



HP-8501

85Mbps Powerline Ethernet Bridge



User's Manual

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### Linux Open Source Code

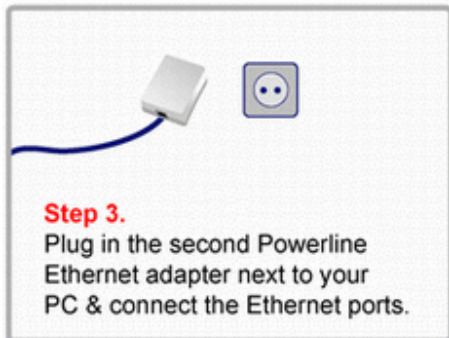
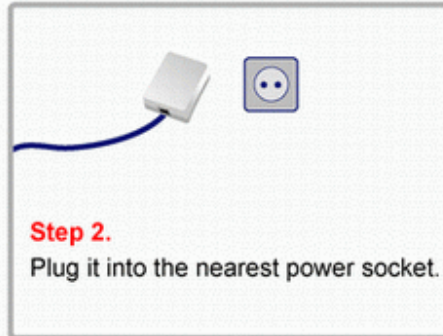
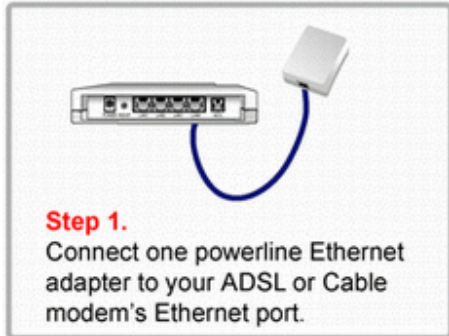
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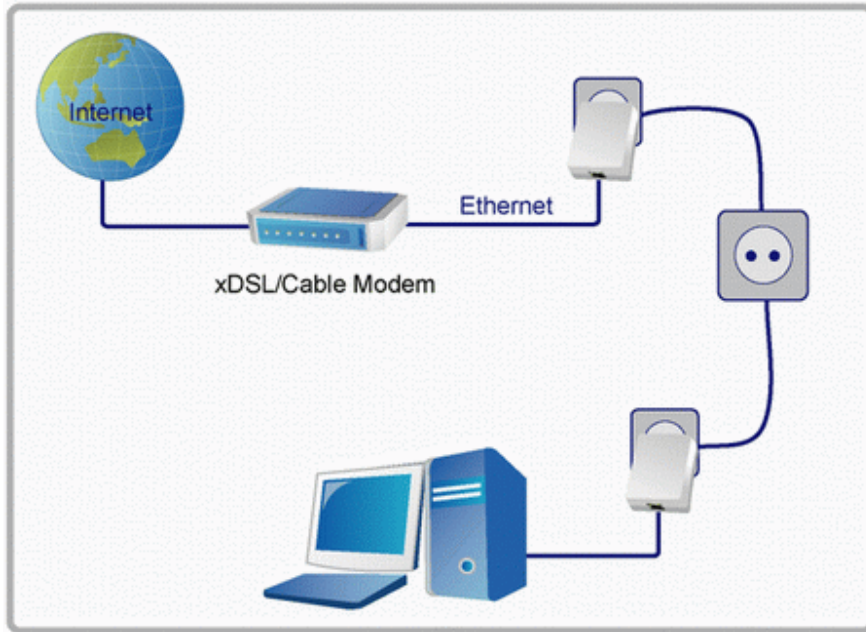
## 1. Powerline Networking Installation

