TA-470wr Wire Speed NAT Router

User's Guide
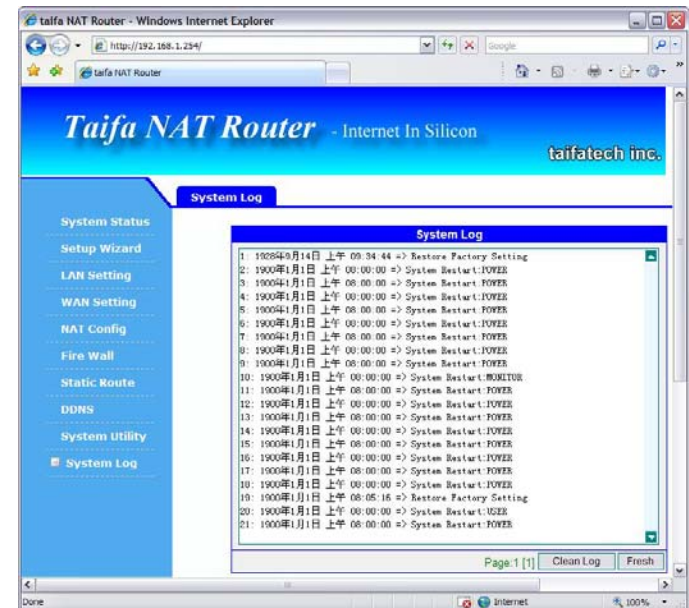
www.taifatech.com

2007/9/15
Hardware Rev. A (ADM6996FC)
Firmware Ver. 3.4

4.7.4 Factory Reset

Press the "Apply" button on the Factory Reset will reload all factory default parameters. The router reboots and works with factory default setting. To set the router to factory default setting you will lose all configurations.

4. 9. System Log

The router can save some status information in system log page. You can clear the log file manually by clicking "clean log" or the system automatically overwrites the log information from the oldest one.

Contents

4.7.3   Reboot System

Reboot the router can be done by entering Reset page and press the Reset button.
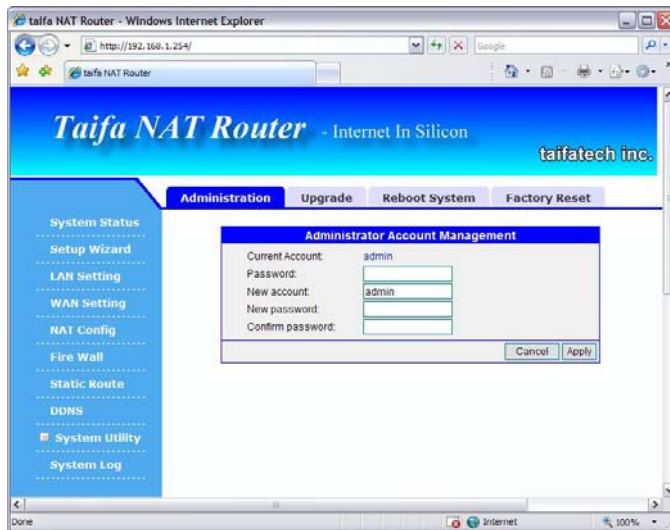
4.7.2 Upgrade

To upgrade the firmware, select Upgrade page and locate the new firmware by using Browse button and than press "Upgrade". When the upgrade operation is completed, the TA-470wr is automatically rebooted. To avoid the damage of the system when upgrade is processing, do not turn off the router or remove the Ethernet cable.

1. Introduction

The TA-470wr wire speed NAT Router reference design delivers wire speed full duplex NAT performance at 200Mbps targeted for VoIP, on-line gaming and high bandwidth multimedia applications.

Based on Taifatech's TF470 Advanced Wire Speed NAT Router SoC, NAT and many other functions are integrated into the hardware. The highly integrated SoC uses no operating system, resulting in better performance and lower cost. This method has been proven exceptionally successful in the Smart Switch Market. The embedded RAM in TF-470 eliminates the need for external memory, further reducing cost. TA-470wr offers hardware based PPPoE session to deliver better performance and network resiliency. Per port hardware based pattern search can be used to improve the performance of proxy server.
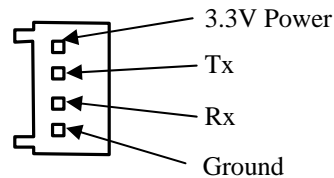
2. Hardware Description

The TA-470wr wire speed NAT router provides interfaces for four 10/100Mbps Ethernet LAN ports, one 10/100Mbps Ethernet WAN port and one RS-232 port. The Ethernet connection is provided through RJ-45 connector and the RS-232 connection is provided through a 4-pin connector.
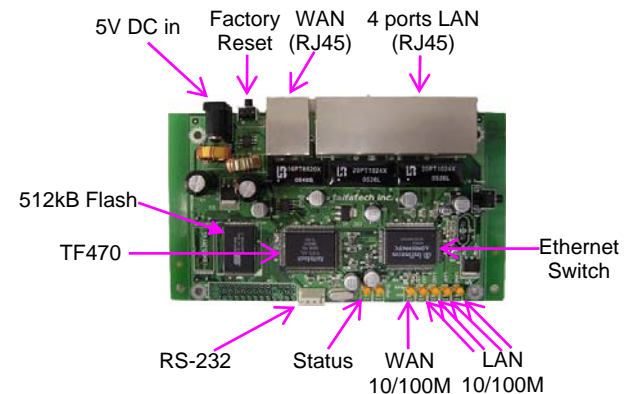
5V DC power (not included) is supplied through the power connector with positive polarity in the middle. Factory reset button is provided for reset to factory default setting.

