

AirCruiser G Desktop Router



AirCruiser™ G Desktop Router
GN-BCO1

User's Guide

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Chapter 1 Introduction

Overview

The AirCruiser G Desktop Router, also known by its model name GN-BC01, has all the features a modern wireless router should. It's a single port 10/100Mbps Wi-Fi access point, firewall and ADSL router in a PCI board. Yes, that's correct – **a wireless router on an averaged sized PCI board**. Don't be fooled by its striking similarity to a typical wireless PCI adapter; two Ethernet ports plus an antenna connector are the key to distinguish it from an ordinary wireless adapter.

The antenna that comes included with the AirCruiser G Desktop Router is unlike any other - there is a blue LED atop the tip which will flash at intervals – fast flashing indicates faster transmissions. It has a beefed up 3dBi gain compared with the 2dBi antennas that are bundled with most standard routers on the market and that translates into better wireless performance!

The AirCruiser G Desktop Router's PCI form factor is a breakthrough in wireless networking technology. Now, end-user's can realize significant space-saving benefits on their desks, shelves or wherever they'd traditionally deploy a wireless router. Once installed and connected, the AirCruiser G Desktop Router allows users to share network resources over the 10/100Mbps LAN port as well as enjoy wireless speeds of up to 54Mbps. For added versatility, it is also compatible with the 802.11b wireless standard. GIGABYTE raises the bar on easy-to-use and setup wireless home networking user experience with the AirCruiser G Desktop Router.

Features

- Interoperability with 54Mbps (802.11g) and 11Mbps (802.11b) devices
- Single 10/100Mbps Ethernet LAN port
- Built-in SmartSetup 3
- Wake On LAN function
- Hardware reset button
- 64 / 128-bit WEP
- Wi-Fi® Protected Access (WPA)
- Dynamic DNS
- UPnP™ (Universal Plug and Play)
- Network Address Translation (NAT)
- VPN pass-through
- 802.1x RADIUS Authentication

Package Contents

Please check that the AirCruiser G Desktop Router package contents include:

- AirCruiser G Desktop Router
- LED equipped 3dBi high gain magnetic mountable antenna
- Cat. 5 Ethernet patch cable
- AirCruiser G Quick Installation Guide

If there are any missing or damaged parts, please contact your local distributor or dealer immediately. If a replacement unit is needed, return the device with the original packing material, otherwise the warranty will be voided.

AirCruiser G Desktop Router Rear Panel

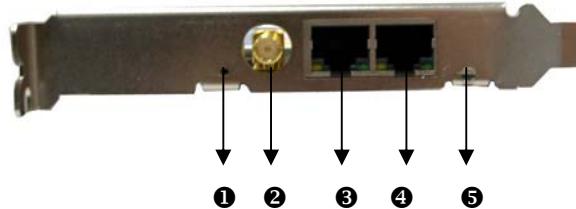


Figure 1-1 – AirCruiser Connectors

① Reset

Press and hold for 5 seconds to reset to factory default.

② External Antenna Connection

The dipole-type 2.4GHz antenna is removable

③ Internet Connection (WAN port)

Connect your broadband RJ45 cable from your DSL modem.

④ Local Area Network Connection (LAN port)

Connect the Router to other PCs on your wired network or other Ethernet network devices.

⑤ Power LED

Solid green LED indicates OK.

Chapter 2 Installation

This chapter covers the installation of the AirCruiser G Desktop Router. The AirCruiser G Desktop Router uses standby power from your PC to stay ‘always on’, and receives power from the PCI bus – even with your computer off – when working normally; you should see the power LED become steady green. Please take note of this as you reach Step 3.

AirCruiser G Desktop Router - Factory Default Settings	
SSID (Network Name)	GIGABYTE
Broadcasting SSID	YES
Wireless Security	Open System (OFF)
IP Address of Web Configuration Utility	192.168.1.254
Configuration Utility Username/Password	admin/admin

Installing the Router

Step 1: Power off your PC.

Step 2: Plug the AirCruiser G Desktop Router into an open PCI slot on the motherboard and press gently until the card edge connector is fully inserted into the PCI slot.

Step 3: **If working normally, you should see a green power LED (see figure 2-1 below) and installation is complete! If there is no green power LED please continue with Step 4.**

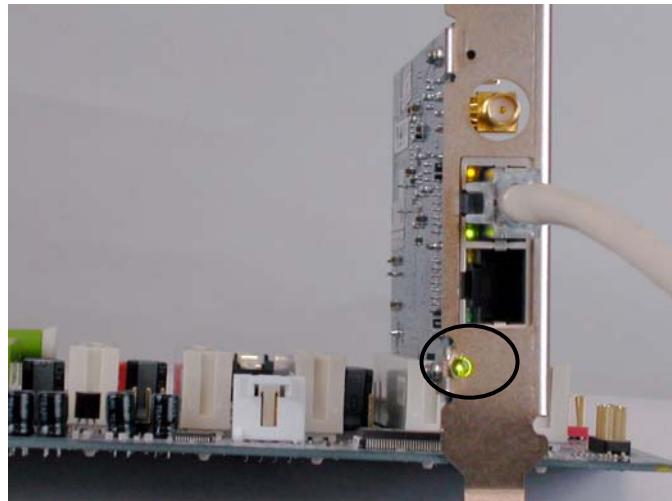


Figure 2-1 – Green power LED indicates normal state.

Step 3: [Steps 3 – 5: Older Motherboards Only]

Some older motherboards don't deliver power through the PCI bus, in this case the green LED will not illuminate and you will need to install the power adapter interconnect.

Unplug the main power cable from the motherboard. Attach the AirStream power adapter interconnect (included) to the PC MAIN power cable, and then plug the other end into your motherboard. (See Figures 2-2 & 2-3)

AirCruiser G Desktop Router

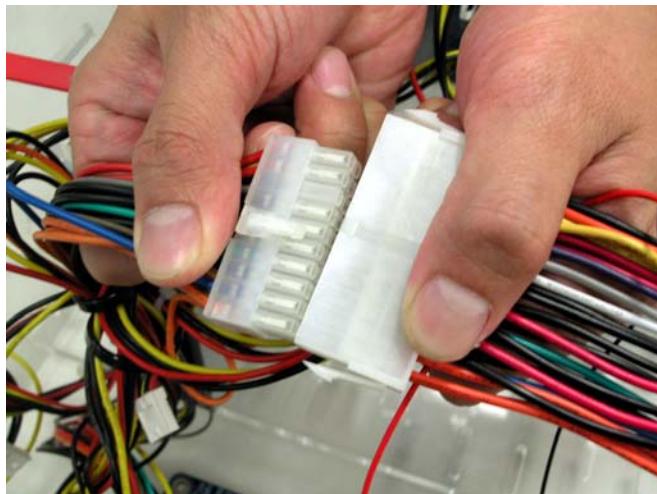


Figure 2-2 – Connect Power adapter interconnect (on right) to PC MAIN power cable.