### 1.1 Basic Installation

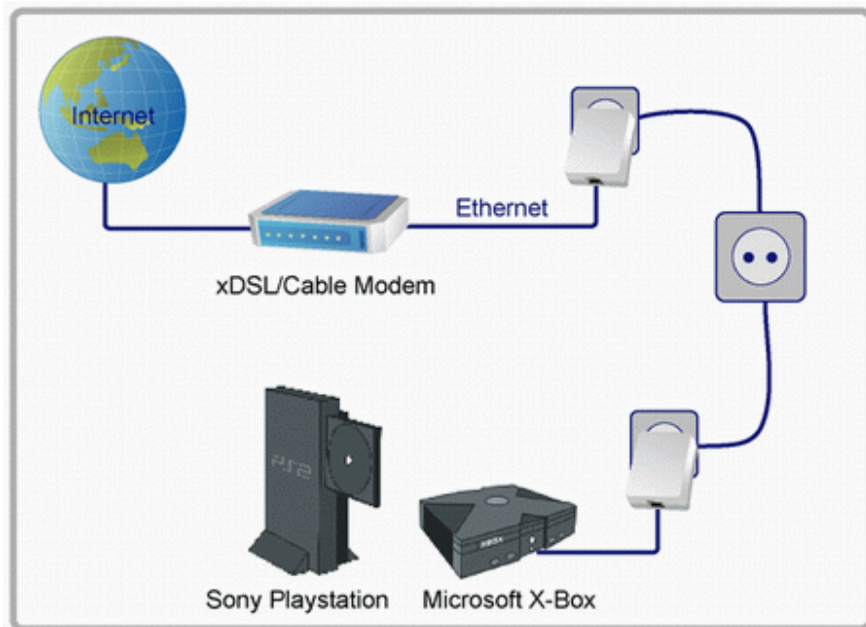


## 1.2 Application Examples

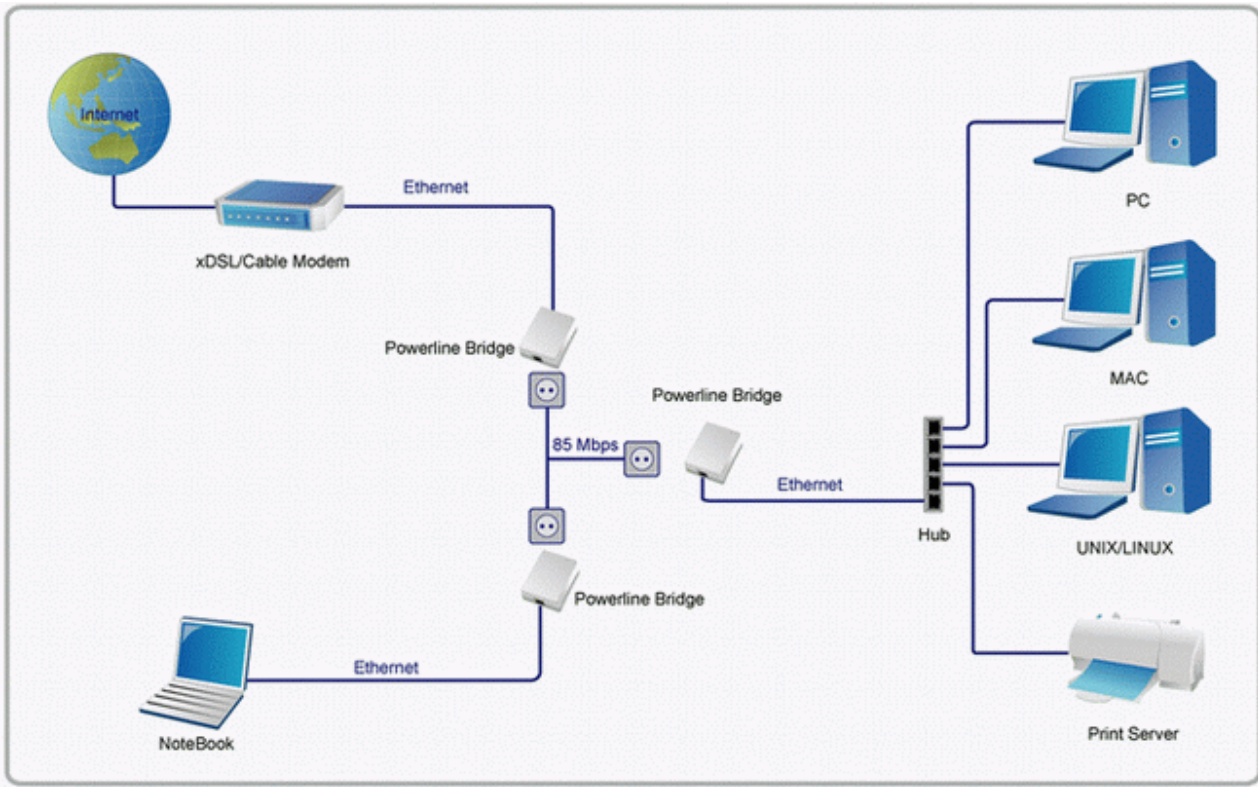
### 1.2.1 Connecting one computer to internet via power outlet



### 1.2.2 Connecting game console via power outlet



### 1.2.3 Connecting existed network environment to internet via power outlet



### **1.3 Benefits**

- Up to 85 Mbps data transfer rate over the household power circuit.
- Ranges of 200 meters.
- No new network cables needed for home networking.
- Deliver the benefits of Ethernet without the expense of wiring.
- Transfer large files between computers in short time.
- High-speed Internet access and DVD-quality video streaming
- Compatible with IEEE 802.3, IEEE 802.3u.
- Keep data privacy through DES data encryption method.

### **1.4 Features**

- Cost-efficient home network solution.
- Using existed powerline in a house, no new network cables needed,
- Easy to install.
- Just use your power circuit to access the Internet or build home network through the whole house.
- Orthogonal Frequency Division Multiplexing for high data reliability (anti-interference).
- Up to 85Mbps of data transfer rate over powerline
- 56-bits DES link encryption for security.
- 3 status indication LEDs.

### **1.5 Package Contents**

- High Speed Powerline Bridge unit
- Powerline Network Management Software CD
- Quick Installation Guide
- Category 5 cable

### **1.6 System Requirements**

- Ethernet device
- AC power outlet
- PC with Windows operating system for data encryption setup

## 2. Network Utility for Powerline Bridge

**Note:** The device is able to detect other powerline devices which is on the same power circuit automatically. You only need to install this utility program when you want to enable the encrypt function of Powerline Extender to secure your data, or you have problem connecting other powerline devices.

