Wireless-N HomePlug AV 200

Wall Plug Ethernet Adapter

User Manual

Last revised April 2009

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.
6. Plug your HomePlug AV device directly to the AC outlet on the wall. It is best to avoid using extension power cable as it may possess noise filter or surge protector functions that may cause interference that may impact the performance of the device.

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 in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:
Reorient or relocate the receiving antenna.
Increase the separation between the equipment and receiver.
Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
Consult the dealer or an experienced radio/TV technician for help.

To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.
(Example - use only shielded interface cables when connecting to computer or peripheral devices).

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.
“To comply with FCC RF exposure compliance requirements, this grant is applicable to only Mobile Configurations. The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.”

Table of Contents

Chapter 1: Product 1

Introduction 1

No sweat to set up an in-home network 1

Extended Wireless Coverage 1

Smooth traffic and prioritization 1

Immune to noise and intervention 1

Features 2

Quality of Service Control 2

Wireless LAN 2

Specifications 3

Chapter 2: Installing the Adapter 4

Package Content 4

Device Overview 5

Hardware Installation 6

Connecting the HomePlug Adapter 8

Power Connection 8

LAN Connection 8

Networking Setup 9

Quick Start (Setup Powerline Network) 10

Push Button usage 10

Application Scenarios 10

Powerline Network Illustration 12

Chapter 3: Basic Network Installation 13

Network Configuration 14

Configuring PC in Windows Vista 14

Configuring PC in Windows XP 16

Configuring PC in Windows 2000 17

Configuring PC in Windows 95/98/Me 18

Configuring PC in Windows NT4.0 19

Factory Default Settings 20
Internet Access Configuration 21
Configuring with your Web Browser 21
Chapter 4: Configuration 22
Status 23
Status 23
Statistic 25
Internet Setting 26
LAN 26
Wireless Settings 28
Basic Wireless Settings 29
Wireless Security/Encryption Settings 32
Secuirty Mode 33
Advanced Wireless Settings 35
Wi-Fi Protected Setup 36
Station List 38
Power Line Settings 39
Status 39
Privacy 40
QoS 41
Administration 45
System Management 45
Firmware Upgrade 46
Settings Management 47
Chapter 5: Troubleshooting 48

Chapter 1: Product

Introduction

Thank you for purchasing this Wireless-N HomePlug AV 200 Wall Plug Ethernet Adapter. Your new device is an unit that extends your wireless coverage through power lines.

Compliant with the latest HomePlug AV standards, which support data speeds of up to 200Mbps, the device can be used to bridge Ethernet devices such as modems, routers, PCs, set-top-boxes, and game consoles, allowing users to share network access via existing in-home power cabling. What's unique is that the device has an extra built-in 802.11n Access Point, enabling users to enjoy mobility, high-speed wireless connection and better coverage with no more dead zones. Just plug the device into any wall power socket, and you can easily set up a secure wireless network by pressing the Wi-Fi Protected Setup (WPS) button. Thus, the adapter can extend your wireless coverage through power lines for multimedia applications such as online games, IPTV and audio streaming from room to room..

No sweat to set up an in-home network

The HomePlug Adapter does not require the time and money needed to install expensive Ethernet cables throughout your house in order to share your home network. Nor does it require any drilling. Just one touch of the “Sync” button to install the bridge utility and your high-speed network is ready. It’s as easy as simply plugging in your networking devices and using the electrical wiring in your home.

Extended Wireless Coverage

With an integrated Draft-802.11n Wireless Access Point, the adapter can bridge wireless connections of up to 6 times the speed and 3 times the wireless coverage of an 802.11b / g network device. It supports a data rates up to 300Mbps and is also compatible with 802.11b / g equipment. The Wireless Protected Access (WPA-PSK / WPA2-PSK) and Wireless Encryption Protocol (WEP) features enhance the level of transmission security and access control over Wireless LAN. The device also supports the Wi-Fi Protected Setup (WPS) standard, allowing users to establish a secure wireless network by simply pushing a button.

Smooth traffic and prioritization

Quality of Service control guarantees the transmission quality by automatically prioritizing data. The device automatically recognizes the bandwidth needs of voice and video applications. QoS prioritizes the data to guarantee optimal transmission quality. TV and video images are received and displayed with absolute smoothness. QoS also guarantees clear, instant transmission of voice data, even when other applications are running on the network at the same time. QoS makes your network a pleasure to use.

Immune to noise and intervention

Unlike others, the device supports superior and noise-immune data transmission over in-home electrical power lines. Even at the moment your family turns on an electronic device or turns off a light, you won’t experience any interruption to latency-sensitive applications such as multimedia or video being shared with your family in another room.

Features

- Provides physical layer data rate of up to 200Mbps over existing in-home power lines
- Extended wireless coverage of up to 3 times the range of 802.11g products
- WPS (Wi-Fi Protected Setup) for easy setup
- Auto channel select
- Utilizes power line technology that takes advantage of the unused bandwidth of the electrical wiring in your home
- Utilizes Quality of Service control
- Supports Triple Play applications such as IPTV, VoIP and high-speed Internet access
- Supports 10/100 BaseT Ethernet
- Compliant with the HomePlug Powerline Alliance industry specifications
- Ideal for residential users

Quality of Service Control

- Enhancements: contention-free access, four-level priority based contention access, and multi segment bursting
- ToS, CoS and IP Port Number Packet Classifiers
- Supports IGMP managed multicast sessions
- IGMP snooping with multicast to multiple unicast support in CSMA
- QoS classification for quasi-error-free delivery - VLAN priority field, ToS Field
- Enhanced IPv4/IGMPv1-3 snooping support
- Supports IPv6 and MLDv1-2 snooping

Wireless LAN

- Compliant with IEEE 802.11n, 802.11g and 802.11b standards
- 2.4 GHz–2.484 GHz frequency range
- Auto channel select
- Up to 300Mbps wireless operation rate
- WPS (Wi-Fi Protected Setup) for easy setup
- 64/128 bits WEP supported for encryption
- Wireless Security with WPA-PSK/WPA2-PSK support

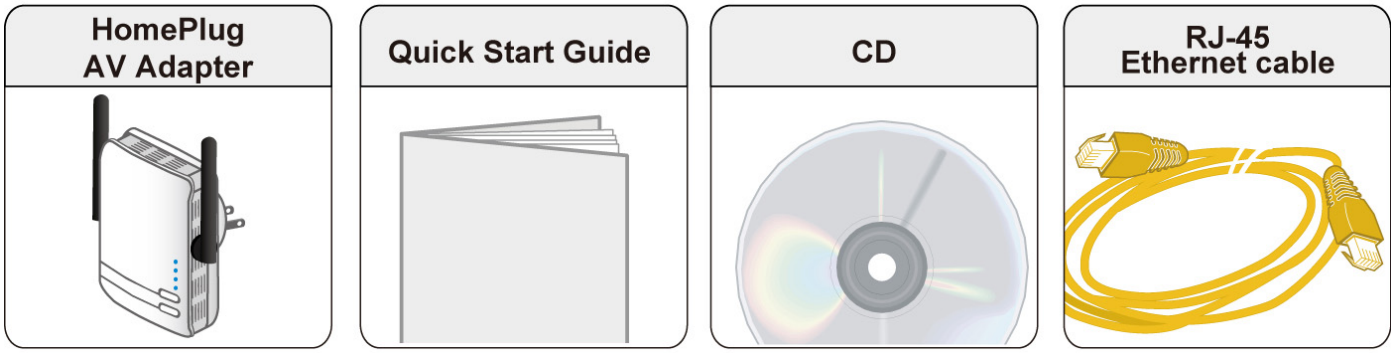
Specifications

Protocol	TDMA, CSMA/CA
Standard	Ethernet specification: IEEE 802.3, IEEE 802.3x, IEEE 802.3u, Auto MDI/MDIX
Transmission Speed	200Mbps
Modulation	Supports OFDM - 1155 carriers,1024 / 256 / 64 / 16 / 8 QAM, QPSK, BPSK and ROBO
Frequency Band	2MHz ~ 30MHz
Security	128-bit AES Link Encryption with key management for secure power line communications Encryption: NMK (Network Membership Key) used to authenticate/ access Rotating NEK (Network Encryption Key)
Operating System	Windows 98 / 98SE / Me / 2000 / XP / Vista Other 10/100 Base-T Ethernet devices
Power Supplier	Input: 100~240V AC, 50~60Hz Protection: OCP, OVP, SCP
Physical Interface	AC power plug 2 fixed antennas WPS button Sync button Reset button RJ-45 compatible LED display: • WLAN • POWER • PLC (Powerline Link/Act) • ETH (Ethernet Link/Act)
Physical Specifications	Dimensions (W, D, H): 4.42” x 3.05” x 2.12” (112.4mm x 77.4mm x 53mm)
Operating Environment	Operating temperature: 0^0C ~ 40^0C Storage temperature: -20^0C ~ 70^0C Humidity: 20 ~ 95% non-condensing

Chapter 2: Installing the Adapter

Package Content

- **Wireless-N HomePlug AV 200 Ethernet Adapter**
- **Quick Start Guide**
- **CD (containing user manual and QSG)**
- **Ethernet (CAT-5 LAN) cable**



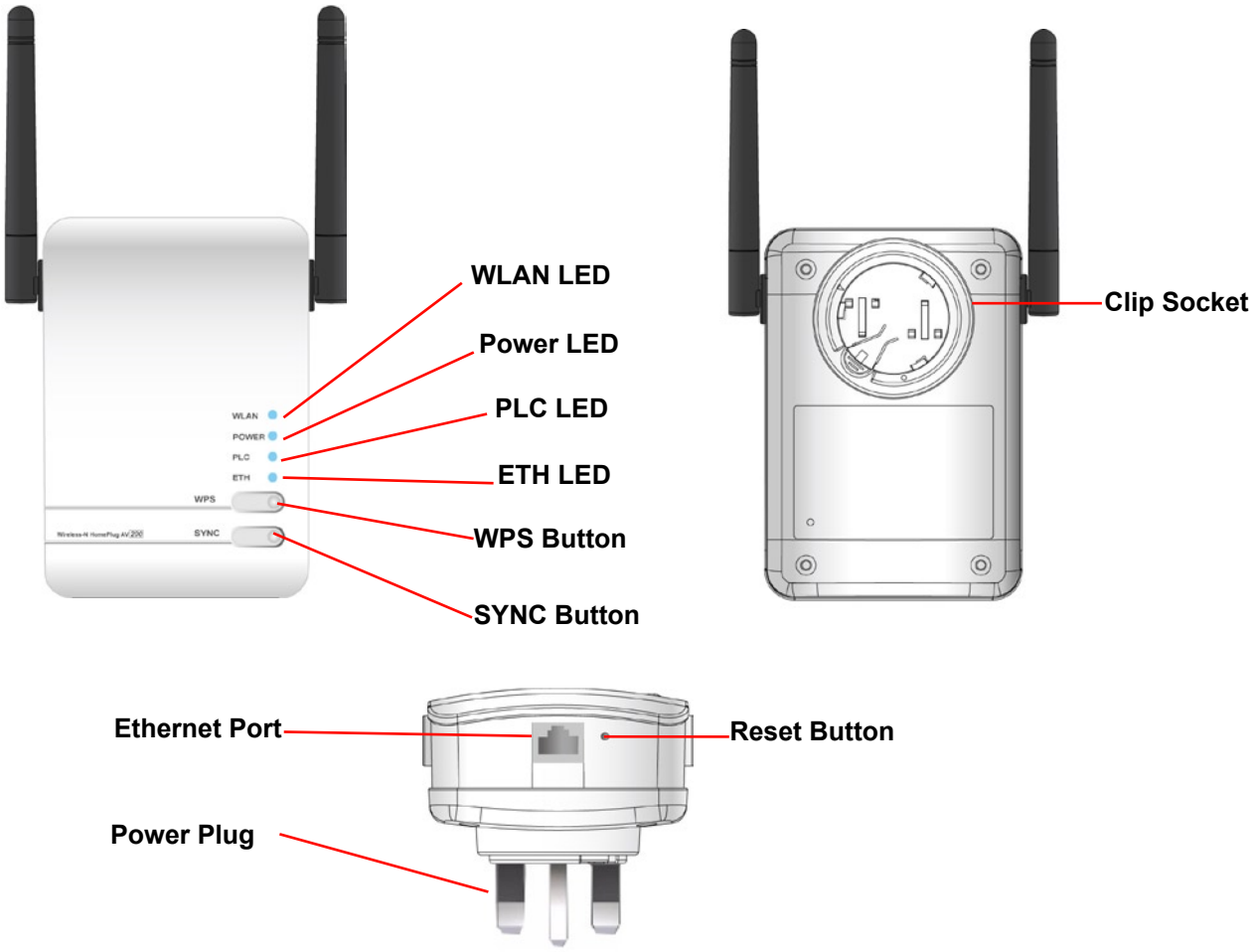
Warning

- *Do not use the adapter in high humidity or high temperatures.*
- *Do not open or repair the case yourself.*
- *Avoid using this product and all accessories outdoors.*

Attention

- *Place the adapter on a stable surface.*
- *Only "Homeplug AV" compliant Power Line Communication (PLC) adapter for remote access is necessary.*

Device Overview



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

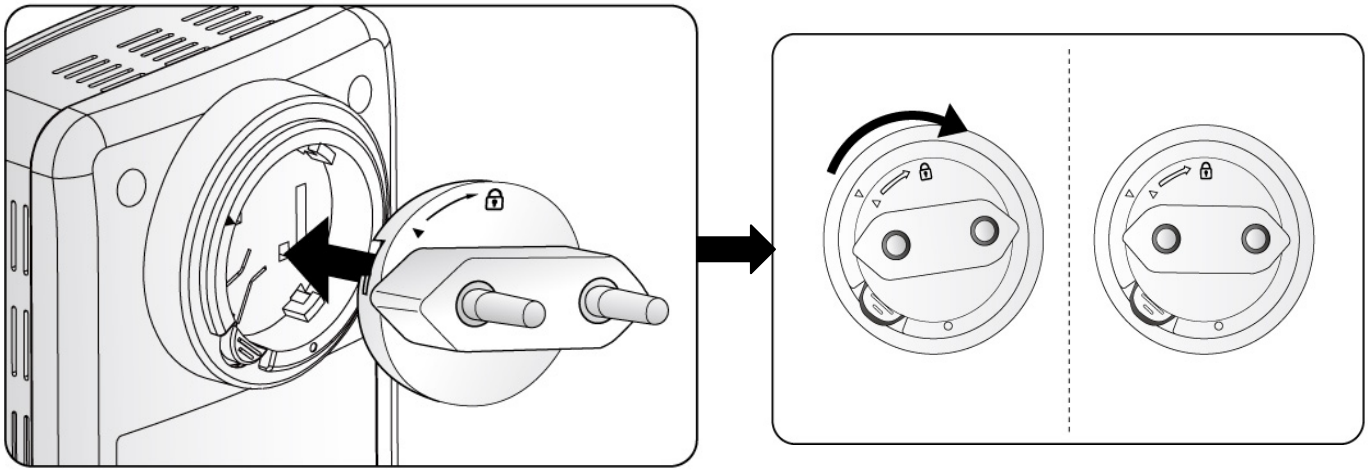
WLAN LED	Lit green when the wireless function is enabled. Blinking when data is transmitted or received. Blinking quickly when WPS is proceeded.
Power LED	Lit green when the device is power on. Lit off when power is off.
PLC (Powerline Link/Act) LED	Lit green when the power line sync is established. Blinking when networking is active.
ETH (Ethernet Link/Act) LED	Lit green when connected to an Ethernet device. Blinking when data is transmitted or received via Ethernet port.
WPS Button	Push this button to trigger Wi-Fi Protected Setup function.
Sync Button	Used to establish a LAN network with other power line devices.
Reset Button	Press this button more than 2 seconds to reset device to factory default settings.
Ethernet Port	Connect the HomePlug AV device with an Ethernet device (e.g. computer, router, hub/switch, IP pone, IPTV set-top-box, gaming consoles…), using the RJ-45 Ethernet cable included.
Power Plug / AC Power Cord	Plug into an AC outlet for power supply and to build a powerline network with other HomePlug AV devices.
Clip Socket	Install the clip into this socket. ***Note: Please DO NOT remove or disassemble the socket clip frequently as this may cause serious damage to your HomePlug AV device.***

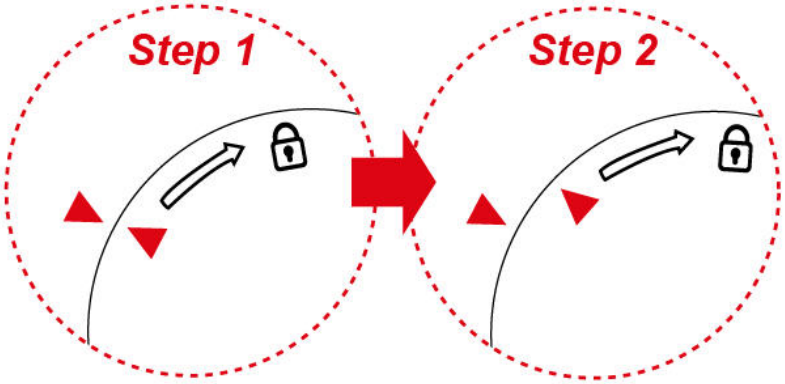
Hardware Installation

Refer to the following diagrams and direction to install the clip with Wireless-N HomePlug AV 200 Ethernet Adapter:

Example 1: EU clip

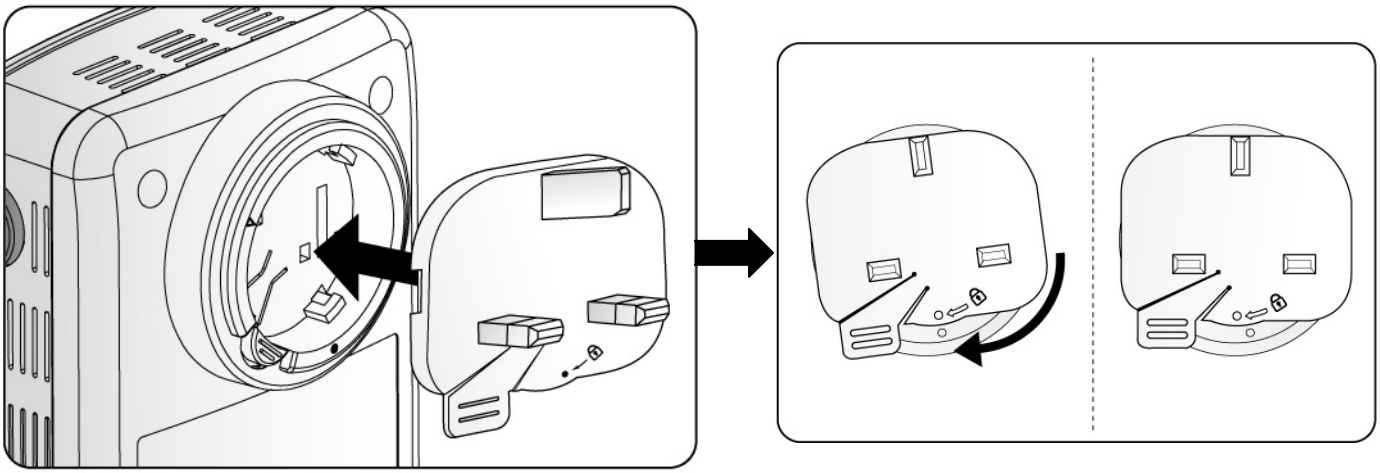
- Please check the lock instruction on your clip.
- If you got the “Triangle Lock”, refer to right diagram.