2. 1.   RS-232

Four pins RS-232 connector is for the purpose of monitoring and debugging. External harness is needed to connect to computer. The connection of the RS-232 cable is as below:


3.3V Power

Tx

Rx

Ground

2. 2.   LEDs

The LED lights are described as follow:

LED	Status	Description
Status	Blink	Router is operating.
LAN 1	On	LAN 1 connection is established.
	Blink	Active traffic on LAN 1.
LAN 2	On	LAN 2 connection is established.
	Blink	Active traffic on LAN 2.
LAN 3	On	LAN 2 connection is established.
	Blink	Active traffic on LAN 3.
LAN 4	On	LAN 4 connection is established.
	Blink	Active traffic on LAN 4.
WAN	On	WAN connection is established.
	Blink	Active traffic on WAN.

Program and setup web pages are stored in the Flash memory.
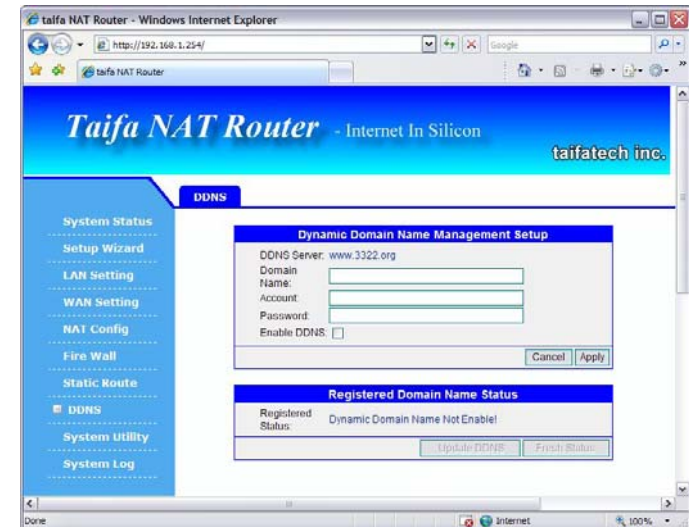
4. 8.   System Utilities

System Utilities page includes user name and password, upgrade firmware, reboot the system and factory default.

4.7.1   Administration

For security reason, the default password should be changed via the administrator settings page. Type the current password and new user name and new password. You must confirm the new password and press "Apply". The router will check whether they are the same. If they are the same, new user name and password are activate and you must use them in the next time to login.
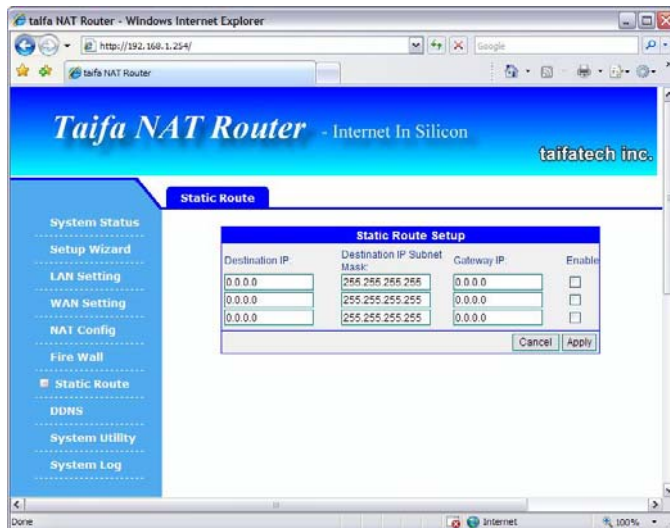
4. 7.   *Dynamic DNS*

A dynamic DNS (dynamic domain name system) service is a company that provides a service which allows a user connecting to the Internet with a dynamic IP address to be able to use applications which normally require a static IP address.

When a router is configured for DDNS service, it notifies the DDNS of its IP address whenever a new dynamic IP is assigned by the ISP. Users can find out the IP address of the router by using the DDNS service

The TA-470wr supports DDNS service provided by 3322.org. Type the host name, user and password and press Apply to setup the DDNS service.

2. 3.   *Factory Reset button*

Hold the factory reset key for three seconds restores the factory default parameters into the system. You will lose all configurations.

