

PLC Device Utility User Guide

Introduction

The PLC Device Utility is to create a private PLC network or to assign devices into the network. For PLC devices which have hardware **group** or **encryption** button, creating a private network or assigning devices can be easy done by this button and this utility software is NOT needed. Please see user manual for **group** button operation. This utility software is unavoidable for creating PLC network combining this PLC device with older version of HomePlug AV devices which has no **group** or **encryption** button.

Powerline devices can communicate with each other only if they have same Network Name (for ex, device 1, 3, and 5 in Figure 1 has same Network Name), thus belongs to same network group. Devices with different Network Name can not communicate. A Network Name of HomePlug AV is public to all new HomePlug AV compliant devices worldwide. Thus data sent over it is accessible to families using a new HomePlug AV compliant device.

To ensure privacy of your data transmission, use this utility to create a private PLC network by assigning a private Network Name to the PLC devices. A device **password**, know as **DAK** printed on the back of devices, is needed in order to change its Network Name or add it into a network group.

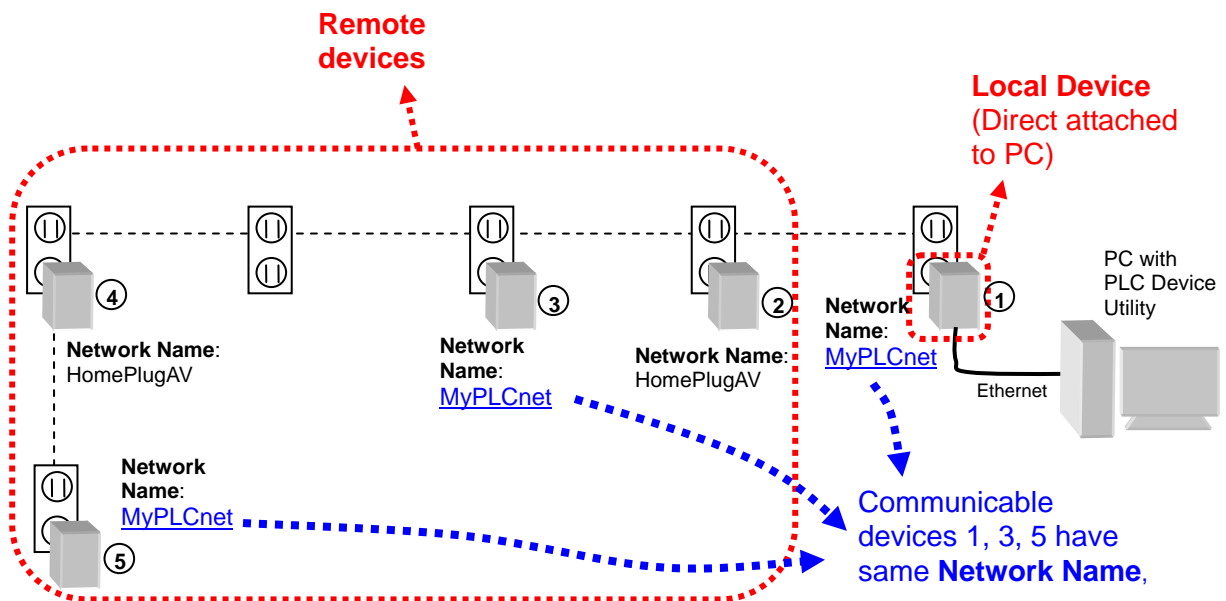


Figure 1: private PLC network, device 1, 3, 5 has same Network Name, all non HomePlugAV

Utility Install

Please verify no other PLC Encryption Management Utilities are installed prior to installing this utility. Other utilities should be uninstalled before installing this utility. To install, click "Installer.bat", the installation automatically starts. After asking for install WinPcap, a window similar to the one shown in **Figure 2** will be launched. Click the **Next** buttons to continue and finish installation procedure.

