

BiPAC 6300VNOZ

VoIP Wireless-N VPN Broadband Router

User Manual

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Chapter 1

Introduction the BIPAC 6300VNOZ

1.1 Introducing the BIPAC 6300VNOZ

Thank you for purchasing BIPAC 6300VNOZ Router. The BIPAC 6300VNOZ is a compact and advanced broadband gateway(router) that offers flexible and multiple internet connection services 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-point Gigabit Ethernet LAN ports, the gateway enables faster wireless speed of up to 300Mbps and LAN connection 10 times faster than regular 10/100Mbps Ethernet LAN. Users can choose the most economical rate of VoIP calls provided by different Internet Technology Service Provider (ITSP). The device integrates two FXS ports which allows for simultaneous VoIP calls.

Cost saving

Making VoIP calls is extremely simple; just connect the router to your existing telephones. The BIPAC 6300VNOZ complies with the most popularly adopted VoIP standard, SIP protocol, to ensure interoperability with SIP devices and major VoIP Gateways. The router also supports a wider range of telephony features, such as Call Waiting, Conference Call, Speed Dial, Return Call, Redial, Don't Disturb, etc.

Wireless Mobility and Security

With an integrated 802.11n Wireless Access Point, the 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. The BIPAC 6300VNOZ 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.

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, end users can enter the information

easily which they get from ISP, then surf the Internet immediately.

Firmware Upgradeable

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

1.2 Features of the BIPAC 6300VNOZ

- Gigabit Ethernet WAN (GbE WAN) for Fibre (FTTC/ FTTP/ FTTH) 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)
- SOHO Firewall Security with DoS Preventing and Packet Filtering
- Quality of Service Control for traffic prioritization management
- Universal Plug and Play (UPnP) Compliance
- Supports IPTV Application^{*2}
- Make phone calls via Internet
- Voice over IP compliant with SIP standard
- Two FXS ports for connecting to regular 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 Routing (v4/ v6) 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)

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

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 (* future release)
- Call Detailed Records (CDR) (* future release)

USB Application Server

- Storage (NAS): SAMBA Server, FTP Server

IPTV Applications^{*2}

- IGMP Snooping and IGMP Proxy
- MLD Snooping and MLD Proxy
- Virtual LAN (VLAN)
- Quality of Service (QoS)

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.

1.3 Hardware Specifications

Physical Interface

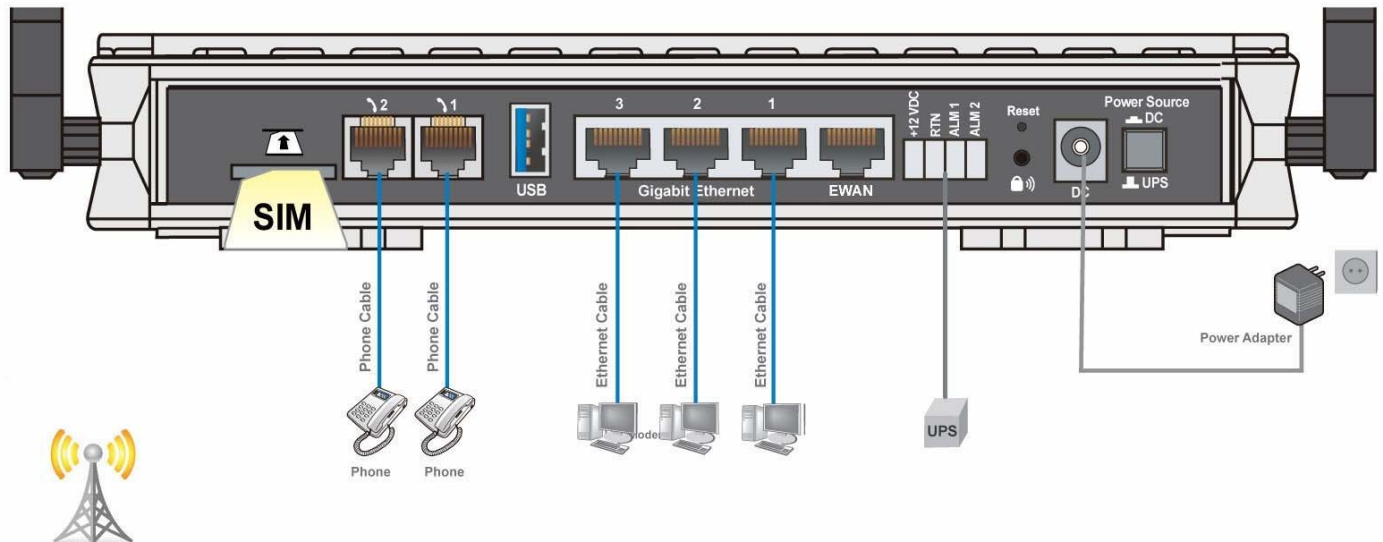
- Detachable antennas: 2 high performance external antennas
- SIM Card slot: Mini SIM card (2FF) slot for mobile broadband connectivity
- VoIP Phone port: 2 RJ-11 FXS for connecting to regular telephones
- USB: 1 USB 2.0 type A port for storage service
- Ethernet: 4-port 10/ 100/ 1000Mbps auto-crossover (MDI/ MDI-X) Switch
- EWAN: RJ-45 Gigabit Ethernet port for connecting to Fibre/ Cable/ xDSL modem for Broadband connectivity.
- Factory default reset button
- Wireless on/off and WPS push button
- DC power input jack
- UPS power input jack
- Power source selection button

1.4 Applications for the BIPAC 6300VNOZ

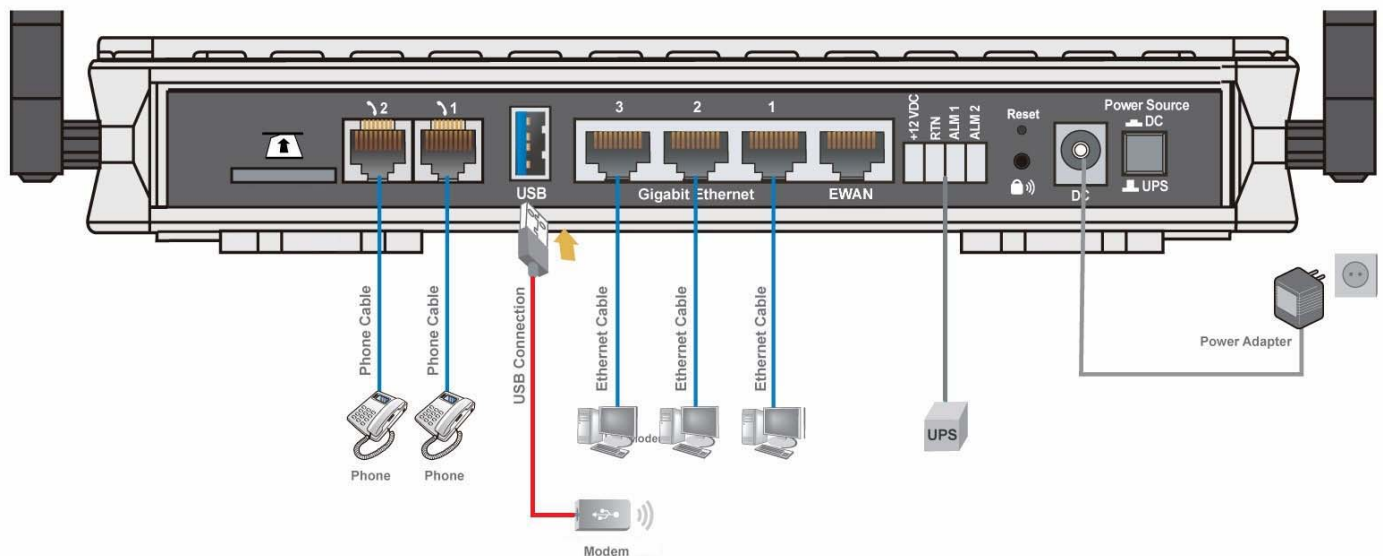
BIPAC 6300VNOZ is an all-in-one router, supporting alternative ways (EWAN, mobile) to connect to the Internet. Then users can choose one of the ways to connect to the Internet or ISP.

Mobile router mode

BIPAC 6300VNOZ is embedded with a module supporting mobile SIM card. It can be used to connect to high speed mobile broadband connection.

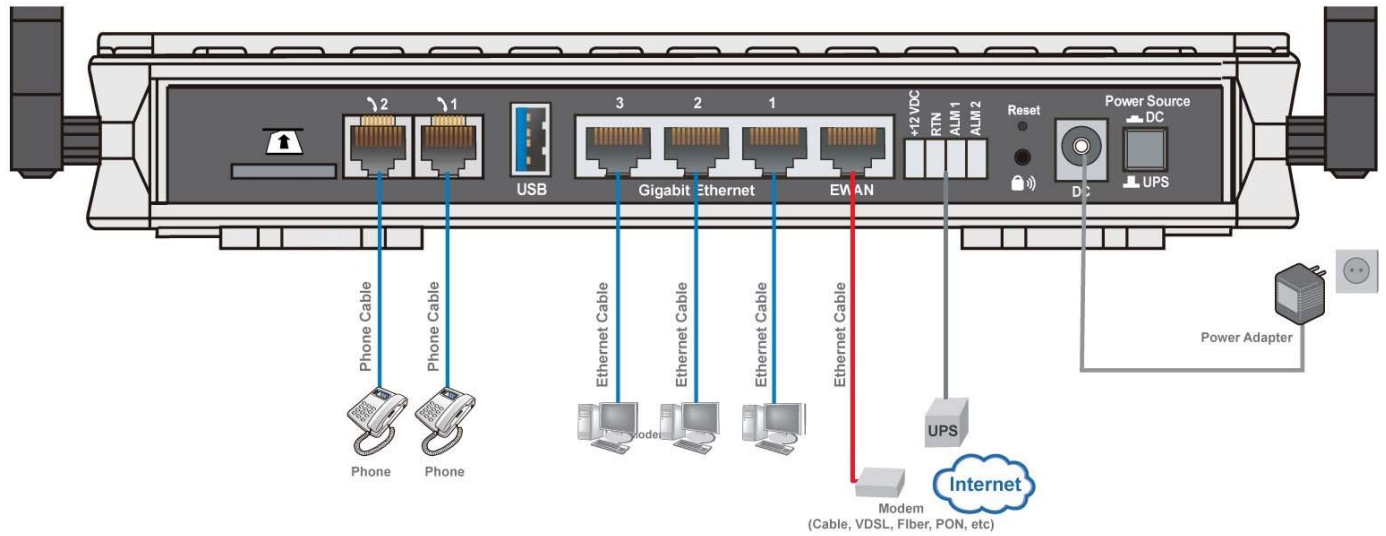


BiPAC 6300VNOZ also supports one USB ports for your mobile dongle. It can be used to connect to high speed mobile broadband connection, too.