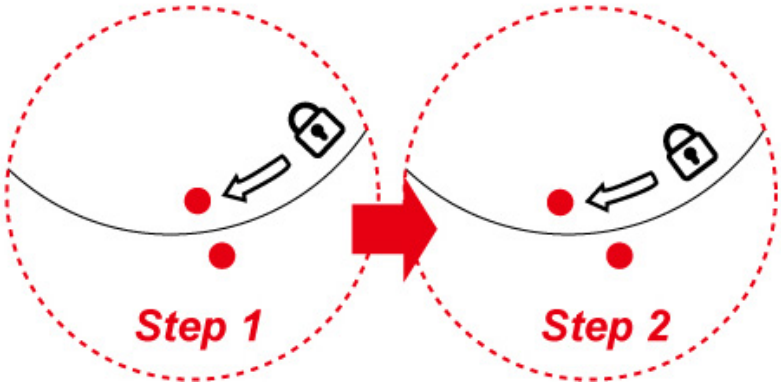




Example 2: UK clip

- Please check the lock instruction on your clip.
- If you got the “Circle Lock”, refer to right diagram.



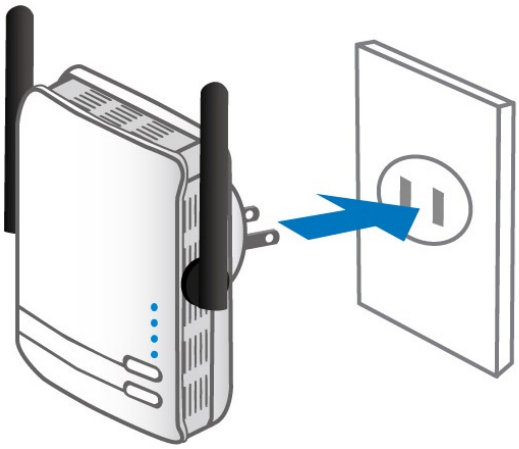


Connecting the HomePlug Adapter

It is easy to connect the device simply by performing the following instructions:

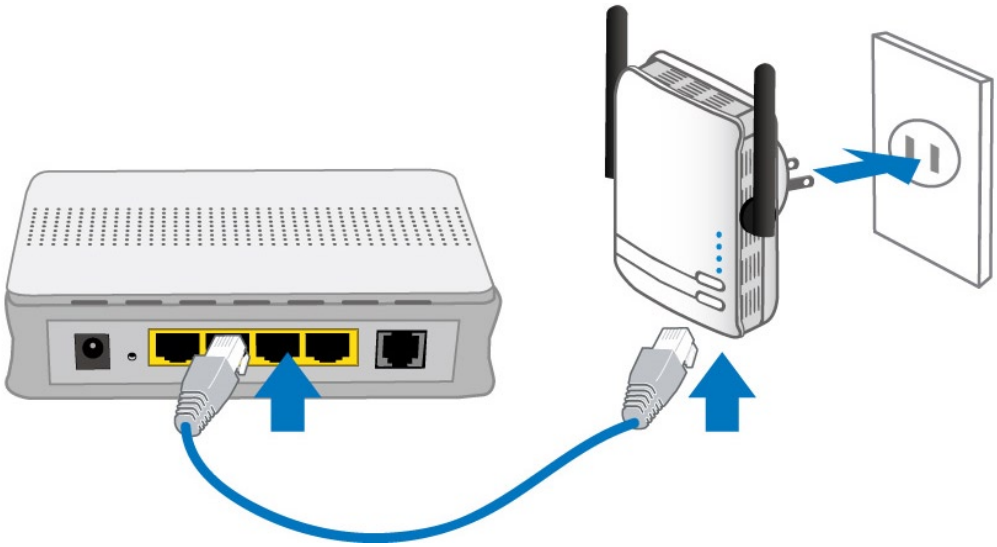
Power Connection

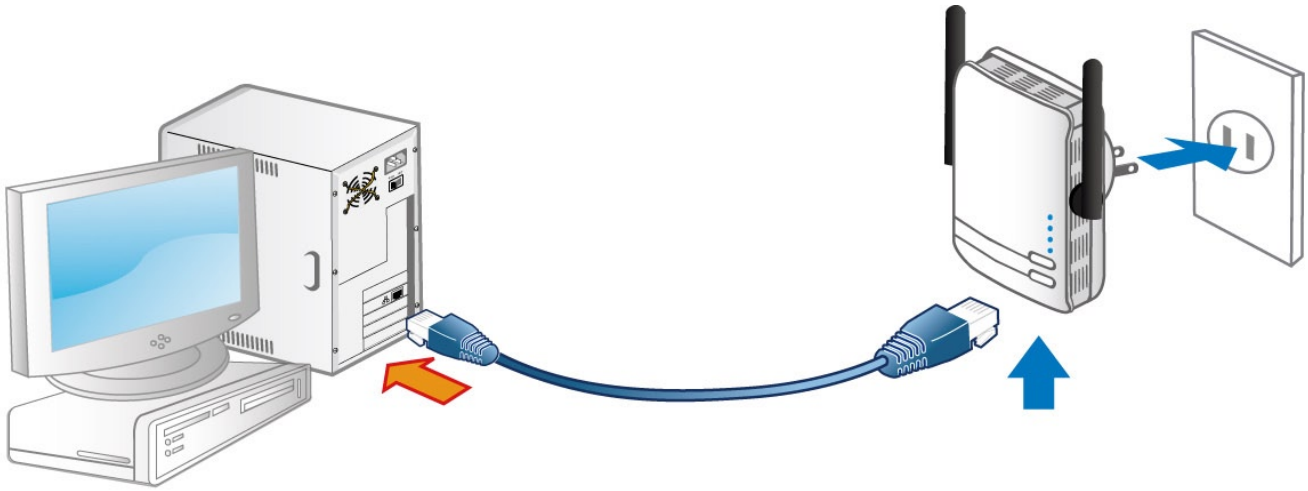
Plug the Wireless-N Homeplug AV 200 Ethernet Adapter into the wall outlet/socket.



LAN Connection

Connect the supplied RJ-45 Ethernet cable to the Ethernet port on Wireless-N HomePlug AV 200 Ethernet adapter and the other side to the device's Ethernet interface.

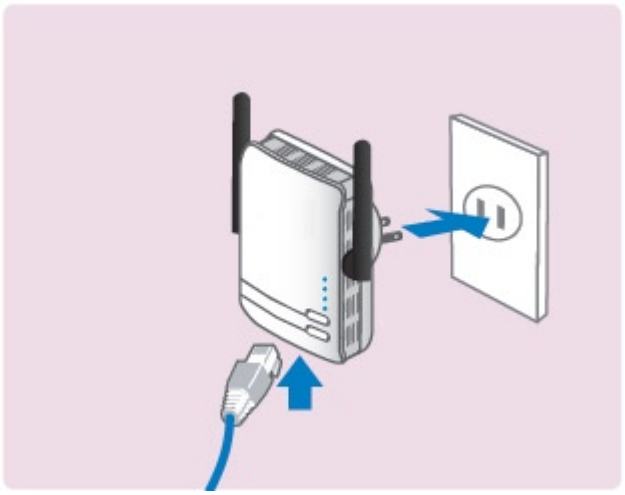




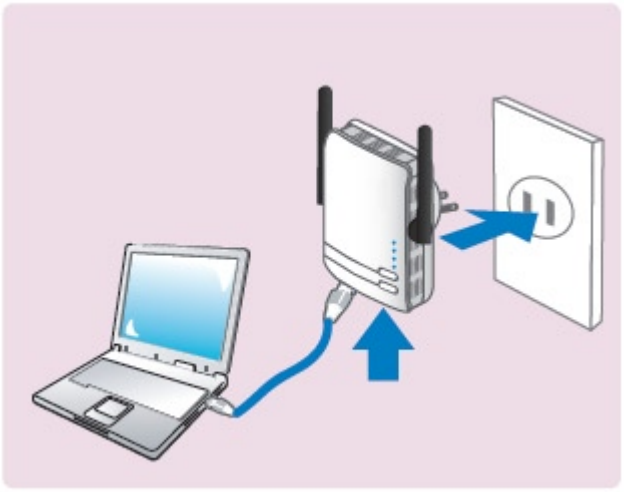
Networking Setup

Refer to the following steps:

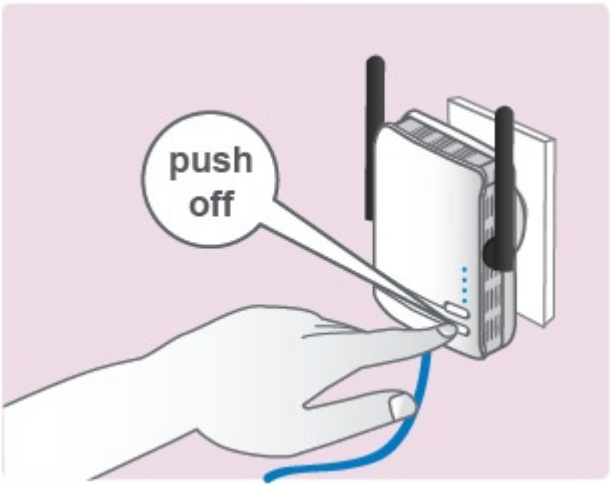
1. Connect a network cable to the bridge and then plug the Wireless-N HomePlug AV 200 Ethernet Adapter into a power socket.



2. Then connect the Wireless-N HomePlug AV 200 Ethernet Adapter to a laptop, modem, router or a set-top-box.



3. Create a secure network by a simply push off the network SYNC button.



Note: Plug/socket, power cable and input voltage/frequency may vary from country to country.

Quick Start (Setup Powerline Network)

Push Button usage

Sync Button is used to add a HomePlug device to a Powerline network or enable it to join a network by pressing the Sync Button of the device to turn it into Broadcast state or Join state. There are 3 types of Sync Button trigger states:

1. Broadcast State: Enable HomePlug AV device to provide information for another HomePlug AV device to join its powerline network group (works even if it is the only device existing within the network group).
2. Join State: This allows an ungrouped HomePlug AV device to join an existing powerline network group.
3. Ungroup State: Press the Sync Button for more than 10 seconds to detach the device from its network group.

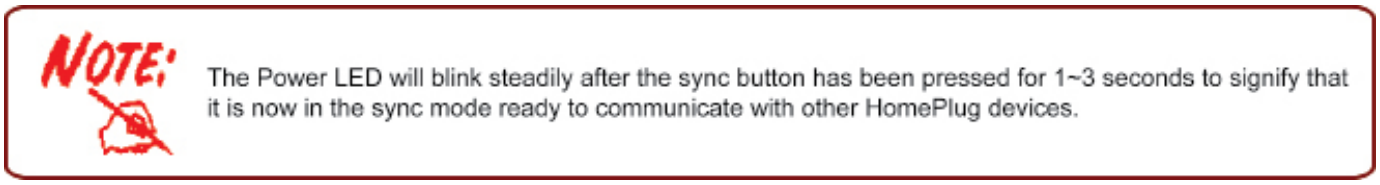
Application Scenarios

Scenario 1: A HomePlug AV device A wants to form a network group with another HomePlug AV device B

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

Example:

1. Press the Sync Button of device A for 1~3 seconds to turn it into Broadcast State, you should find the Power LED blinks steadily signifying it is in Broadcast state.
2. Press the Sync Button of device B for 1~3 seconds to turn it into Join State, you should find the Power LED blinks steadily signifying it is in Join state.
3. Wait for both devices to boot again (all LEDs will turn off and on) and when the PLC LEDs of both devices lit steadily, you will now have these devices being in the same network group.



Scenario 2: A HomePlug AV device wants to join an existing network group BC

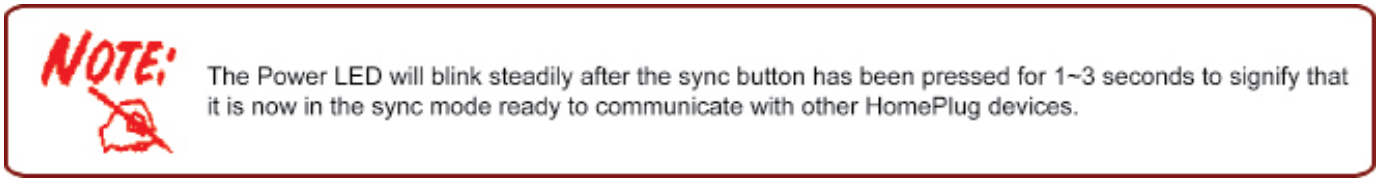
Device A wants to join a network group “BC” currently consisting of device B and device C. Any devices within the “BC” group can become the “Broadcast State” and device A will be the “Join State”.

Example:

1. Press the Sync Button of device A for more than 10 seconds to make sure that it is detached completely from any possible network group.
2. Press the Sync Button of device B or C of the BC network group for 1~3 seconds to turn it into Broadcast State, you should find the Power LED blinks steadily signifying it is in Broadcast state.

3. Press the Sync Button of device A for 1~3 seconds to turn it into Join State, you should find the Power LED blinks steadily signifying it is in Join state.
4. Wait for the devices to boot again and when the PLC LEDs of both devices lit steadily, you will now have device A joined with the BC network group.

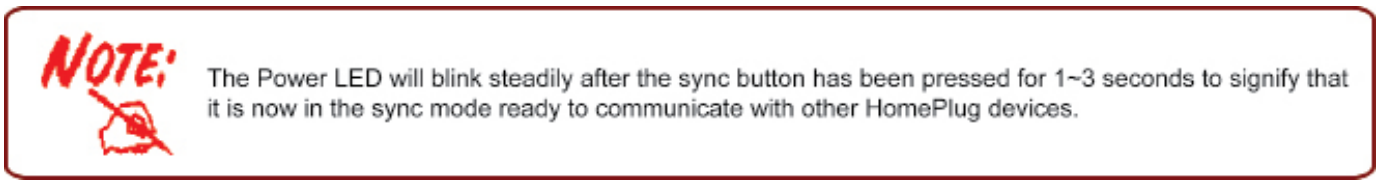
Scenario 3: A HomePlug AV device A of network group AD wants to join an existing network group BC



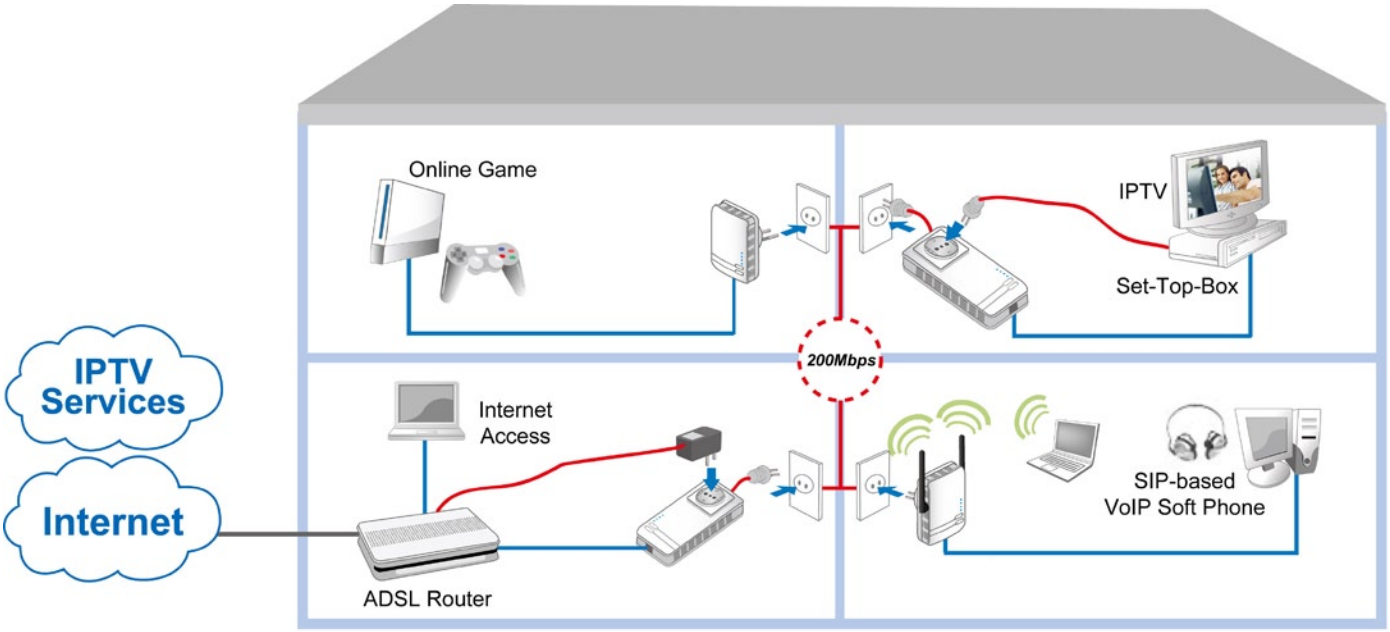
For a device which already belongs to a network group is to join with a different network group, that device has to be ungrouped from its current attached group first.