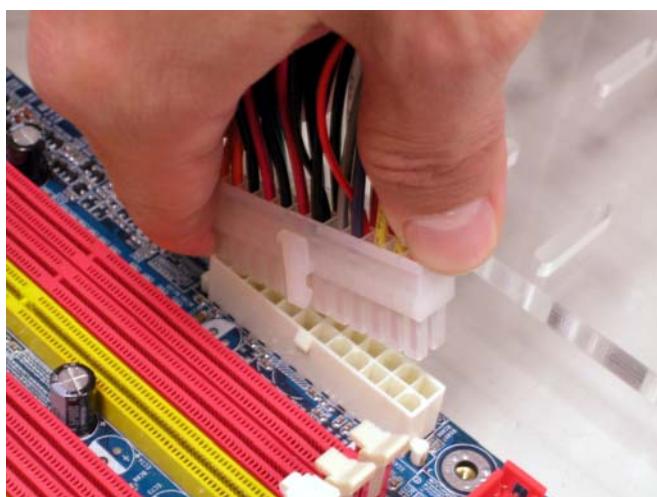


Figure 2-3 – Connect Power adapter interconnect to motherboards ATX power connector.

Step 4: On the power adapter interconnect, locate the two pin power connector wire, and attach it to the two pin power connector on the AirCruiser G (Figure 2-4).

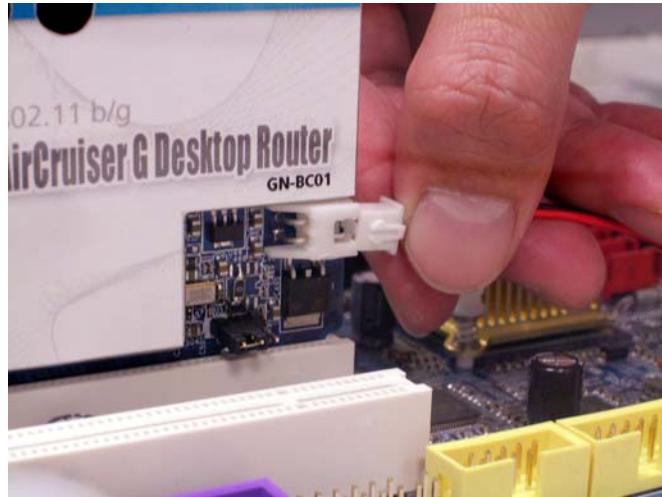


Figure 2-4 – Attach AirCruiser G power connector

Step 5: Locate the 3-pin jumper next to the power connector, and move it so as to cover the two rightmost pins. (Figure 2-5)

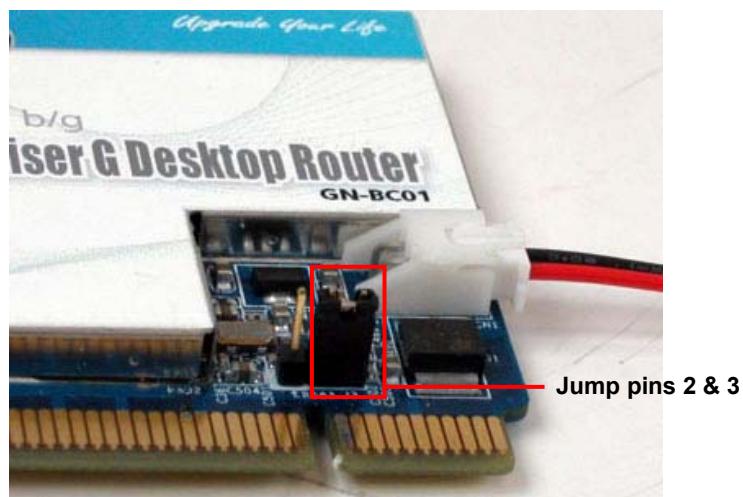


Figure 2-5 – Move pin jumpers to match position as shown

Hardware Installation Finished!

Please proceed to **Chapter 3 – Connections & Configuration.**

Chapter 3 Connections & Configuration

Making a Wired Connection

Now that you've installed the AirCruiser G, like any other router, you'll need to configure it with your ISP internet connection. This section will help you through the process, which is made easier by SmartSetup 3.

The AirCruiser G has one WAN (Internet) port and one LAN (network) port. (The WAN port being the one closest to the antenna connector). You can configure the AirCruiser both wirelessly or wired, however we strongly recommend using the wired connection for initial setup, as it will make the procedure less error prone.

- Step 1 Screw in the antenna, and then connect the Internet cable coming from your ADSL/Cable modem into the WAN port of the AirCruiser Wireless PCI Router. (See figure 3-1 below)



Figure 3-1 – WAN (Internet) cable

- Step 2 Using the RJ45 patch cable provided, plug one end into the LAN port of the AirCruiser G, and the OTHER END into the LAN port of your Desktop NIC or your LAN port of a Notebook PC. (See figure 3-2 below)



Figure 3-2 – LAN (network) cable for initial setup.
The other end will go into your Notebook PC or Desktop NIC.

Your wired configuration at this point should look like the figure 3-3 below. Later, you can remove the short Ethernet patch cable, and install a switch, creating your own private LAN.

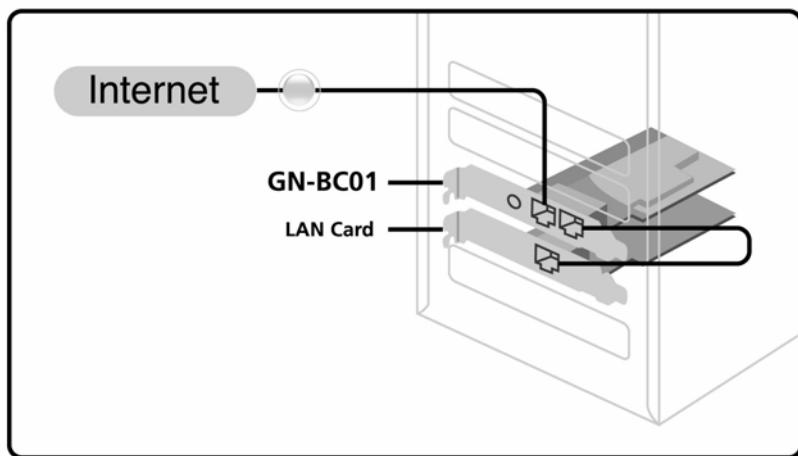


Figure 3-3 – Cabling for initial setup.

Please proceed to **Chapter 4 – Configuring the AirCruiser G Desktop Router** to complete installation.

Chapter 4

Configuring the AirCruiser G Desktop Router

- Step 1 Power ON your computer, and then launch the web browser of your choice. In the examples below, we use Mozilla Firefox.
- Step 2 SmartSetup 3 should automatically detect your wireless network and open up the web-based configuration screen. If it does not, simply type **192.168.1.254** into the address bar of your web browser.



Figure 4-1 – Access the AirCruiser G configuration menu using any web browser.

- Step 3 SmartSetup 3 should open the web-based configuration screen, and auto detect your type of Internet Connection (PPPoE, Static, Dynamic, etc.) if it does not, simply type **192.168.1.254** into the address bar of your web browser. When prompted for username/password type: **admin** for both.

Types of Broadband Internet connections automatically detected by SmartSetup 3:

Dynamic IP Address	If you use a dynamic IP address, you can directly connect to Internet without having to login. The Router will then automatically restart.
PPPoE	Most common type of ISP Connection. If you use a PPPoE connection, please enter your ISP user ID and password.
Static IP address	If you use a static IP address, please enter your WAN IP address, WAN subnet Mask, WAN Gateway, and DNS information provided by your ISP.

- Step 4** When prompted by the dialog box for username and password, key in the default user name: **admin** and the default password: **admin**. Press OK.