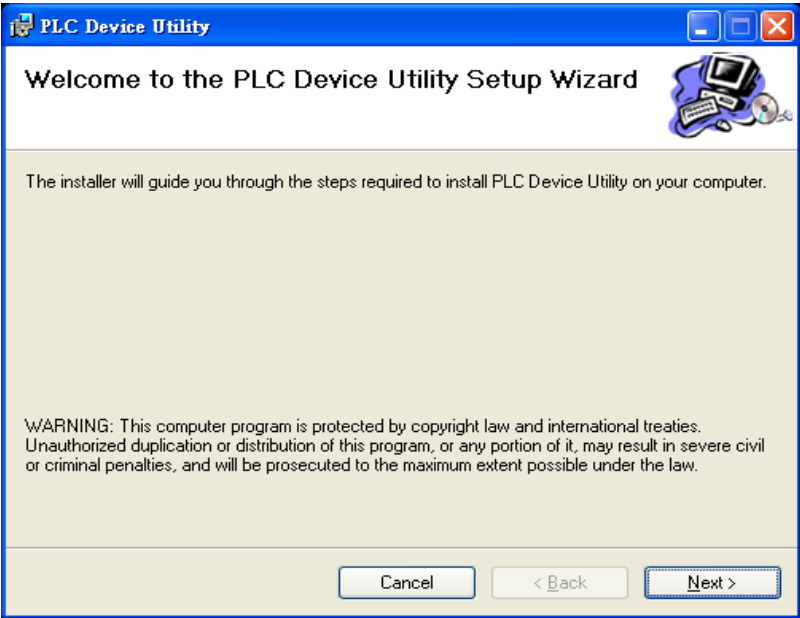


Figure 2: InstallShield Screen

Running PLC Device Utility

In order to start the utility, double-click the utility icon on your desktop. There are four tab selectable pages: **Main**, **Privacy**, **Diagnostics**, and **About**.

Main page

In Figure 3, the **Main page** shows status of all devices in the current PLC network. It includes two subwindows.

The top subwindow of the page is called the **Local Device Subwindow**. It shows a Powerline device of HomePlug AV device type connected locally to the PC where this utility runs. The MAC address of that device is shown. The bottom subwindow, called **Remote Device Subwindow**, shows all remote Powerline devices communicable with the device at the top subwindow.

