TopGlobal Bridge Mode Solution

Top Global MobileBridge connects 3G and Ethernet network, as well as WiFi network. MB8000 is a product of MobileBridge serials.

MB8000 provides a gateway service for its LAN (including wired LAN and wireless LAN) users. There is a NAT (Network Address Translator) service resident inside, which is a method of connecting a number of computers in a LAN to the Internet using a single one public IP address.

With MB8000, you can place your HTTP Server or FTP server in its LAN to provide service to the Internet easily and rapidly. You can also place your VPN Server to provide a secure connection and communication with your colleague or business company.

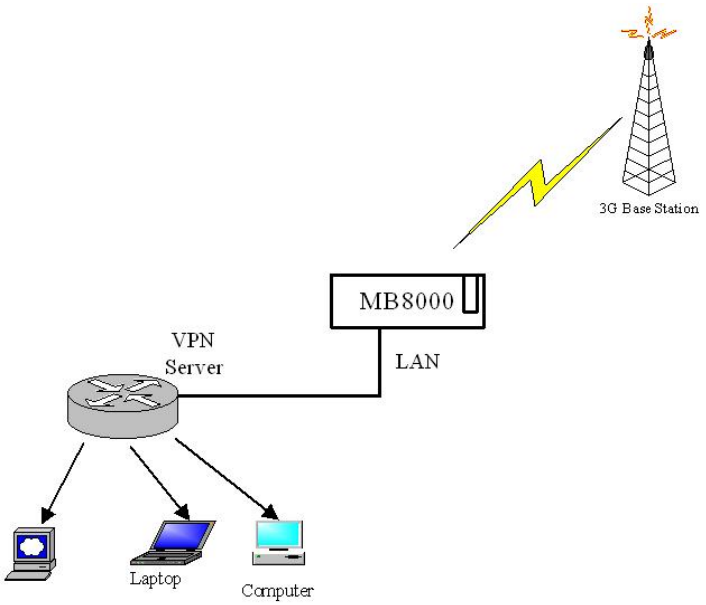
But, it is known that the NAT will do something harmful to the VPN Service. The NAT could not make VPN protocol pass-through smoothly because of the IP address replacement. So, you might want a transparent connection to the Internet for your VPN Server, without the NAT.

MB8000 also provide a good solution for that requirement. That is what Bridge Mode function in MB8000 does. When bridge mode is enabled, MB8000 works as a bridge. MB8000 forwards incoming and outgoing packets, doesn't modify anything about them. With this deployment, your VPN Server will have a public IP address, as if it connects to the Internet directly.

This application notes presents how MB8000 be deployed as a transparent router between your device and the Internet without NAT, which makes the connection more smoothly and faster. Thus you could deploy your network services such as VPN.

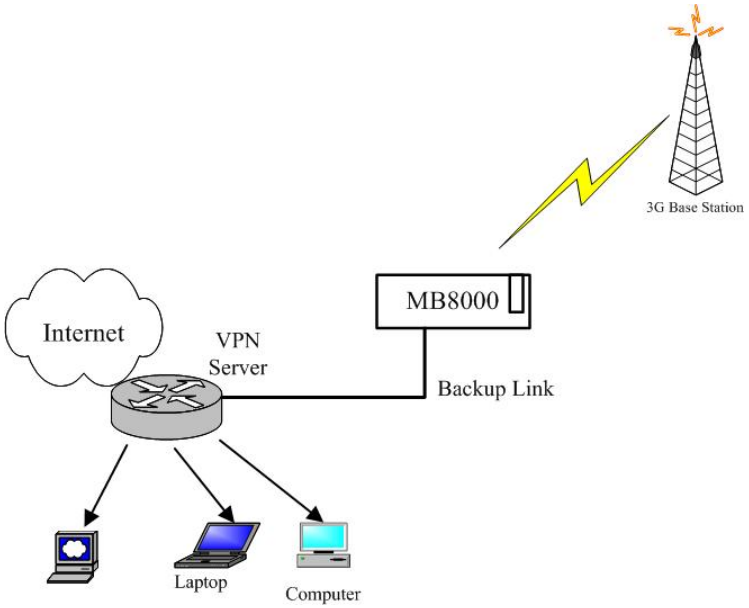
Application scenario 1:

You can deploy MB8000 Bridge Mode as your VPN Server's outgoing connection to the Internet. All of the data traffic is handled by MB8000. You can also apply this deployment for your mobile VPN Service when any time needed.