Figure 4-2 – The username/password is admin/admin.

- Step 4** The AirCruiser G Desktop Router's **web browser based** configuration screen will prompt you for certain ISP related information (Figure 4-3). You can contact your ISP service provider for this information at any time. After entering the ISP information, click the **Finish** button. The Router will save and restart automatically.

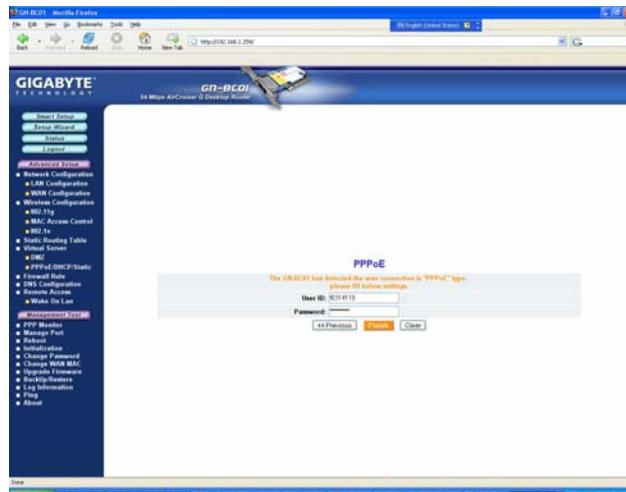


Figure 4-3 – Initial ISP Internet setting for the AirCruiser G.

The AirCruiser G Desktop Router is now active! The SSID (Network Name) is **GIGABYTE**, and should now be visible from any wireless 11b or 11g adapter.

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Optional: Setting up a home LAN configuration using the AirCruiser G Desktop Router

Setting up a Local Area Network using the AirCruiser G is exactly the same as you would do for any other wireless router, just connect a switch to the LAN port of the AirCruiser G, and then attach your network devices to the switch (figure 4-4). By connecting PC's to the 10/100 Switch as shown, we have three nodes on the new LAN - the two Desktop PC's (LAN 1 & LAN 2) and the NIC Card in your main Desktop (LAN 3).

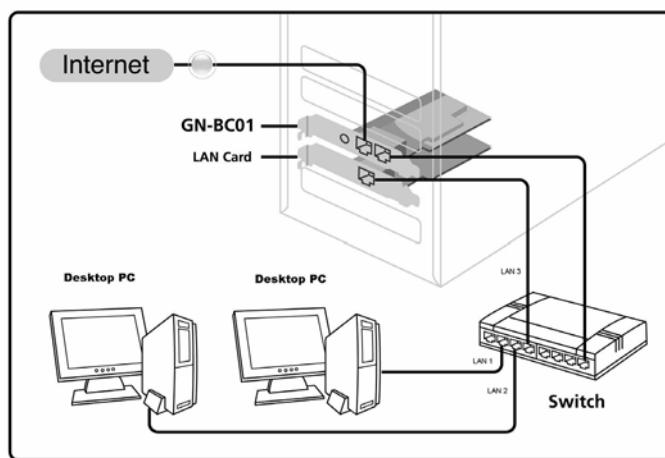


Figure 4-4 – Typical home LAN using AirCruiser G.

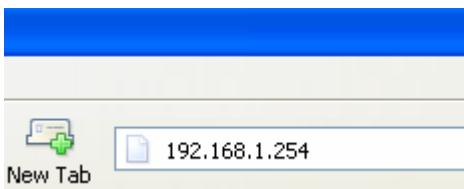
Chapter 5

AirCruiser G Desktop Router Settings

The default settings of your AirCruiser G Desktop Router generally do not require modification. However, from time to time you may want to change settings such as firewall or SSID number. You can change AirCruiser Wireless PCI ROUTER wireless router settings using an Internet browser (Internet Explorer or Netscape Navigator) and accessing the web-based utility.

Login to the AirCruiser G Desktop Router

Whenever you want to change Router settings, you'll need to open the AirStream web configuration utility. In the address bar of your browser, type **192.168.1.254** and then press the **ENTER** key.



When you login, you will be greeted by the AirCruiser Welcome Screen (Figure 5-1). On the left panel are the Advanced Settings, Management Options, and SmartSetup wizards which allow easy access to the AirCruiser G configuration settings.

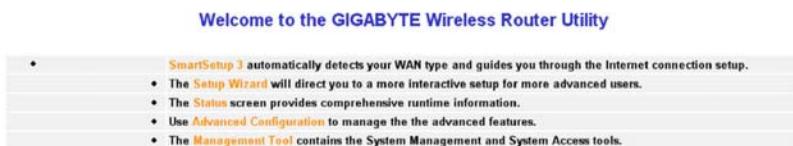


Figure 5-1 – AirCruiser G Main Login Screen

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AirCruiser G Desktop Router Configuration Utility

In Chapter 6 below, each of the configuration options will be introduced and its parameters explained. Normally, users will not need to adjust any of the AirCruiser G Desktop Router settings, however GIGABYTE recommends you setup some form of security, or at least hide your SSID (Network Name).

After you have completed making modifications to the configuration settings of your AirCruiser G, please click the **Logout** button to end your session.

Note: For security reasons, you will be automatically logged out of the Configuration Utility after 5 minutes of inactivity.

Chapter 6 Advanced Settings

In this chapter, details for configuring the advanced settings of the AirCruiser G Desktop Router are explained.

The Network Configuration Screen

The **Network Configuration** screen consists of two sub-areas: **LAN Configuration** (which also includes DHCP Options, and Forced IP-MAC Mapping), and **WAN Configuration** in which you can configure up to 4 backup WAN connections (other internet service providers accounts) in the event your primary WAN connection fails.

The LAN Configuration Tab

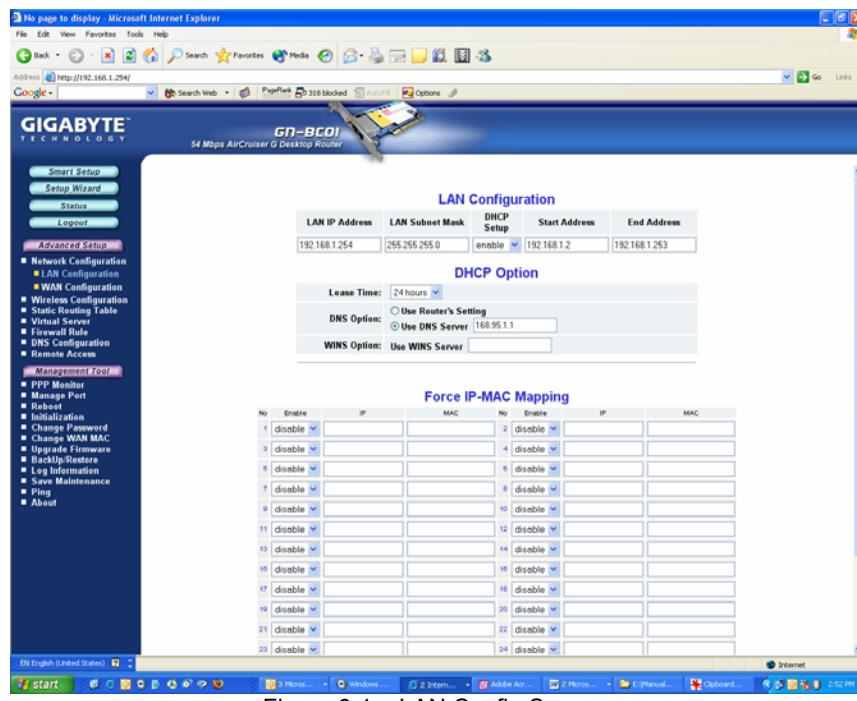


Figure 6-1 – LAN Config Screen

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LAN Configuration

Allows you to modify the LAN parameters, and if you want to enable DHCP automatic IP address assignments, you can enable it here, and specify a Start and End address for the IP range.