### Introduction of Configuration Utility

The configuration utility for Windows OS enables the user to search all Powerline Ethernet devices on the Powerline network; check data rate and performance, enables encryption, and performing diagnostics.

### 2.1 Software Setup

#### 2.1.1 Installation

Please verify that no other Powerline Management Utilities are installed before installing this software. If other utilities are installed, uninstall them first and restart your computer before installing this software.

To install, insert the Windows OS configuration utility setup utility CD-ROM into the computer's CD-ROM or DVD-ROM drive. The Setup utility shall run automatically. Alternatively this can also be done manually by double clicking the setup.exe file on the CD. A welcome screen will be shown as *Figure 1*.

Click the **Next** button to continue.

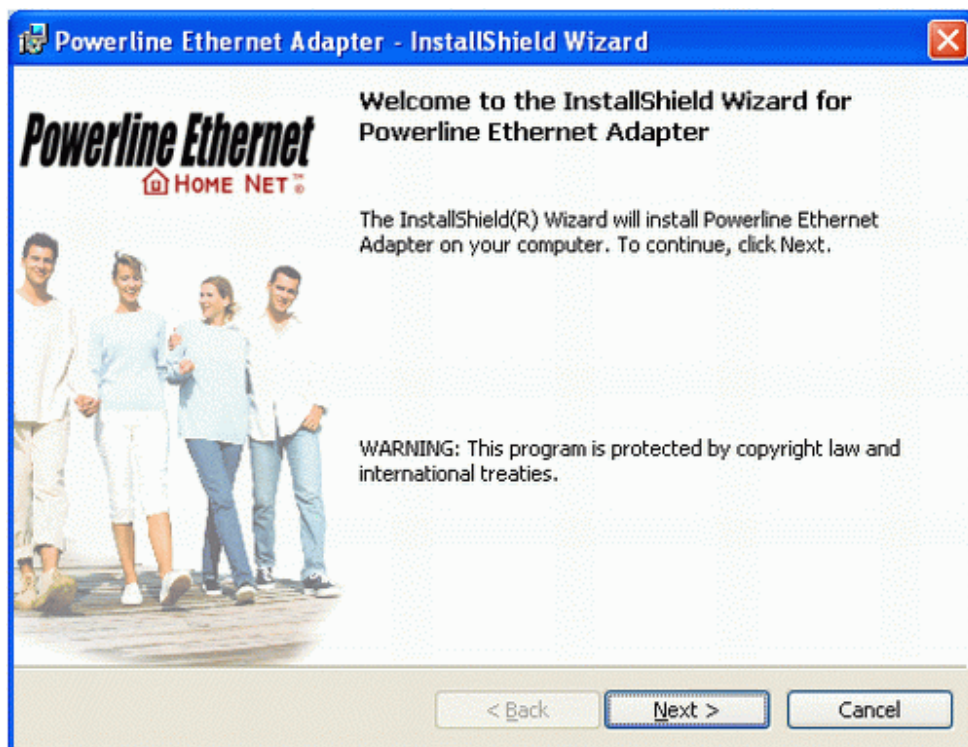


Figure 1: Install Shield Screen



## 2.2 Windows Configuration Utility

In order to run the utility, double-click the utility icon. *Figure 2* shows the content of main tab of the configuration utility. The following picture shows a Powerline Ethernet device connected as a local device and other Powerline Ethernet devices as remote devices.