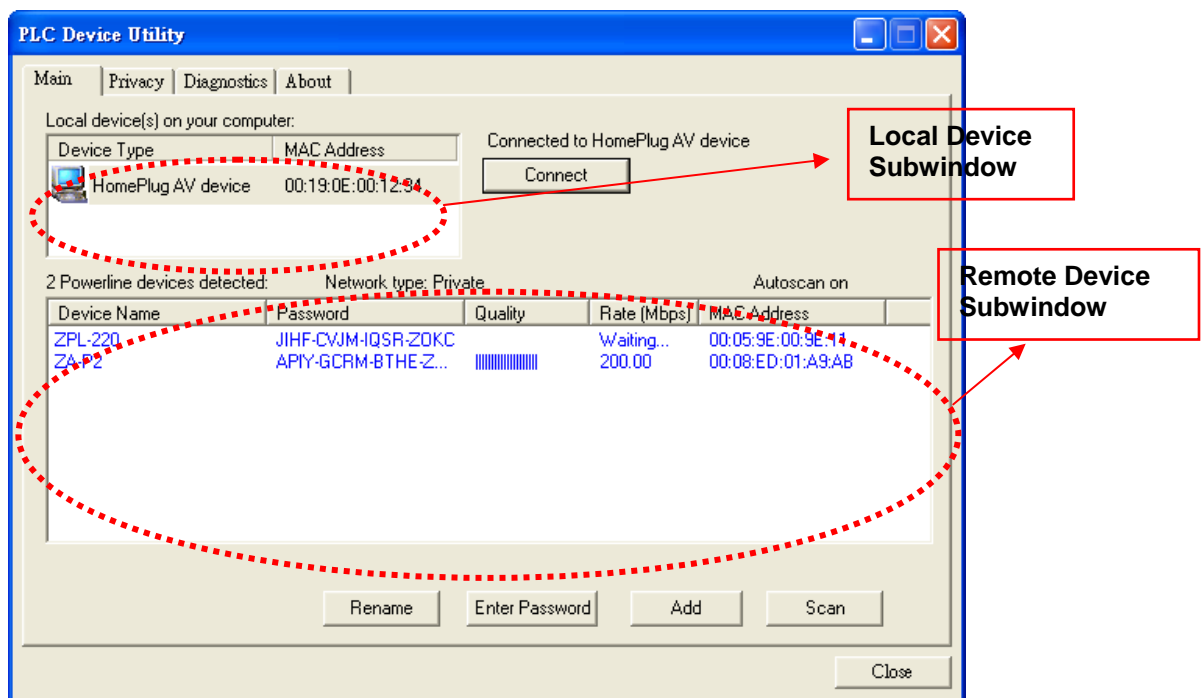


Figure 3: Main Page with one local and one remote PLC device

Local Device Subwindow

It shows all local PLC devices attached via the NICs (Network Interface Cards) of the PC running this software. In most cases, only one device will be seen in this subwindow. In situations where there are multiple local PLC devices being connected via extra USB network card or Ethernet adapter, multiple device will be seen. In this case, please select one as active local PLC device by clicking on it and then click the **Connect** button located at its right hand side. For example, since only one local PLC device is attaching the PC in Figure 1, the main page shown in Figure 3 describes this case.

The area above **Connect** button indicates that your PC's connectivity status and the type of local device, such as "Connected to HomePlug AV Device". If no local PLC device is discovered, it shows 'HomePlug Adapter NOT DETECTED'. This utility supports only PLC devices running HomePlug AV protocols,

although there are other unpopular PLC communication protocols in the world.

Remote Device Subwindow

It displays all the remote PLC devices accessible to the active device in **Local Device** subwindow. In Figure 1, four devices **2**, **3**, **4**, and **5** are remote which can talk to the PC only via power-wire, but only two accessible devices: **3** and **5** which has same Network Name as local device. The total number of accessible remote devices is shown at its top-left corner, such as “2 Powerline device detected” shown in Figure 3.

The **Network type** (showing Public or Private) shows the network type of the local device. The scanning status option is displayed at top-right corner of this subwindow if auto-scan function is enabled.

In this subwindow, each powered PLC device accessible to local device will popup a status entry indicating: device name, password, Quality, Rate, and MAC address. If no PLC device detected, no entry is displayed in this subwindow.

Device Name

This shows the default device name, which is user changeable by **Rename** button or by direct clicking on the name to edit in-place.

Password

First time use of this software shows no devices authenticated and **Password** are blank for all accessible remote PLC devices. When changing the Network Name of remote PLC devices or making inaccessible PLC devices accessible to the local PLC device, password authentication is required. The password, also called **DAK**, is printed at back of each purchased PLC device.

Quality

It shows how good the remote device’s communication quality with the local device. Longer symbol shows better quality.

Rate (Mbps)

It shows the current PHY rate of the communication between remote Powerline device and the local Powerline device. Best case, the PHY rate could reach 200Mb/s.

MAC Address

It shows the MAC address of the remote PLC devices.

Scan button

This is used to perform an immediate search of all remote devices accessible to the active local PLC device. By default, the utility automatically scans every few seconds and updates the status.

Rename button

A typical screen after renaming the remote device to “David's bedroom” and the device password entered might appear as in Figure 4.