Example:

1. Press the Sync Button of device A for more than 10 seconds to ungroup it from network group AD.
2. Then press the Sync Button of device (B or C) of network group BC for 1~3 seconds to turn it to Broadcast State, you should find the Power LED blinks steadily signifying it is in Broadcast state.
3. Press the Sync Button of device A again for 1~3 seconds to turn it to Join State, you should find the Power LED blinks steadily signifying it is in Join state.
4. Wait for the Sync LED of both devices A and (B or C) lit steadily. Now you will have device A join the network group BC.



Powerline Network Illustration



▲The connected home using the HomePlug AV series

Ethernet Cable Power Cable

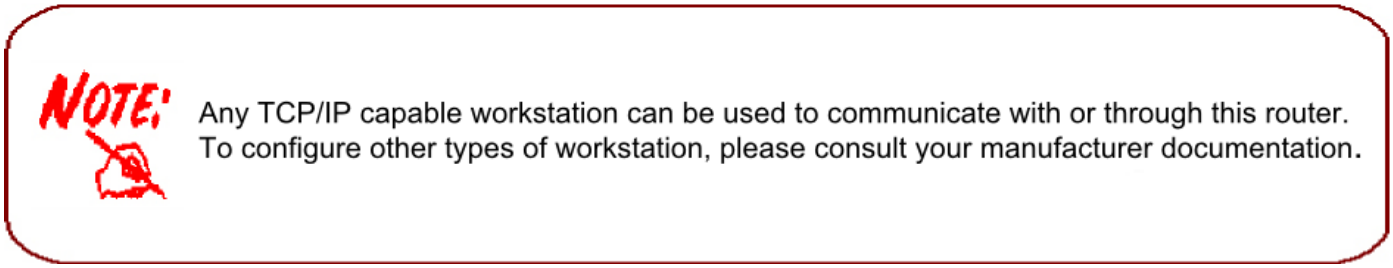
Chapter 3: Basic Network Installation

The HomePlug adapter can be configured through your web browser. A web browser is included as a standard application in the following operating systems: Linux, Mac OS, Windows 98/NT/2000/XP/ Me/Vista, etc. The product provides an easy and user-friendly interface for configuration.

Please check your PC network components. The TCP/IP protocol stack and Ethernet network adapter must be installed. If not, please refer to your Windows-related or other operating system manuals.

There are ways to connect the device, either through an external repeater hub or connect directly to your PCs. However, make sure that your PCs have an Ethernet interface installed properly prior to connecting the device. You ought to configure your PCs to obtain an IP address through a DHCP server or a fixed IP address that must be in the same subnet as the device. The default IP address of the device is 192.168.1.254 and the subnet mask is 255.255.255.0 (i.e. any attached PC must be in the same subnet, and have an IP address in the range of 192.168.1.1 to 192.168.1.253). The best and easiest way is to configure the PC to get an IP address automatically from the device using DHCP. If you encounter any problem accessing the HomePlug AV adapter web interface it is advisable to uninstall your firewall program on your PCs, as they can cause problems accessing the IP address of the device. Users should make their own decisions on what is best to protect their network.

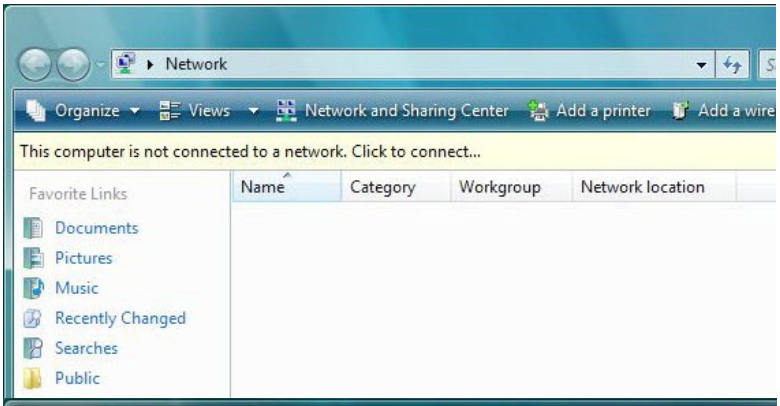
Please follow the following steps to configure your PC network environment.



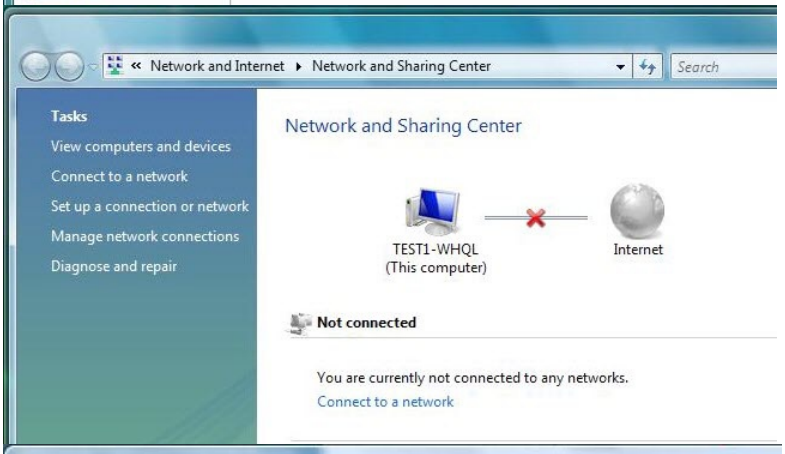
Network Configuration

Configuring PC in Windows Vista

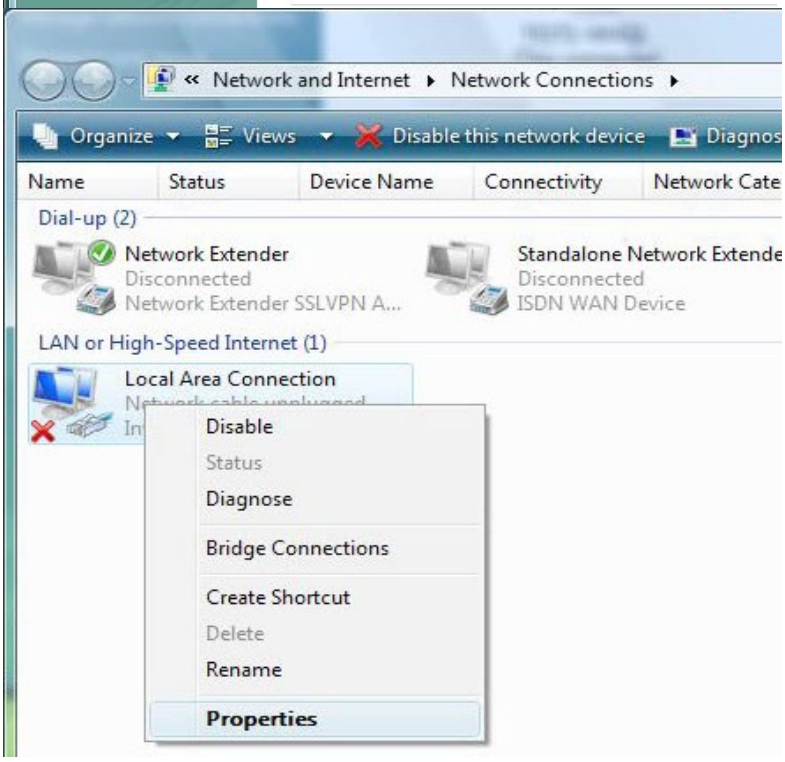
1. Go to Start. Click on Network.
2. Then click on Network and Sharing Center at the top bar.



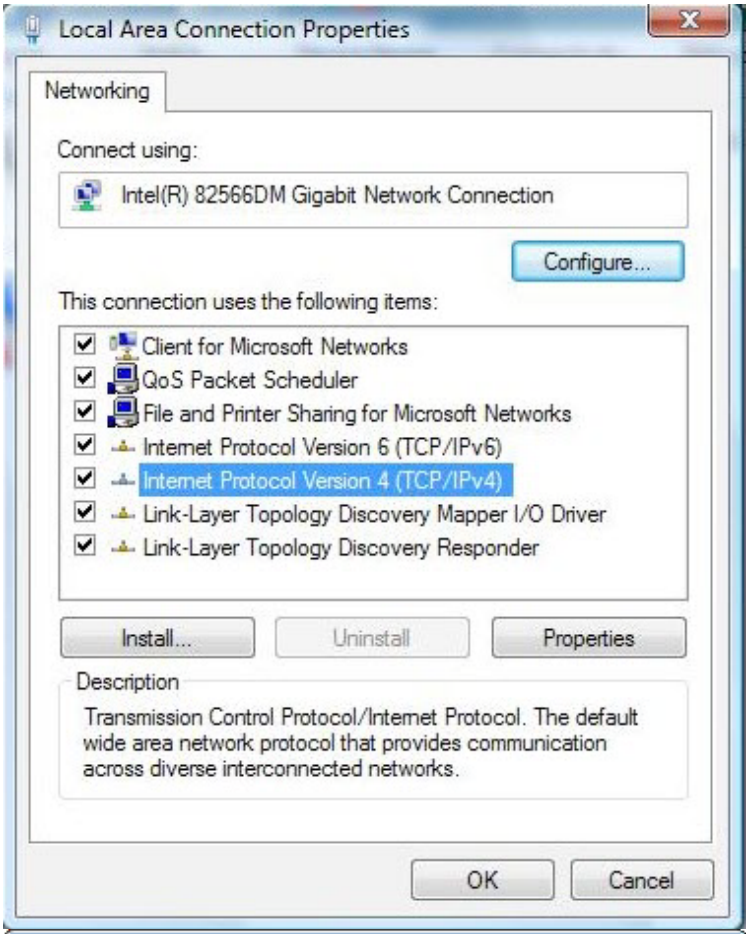
3. When the Network and Sharing Center window pops up, select and click on Manage network connections on the left window column.



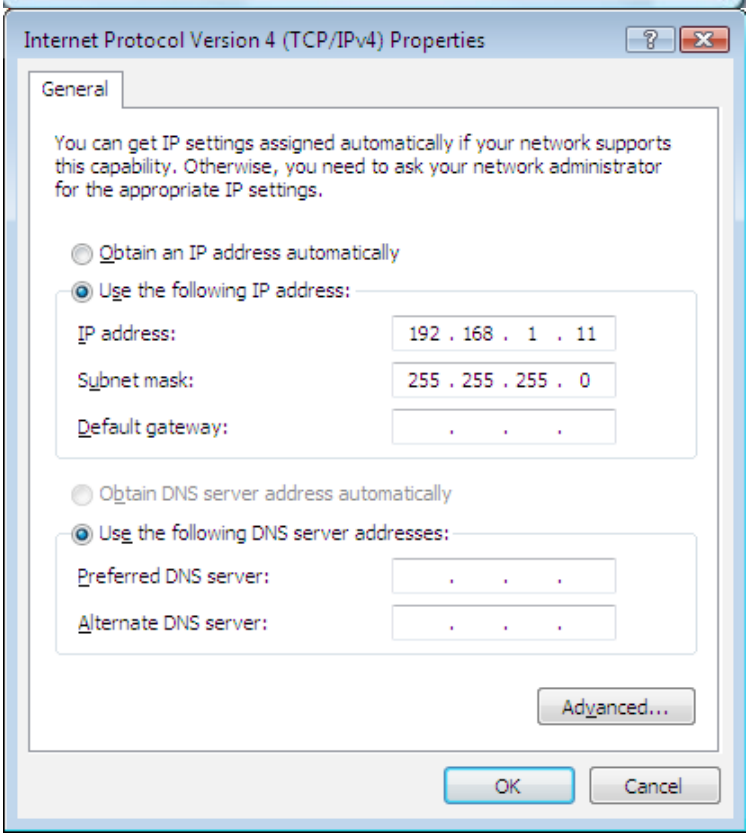
4. Select the Local Area Connection, and right click the icon to select Properties.



5. Select Internet Protocol Version 4 (TCP/IPv4) then click Properties.



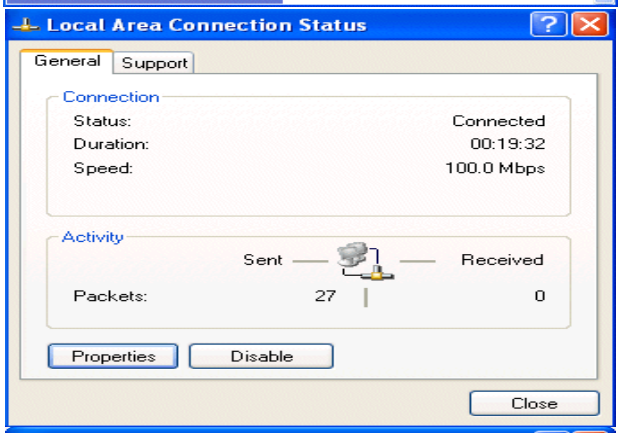
6. In the TCP/IPv4 properties window, click Use the following IP address and Use the following DNS server address radio buttons. Then click OK to exit the setting.
7. Click OK again in the Local Area Connection Properties window to apply the new configuration.



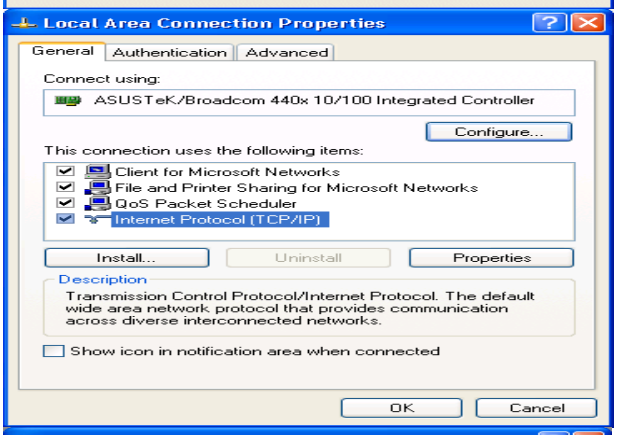
Configuring PC in Windows XP

1. Go to Start > Control Panel (in Classic View). In the Control Panel, double-click on Network Connections
2. Double-click Local Area Connection.

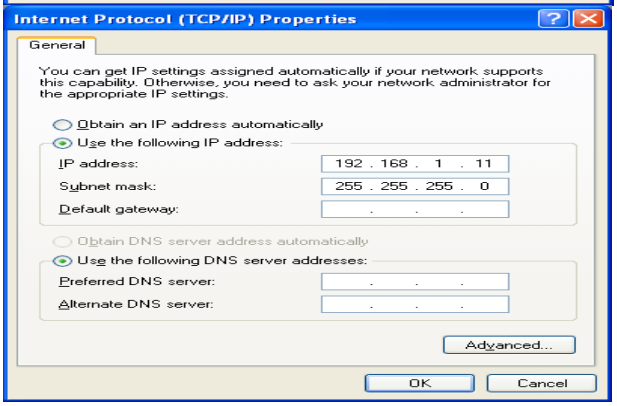
3. In the Local Area Connection Status window, click Properties.



4. Select Internet Protocol (TCP/IP) and click Properties.

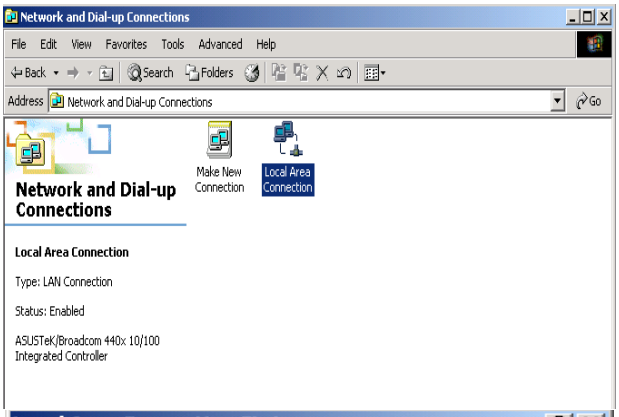


5. Click Use the following IP address and Use the following DNS server address radio buttons.
6. Click OK to finish the configuration.

