

BiPAC 6300VNP(O)Z

4G/LTE VoIP Wireless-N (VPN) Broadband Router

User Manual

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Chapter 1: Introduction

Introduction to your Router

Congratulations on your purchase of the **BiPAC 6300VNP(O)Z (4G/LTE VoIP Wireless (VPN) Broadband Router)**. This router is a compact and advanced broadband router that offers flexible and multiple Internet connection options, EWAN and embedded 4G/LTE interfaces, for home, SOHO, and office users to enjoy high-speed, high-level security Internet connection via cellular wireless and/or Ethernet WAN. With an integrated 802.11n wireless access point and 4-port Gigabit Ethernet LAN, this router enables faster wireless speed of up to 300Mbps and LAN connection 10 times faster than regular 10/100Mbps Ethernet LAN. BiPAC 6300VNP(O)Z provides a unique Management Center enabling users to monitor 4G/LTE signal strength, bandwidth, download speed, and many more. Users can choose the most economical rate of VoIP calls provided by different providers. The device integrates two FXS ports which allows for simultaneous VoIP calls.

Cost Saving

Making VoIP calls is extremely simple; just connect the router with your existing analog telephones. BiPAC 6300VNP(O)Z complies with the most popularly adopted VoIP standard and SIP protocol to ensure interoperability with SIP devices and major VoIP Gateways. This router also supports a wider range of telephony features, such as Call Waiting, Conference, Speed Dial, Return Call, Redial, etc.

4G/LTE Mobility

With 4G/LTE-based Internet connection (4G/LTE embedded module, requires an additional SIM card), you can access to the Internet through 4G/LTE whether you are seated at your desk or taking a cross-country trip.

Wireless Mobility and Security

With an integrated 802.11n Wireless Access Point, this router delivers up to 3 times the wireless coverage of a 802.11b/g network device, so that wireless access is available everywhere in the house or office. If your network requires wider coverage, the built-in Wireless Distribution System (WDS) allows you to expand your wireless network without additional wires or cables. BiPAC 6300VNP(O)Z also supports the Wi-Fi Protected Setup (WPS) standard and allows users to establish a secure wireless network just by pressing a button. Multiple SSIDs allow users to access different networks through a single access point. Network managers can assign different policies and functions for each SSID, increasing the flexibility and efficiency of the network infrastructure.

4G/LTE Management Center

BiPAC 6300VNP(O)Z Mobile Management Center visually displays its current 4G/LTE signal status also calculates the total amount of hours or data traffic used per month, allowing you to manage your 4G/LTE monthly subscriptions.

Secure VPN Connections (BiPAC 6300VNOZ only)

The BiPAC 6300VNOZ supports comprehensive and robust IPsec VPN (Virtual Private Network) protocols for business users to establish private encrypted tunnels over the public Internet to secure data transmission between headquarters and branch offices. It also supports VPN dial in from smart phones for secure remote Internet connection via your home broadband. With a built-in DES/3DES VPN accelerator, the router enhances IPsec VPN performance significantly.

IPv6 Supported

Internet Protocol version 6 (IPv6) is a version of the Internet Protocol that is designed to succeed IPv4. IPv6 has a vastly larger address space than IPv4. The router is already supporting IPv6, you can use it in IPv6 environment no need to change device. The dual-stack protocol implementation in an operating system is a fundamental IPv4-to-IPv6 transition technology. It implements IPv4 and IPv6 protocol stacks either independently or in a hybrid form. The hybrid form is commonly implemented in modern operating systems supporting IPv6.

Quick Start Wizard

Support a WEB GUI page to install this device quickly. With this wizard, simple steps will get you connected to the Internet immediately.

Firmware Upgradeable

Device can be upgraded to the latest firmware through the WEB based GUI.

Features & Specifications

- 4G/LTE for high speed mobile broadband connectivity
- Gigabit Ethernet WAN (GbE WAN) for Cable/Fiber/xDSL high WAN throughput
- Gigabit Ethernet LAN
- IPv6 ready (IPv4/IPv6 dual stack)
- Multiple wireless SSIDs with wireless guest access and client isolation
- IEEE 802.11 b/g/n compliant Wireless Access Point with Wi-Fi Protected Setup (WPS)
- Wi-Fi Protected Access (WPA-PSK/ WPA2-PSK) and Wired Equivalent Privacy (WEP)
- Secured IPsec VPN with powerful DES/ 3DES/ AES (BiPAC 6300VNOZ only)
- PPTP VPN with Pap/ Chap/ MPPE authentication (BiPAC 6300VNOZ only)
- L2TP VPN with Pap/Chap authentication (BiPAC 6300VNOZ only)
- 24 VPN tunnels (BiPAC 6300VNOZ only)
- SOHO Firewall Security with DoS Preventing and Packet Filtering
- Quality of Service Control for traffic prioritization management
- Universal Plug and Play (UPnP) Compliance
- Voice over IP compliant with SIP standard
- Two FXS ports for connecting to regular analog telephones
- Call Waiting, Conference Call
- Speed Dial, Return Call, Redial
- Don't Disturb
- Ease of Use with Quick Installation Wizard
- One USB port for NAS (FTP/ SAMBA server)
- Ideal for SOHO, office, and home users

Network Protocols and Features

- IPv4, IPv6 or IPv4 / IPv6 Dual Stack
- NAT, static (v4/v6) routing and RIP-1 / 2
- DHCPv4 / v6
- Universal Plug and Play (UPnP) Compliant
- Dynamic Domain Name System (DDNS)
- Virtual Server and DMZ
- SNTP, DNS proxy
- IGMP snooping and IGMP proxy

- MLD snooping and MLD proxy

Firewall

- Built-in NAT Firewall
- Stateful Packet Inspection (SPI)
- DoS attack prevention including Land Attack, Ping of Death, etc
- Access control
- IP&MAC filter, URL Content Filter
- Password protection for system management
- VPN pass-through

Quality of Service Control

- Traffic prioritization management based-on Protocol, Port Number and IP Address (IPv4/ IPv6)

IPTV Applications^{*2}

- IGMP proxy and IGMP snooping
- MLD proxy and MLD snooping
- Interface Grouping (VLAN)
- Quality of Service (QoS)

Wireless LAN

- Compliant with IEEE 802.11 b/ g/ n standards
- 2.4 GHz - 2.484GHz radio band for wireless
- Up to 300 Mbps wireless operation rate
- 64 / 128 bits WEP supported for encryption
- WPS (Wi-Fi Protected Setup) for easy setup
- Wireless Security with WPA-PSK / WPA2-PSK support
- WDS repeater function support

USB Application Server

- Storage/NAS: SAMBA Server, FTP Server
- 3G/4G LTE Mobile Internet Connection

VoIP

- Compliant with SIP standard (RFC3261)
- Codec: G.729, G.726, G.711 A-Law, G.711 u-Law
- DTMF Method: Inband, RFC 2833, SIP Info
- Caller ID Generation: DTMF, FSK
- Silence Suppression (VAD), Echo Cancellation
- Call Waiting, Conference Call
- Speed Dial, Return Call, Redial
- Don't Disturb
- FAX Relay: T.38
- Call Detailed Records (CDR)

Virtual Private Network (VPN) (BiPAC 6300VNOZ only)

- 8 IPSec VPN Tunnels
- 8 PPTP VPN Tunnels (Dial-in:4, Dial-out:4)
- 8 L2TP VPN Tunnels (Dial-in:4, Dial-out:4)

Management

- Quick Installation wizard
- Web-based GUI for remote and local management (IPv4/IPv6)
- Firmware upgrades and configuration data upload and download via web-based GUI
- Supports DHCP server / client / relay
- Supports SNMP v1, v2, v3, MIB-I and MIB-II
- TR-069^{*1} supports remote management



1. On request for Telco / ISP projects
2. IPTV application may require subscription to IPTV services from a Telco / ISP.
3. Specifications on this datasheet are subject to change without prior notice.

Hardware Specifications

Physical interface

- 4G LTE antenna: 2 external antennas
- WLAN: 2 internal PIFA antennas
- SIM card slot: SIM card slot (for the SIM card from Telco / ISP) for mobile broadband connectivity
- VoIP phone port: 2 RJ-11 FXS phone ports to connect with 2 regular analog phones.
- USB: USB 2.0 port for storage service and 3G/4G LTE USB dongle
- Ethernet: 4-port 10 / 100 / 1000Mbps auto-crossover (MDI / MDI-X) Switch
- EWAN: RJ-45 Gigabit Ethernet port for connecting to Cable/Fiber/xDSL modem for Broadband connectivity.
- Factory default reset button
- Wireless on/off and WPS push button
- DC Power jack
- UPS (BBU) socket for UPS power supply
- Power switch to switch between DC power and UPS power.

Physical Specifications

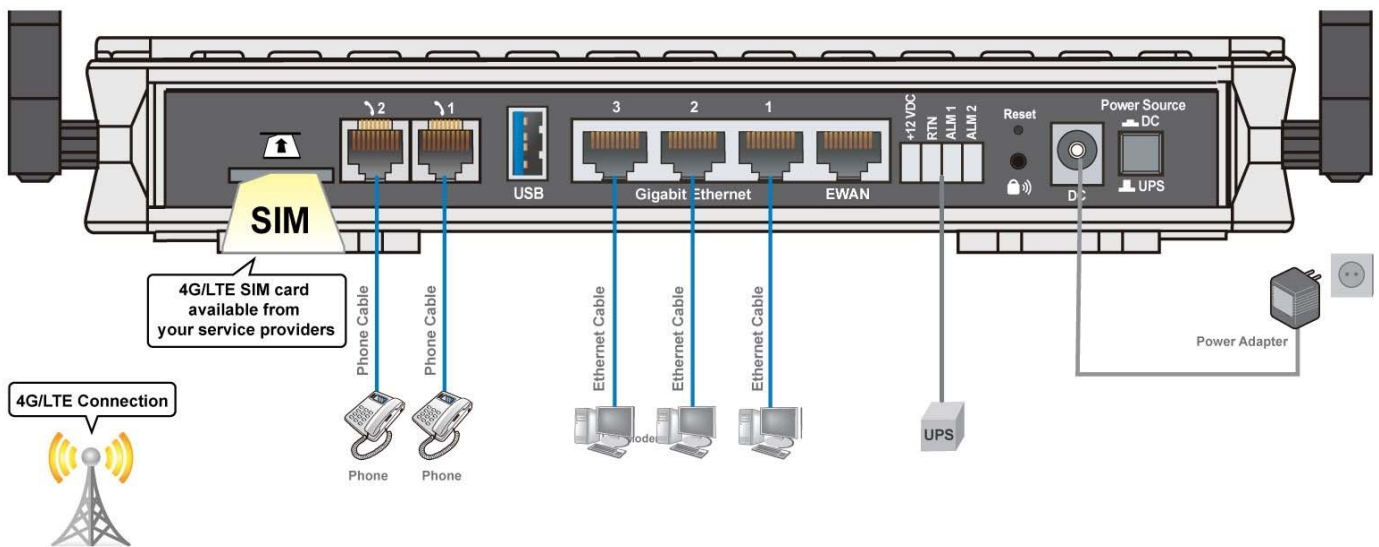
- Dimensions (W*H*D): 9.04" x 6.10" x 1.27"(229.5mm x 155mm x 32.24mm)

Application Diagram

BiPAC 6300VNP(O)Z is an all-in-one router, supporting 2 connection options (4/LTE and EWAN) to connect to the Internet.

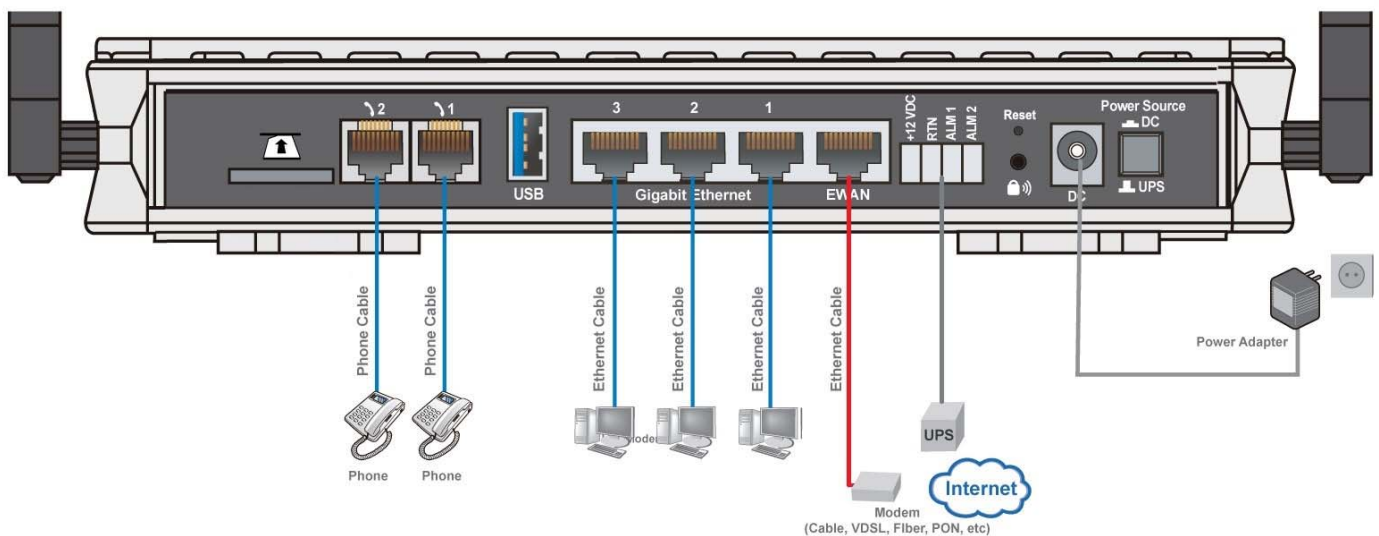
4G/LTE router mode

With an embedded 4G/LTE module, the router can be used to connect to high speed mobile fixed wireless connection.



Broadband Router Mode

This router also has a Gigabits Ethernet WAN port (EWAN) to connect with your Fiber / Cable/ xDSL modem.



Chapter 2: Product Overview

Important Note for Using This Router



Warning

- ✓ Do not use the router in high humidity or high temperature.
- ✓ Do not use the same power source for the BiPAC 6300VNP(O)Z on other equipment.
- ✓ Do not open or repair the case yourself. If the device becomes too hot, turn off the power immediately and have it repaired at a qualified service center.
- ✓ Avoid using this product and all accessories outdoors.

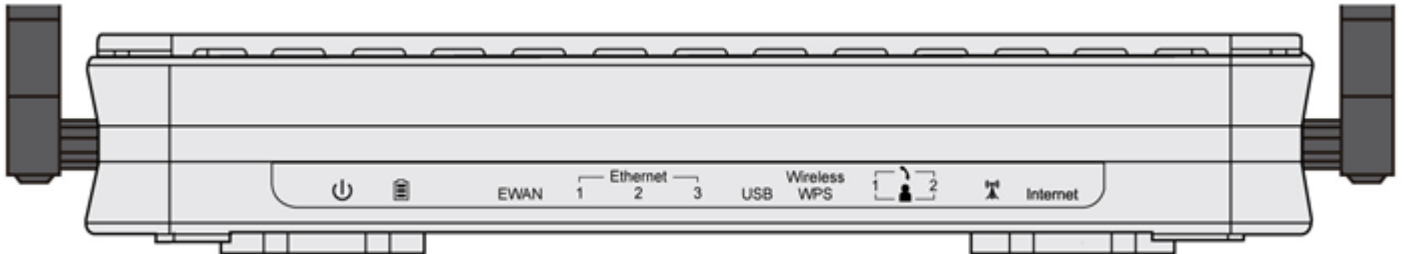





Attention

- ✓ Place the router on a stable surface.
- ✓ Only use the power adapter that comes with the package. Using a different voltage rating power adaptor may damage the router.

Device Description

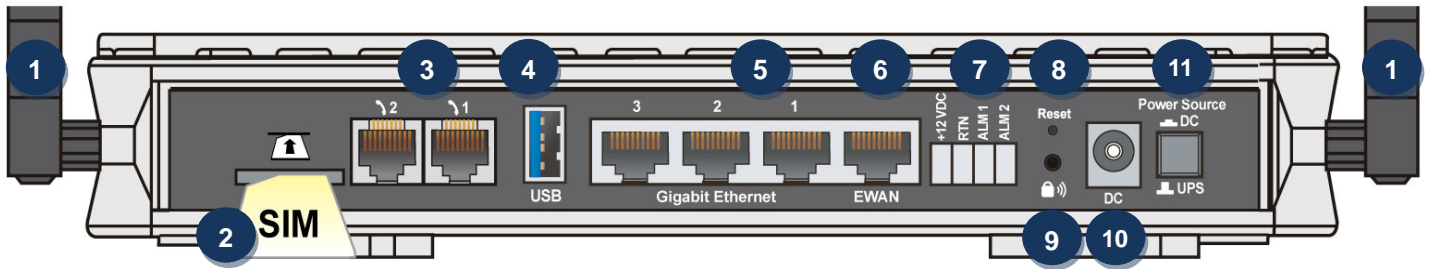
Front Panel LEDs



LED	STATUS	DESCRIPTION
Power 	Green	System is up and ready
	Red	Boot failure
Battery 	Green	UPS is functional properly
	Orange	UPS battery failure. Need to recharge or replace a new battery
	Orange blinking	UPS AC power failure and battery functional properly
	Off	Device powered by the DC power adaptor
EWAN	Lit up	BiPAC 6300VNP(O)Z is successfully connected with a broadband connection device.
	Green	Transmission speed is at Gigabit speed (1000Mbps)
	Orange	Transmission speed is at 10/100Mbps
	Blinking	Data being transmitted/received
Ethernet Port LAN 1 ~ 3	Green	Transmission speed is at Gigabit speed (1000Mbps)
	Orange	Transmission speed is at 10/100Mbps
	Blinking	Data being transmitted/received
USB	Green	Connecting to a USB dongle or a hard drive.
Wireless/WPS	Green	Wireless connection established
	Green blinking	Data being transmitted / received
	Orange	WPS configuration is in progress
Phone	Green	Successfully registered and ready to be used.
	Orange	Phone is off-hook, in-use
LTE (Received Signal Strength Indicator) 	Green	RSSI greater than -69 dBm. Excellent signal condition
	Green Flashing quickly	RSSI from -81 to -69 dBm. Good signal condition
	Orange Flashing quickly	RSSI from -99 to -81 dBm. Fair signal condition.
	Orange Flashing slowly	RSSI less than -99 dBm. Poor signal condition.
	Orange	No signal and the 4G_LTE module is in service
	Off	No LTE module or LTE module fails

Internet	Green	IP connected and traffic is passing through the device.
	Red	IP request failed.
	Off	BiPAC 6300VNP(O)Z is either in bridged mode or WAN connection not present.

Rear Panel Connectors



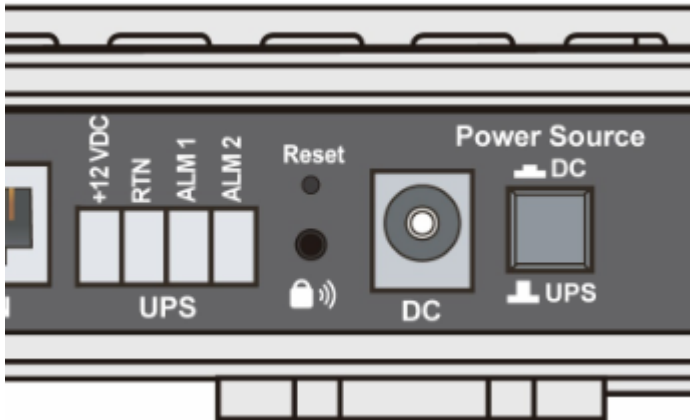
PORT		MEANING
1	Antenna	Screw the supplied Wi-Fi antennas onto the antenna connectors on both sides.
2	SIM Card Slot	Insert the mini SIM card (2FF) with the gold contact facing down. Push the mini SIM card (2FF) inwards to eject it
3	Phone (1X-2X)	Connect your analog phone to this port with a RJ-11 cable.
4	USB	The USB can either setup for 3G/4G LTE internet access or storage/file sharing. (1) For File Sharing: Connect an external USB dongle / hard drive for storage, network sharing, etc (2) For 3G/4G LTE Internet Connection: Connect with an external USB 3G/4G LTE modem or dongle with an activate data plan (internet access).
5	Gigabit LAN Ethernet (1~3)	Connect a UTP Ethernet cable (Cat-5 or Cat-5e) to one of the four LAN ports when connecting to a PC or an office/home network of 10Mbps /100Mbps /1000Mbps
6	Gigabit EWAN	Connect to Fiber/ Cable/ xDSL Modem with a RJ-45 cable
7	UPS Jack	The 4-pin connectors are used to power the device with an external UPS battery backup.
8	Reset	After the device is powered on, press it 6 seconds or above : to restore to factory default settings (this is used when you cannot login to the router, e.g. forgot your password)
9	WPS & Wireless On/Off	By controlling the pressing time, users can achieve two different effects: (1) WPS^{*1}: Press &hold the button for less than 6 seconds to trigger WPS function. (2) Wireless ON/OFF button: Press & hold the button for more than 6 seconds to On/Off the wireless.
10	Power Jack (DC)	Connect the supplied Power Adapter to this jack.
11	Power Source	Power ON/OFF switch (1) with Power Switch ON: power up by the supplied DC power adaptor (2) with Power Switch OFF: power up by the UPS battery unit

* Note: 1. For WPS configuration, please refer to the WPS section in the User Manual.