Broadband router mode

BIPAC 6300VNOZ has a Gigabits Ethernet WAN port to connect to your Fibre/ Cable/ xDSL modem.



Chapter 2

Installing the BIPAC 6300VNOZ

2.1 Important note for using the BIPAC 6300VNOZ



Warning

- ✓ Do not use the BIPAC 6300VNOZ in high humidity or high temperatures.
- ✓ Do not use the same power source for the BIPAC 6300VNOZ as other equipment.
- ✓ Do not open or repair the case yourself. If the BIPAC 6300VNOZ is 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 BIPAC 6300VNOZ 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.

2.2 Package Contents

- BIPAC 6300VNOZ - VoIP Wireless-N VPN Broadband Router
- Quick Start Guide
- CD containing user manual
- Ethernet (RJ-45 CAT-5) cable
- Two detachable Antennas
- Power adapter

Broadband Router



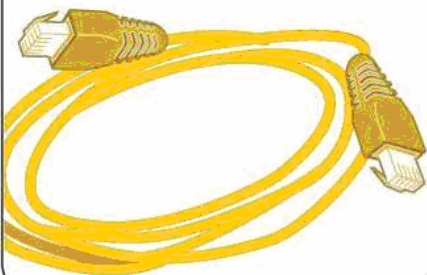
Quick Start Guide



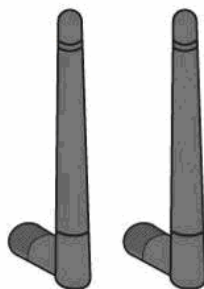
CD



**RJ-45
Ethernet cable**

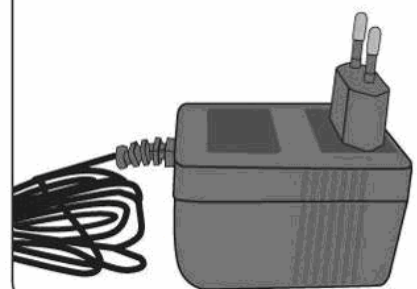


Antenna

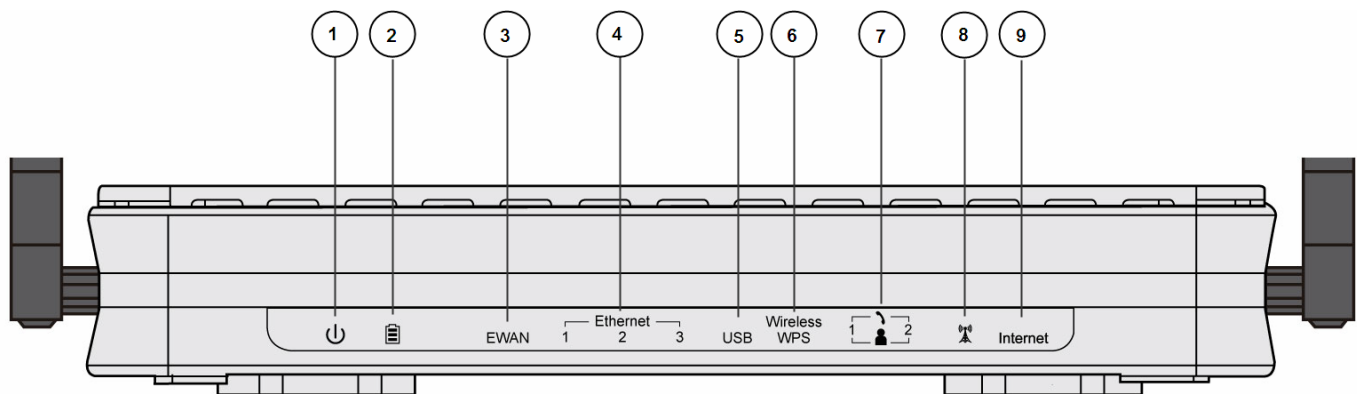


Power Adapter

(The type may differ by different country)



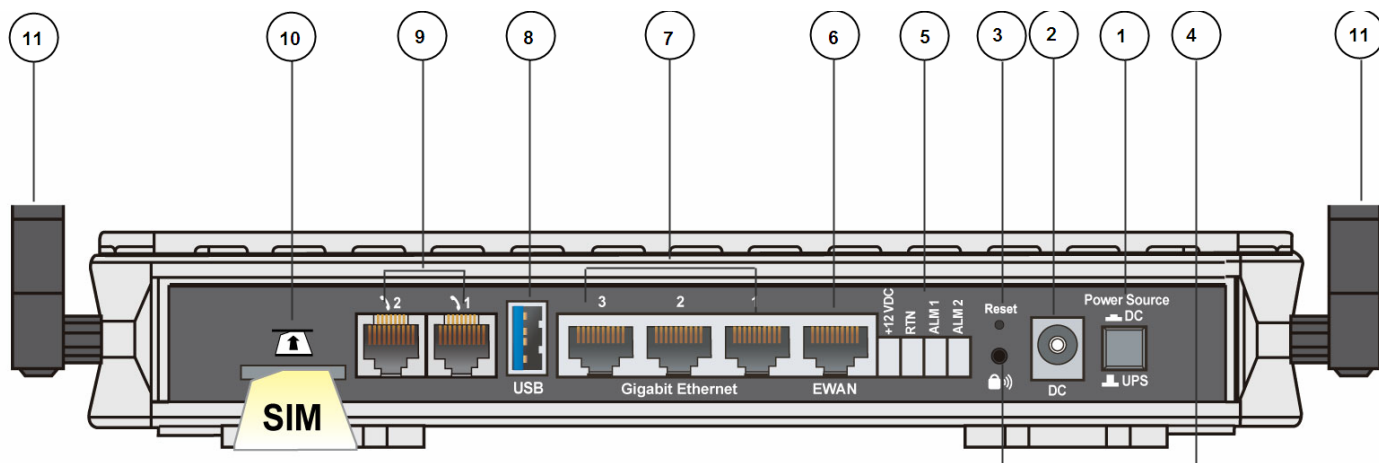
2.3 The Front LEDs



LED		Status	Meaning
1	Power	Green	System ready
		Red	Boot failed
2	Battery	Green	AC working and battery OK
		Orange	Only AC working, battery fail and has to change battery
		Orange blinking	AC fail and battery working
		Off	The power input is from power adapter not UPS
3	EWAN	Green	Transmission speed hitting 1000Mbps
		Orange	Transmission speed hitting 10/100Mbps
		Blinking	Data being transmitted/received
4	Ethernet (1-3)	Green	Transmission speed hitting 1000Mbps
		Orange	Transmission speed hitting 10/100Mbps
		Blinking	Data being transmitted/ received
5	USB	Green	Connected to a storage device
6	Wireless/ WPS	Green	Wireless connection established
		Green blinking	Sending/ Receiving data
		Orange	WPS on
7	Phone (1-2)	Green	Successfully registered
		Orange	Phone being in use
8	Signal Strength	Green	Signal strength > 75%

		Green blinking quickly	Signal strength 75% ~ 50%
		Orange blinking quickly	Signal strength 50% ~ 25%
		Orange blinking slowly	Signal strength < 25%
		Orange	No signal, but module OK
		Off	module fails or No module
9	Internet	Red	Obtaining IP failure
		Green	Having obtained an IP address successfully
		Off	Router in bridged mode or WAN connection not present.