3.   **Making the Connection**

In order to connect to the TA-470wr from a PC, an Ethernet Network Interface Card (NIC) is needed. Using an Ethernet cable, connect one end of the cable to the RJ-45 connector on the PC and the other end to the RJ-45 connector on the TA-470wr.

Plug the 5V DC power supply (not included) with positive polarity in the center into the power connector and plug the power adapter into the AC outlet.

3. 1.   *Configuring the PC*

The TA-470wr supports DHCP server function which assigns IP address automatically to the PC. To configure the PC to access the Web Server on the TA-470wr, the DHCP feature on the PC must be enabled. This can be done through the sequence Start, Control Panel, Network Connections, right-click on the Network Connection icon, Properties, double-click on Internet Protocol (TCP/IP) and select "Get IP address automatically".

The default LAN IP address of the TA-470wr is 192.168.1.254. Test the setup by using the ping command in a DOS Window. Under DOS, type ping 192.168.1.254. If you see a reply, then you are ready to access the TA-470wr. On the other hand, type ipconfig /all in DOS. You can see the IP address, subnet mask and default gateway IP address. The default gateway IP address is the LAN IP address of TA-470wr.

4.   Configuring the Router

After making the connection to the TA-470wr using an Ethernet cable, plugging in the power supply and configuring the PC, you can now configure the router.

Note: If you change any configurations, do not forget to click "Apply" to save the new configuration. The router needs to be rebooted when certain parameters are changed. The router will reboot automatically after the new configuration is saved. The rebooting process will take a few seconds.

Type 192.168.1.254 in the address area of the browser to access the TA-470wr.
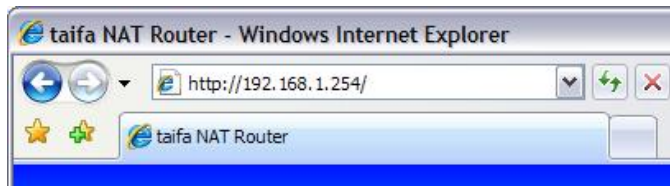
The browser should display a login page. Use the user name "admin" and password "admin" to login.

4. 6.   Static Route
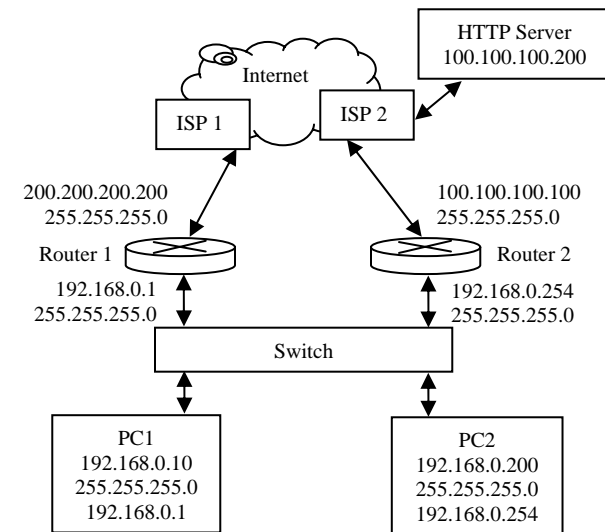
For instance, users have a complex network – just like above figure. There are two routers connected to the Internet through two ISP, ISP 1 and ISP 2. Your HTTP server is supplied by ISP 2 and the IP address is 100.100.100.200. When PC1 get access the server, the packets must pass through the router 1 and route from ISP 1 to ISP 2. It is not efficient. If you setup the static route in router 1, the packets pass through router 2 and reach the server efficiently.   The static route is as below.

No.	Destination WAN IP	Subnet Mask	Gateway
1	100.100.100.0	255.255.255.0	192.168.0.254
2	0.0.0.0	0.0.0.0	0.0.0.0
3	0.0.0.0	0.0.0.0	0.0.0.0

4.5.5 Remote Access

For security, the router can discard ping requests from WAN. Select "Remote PING Permit" will allow all ping requests from WAN. Disallowance of ping will stop malicious attacks from hackers.

If you have a HTTP server in LAN and configured virtual server (port forwarding) for the server, the port number of the router HTTP server have to be used the other port number. Otherwise, users cannot access the router HTTP server. You can modify the router HTTP server port number in "Remote WEB Permit Port" field and click the check box. For instance, the router uses the specific port number 8080 and your external address is 100.10.1.123. You can get access the router by using the address http://100.10.1.123:8080.