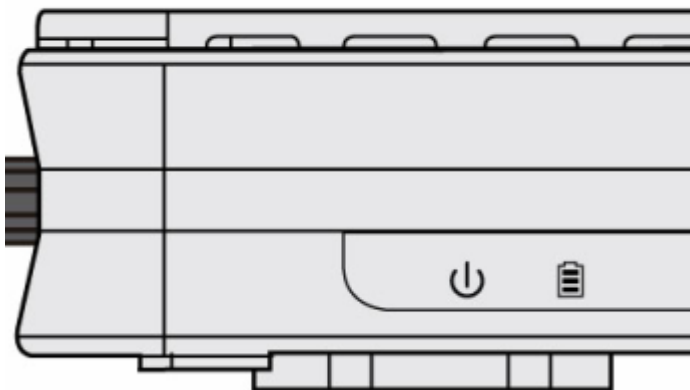
Power Source

BiPAC 6300VNP(O)Z offers two kinds of power input, namely, **DC power Adapter** and **DC UPS** (or BBU).

BiPAC 6300VNP(O)Z can take the advantage of UPS (Uninterruptible Power Supply) to keep working even if the power outage hit your router when the router is working in DC UPS mode.



(A picture of the rear focusing on the power source)



(A shot from the front panel, with second icon being identified as the **Battery** LED)

How to switch between the two (2) power sources, DC power adaptor and external UPS battery

Pressed "Power Source" button, the button is visually being pressed down. The power source is from the DC power adaptor supplied in the package.

"Power Source" button in the un-pressed state, the power source is from the UPS. The router can continue to operate for a period of time after AC power failure, due to uninterrupted power system features of UPS.

UPS LED:

A Battery LED indicates if a DC UPS is in-use or not. When the router is operating via the DC power adaptor this LED will be off.

Battery LED Definition:

- ▶ Green LED: UPS AC power is working; UPS battery is also working well
- ▶ Orange LED Only UPS AC power is working. Battery failure- need to change or recharge battery
- ▶ Orange LED: UPS AC power failure; UPS battery is working

Cabling

One of the most common causes of problems is bad cabling. Make sure that all connected devices are turned on. On the front panel of the product is a bank of LEDs. Verify that the LAN Link and LEDs are lit. If they are not, verify that you are using the proper cables.

Make sure that all other devices (e.g. telephones, fax machines, analogue modems) connected to the same telephone line as your router have a line filter connected between them and the wall socket (unless you are using a Central Splitter or Central Filter installed by a qualified and licensed electrician), and that all line filters are correctly installed in a right way. If the line filter is not correctly installed and connected, it may cause problems to your connection or may result in frequent disconnections.

Chapter 3: Basic Installation

The router can be configured with your web browser. A web browser is included as a standard application in the following operating systems: Windows 98 / NT /2000 / XP / ME / 7 / Vista, Linux, Mac OS, etc. The product provides an easy and user-friendly interface for configuration.

PCs must have an Ethernet interface installed properly and be connected to the router either directly or through an external repeater hub, and have TCP/IP installed and configured to obtain an IP address through a DHCP server or a fixed IP address that must be in the same subnet as the router. The default IP address of the router 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 router using DHCP. If you encounter any problems accessing the router's web interface it may also be advisable to **uninstall** any kind of software firewall on your PCs, as they can cause problems accessing the 192.168.1.254 IP address of the router. Users should make their own decisions on how to best protect their network.

Please follow the steps below for your PC's network environment installation. First of all, please check your PC's 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.

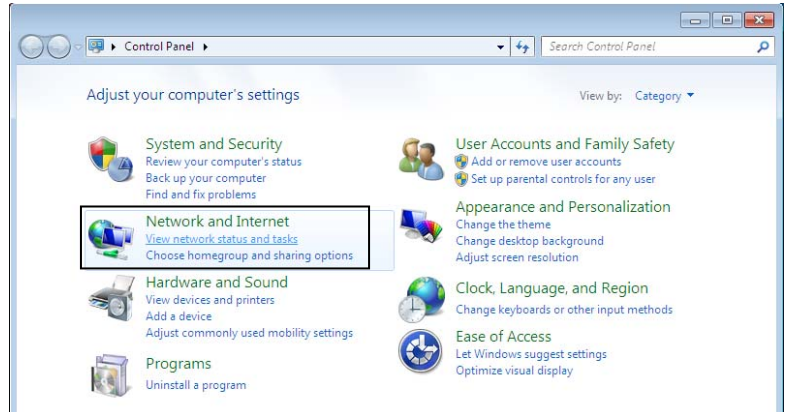


Any TCP/IP capable workstation can be used to communicate with or through the **BiPAC 6300VNP(O)Z**. To configure other types of workstations, please consult the manufacturer's documentation.

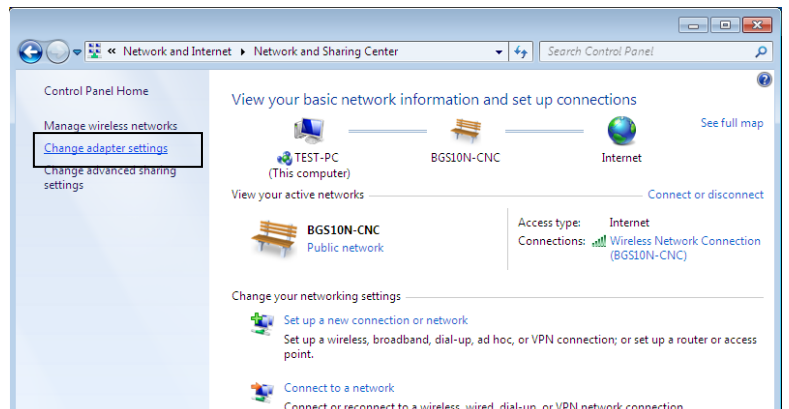
Network Configuration – IPv4

Configuring PC in Windows 7/8 (IPv4)

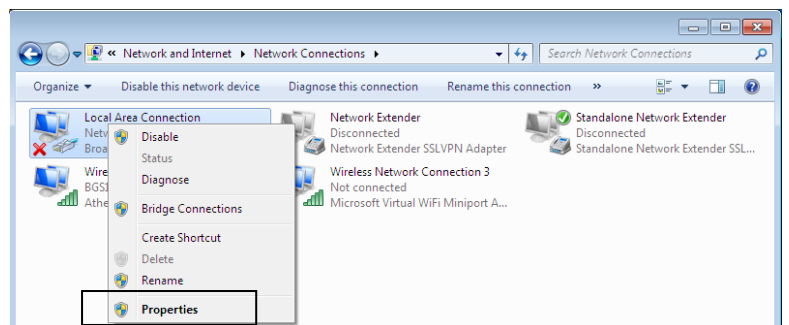
1. Go to **Start**. Click on **Control Panel**.
2. Then click on **Network and Internet**.



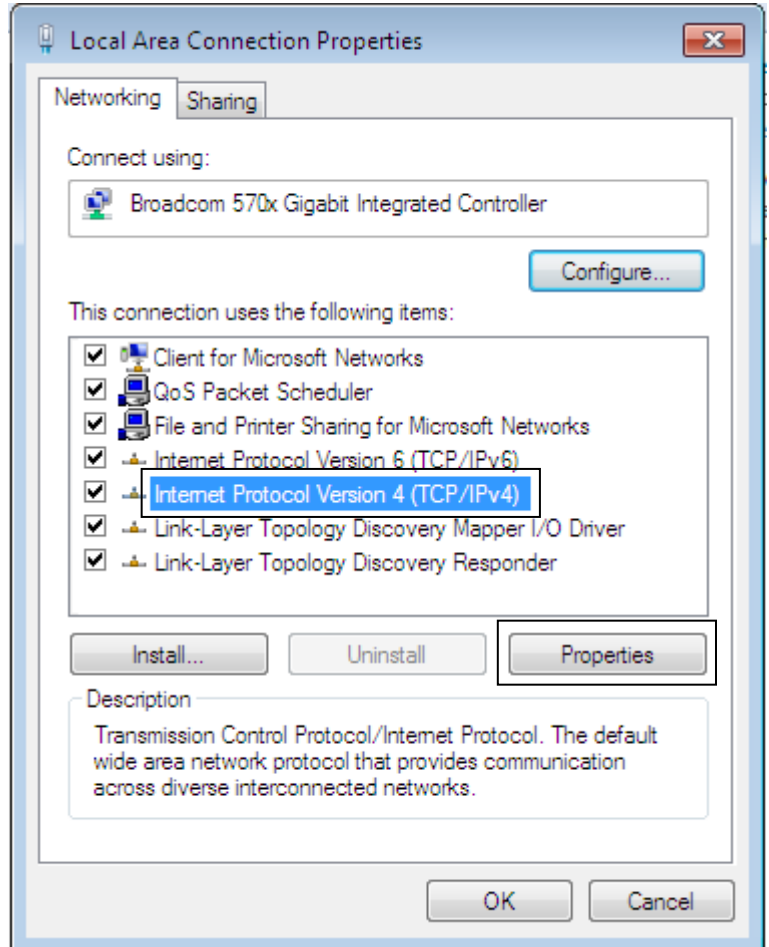
3. When the **Network and Sharing Center** window pops up, select and click on **Change adapter settings** on the left window panel.



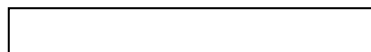
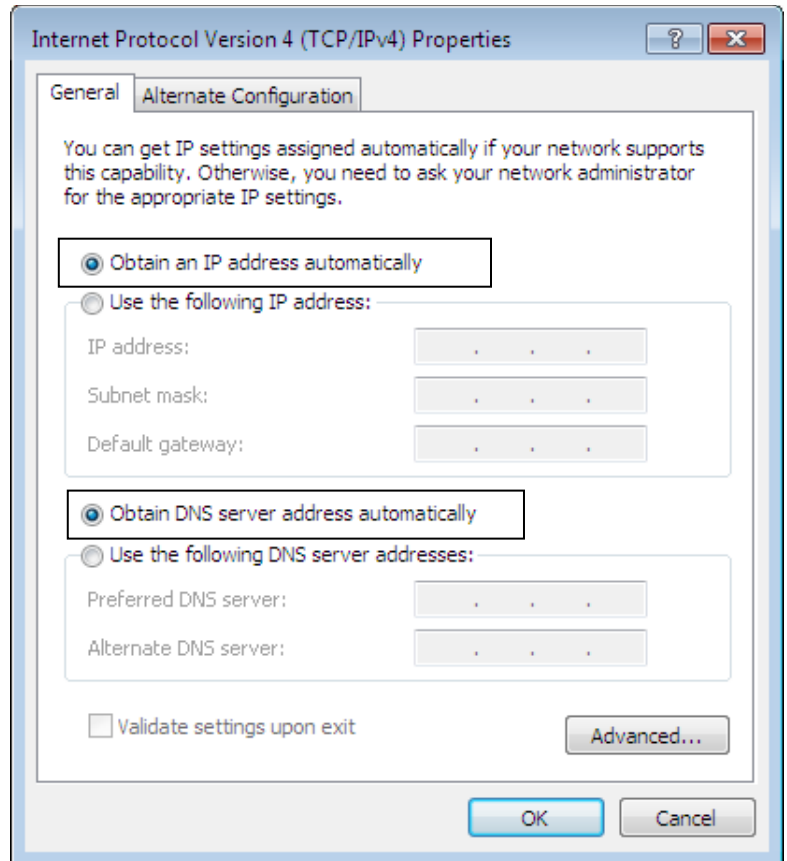
4. Select the **Local Area Connection**, and right click the icon to select **Properties**.



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

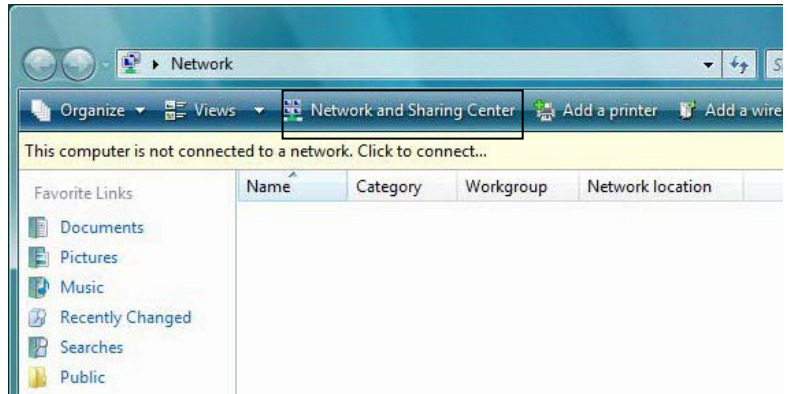


- In the **TCP/IPv4 properties** window, select the **Obtain an IP address automatically** and **Obtain DNS Server address automatically** radio buttons. Then click **OK** to exit the setting.
- Click **OK** again in the **Local Area Connection Properties** window to apply the new configuration.

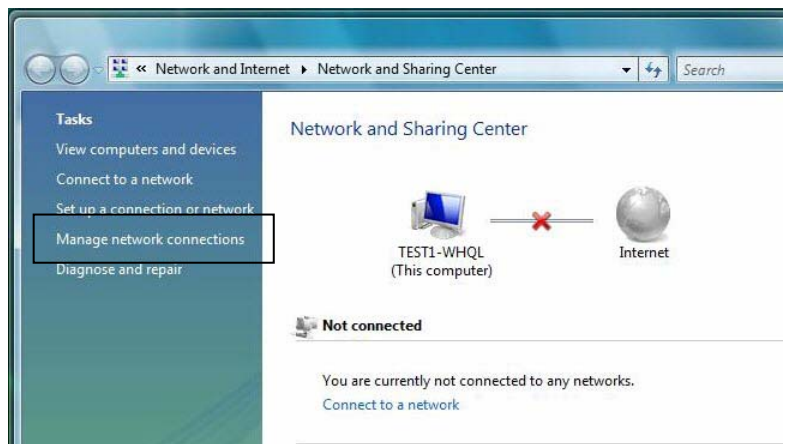


Configuring PC in Windows Vista (IPv4)

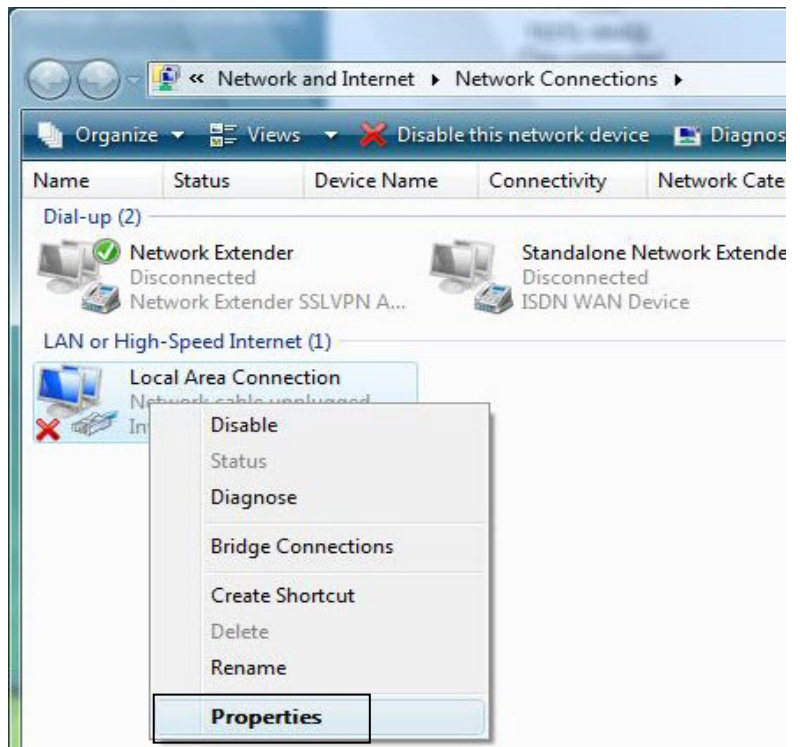
1. Go to **Start**. Click on **Network**.
2. Then click on **Network and Sharing Center** at the top bar.



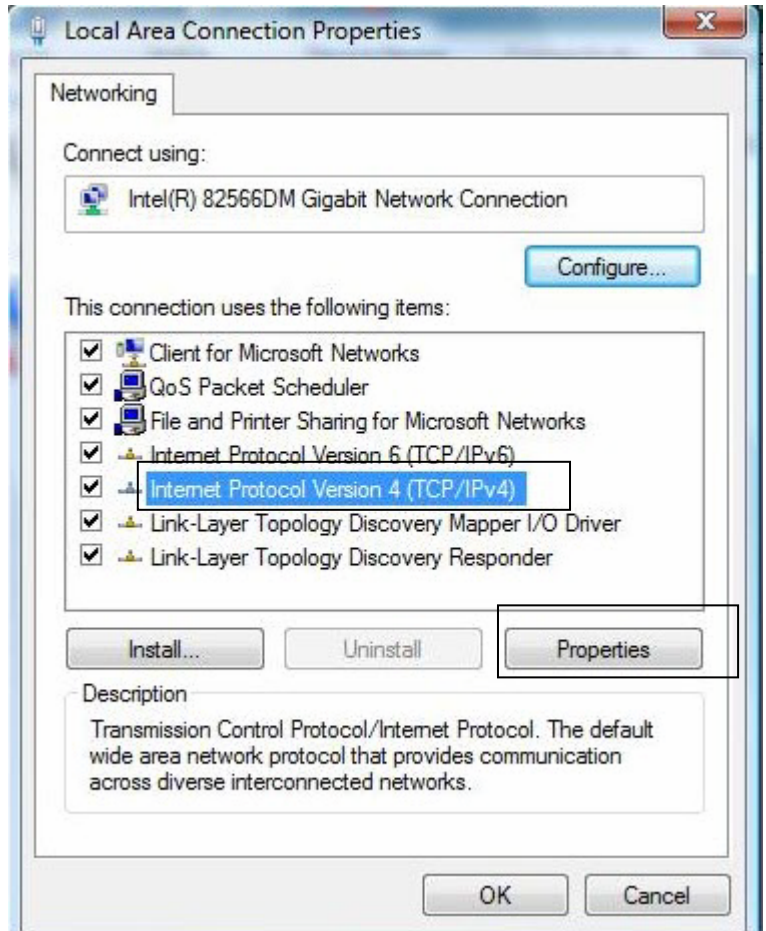
3. When the **Network and Sharing Center** window pops up, select and click on **Manage network connections** on the left window pane.



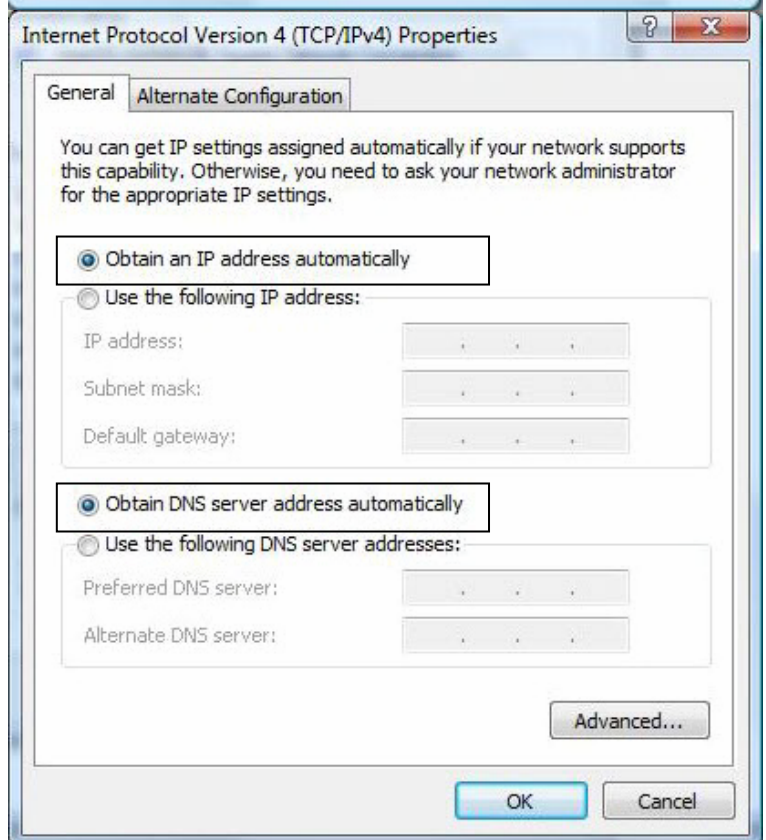
4. Select the **Local Area Connection**, and right click the icon to select **Properties**.