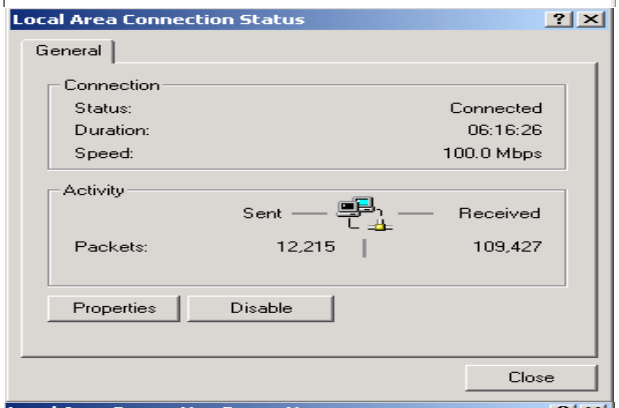


Configuring PC in Windows 2000

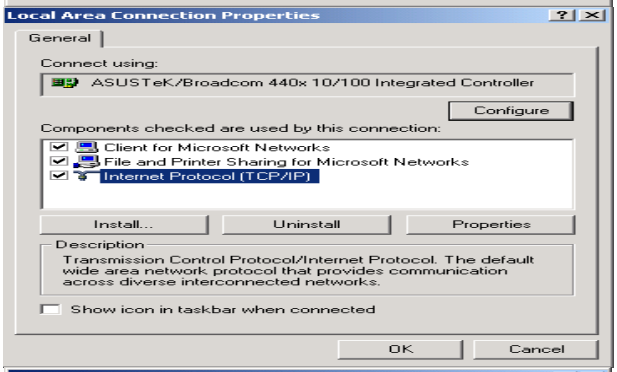
1. Go to Start > Settings > Control Panel. In the Control Panel, double-click on Network and Dial-up Connections.
2. Double-click Local Area Connection.



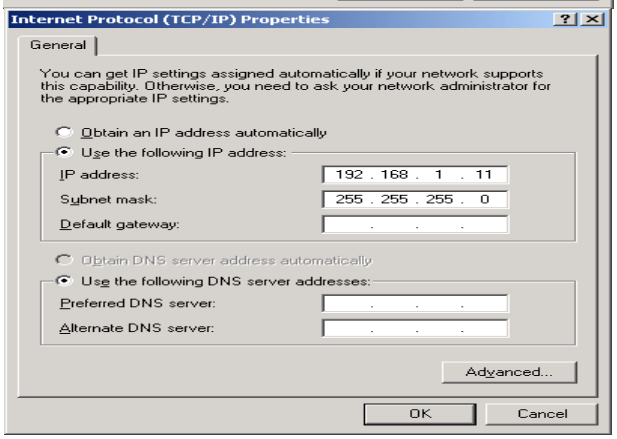
3. In the Local Area Connection Status window click Properties.



4. Select Internet Protocol (TCP/IP) and click Properties.

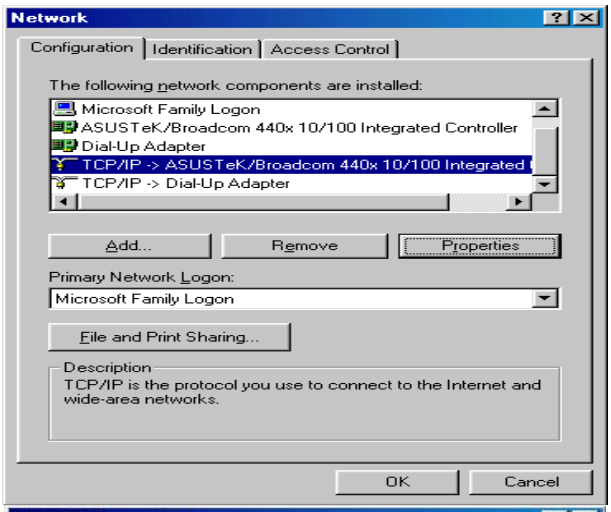


5. Click Use the following IP address and Use the following DNS server address radio buttons.
6. Click OK to finish the configuration.

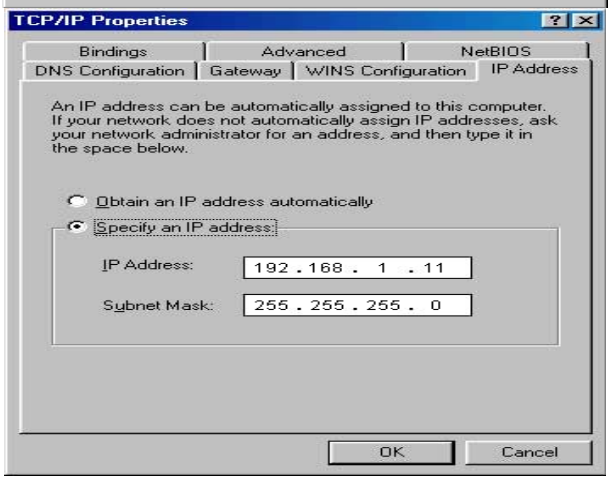


Configuring PC in Windows 95/98/Me

1. Go to Start > Settings > Control Panel. In the Control Panel, double-click on Network and choose the Configuration tab.
2. Select TCP/IP > NE2000 Compatible, or the name of your Network Interface Card (NIC) in your PC.

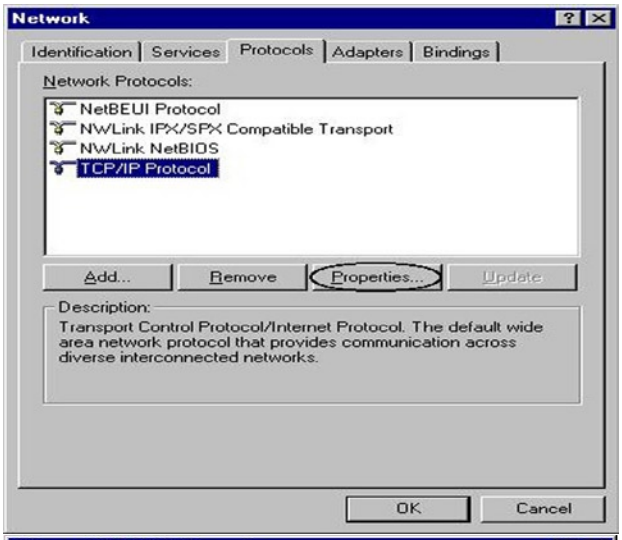


3. Click Specify an IP address radio button.
4. Click OK to finish the configuration.

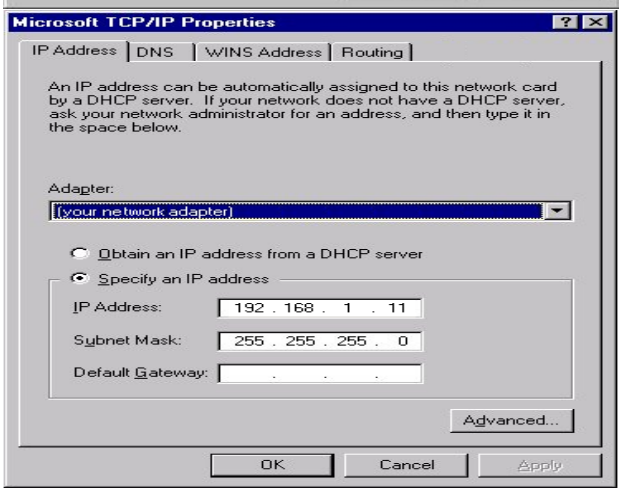


Configuring PC in Windows NT4.0

1. Go to Start > Settings > Control Panel. In the Control Panel, double-click on Network and choose the Protocols tab.
2. Select TCP/IP Protocol and click Properties.



3. Click Specify an IP address radio button.
4. Click OK to finish the configuration.



Factory Default Settings

Before configuring your adapter, you need to know the following default settings.

Web Interface (Username and Password)

- Username: admin
- Password: admin

The default username and password are “**admin**” and “**admin**” respectively.

Device LAN IP settings

- IP Address: 192.168.1.254
- Subnet Mask: 255.255.255.0

DHCP server

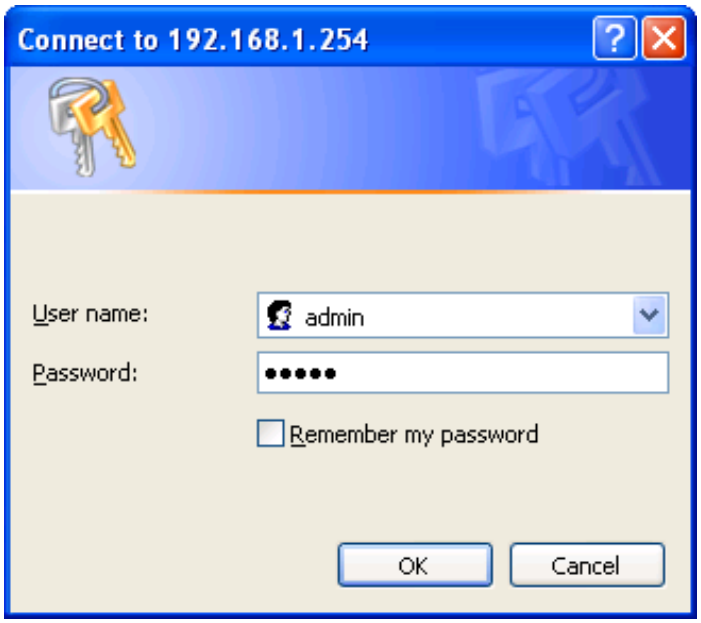
- DHCP server is disabled.
- Start IP Address: 192.168.1.100
- IP pool counts: 101

Internet Access Configuration

To configure this device for internet access, you must have IE 5.0 / Netscape 4.5 or above installed on your computer. There is basically one way to configure your device before you are able to connect to the internet: **Web Interface**. Configuration of this method will be discussed in detail in the following section.

Configuring with your Web Browser

Open your web browser, enter the IP address of your Ethernet Adapter which by default is 192.168.1.254, and click “Go”. A user name and password window prompt will appear. The default username and password are “admin” and “admin”.



Congratulations! You are now successfully logon to the Wireless-N HomePlug AV 200 Ethernet Adapter!

If the authentication succeeds, the homepage will appear on the screen.

Chapter 4: Configuration

Once you have logged on to your adapter GUI via your web browser, you can begin to configure the device according to your needs. On the configuration homepage, the left navigation pane provides the links to different setup pages.

- **Status (Status / Statistic)**
- **Internet Setting (LAN)**
- **Wireless Settings (Basic / Security / Advanced / WPS / Station List)**
- **Power Line Settings (Status / Privacy / Qos)**
- **Administration (Mamagement / Upload Firmware / Settings Mamagement / System Log)**

Each of these setup pages will be discussed in detail in sections that follow ahead.

Status

Status

System Information

Firmware Version: Displays the firmware version for this device.

System Up Time: Records system up-time.

LAN

LAN IP Address: The current IP on this device.

LAN Netmask: The current subnet mask on this device.

Note: Click the LAN IP Address or LAN Netmask link to change the settings.

LAN MAC Address: The MAC address for the device.

Wireless LAN

WLAN Service: Status of the WLAN connection.

SSID: A unique name used to identify the wireless LAN to which a user wants to connect.

Channel: The current status in WAN interface.

Note: Click the WLAN Service, SSID or Channel link to change the settings.

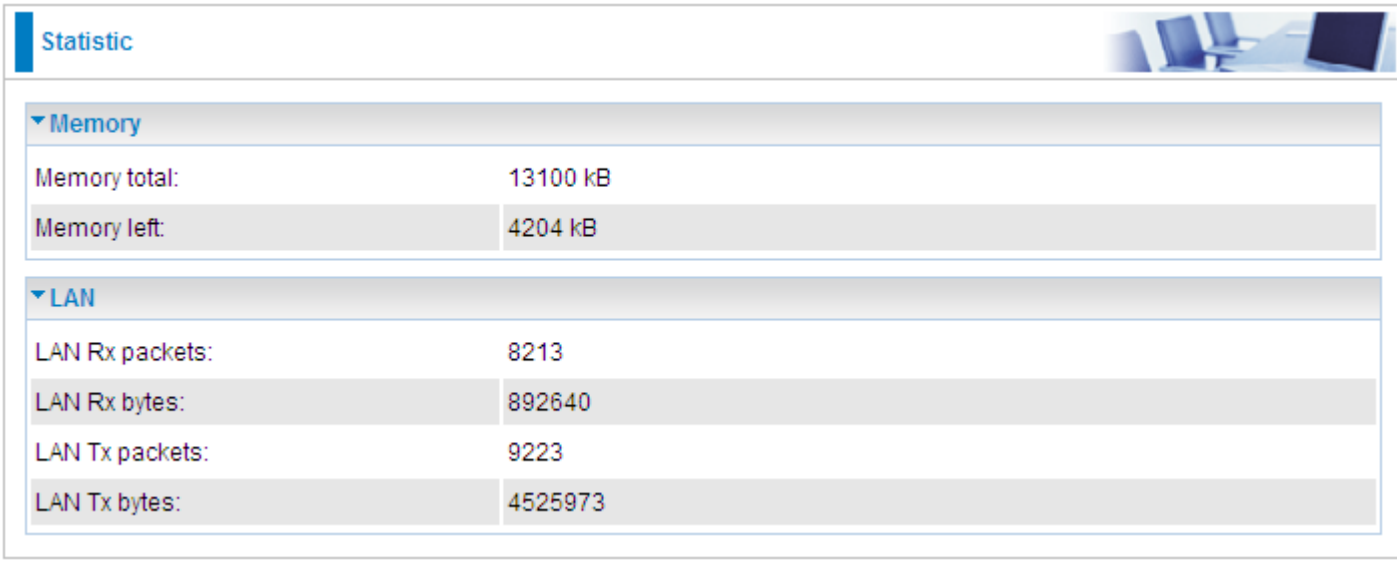
Power Line

Power Line Service: State of power line.

Connected Device: Displays the number of the remote power line device(s).

Note: Click the Power Line Service or Connected Device link to display the power line information.

Statistic



Memory

Memory total: Displays the total memory size of the device (in bytes).

Memory left: Displays the amount of memory left (in bytes).

LAN

LAN Rx packets: Displays the number of received packets.

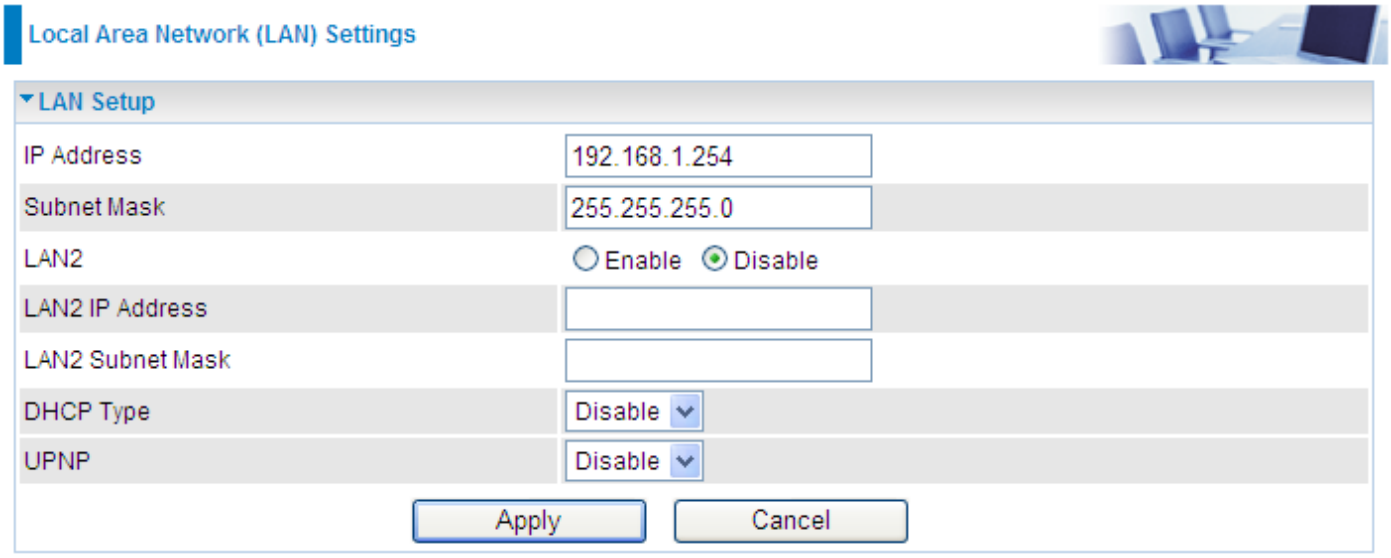
LAN Rx bytes: Displays the received packet traffic (in bytes).

LAN Tx packets: Displays the number of transferrd packets.

LAN Tx bytes: Displays the transferrd packet traffic (in bytes)

Internet Setting

LAN



IP Address: Enter the preferred IP address. Default is 192.168.1.254.

Subnet Mask: Enter the preferred subnet mask. Default is 255.255.255.0.

LAN2: This function enables the creation of multiple virtual IP interfaces for this device. It helps to connect two or more local networks to the ISP or remote node. In this case, an internal device is not required. Default setting is **Disable**. If you want to active IP Alias function, please select **Enable**.

LAN2 IP Address: Specify an IP address for this virtual interface.

LAN2 Subnet Mask: Specify a subnet mask for this virtual interface.

DHCP Type: You can disable or enable the function with DHCP server. The default type is **Disable**. The configuration of each item is described in DHCP Server section.