Application scenario 2:

You can also deploy MB8000 Bridge Mode as a backup link for your VPN server. For example, normally, the data traffic is routed by a common link, such as DDN (Digital Data Network) or others. The backup connection link will take place the former one once it is down or not available.



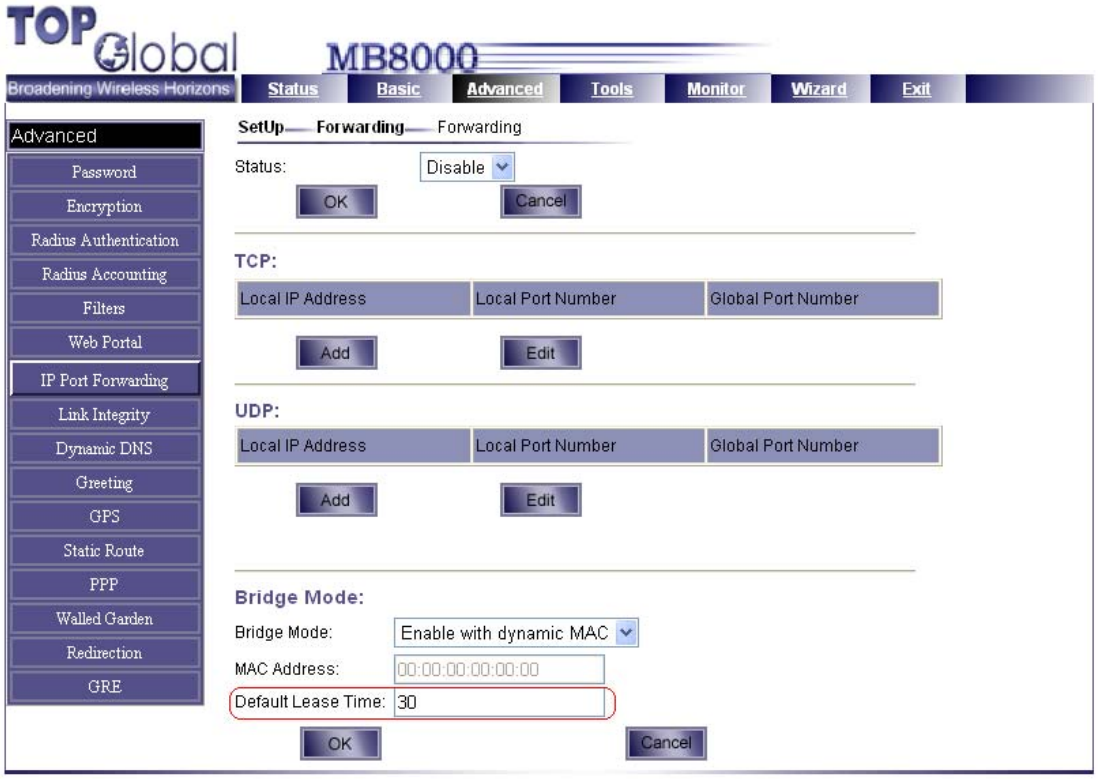
Set up Bridge Mode with MB8000:

1. **Configure your device (VPN Server/Router, or other equipments):**
   1) Attached your device to MB8000 directly with an Ethernet cable. If your device has multiple network interfaces, you should connect it via a WAN interface.

2) Set your device to obtain the IP address from a DHCP server, in another word, your device is a DHCP client.