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

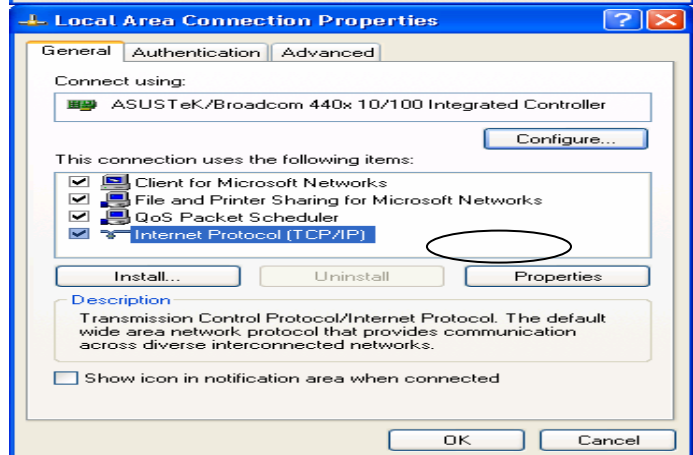
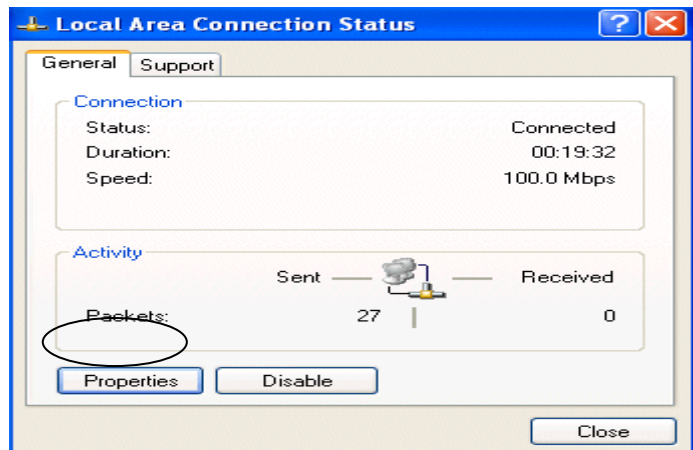
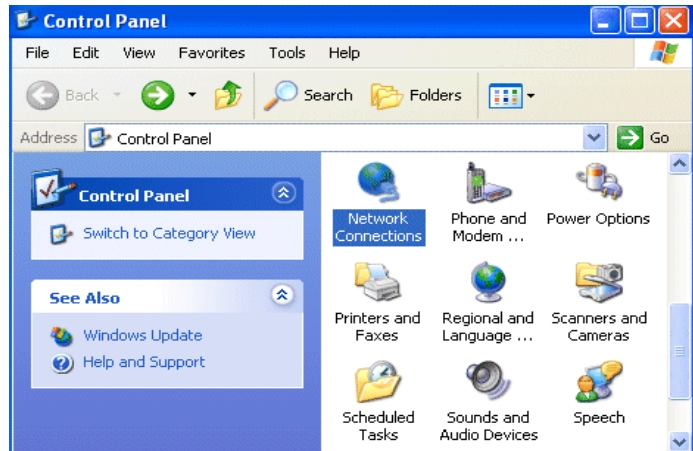


6. In the **TCP/IPv4 properties** window, select the **Obtain an IP address automatically** and **Obtain DNS Server address automatically** radio buttons. Then click **OK** to exit the setting.
7. Click **OK** again in the **Local Area Connection Properties** window to apply the new configuration.

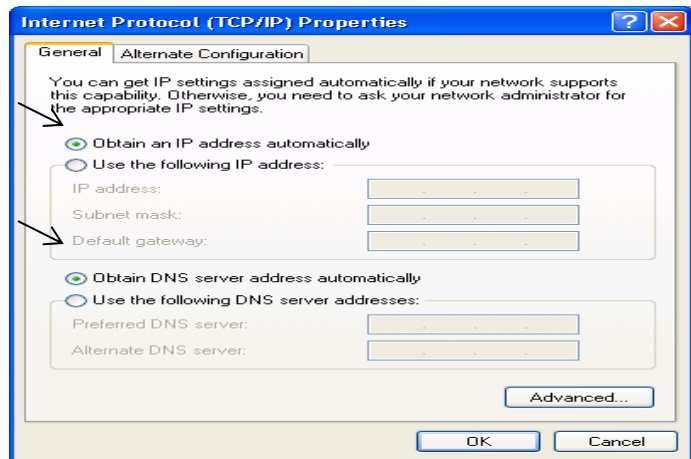


Configuring PC in Windows XP (IPv4)

1. Go to **Start**. Click on **Control Panel**.
2. Then click on **Network and Internet**.
3. In the **Local Area Connection Status** window, click **Properties**.
4. Select **Internet Protocol (TCP/IP)** and click **Properties**.

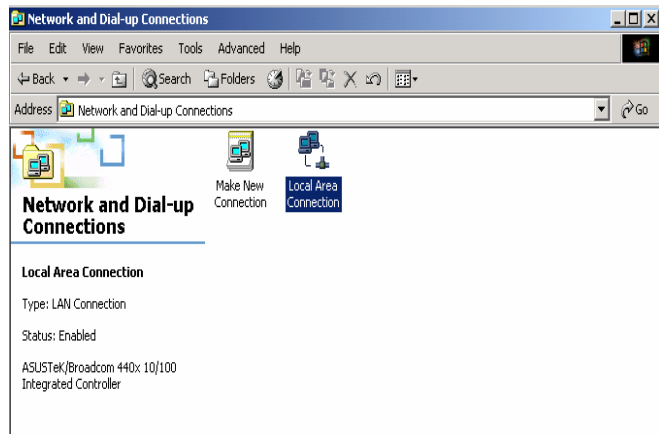


5. Select the **Obtain an IP address automatically** and the **Obtain DNS server address automatically** radio buttons.
6. Click **OK** to finish the configuration.



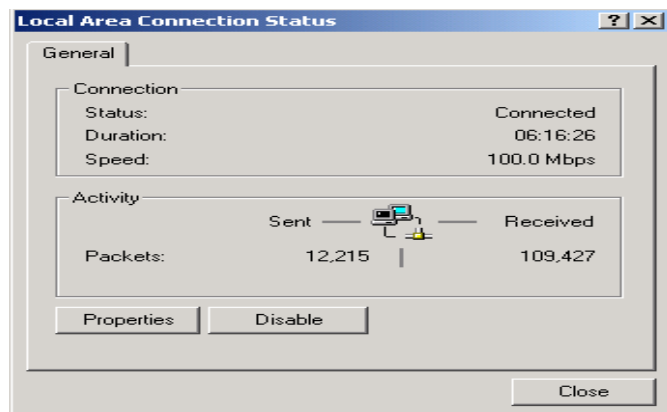
Configuring PC in Windows 2000 (IPv4)

1. Go to **Start / Settings / Control Panel**. In the Control Panel, double-click on **Network and Dial-up Connections**.

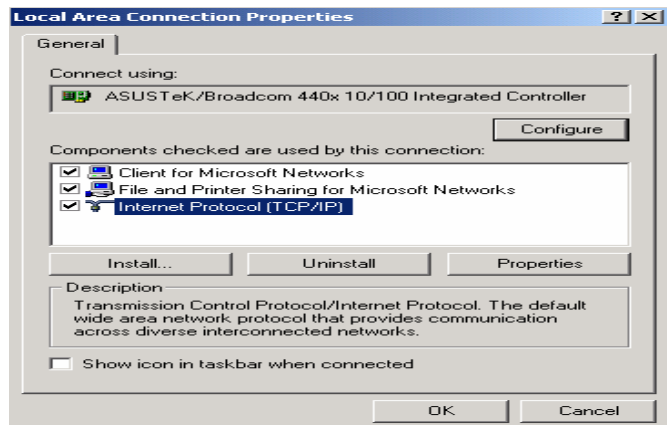


2. Double-click **Local Area Connection**.

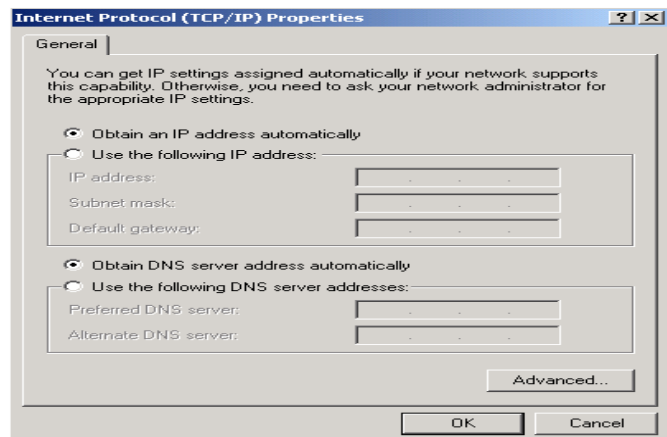
3. In the **Local Area Connection Status** window click **Properties**.



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



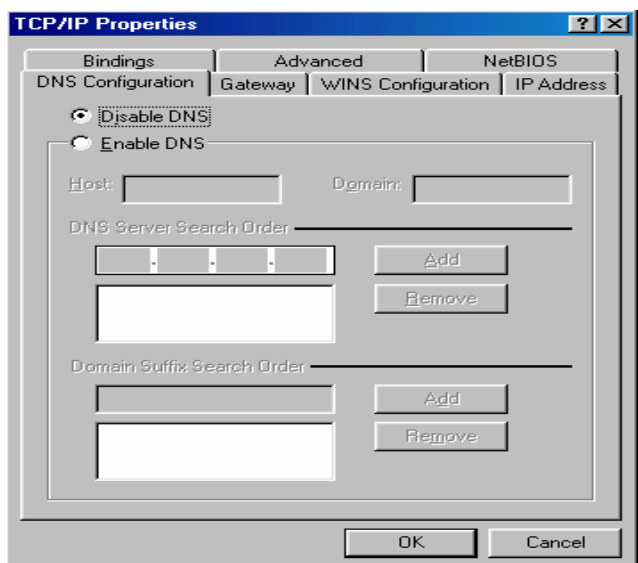
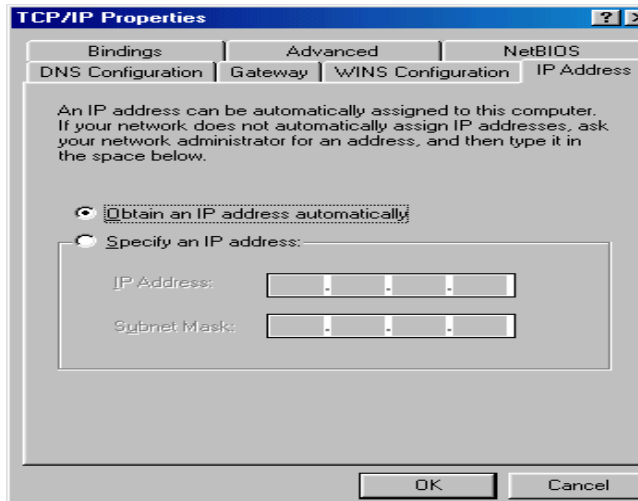
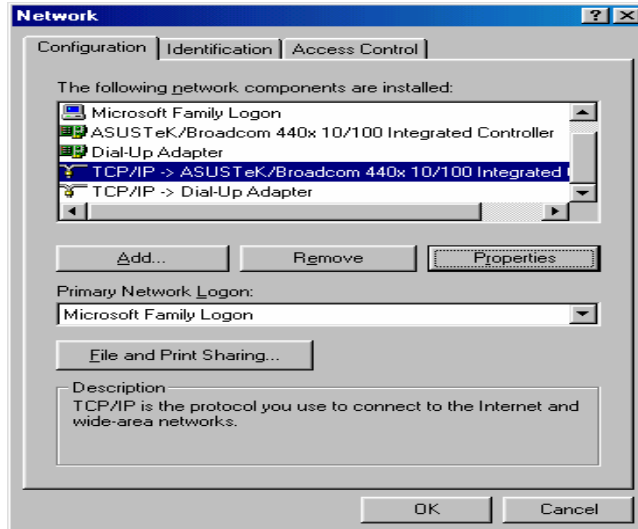
5. Select the **Obtain an IP address automatically** and the **Obtain DNS server address automatically** radio buttons.



6. Click **OK** to finish the configuration.

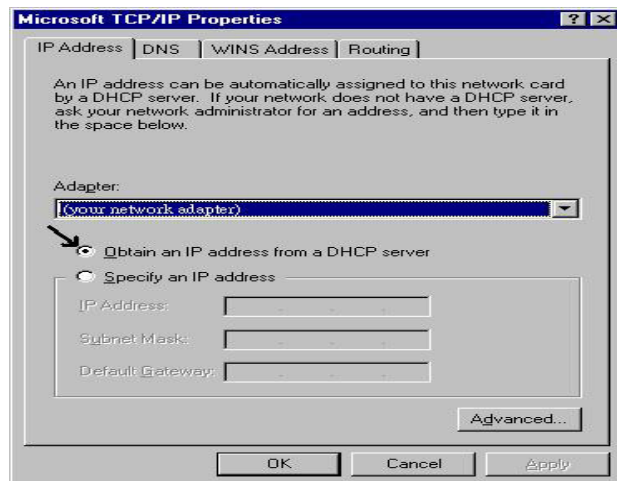
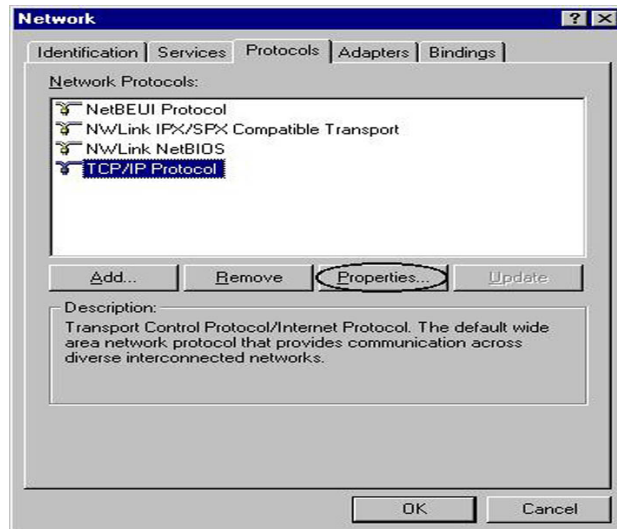
Configuring PC in Windows 98/ME

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. Select the **Obtain an IP address automatically** radio button.
4. Then select the **DNS Configuration** tab.
5. Select the **Disable DNS** radio button and click **OK** to finish the configuration.



Configuring PC in Windows NT4.0

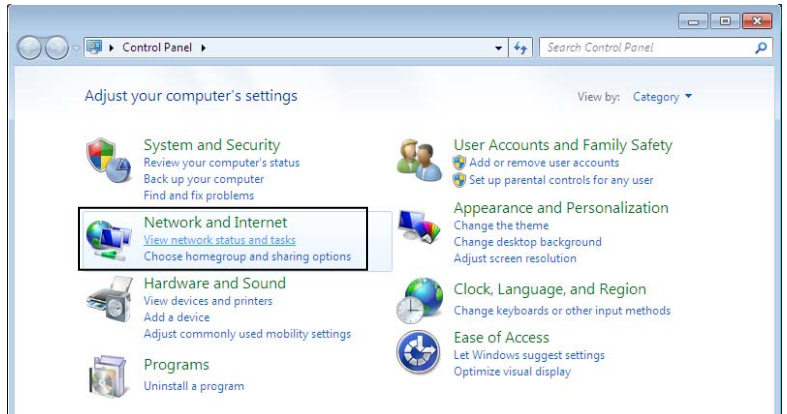
1. Go to **Start / Settings / Control Panel**. In the Control Panel, double-click on **Network** and choose the **Protocols** tab.
2. Select **TCP/IP Protocol** and click **Properties**.
3. Select the **Obtain an IP address from a DHCP server** radio button and click **OK**.



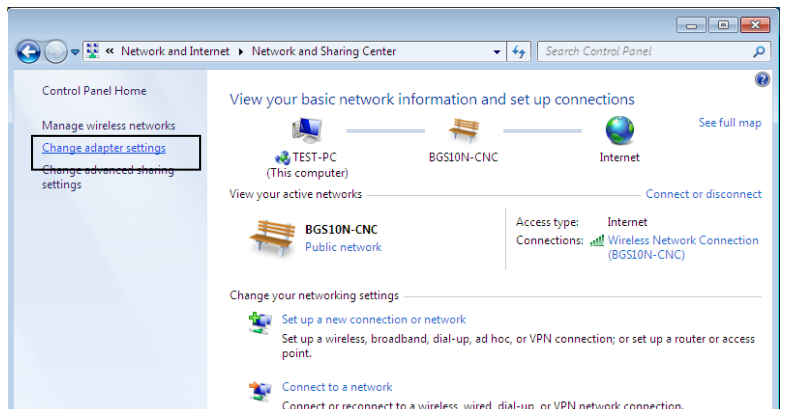
Network Configuration – IPv6

Configuring PC in Windows 7/8 (IPv6)

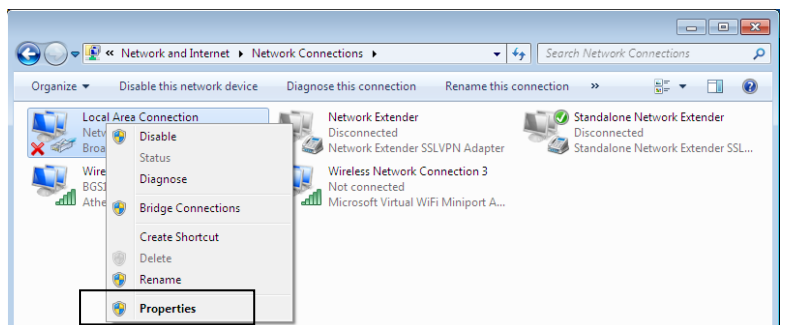
1. Go to **Start**. Click on **Control Panel**.
2. Then click on **Network and Internet**.



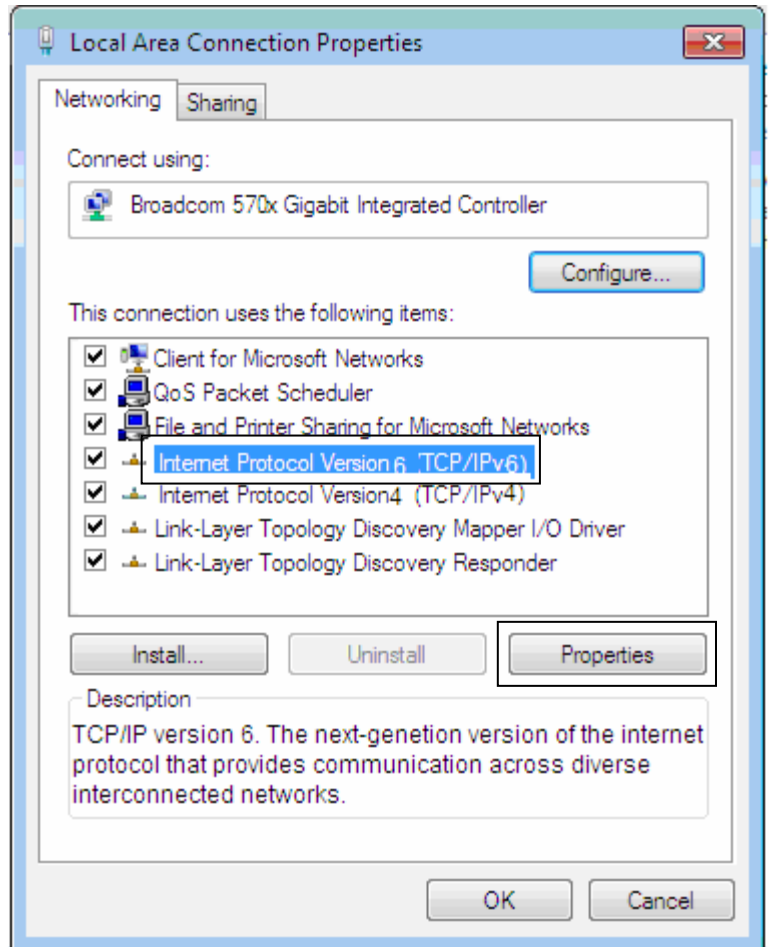
3. When the **Network and Sharing Center** window pops up, select and click on **Change adapter settings** on the left window panel.



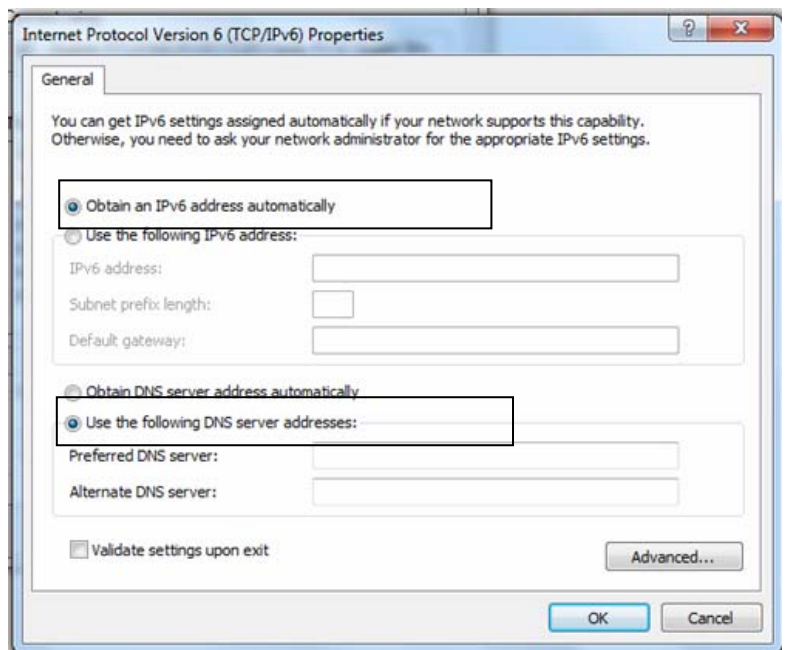
4. Select the **Local Area Connection**, and right click the icon to select **Properties**.