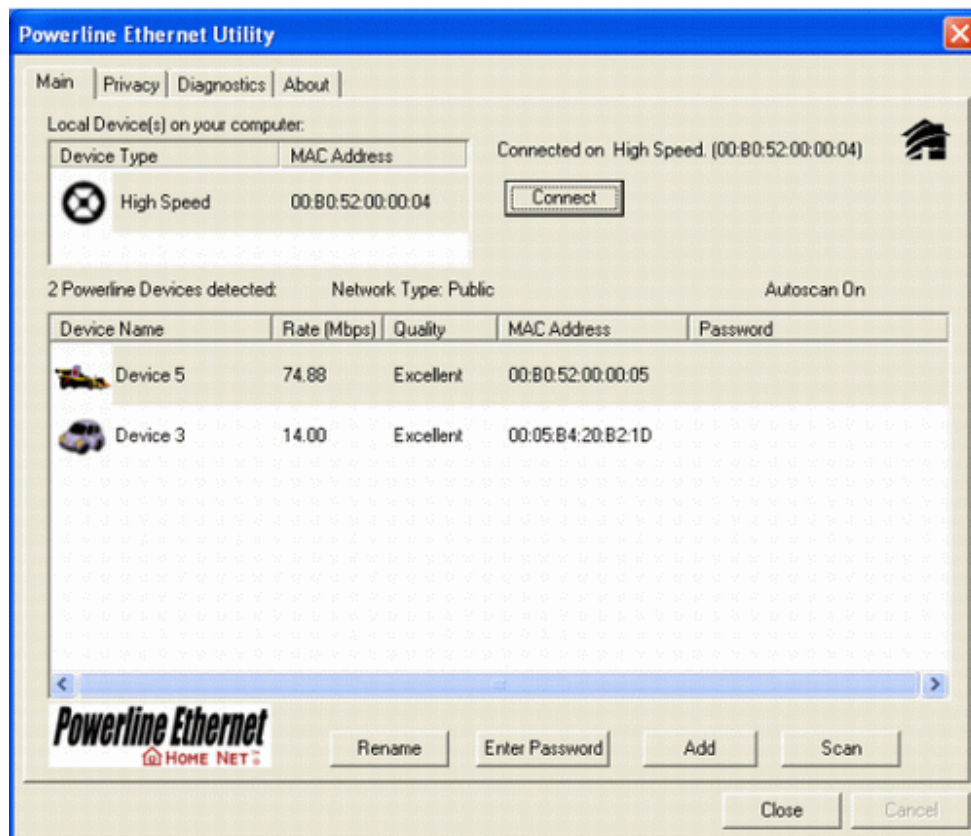


Figure 2: Main tab with a local high-speed Powerline Ethernet device

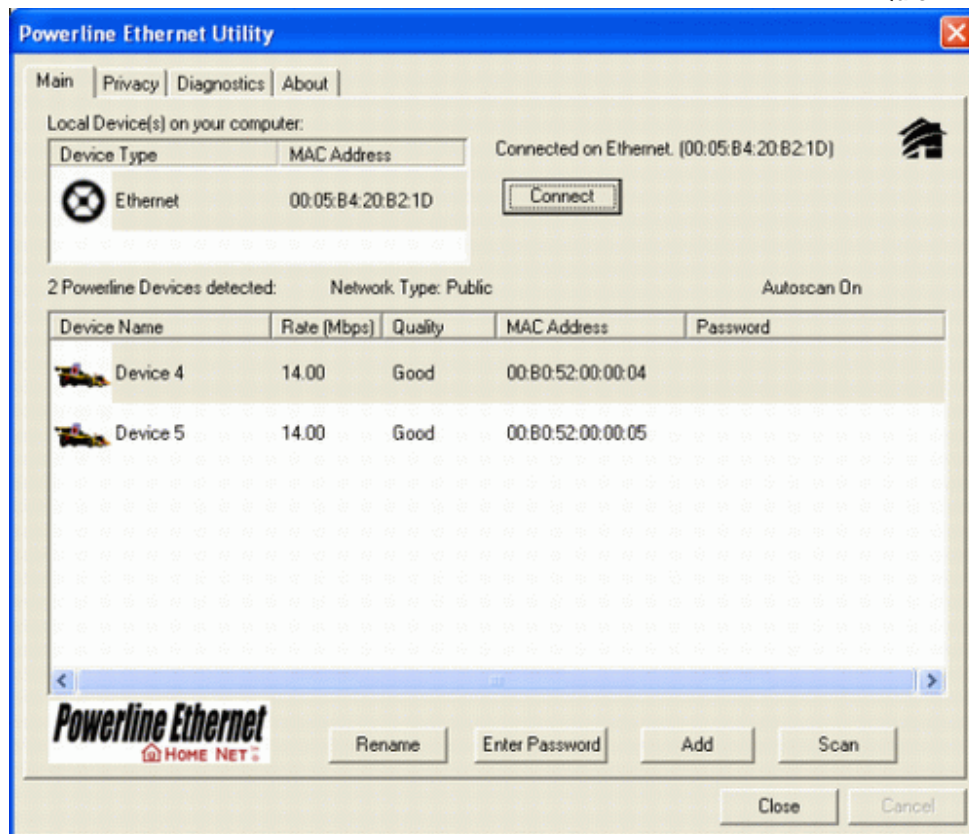


Figure 3 : Main tab with local low-speed Powerline Ethernet device

## 2.3 User Interface

### 2.3.1 The 'Main' Tab

The **Main** tab provides a list of all Powerline Ethernet devices logically connected to the computer where the configuration utility is running. The top panel shows all local Powerline Ethernet devices found. In most cases, only one device will be shown there. In environments where there are more than one device connected to the same computer, such as a USB and an Ethernet device, the user have to click the device he or she wish to manage and then click the **Connect** button to its right. The status area above the button indicates that your PC is connected to selected device. Once connected to the a chosen local device, the utility will automatically scan the power line periodically for any other Powerline Ethernet devices. If no local Powerline Ethernet devices are discovered, the status area above the connect button will indicate that accordingly.

*Figure 4* illustrates the presence of two local devices connected to the same computer.