2.4 The Rear Ports

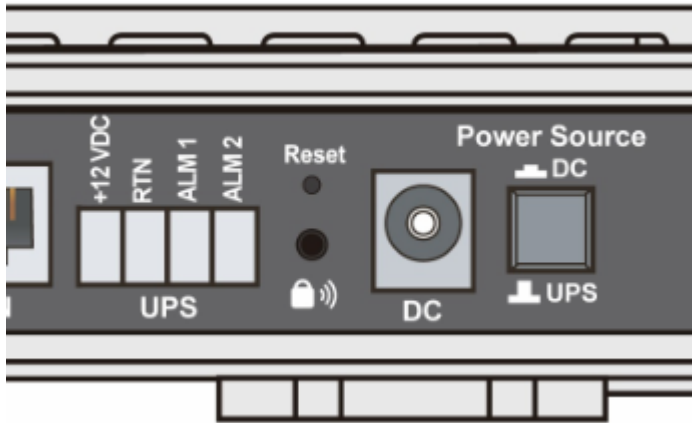


Port		Meaning
1	Power Source	Power source selector. Switch between DC power adapter and UPS (DC).
2	DC	Connect the supplied DC power adapter to this jack.
3	RESET	After the device is powered on, press it 6 seconds or above : to restore to factory default settings (this is used when you can not login to the router, e.g. forgot the password)
4	Wireless On/Off WPS	By controlling the pressing time, users can achieve two different effects: (1) <u>Wireless ON/OFF button</u> : Press over 6 seconds to switch on wireless function when wireless is off and press over 6 seconds again to disable wireless function. (2) <u>WPS</u> : Press less than 6 seconds to trigger WPS function.
5	UPS	Connect the supplied standardized UPS(DC) to this jack
6	EWAN	Connect to Fiber/ Cable/ xDSL Modem with your RJ-45 cable.
7	Gigabit Ethernet	Connect a UTP Ethernet cable (Cat-5 or Cat-5e) to one of the three LAN ports when connecting to a PC or an office/home network of 10Mbps /100Mbps /1000Mbps.
8	USB	Connect the storage device to this port.
9	Phone (1-2)	Connect your analog phone set to this port with the RJ-11 cable.
10	SIM Card slot	Plug the proper mini SIM card(2FF) into the slot
11	Antenna	Connect to the supplied two high performance external antennas

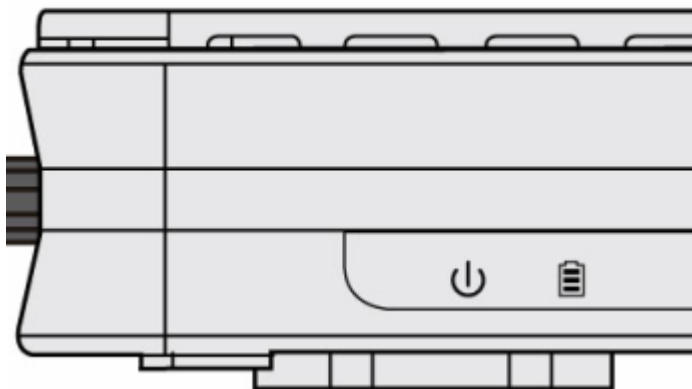
2.5 Power Source

6300VNOZ offers two kinds of power input, namely, **DC power Adapter** and **DC UPS** (or BBU).

6300VNOZ 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 power input:

Press **down** "Power Source" push button, the power source is "DC" power adapter.

Press **up** "Power Source" push button, the power source is UPS. Device can continue to operate for a period of time after AC power failure, due to uninterrupted power system features of UPS. (Note: a standardized DC UPS will come to your by BEC, customers should not turn to other substandard DC UPS.)

UPS feature:

A battery LED is shown on your device front panel to indicate the DC UPS use. The battery LED is on only when DC UPS is in use, and when the device is operating using DC power adapter, the LED unlit.

The meanings of the different status of Battery LED:

- ① Green lit: AC is working, UPS battery working well
- ① Orange Lit: Only AC is working, but Battery fails. And you have to change battery
- ① Orange Blinking: AC fails, but battery is working

2.6 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 Billion 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/Vista/Win7, Linux, Mac OS, etc. The product provides an easy and user-friendly interface for configuration.

3.1 Before 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.

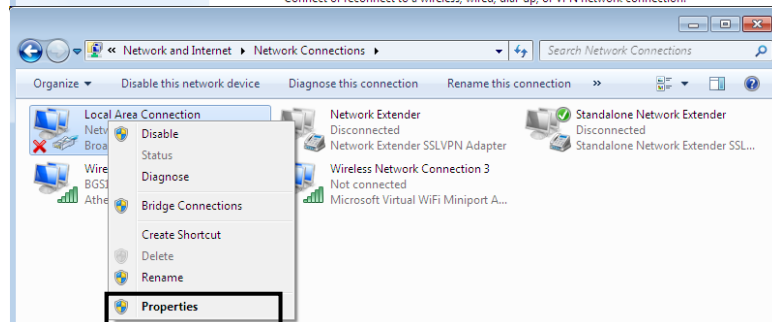
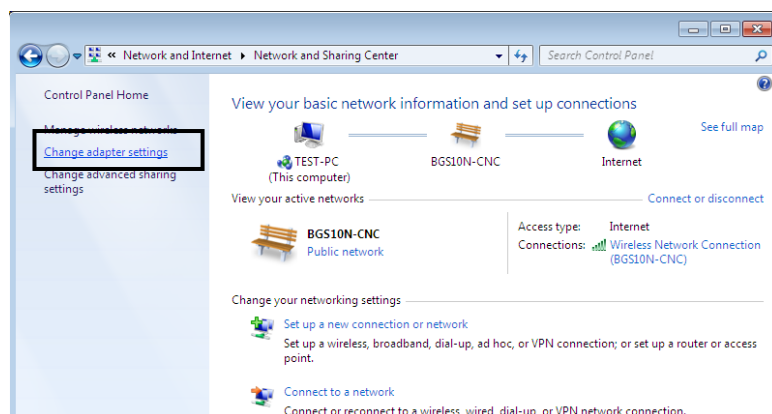
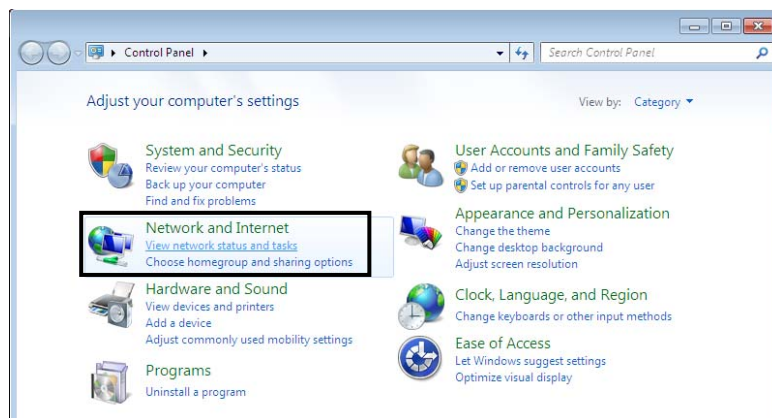
Please follow the steps below for your PC's network environment installation. First of all, please check your PC's network components. The TCP/IP protocol stack and Ethernet network adapter must be installed. If not, please refer to your Windows-related or other operating system manuals.



Any TCP/IP capable workstation can be used to communicate with or through the BIPAC 6300VNOZ. To configure other types of workstations, please consult the manufacturer's documentation.

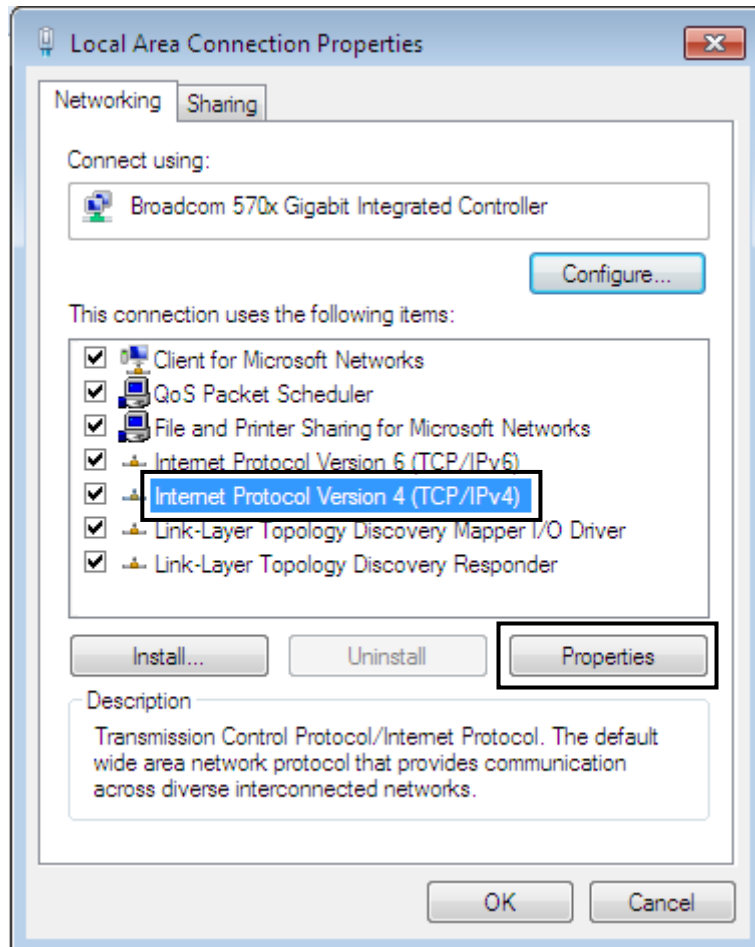
3.1.1 Configuring a PC in Windows 7

1. Go to **Start**. Click on **Control Panel**. Then click on **Network and Internet**.
2. When the **Network and Sharing Center** window pops up, select and click on **Change adapter settings** on the left window panel.
3. Select the **Local Area Connection**, and right click the icon to select **Properties**.