5. Select **Internet Protocol Version 6 (TCP/IPv6)** then click **Properties**.

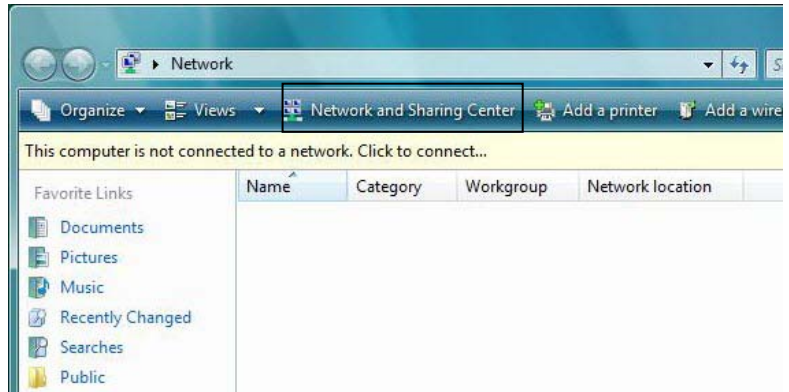


6. In the **TCP/IPv6 properties** window, select the **Obtain an IPv6 address automatically** and **Obtain DNS Server address automatically** radio buttons. Then click **OK** to exit the setting.
7. Click **OK** again in the **Local Area Connection Properties** window to apply the new configuration.

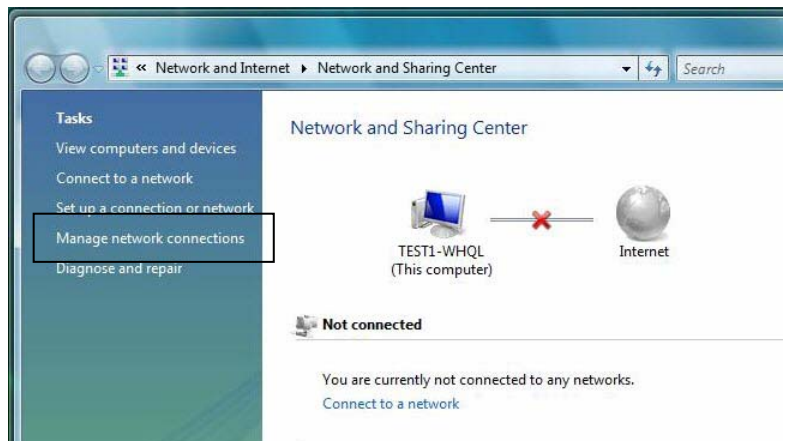


Configuring PC in Windows Vista (IPv6)

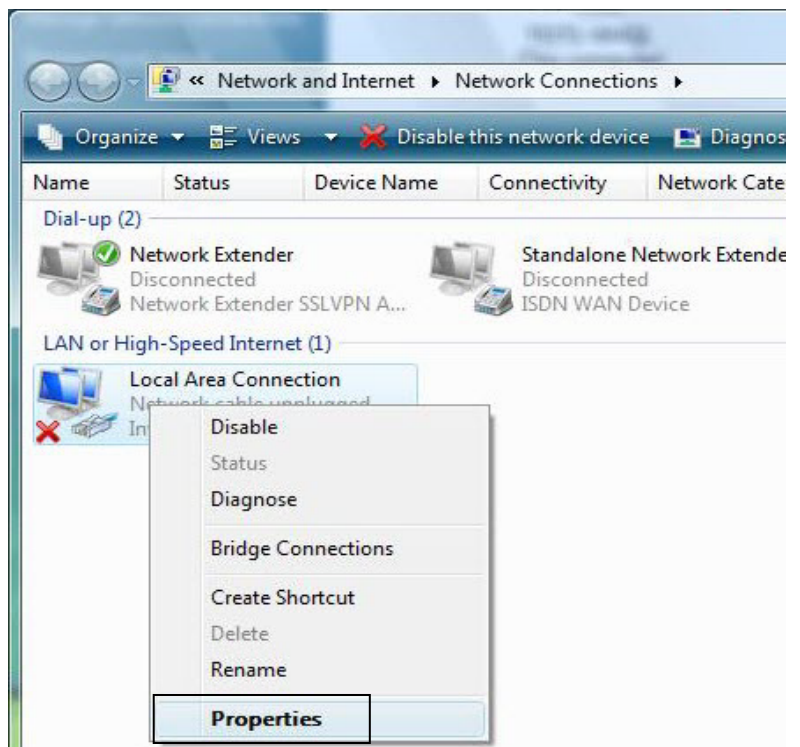
1. Go to **Start**. Click on **Network**.
2. Then click on **Network and Sharing Center** at the top bar.



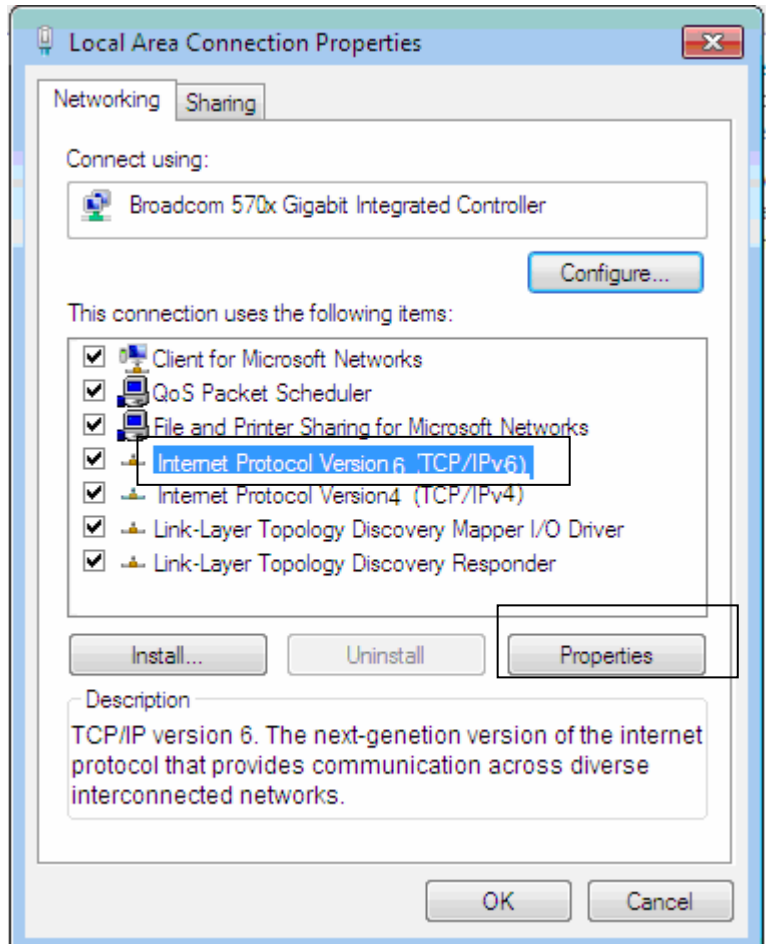
3. When the **Network and Sharing Center** window pops up, select and click on **Manage network connections** on the left window pane.



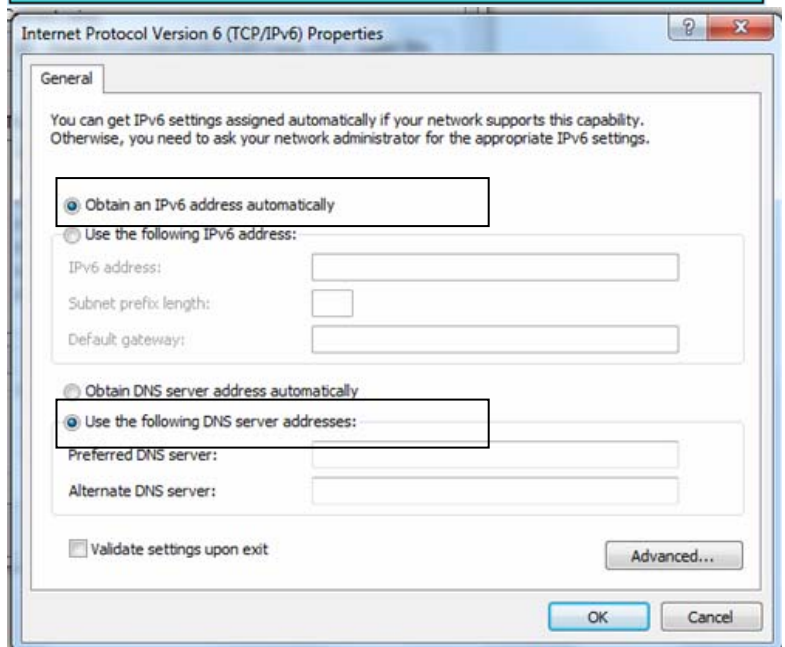
4. Select the **Local Area Connection**, and right click the icon to select **Properties**.



5. Select **Internet Protocol Version 6 (TCP/IPv6)** then click **Properties**.



6. In the **TCP/IPv6 properties** window, select the **Obtain an IP address automatically** and **Obtain DNS Server address automatically** 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.

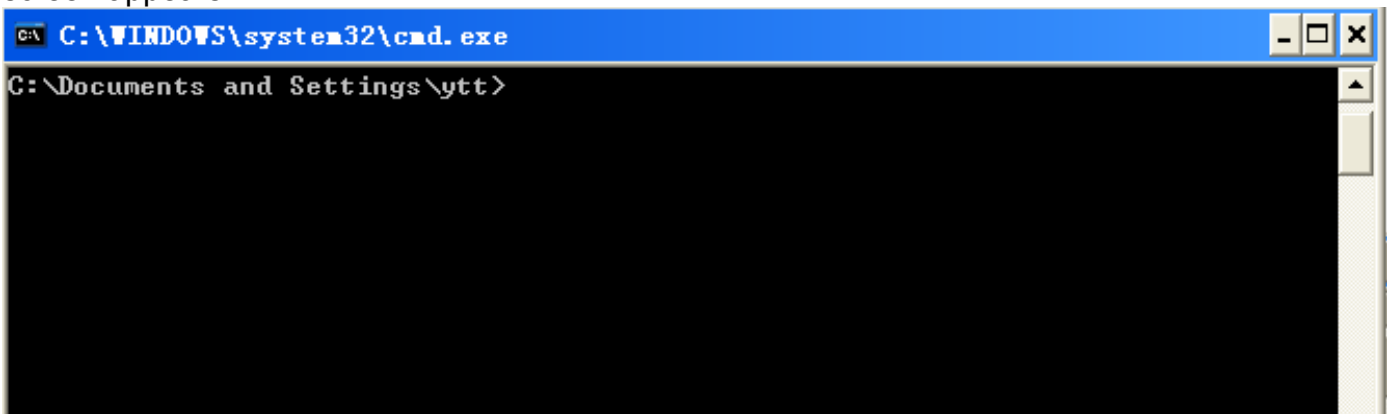


Configuring PC in Windows XP (IPv6)

IPv6 is supported by Windows XP, but you need to install it first.

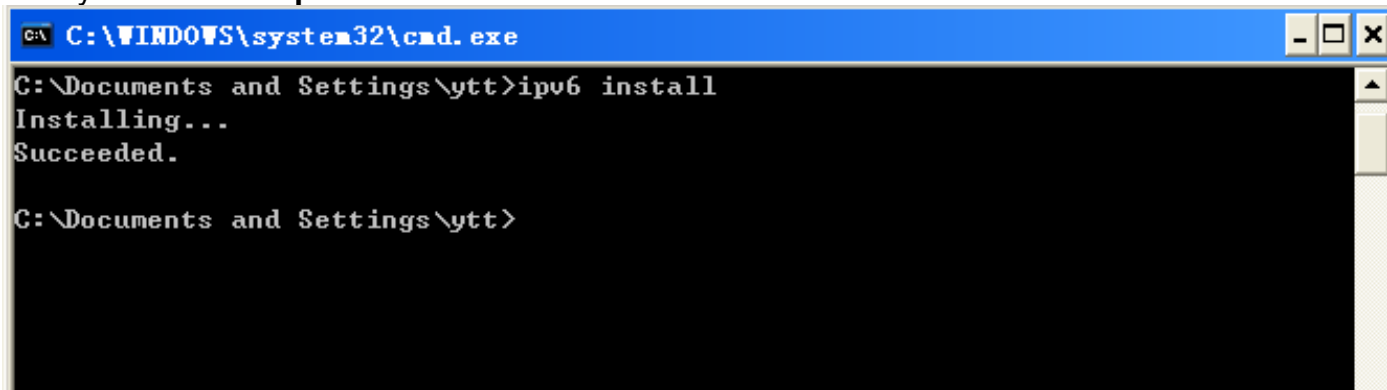
Please follow the steps to install IPv6:

1. On the Desktop, Click **Start > Run**, type **cmd**, then press **Enter** key in the keyboard, the following screen appears.



```
C:\WINDOWS\system32\cmd.exe
C:\Documents and Settings\ytt>
```

2. Key in command **ipv6 install**



```
C:\WINDOWS\system32\cmd.exe
C:\Documents and Settings\ytt>ipv6 install
Installing...
Succeeded.
C:\Documents and Settings\ytt>
```

Installation of IPv6 is now completed. Please test it to see if it works or not. .

Default Settings

Before configuring the router, 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.



If you ever forget the username/password to login to the router, you may press the RESET button up to 6 seconds then release it to restore the factory default settings.

Caution: After pressing the RESET button for more than 6 seconds then release it, to be sure you power cycle the device again.

Device LAN IP Settings

- ✓ IP Address: 192.168.1.254
- ✓ Subnet Mask: 255.255.255.0

DHCP Server:

- ✓ DHCP server is enabled.
- ✓ Start IP Address: 192.168.1.100
- ✓ IP pool counts: 100

Information from Your ISP

Before configuring this device, you have to check with your ISP (Internet Service Provider) what kind of service is provided such as **EWAN** ((Dynamic IP address, Static IP address, PPPoE, Bridge Mode).

Gather the information as illustrated in the following table and keep it for reference.

PPPoE	Username, Password, Service Name, and Domain Name System (DNS) IP address (it can be automatically assigned by your ISP when you connect or be set manually).
Dynamic IP Address	DHCP Client (it can be automatically assigned by your ISP when you connect or be set manually).
Static IP Address	IP address, Subnet mask, Gateway address, and Domain Name System (DNS) IP address (it is fixed IP address).
Bridge Mode	Pure Bridge

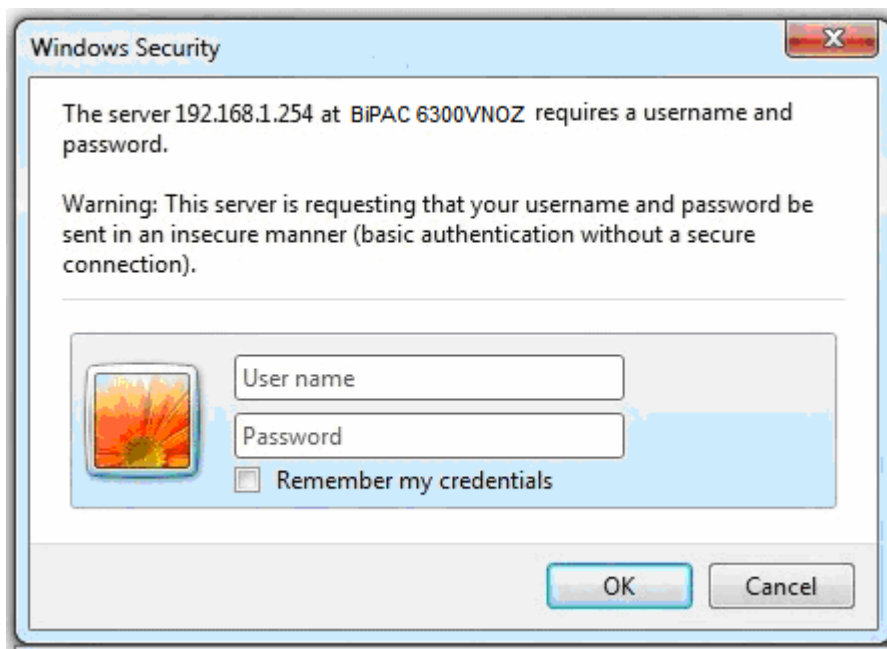
Chapter 4: Device Configuration

Login to your Device

Open your web browser, enter the IP address of your router, which by default is **192.168.1.254**, and click **Go**, a user name and password window prompt appears.

The default username and password is **“admin”** and **“admin”** respectively for the **Administrator**.

NOTE: This username / password may vary by different Internet Service Providers.



Congratulations! You have successfully logged on to your BIPAC 6300VNP(O)Z !

Once you have logged on to your BIPAC 6300VNP(O)Z via your web browser, you can begin to set it up according to your requirements. On the configuration homepage, the left navigation pane links you directly to the setup pages, which includes:

Section	Status	Quick Start (Wizard Setup)	Configuration	Language
Sub-Items	Device Info		Interface Setup <ul style="list-style-type: none"> - Internet - LAN - Wireless - Wireless MAC Filter 	
	System Log		Advanced Setup <ul style="list-style-type: none"> - Firewall - Routing - NAT - Static DNS - QoS - Interface Grouping - Time Schedule 	
	3G/4G-LTE Status		VoIP <ul style="list-style-type: none"> - Basic - Media - Advanced - Speed Dial - Call Features 	
	Statistics		Access Management <ul style="list-style-type: none"> - Device Management - SNMP - Universal Plug & Play (UPnP) - Dynamic DNS - Access Control - Packet Filter - CWMP (TR-069) - Parental Control - SAMBA & FTP Server 	
	DHCP Table		Maintenance <ul style="list-style-type: none"> - User Management - Time Zone - Firmware & Configuration - System Restart - Diagnostic Tool 	
	Disk Status			
	VoIP Status			

Please see the relevant sections of this manual for detailed instructions on how to configure your gateway.

Status

In this section, you can check the router working status, including **Device Info**, **System Log**, **3G Status**, **Statistics**, **DHCP Table**, **IPSEC Status**, **PPTP Status**, **L2TP Status**, **Disk Status**, and **VoIP Status**.

BILLION 4G/LTE Wireless-N BB Gateway Powering communications with Security

Status

- ▼ Status
 - Device Info
 - System Log
 - 3G Status
 - Statistics
 - DHCP Table
 - IPSEC Status
 - PPTP Status
 - L2TP Status
 - Disk Status
 - VoIP Status
 - **Quick Start**
 - Configuration
 - Language

Device Information

Model Name	BiPAC 6300VNOZ
Firmware Version	1.02b.rc6.dt2
MAC Address	00:04:ED:33:55:11
LAN	
IPv4	
IP Address	192.168.1.254
Subnet Mask	255.255.255.0
DHCPv4 Server	Enable
IPv6	
IP Address	
Prefix Length	
DHCPv6 Server	Enable Stateless
WAN	
Interface	EWAN
Connection Type	Dynamic IP
IPv4	
Status	Connected
IP Address	172.16.1.199 <input type="button" value="renewIP"/> <input type="button" value="releasIP"/>
Subnet Mask	255.255.255.0
Default Gateway	172.16.1.254
DNS Server	172.16.1.254
IPv6	
Status	Not Connected

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Device Info

It contains basic information of the device.

The screenshot shows the 'Status' page of a router. The 'Device Information' section includes:

- Model Name: BiPAC 6300VNOZ
- Firmware Version: 1.02b.rc6.dt2
- MAC Address: 00:04:ED:01:23:45

The LAN section includes:

- IPv4:
 - IP Address: 192.168.1.254
 - Subnet Mask: 255.255.255.0
 - DHCPv4 Server: Enable
- IPv6:
 - DHCPv6 Server: Enable Stateless

The WAN section includes:

- Interface: 3G/4G-LTE
- Connection Time: 0d: 1h:13m:22s
- IPv4:
 - Status: Connected
 - IP Address: 100.101.33.242
 - Subnet Mask: 255.255.255.252
 - Default Gateway: 100.101.33.241
 - DNS Server: 168.95.1.1

The 3G/4G-LTE section includes:

- Signal Strength: -72.00dbm
- Network Name: "Chunghwa Telecom"
- Card IMEI:
- Card IMSI:

Device Information

Model Name: Name of the router for identification purpose.

Firmware Version: Software version currently loaded in the router

MAC Address: A unique number that identifies the router

LAN▶ **IPv4:**

IP Address: LAN port IPv4 address.

Subnet Mask: LAN port IP subnet mask.

DHCPv4 Server: LAN port DHCP role - Enabled, Relay or Disabled.

▶ **IPv6:**

IP Address: LAN port IPv6 address.

Prefix Length: The prefix length

DHCPv6 Server: The DHCP status.

WAN

Interface: WAN connection options, "EWAN" or "3G/4G-LTE".

Service: The WAN interface service index.

PPP Connection Time: the uptime of the PPP connection.

▶ **IPv4:**

Status: The connection status, either being connected or not in connected.

IP Address: WAN port IP address.

Subnet Mask: WAN port IP subnet mask.

Default Gateway: The IP address of the default gateway.

DNS Server: DNS information.

▶ **IPv6:**

Status: The IPv6 connection status.

IP Address: WAN port IPv6 address.