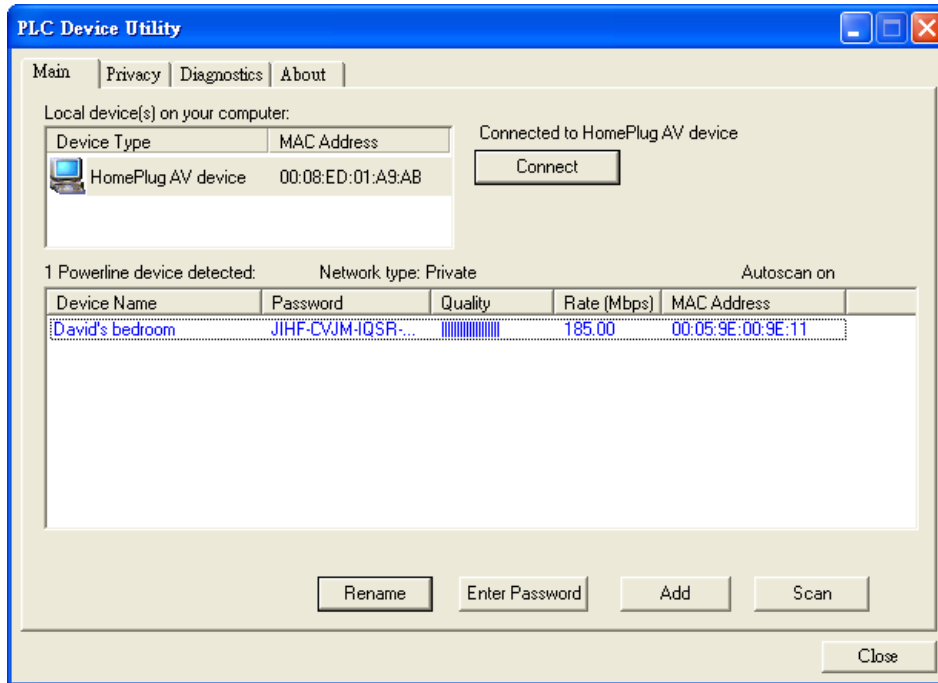


Figure 4: Device Name and Password in Main page

Enter Password button

Before changing a remote device's Network Name, the device needs to be authenticated by entering its password into this PLC utility software database. First time use of this software shows no devices authenticated and **Password** are all blank.

To enter the **Password** of a device, first click an entry in **Remote Device Subwindow** to select the device. Then, click on the **Enter Password** button. A dialog box will appear as shown in Figure 5. Type in the password with dash sign "-" connecting each for characters and click the **OK** button. The password, also called **DAK**, is printed at back of each purchased PLC device.

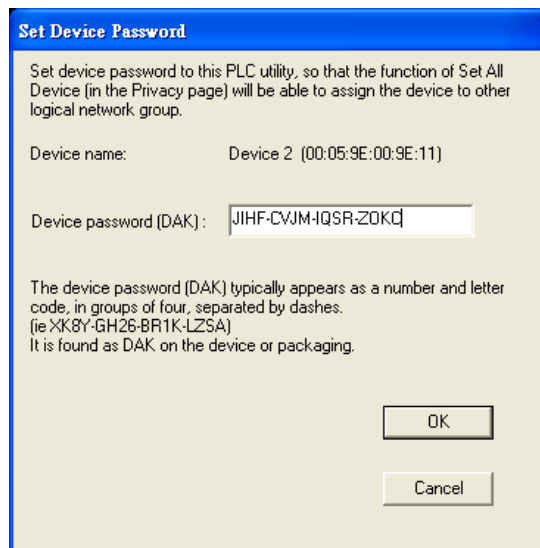


Figure 5: Set Device Password

Join a device to Local PLC device's network

Use **Add** button in the **Main page** to change the Network Name of remote devices to that of local PLC device and become a communicable member of local PLC device.

A dialog box as in **Figure 6** appears to allow users enter the device password and set its device name. The password is the **DAK** printed on the bottom of a PLC device.

Note: keep the device plugged and powered on the electric outlet while computer is adding this device. Users may find it convenient to write down the DAK in advance to a paper.



Figure 6: Add Remote Device

After typing a device name and hitting **OK**, it will show the following message:



It takes several minutes to scan whole network and change device's Network Name. If successful, the dialog box will show "completing..." It automatically finishes when the dialog box disappears. Check **Remote Device Subwindow** for new list of accessible remote devices.

Create a private PLC network group

See **Figure 7**, the **Privacy page** enables users to change the **Network Name** of the local or remote PLC devices. Network Names of inaccessible or accessible remote devices whose password have been entered into this software's database will be changed.

All HomePlugAV PLC devices are shipped using a default Network Name of **HomePlugAV** and are publically accessible by other PLC devices. To make your PLC device private to other PLC devices, or back to public Network Name, please enter a private **Network Name** and push **Set Local Device Only** or **Set All Devices** button.