The functions of the menu are as follow:

Menu	Description
System Status	Show the system information such as WAN LAN and system status.
Setup Wizard	Setup the Internet connection.
LAN Setting	Configure the LAN parameters, DHCP server and current DHCP client list.
WAN Setting	Configure WAN parameters, DNS and MAC clone.
NAT Config	Configure virtual server, port range mapping and DMZ.
Firewall	ConfigureWAN IP filtering, destination port filtering, LAN IP addresses filtering, LAN MAC address filtering and remote access parameters.
Static Route	Configure static route parameters.

| DDNS	Configure dynamic domain name parameters.
System Utility	Change user name and password, upgrade or reboot the system and restore factory default setting.
System Log	Show the system log

4. 1.   Setup Wizard

The TA-740wr delivers the quickest way for users to setup it. By using Setup Wizard, users can setup the wired speed NAT router.
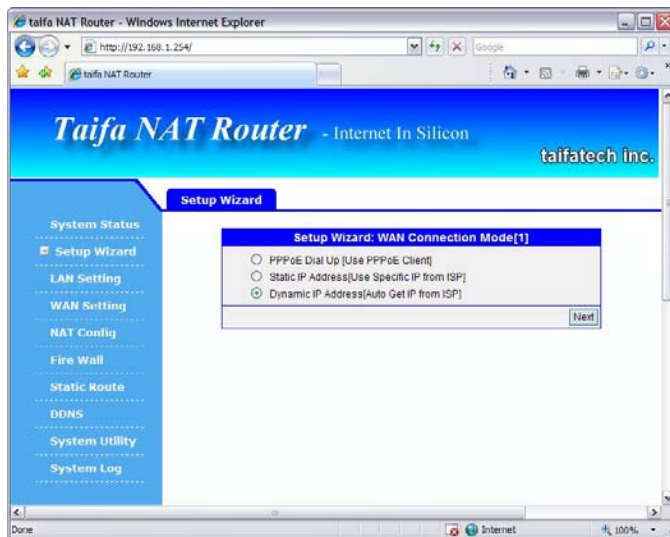
Click Setup Wizard to setup the router easily.   The Setup Wizard page follows WAN setting and DNS. There are three kinds of WAN settings, Dynamic IP, Static IP and PPPoE. Select the WAN connection type by using the radio button and then click next to configure the other parameters.
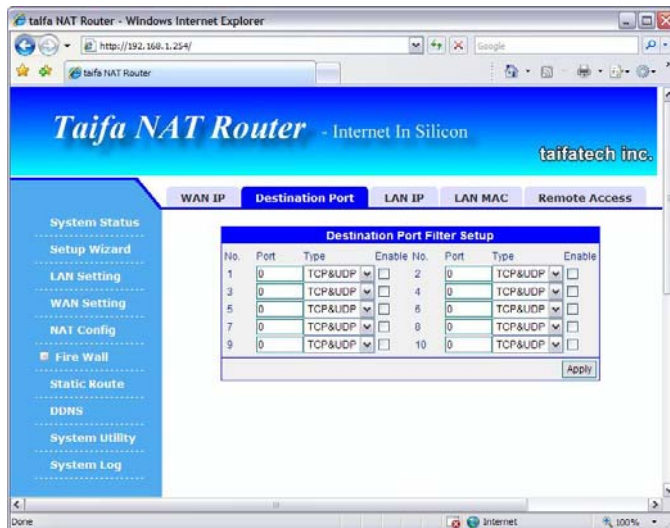
Check with the Internet Service Provider (ISP) on how to set the IP address. Use the radio button to select the correct WAN IP type.
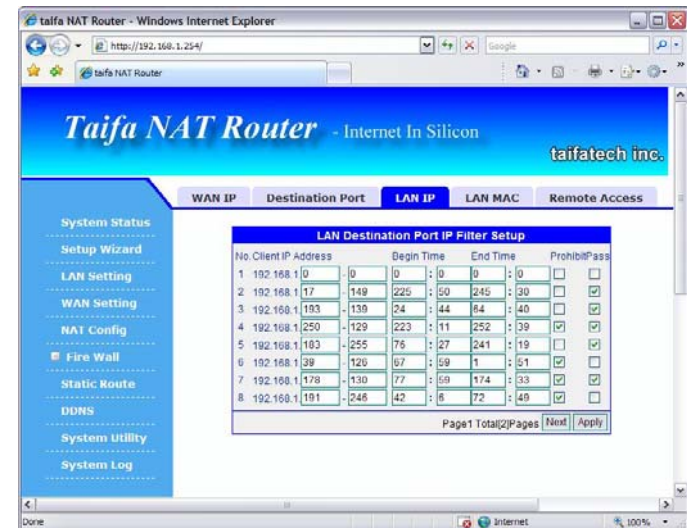
4.5.4   LAN MAC

The router also supports LAN MAC filtering function. It will filter any packets with a MAC address which is in the table.
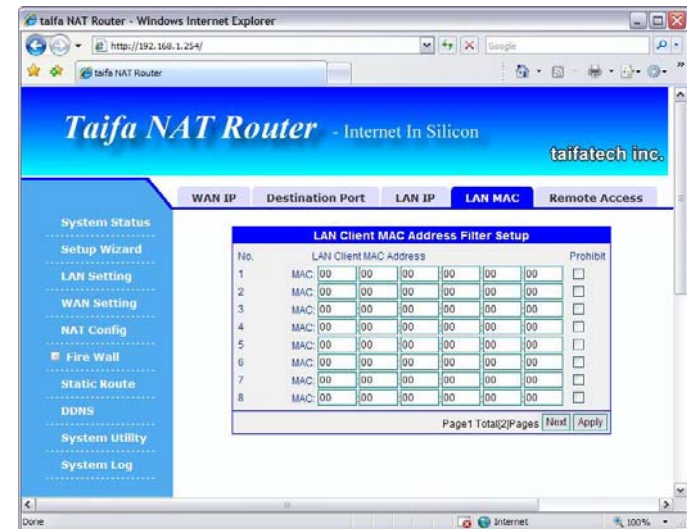
4.5.3 LAN IP

The router can block or allow the specified IP addresses in LAN to get access Internet. It supports scheduling of allow or deny the packets with the IP addresses which hit the table entries.