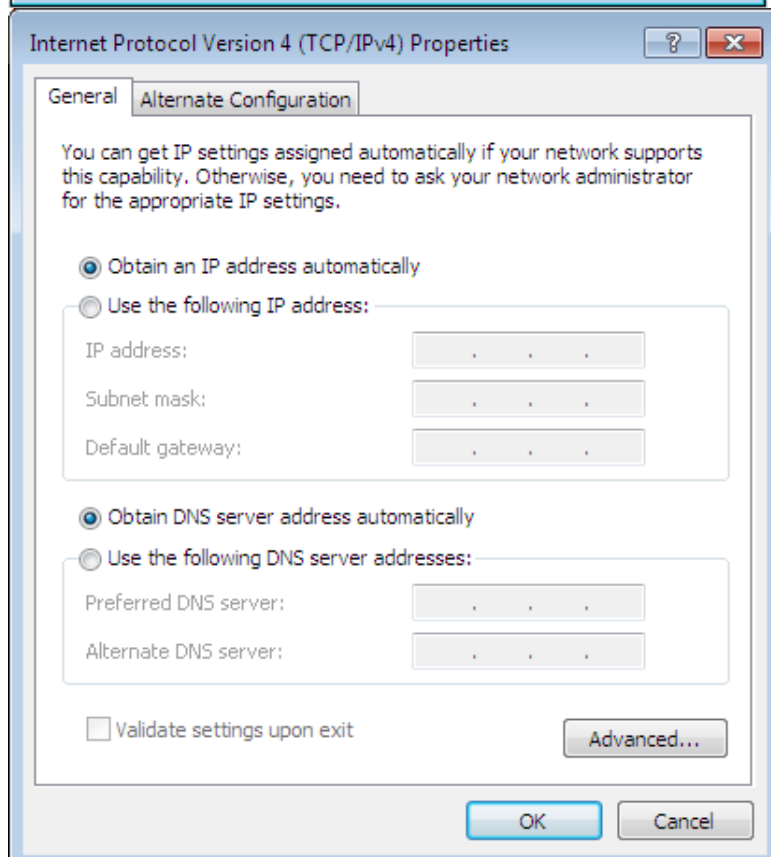


IPv4:

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

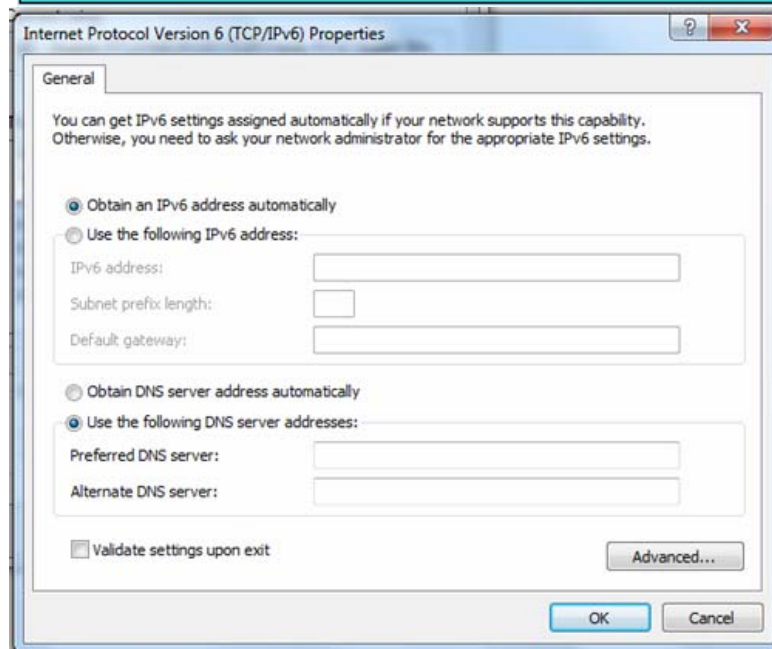
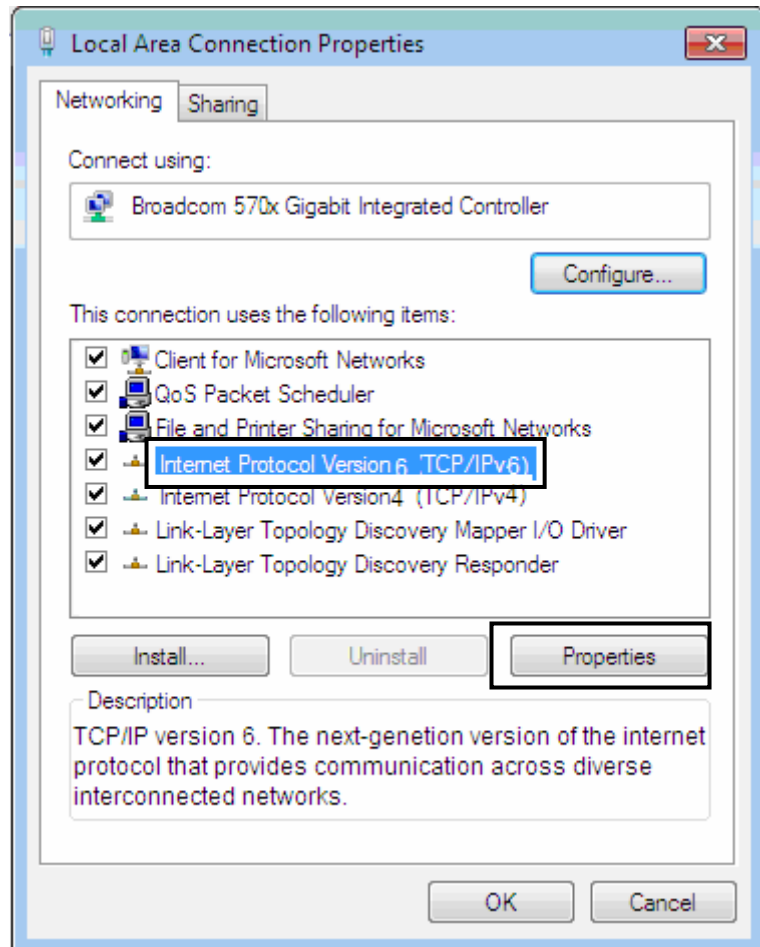


5. In the **TCP/IPv4 properties** window, select the **Obtain an IP address automatically** and **Obtain DNS Server address automatically** radio buttons. Then click **OK** to exit the setting.
6. Click **OK** again in the **Local Area Connection Properties** window to apply the new configuration.



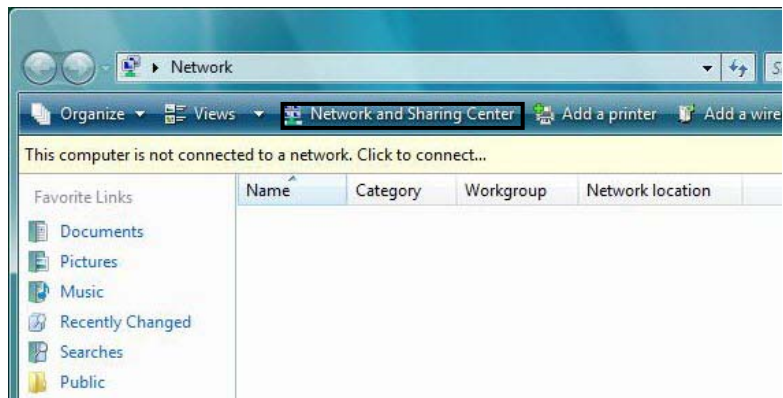
IPv6:

4. Select **Internet Protocol Version 6 (TCP/IPv6)** then click **Properties**
5. 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.
6. Click **OK** again in the **Local Area Connection Properties** window to apply the new configuration.



3.1.2 Configuring a PC in Windows Vista

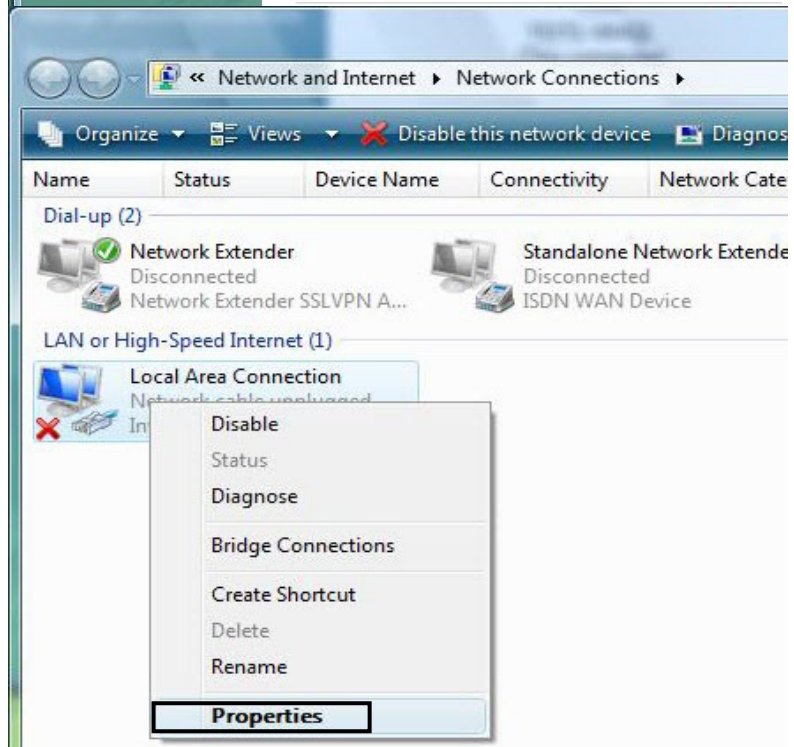
1. Go to **Start**. Click on **Network**. Then click on **Network and Sharing Center** at the top bar.