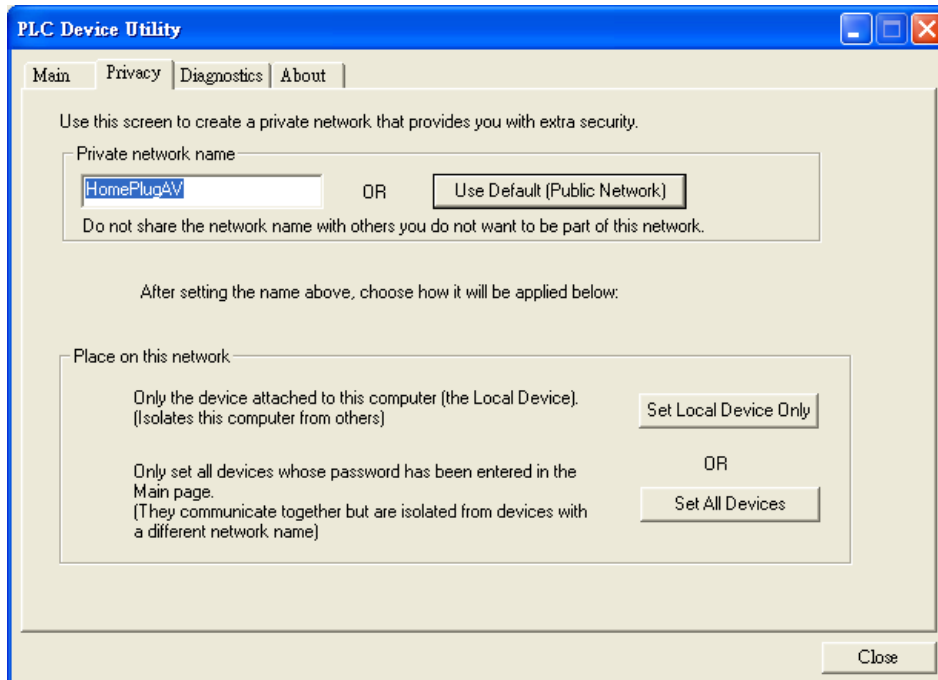


Figure 7: Privacy Page

Set Local Device Only button only change the **Network Name** of the local PLC device attached to the PC running this software. After pressing the button, Remote devices differing with entered Network Name disappear and remote devices matching new Network Name appear in **Remote Device Subwindow**.

In one push, **Set All Devices** button will change both the Network Name of local device and Network Name of all pre-authenticated remote devices. It doesn't matter whether the remote PLC device was accessible or inaccessible to the local device before clicking this button. To authenticate a remote device by entering its passwords, please see other sections of this user guide. A dialog window will appear to report the success of this operation.

Manage Authenticated Device in the Utility Database

The **Diagnostics** page shows System information and a history of all remote devices seen over a period of time. The appearance is shown in **Figure 8**.