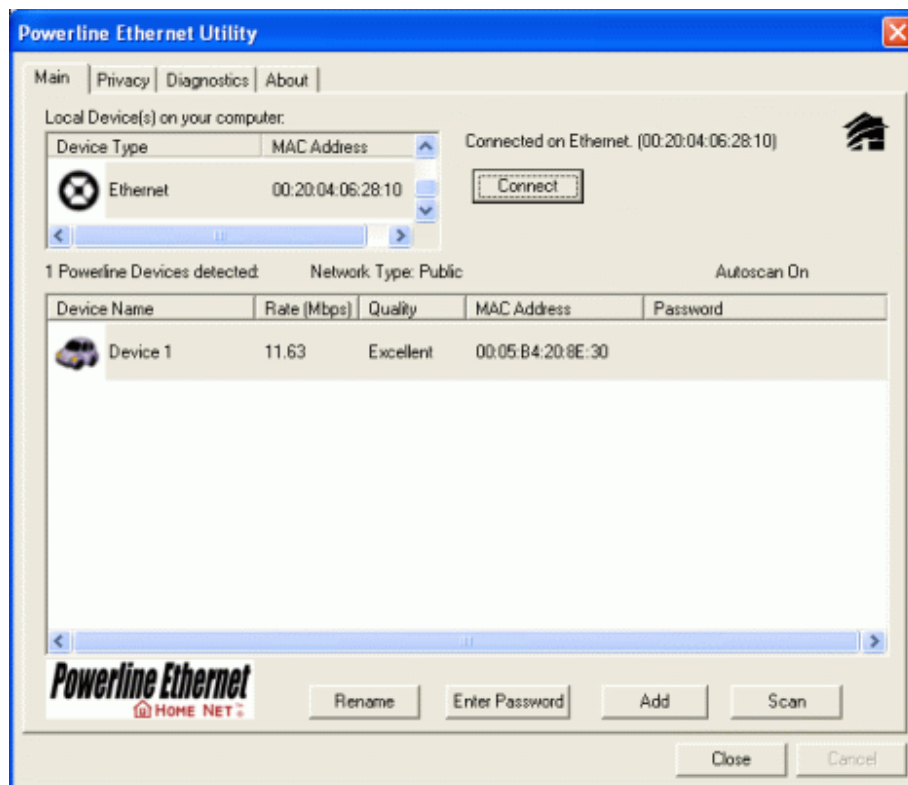
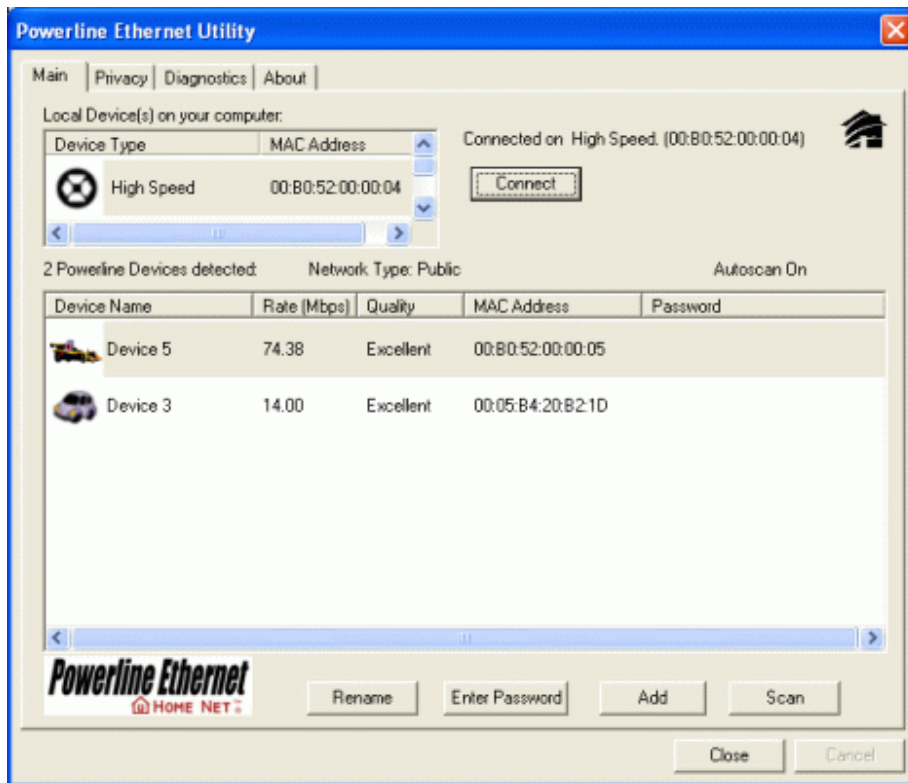


Figure 4: Multiple local devices found

The **lower panel** displays all the Powerline Ethernet devices, discovered on the current logical network (remote devices). The number of remote devices found, the type of logical network (Public or Private), and a message area that reports connectivity and scan status will be displayed above this panel. The following information is displayed for each devices found:

**Device Name** column shows the name of a found device. You can click on the name or click 'Rename' to change the name of a selected device. An icon is optionally shown with the name. You can identify the speed of a device by its icon (14Mbps or 85Mbps). By default, the icon is displayed with the name.