DHCP Option

The DHCP server "leases" out address for specific times (Time To Live) to the various hosts. If a host does not use a given address for some period of time, that IP address can then be assigned to another machine. When assignments are made or changed, the DHCP server must update the information in the DNS server. The AirCruiser G DHCP Lease Table displays the associated IP/MAC assignment and Time To Lease.

Force IP-MAC Mapping

Allows you to manually assign a specific IP address to a specific network device (MAC address) on the network. This will be updated in the ARP table automatically.

Verify the settings, and then apply these to your router, click the **Submit** button.

The WAN Configuration Tab

Select the type of Internet Service you are using, and press the **NEXT>>** button to continue with modifications.

Note: If you don't know which type of Internet connection you have, click SmartSetup button, and it will auto detect this for you.

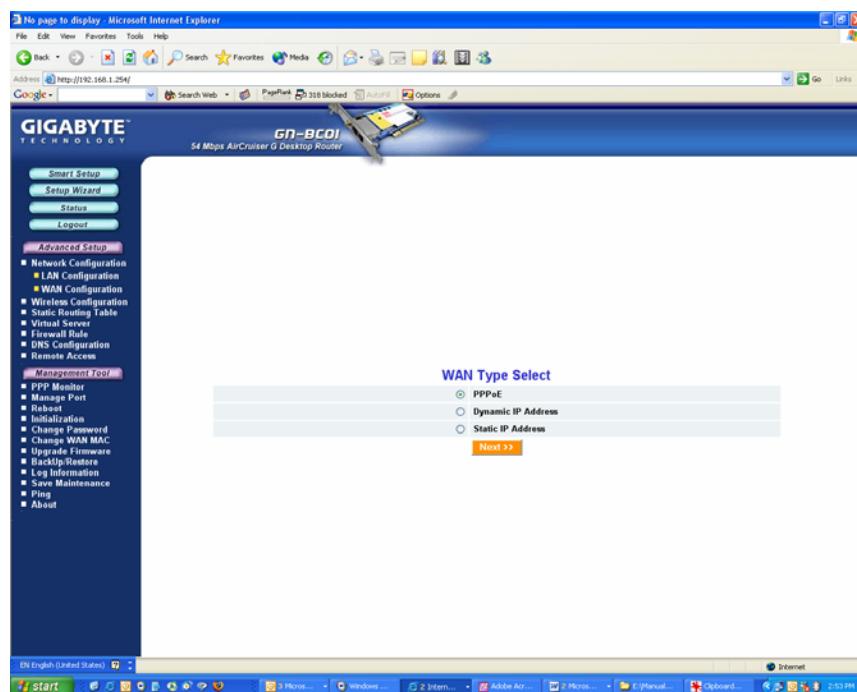


Figure 6-2 –WAN Config Screen

A screen based on the Internet (WAN) connection type you selected will appear and provide parameter fields.

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WAN Configuration – Dynamic IP Address

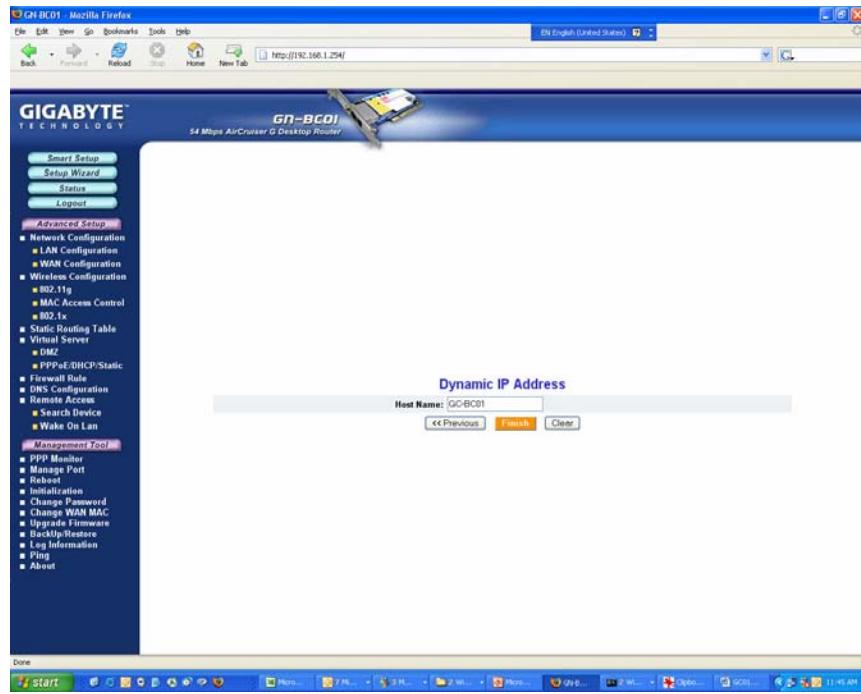


Figure 6-3 – Dynamic IP Config

Host Name

This is a free form field (Default BC-01) which assigns a host name to your IP connection. You may choose a name of your preference, or leave the default. Press Finish.

WAN Configuration - PPPoE

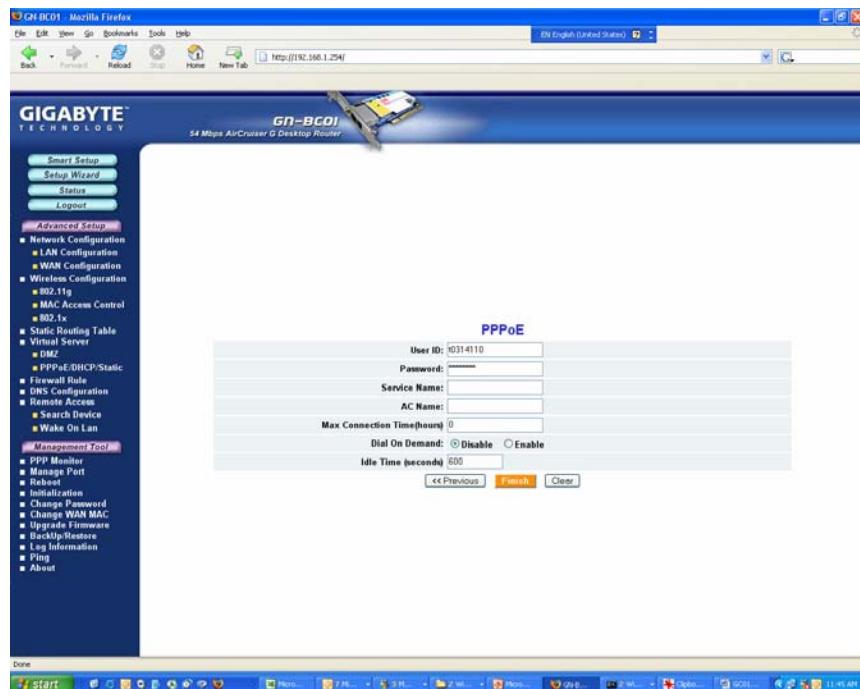


Figure 6-4 – PPPoE Config Screen

Your Internet Service Provider will supply you with the following account information you will need:

- **ISP Name**
- **User ID/Password**
- **Service Name**
- **AC Name**
- **DNS1 and DNS2 Address**
- **DNS Domain Name**

Enter the information provided by your ISP in the fields provided.