2. Configuration of MB8000 to support Bridge Mode:

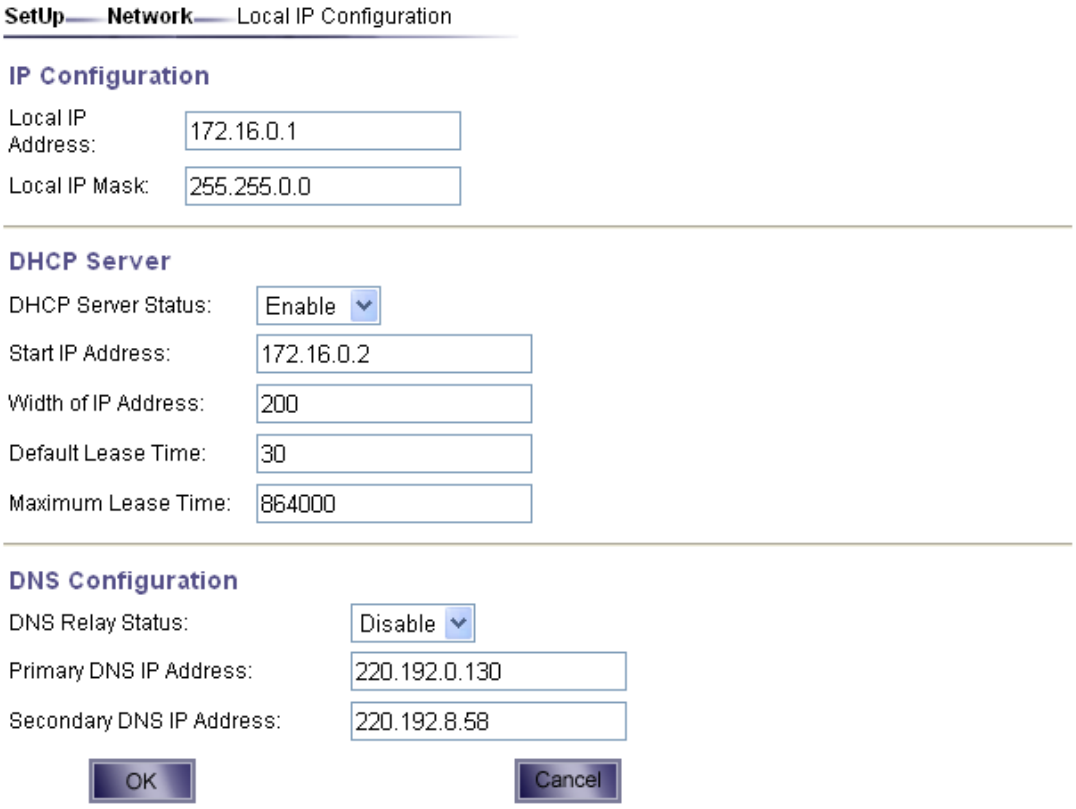
1) It is simple to configure MB8000 to support Bridge Mode. Power up and login to the WEB management page and go to the ***Advanced***->***IP Port Forwarding*** page. In the ***Bridge Mode*** section, configure the "***Bridge Mode***" item and MAC Address item according to your application. Save the changes.



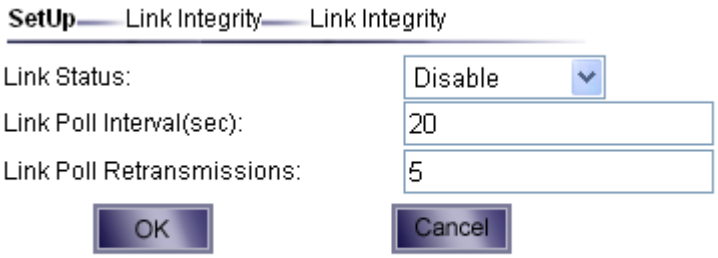
- Bridge Mode: There are three options for the bridge mode: "***Enable with dynamic MAC***", "***Enable with Static MAC***" and "***Disable***".
  - **Disable:** The bridge mode is disabled and the MB8000 will act as regular 3G router.
  - **Enable with Static MAC:** The bridge mode is enable, and the MB8000 will send the public IP address to the specified MAC address in the below "*MAC Address*" box. The public IP address is obtained by MB8000, from the PPP dialing to the 3G network procedure. And MB8000 will not assign the public IP address to any devices other than the specified one.
  - **Enable with Dynamic MAC:** The bridge mode on MB8000 is enabled, and the MB8000 will assign the public IP address obtained from the PPP dialing to the device which attached to it directly. It will not assign the IP address to any subsequent devices that attached to it, so, if you want to change another device to attach to the MB8000, you will need to reboot the MB8000. In this mode, no MAC IP address is required to fill in the "*MAC Address*" box.
- **MAC Address:** the device's physical address.
- **Default Lease Time:** This box specifies the DHCP lease time. The value should

be 30 (in seconds) or less. This will ensure that when the public IP address changed, the device will obtain the new one in an acceptable short time. This setting will affect the “Default Lease Time” of the MB8000 DHCP service’s settings on the “Basic”->”Local IP Configuration” page.

2) Make sure that the DHCP service is enabled on MB8000. You can see that on the page of “Basic”->”Local IP Configuration”



3) Disable the “Link Integrity” option on the “Advanced”->”Link Integrity” page.