**MAC Address** column shows the device's MAC address.

**Password** column shows the user-defined device password (initially left blank).

A user may change the password by clicking 'Set Password' button. To set the **Password** of the device (required when creating a secured private network), first select the device by clicking on its name in the lower panel and then click on the 'Enter Password' button .A dialog box will appear as shown in Figure 5 for you to type the password. The selected device name is shown so you can make sure which device you're changing the password. Click OK after you've entered the new password. A confirmation box will appear if the password was entered correctly. If a device is not found, the user will be prompted and instructions to this problem will be shown, too.



*Figure 5: Set Device Password*

The **Add** button is used to add a remote device to your network that is not listed in the lower panel, for example, a device currently located on another logical network. Users will be prompted to input the passwords for all devices they wish to manage and add them to the local logical network by clicking on the Add button. A dialog box will appear as shown below. The dialog box allows user to enter both device name and the password. A confirmation box will appear if the password was entered correctly and the device was found. If a device is not found, the user will be prompted and instructions to this problem will be shown, too.



*Figure 6: Add Remote Device*

**Note:** The device must be present on the power line (plugged in) in order to check the password so it can be added to the network. If the device could not be located, a warning message will be shown.

The **Scan** button is used to perform an search of the Powerline Ethernet devices connected to the computer. By default, the utility will automatically scan once every few seconds and updates the display. A typical screen after naming and supplying passwords might appear as in *Figure 7*.

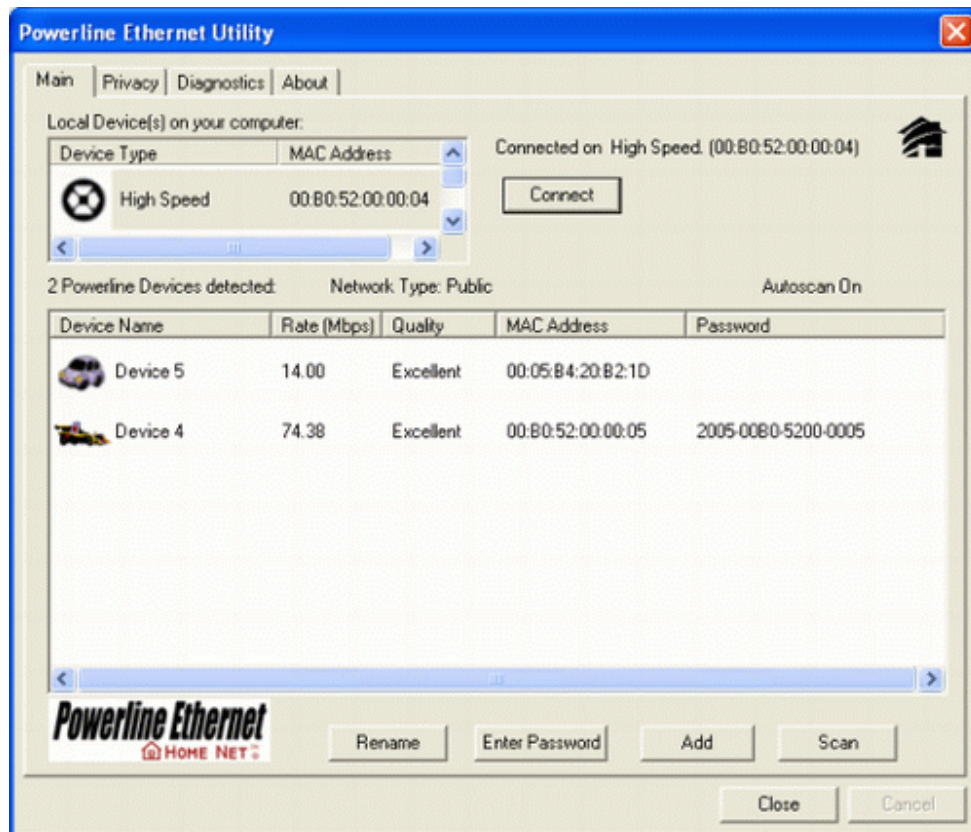


Figure 7: Main tab of the configuration utility

### 2.3.2 The 'Privacy' tab

The Privacy dialog screen provides a means for managing the local network and providing additional security. All Powerline Ethernet devices come with a default logical network (network name), which is normally "HomePlug". The **Privacy** tab allows user to make the network private by changing the network name (network password) of devices. The user can always reset a Powerline Ethernet network to the universal one (public) by entering "HomePlug" as the network name or by clicking on the **Use Default** button.

**Note** : Changing the network name to any other name other than HomePlug will show the network type on the main screen as Private.