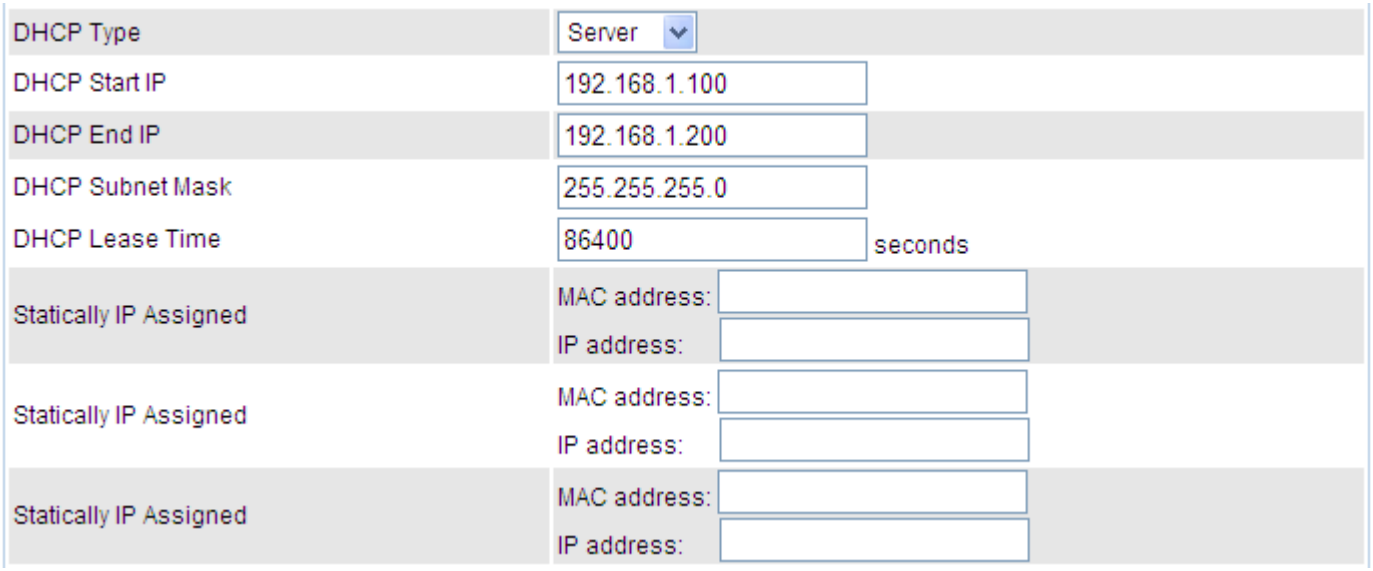
UPNP: UPnP offers peer-to-peer network connectivity for PCs and other network devices, along with the feature to control data transfer between devices. Default is **Disable**.

- **Enable:** Select to inactive the device's UPnP functionality.
- **Disable:** Select to active the device's UPnP functionality.

Click **Apply** to save the changes or **Cancel** to recover the default setting.

DHCP Server

DHCP allows networked devices to obtain information on the parameter of IP, Netmask, and so forth through the Ethernet Address of the device.



DHCP Type: To configure the device's DHCP Server, select Server from the DHCP Type drop-down menu and you can then configure parameters of the DHCP Server.

DHCP Start IP/ End IP: Enter the starting and ending IP address of the range of IP addresses that you want the DHCP server to assign to DHCP clients. The default DHCP IP range is 192.168.1.100 to 192.168.1.200.

DHCP Subnet Mask: Enter the subnet mask for the network address that you specified. The default is 255.255.255.0.

DHCP Lease Time: Enter the time value (in seconds) that you want the assigned IP address to be valid for. The DHCP client must obtain a new IP address from the DHCP server when this value expires.

Statically IP Assigned: You can map the MAC address for stations that you want to always be assigned the same IP address. Mapped IP addresses must be outside the DHCP start/end IP range. You can configure up to 3 sets of MAC and IP addresses in this table.

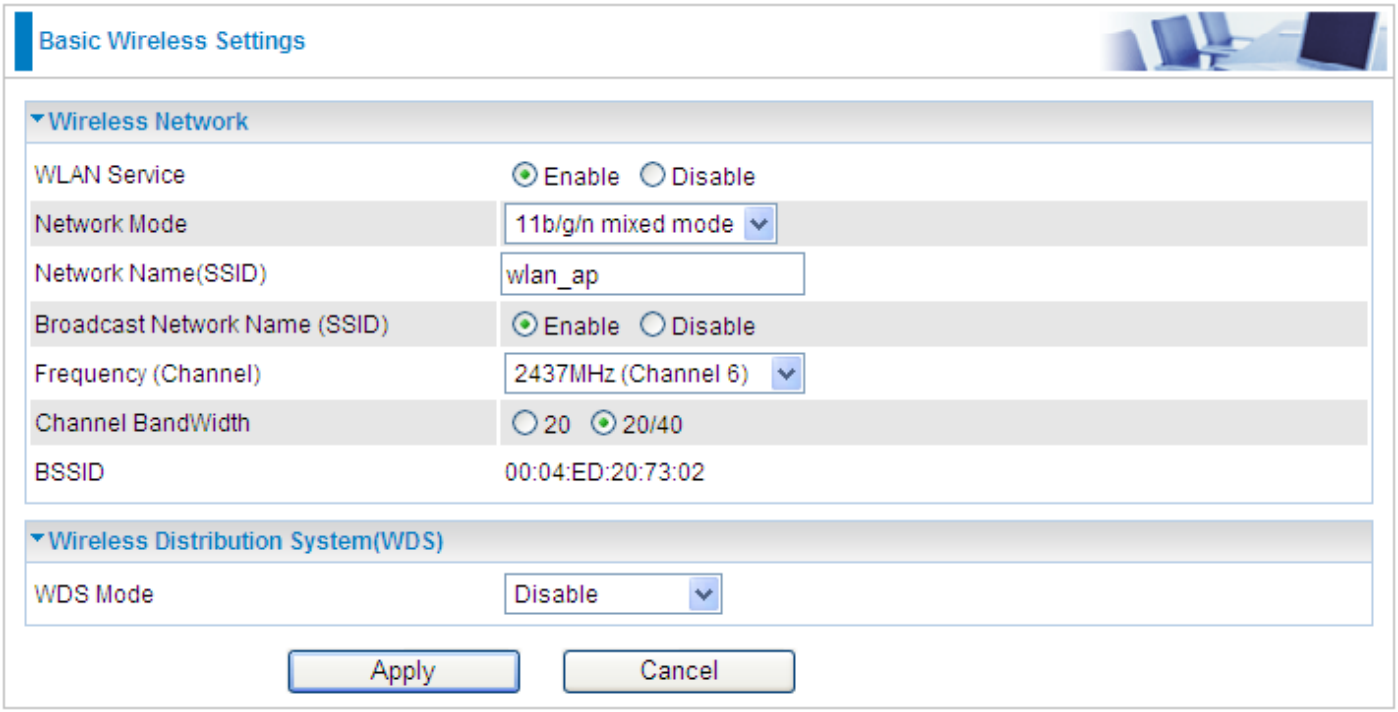
Wireless Settings

When you click this item, the column will expand to display the sub-items that will allow you to configure your wireless settings.

Basic, **Security**, **Advanced**, **WPS** and **Station List**

The function of each configuration sub-item is described in the following sections.

Basic Wireless Settings



Wireless Network

WLAN Service: Default setting is Enable. If you do not have any wireless, select Disable.

Network Mode: The default setting is **11b/g/n mixed mode**. If you do not know or have both 11b, 11g and 11b devices in your network, please left this mode selected. If you have only 11b card, please select 11b only from the drop-down menu. If you have only 11g card, please select 11g only from the drop-down menu. If you have both 11b and 11g card, please select 11b/g mixed mode.

Network Name (SSID): The SSID is the unique name of a wireless access point (AP) used to distinguish one from another. For security purpose, you should change the default SSID to a unique ID name that is difficult to guess. Make sure your wireless clients have exactly the SSID as the device in order to connect to your network.

Note: It is case sensitive and can be up to 32 characters.

Broadcast Network Name (SSID): It is used to broadcast its SSID on the network so that when a wireless client searches for a network, the device can be discovered and recognized. Default setting is **Disable.**

- **Enable:** When enabled, you hide the SSID and the AP does not broadcast the SSID. In other words, no one will be able to locate the access point (AP) of your device.
- **Disable:** When disabled, anybody with a wireless client is allowed to be able to locate the access point (AP) of your device.

Frequency Channel: Select the wireless connection ID channel that you would like to use.

Note: Wireless performance may degrade if the selected ID channel is already being occupied by other AP(s).

Channel Bandwidth: Select either 20 MHz or 20/40 MHz for the channel bandwidth. The higher the bandwidth the better the performance will be.

BSSID: Displays the MAC address of the device.

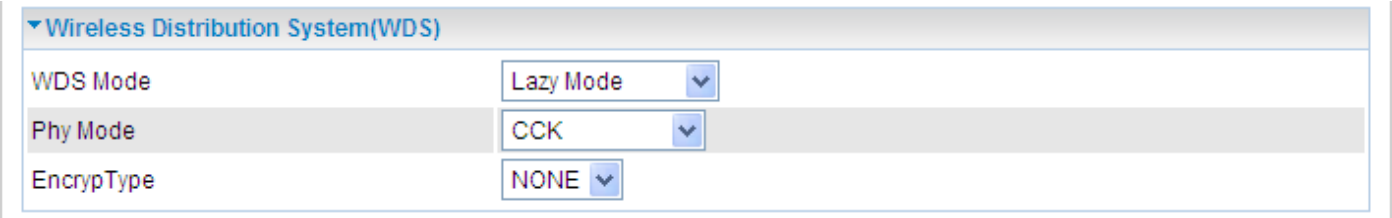
Rate: Available when 11b/g mixed mode, 11b only and 11g are selected in Network Mode. Select the data transmission rate from the drop-down menu. Default is **Auto**.

Wireless Distribution System (WDS)

It is a wireless access point mode that enables wireless link and communication with other access points. It is easy to install simply by defining the peer's MAC address of the connected AP. WDS takes advantage of the cost saving and flexibility which no extra wireless client device is required to bridge between two access points and extending an existing wired or wireless infrastructure network to create a larger network.

WDS Mode: You can disable or enable the WDS functionality. Default setting is **Disable**.

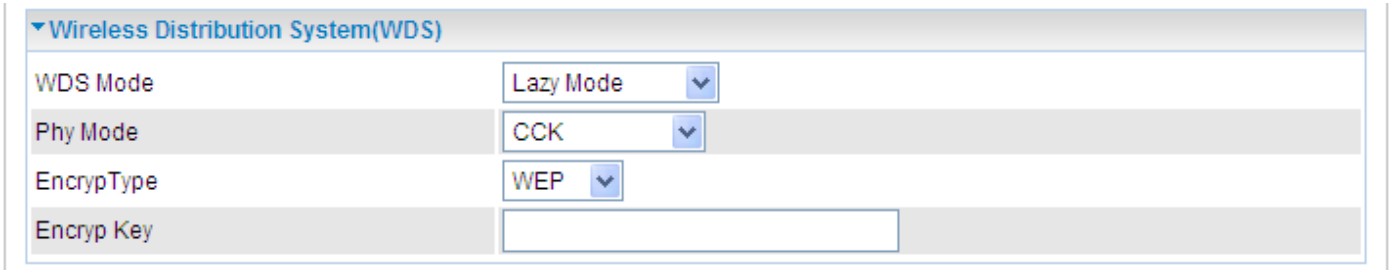
Lazy Mode



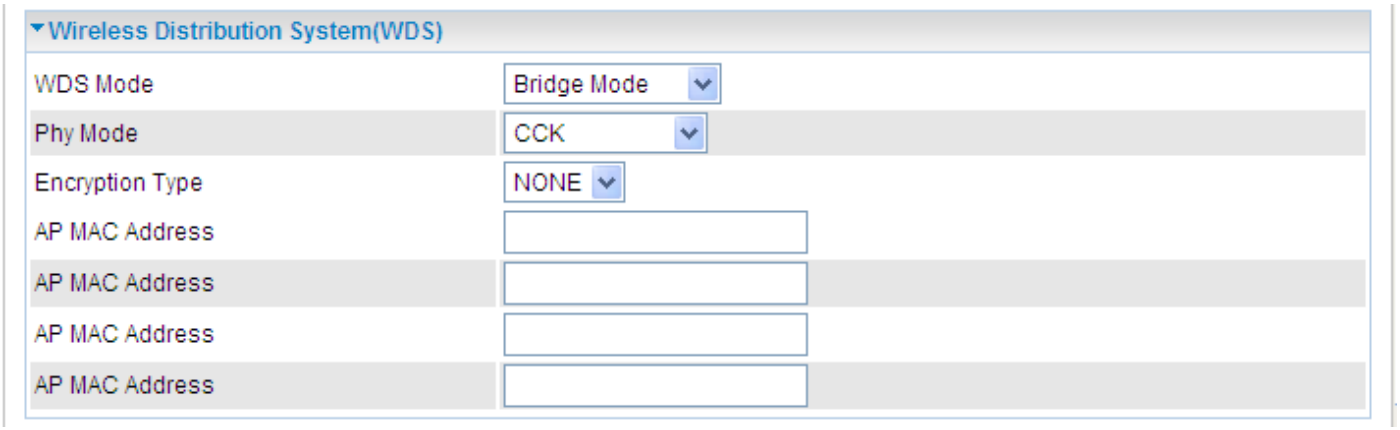
WDS Mode: Select Lazy Mode from the drop-down menu. In this case, WDS peers can be auto-detected.

Phy Mode: Select the appropriate mode from the drop-down menu. There are 4 options: CCK, OFDM, HTMIX and GREENFIELD.

Encryp Type: You can select None or other types: WEP, TKIP or AES. When WEP, TKIP or AES is seleted, the Encryp Key field will display to allow you to set an encryption key.



Bridge Mode



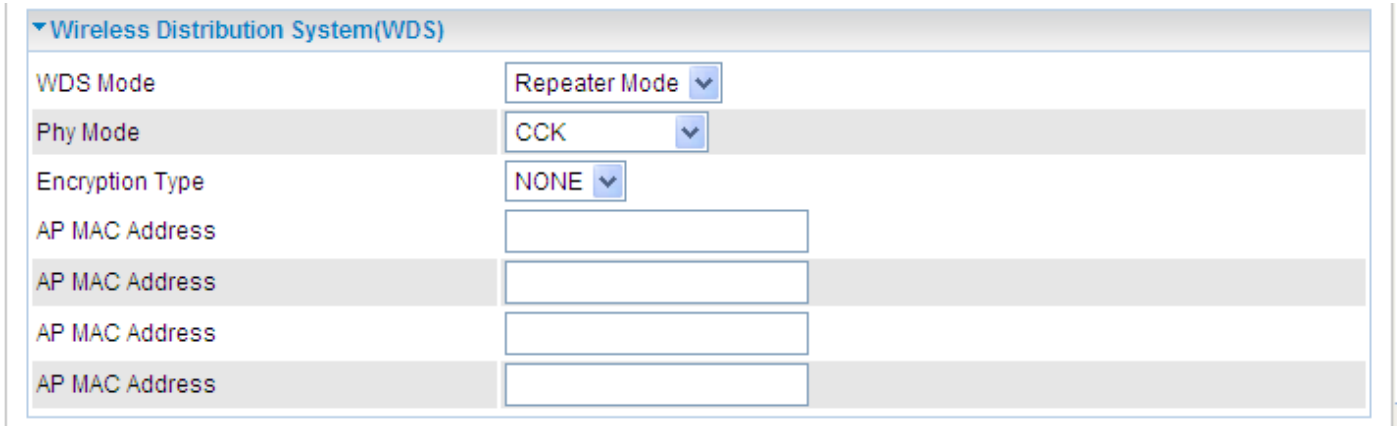
WDS Mode: Select Bridge Mode from the drop-down menu. In this case, AP adapter acts as a wireless bridge and will not respond to wireless requests.

Phy Mode: Select the appropriate mode from the drop-down menu. There are 4 options: CCK, OFDM, HTMIX and GREENFIELD.

Encryp Type: You can select None or other types: WEP, TKIP or AES. When WEP, TKIP or AES is seleted, the Encryp Key field will display to allow you to set an encryption key.

AP MAC Address: Enter the associated AP's MAC Address(es) in this feild and the following fields. It is important that your peer's AP must include your MAC address in order to acknowledge and communicate with each other.

Repeater Mode



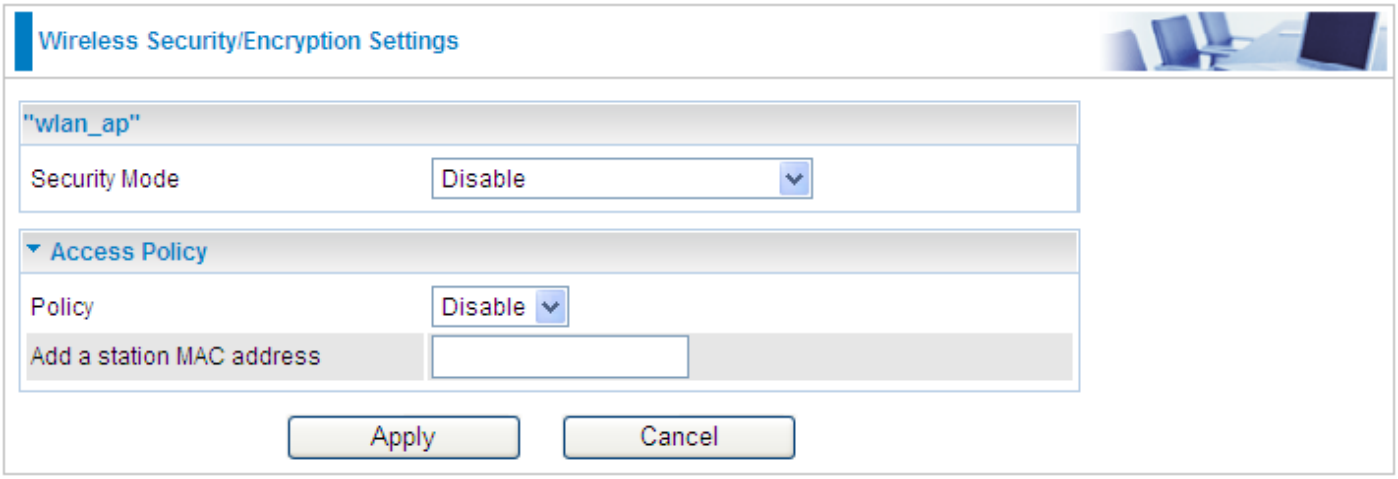
WDS Mode: Select Repeater Mode from the drop-down menu. In this case, AP adapter acts as a repeater and interconnects between access points.