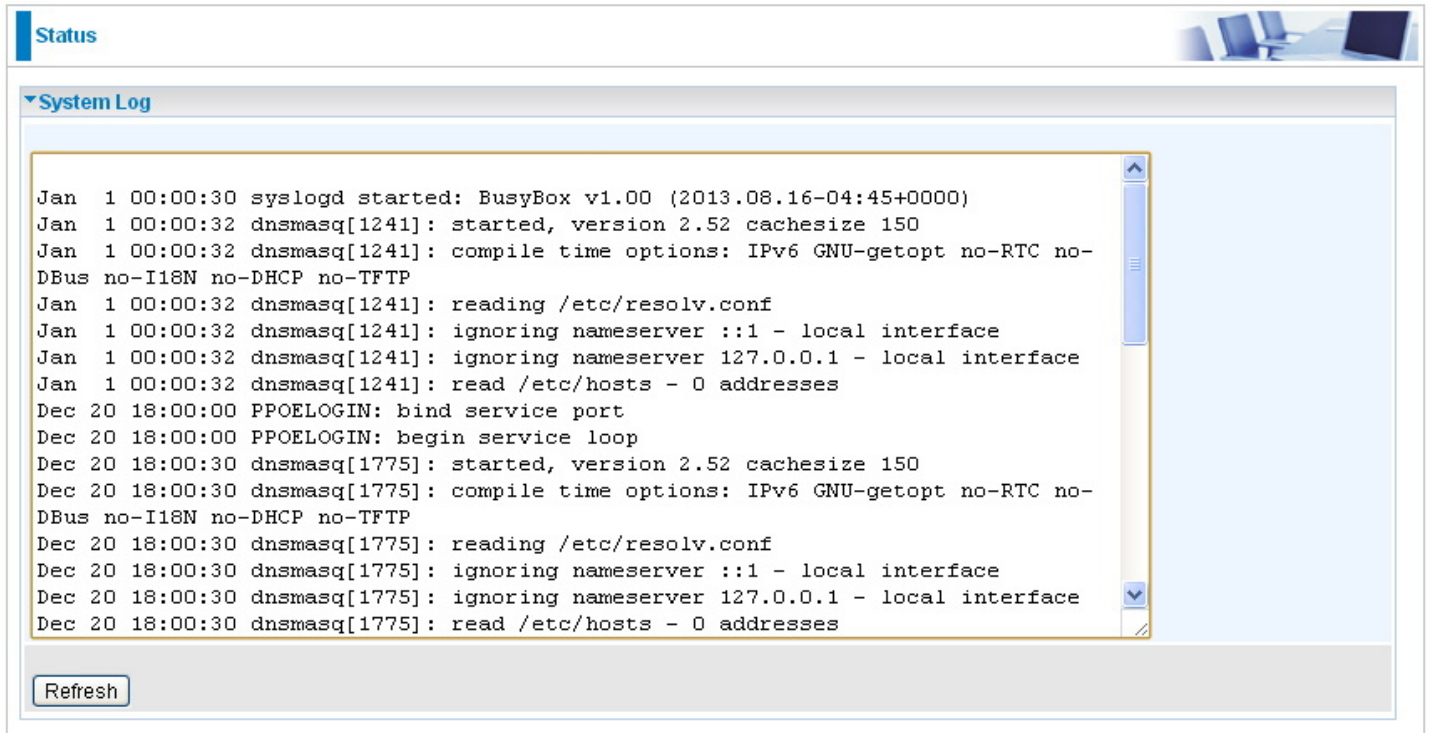
Prefix Length: The prefix length of IPv6 address.

Default Gateway: The IP address of the default gateway.

DNS Server: DNS information.

System Log

In system log, you can check the operations status and any glitches to the router.



Status


System Log

```
Jan  1 00:00:30 syslogd started: BusyBox v1.00 (2013.08.16-04:45+0000)
Jan  1 00:00:32 dnsmasq[1241]: started, version 2.52 cachesize 150
Jan  1 00:00:32 dnsmasq[1241]: compile time options: IPv6 GNU-getopt no-RTC no-
DBus no-I18N no-DHCP no-TFTP
Jan  1 00:00:32 dnsmasq[1241]: reading /etc/resolv.conf
Jan  1 00:00:32 dnsmasq[1241]: ignoring nameserver ::1 - local interface
Jan  1 00:00:32 dnsmasq[1241]: ignoring nameserver 127.0.0.1 - local interface
Jan  1 00:00:32 dnsmasq[1241]: read /etc/hosts - 0 addresses
Dec 20 18:00:00 PPOELOGIN: bind service port
Dec 20 18:00:00 PPOELOGIN: begin service loop
Dec 20 18:00:30 dnsmasq[1775]: started, version 2.52 cachesize 150
Dec 20 18:00:30 dnsmasq[1775]: compile time options: IPv6 GNU-getopt no-RTC no-
DBus no-I18N no-DHCP no-TFTP
Dec 20 18:00:30 dnsmasq[1775]: reading /etc/resolv.conf
Dec 20 18:00:30 dnsmasq[1775]: ignoring nameserver ::1 - local interface
Dec 20 18:00:30 dnsmasq[1775]: ignoring nameserver 127.0.0.1 - local interface
Dec 20 18:00:30 dnsmasq[1775]: read /etc/hosts - 0 addresses
```

Refresh: Press this button to refresh the statistics.

3G/4G-LTE Status

This page contains 3G/4G-LTE connection information.

3G/4G-LTE Status	
WAN	3G/4G-LTE
Status	Up
Signal Strength	 -66.00dbm
Network Name	"Chunghwa Telecom"
Cell ID	0161B57F(23180671)
Card IMEI	-----
Card IMSI	-----
Network Mode	WCDMA
Network Band	WCDMA2100

Refresh

Status: The current status of the 3G/4G-LTE connection.

Signal Strength: The signal strength bar and dBm value indicates the current 3G/4G-LTE signal strength. The front panel 3G/4G-LTE Signal Strength LED indicates the signal strength as well.

Signal Information: Shows important LTE signal parameters such as RSRP (Reference Signal Receiving Power), RSRQ (Reference Signal Receiving Quality), SINR (Signal to Interference plus Noise Ratio).

- RSRP (Reference Signal Receiving Power): is the average power of all resource elements which carry cell-specified reference signals over the entire bandwidth.
- RSRQ (Reference Signal Receiving Quality): measures the signal strength and is calculated based on both RSRP and RSSI.
- RSSI (Received Signal Strength Indicator): parameter which provides information about total received wide-band power (measure in all symbols) including all interference and thermal noise. Please refer to the [Hardware/Front LED Indicators](#) for details.
- SINR (Signal to Interference plus Noise Ratio): is also a measure of signal quality as well. It is widely used by the operators as it provides a clear relationship between RF conditions and throughput. **NOTE: Some LTE modules do not provide this information.**

Network Name: The name of the LTE network the router is connecting to.

Cell ID: The ID of base station that the device is connected to.

Card IMEI: The unique identification number that is used to identify the 3G/4G-LTE module.

Card IMSI: The international mobile subscriber identity used to uniquely identify the 3G/4G-LTE module.

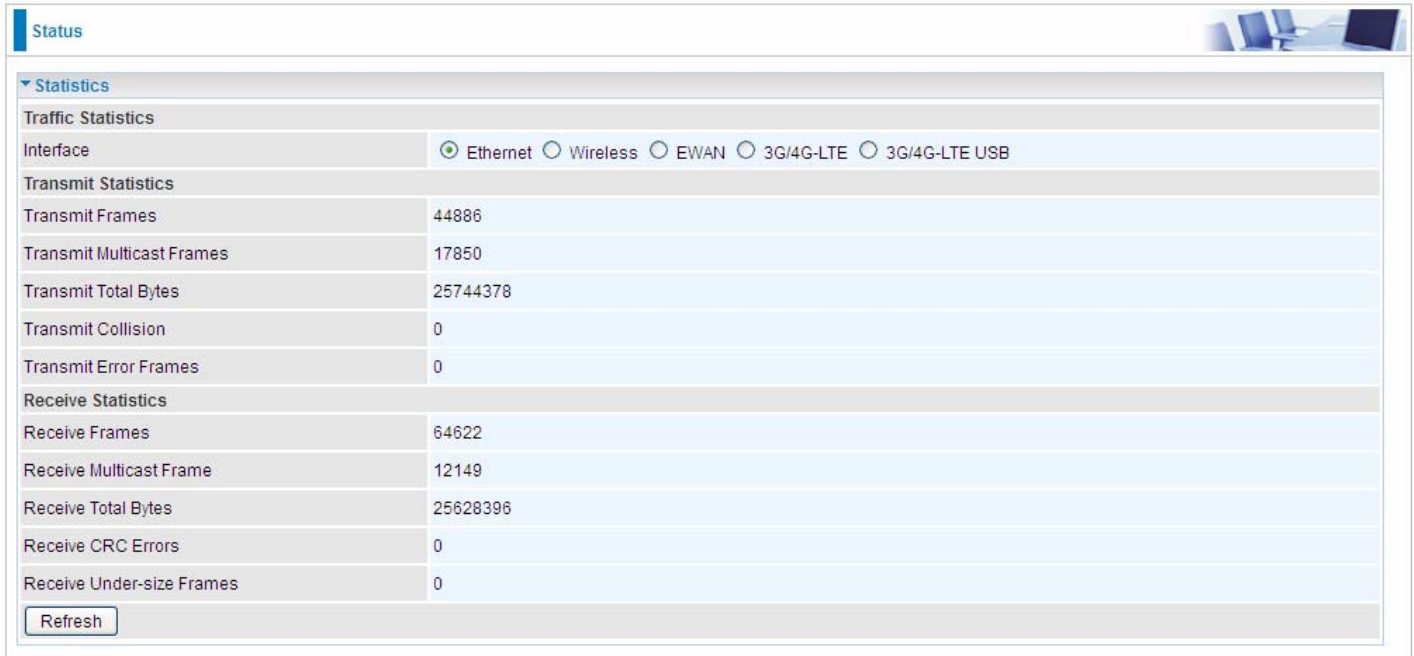
Network Mode: Show the using network mode.

Network Band: Show the using network band.

Refresh: Press this button to refresh the statistics.

Statistics

❖ Ethernet



Traffic Statistics	
Interface	<input checked="" type="radio"/> Ethernet <input type="radio"/> Wireless <input type="radio"/> EWAN <input type="radio"/> 3G/4G-LTE <input type="radio"/> 3G/4G-LTE USB
Transmit Statistics	
Transmit Frames	44886
Transmit Multicast Frames	17850
Transmit Total Bytes	25744378
Transmit Collision	0
Transmit Error Frames	0
Receive Statistics	
Receive Frames	64622
Receive Multicast Frame	12149
Receive Total Bytes	25628396
Receive CRC Errors	0
Receive Under-size Frames	0
<input type="button" value="Refresh"/>	

Interface: List all available network interfaces in the router. You are currently checking on the physical status of the **Ethernet** port.

Transmit Frames: This field displays the number of frames transmitted until the latest second.

Transmit Multicast Frames: This field displays the number of multicast frames transmitted until the latest second.

Transmit Total Bytes: This field displays the number of bytes transmitted until the latest second.

Transmit Collision: This is the number of collisions on this port.

Transmit Error Frames: This field displays the number of error packets on this port.

Receive Frames: This field displays the number of frames received until the latest second.

Receive Multicast Frames: This field displays the number of multicast frames received until the latest second.

Receive Total Bytes: This field displays the number of bytes received until the latest second.

Receive CRC Errors: This field displays the number of error packets on this port.

Receive Under-size Frames: This field displays the number of under-size frames received until the latest second.

Refresh: Press this button to refresh the statistics.

❖ Wireless

The screenshot shows the 'Status' page of a router. Under the 'Statistics' section, the 'Wireless' interface is selected. The statistics are as follows:

Traffic Statistics	
Interface	<input type="radio"/> Ethernet <input checked="" type="radio"/> Wireless <input type="radio"/> EWAN <input type="radio"/> 3G/4G-LTE <input type="radio"/> 3G/4G-LTE USB
Transmit Statistics	
Transmit Frames	392357
Transmit Error Frames	12357
Transmit Drop Frames	12357
Receive Statistics	
Receive Frames	253244
Receive Error Frames	18429
Receive Drop Frames	18429

A 'Refresh' button is located at the bottom left of the statistics table.

Interface: List all available network interfaces in the router. You are currently checking on the physical status of the **Wireless**.

Transmit Frames: This field displays the number of frames transmitted until the latest second.

Transmit Error Frames: This field displays the number of error frames transmitted until the latest second.

Transmit Drop Frames: This field displays the number of drop frames transmitted until the latest second.

Receive Frames: This field displays the number of frames received until the latest second.

Receive Error Frames: This field displays the number of error frames received until the latest second.

Receive Drop Frames: This field displays the number of drop frames received until the latest second.

Refresh: Press this button to refresh the statistics.

❖ EWAN

The screenshot shows the 'Status' page of a router. Under the 'Statistics' section, there is a 'Traffic Statistics' table. At the top of this table, there are radio buttons for selecting the interface: Ethernet, Wireless, EWAN (which is selected), 3G/4G-LTE, and 3G/4G-LTE USB. Below this, the table is divided into 'Transmit Statistics' and 'Receive Statistics' sections. A 'Refresh' button is located at the bottom left of the table.

Traffic Statistics	
Interface	<input type="radio"/> Ethernet <input type="radio"/> Wireless <input checked="" type="radio"/> EWAN <input type="radio"/> 3G/4G-LTE <input type="radio"/> 3G/4G-LTE USB
Transmit Statistics	
Transmit Frames	25681
Transmit Multicast Frames	133
Transmit Total Bytes	5260625
Transmit Collision	0
Transmit Error Frames	0
Receive Statistics	
Receive Frames	39225
Receive Multicast Frame	12357
Receive Total Bytes	20308279
Receive CRC Errors	0
Receive Under-size Frames	0

Interface: List all available network interfaces in the router. You are currently checking on the physical status of the **EWAN** port.

Transmit Frames: This field displays the total number of frames transmitted until the latest second.

Transmit Multicast Frames: This field displays the total number of multicast frames transmitted till the latest second.

Transmit Total Bytes: This field displays the total number of bytes transmitted until the latest second.

Transmit Collision: This is the number of collisions on this port.

Transmit Error Frames: This field displays the number of error packets on this port.

Receive Frames: This field displays the number of frames received until the latest second.

Receive Multicast Frames: This field displays the number of multicast frames received until the latest second.

Receive Total Bytes: This field displays the number of bytes received until the latest second.

Receive CRC Errors: This field displays the number of error packets on this port.

Receive Under-size Frames: This field displays the number of under-size frames received until the latest second.

Refresh: Press this button to refresh the statistics.

❖ 3G/4G-LTE

Take 3G/4G-LTE as an example to describe the following connection transmission information.

The screenshot shows the 'Status' page of a router. Under the 'Statistics' section, there is a 'Traffic Statistics' table. At the top of this table, there are radio buttons for selecting the interface: Ethernet, Wireless, EWAN, 3G/4G-LTE (which is selected), and 3G/4G-LTE USB. Below this, the table is divided into 'Transmit Statistics' and 'Receive Statistics' sections. The 'Transmit Statistics' section includes: Transmit Frames of Current Connection (3174), Transmit Bytes of Current Connection (369463), Transmit Total Frames (3174), and Transmit Total Bytes (369463). The 'Receive Statistics' section includes: Receive Frames of Current Connection (3235), Receive Bytes of Current Connection (3142766), Receive Total Frames (3235), and Receive Total Bytes (3142766). A 'Refresh' button is located at the bottom left of the statistics table.

Traffic Statistics	
Interface	<input type="radio"/> Ethernet <input type="radio"/> Wireless <input type="radio"/> EWAN <input checked="" type="radio"/> 3G/4G-LTE <input type="radio"/> 3G/4G-LTE USB
Transmit Statistics	
Transmit Frames of Current Connection	3174
Transmit Bytes of Current Connection	369463
Transmit Total Frames	3174
Transmit Total Bytes	369463
Receive Statistics	
Receive Frames of Current Connection	3235
Receive Bytes of Current Connection	3142766
Receive Total Frames	3235
Receive Total Bytes	3142766

Interface: List all available network interfaces in the router. You are currently checking on the physical status of **3G/4G-LTE** interface.

Transmit Frames of Current Connection: This field displays the total number of 3G/4G-LTE frames transmitted until the latest second for the current connection.

Transmit Bytes of Current Connection: This field shows the total bytes transmitted till the latest second for the current connection for the current connection.

Transmit Total Frames: The field displays the total number of frames transmitted till the latest second since system is up.

Transmit Total Bytes: This field displays the total number of bytes transmitted until the latest second since system is up.

Receive Frames of Current Connection: This field displays the number of frames received until the latest second for the current connection.

Receive Bytes of Current Connection: This field shows the total bytes received till the latest second for the current connection.

Receive Total Frames: This field displays the total number of frames received until the latest second since system is up.

Receive Total Bytes: This field displays the total frames received till the latest second since system is up.

❖ 3G/4G_LTE via USB port

Take 3G/4G-LTE USB as an example to describe the following connection transmission information.

The screenshot shows the 'Status' page of a router. Under the 'Statistics' section, there is a 'Traffic Statistics' table. At the top of this table, there are radio buttons for selecting an interface: Ethernet, Wireless, EWAN, 3G/4G-LTE (which is selected), and 3G/4G-LTE USB. Below this, the table is divided into 'Transmit Statistics' and 'Receive Statistics' sections. The 'Transmit Statistics' section includes: Transmit Frames of Current Connection (3174), Transmit Bytes of Current Connection (369463), Transmit Total Frames (3174), and Transmit Total Bytes (369463). The 'Receive Statistics' section includes: Receive Frames of Current Connection (3235), Receive Bytes of Current Connection (3142766), Receive Total Frames (3235), and Receive Total Bytes (3142766). A 'Refresh' button is located at the bottom left of the statistics table.

Traffic Statistics	
Interface	<input type="radio"/> Ethernet <input type="radio"/> Wireless <input type="radio"/> EWAN <input checked="" type="radio"/> 3G/4G-LTE <input type="radio"/> 3G/4G-LTE USB
Transmit Statistics	
Transmit Frames of Current Connection	3174
Transmit Bytes of Current Connection	369463
Transmit Total Frames	3174
Transmit Total Bytes	369463
Receive Statistics	
Receive Frames of Current Connection	3235
Receive Bytes of Current Connection	3142766
Receive Total Frames	3235
Receive Total Bytes	3142766

Interface: List all available network interfaces in the router. You are currently checking on the physical status of **3G/4G-LTE** interface.

Transmit Frames of Current Connection: This field displays the total number of 3G/4G-LTE frames transmitted until the latest second for the current connection.

Transmit Bytes of Current Connection: This field shows the total bytes transmitted till the latest second for the current connection for the current connection.

Transmit Total Frames: The field displays the total number of frames transmitted till the latest second since system is up.

Transmit Total Bytes: This field displays the total number of bytes transmitted until the latest second since system is up.

Receive Frames of Current Connection: This field displays the number of frames received until the latest second for the current connection.

Receive Bytes of Current Connection: This field shows the total bytes received till the latest second for the current connection.

Receive Total Frames: This field displays the total number of frames received until the latest second since system is up.

Receive Total Bytes: This field displays the total frames received till the latest second since system is up.

DHCP Table

DHCP table displays the devices connected to the router with clear information.



The screenshot shows a web interface with a 'Status' tab and a 'DHCP Table List' section. The table contains the following data:

#	Host Name	IP Address	MAC Address	Expire Time
1	billion-17bc6f1	192.168.1.104	18:A9:05:38:04:03	0days 23:37:51

#: The index identifying the connected devices.

Host Name: Show the hostname of the PC.

IP Address: The IP allocated to the device.

MAC Address: The MAC of the connected device.

Expire Time: The total remaining interval since the IP assignment to the PC.

IPSEC Status (6300VNOZ only)

Configuration 

▼ IPSEC Status

#	Connection Name	Remote Gateway	Local Address	Remote Address	Connected	Rx/Tx	Action
0	test	172.16.1.210	192.168.1.0/24	192.168.2.0/24		0/0	<input type="button" value="Connect"/> <input type="button" value="Drop"/>

#: The IPsec entry index number.

Connection Name: User-defined IPSEC VPN connection name.

Remote Gateway: The IP of the remote gateway.

Local Address: The IP and netmask of local access range.

Remote address: The IP and netmask of remote access range.

Connected: Show the connecting status.

Rx/Tx: Display the upstream/downstream traffic per session in KB. The value clears when session disconnects.

Action: Connect or Drop the connection.

PPTP Status (6300VNOZ only)

Configuration									
PPTP Status									
PPTP Client									
User	Connection Name	Active	Username	Connection Type	ServerIP	Peer Network IP	NetMask	Connected	
User1	test2	No	test2	Lan to Lan	10.40.90.172	192.168.0.0	255.255.255.0	No	
PPTP Server									
User	Connection Name	Active	Username	Connection Type	Assigned IP	Peer Network IP	NetMask	Connected	
User1	test	Yes	test	Remote Access	192.168.1.2			Yes	
<input type="button" value="Refresh"/>									

PPTP Client

User: Four users(sessions) for client sessions. Here shows the using user.

Connection Name: Show user-defined PPTP VPN connection name.

Active: Show if the tunnel is active for connection.

Connection Type: Remote Access or LAN to LAN.

Server IP: Show the IP of VPN Server.

Peer Network IP: Display the remote network(server side) and subnet mask in LAN to LAN PPTP connection.

NetmaskK: Show the netmask of peer network.

Connected: Show the connecting status.

PPTP Server

User: Four users(sessions) for server sessions. Here shows the using user.

Connection Name: Show user-defined PPTP VPN connection name.

Active: Show if the tunnel is active for connection.

Connection Type: Remote Access or LAN to LAN.

Assigned IP: Show the IP assigned to the client by PPTP Server.