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

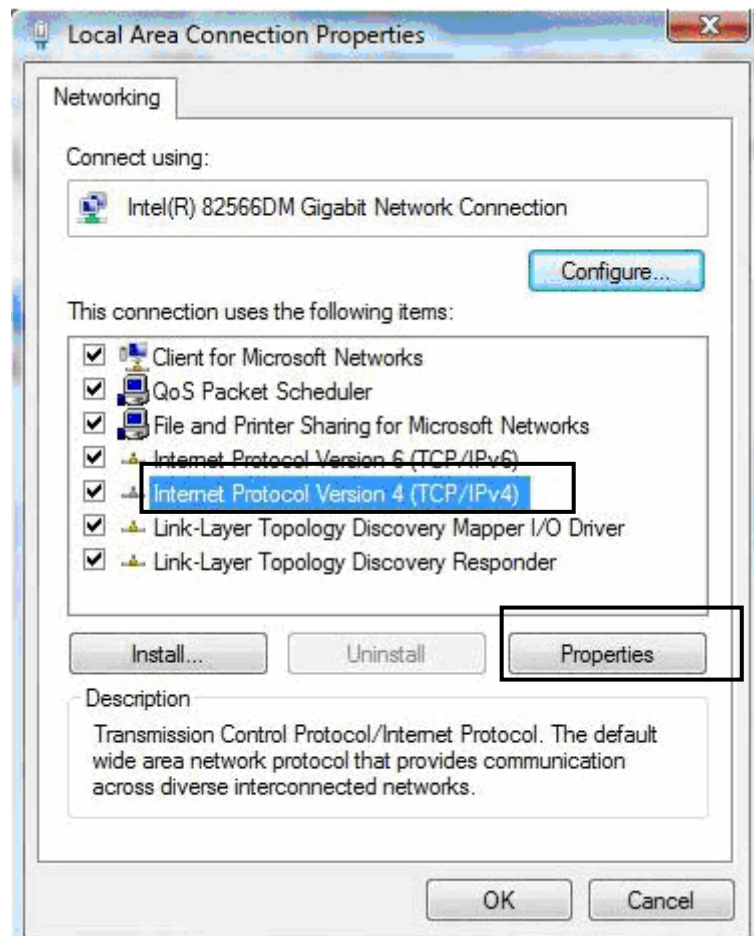


3. Select the **Local Area Connection**, and right click the icon to select **Properties**.

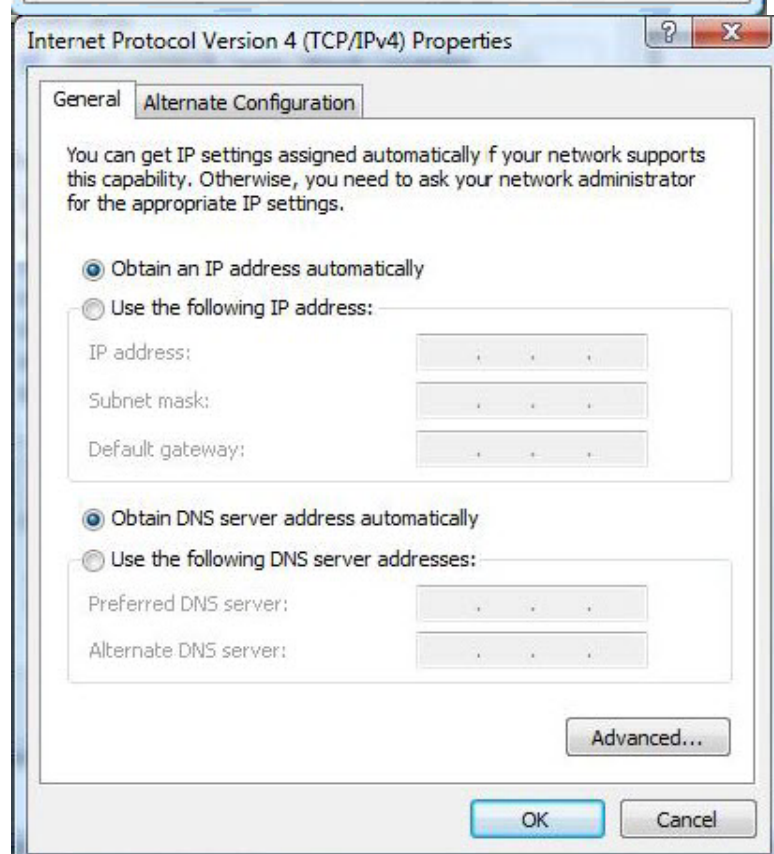


IPv4:

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



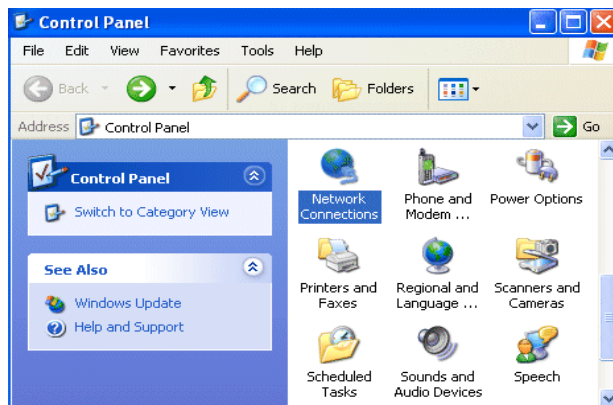
5. In the **TCP/IPv4 properties** window, select the **Obtain an IP address automatically** and **Obtain DNS Server address automatically** radio buttons. Then click **OK** to exit the setting.
6. Click **OK** again in the **Local Area Connection Properties** window to apply the new configuration.



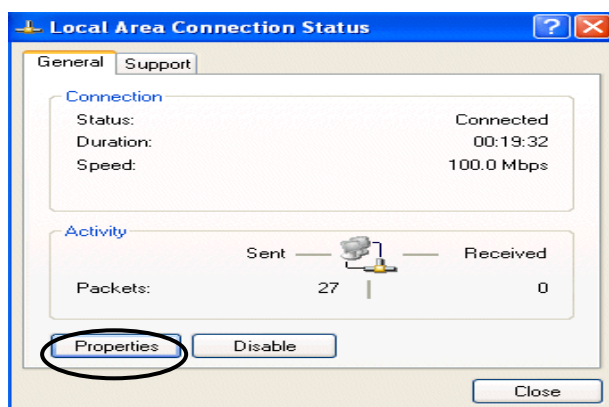
3.1.3 Configuring a PC in Windows XP

IPv4:

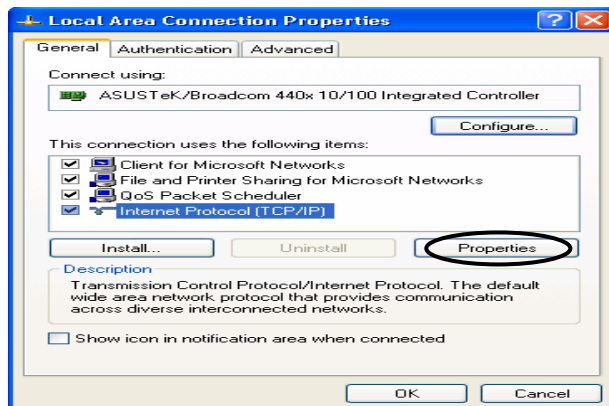
1. Go to **Start / Control Panel (in Classic View)**. In the Control Panel, double-click on **Network Connections**
2. Double-click **Local Area Connection**.



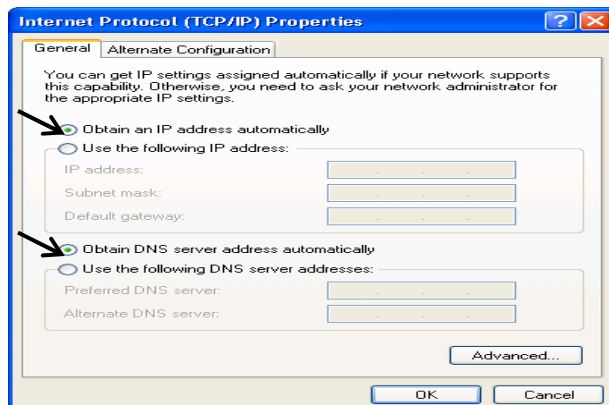
3. In the **Local Area Connection Status** window, click **Properties**.



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



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

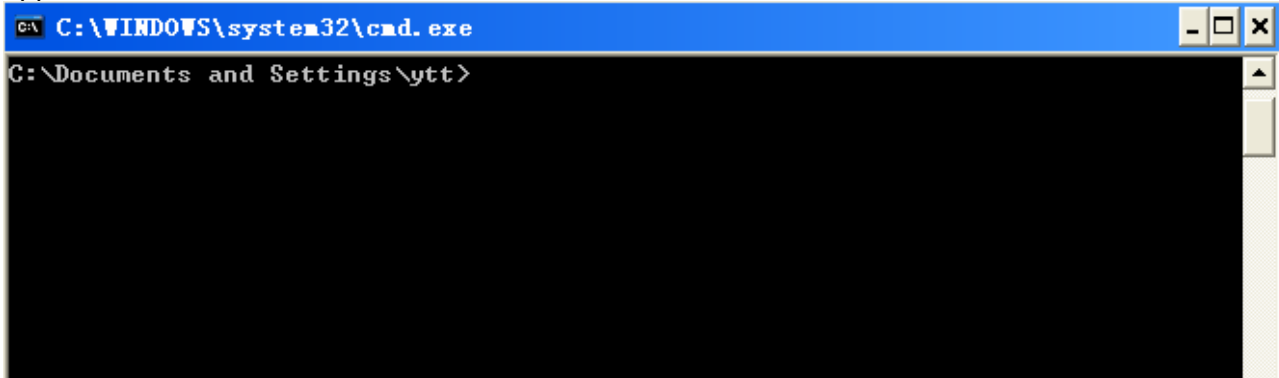


6. Click **OK** to finish the configuration.

IPv6:

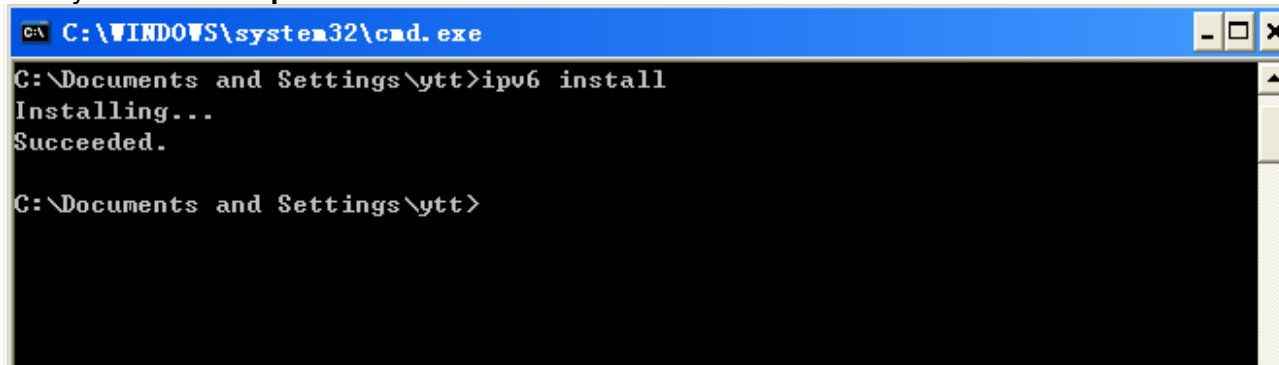
IPv6 is supported by Windows XP, but you should install it first.
Act as shown below:

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**



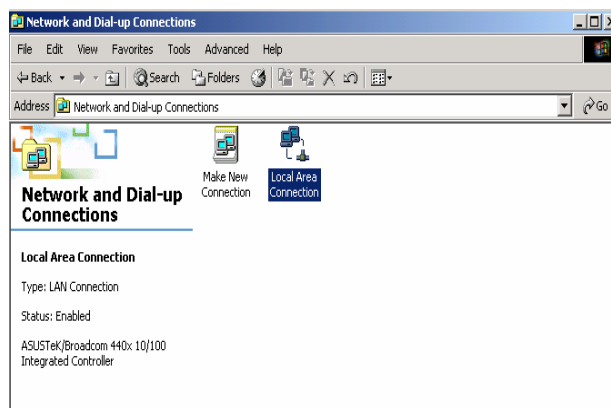
```
C:\WINDOWS\system32\cmd.exe
C:\Documents and Settings\ytt>ipv6 install
Installing...
Succeeded.
C:\Documents and Settings\ytt>
```

Configuration is OK now, you can test whether it works ok.

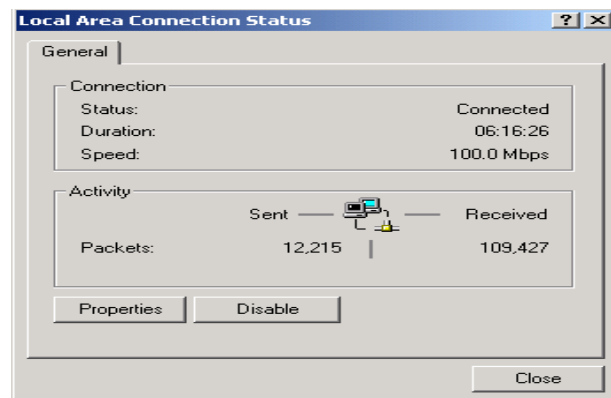
3.1.4 Configuring a PC in Windows 2000

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

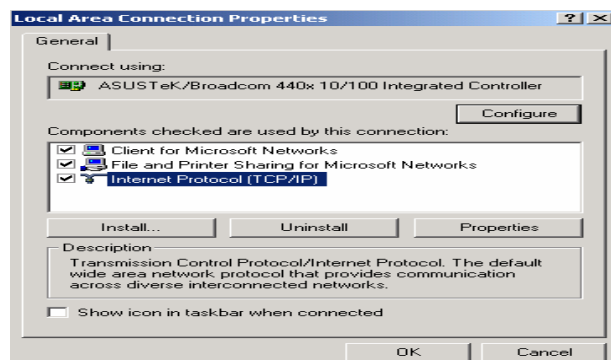
2. Double-click **Local Area Connection**.



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

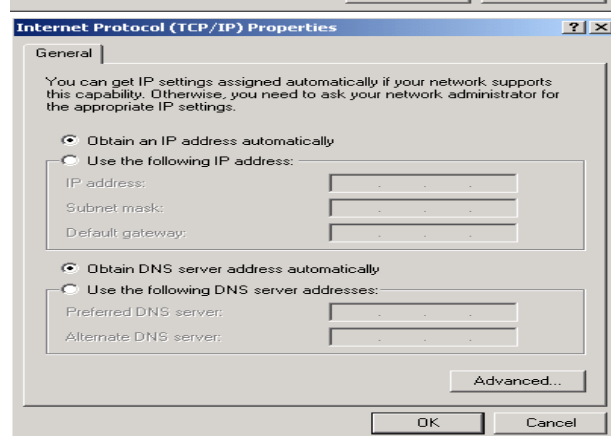


4. Select **Internet Protocol (TCP/IP)** and click **Properties**.



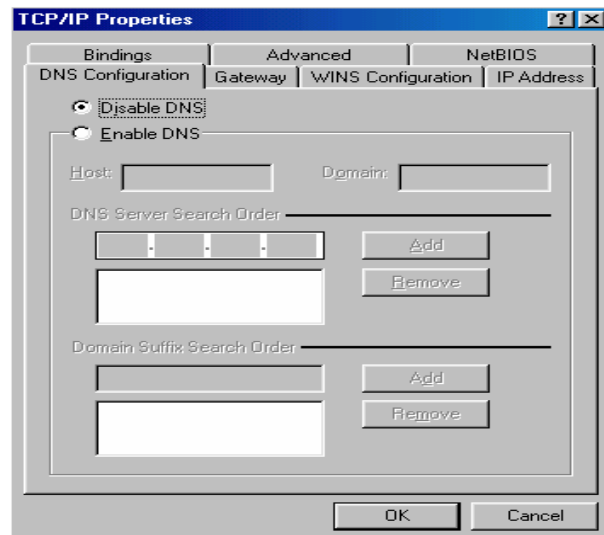
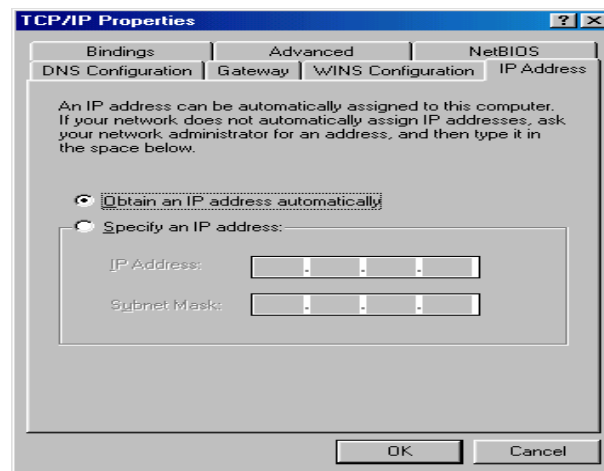
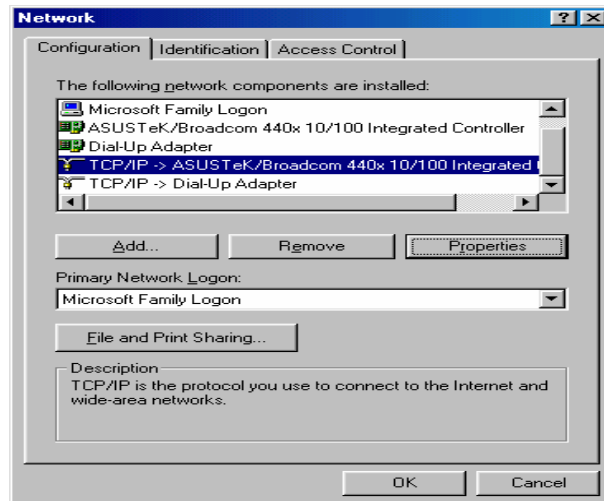
5. Select the **Obtain an IP address automatically** and the **Obtain DNS server address automatically** radio buttons.

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



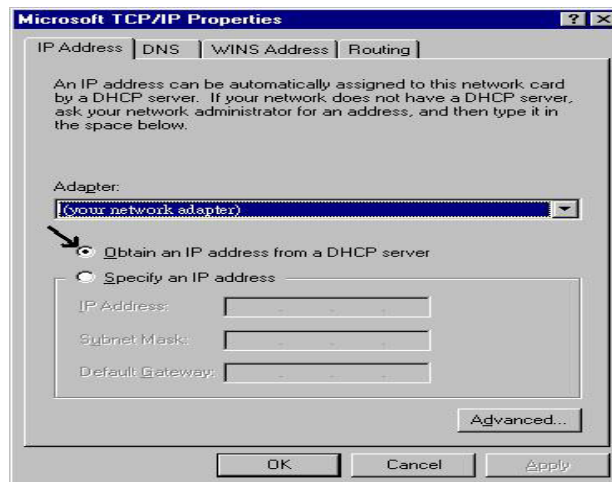
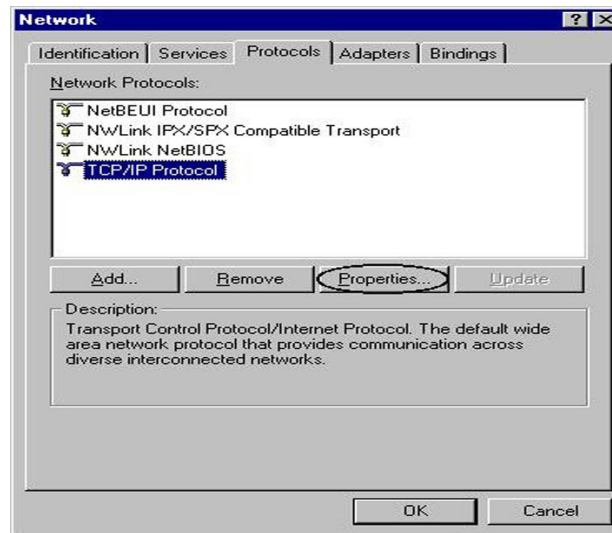
3.1.5 Configuring a PC in Windows 98/Me

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.



3.1.6 Configuring a 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**.



3.2 Factory Default Settings

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

Web Interface:

- ✗ Username: admin
- ✗ Password: admin

LAN Device 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: 20

3.2.1 Username and Password

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



Attention

If you ever forget the password to log in, you may press the **RESET** button up to **6** seconds to restore the factory default settings.