4) Disable the Wi-Fi by going to the “Basic”->”WLAN Card” page.

5) Save your configuration and then reboot MB8000 via “Tools”->”Reboot” page.

3. After get this done, Attach you device such as VPN Server to the RJ45 in MB8000. The device that you attached will be able to get a public IP address from MB8000, the

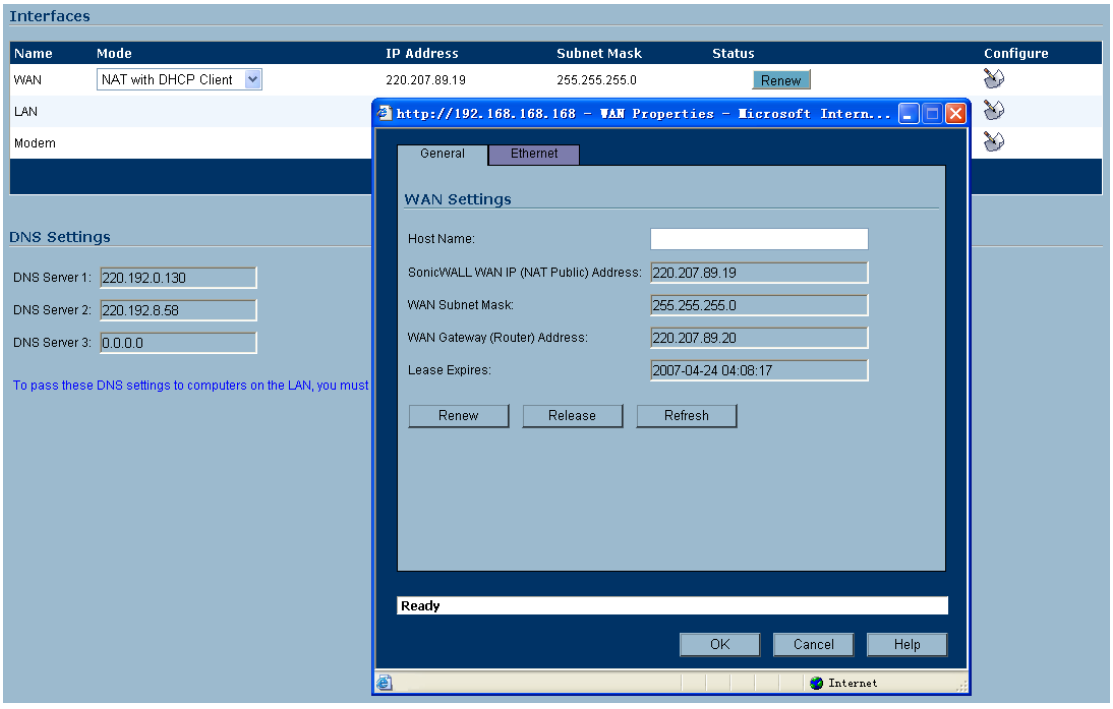
default gateway IP address will be the public IP address + 1, the subnet mask is 255.255.255.0 and it can connect to the internet without NAT. The MB8000 looks transparent to that device.

You'd better take down the LAN IP address of the MB8000 unit so that you can reach it to get possible troubleshooting solved. The default Address is 172.16.0.1. You need to manually configure a static IP address of 172.16.0.xxx (2~254) on your PC/Laptop, which is used to configure the MB8000.