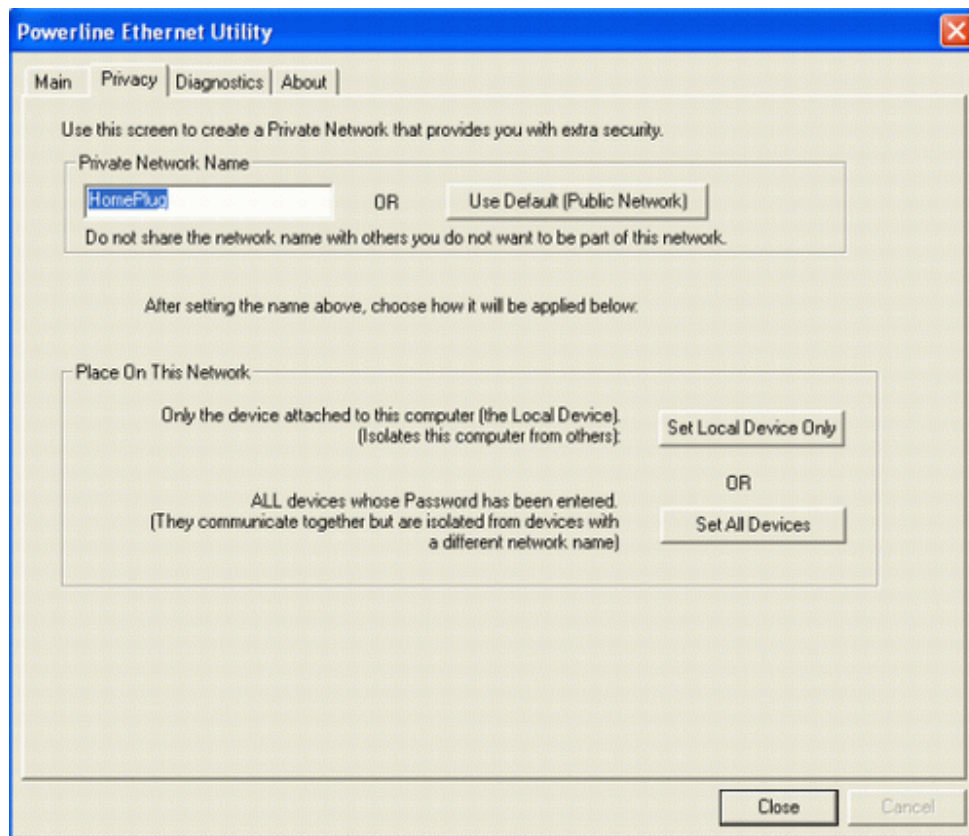


Figure 8: Privacy Screen

The **Set Local Device Only** button is used to change the network name (network password) for local devices only. After doing this, all the devices seen on the Main panel prior to this will no longer be reachable or respond to your command, as they will be located in a different logical network hereafter. Devices previously set up with the same logical network (same network name) will appear in the device list afterward by selecting this option.

The **Set All Devices** button is used to change the logical network of all devices that appear on the Main panel. The user must have entered the device's Password in order to set it to the new logical network. A notification message will appear to report this operation is successfully completed.



## 2.4 The 'Diagnostics' tab

The **Diagnostics** tab shows system information and a history of all devices seen. It will be something like *Figure 9*.

The **upper panel** shows technical data concerning software and hardware on the host computer used to communicate over Powerline Ethernet Network. It shall include the following information:

- Operating System Type/Version
- Host Network Name
- User Name
- MAC Address of all NICs (network interface card)
- Identify versions of all Driver DLLs and Libraries used (NDIS) and optionally
- Powerline Ethernet device chipset manufacturer name (85Mbps version Only)
- MAC Firmware Version (85Mbps version Only)
- Vendor name