3.3 LAN Port Addresses

The parameters of LAN ports are pre-set in the factory. The default values are shown below.

IPv4:

IP address	192.168.1.254
Subnet Mask	255.255.255.0
DHCP server function	Enabled
IP addresses for distribution to PCs	100 IP addresses continuing from 192.168.1.100 through 192.168.1.199

3.4 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.

EWAN:

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	Domain Name System (DNS) IP address (it can be automatically assigned by your ISP when you connect or be set manually).
Static IP Address	Static IP Address, IP Subnet Mask, Gateway IP Address, and Domain Name System (DNS) IP address.
Bridge Mode	Pure bridge.

Chapter 4

Configuration

4.1 Configuring BIPAC 6300VNOZ with your Web Browser

Open your web browser, enter the IP address of your router, which by default is **192.168.1.254**, and click “OK”, a user name and password window prompt will appear. The default username and password are “**admin**” and “**admin**”.



Congratulation! You are now successfully logged on to the BIPAC 6300VNOZ!

4G/LTE VoIP Gigabit Wireless Router

- Status
- Quick Start
- Configuration
- Language

Status

▼ Device Information

Model Name	BEC 6300VNL
Firmware Version	1.02b.rc6.dt5
MAC Address	00:04:ED:63:AA:05
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:aa05
Prefix Length	64
DHCPv6 Server	Enable Stateless

Restart Logout

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At the configuration homepage, the left navigation pane where bookmarks are provided links you directly to the desired setup page, including:

- **Status**(Device Info, System Log, Statistics, DHCP Table, Disk Status, VoIP Status)
- **Quick Start** (Wizard Setup)
- **Configuration** (Interface Setup, Advanced Setup, VoIP, Access Management, Maintenance)
- **Language**

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

4.2 Status

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

4.2.1 Device Info

Users will see device's basic information in this page.

EWAN

Status

Device Information

Model Name	BiPAC 6300VNOZ
Firmware Version	1.02b.rc6.dt5
MAC Address	00:04:ED:63:AA:03

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	EWAN
Service	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

■ Device Information

Model Name: Show model name of the router

Firmware Version: This is the Firmware version

MAC Address: This is the MAC Address

■ 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: The now used connection method, "EWAN".

Service: The WAN interface service index.

PPP Connection Time: The time totaled since PPP has been successfully connected.

➤ IPv4:

Status: The connection status, Not connected or 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.

4.2.2 System Log

In system log, users can check the operations to the router and track the glitches to the router when occurred.

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

Refresh: Press this button to refresh the statistics.

4.2.3 Statistics

➤ Ethernet

Status

Statistics

Traffic Statistics

Interface

☒ Ethernet

☐ Wireless

☐ EWAN

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

Refresh

Interface: This field displays the type of 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.

34

Status

Statistics

Traffic Statistics

Interface

☐ Ethernet
☒ Wireless
☐ EWAN

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

Refresh

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.

Status	
▼ Statistics	
Traffic Statistics	
Interface	☐ Ethernet ☐ Wireless ☒ EWAN
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
Refresh	

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.

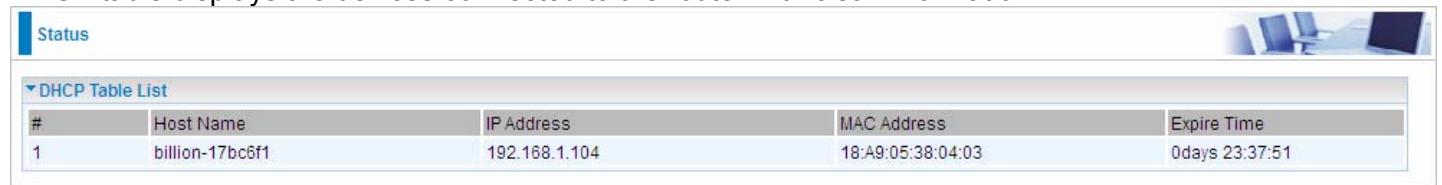
Receive CRC Errors: This field displays the number of error packets on this port.

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.

4.2.4 DHCP Table

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



The screenshot shows a web-based interface for network management. At the top, there is a 'Status' tab. Below it, a section titled 'DHCP Table List' contains a table with the following data:

#	Host Name	IP Address	MAC Address	Expire Time
1	billion-17bc5f1	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.

4.2.5 Disk Status

Status		
▼ Disk status		
Partition	Disk Space(KB)	Free Space(KB)
usb1_1	1953988	1732288

Partition: Display the USB storage partition.

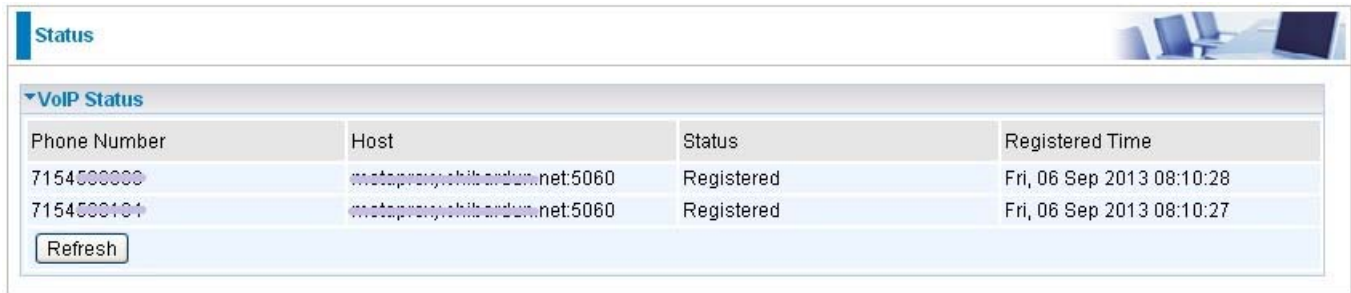
Disk Space(KB): Display the total storage space of the NAS in KBytes unit.

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

4.2.6 VoIP Status

4.2.6.1 VoIP Status

VoIP status give users a directive picture on the registered VoIP accounts.

A screenshot of a web application interface showing the 'VoIP Status' section. At the top left is a 'Status' tab. Below it is a 'VoIP Status' header with a dropdown arrow. The main content is a table with four columns: 'Phone Number', 'Host', 'Status', and 'Registered Time'. There are two rows of data, both showing 'Registered' status. A 'Refresh' button is located at the bottom left of the table area. In the top right corner, there is a small image of a laptop and a chair.

VoIP Status			
Phone Number	Host	Status	Registered Time
7154000000	metaprog.chibardun.net:5060	Registered	Fri, 06 Sep 2013 08:10:28
7154000101	metaprog.chibardun.net:5060	Registered	Fri, 06 Sep 2013 08:10:27

Refresh

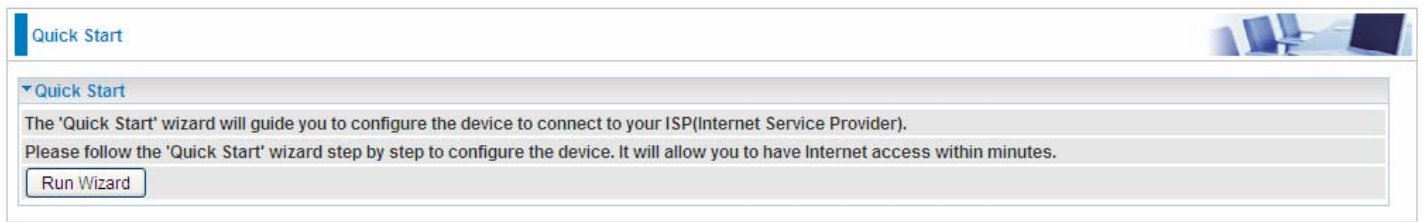
Phone Number: The phone number user registers and fills in the Basic page of VoIP.

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.

4.3 Quick Start



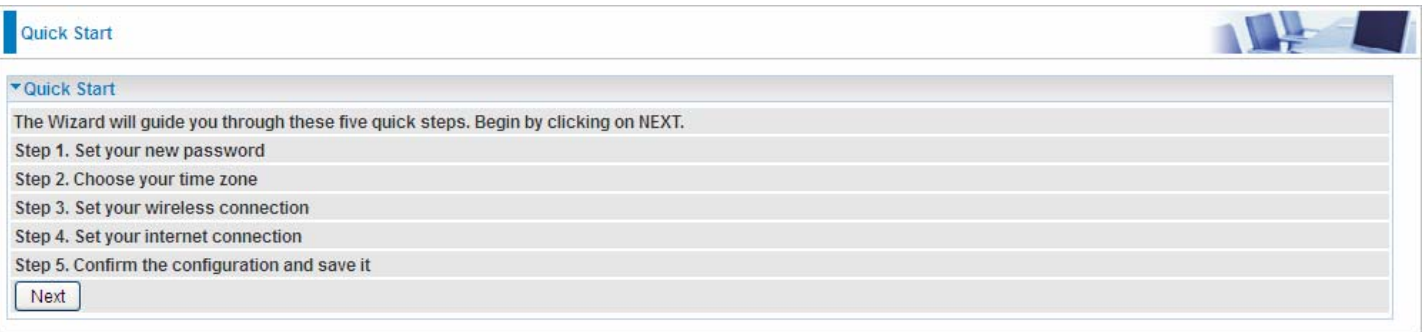
Quick Start

▼ 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.

For detailed instructions on configuring WAN settings, see the **Interface Setup** section of this manual.