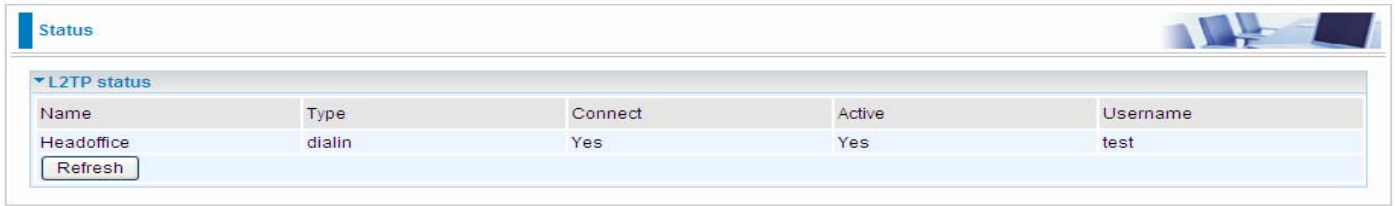
Peer Network IP: Display the remote(client side) network and subnet mask in LAN to LAN PPTP connection.

NetmaskK: Show the netmask of peer network.

Connected: Show the connecting status.

Refresh: Click this button to refresh the connection status.

L2TP Status(6300VNOZ only)



Name	Type	Connect	Active	Username
Headoffice	dialin	Yes	Yes	test

Refresh

Name: Display the user-defined L2TP connection name.

Type: The VPN mode: dialin or dialout.

Connect: The connecting status.

Active: Show if the L2TP tunnel is active for connection.

Username: The user assigned to client (dialout use) or the user set for client to connect in (dialin use).

Disk Status



Partition	Disk Space(KB)	Free Space(KB)
usb1_1	1953988	1732288


Partition: Display the USB storage partition.

Disk Space (KB): Display the total storage space of the NAS in Kbytes unit.

Free Space (KB): Display the available space in Kbytes unit.

VoIP Status

VoIP status gives you a directive picture on the registered VoIP accounts.



Phone Number	Host	Status	Registered Time
7154500000	metaprosy.chib.ardum.net:5060	Registered	Fri, 06 Sep 2013 08:10:28
7154500101	metaprosy.chib.ardum.net:5060	Registered	Fri, 06 Sep 2013 08:10:27

Refresh

Phone Number: The number you use to register in the Basic page of VoIP.

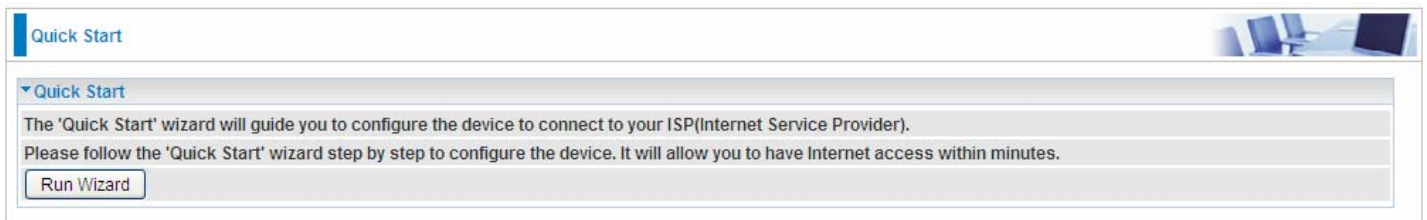
Host: Show the IP address and port number of SIP Registrar.

Status: The status of the registered SIP account.

Registered Time: The duration the account has been successfully registered to the SIP registrar.

Quick Start

This is a useful and easy utility to help you to setup the router quickly and to connect to your ISP (Internet Service Provider) with only a few steps. It will guide you step by step to setup time zone and WAN settings of your device. The Quick Start Wizard is a helpful guide for the first-time users to the device.



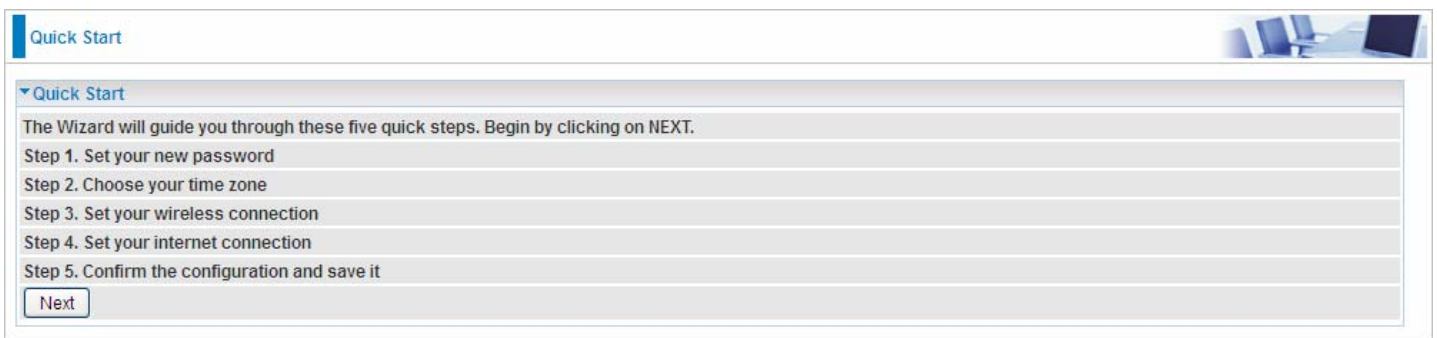
Quick Start

Quick Start

The 'Quick Start' wizard will guide you to configure the device to connect to your ISP(Internet Service Provider). Please follow the 'Quick Start' wizard step by step to configure the device. It will allow you to have Internet access within minutes.

Run Wizard

For detailed instructions on configuring WAN settings, see refer to the **Interface Setup** section.



Quick Start

Quick Start

The Wizard will guide you through these five quick steps. Begin by clicking on NEXT.

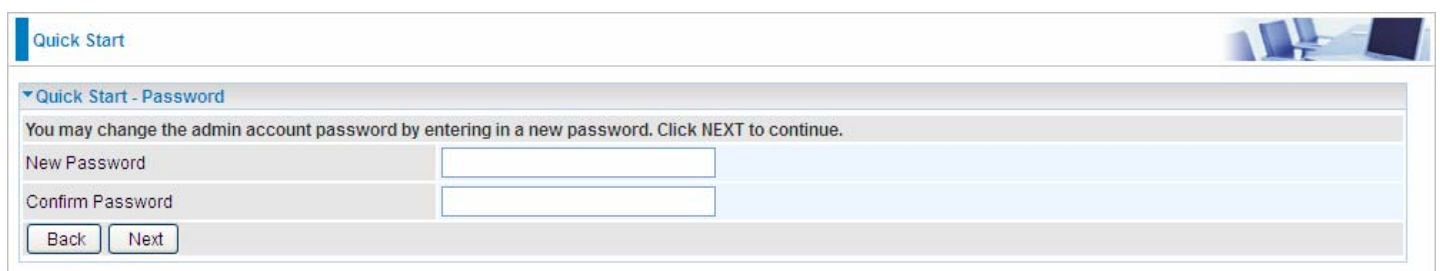
- Step 1. Set your new password
- Step 2. Choose your time zone
- Step 3. Set your wireless connection
- Step 4. Set your internet connection
- Step 5. Confirm the configuration and save it

Next

Click **NEXT** to move on to Step 1.

Step 1 – Password

Set new password of the “admin” account to access for router management. The default is “admin”. Once changed, please use this new password next time when accessing to the router. Click **NEXT** to continue.



Quick Start

Quick Start - Password

You may change the admin account password by entering in a new password. Click NEXT to continue.

New Password

Confirm Password

Back Next

Step 2 – Time Zone

Choose your time zone. Click **NEXT** to continue.

Quick Start

Quick Start - Time Zone

Select the appropriate time zone for your location and click NEXT to continue.

Time Zone (GMT) Greenwich Mean Time : Dublin, Edinburgh, Lisbon, London

Back Next

Step 3 – Wireless

Set up your wireless connection if you want to connect to the Internet wirelessly on your PCs. Click **NEXT** to continue.

Quick Start

Quick Start - Wireless

Configure your wireless network, authentication type and click NEXT to continue.

Access Point Activated Deactivated

SSID wlan-ap_715

Broadcast SSID Yes No

Channel UNITED STATES 06

Security Type Mixed WPA2/WPA-PSK

WPA Algorithms TKIP+AES

Pre-Shared Key E5C7EB09 (8~63 characters or 64 Hex string)

Key Renewal Interval 600 seconds (10 ~ 4194303)

Back Next

Step 4 – ISP Connection Type

Set up your Internet connection.

4.1 Select an appropriate WAN connection protocol then click **NEXT** to continue.

Quick Start

Quick Start - ISP Connection Type

Select the WAN Interface and Internet Connection Type to connect to your ISP. Click NEXT to continue.

WAN Interface EWAN

Service 0

ISP

- Dynamic IP Address (Select the WAN Interface and Internet Connection Type to connect to your ISP. Click NEXT to continue.)
- Static IP Address (Choose this option to set static IP information provided to you by your ISP.)
- PPPoE (Choose this option if your ISP uses PPPoE.)
- Bridge Mode (Choose this option if your ISP uses Bridge Mode.)

Back Next

4.2 If selected **3G/4G-LTE** or **3G/4G-LTE USB** (for example).

Quick Start

Quick Start - ISP Connection Type

Select the WAN Interface and Internet Connection Type to connect to your ISP. Click NEXT to continue.

WAN Interface 3G/4G-LTE

Back Next

Input all relevant 3G/4G-LTE parameters from your ISP.

Quick Start

▼ Quick Start - 3G/4G-LTE

Enter the 3G information provided to you by your ISP. Click NEXT to continue.

TEL No.	<input type="text" value="*99***1#"/>
APN	<input type="text" value="internet"/>
Username	<input type="text"/>
Password	<input type="password"/>
PIN	<input type="text"/>

Click Next to save changes.

Quick Start

▼ Quick Start - Quick Start Completed

Quick Start Completed !!

The Setup Wizard has completed. Click on BACK to modify changes or mistakes. Click NEXT to exit the Setup Wizard.

4.2 If selected **EWAN / PPPoE**, please enter PPPoE account information provided by your ISP. Click **NEXT** to continue.

Quick Start

▼ Quick Start - PPPoE

Provide the PPPoE information. Click NEXT to continue.

Username	<input type="text"/>
Password	<input type="password"/>

Step 5 – Quick Start Completed

The Setup Wizard has completed. Click on BACK to modify changes or mistakes. Click **NEXT** to save the current settings.

Quick Start

▼ Quick Start - Quick Start Completed

Quick Start Completed !!

The Setup Wizard has completed. Click on BACK to modify changes or mistakes. Click NEXT to exit the Setup Wizard.

Step 6 – Quick Start Completed

Quick Start

▼ Quick Start - Quick Start Completed !!

Quick Start Completed !!

Saved Changes.

Switch to **Status > Device Info** to view the status.

Status

▼ Device Information

Model Name	BIPAC 6300VNOZ
Firmware Version	1.02b.rc6.dt2
MAC Address	00:04:ED:01:23:45

LAN

IPv4

IP Address	192.168.1.254
Subnet Mask	255.255.255.0
DHCPv4 Server	Enable

IPv6

IP Address	2001:b010:7030:f801:204:edff:fe63:aa03
Prefix Length	64
DHCPv6 Server	Enable Stateless

WAN

Interface	<input type="text" value="EWAN"/>
Service	<input type="text" value="0"/>
PPP Connection Time	0d: 0h:20m:48s

IPv4

Status	Connected
IP Address	1.169.140.134
Subnet Mask	255.255.255.255
Default Gateway	168.95.98.254
DNS Server	168.95.192.1

IPv6

Status	Connected
IP Address	2001:b010:7030:f800:80b9:43e2:e7a:b792
Prefix Length	64
Default Gateway	fe80::90:1a00:2a2:8506
DNS Server	2001:b000:168::1

Configuration

Click to access and configure the available features in the following: **Interface Setup, Advanced Setup, VoIP, Access Management, and Maintenance.**

These functions are described in the following sections.


Interface Setup

Here are the features under **Interface Setup: Internet, LAN, Wireless and Wireless MAC Filter.**

The screenshot shows the configuration page for the Internet interface on a Billion 4G/LTE Wireless-N BB Gateway. The page has a blue header with the Billion logo and the slogan "Powering communications with Security". A left sidebar contains a navigation menu with options: Status, Quick Start, Configuration (selected), Interface Setup (expanded), Internet (selected), LAN, Wireless, Wireless MAC Filter, Advanced Setup, VOIP, Access Management, Maintenance, and Language. The main content area is titled "Configuration" and shows the "Internet" settings. The settings include: WAN Interface (3G/4G-LTE), Status (Activated), Usage Allowance (disabled), Network Mode (Automatic), Mode (AUTOMATIC), TEL No. (*99***1#), Dual APN (Single APN), APN (internet), Username (user), Password (masked with dots), PIN (empty), Connection (Always On (Recommended)), Keep Alive (No), Default Route (Yes), and NAT (Enable). At the bottom of the configuration area are "SAVE" and "CANCEL" buttons. The footer contains "Restart" and "Logout" links, and a copyright notice: "Copyright © Billion Electric Co., Ltd. All rights reserved."

Internet

❖ EWAN(6300VNPZ only)

Configuration 

Internet

WAN Interface: EWAN

Multi Service

Service Index: 0 Services Summary

Status: Activated Deactivated

IPv4/IPv6

IP Version: IPv4 IPv4/IPv6 IPv6

ISP Connection Type

ISP: Dynamic IP Address Static IP Address PPPoE Bridge Mode

802.1q Options

802.1q: Activated Deactivated

VLAN ID: 0 (range: 0~4095)

PPPoE

Username:

Password:

Bridge Interface for PPPoE: Activated Deactivated

Connection Setting

Connection: Always On (Recommended) Connect Manually

TCP MSS Option: TCP MSS 0 bytes(0 means use default)

IP Options

IP Common Options

Default Route: Yes No

IPv4 Options

Get IP Address: Static Dynamic

Static IP Address: 0.0.0.0

IP Subnet Mask: 0.0.0.0

Gateway: 0.0.0.0

NAT: Enable

Dynamic Route: RIP1 Direction: None

TCP MTU Option: TCP MTU 0 bytes(0 means use default:1492)

IGMP Proxy: Enable Disable

IPv6 Options

IPv6 Address: /

Obtain IPv6 DNS: Enable Disable

Primary DNS:

Secondary DNS:

MLD Proxy: Enable Disable

Multi Service

Service Index: The index marks the EWAN interface of different ISP type, ranging from 0-7.

Service Summary: The overall service information.

Status			
Service Information Summary			
WAN 0	Active	ISP	IP Address
0	Yes	PPPoE	Dynamic
1	Yes	Bridge	N/A
2	No	Bridge	N/A
3	No	Bridge	N/A
4	No	Bridge	N/A
5	No	Bridge	N/A
6	No	Bridge	N/A
7	No	Bridge	N/A

Status: Select whether to enable the service.

IPv4/IPv6

IP Version: Choose *IPv4*, *IPv4/IPv6*, *IPv6* based on your environment. If you don't know which one to choose from, please choose IPv4/IPv6 instead.

ISP Connection Type:

ISP: Select the encapsulation type your ISP uses.

- ▶ **Dynamic IP:** Select this option if your ISP provides you an IP address automatically.
- ▶ **Static IP:** Select this option to set static IP information. You will need to enter in the Connection type, IP address, subnet mask, and gateway address, provided to you by your ISP. Each IP address entered in the fields must be in the appropriate IP form. IP address from by four IP octets separated by a dot (xx.xx.xx.xx). The Router will not accept the IP address if it is not in this format.
- ▶ **PPPoE:** Select this option if your ISP requires you to use a PPPoE connection.
- ▶ **Bridge:** Select this mode if you want to use this device as an OSI Layer 2 device like a switch.

802.1q Options

802.1q: When activated, please enter a VLAN ID.

VLAN ID: It is a parameter to specify the VLAN which the frame belongs. Enter the VLAN ID identification, tagged: 0-4095.

PPPoE (If selected PPPoE as WAN Connection Type; otherwise, skip this part)

Username: Enter the user name provided by your ISP.

Password: Enter the password provided by your ISP.

Bridge Interface for PPPoE: When "Activated", the device will gain WAN IP from your ISP with the PPPoE account. But if your PC is connected to the router working as a DHCP client, in this mode, the

device acts as a NAT router; while if you dial up with the account within your PC, the device will then work as a bridge forwarding the PPPoE information to the PPPoE server and send the response to your PC, thus your PC gets a WAN IP working in the internet.

Connection Setting

Connection:

- ▶ **Always On:** Click on **Always On** to establish a PPPoE session during start up and to automatically re-establish the PPPoE session when disconnected by the ISP.
- ▶ **Connect Manually:** Select Connect Manually when you don't want the connection up all the time.

TCP MSS Option: Enter the maximum size of the data that TCP can send in a segment. Maximum Segment Size (MSS).

IP Options

Default Route: Select **Yes** to use this interface as default route interface.

TCP MTU Option: Enter the maximum packet that can be transmitted. Default MTU is set to 1492.

IPv4 Options

Get IP Address: Choose Static or Dynamic

Static IP Address: If Static is selected in the above field, please enter the specific IP address you get from ISP and the following IP subnet mask and gateway address.

IP Subnet Mask: The default is 0.0.0.0. User can change it to other such as 255.255.255.0. Type the subnet mask assigned to you by your ISP (if given).

Gateway: Enter the specific gateway IP address you get from ISP.

NAT: Select Enable if you use this router to hold a group of PCs to get access to the internet.

Dynamic Route:

- ▶ **RIP Version:** (Routing Information protocol) Select this option to specify the RIP version, including RIP-1, RIP-2.
- ▶ **RIP Direction:** Select this option to specify the RIP direction.
 - **None** is for disabling the RIP function.
 - **Both** means the router will periodically send routing information and accept routing information then incorporate into routing table.
 - **IN only** means the router will only accept but will not send RIP packet.
 - **OUT only** means the router will only send but will not accept RIP packet.

TCP MTU Option: Maximum Transmission Unit, the maximum is 1500.

IGMP Proxy: IGMP (Internet Group Multicast Protocol) is a network-layer protocol used to establish membership in a Multicast group. Choose whether enable IGMP proxy.

[IPv6 options](#) (only when choose IPv4/IPv6 or just IPv6 in IP version field above):

IPv6 Address: Type the WAN IPv6 address from your ISP.

Obtain IPv6 DNS: Choose if you want to obtain DNS automatically.

Primary/Secondary: if you choose Disable in the Obtain IPv6 DNS field, please type the exactly primary and secondary DNS.

MLD Proxy: MLD (Multicast Listener Discovery Protocol) is to IPv6 just as IGMP to IPv4. It is a Multicast Management protocol for IPv6 multicast packets.

When router's Internet configuration is finished successfully, you can go to status to get the connection information.

❖ EWAN(6300VNOZ only)

Configuration

Internet

WAN Interface	<input type="text" value="EWAN"/>
Status	<input checked="" type="radio"/> Activated <input type="radio"/> Deactivated
IPv4/IPv6	
IP Version	<input type="radio"/> IPv4 <input checked="" type="radio"/> IPv4/IPv6 <input type="radio"/> IPv6
ISP Connection Type	
ISP	<input type="radio"/> Dynamic IP Address <input type="radio"/> Static IP Address <input checked="" type="radio"/> PPPoE <input type="radio"/> Bridge Mode
802.1q Options	
802.1q	<input type="radio"/> Activated <input checked="" type="radio"/> Deactivated
VLAN ID	<input type="text" value="0"/> (range: 0~4095)
PPPoE	
Username	<input type="text"/>
Password	<input type="text"/>
Bridge Interface for PPPoE	<input type="radio"/> Activated <input checked="" type="radio"/> Deactivated
Connection Setting	
Connection	<input checked="" type="radio"/> Always On (Recommended) <input type="radio"/> Connect Manually
TCP MSS Option	TCP MSS <input type="text" value="0"/> bytes(0 means use default)
IP Options	
IP Common Options	
Default Route	<input checked="" type="radio"/> Yes <input type="radio"/> No
TCP MTU Option	TCP MTU <input type="text" value="0"/> bytes(0 means use default:1492)
IPv4 Options	
Get IP Address	<input type="radio"/> Static <input checked="" type="radio"/> Dynamic
Static IP Address	<input type="text" value="0.0.0.0"/>
IP Subnet Mask	<input type="text" value="0.0.0.0"/>
Gateway	<input type="text" value="0.0.0.0"/>
NAT	<input type="text" value="Enable"/>
Dynamic Route	<input type="text" value="RIP1"/> Direction <input type="text" value="None"/>
IGMP Proxy	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
IPv6 Options	
IPv6 Address	<input type="text"/> / <input type="text"/>
Obtain IPv6 DNS	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Primary DNS	<input type="text"/>
Secondary DNS	<input type="text"/>
MLD Proxy	<input type="radio"/> Enable <input checked="" type="radio"/> Disable

Status: Select whether to enable the service.

IPv4/IPv6

IP Version: Choose *IPv4*, *IPv4/IPv6*, *IPv6* based on your environment. If you don't know which one to choose from, please choose IPv4/IPv6 instead.

ISP Connection Type:

ISP: Select the encapsulation type your ISP uses.

- ▶ **Dynamic IP:** Select this option if your ISP provides you an IP address automatically.
- ▶ **Static IP:** Select this option to set static IP information. You will need to enter in the Connection type, IP address, subnet mask, and gateway address, provided to you by your ISP. Each IP address entered in the fields must be in the appropriate IP form. IP address from by four IP octets separated by a dot (xx.xx.xx.xx). The Router will not accept the IP address if it is not in this format.
- ▶ **PPPoE:** Select this option if your ISP requires you to use a PPPoE connection.
- ▶ **Bridge:** Select this mode if you want to use this device as an OSI Layer 2 device like a switch.