Phy Mode: Select the appropriate mode from the drop-down menu. There are 4 options: CCK, OFDM, HTMIX and GREENFIELD.

Encryp Type: You can select None or other types: WEP, TKIP or AES. When WEP, TKIP or AES is seleted, the Encryp Key field will display to allow you to set an encryption key.

AP MAC Address: Enter the associated AP's MAC Address(es) in this feild and the following fields. It is important that your peer's AP must include your MAC address in order to acknowledge and communicate with each other.

Wireless Security/Encryption Settings



Security Mode: You can disable or enable the wireless security function using WEP or WPA for wireless network protection. The default mode of wireless security is disabled. Please refer to the Security Mode section for detail description.

Access Policy

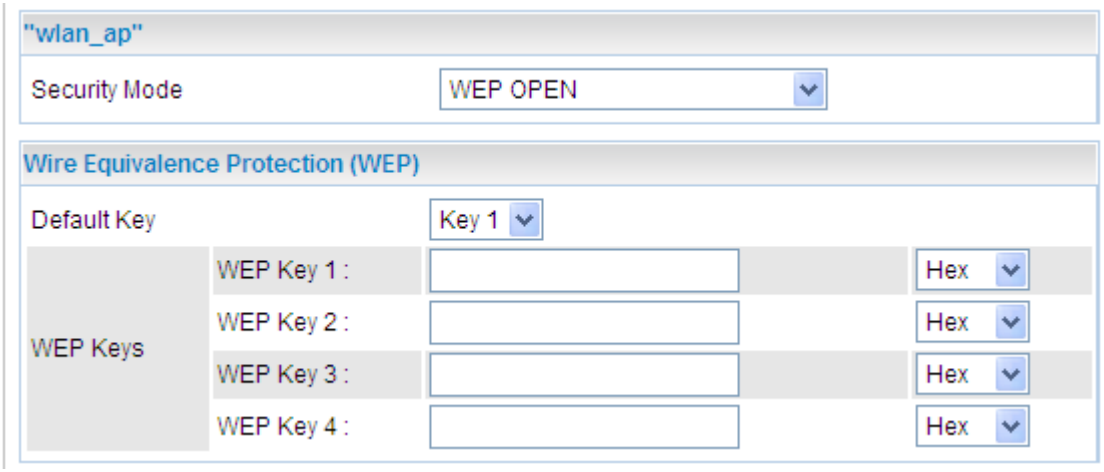
Policy: Select from the drop-down menu to choose whether the entered MAC Address should be allowed to pass (Allow) or to be blocked (Reject).

Note: When the Policy is selected Allow, all the MAC addresses you entered in the Add a station MAC address field will be pass; when the Policy is selected Reject, all the MAC addresses you entered in the Add a station MAC address field will be blocked.

Add a station MAC address: Enter the MAC address of the wireless client.

Secuirty Mode

WEP OPEN / WEP SHARED / WEP AUTO



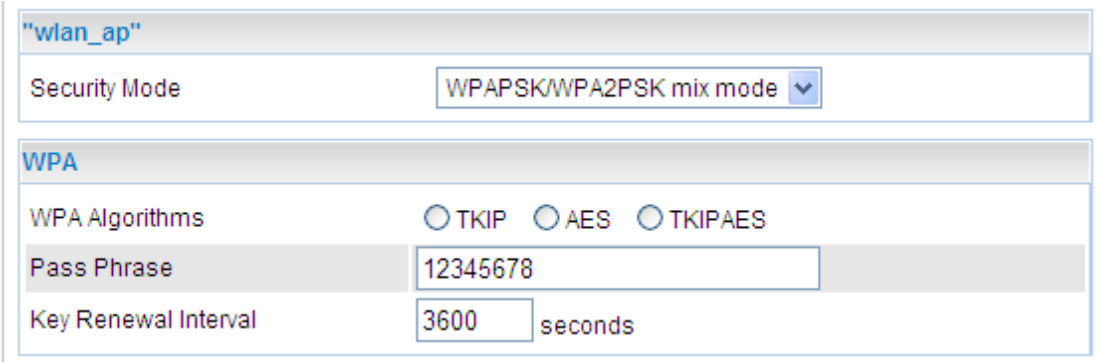
Security Mode: Select WEP OPEN, WEP SHARED or WEP AUTO from the drop-down menu.

Wire Equivalence Protection (WEP)

Default Key: Select the encryption key ID.

WEP Keys (1~4): Enter the key to encrypt wireless data. To allow encrypted data transmission, the WEP Encryption Key values on all wireless stations must be the same as the device. There are four keys for your selection. The input format is in Hex or ASCII style, 5 and 13 ASCII codes are required for WEP64 and WEP128 or 10 and 26 Hex codes are required for WEP64 and WEP128 respectively.

WPA-PSK / WPA2-PSK / WPAPSK/WPA2PSK mix mode



Security Mode: Select WPA-PSK or WPA2-PSK from the drop-down menu.

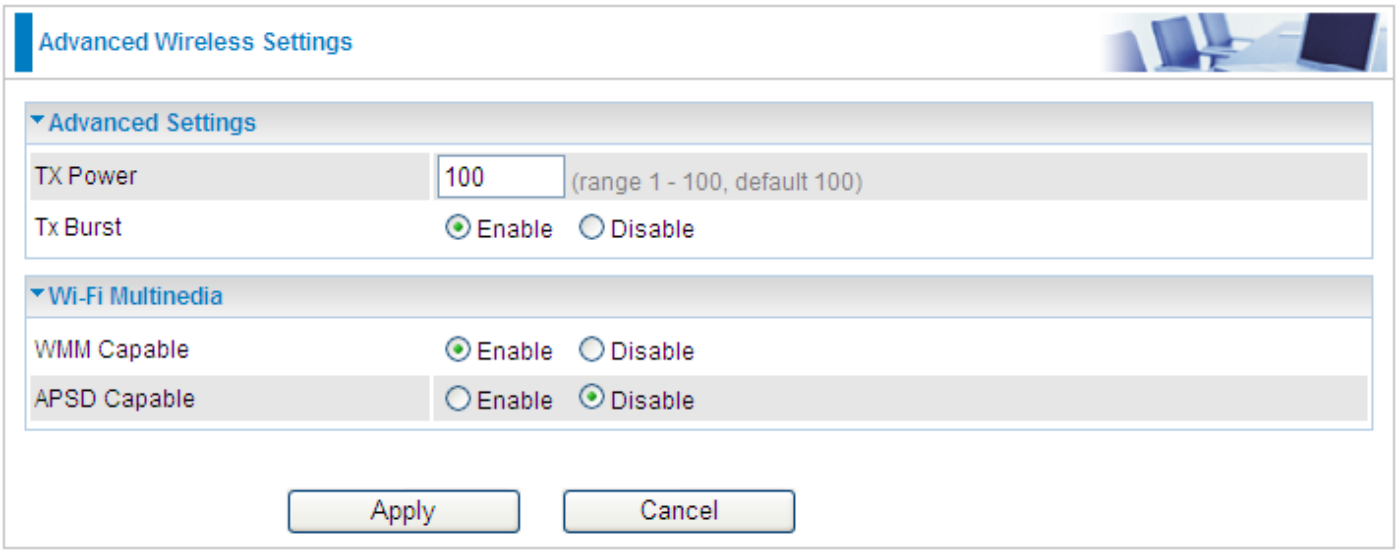
WPA

WPA Algorithms: There are 3 types of the TKIP, AES & TKIPAES (not available in WPA-PSK mode).

Pass Phrase: Enter a pass phrase to access the network. It can be a password like “12345678” or a pass phrase, from 8 to 63 case-sensitive characters.

Key Renewal Interval: The period of renewal time (in seconds) for changing the security key automatically between wireless client and Access Point (AP). Default value is 3600 seconds.

Advanced Wireless Settings



Advanced Settings

TX Power: TX Power measurement that enhances the wireless transmission signal strength. You can adjust this power level from minimum (0) to maximum (100). Default is 100.

Tx Burst: This feature is used to active the transmitted time slot to increase transmission throughput. Default is **Enable**.

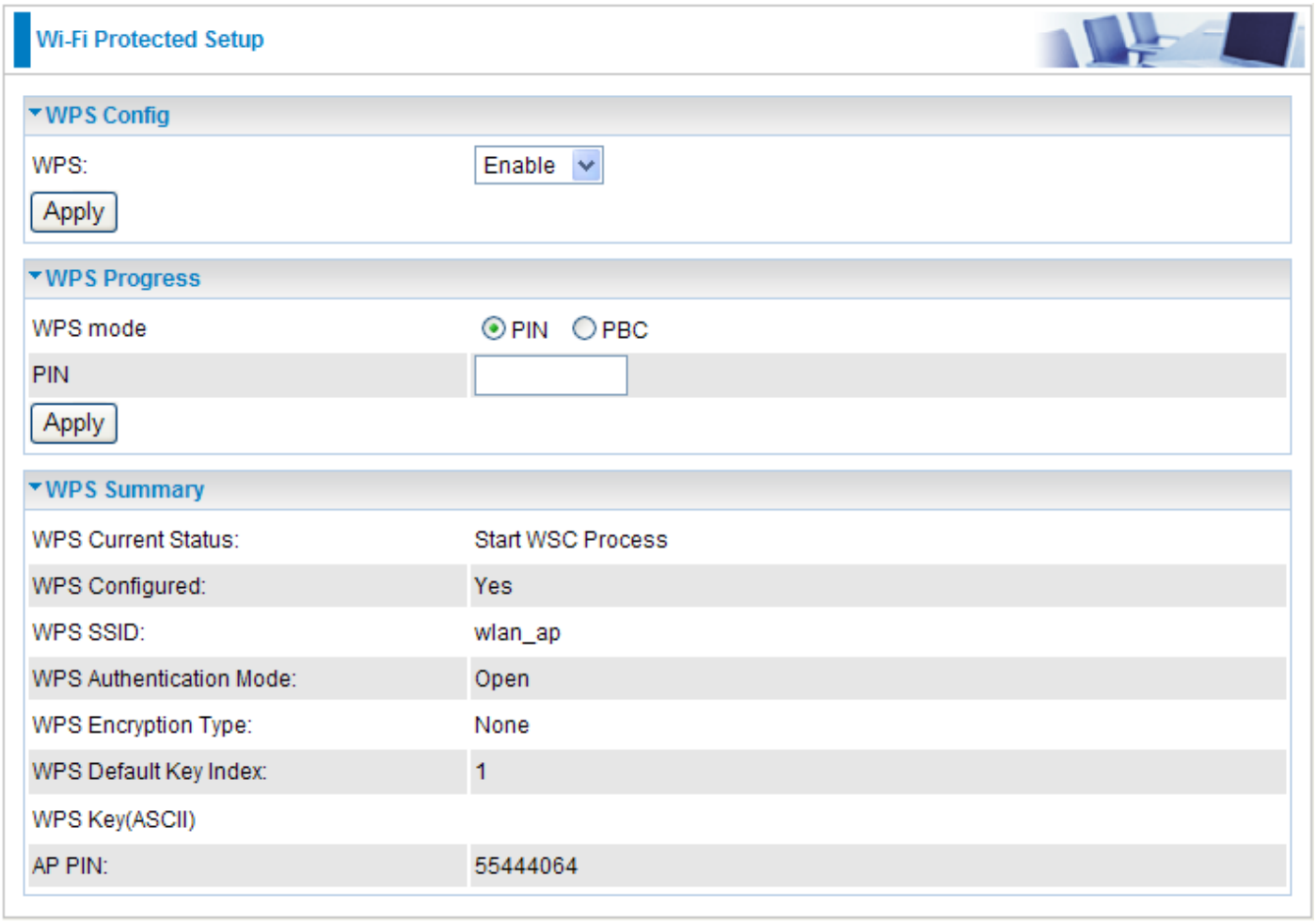
Wi-Fi Multinedia

WMM Capable: This feature is used to control the prioritization of traffic according to 4 Access categories: Voice, Video, Best Effort and Background. Default is **Enable**.

APSD Capable: Automatic Power Save Delivery (APSD) is an efficient power management mechanism and is very useful for a VoIP phone. You can select enable or disable this feature. Default is **Disable**.

Wi-Fi Protected Setup

WPS feature is designed to ease setup of security enabled WiFi networks in small offices or home. It supports methods to you to set a network and enable security by entering a PIN or pushing a button.



Config

WPS: Default setting is set to Enable. If you do not want to active this functionality, please select Disable.

WPS Progress

WPS mode: Define the WPS mode by PIN code or PBC.

- **PIN:** Select PIN (Personal Identification Number) mode process to connect to the device.
- **PBC:** Select PBC (Push Button Communication) mode process to connect to the device.

Note: You can enable WPS PBC mode through WPS configuration interface as above or by pushing the WPS button of your HomePlug AV 200 Ethernet Adapter for more than 1 seconds and the WPS will establish the connection automatically.

PIN: When PIN mode is selected, this field is displayed to allow you to enter the PIN code which the device uses to authenticate other WPS-enabled wireless devices.

WPS Summary

WPS Current Status: Displays the WPS status.

WPS Configured: Displays the current WPS configuration status

WPS SSID: Displays the WPS network name.

WPS Authentication Mode: Displays the authentication mode for WPS.

WPS Encryption Type: Displays the encryption type for WPS.

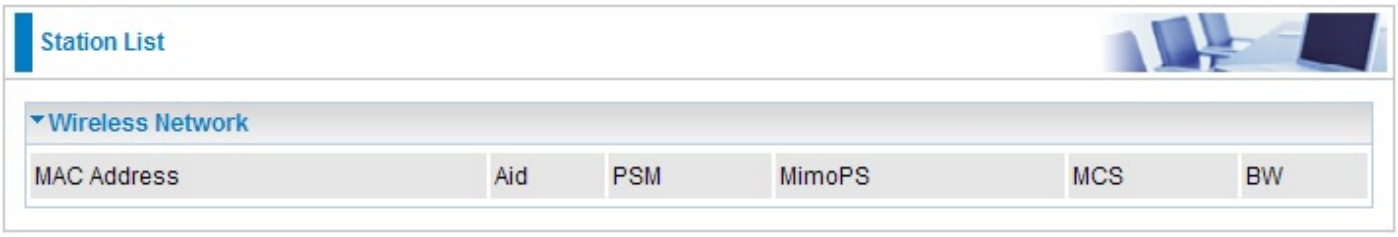
WPS Default Key Index: Displays the Default Key Index.

WPS Key(ASCII): Displays the WPS key (ASCII characters).

AP PIN: Displays the Access Point's PIN number.

Station List

The Station List displays the Wireless Network information.



Wireless Network

MAC Address: The Media Access Control (MAC) addresses for each device on your WLAN.

Aid: The association ID.

PSM: The power save mode.

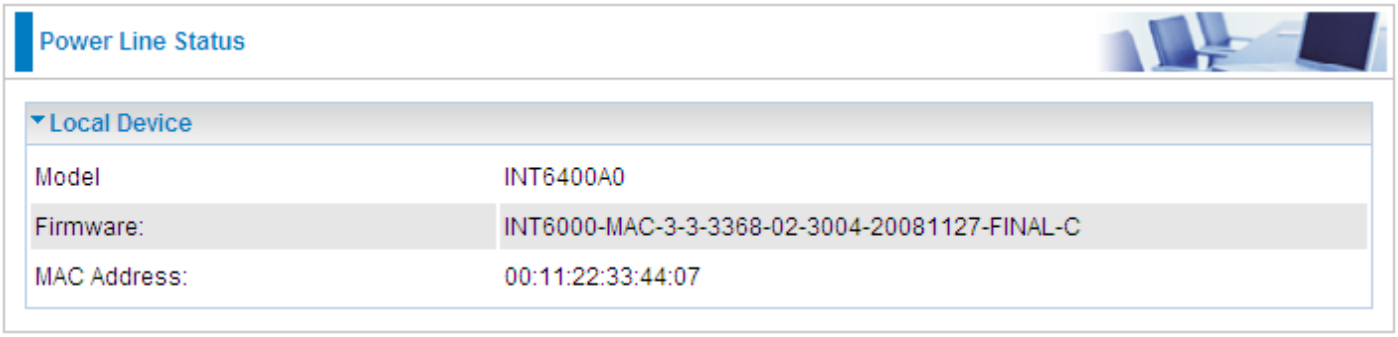
MimoPS: The MIMO power save mode. MIMO, Multiple-input and multiple-output, is the use of multiple antennas at both the transmitter and receiver to improve communication performance.

MCS: The Modulation and Coding Scheme.

BW: The Network Bandwidth.