4.1.1 PPPoE

PPPoE (point-to-point protocol over Ethernet) are authentication and connection protocols used by many service providers for broadband Internet access. PPPoE combines the Point-to-Point Protocol (PPP), commonly used in dialup connections, with the Ethernet protocol which supports multiple users in a local area network. Same as DHCP client, PPPoE users do not need to setup the IP information because the IP information will be automatically assigned after dialup but need to provide the user name and password for authentication. Click "PPPoE" and setup the user name and password by selecting "PPPoE Setup" and type in the user name and password.

If PPPoE (Point-to-Point Protocol over Ethernet) is used to access the Internet, the ISP uses the user name and password for authentication. In this case, it would be necessary to select PPPoE and enter the user name and password in PPPoE Setup. The TA-470wr supports four PPPoE sessions. There are many combinations using the sessions.
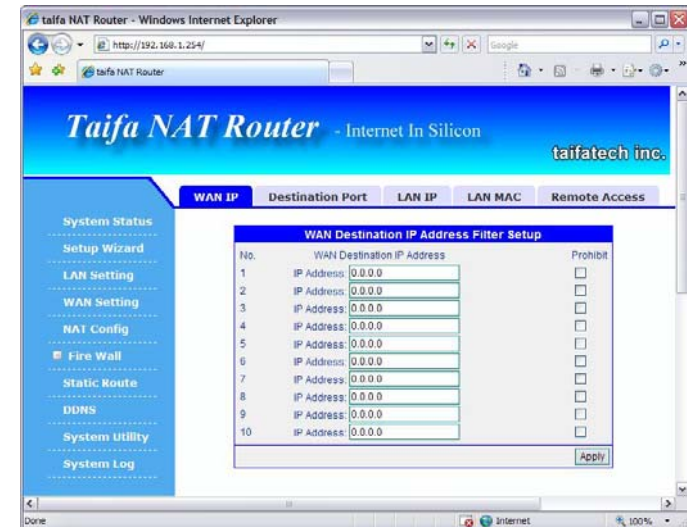
You can set auto disconnect time in minutes in the auto disconnect field. For example, if you set it 60 minutes, the router will automatically disconnect PPPoE connection after 60 minutes when there is no packets pass through from LAN to WAN or WAN to LAN. To configure the internet connection to remain on at all times, type 0 in auto disconnect field.

In auto mode, the PPPoE connection automatically establishes when there is a packet transmitted from LAN to WAN or WAN to LAN. In manual mode, you must manually reconnect the PPPoE connection when it disconnected.

Domain name server (DNS) translates computer host names to the IP addresses that networking equipment needs for delivering information or vice versa. The DHCP server automatically gives one or two DNS server IP to the router. When you select "automatically", the router will use the DNS server IP addresses given by DHCP server. If you want to use other DNS server, select "manually" and type the DNS server IP addresses in Primary DNS and Secondary DNS fields. The router can accept up to two DNS server IP addresses.

Some ISPs require users to register the MAC address of the network card/adaptor, which is connected to the cable or DSL modem – especially in cable modem. Therefore, in order to connect the router to the cable or DSL modem, you have to change the router MAC address to duplicate the network card/adaptor MAC address. Users can find the network card MAC address by doing the sequence, Start, Run, type "cmd" and type "ipconfig /all". The Physical Address with 12 digits is the MAC address of the network adaptor. Enter those 12 digits into the "Use this MAC address" field and click "Apply". If the ISP does not require the registration of the MAC address, use the default MAC address.