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



Quick Start

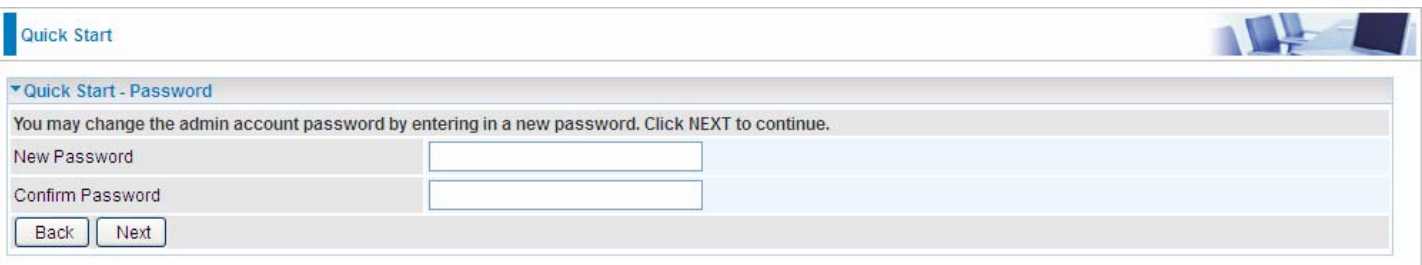
▼ Quick Start

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

Click **NEXT** to enter step 1.

Step1. Set new password of the “admin” account. The password was used to manage the web access. The default is “admin”. Once changed, please remember carefully. 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

Step2: 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

Step3: Set your wireless connection. 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

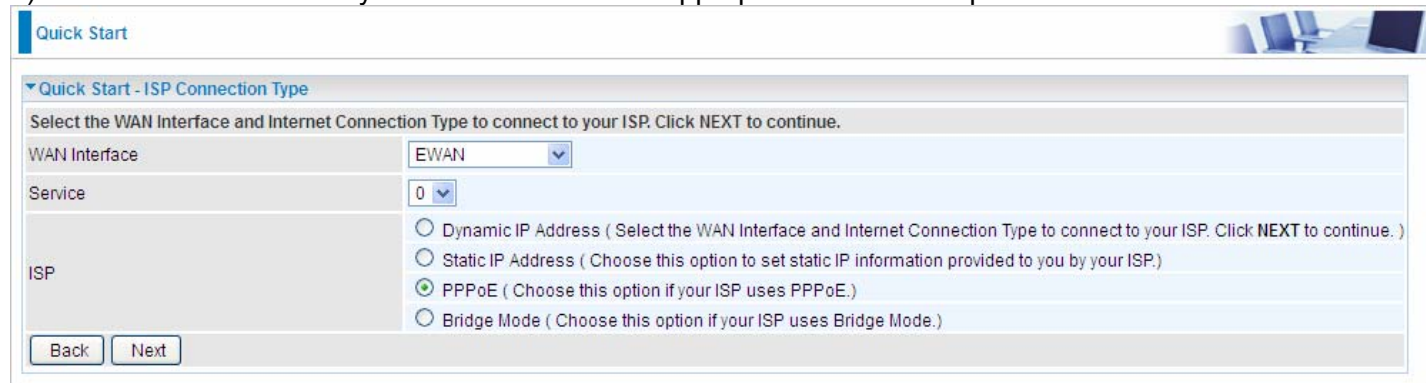
Next

Step4: Set your Internet connection

WAN Transfer Modes: EWAN

➤ EWAN

1). Select EWAN. Refer to your ISP to choose the appropriate connection protocol. 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

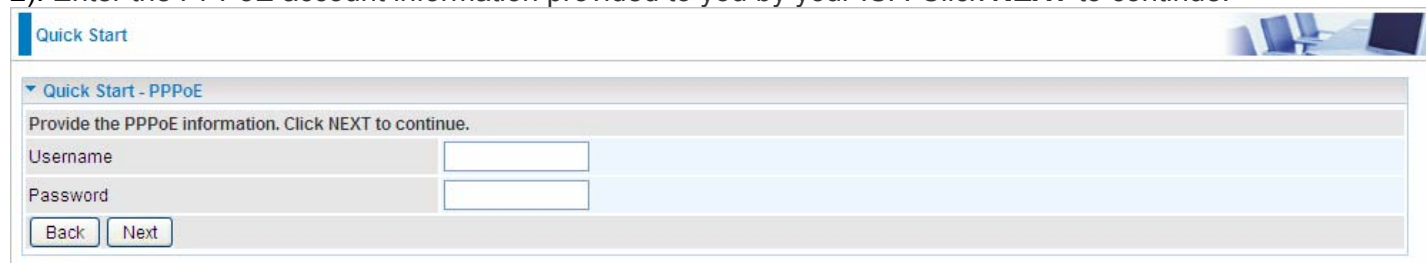
Service: 0

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

2). Enter the PPPoE account information provided to you by your ISP. Click **NEXT** to continue.



Quick Start

▼ Quick Start - PPPoE

Provide the PPPoE information. Click NEXT to continue.

Username: []

Password: []

Back Next

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



Quick Start

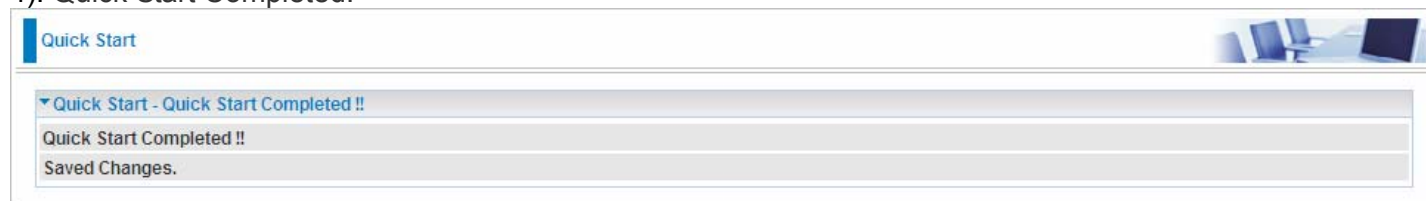
▼ Quick Start - Quick Start Completed

Quick Start Completed !!

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

Back Next

4). 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.dt5
MAC Address	00:04:ED:63:AA:03

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	EWAN
Service	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

4.4 Configuration

Click this item to access the following sub-items that configure the router: **Interface Setup**, **Advanced Setup**, **VoIP**, **Access Management**, and **Maintenance**.

4.4.1 Interface Setup

First, let us take a look at the **Interface Setup**. There are four items contained in this section, namely, **Internet**, **LAN**, **Wireless** and **Wireless MAC Filter**. Each is described in the following scenario.

4.4.1.1 Internet

➤ EWAN

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

Save

Multi Service

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

Service Summary: The diagram for view of 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 users' environment.

Here we take IPv4/IPv6 for example, when you just choose IPv4 or IPv6, you can just get information from the following listed parameters.

ISP Connection Type:

ISP: Select the encapsulation type your ISP uses.

- ① **Dynamic IP:** Select this option if your ISP provides you an IP address automatically. This option is typically used for Cable services. Please enter the Dynamic IP information accordingly.
- ① **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, which is 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.
- ① **PPPoE:** Select this option if your ISP requires you to use a PPPoE connection.
- ① **Bridge:** Select this mode if you want to use this device as an OSI layer 2 device like switch.

802.1q Options

802.1q: Select whether to activate 802.1q feature. When activated, please enter the the 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

Username: Enter the user name exactly as your ISP assigned.

Password: Enter the password associated with the user name above.

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:

- ① **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.
- ① **Connect Manually:** Select Connect Manually when you don't want the connection up all the time.

TCP MSS Option: Enter the TCP Maximum Segment Size (MSS).

■ IP Options

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

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.

- ① **None** is for disabling the RIP function.
- ① **Both** means the router will periodically send routing information and accept routing information then incorporate into routing table.
- ① **IN only** means the router will only accept but will not send RIP packet.
- ① **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.

Status



▼Device Information

Model Name	BiPAC 6300VNOZ
Firmware Version	1.02b.rc6.dt5
MAC Address	00:04:ED:63:AA:03

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	EWAN
Service	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

4.4.1.2 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.

IPv6

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

There are two ways to dynamically configure IPv6 address on hosts. One is statefull configuration, for example using DHCPv6 (which resembles its counterpart DHCP in IPv4.) In the stateful autoconfiguration 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.

The second way is stateless configuration. 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.

Configuration

LAN

IPv4 Parameters

IP Address

192.168.1.254

IP Subnet Mask

255.255.255.0

Alias IP Address

0.0.0.0

(0.0.0.0 means to close the alias ip)

Alias IP Subnet Mask

0.0.0.0

IGMP Snooping

☐ Activated
☒ Deactivated

Dynamic Route

RIP1

Direction

None

DHCPv4 Server

DHCPv4 Server

☐ Disabled
☒ Enabled
☐ Relay

Start IP

192.168.1.100

IP Pool Count

20

Lease Time

86400

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

Save

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	☐ Disabled ☒ Enabled ☐ Relay
Start IP	192.168.1.100
IP Pool Count	20
Lease Time	86400 seconds (0 sets to default value of 259200)
Physical Ports	☒ LAN1 ☒ LAN2 ☒ LAN3 ☒ WLAN1
DNS Relay	☒ Automatically ☐ Manually
Primary DNS	
Secondary DNS	

DHCPv4 Server: If set to **Enabled**, your BIPAC 6300VNOZ 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 6300VNOZ 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	
MAC Address	

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

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

Interface Address / Prefix Length: enter the static LAN IPv6 address, we suggest leave the field empty because when setted wrong, it will result in LAN devices not being able to access other IPv6 device through internet. 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

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.

Issue Router Advertisement: Check whether to enable issue Router Advertisement feature. It is to send Router Advertisement messages periodically. Router will multicast the v6 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.**

4.4.1.3 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 STATES06Current 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

Save

■ 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 manual, 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 how many SSIDs you want to lay out. A total of 4 is in list. By default 4 SSIDs are in use.

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 [4.4.2.8 Time Schedule](#) to set the timeslot to flexibly control when the SSID functions.