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WAN Configuration Tab - Static IP Address

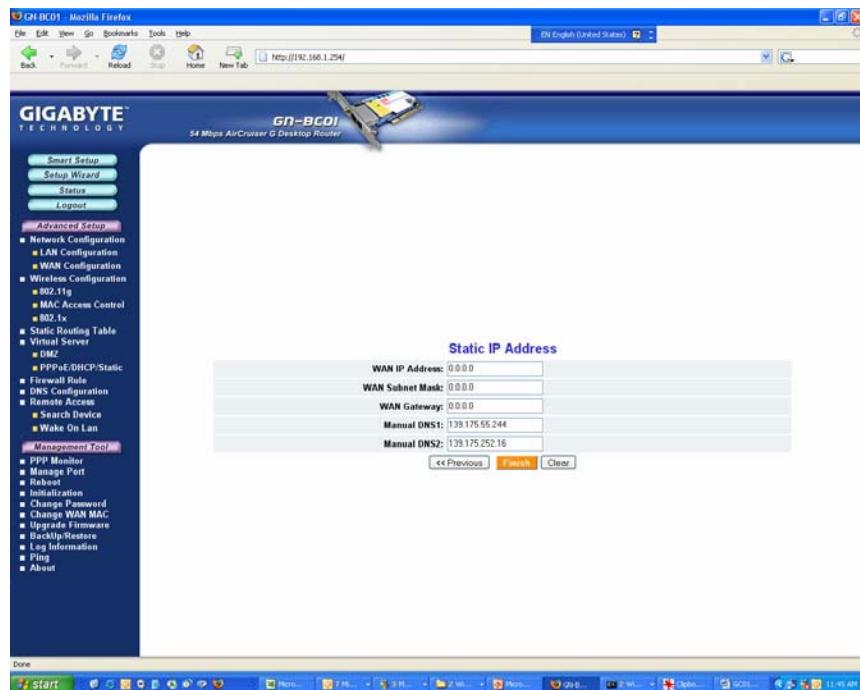


Figure 6-5 – Static IP Config screen

Your Internet Service Provider will supply you with the following account information you will need:

- **ISP Name**
- **WAN IP Address**
- **WAN Subnet Mask**
- **WAN Gateway**
- **DNS1 and DNS2**
- **DNS Domain Name**

This information is all provided by your ISP. In the event that your ISP has assigned you several Static IP addresses, you will only need to one.

The Wireless Configuration Screen

The **Wireless Configuration** screen allows you to configure the Router's WLAN function.

The 802.11g Tab

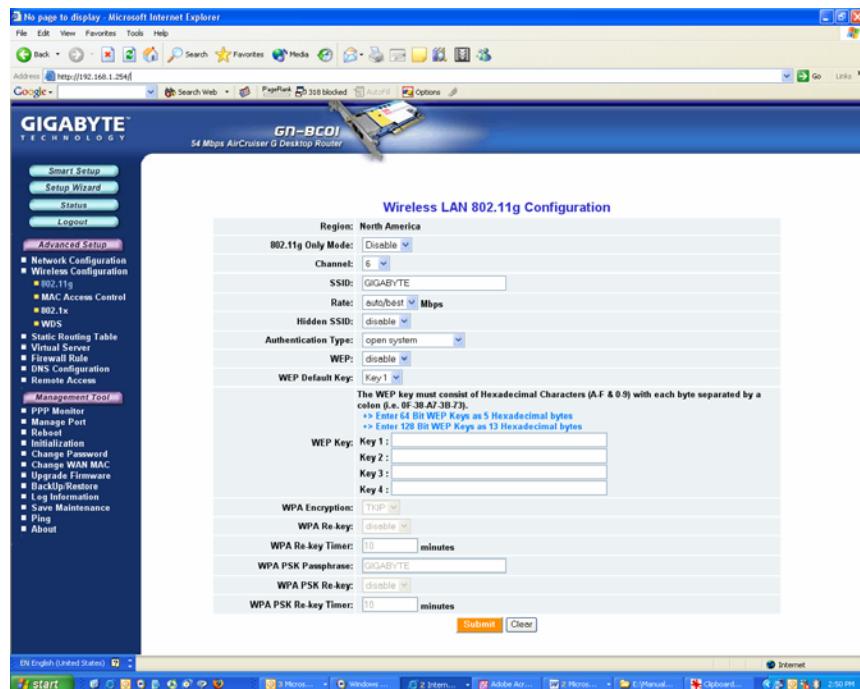


Figure 6-6 – 802.11g Main Config Page

Region

Indicates the geographical region you are in. Verify that the region indicated is correct. If not, please contact your local distributor or dealer immediately.

802.11g Only Mode

The mixture of both 11b and 11g traffic on your wireless network results in the reduction of the network performance. For this reason, the **802.11g Only Mode** allows you to restrict all traffic to 11g (54Mbps) traffic only. Keep in mind, however that enabling this feature comes at the expense of eliminating all 11b based traffic by the AirCruiser G. Enable will restrict all traffic to 802.11g traffic, while disable will allow a mixture of both 11b and 11g. The default setting is **Disable**.

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Auto Channel Select

The Router uses channel 6 as the default channel. Enabling Auto Channel Select allows the Router to auto-select a non-conflicting channel.

Channel

The channel may be manually changed (if there are other wireless networks operating in your area) by selecting a channel from the drop-down list.

SSID

The SSID (Service Set Identifier) is the name of your wireless network. The SSID is up to 32 ASCII characters in length and case sensitive (i.e. Letters in upper case "A~Z" and lower case "a~z" are unique). The default SSID is "**GIGABYTE**". To change the SSID, type in the SSID you want to use in the SSID field and click **Submit**. If you make a change to the SSID, any wireless devices on your network must also be reconfigured to connect to the new network name.

Rate

Select a wireless data transmission rate from the drop- down list. The default setting **auto/best** automatically detects and sets the optimum transmission rate.

Hidden SSID

For security purposes, you may choose to hide your network's SSID by selecting **enable** from the drop-down list. This will prevent computers scanning for the presence of wireless networks to detect your network name. The default setting is **disable**.

Authentication Type

Select an authentication type from the drop-down list. The default setting is **Open System**.

Open System: The sender and the receiver do NOT share a secret key. Each party generates its own key-pair and asks the receiver to accept a randomly generated key. Once accepted, this key will only be used for a short period of time. Afterwards, a new key will be generated and agreed upon.

Shared Key: Authentication is based upon a secret key shared by both the sender and the receiver. If **Shared Key** is selected, you cannot choose the WEP **disable** option.

WPA Pre-shared key: The WPA Pre-shared Key authentication standard uses a password or “key” between 8 and 32 characters. This encryption key is changed after every dialog box using the Temporary Key Integrity Protocol (TKIP), which allows users to change keys based on dialog box and automatically synchronize keys between devices on the network. The TKIP encryption algorithm is stricter than the one used by WEP but is based on the same standard.