Case Study

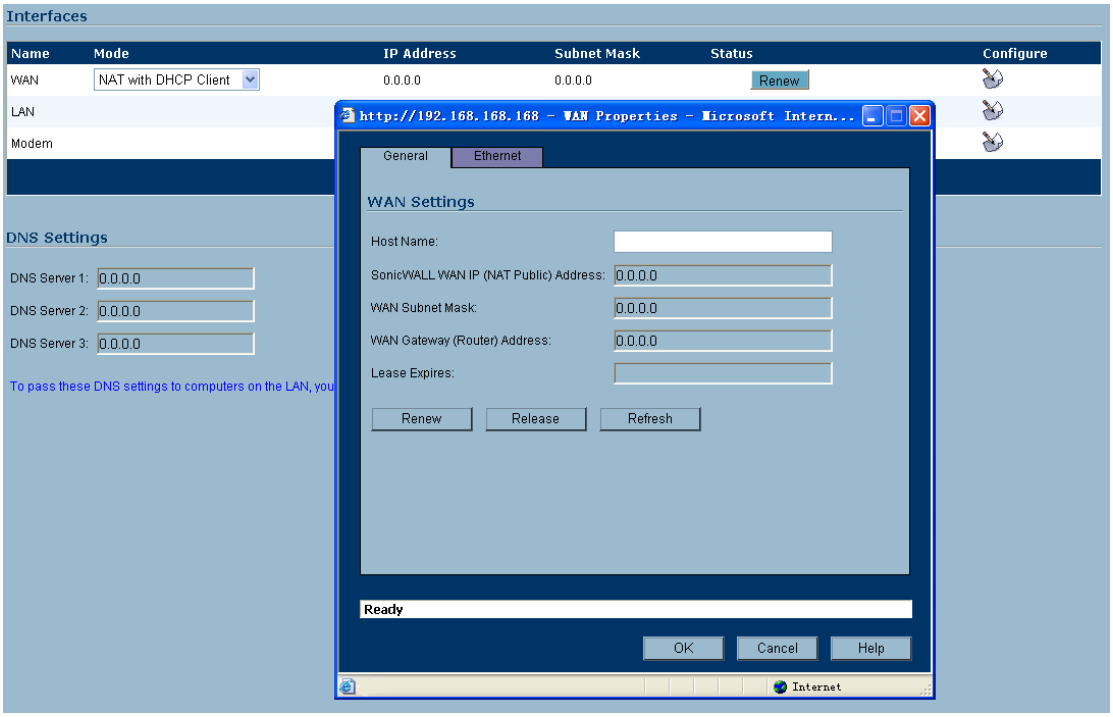
Here we show a sample detail configuration on how to connect a VPN router to MB8000 with the Bridge Mode with automatic MAC address configuration.
Here the VPN router is a SonicWall TZ-170 SP.

1. The first step, you may need to follow the instructions in the "Set up Bridge Mode with MB8000" section in this document. Power off the MB8000 unit and detach your PC/Laptop with it, and then power up the MB8000 unit.
2. Attach the SonicWall router to the MB8000 directly with the Ethernet cable (you should use the "WAN" port on the SonicWall router's rear panel). Power up the SonicWall router and browse its WEB configuration interface. Go to the "Network"->"Settings" page, set the "Mode" for the "WAN" interface to "NAT with DHCP Client". Click "Apply" button to save the changed settings.
3. Thus the SonicWall router will obtain the public IP address from the MB8000. The figure below is a snapshot for this sample.



4. Then you can attach your PC/Laptop to the LAN port of the SonicWall router. And thus you can access the Internet.

5. If you cannot reach the Internet, or the SonicWall router does not obtain IP address from the MB8000 unit, you can click the “Renew” button under “Status” or click the Notepad icon under “Configure”, and then click “Renew” on the popup window to renew the IP address on the SonicWall router.



FAQ

1. Q: Can I attach my device to the MB8000 via the Wi-Fi when using the “Bridge Mode”?
   A: No, for security considerations, the MB8000 will not assign the public IP address that it obtains to a Wi-Fi device.

2. Q: How can I know whether the MB8000 bridge mode works?
   A: You can attach a Laptop (configured with “Using a Dynamic IP Address”) to the MB8000, and then click “Start”->”Run”, input “CMD” in the popup window and then click “Run” button. Input “ipconfig /all” in the “DOS Command Prompt” window and press the “Enter” key on your keyboard, you can find the IP address as well as the default gateway’s IP address and DNS server’s IP address, etc. And you can input “ping www.google.com”, or “ping www.yahoo.com” or “ping www.microsoft.com” in the “DOS Command Prompt” window or browse a valid URL to see the connection status.

3. Q: The Bridge Mode on MB8000 is working well, but the SonicWall router cannot

obtain the IP address from the MB8000 router. I have tried the “Renew” button on the SonicWall router’s configuration page.

A: 1. If the Bridge Mode is set to “Enable with Static MAC”, please make sure that the “MAC Address” settings on the MB8000 “Advanced”->”IP Port Forwarding” page is correct, it should be the MAC address of the WAN interface on the SonicWall router.

2. Make sure that SonicWall router is connected to your MB8000 unit firmly and directly.

3. Restart the MB8000 unit and the SonicWall unit.

TOP Global USA, Inc.

ADDR：21072 Bake Parkway, Suite 106, Lake Forest, CA 92630, USA

TEL: +1 949 586 7046

FAX: +1-949-586-8299

http://www.topglobalusa.com/