Power Line Settings

Status



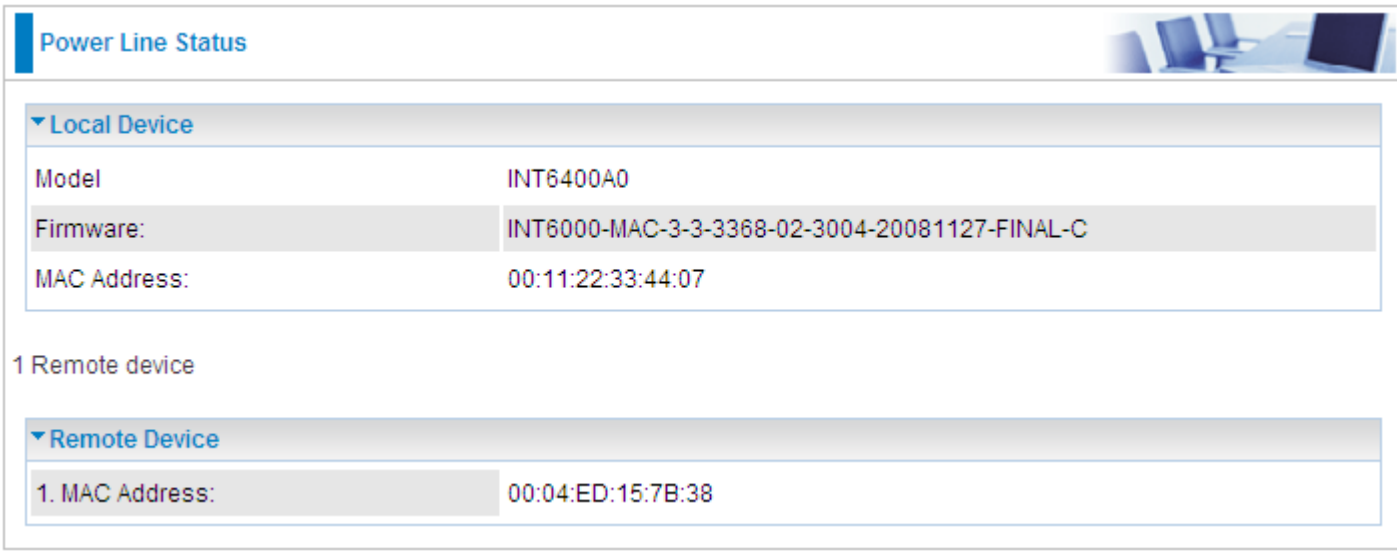
Local Device

Model: Displays the model name for the local power line device.

Firmware: Displays the version number of firmware on the local power line device.

MAC Address: Displays the MAC address of the local power line device.

When you have successfully synchronized two HomePlug AV adapters through the powerline, the information of both adapters will display on the Power Line Status screen.



In the illustration above, there are 1 local device and 1 remote device in the same power loop.

Remote Device

MAC Address: Displays the MAC address for the remote device.

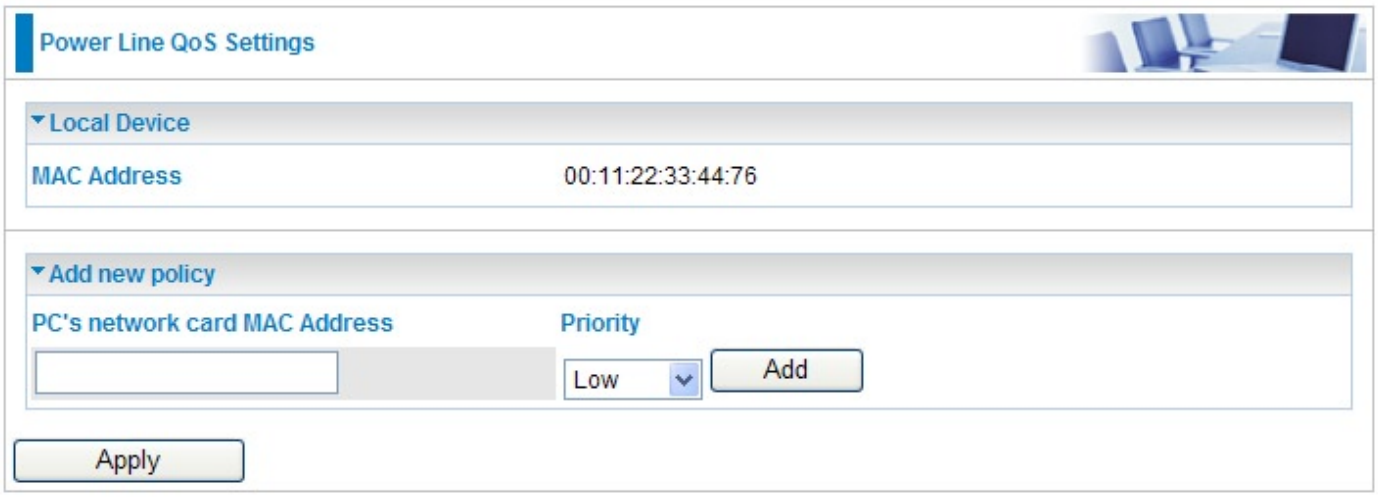
Privacy

Privacy Settings

New Network Name: Enter the new network name (password) to apply to the local HomePlug adapter. This allows the HomePlug adapters that have the same network name in the powerline network to communicate with each other.

QoS

Wired networks use QoS to help traffic flow more smoothly. On this screen, you can prioritize traffic passing through your adapter besed on the device it is intended for by setting MAC address and the level of priority.



Local Device

MAC Address: Displays the MAC address.

Add new policy

Network card MAC Address: Enter the network card MAC address.

Priority: Select a priority from the drop-down menu.

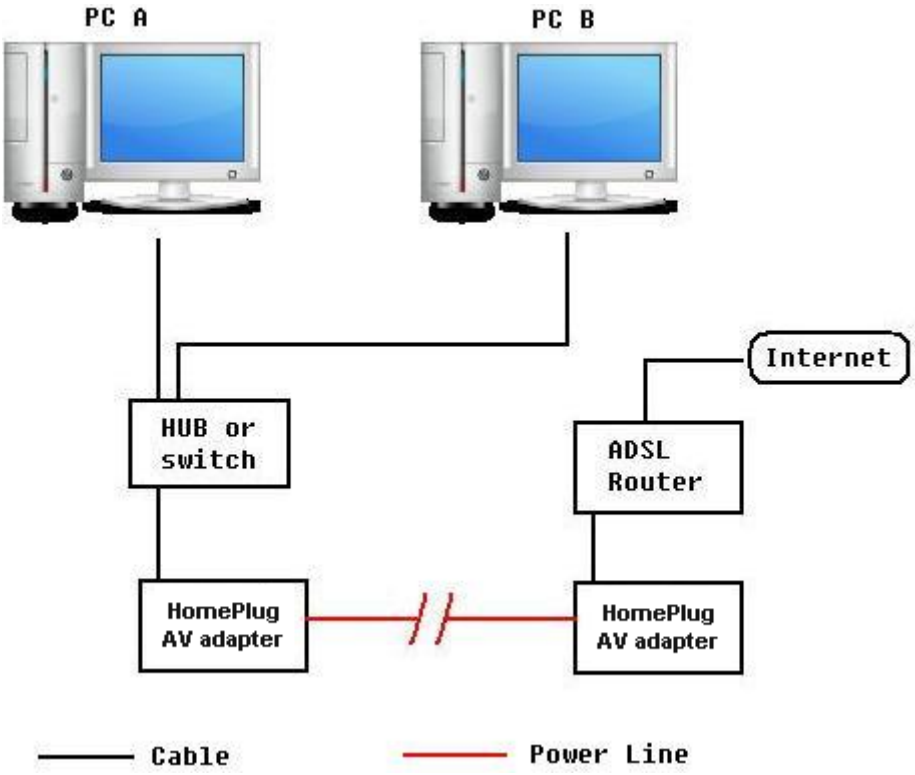
Add: Press this button to add a new MAC address.

Click **Apply** to confirm the settings.

Note: If you set no QoS policy, the QoS setting will be returned to the factory default settings when you click on Apply button.

Note: When there is no QoS policy on the device, a warming message will pop-up as below after clicking Apply.

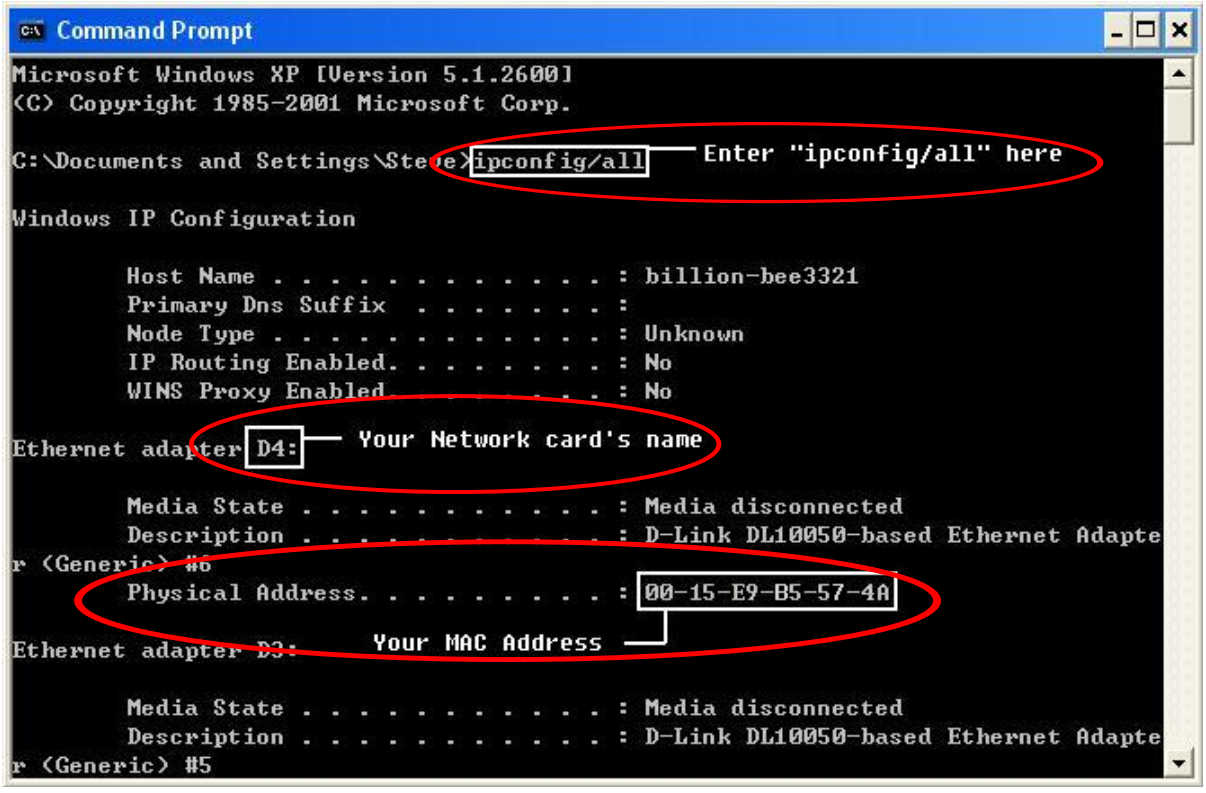
QoS example:



The above illustration is an example for QoS topology, commonly in the home and small office environment.

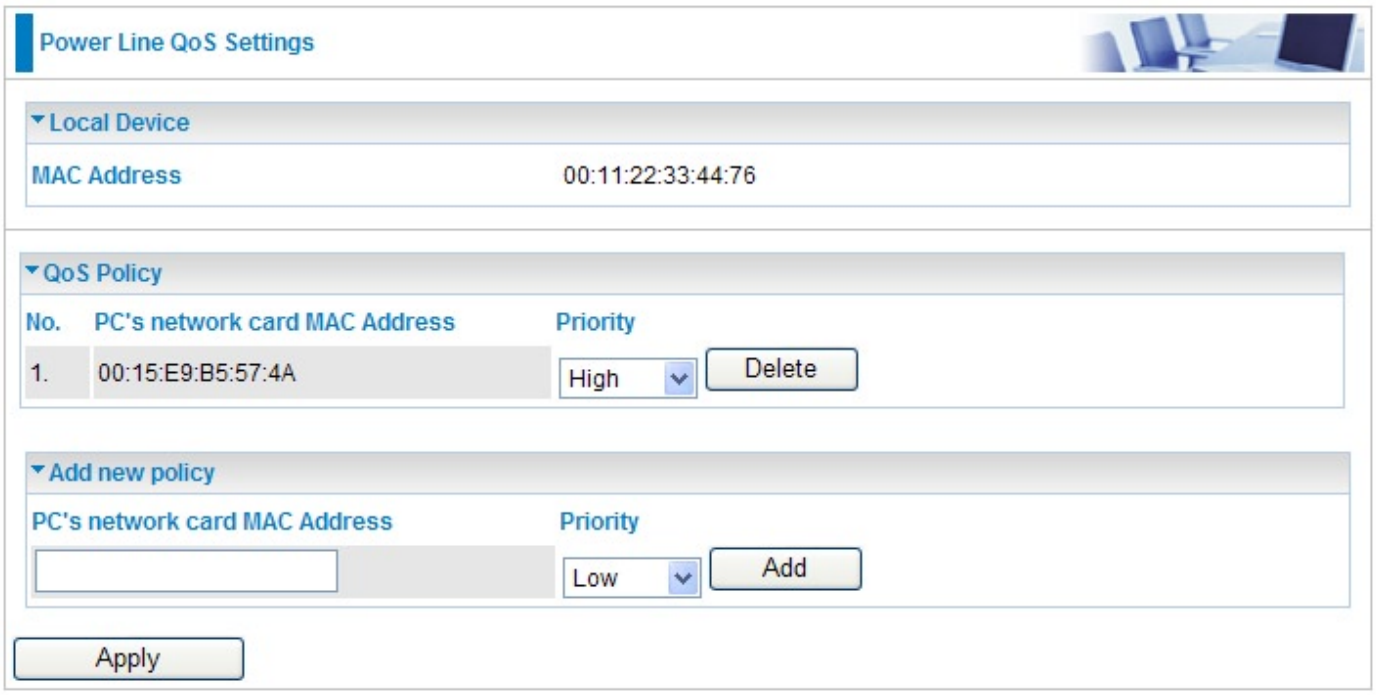
To set the QoS policy, perform the following steps:

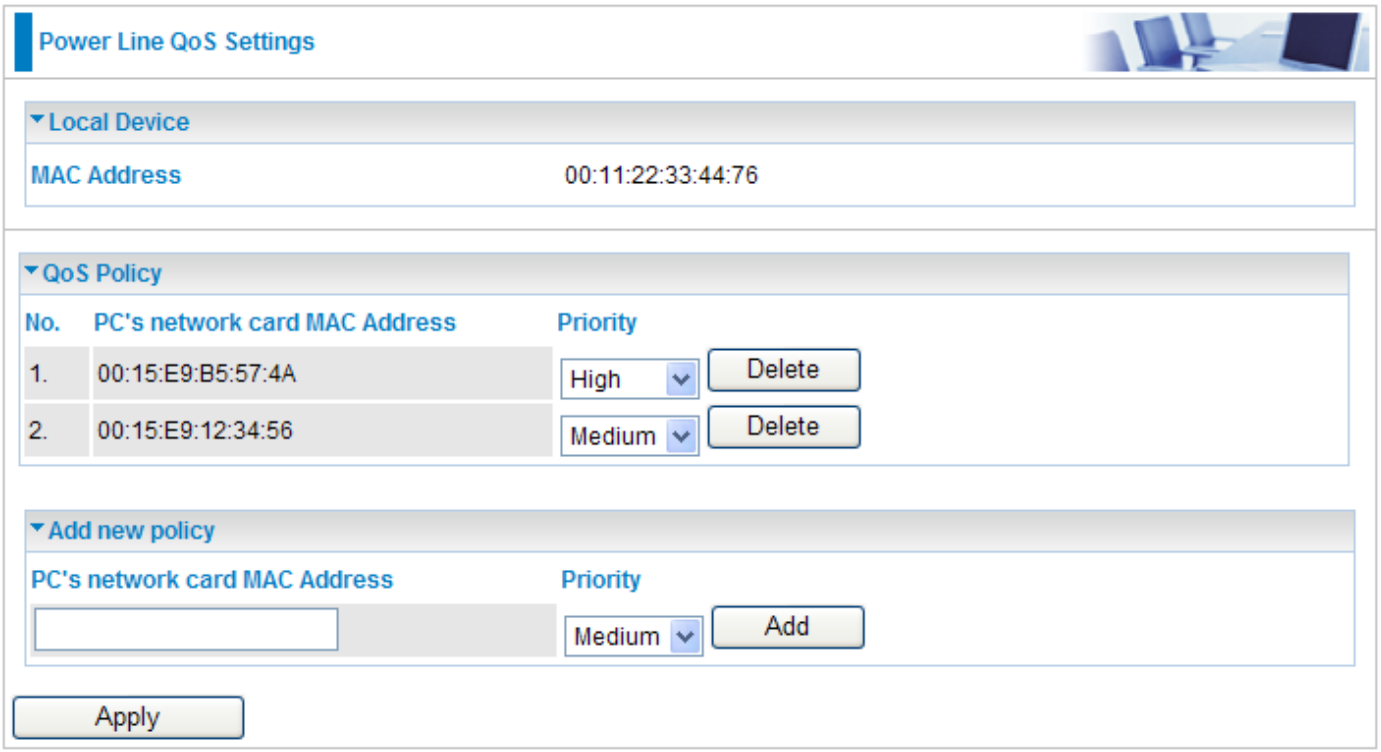
1. Select Power Line Settings > QoS. In the Power Line QoS Settings screen, add new policy for QoS.
2. Run the “Command Prompt” (From the Windows desktop click Start > Run, type **cmd** and click OK.). At the command prompt, type **ipconfig /all** and press Enter. Look for the line Physical Address.



3. Go back to Power Line QoS Settings screen, enter you network card MAC address and choose the priority. Click **Add** button to add this new rule. You will see the new address(s) displayed in the QoS Policy table.

Note: Make sure that the MAC Address that you entered is correct. (A MAC address uses 6 pairs of hexadecimal characters, for example 00:04:ED:01:23:45.)