WPA: The 802.1x authentication protocol, allows users to authenticate wireless network access through a RADIUS Server and is a required by WPA standard. If no RADIUS Server exists in your network environment, you still can use WPA through the use of WPA Pre-shared Key.

WEP Key

The AirCruiser G supports two WEP standards: **64-bit,152-bit**. Select either **64-bits** or **152-bits** from the drop-down list activate WEP encryption. The **64-bits** encryption uses 40 bits as a secret key, (user-defined) and the remaining 24 bits are reserved. The **128-bits** encryption uses 104 bits as a secret key, (user-defined) and the remaining 24 bits are reserved.

WPA Re-key

Enabling the requirement for WPA rekeying of a Passphrase for increased security. Default is **disable**.

WEP Re-key Timer

Specify time (in minutes) for expiration of the current WPA Key.

WPA PSK Passphrase

The Passphrase must be between 8 and 64 characters.

WPA PSK Re-key

A user without a RADIUS server, may specify generating a new WPA PSK key more frequently than each time he connects to the network.

WPA PSK Re-key Timer

Specify time (in minutes) for expiration of the current WPA PSK key

AirCruiser G Desktop Router

The MAC Access Control Tab

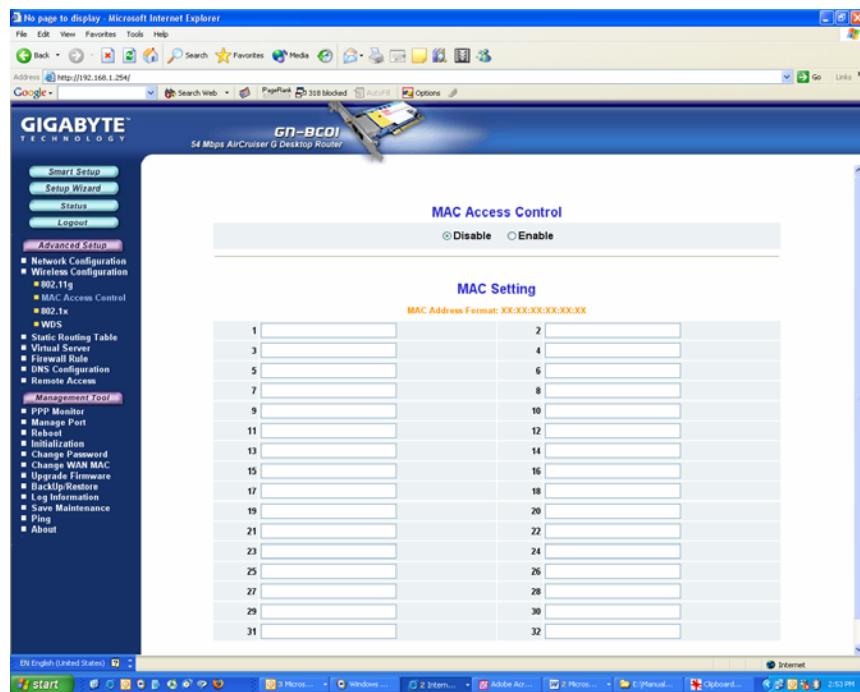


Figure 6-7 – MAC Access Control

The **MAC Access Control** screen allows you to specify the Media Access Controller (MAC) address of up to 32 devices on your network. Only those devices listed in the table will have access to transmit data through the AirCruiser G. In this way, even if someone manages to obtain all the information necessary to connect to your network, if their MAC address is not permitted, they still cannot connect. Keep in mind, however that MAC addresses can be spoofed, so it is not a panacea but rather another component of your existing security process. Enable the feature, then key in the MAC addresses to be allowed. Enter the MAC in the form separated by colon. The default setting is **Disable**.

The RADIUS Server Configuration Tab

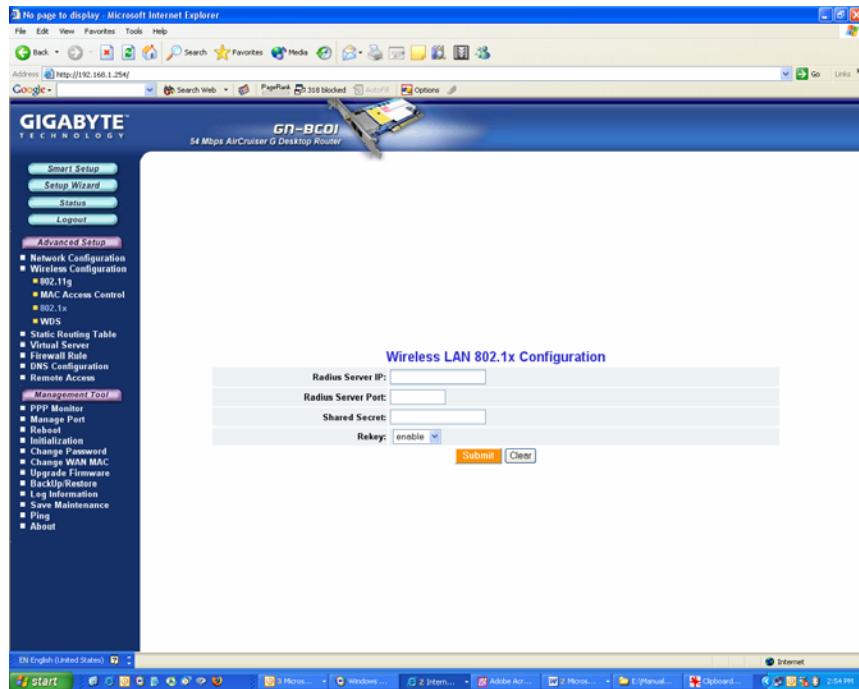


Figure 6-8 – RADIUS Config

Your AirCruiser G supports 802.1x and RADIUS Server authentication. RADIUS provides a centralized, server-based authentication of client access to the network.

RADIUS Server IP Assign an IP address for the RADIUS Server.

RADIUS Server Port Enter a value within the range 1~65536 for the port.

Shared Secret Enter a password up to 256 characters (uppercase “A~Z”, lowercase “a~z” or numeric “0~9”) in length.

Verify the settings, and then to apply these to your network, click the **Submit** button.

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The Static Routing Table Screen

The **Static Routing Table** displays the AirCruiser G Desktop Router routing settings. To add or modify, enter a value into the field and click the **Submit** button.

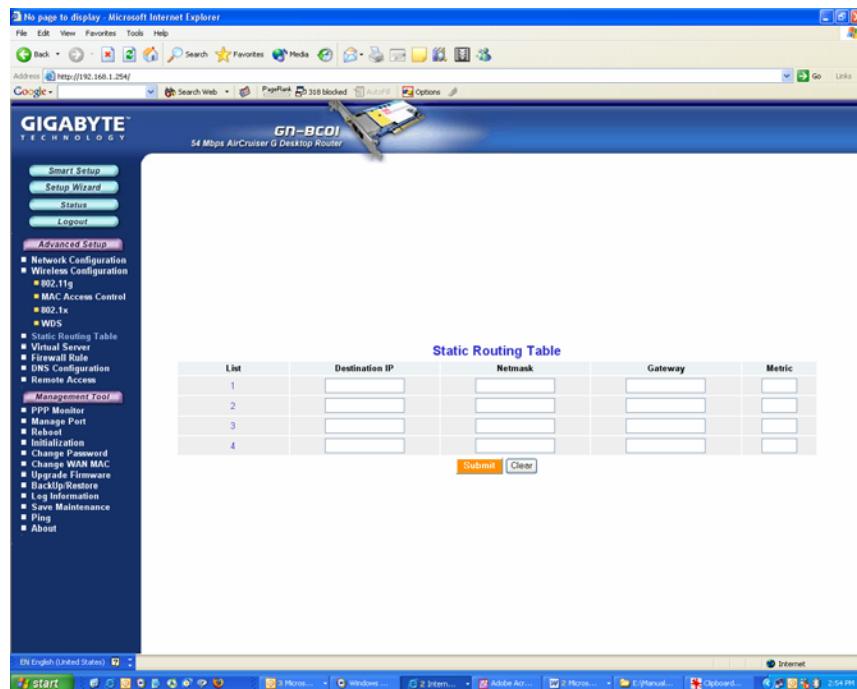


Figure 6-9 – Static Routing Table

Destination IP

Enter the Destination IP address that will be assigned to a specific network or host.