4.5.2   WAN Port

The router can filter WAN port which matches the entry. The definition of WAN port is outbound (outgoing) packet destination port number form the LAN. You can choose the packet type whether it is UDP, TCP or all. For example, if you select port 21 and TCP, the router will drop all FTP access from LAN but it will not drop UDP packet which destination port number is 21. Select TCP&UDP will drop all TCP and UDP packets which destination port number was 21.
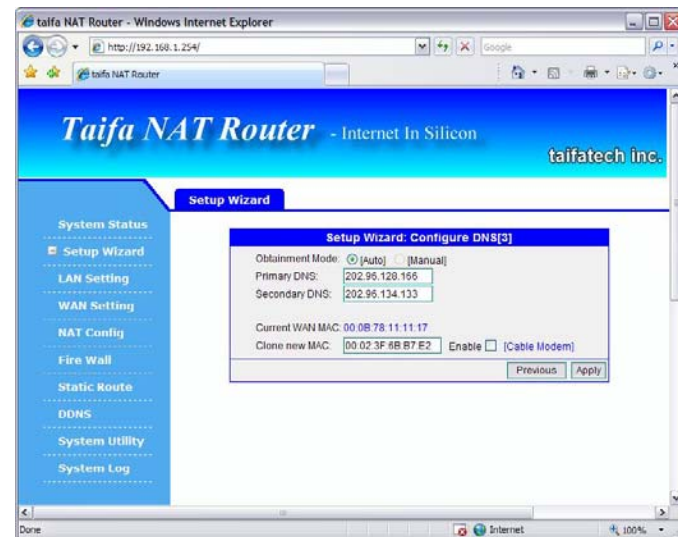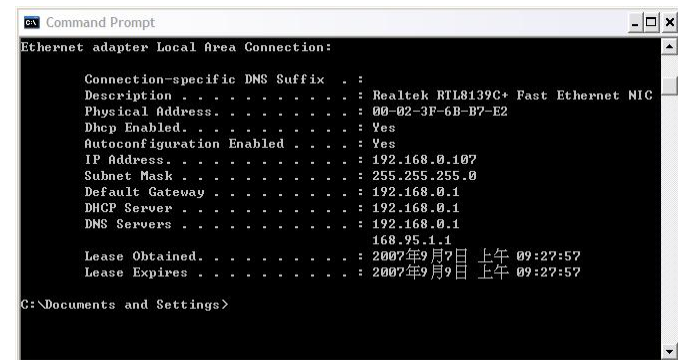
4. 5.   Firewall

The router supports various filtering including WAN IP, WAN port, LAN IP, LAN MAC and ICMP. The filtering configurations are setup in the Firewall.

4.5.1   WAN IP

IP filter table keeps the WAN IP addresses and the router will drop the packets transmitted to WAN which address hits one of the entries.

4.1.2   Dynamic IP

Dynamic IP means the ISP provides a dynamic IP address by using a DHCP server. In this case, it is not necessary to set up the IP information therefore just click the Dynamic IP.

Domain name server (DNS) translates computer host names to the IP addresses that networking equipment needs for delivering information or vice versa.   The DHCP server

automatically gives one or two DNS server IP to the router. When you select "automatically", the router will use the DNS server IP addresses given by DHCP server. If you want to use other DNS server, select "manually" and type the DNS server IP addresses in Primary DNS and Secondary DNS fields. The router can accept up to two DNS server IP addresses.

Some ISPs require users to register the MAC address of the network card/adaptor, which is connected to the cable or DSL modem – especially in cable modem. Therefore, in order to connect the router to the cable or DSL modem, you have to change the router MAC address to duplicate the network card/adaptor MAC address. Users can find the network card MAC address by doing the sequence, Start, Run, type "cmd" and type "ipconfig /all". The Physical Address with 12 digits is the MAC address of the network adaptor. Enter those 12 digits into the "Use this MAC address" field and click "Apply". If the ISP does not require the registration of the MAC address, use the default MAC address.


4.4.3   DMZ

DMZ (demilitarized zone) is a computer host or small network inserted as a "neutral zone" between a company's private network and the outside public network. It prevents outside users from getting direct access to a server that has company's private data. When DMZ host is enabled, the computer will be exposed to the Internet for use of special purpose.

the 8 entries in the next page and press Apply to save the changes after configuration.
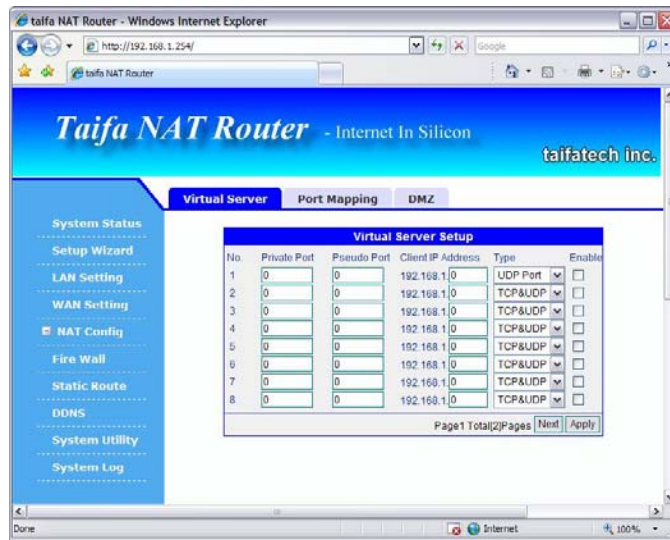