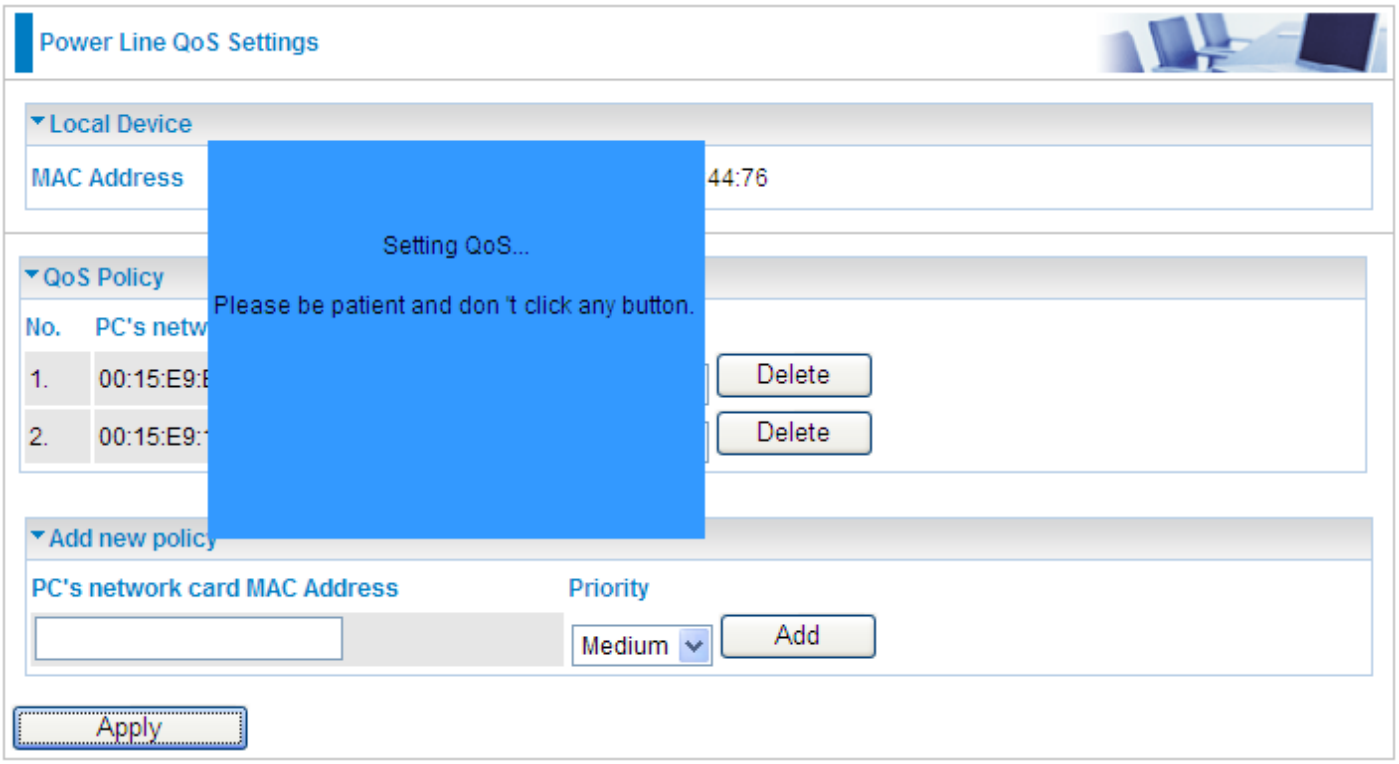




4. You can change the priority of the QoS rule(s) from the Priority drop-down menu or remove the rule(s) by clicking on **Delete** button next to the item you want to delete.

5. Click **Apply** to confirm the configuration.

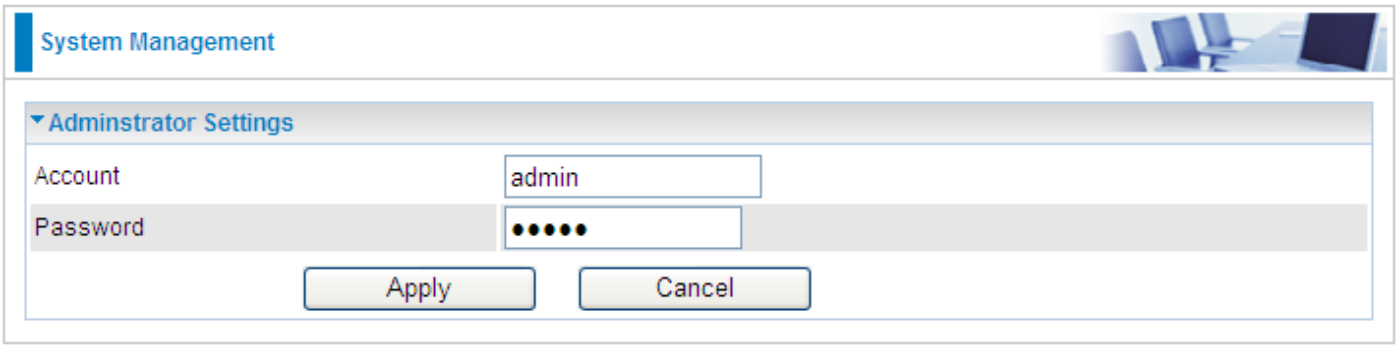
Note: Do NOT perform any more actions in QoS setting process.



6. Once the setting is complete, you will be returned to the Power Line QoS Settings page.

Administration

System Management



Administrator Settings

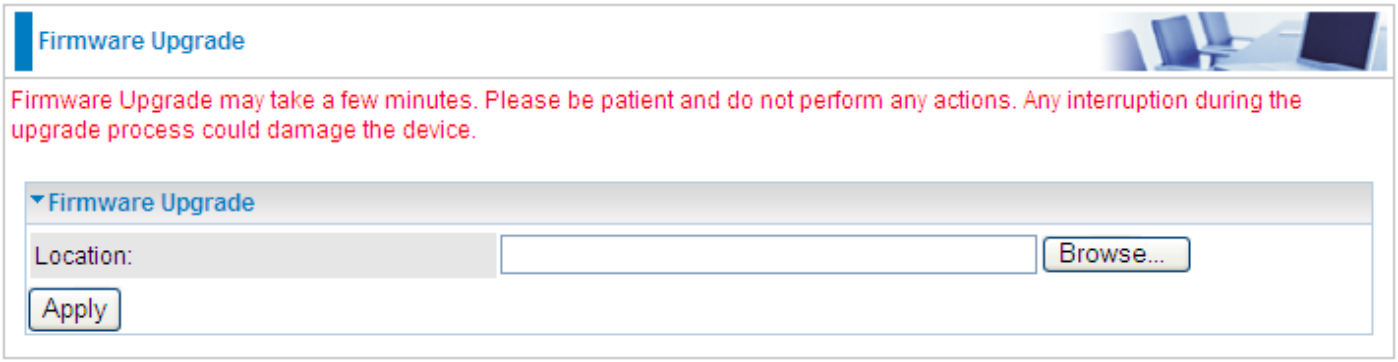
Account: You are allowed to set your own account name. Default is admin.

Password: You are allowed to set your own password. Default is admin.

Click **Apply** to save the changes.

Firmware Upgrade

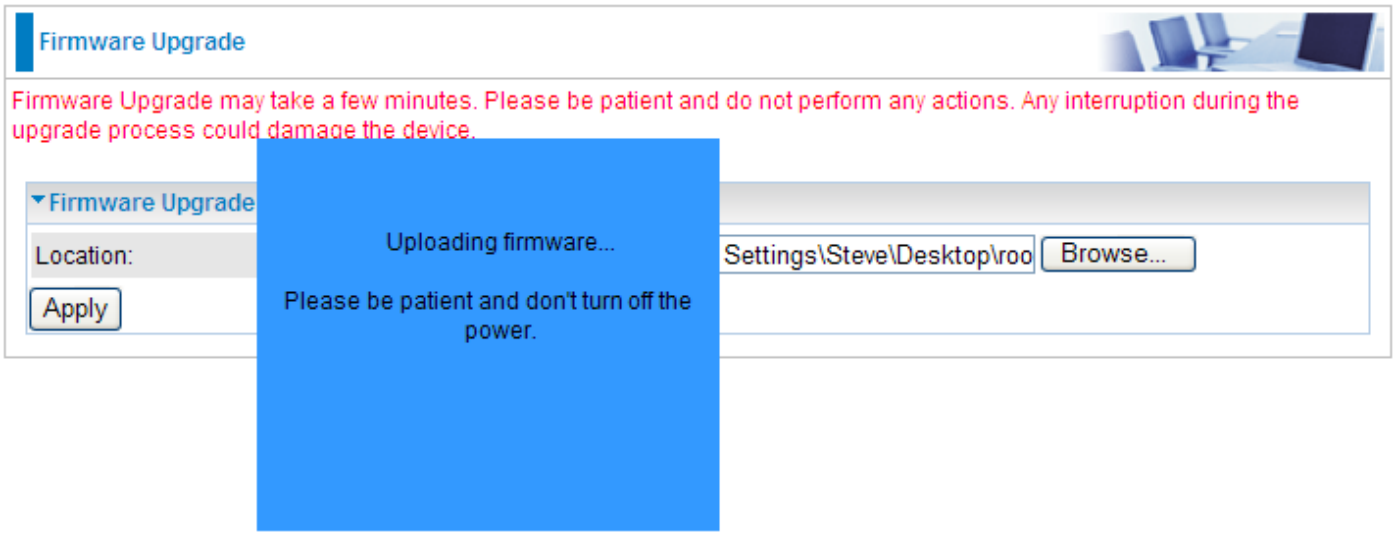
Upgrading the newly improved version of the firmware allows you to get the advantage to use newly integrated features.

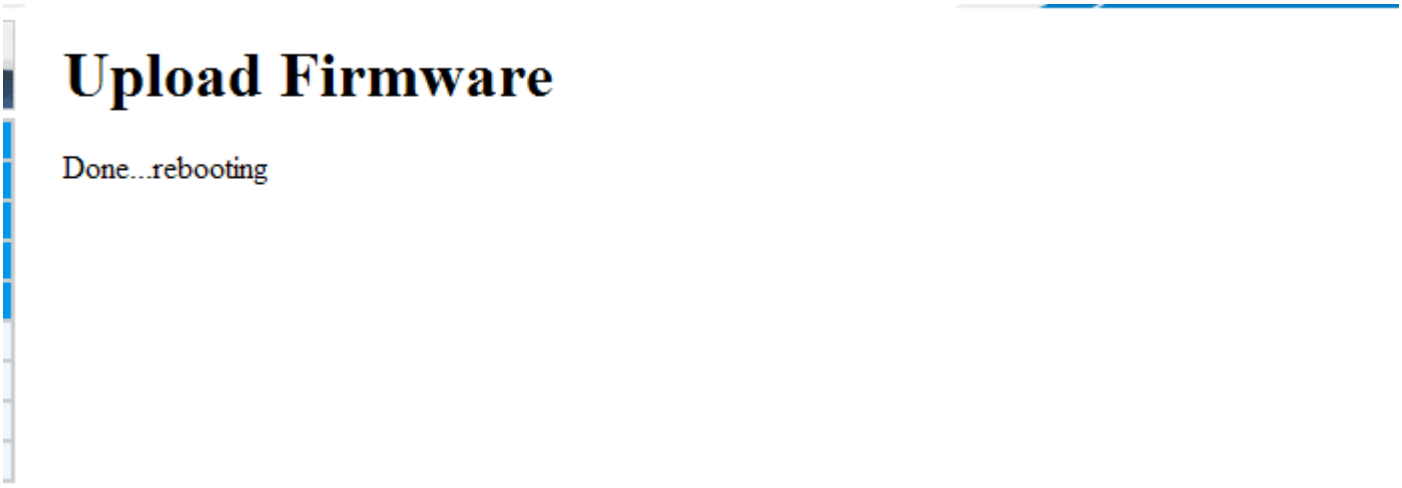


Update Firmware

Location: Click on **Browse** to select the new firmware image file you have downloaded to your PC. Once the correct file is selected, click **Apply** to update the firmware to your device.

Note: Do NOT perform any more actions while the firmware is being upgraded.

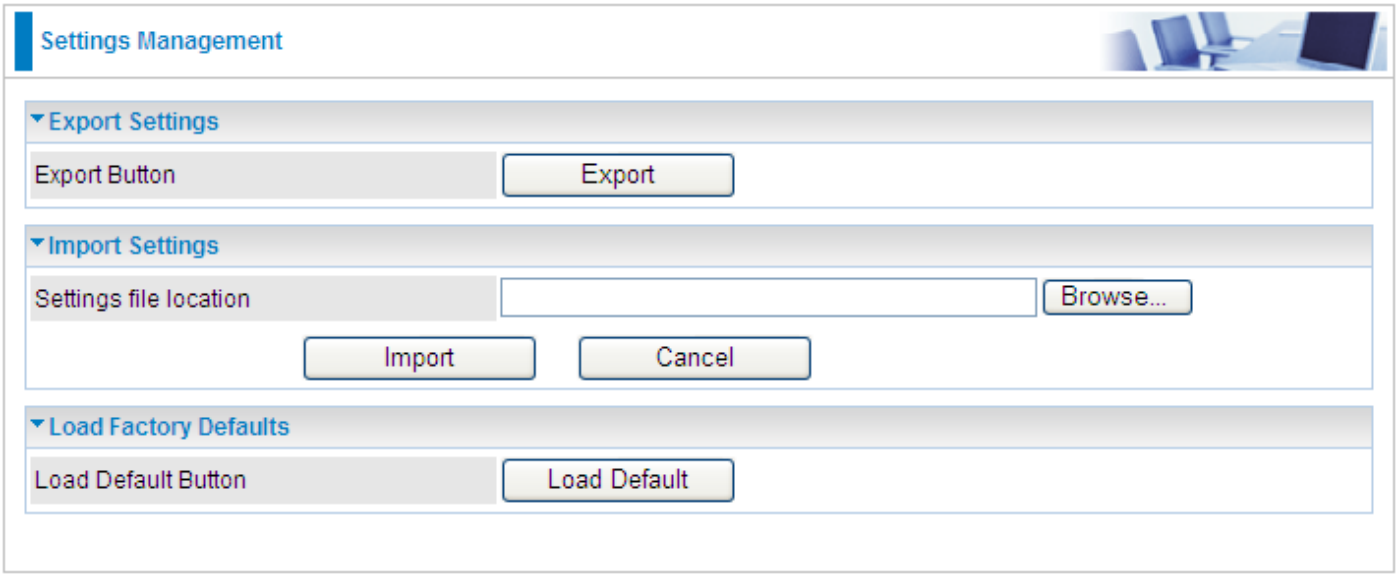




The system will automatically reboot once the upgrade is complete. You will be returned to the Status page.

Settings Management

These functions allow you to save a backup of the current configuration of your device to a defined location on your PC, to restore a previously saved configuration, or to restart your device with the factory default settings. This is useful if you wish to experiment with different settings, knowing that you have a backup in hand in case any mistakes occur. Besides, you can restart the device to factory default setting after you have accidentally changed your settings that may result in undesirable outcome.



Export Settings

Export Button: Click on **Export** to select where on your local PC you want to store your setting file. You may also change the name of the file if you wish to keep multiple backups.

Note: It is advisable that you backup your device configuration before making any changes to your device configuration.

Import Settings

Settings file location: Click on **Browse** to select a file from your PC to restore. You should only restore your device setting that has been generated by the Backup function which is created with the current version of the device firmware. Settings files saved to your PC should not be manually edited in any way.

Select the settings files you wish to use, and press **Import** to load the setting into the device.

Load Factory Defaults

Load Default Button: Click on **Load Default** to initiate the reatart process. After restarting, please wait several minutes to let the selected setting applied to the system.

You may also reset your device to factory settings by holding the small **Reset** pinhole button more than 2 seconds.

Chapter 5: Troubleshooting

If your device is not functioning properly, please refer to the suggested solutions provided in this chapter. If your problems persist or the suggested solutions do not meet your needs, please kindly contact your service provider for support.

Problems with the device

Problem	Suggested Solution
I forgot my password.	First try entering the default user name and password: User Name: admin; Password: admin. (Both the User Name and Password are case sensitive, so make sure that CAPS LOCK is not on when entering this information.) If this fails, restore your HomePlug AV device to its factory default settings and then enter the default user name and password.
I can not access the LOGIN Web Configuration Interface.	• Ensure you are using the correct IP address. (Default is 192.168.1.254.) • Check the hardware connections and ensure all LEDs are behaving as excepted. • Ensure your computer's IP address is in the same subnet as the HomePlug device. • Check to see if your browser has Java, JavaScript, or ActiveX enabled. If you are using Internet Explorer, click Refresh to ensure that the Java applet is loaded. • Try closing the browser and re-launching it. • Reset the device to factory defaults and try to acess the HomePlug adapter with the default IP address.
How do I reset the HomePlug AV200 adapter?	There are two ways to reset factory default settings: • Hardware Reset To perform a hardware reset, hold down the reset button for more than 2 seconds, and release it. • Software Reset To initiate a software reset, select Administration > Settings Mamagement and click on **Load Default** button to initiate the reatart process. Then wait several minutes. ***Note: Restoring to factory default will wipe out all the configurations you have previously set. You are strongly advised to create a backup copy of the settings before resetting the device.***
I can not start my HomePlug device.	Please check your power supply is working. HomePlug device operates from the power supplied by the home electrical wiring and can not operate without a working power supply.
My HomePlug device is unable to detect my other HomePlug device.	This may due to the accidental change of the device password. Access the HomePlug AV web interface and select Power Line Settings > Privacy. Fill in the password (case sensitive) in the blank. Then repeat the same procedure to the other HomePlug device via Utility or web interface.