Netmask

Enter the netmask associated with the Destination IP.

Gateway

Enter an IP address that will be assigned to the interface connecting to subnets.

Metric

The “Metric” value is a number between 1 and 15 that represents the number of Routers between your network and the destination. Generally, setting the Metric value as either 2 or 3 is sufficient for most applications. If this is a direct connection, please set the value to 1.

The Virtual Server Screen

The PPPoE/DHCP/Static Tab

A Virtual Server allows computers on the WAN side of the network to connect with a PC server on the LAN side of the network.

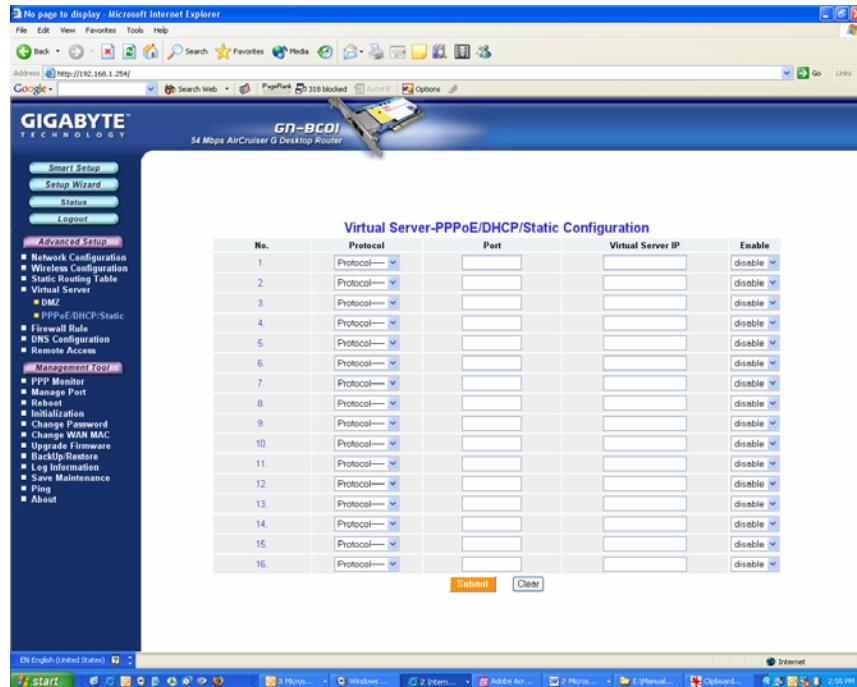


Figure 6-10 – Virtual Server setup

For example, a PC on the LAN side with an IP address of 192.168.1.1 would have the following virtual server settings:

- **Protocol:** TCP
- **Port:** 21
- **Virtual Server IP:** 192.168.1.1
- **Enable:** enable

In this case, any PC on the WAN side of the network can connect to the internal FTP server (192.168.1.1) using the IP address on the WAN end of the AirCruiser G Desktop Router.

AirCruiser G Desktop Router

The DMZ Tab

The DMZ feature allows you to specify the IP address of the computer that will be placed outside the firewall of your network.

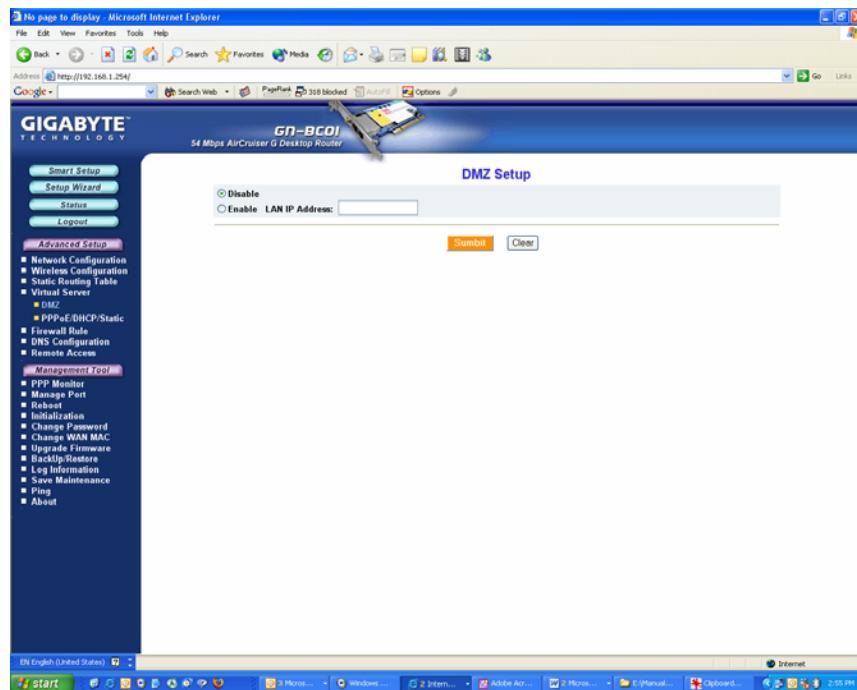


Figure 6-11 – DMZ setup

With a firewall setup, it is often necessary to place some clients outside of the firewall while leaving the others protected. You can do this using a Demilitarized Zone (DMZ) to test or configure some applications (e.g. Internet games, video conferencing, or VPN connections) or create a server connecting to the Internet through the Intranet. Enter the IP Address of your computer (e.g. 192.168.1.2) into the LAN IP Address field and click the **Submit** button.



Note: DMZ servers pose a security risk. A computer designated as the default DMZ server loses much of the protection of the firewall, and is exposed to exploits from the Internet. If compromised, the DMZ server can be used to attack your network.

The Firewall Rule Screen

The Firewall Rule screen displays your network security settings. Use this screen to quickly create network security policies to prevent unauthorized access to your network.