4.4.2   Port Mapping

The router also supports port range forwarding.   You need to type the upper bound and lower bound port number and IP address.   The pseudo port is the port number of the computer in LAN.   Client IP address is the computer IP address. You can determine whether TCP, UDP or both TCP and UDP protocol with the port number is forwarded to the computer in LAN.   The router will forward all packets that hit the port range to the Pseudo port of the computer.   The TA-470wr supports up to 16 entries mapping table for port range forwarding. Click Enable to activate the forwarding function. Press "Next" will move to next page that has another 8 entries and press "Apply" to save the configuration.
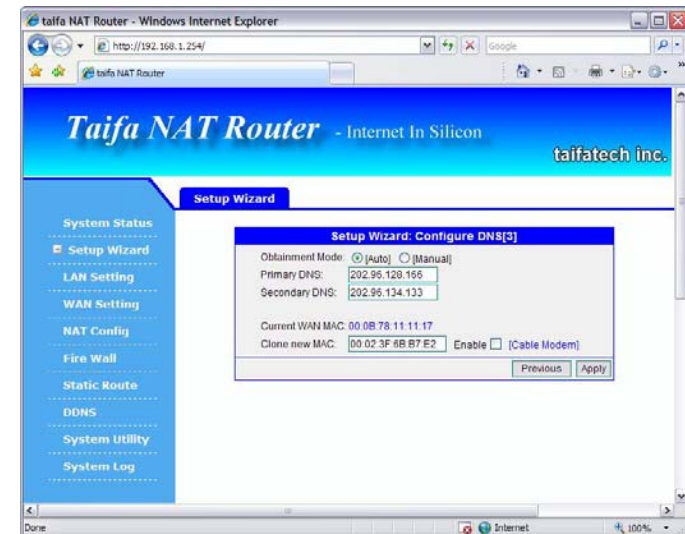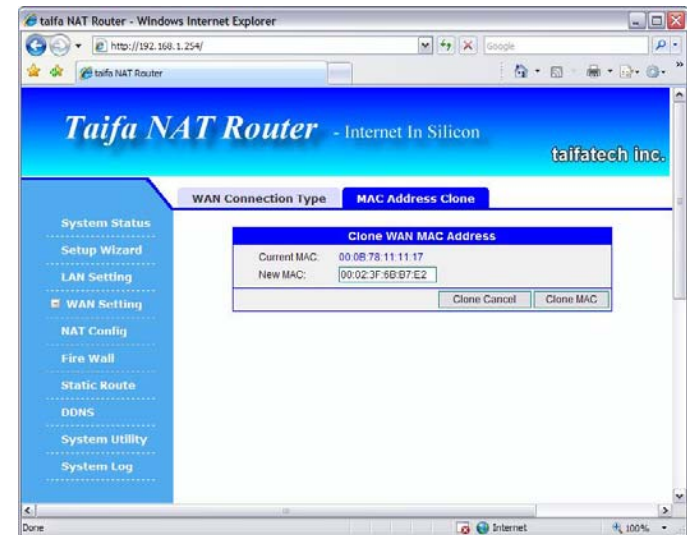

4.1.3   Static IP

ISP will support fixed IP address, for instance, broadband Internet access by means of IP over ATM (IPoA) or Ethernet over ATM (EoA). ISP will provide the IP information; click "Use Fixed IP Address" and type in the information. The Static IP information includes IP address, Subnet Mask and ISP Gateway.
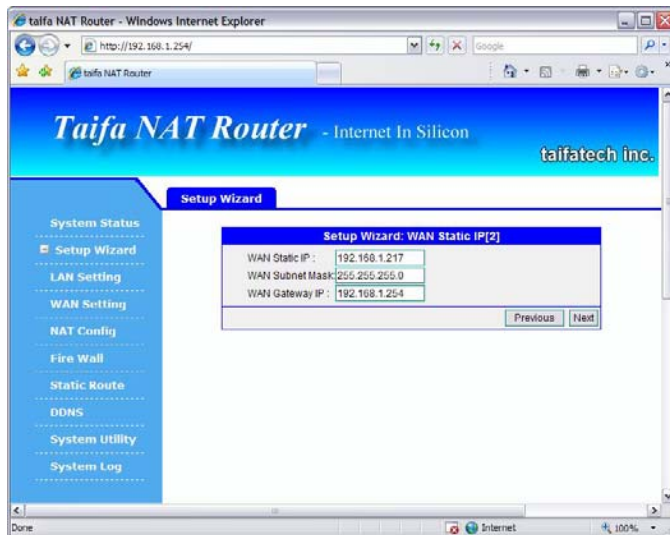
Domain name server (DNS) translates computer host names to the IP addresses that networking equipment needs for delivering information or vice versa. When you use static IP, you must type the DNS server IP addresses in Primary DNS and Secondary DNS fields manually. Otherwise you have The router can accept up to two DNS server IP addresses.

Some ISPs require users to register the MAC address of the network card/adaptor, which is connected to the cable or DSL modem – especially in cable modem. Therefore, in order to connect the router to the cable or DSL modem, you have to change the router MAC address to duplicate the network card/adaptor MAC address. Users can find the network card MAC address by doing the sequence, Start, Run, type "cmd" and type "ipconfig /all". The Physical Address with 12 digits is the MAC address of the network adaptor. Enter those 12 digits into the "Use this MAC address" field and click "Apply". If the ISP does not require the registration of the MAC address, use the default MAC address.