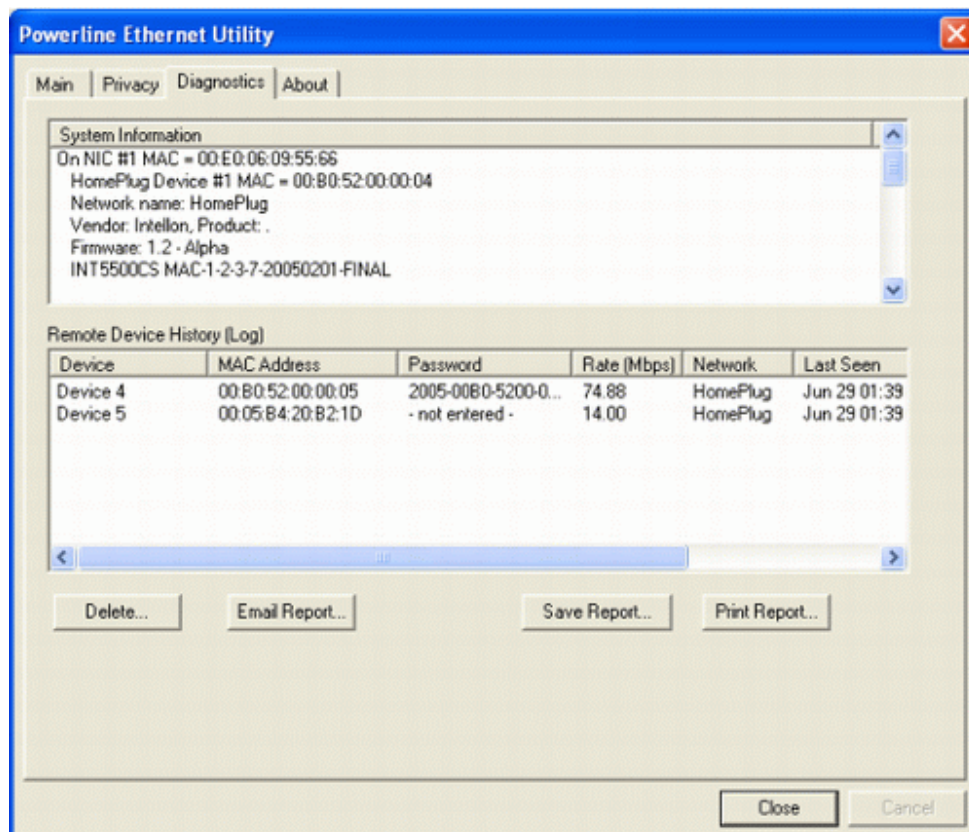


Figure 9: Diagnostics Tab

The **lower panel** contains a history of all remote devices found by the computer. Devices are shown here regardless they are located on the same logical network or not. Devices that are active on the current logical network will show a transfer rate in the 'Rate' column. For those devices which are located on other networks, or devices that may no longer exist are shown with an '?' mark in the 'Rate' column. The following remote device information is available in the diagnostics tab:

- Adapter Alias Name
- Adapter MAC Address
- Adapter Password
- Adapter Last known rate
- Adapter Last Known Network
- HomePlug chipset manufacturer name
- Data devices found lately
- MAC Firmware Version (85Mbps version Only)

The diagnostics information displayed may be saved to a text file for later emailing to technical support of a manufacturer, or printed for reference during a technical support call. Devices no longer part of the network can be deleted using the delete button.

### 2.4.1 The 'About' Tab

This tab shows the software release date.

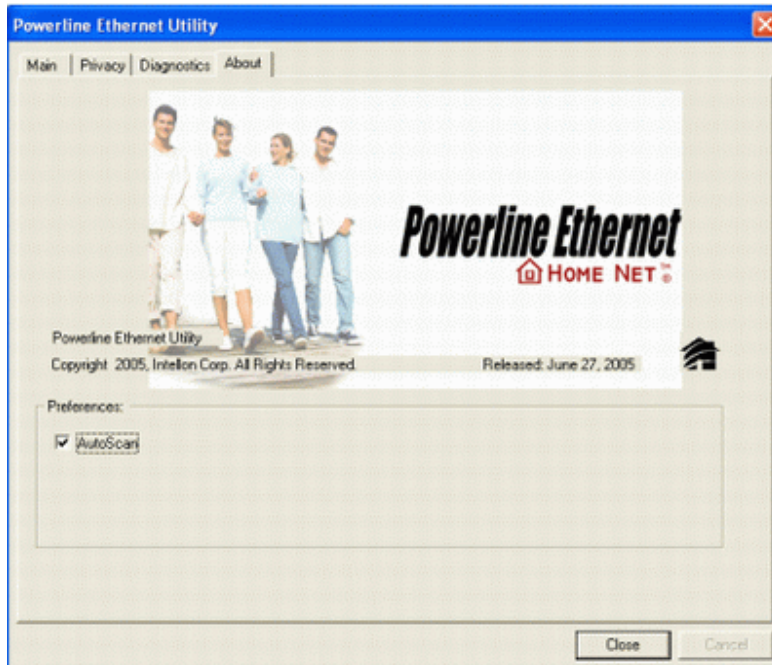


Figure 10: About Tab

### 2.4.2 The 'Preferences' Tab

The lower part of the panel may display options for user preferences (such as turning the auto-scan feature on or off) as shown *Figure 10* listed above.

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**Declaration of Conformity**

The following

Equipment : Powerline Ethernet 85

Report No. : S940140

is herewith confirmed to comply with the requirements set out in the Council Directive on the harmonization of the Laws of the Member States relating to electrical equipment designed for use within certain voltage limits(73/23/EEC).

For the evaluation of above mentioned Directives, the following standards were applied:

IEC 60950-1: 2001

EN 60950-1: 2001

**Declaration of Conformity**

The following

Equipment : Powerline Ethernet 85

Report No. : E940708

is herewith confirmed to comply with the requirements of its Harmonised Standards for CE Marking which have been set out in the Council Directive, and published as below:

1) The R&TTE Directive 1999/5/EC

2) The EMC Directives of 89/336/EEC, 92/31/EEC and 93/68/EEC;

For the evaluation of above mentioned Harmonised Standards, the following technical and test standards were applied:

1) EN 55022: 1998+A1 : 2001+A2: 2003 Class A

2) EN 61000-3-2 : 2000

3) EN 61000-3-3 : 1995+A1: 2001

4) EN 55024 : 1998+A1 : 2001+A2: 2003

EN 61000-4-2 : 1995+A1: 1998+A2: 2001

EN 61000-4-3 : 2002+A1: 2002

EN 61000-4-4 : 1995+A2: 2001

EN 61000-4-5 : 1995+A1: 2001

EN 61000-4-6 : 1996+A1: 2001

EN 61000-4-8 : 1993+A1: 2001

EN 61000-4-11 : 1994+A1: 2001

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