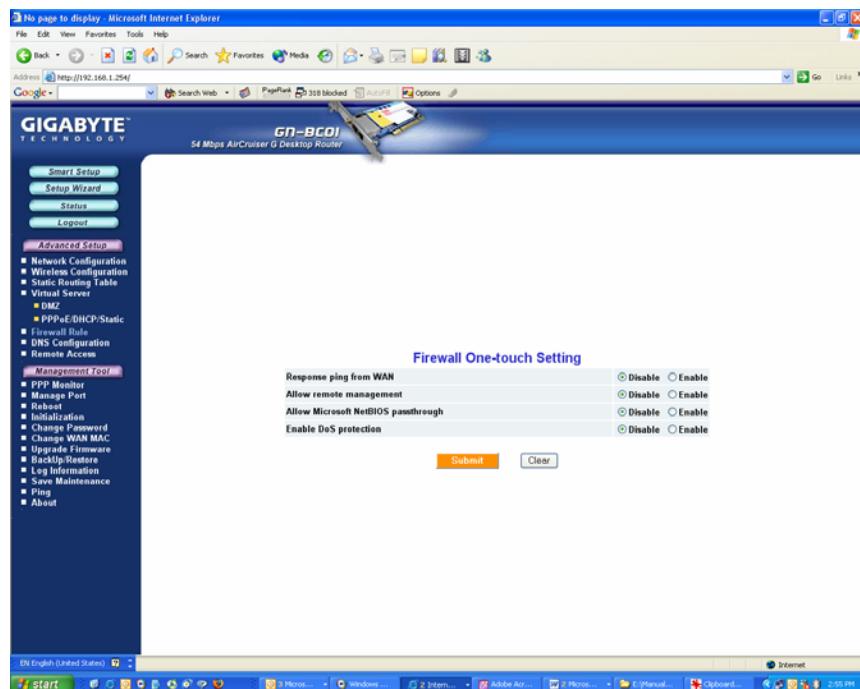


Figure 6-12 – Firewall One Touch settings

Response Ping From WAN

When enabled, prevents this Router and its privately assigned IP addresses from being broadcasted to the Internet.

Allow Remote Management

When enabled, allows remote configuration access via the Internet (WAN), else only local (LAN) access is allowed.

Allow Microsoft NetBIOS Pass-through

A File and Printer sharing security, that when enabled, only allows NetBIOS.

Enable DoS Protection

When enabled, Denial of Service type attacks are prevented.

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The DNS Configuration Screen

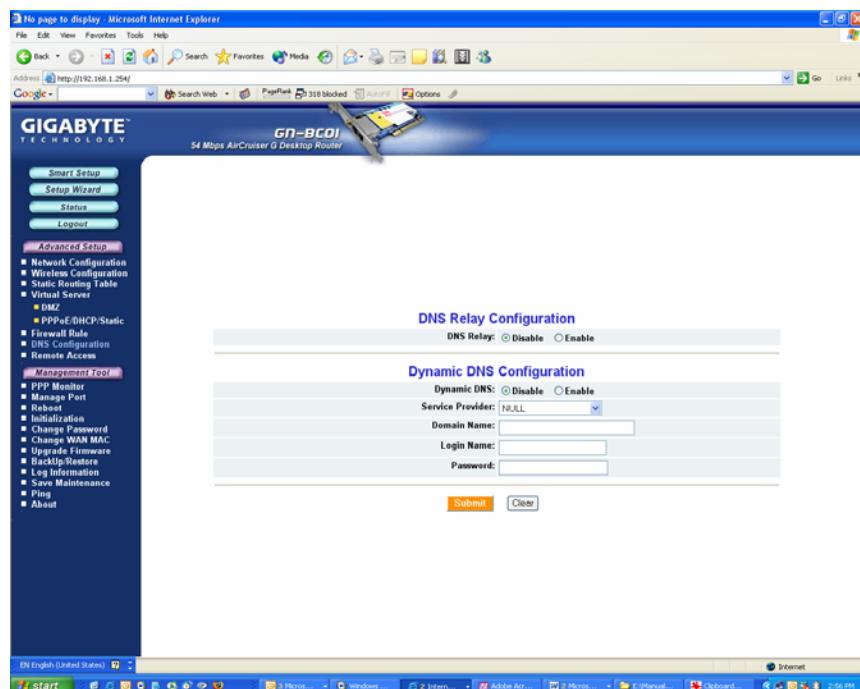


Figure 6-13 – DNS Config screen

DNS Relay

DNS Relay will set your PC's DNS entries to point to the Router's Gateway address, which will then forward DNS queries to the DNS server used by the Router. This is needed when using DHCP to assign IP address to the PC's in your LAN. The default value of DNS relay is **Enable**.

Dynamic DNS

The AirCruiser G Desktop Router offers a **Dynamic Domain Name Server** (DDNS) service that allows you to assign a fixed host and domain name to a dynamic Internet IP address. This gives Internet users the ability to connect with a virtual server using a FQDN, rather than with an IP address. Before using this feature, you must first register an account with the dynamic DNS service. (<http://www.dyndns.org>)

Service Provider

From this pull down menu, enter the DDNS service with which you have membership.

Domain Name

This is the DDNS URL assigned by the DDNS service.

Login Name

Enter the User Name for your DDNS account.

Password

Enter the Password for your DDNS account.

Wildcards

If your dynamic DNS provider allows using wildcards in resolving your URL, you may select Enable to activate this function.

AirCruiser G Desktop Router

Remote Access Screen

Wake On LAN Table

With Wake-on-LAN, a router user can keep his systems turned off while away and simply click the Wake On LAN activation button on this page to remotely instruct the AirCruiser Gto boot up the host system. You also have the option of Wake On & Enable NETBIOS services of any PC in the local LAN Domain. For this feature, you need either the IP address or the MAC address of your LAN devices. Key in either values, click enable, and press Wake On LAN to perform the function.

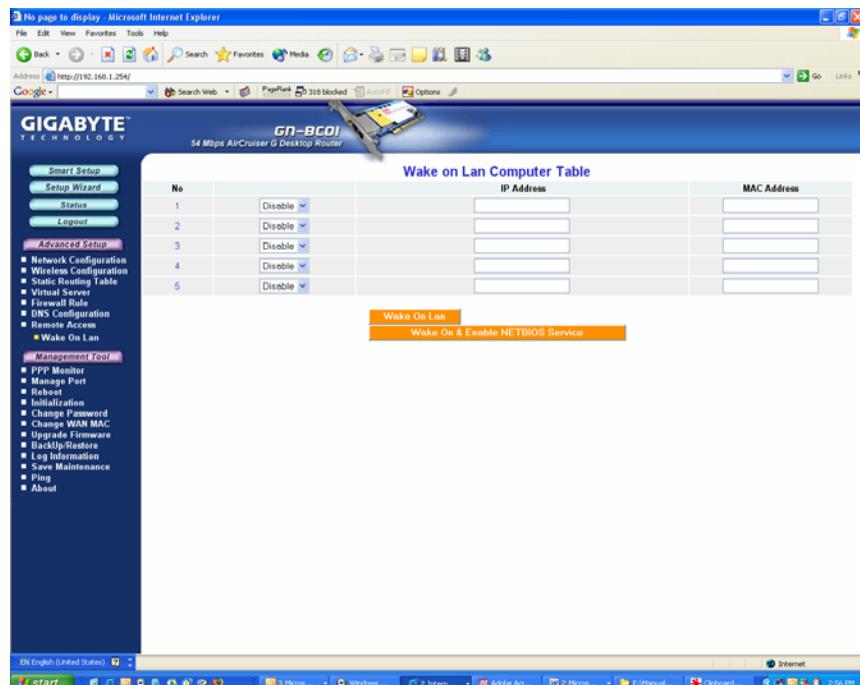


Figure 6-14 – Wake on LAN

IP Address

The IP Address of the LAN network device which you want to wakeup

MAC Address

The MAC Address of the LAN network device which you want to wakeup