802.1q Options

802.1q: When activated, please enter a VLAN ID.

VLAN ID: It is a parameter to specify the VLAN which the frame belongs. Enter the VLAN ID identification, tagged: 0-4095.

PPPoE (If selected PPPoE as WAN Connection Type; otherwise, skip this part)

Username: Enter the user name provided by your ISP.

Password: Enter the password provided by your ISP.

Bridge Interface for PPPoE: When “Activated”, the device will gain WAN IP from your ISP with the PPPoE account. But if your PC is connected to the router working as a DHCP client, in this mode, the device acts as a NAT router; while if you dial up with the account within your PC, the device will then work as a bridge forwarding the PPPoE information to the PPPoE server and send the response to your PC, thus your PC gets a WAN IP working in the internet.

Connection Setting

Connection:

- ▶ **Always On:** Click on **Always On** to establish a PPPoE session during start up and to automatically re-establish the PPPoE session when disconnected by the ISP.
- ▶ **Connect Manually:** Select **Connect Manually** when you don't want the connection up all the time.

TCP MSS Option: Enter the maximum size of the data that TCP can send in a segment. Maximum Segment Size (MSS).

IP Options

Default Route: Select **Yes** to use this interface as default route interface.

TCP MTU Option: Enter the maximum packet that can be transmitted. Default MTU is set to 1492.

IPv4 Options

Get IP Address: Choose Static or Dynamic

Static IP Address: If Static is selected in the above field, please enter the specific IP address you get from ISP and the following IP subnet mask and gateway address.

IP Subnet Mask: The default is 0.0.0.0. User can change it to other such as 255.255.255.0. Type the subnet mask assigned to you by your ISP (if given).

Gateway: Enter the specific gateway IP address you get from ISP.

NAT: Select Enable if you use this router to hold a group of PCs to get access to the internet.

Dynamic Route:

- ▶ **RIP Version:** (Routing Information protocol) Select this option to specify the RIP version, including RIP-1, RIP-2.
- ▶ **RIP Direction:** Select this option to specify the RIP direction.
 - **None** is for disabling the RIP function.
 - **Both** means the router will periodically send routing information and accept routing information then incorporate into routing table.
 - **IN only** means the router will only accept but will not send RIP packet.
 - **OUT only** means the router will only send but will not accept RIP packet.

TCP MTU Option: Maximum Transmission Unit, the maximum is 1500.

IGMP Proxy: IGMP (Internet Group Multicast Protocol) is a network-layer protocol used to establish membership in a Multicast group. Choose whether enable IGMP proxy.

IPv6 options (only when choose IPv4/IPv6 or just IPv6 in IP version field above):

IPv6 Address: Type the WAN IPv6 address from your ISP.

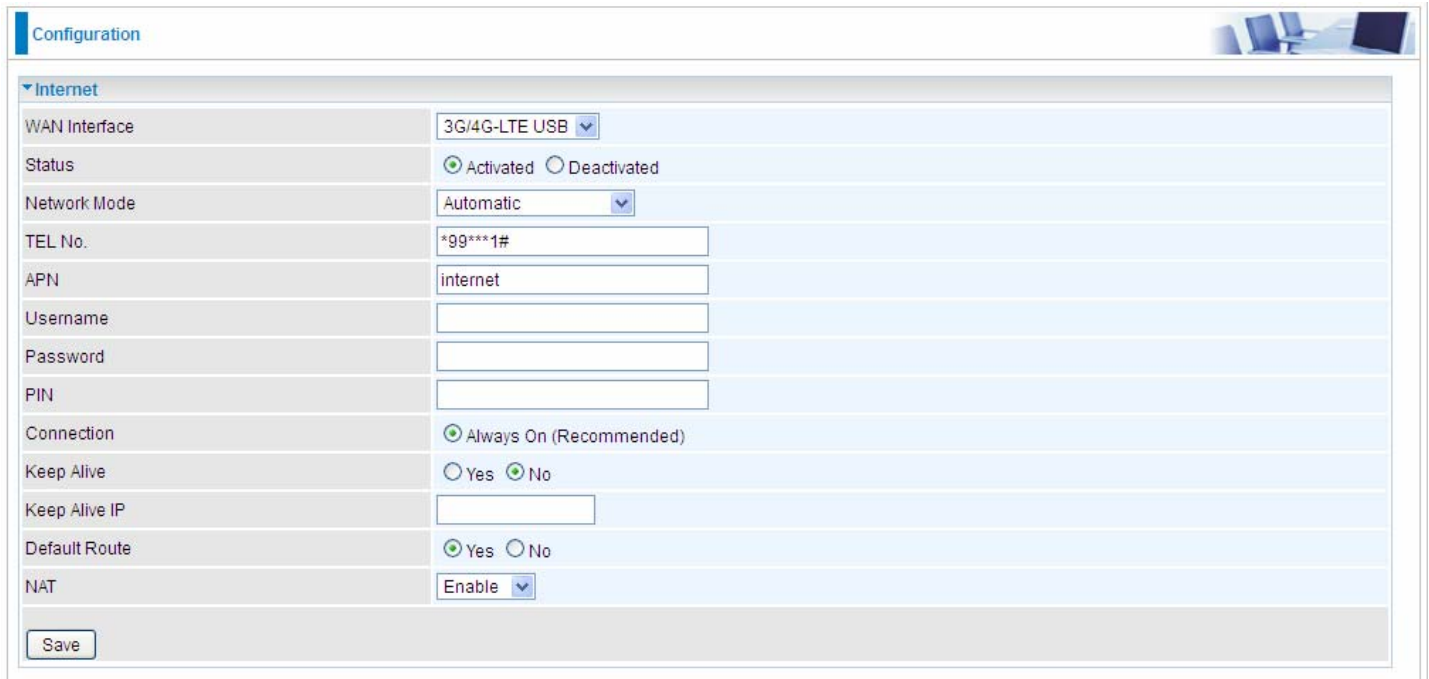
Obtain IPv6 DNS: Choose if you want to obtain DNS automatically.

Primary/Secondary: if you choose Disable in the Obtain IPv6 DNS field, please type the exactly primary and secondary DNS.

MLD Proxy: MLD (Multicast Listener Discovery Protocol) is to IPv6 just as IGMP to IPv4. It is a Multicast Management protocol for IPv6 multicast packets.

When router's Internet configuration is finished successfully, you can go to status to get the connection information.

❖ 3G/4G-LTE or 3G/4G-LTE via USB



The screenshot shows a configuration page for a WAN interface. The title is "Configuration". Under the "Internet" section, the following settings are visible:

WAN Interface	3G/4G-LTE USB
Status	<input checked="" type="radio"/> Activated <input type="radio"/> Deactivated
Network Mode	Automatic
TEL No.	*99***1#
APN	internet
Username	
Password	
PIN	
Connection	<input checked="" type="radio"/> Always On (Recommended)
Keep Alive	<input type="radio"/> Yes <input checked="" type="radio"/> No
Keep Alive IP	
Default Route	<input checked="" type="radio"/> Yes <input type="radio"/> No
NAT	Enable

A "Save" button is located at the bottom left of the configuration area.

Status: Choose Activated to enable the 3G/4G-LTE connection.

Network Mode: There are 8 options of service standards: “Automatic”, “UMTS 3G only”, “GSM 2G Only”, “UMTS 3G Preferred”, “GSM 2G Preferred”, “GSM and UMTS Only”, “LTE Only”, “GSM, UMTS, LTE”. If you are not sure which mode to use, you may select **Automatic** to auto detect the best mode for you.

TEL No.: The dial string to make a GPRS / 3G/4G-LTE user internet networking call. It may provide by your mobile service provider.

Dual APN: BiPAC 6 can support up to two(2) APNs. Select Single or Dual.

APN: An APN is similar to a URL on the WWW, it is what the unit makes a GPRS / UMTS call. The service provider is able to attach anything to an APN to create a data connection, requirements for APNs varies between different service providers. Most service providers have an internet portal which they use to connect to a DHCP Server, thus giving you access to the internet i.e. some 3G operators use the APN ‘internet’ for their portal. The default value is “internet”.

Username/Password: Enter the username and password provided by your service provider. The username and password are case sensitive.

PIN: PIN stands for Personal Identification Number. A PIN code is a numeric value used in certain systems as a password to gain access, and authenticate. In mobile phones a PIN code locks the SIM card until you enter the correct code. If you enter the PIN code incorrectly into the phone 3 times in a row, then the SIM card will be blocked and you will require a PUK code from your network/service provider.

Connection: Default set to Always on to keep an always-on 3G/4G-LTE connection.

Keep Alive: Select **Yes** to keep the 3G/4G-LTE connection always on.

Keep Alive IP: Enter the IP address which is used for “ping”, and router will ping the IP to find whether the connection is on or not, if not, router will recover the connection.

Default Route: Select **Yes** to use this interface as default route interface.

NAT: Select this option to Disabled/Enable the NAT (Network Address Translation) function. Enable NAT to grant multiples devices in LAN to access to the Internet through a single WAN IP.

When router's Internet configuration is finished successfully, you can go to the Status to check connection information.

Status

▼ Device Information

Model Name	BiPAC 6300VNOZ
Firmware Version	1.02b.rc6.dt2
MAC Address	00:04:ED:01:23:45

LAN

IPv4

IP Address	192.168.1.254
Subnet Mask	255.255.255.0
DHCPv4 Server	Enable

IPv6

IP Address	
Prefix Length	
DHCPv6 Server	Enable Stateless

WAN

Interface	3G/4G-LTE USB ▼
Connection Time	0d: 1h:13m:22s

IPv4

Status	Connected
IP Address	100.101.33.242
Subnet Mask	255.255.255.252
Default Gateway	100.101.33.241
DNS Server	168.95.1.1

3G/4G-LTE

Signal Strength	<div style="display: flex; align-items: center;"> <div style="width: 100px; height: 15px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, #00aaff 2px, #00aaff 4px);"></div> -72.00dbm </div>
Network Name	"Chunghwa Telecom"
Card IMEI	-----
Card IMSI	-----

LAN

A Local Area Network (LAN) is a shared communication system to which many computers are attached and is limited to the immediate area, usually the same building or floor of a building.

Configuration

LAN

IPv4 Parameters

IP Address:

IP Subnet Mask:

Alias IP Address: (0.0.0.0 means to close the alias ip)

Alias IP Subnet Mask:

IGMP Snooping: Activated Deactivated

Dynamic Route: Direction:

DHCPv4 Server

DHCPv4 Server: Disabled Enabled Relay

Start IP:

IP Pool Count:

Lease Time: seconds (0 sets to default value of 259200)

Physical Ports: LAN1 LAN2 LAN3 WLAN1

DNS Relay: Automatically Manually

Primary DNS:

Secondary DNS:

Fixed Host

IP Address:

MAC Address:

IPv6 Parameters

Interface Address/Prefix Length: /

MLD Snooping: Activated Deactivated

DHCPv6 Server

DHCPv6 Server: Disable Enable

DHCPv6 Server Type: Stateless Stateful

Start Interface ID:

End Interface ID:

Lease Time: seconds (0 sets to default value of 4800)

Router Advertisements: Disable Enable

Fixed Host List

Index	IP	MAC	Drop

IPv4 Parameters

IP Address: Enter the IP address of Router in dotted decimal notation, for example, 192.168.1.254 (factory default).

IP Subnet Mask: The default is 255.255.255.0. User can change it to other such as 255.255.255.128.

Alias IP Address: This is for local networks virtual IP interface. Specify an IP address on this virtual interface.

Alias IP Subnet Mask: Specify a subnet mask on this virtual interface.

IGMP Snooping: Select **Activated** to enable IGMP Snooping function, Without IGMP snooping, multicast traffic is treated in the same manner as broadcast traffic - that is, it is forwarded to all ports. With IGMP snooping, multicast traffic of a group is only forwarded to ports that have members of that group.

Dynamic Route: Select the RIP version from RIP1 or RIP2.

DHCPv4 Server

DHCP (Dynamic Host Configuration Protocol) allows individual clients to obtain TCP/IP configuration at start-up from a server.

DHCPv4 Server	
DHCPv4 Server	<input type="radio"/> Disabled <input checked="" type="radio"/> Enabled <input type="radio"/> Relay
Start IP	<input type="text" value="192.168.1.100"/>
IP Pool Count	<input type="text" value="20"/>
Lease Time	<input type="text" value="86400"/> seconds (0 sets to default value of 259200)
Physical Ports	<input checked="" type="checkbox"/> LAN1 <input checked="" type="checkbox"/> LAN2 <input checked="" type="checkbox"/> LAN3 <input checked="" type="checkbox"/> WLAN1
DNS Relay	<input checked="" type="radio"/> Automatically <input type="radio"/> Manually
Primary DNS	<input type="text"/>
Secondary DNS	<input type="text"/>

DHCPv4 Server: If set to **Enabled**, your BiPAC 6300VNP(O)Z can assign IP addresses, default gateway and DNS servers to the DHCP client.

- ▶ If set to **Disabled**, the DHCP server will be disabled.
- ▶ If set to **Relay**, the BiPAC 6300VNP(O)Z acts as a surrogate DHCP server and relays DHCP requests and responses between the remote server and the clients. Enter the IP address of the actual, remote DHCP server in the Remote DHCP Server field in this case.
- ▶ When DHCP is used, the following items need to be set.

Start IP: This field specifies the first of the contiguous addresses in the IP address pool.

IP Pool Count: This field specifies the count of the IP address pool.

Lease Time: The current lease time of client.

Physical Ports: Select to determine if the DHCPv4 server is applicable to the specific port or ports. By default, all ports can obtain local IP from DHCPv4 server.

DNS Relay Select Automatically obtained or Manually set (if selected. Please set the exactly information). If you set Static IP in the [ISP Connection Type](#) field, then select **Manually** here and set the specific DNS information.

Primary DNS Server: Enter the IP addresses of the DNS servers. The DNS servers are passed to the DHCP clients along with the IP address and the subnet mask.

Secondary DNS Server: Enter the IP addresses of the DNS servers. The DNS servers are passed to the DHCP clients along with the IP address and the subnet mask.

Fixed Host


In this field, users can map the specific IP (must in the DHCP IP pool) for some specific MAC, and this information can be listed in the following table.

Fixed Host	
IP Address	<input type="text"/>
MAC Address	<input type="text"/>

IP Address: Enter the specific IP. For example: 192.168.1.110.

MAC Address: Enter the responding MAC. For example: 00:0A:F7:45:6D:ED

When added, you can see the ones listed as showed below:

Fixed Host Listing			
Index	IP	MAC	Drop
1	192.168.1.102	23:24:5B:4B:22:33	

IPv6 parameters

The IPv6 address composes of two parts, thus, the prefix and the interface ID.

IPv6 Parameters	
Interface Address/Prefix Length	<input type="text"/> / <input type="text"/>
MLD Snooping	<input type="radio"/> Activated <input checked="" type="radio"/> Deactivated
DHCPv6 Server	
DHCPv6 Server	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
DHCPv6 Server Type	<input checked="" type="radio"/> Stateless <input type="radio"/> Stateful
Start Interface ID	<input type="text"/>
End Interface ID	<input type="text"/>
Lease Time	<input type="text"/> seconds(0 sets to default value of 4800)
Router Advertisements	<input type="radio"/> Disable <input checked="" type="radio"/> Enable

Interface Address / Prefix Length: Enter a static LAN IPv6 address. If you are not sure what to do with this field, please leave it empty as if contains false information it could result in LAN devices not being able to access other IPv6 device. Router will take the same WAN's prefix to LAN side if the field is empty.

MLD Snooping: Similar to IGMP Snooping, but applicable for IPv6.

DHCPv6 Server

There are two methods to dynamically configure IPv6 address on hosts, **Stateless** and **Stateful**.

Stateless auto-configuration requires no manual configuration of hosts, minimal (if any) configuration of routers, and no additional servers. The stateless mechanism allows a host to generate its own addresses using a combination of locally available information (MAC address) and information (prefix) advertised by routers. Routers advertise prefixes that identify the subnet(s) associated with a link, while hosts generate an "interface identifier" that uniquely identifies an interface on a subnet. An address is formed by combining the two. When using stateless configuration, you needn't configure anything on the client.

Stateful configuration, for example using DHCPv6 (which resembles its counterpart DHCP in IPv4.) In the stateful auto configuration model, hosts obtain interface addresses and/or configuration information and parameters from a DHCPv6 server. The Server maintains a database that keeps track of which addresses have been assigned to which hosts.

DHCPv6 Server: Check whether to enable DHCPv6 server.

DHCPv6 Server Type: Select Stateless or Stateful. When DHCPv6 is enabled, this parameter is available.

- ▶ **Stateless:** If selected, the PCs in LAN are configured through RA mode, thus, the PCs in LAN are configured through RA mode, to obtain the prefix message and generate an address using a combination of locally available information (MAC address) and information (prefix) advertised by routers, but they can obtain such information like DNS from DHCPv6 Server.
- ▶ **Stateful:** If selected, the PCs in LAN will be configured like in IPv4 mode, thus obtain addresses and DNS information from DHCPv6 server.

Start interface ID: enter the start interface ID. The IPv6 address composed of two parts, thus, the prefix and the interface ID. Interface is like the Host ID compared to IPv4.

End interface ID: enter the end interface ID.

Leased Time (hour): the leased time, similar to leased time in DHCPv4, is a time limit assigned to clients, when expires, the assigned ID will be recycled and reassigned.

Router Advertisement: Check to Enable or Disable the Issue Router Advertisement feature. This feature is to send Router Advertisement messages periodically which would multicast the IPv6 Prefix information (similar to v4 network number 192.168.1.0) to all LAN devices if the field is enabled. We suggest enabling this field.

Wireless

This section introduces the wireless LAN and some basic configurations. Wireless LANs can be as complex as a number of computers with wireless LAN cards communicating through access points which bridge network traffic to the wired LAN.

Configuration

Wireless

Access Point Settings

Access Point Activated Deactivated

AP MAC Address 00:04:ED:15:07:00

Wireless Mode 802.11b+g+n

Channel UNITED STATES 06 Current Channel : 6

Beacon Interval 100 (range: 20~1000)

RTS/CTS Threshold 2347 (range: 1500~2347)

Fragmentation Threshold 2346 (range: 256~2346, even numbers only)

DTIM Interval 1 (range: 1~255)

TX Power 100 (range:1~100)

IGMP Snooping Yes No

11n Settings

Channel Bandwidth 40 MHz

Guard Interval Auto

MCS Auto

SSID Settings

Available SSID 1

SSID Index SSID1

SSID wlan-ap_715

Broadcast SSID Yes No

SSID Activated Always

WPS Settings

Use WPS Yes No

WPS State Configured

WPS Mode PIN code PBC

Security Settings

Security Type Mixed WPA2/WPA-PSK

WPA Algorithms TKIP+AES

Pre-Shared Key E5C7EB09 (8~63 characters or 64 Hex string)

Key Renewal Interval 600 seconds (10 ~ 4194303)

WDS Settings

AP MAC Address 00:04:ED:15:07:00

WDS Mode Activated Deactivated

WDS Peer MAC #1 00:00:00:00:00:00

WDS Peer MAC #2 00:00:00:00:00:00

WDS Peer MAC #3 00:00:00:00:00:00

WDS Peer MAC #4 00:00:00:00:00:00

Access Point Settings

Access Point: Default setting is set to **Activated**. If you want to close the wireless interface, select **Deactivated**.

AP MAC Address: The MAC address of wireless AP.

Wireless Mode: The default setting is **802.11b+g+n** (Mixed mode). If you do not know or have both 11g and 11b devices in your network, then keep the default in **mixed mode**. From the drop-down menu, you can select **802.11g** if you have only 11g card. If you have only 11b card, then select **802.11b** and if you only have 802.11n then select **802.11n**.

Channel: The range of radio frequencies used by IEEE 802.11b/g/n wireless devices is called a channel. There are Regulation Domains and Channel ID in this field. The Channel ID will be different based on Regulation Domains. Select a channel from the drop-down list box.

Beacon interval: The Beacon Interval value indicates the frequency interval of the beacon. Enter a value between 20 and 1000. A beacon is a packet broadcast by the Router to synchronize the wireless network.

RTS/CTS Threshold: The RTS (Request To Send) threshold (number of bytes) for enabling RTS/CTS handshake. Data with its frame size larger than this value will perform the RTS/CTS handshake. Enter a value between 1500 and 2347.

Fragmentation Threshold: The threshold (number of bytes) for the fragmentation boundary for directed messages. It is the maximum data fragment size that can be sent. Enter a value between 256 and 2346, even number only.

DTIM Interval: This value, between 1 and 255, indicates the interval of the Delivery Traffic Indication Message (DTIM).

TX Power: The transmission power of the antennas, ranging from 1-100, the higher the more powerful of the transmission performance.

IGMP Snooping: Enable or disable the IGMP Snooping function for wireless. Without IGMP snooping, multicast traffic is treated in the same manner as broadcast traffic - that is, it is forwarded to all ports. With IGMP snooping, multicast traffic of a group is only forwarded to ports that have members of that group.”

11n Settings

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

Guard Interval: Select either **400nsec** or **800nsec** for the guard interval. The guard interval is here to ensure that data transmission do not interfere with each other. It also prevents propagation delays, echoing and reflections. The shorter the Guard Interval, the better the performance will be. We recommend users to select Auto.