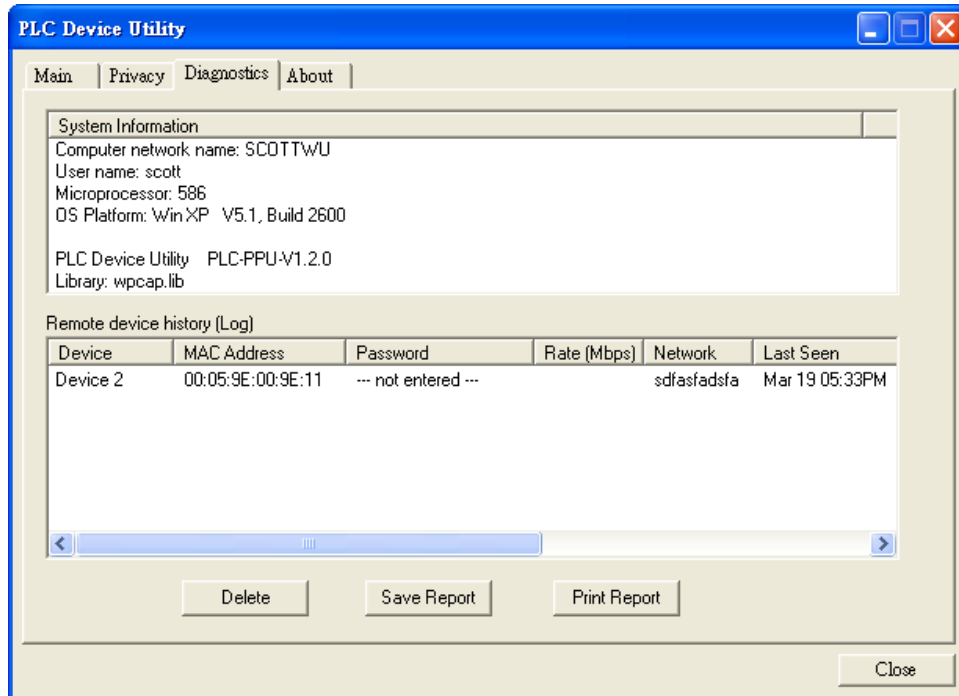


Figure 8: Diagnostics Page

The **Upper Subwindow** shows software and hardware information of the management PC, including: Computer name, User Name, Microprocessor, OS Platform/Version, PLC Device Utility version, and library.

The Lower Subwindow, called the **Remote device log** window, contains a list of all remote devices whose password has been entered into this software's database. Each item contains the device password, its MAC address and a few other parameters. The information displayed may be saved to a text file for later use, or can be printed for reference for a technical support call.

By pushing the **Delete** button, the remote PLC devices whose password which were entered previously will be cleared, and users won't be able to change its Network Name through control buttons in **Privacy page**. However, the device's Network Name and its accessibility to the local device are still unchanged.

About page

The **About page**, in **Figure 9**, shows the software version and provides **AutoScan** on or off selections.

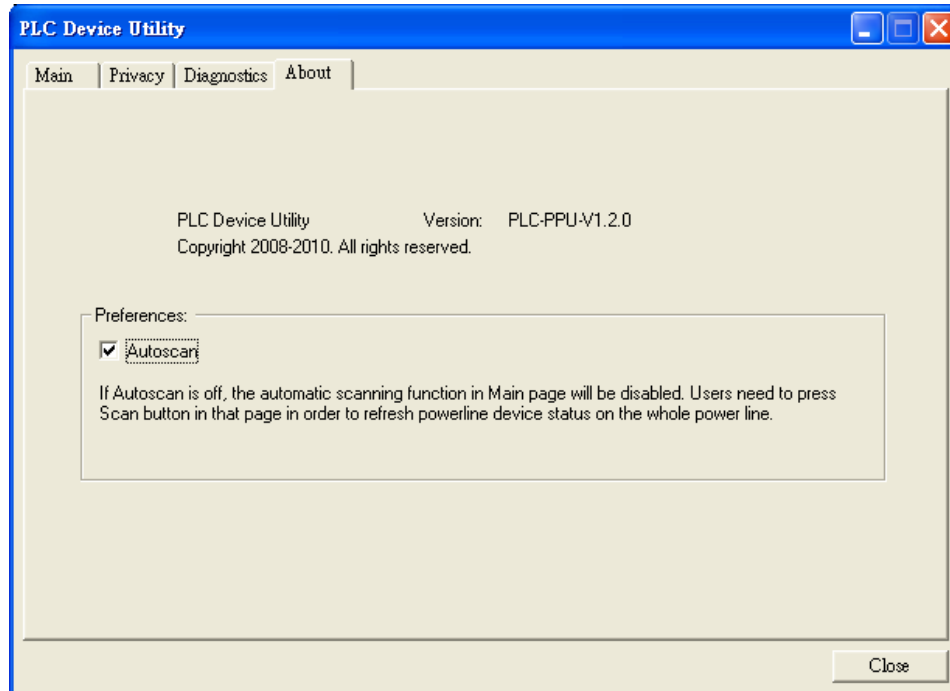


Figure 9: About dialog page

If **AutoScan** is turned ON (by default), the whole power line network will be scanned periodically to find all remote devices accessible to the local PLC device and update the **Remote Device Subwindow** of **Main page**. When **AutoScan** is OFF, users have to manual push the **Scan** button in **Main page** to update remote device status.