the software version and provides the HTML link to the Innoband official website. Clicking on the web address field will open a web browser that link directly to the web site.

Under the **Preferences** panel, user can check the AutoScan box to turn on the Auto Scan function or check off the box to turn off the Auto Scan function.

Troubleshooting

Problem:
My HomePlug device is unable to detect my other HomePlug device.

Solution:
This may due to the accidental change of the device password. Access the **HomePlug AV Utility** and select the **Privacy** Tab. Enter the password "HomePlugAV" (Case Sensitive) in the blank provided. Then press the "Set to Local Device Only" button. **Repeat the same procedure to the other HomePlug device**.

Appendix A - Warranties

Innoband warrants that equipment furnished will be free from defects in material and workmanship for a period of one year from the confirmed date of purchase of the product new from the retail location. Upon written notice of any such defect, the manufacturer will, at its option, repair or replace the defective item under the terms of this warranty, subject to the provisions and specific exclusions listed herein.

This warranty shall not apply to equipment that has been previously repaired or altered outside our facilities in any way, nor will it apply if the equipment has been used in a manner exceeding its specifications or if the serial number has been removed.

We do not assume liability for consequential damages as a result from our product use, and in any event our liability shall not exceed the original selling price of the equipment.

The equipment warranty of Innoband Technologies, Inc. shall constitute the sole and exclusive remedy of any Buyer of the manufacturer's equipment and the sole and exclusive liability of the manufacturer, its successors or assigns, in connection with equipment purchase and in lieu of all other warranties expressed, implied or statutory, including, but not limited to, any implied warranty of merchantability or fitness and all other obligations or liabilities of the manufacturer, its successors, or assigns.

Fill out the next page and mail or fax to Innoband Technologies, Inc. for product registration.

Registration Card

HomePlug AV 200P-I1 Product Registration	
Name / Company:	
Address:	
City/State/Zip:	
Phone:	
E-mail:	
Serial Number:	
Purchased from:	
Date of Purchase:	

Please cut out the above Product Registration Card and send in with a self-addressed stamped envelope to:

Innoband Technologies, Inc.
2526 Qume Dr Suite 21
San Jose, CA 95131

Appendix B - Regulation

FCC Part 15 Notice

Warning: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 to the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment. This equipment generates, used, 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 unlikely to cause harmful interference. But if it does, the user will be required to correct the interference at his or her own expense. The authority to operate this equipment is conditioned by the requirement that no modifications will be made to the equipment unless Innoband expressly approves the changes or modifications.

Warning: Operation is subject to the following two conditions:
1) This device may not cause harmful interference.
2) This device must accept any interference received including interference that may cause undesired operation.

Appendix C – Contact Information

We would more than love to help if you have further technical questions, please visit our Website at http://www.innoband.com or send E-mail to support@innoband.com

To purchase accessories or replacement parts for this router, please visit

http://www.innocow.com

Company Address

Innoband Technologies, Inc

2526 Qume Dr Suite 21

San Jose, CA 95131