MCS: There are options **0~15** and **AUTO** to select for the **Modulation and Coding Scheme**. We recommend users selecting **AUTO**.

SSID Settings

Available SSID: User can determine how many virtual SSIDs to be used. Default is 1, maximum is 4.

SSID Index: Select the number of SSIDs you want to use; up to 4 SSIDs are available in the list.

SSID: The SSID is the unique name of a wireless access point (AP) to be distinguished from another. For security propose, change the default **wlan-ap** to a unique ID name to the AP which is already built-in to the router’s wireless interface. Make sure your wireless clients have exactly the SSID as the device, in order to get connected to your network.

Broadcast SSID: Select **Yes** to make the SSID visible so a station can obtain the SSID through passive scanning. Select **No** to hide the SSID in so a station cannot obtain the SSID through passive scanning.

SSID Activated: Select the time period during which the SSID is active. Default is always which means the SSID will be active all the time without time control. See [Time Schedule](#) to set the timeslot to flexibly control when the SSID functions.

WPS Settings

WPS (Wi-Fi Protected Setup) feature is a standard protocol created by Wi-Fi Alliance. This feature greatly simplifies the steps needed to create a Wi-Fi network for a residential or an office setting. WPS supports 2 types of configuration methods which are commonly known among consumers: [PIN Method](#) & [PBC Method](#).

Use WPS: Enable this feature by choosing the "YES" radiobutton.

WPS State: Display whether the WPS is **configured** or **unconfigured**.

WPS Mode: Select the mode which to start WPS, choose between **PIN Code** and **PBC** (Push Button). Selecting **Pin Code** mode will require you to know the enrollee PIN code.

To future understand the two modes of configuration; please refer to the example of the **Wi-Fi Protected Setup**.

Security Settings

Security Type: You can disable or enable wireless security for protecting wireless network. The default type of wireless security is OPEN and to allow all wireless stations to communicate with the access points without any data encryption.

To prevent unauthorized wireless stations from accessing data transmitted over the network, the router offers secure data encryption, known as WEP and WPA.

There are five alternatives to select from: WEP 64-bit, WEP 128-bit, WPA-PSK, WPA2-PSK, and Mixed WPA/WPA2-PSK. If you require high security for transmissions, please select WPA-PSK, WPA2-PSK or WPA/WPA2-PSK.

▶ **WEP**

Security Settings	
Security Type	WEP 64-bit
WEP Authentication Method	Both
WEP 64-bit	For each key, please enter either (1) 5 characters, or (2) 10 characters ranging from 0~9, a, b, c, d, e, f.
<input checked="" type="radio"/> Key#1	<input type="text"/>
<input type="radio"/> Key#2	<input type="text"/>
<input type="radio"/> Key#3	<input type="text"/>
<input type="radio"/> Key#4	<input type="text"/>

WEP Authentication Method: WEP authentication method, there are two methods of authentication used, Open System authentication (OPENWEB) and Share Key authentication (SHAREDWEB). We

suggest you select OPENWEB.

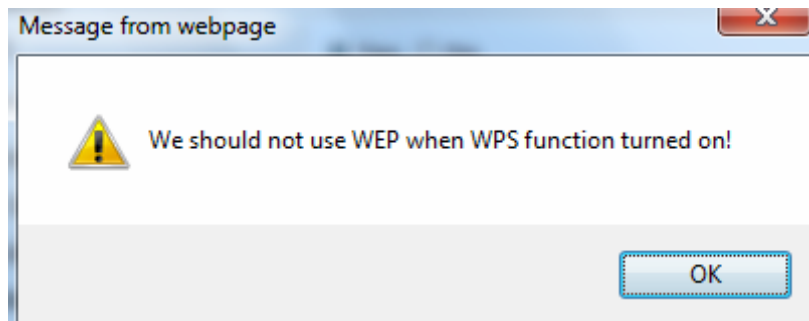
Key 1 to Key 4: Enter the key to encrypt wireless data. To allow encrypted data transmission, the WEP Encryption Key values on all wireless stations must be the same as the router. There are four keys for your selection. The input format is in HEX style, 5 and 13 HEX codes are required for 64-bitWEP and 128-bitWEP respectively.

If you chose **WEP 64-bit**, then enter any 5 ASCII characters or 10 hexadecimal characters ("0-9", "A-F").

If you chose **WEP 128-bit**, then enter 13 ASCII characters or 26 hexadecimal characters ("0-9", "A-F").

You must configure all four keys, but only one key can be activated at any one time. The default key is key 1.

Note: When you enable **WPS** function, this **WEP** function will be invalid. And if you select one of **WEP-64Bits/ WEP-128Bits**, the following prompt box will appear to notice you.



▶ WPA-PSK & WPA2-PSK

Security Type	WPA-PSK
WPA Algorithms	AES
Pre-Shared Key	0004ED596230 (8~63 characters or 64 Hex string)
Key Renewal Interval	3600 seconds (10 ~ 4194303)

WPA Algorithms: TKIP (Temporal Key Integrity Protocol) or AES (Advanced Encryption System) utilizes a stronger encryption method and incorporates Message Integrity Code (MIC) to provide protection against hackers.

Pre-Shared key: The key for network authentication. The input format should be 8-63 ASCII characters or 64 hexadecimal characters

Key Renewal Interval: The time interval for changing the security key automatically between wireless client and AP.

WDS Settings

WDS (Wireless distributed system) is a wireless access point mode that enables wireless link and communication with other access point. It is easy to be installed, just define the peer's MAC of the connected AP.

WDS Mode: select Activated to enable WDS feature and Deactivated to disable this feature.

MAC Address: Enter the AP MAC addresses (in XX:XX:XX:XX:XX:XX format) of the peer connected

AP.

WDS Settings	
WDS Mode	<input checked="" type="radio"/> Activated <input type="radio"/> Deactivated
WDS Peer MAC #1	<input type="text" value="00:00:00:00:00:00"/>
WDS Peer MAC #2	<input type="text" value="00:00:00:00:00:00"/>
WDS Peer MAC #3	<input type="text" value="00:00:00:00:00:00"/>
WDS Peer MAC #4	<input type="text" value="00:00:00:00:00:00"/>

Wi-Fi Protected Setup (WPS) Example I:

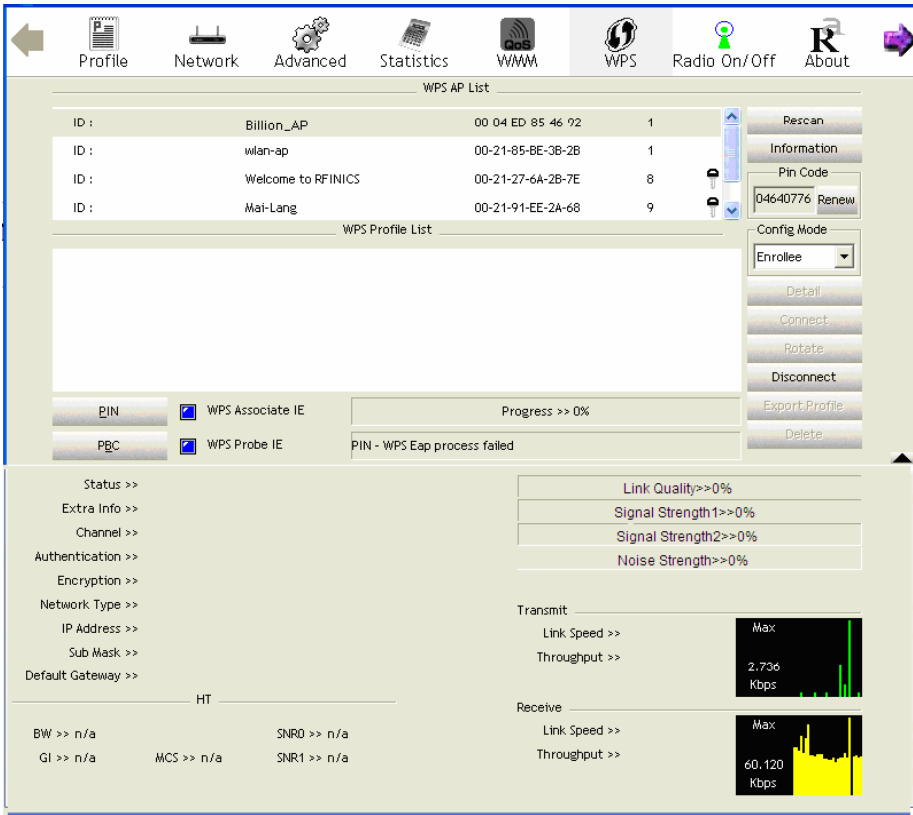
PIN Method: Configure AP as Registrar

1. Jot down the client's Pin (e.g. 04640776).

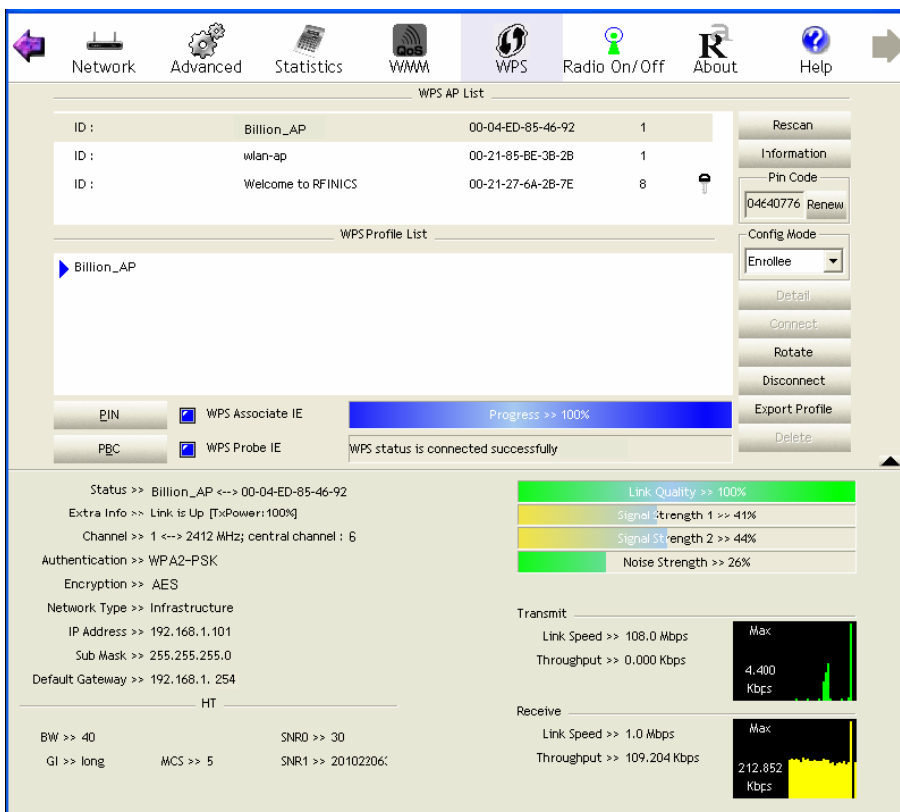
SSID Settings	
SSID Num	1
SSID Index	<input checked="" type="radio"/> SSID1
SSID	Billion_AP
Broadcast SSID	<input checked="" type="radio"/> Yes <input type="radio"/> No
SSID Activated	Always
WPS Settings	
Use WPS	<input checked="" type="radio"/> Yes <input type="radio"/> No
WPS State	Configured
WPS Mode	<input checked="" type="radio"/> PIN code <input type="radio"/> PBC
AP PIN Code	03454435 <input type="button" value="Generate"/>
Enrollee PIN Code	04640776
WPS Progress	In progress <input type="button" value="Stop WPS"/>
Security Settings	
Security Type	Mixed WPA2/WPA-PSK
WPA Algorithms	AES
Pre-Shared Key	12345678 (8~63 characters or 64 Hex string)
Key Renewal Interval	3600 seconds (10 ~ 4194303)

2. Enter the Enrollee (Client) PIN code and then press Start WPS.

3. Launch the wireless client's WPS utility (e.g. Ralink Utility). Set the Config Mode as Enrollee, press the WPS button on the top bar, select the AP (e.g. Billion_AP) from the WPS AP List column. Then press the PIN button located on the middle left of the page to run the scan.



4. The client's SSID and security setting will now be configured to match the SSID and security setting of the registrar (router).



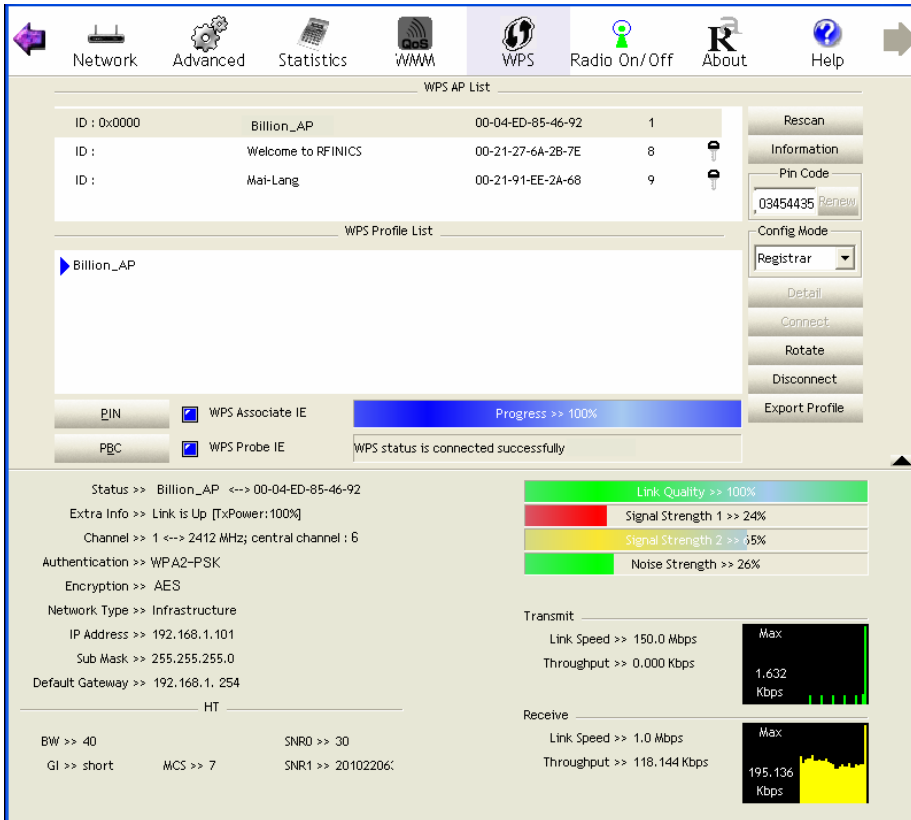
Wi-Fi Protected Setup (WPS) Example II:

PIN Method: Configure AP as Enrollee

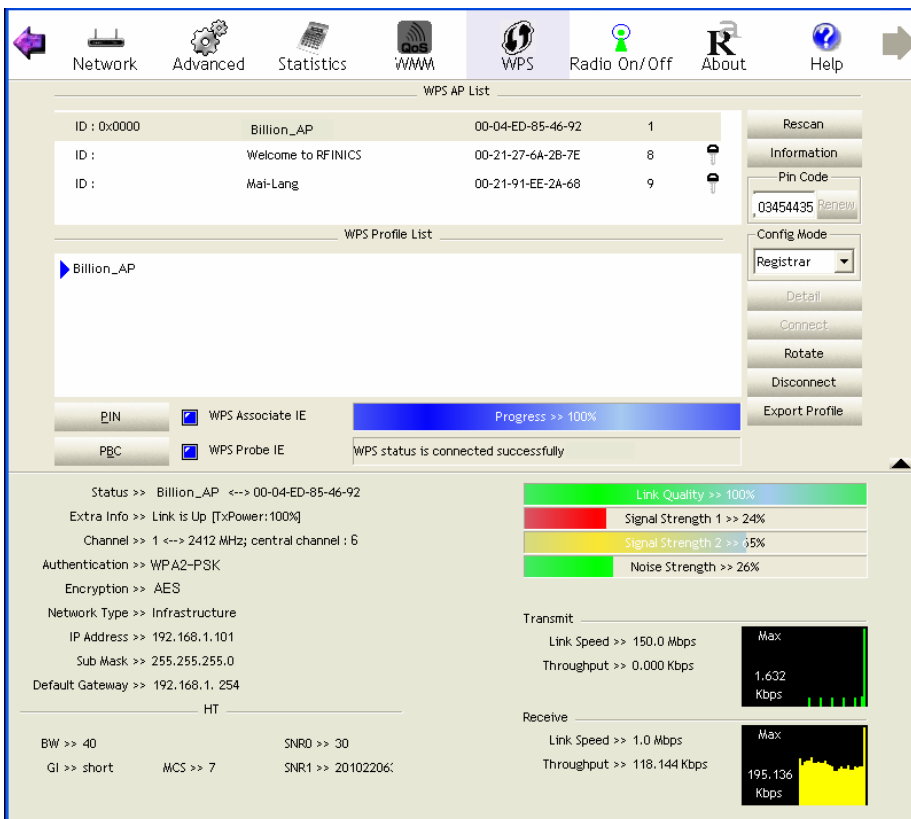
1. Jot down the WPS PIN (e.g. 03454435). Press Start WPS.

SSID Settings	
SSID Num	1
SSID Index	<input checked="" type="radio"/> SSID1
SSID	Billion_AP
Broadcast SSID	<input checked="" type="radio"/> Yes <input type="radio"/> No
SSID Activated	Always
WPS Settings	
Use WPS	<input checked="" type="radio"/> Yes <input type="radio"/> No
WPS State	Configured
WPS Mode	<input checked="" type="radio"/> PIN code <input type="radio"/> PBC
AP PIN Code	03454435 <input type="button" value="Generate"/>
Enrollee PIN Code	<input type="text"/>
WPS Progress	In progress <input type="button" value="Stop WPS"/>
Security Settings	
Security Type	WPA2-PSK
WPA Algorithms	AES
Pre-Shared Key	12345678 (8~63 characters or 64 Hex string)
Key Renewal Interval	3600 seconds (10 ~ 4194303)

2. Launch the wireless client's WPS utility (e.g. Ralink Utility). Set the Config Mode as Registrar. Enter the PIN number in the PIN Code column then choose the correct AP (e.g. Billion_AP) from the WPS AP List before pressing the PIN button to run the scan.



3. The router's (AP's) SSID and security setting will now be configured to match the SSID and security setting of the registrar (client).



4. Now to make sure that the setup is correctly done, cross check to see if the SSID and the security setting of the registrar setting match with the parameters found on both Wireless Configuration and Wireless Security Configuration page.

Wi-Fi Protected Setup (WPS) Example III:

PBC Method:

1. Press the PBC radio button, Then Start WPS.

SSID Settings	
SSID Num	1
SSID Index	<input checked="" type="radio"/> SSID1
SSID	Billion_AP
Broadcast SSID	<input checked="" type="radio"/> Yes <input type="radio"/> No
SSID Activated	Always
WPS Settings	
Use WPS	<input checked="" type="radio"/> Yes <input type="radio"/> No
WPS State	Configured
WPS Mode	<input type="radio"/> PIN code <input checked="" type="radio"/> PBC
Security Settings	
Security Type	WPA2-PSK
WPA Algorithms	AES
Pre-Shared Key	12345678 (8~63 characters or 64 Hex string)
Key Renewal Interval	3600 seconds (10 ~ 4194303)

2. Launch the wireless client's WPS Utility (e.g. Ralink Utility). Set the Config Mode as Enrollee. Then press the WPS button and choose the correct AP (e.g. Billion_AP) from the WPS AP List section before pressing the PBC button to run the scan.

3. When the PBC button is pushed, a wireless communication will be established between your router and the PC. The client's SSID and security setting will now be configured to match the SSID and security setting of the router.

The screenshot shows the WPS Utility interface with the following sections:

- WPS AP List:** A table listing available APs:

ID	SSID	MAC	Index
wlan-ap		00-04-ED-33-EF-D1	1
0x0004	Billion_AP	00-04-ED-85-46-92	1
111111		00-0C-43-30-52-50	7
	Welcome to RFINICS	00-21-27-6A-2B-7E	8
- WPS Profile List:** Shows the selected profile: Billion_AP.
- Buttons:** Rescan, Information, Pin Code (00745659), Renew, Config Mode, Registrar, Detail, Connect, Rotate, Disconnect, Export Profile.
- Configuration:**
 - PIN: WPS Associate IE
 - PBC: WPS Probe IE
- Status:** Status >> Billion_AP <-> 00-04-ED-85-46-92. Progress >> 100%. WPS status is connected successfully - 5200NRC.
- Link Quality:**
 - Link Quality >> 100%
 - Signal Strength 1 >> 62%
 - Signal Strength 2 >> 86%
 - Noise Strength >> 26%
- Transmit:**
 - Link Speed >> 72.2 Mbps
 - Throughput >> 1,008 Kbps
 - Max 17,744 Kbps
- Receive:**
 - Link Speed >> 1.0 Mbps
 - Throughput >> 48,172 Kbps
 - Max 256,300 Kbps
- Network Info:**
 - Authentication >> WPA2-PSK
 - Encryption >> AES
 - Network Type >> Infrastructure
 - IP Address >> 192.168.1.101
 - Sub Mask >> 255.255.255.0
 - Default Gateway >> 192.168.1.254
 - HT: BW >> 20, GI >> short, MCS >> 7, SNR0 >> 0, SNR1 >> 20102453