4. 4.   NAT Config

Virtual server, port address mapping and DMZ configuration are placed in the NAT Config page.

4.4.1   Virtual Server

For instance, specific ports on the WAN interface are mapped to services inside the LAN. When only 69.210.1.8 (e.g., assigned to WAN from ISP) is visible to the Internet, but does not actually have any services (other than NAT of course) running on the router, it is said to be a virtual server. Request with TCP made to 69.210.1.8:80 are mapped to the server 1 on 192.168.0.2:80, other requests with UDP made to 69.210.1.8:25 are mapped to server 2 on 192.168.0.3:25. The router supports up to 16 entries mapping table for virtual server parameters. The external port is the port which is exposed on the Internet and the internal port is the server service port. Don't forget to click Enable when you want to activate the port forwarding function. Press Next to move to
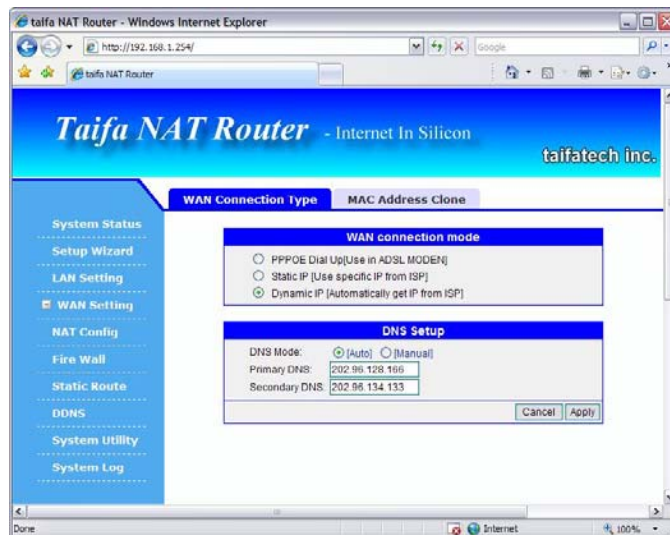
4.3.2.   MAC Address Clone

Some ISPs require users to register the MAC address of the network card/adaptor, which is connected to the cable or DSL modem – especially in cable modem. Therefore, in order to connect the router to the cable or DSL modem, you have to change the router MAC address to duplicate the network card/adaptor MAC address. Users can find the network card MAC address by doing the sequence, Start, Run, type "cmd" and type "ipconfig /all". The Physical Address with 12 digits is the MAC address of the network adaptor. Enter those 12 digits into the "Use this MAC address" field and click "Apply". If the ISP does not require the registration of the MAC address, use the default MAC address.
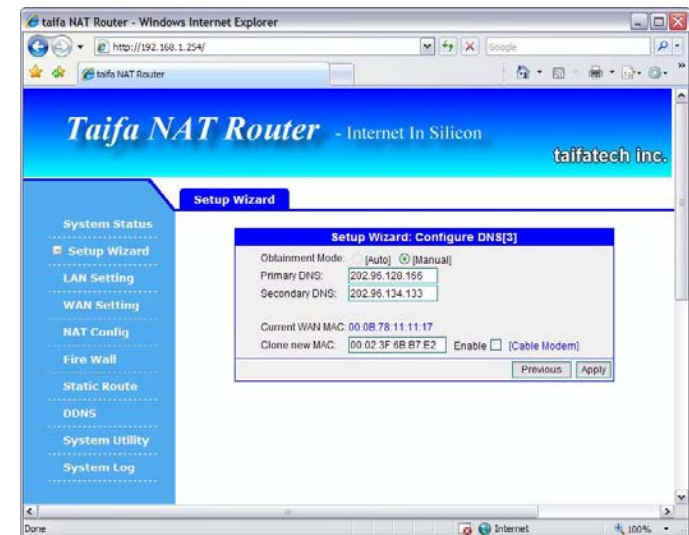
4. 2.   LAN Settings

LAN settings include LAN IP information, DHCP server setting and DHCP client list.

4.2.1   LAN IP and DHCP server

Type the LAN IP information in LAN Setting page. The TA-470wr LAN IP address is the same as the default gateway IP of the computers connected to the TA-470wr.

The DNS proxy relays DNS requests to the public network DNS server for the proxy, and replies as a DNS resolver to the client device on the network. You can enable DNS proxy function by clicking the DNS proxy enable.

Dynamic Host Configuration Protocol (DHCP) is a communication protocol that automates the assignment of Internet Protocol (IP) addresses in an organization's network. It frees administrators from having to assign IP addresses manually every time new users connect to the network.

Computers and other Ethernet enabled devices using dynamic address assigning are assigned a new IP address by a DHCP server. To configure the DHCP server, enable DHCP server and type in the start and end IP address of DHCP client. To control the DHCP clients, the router can release the DHCP clients table and renew all clients connected to the router at that time. This period can be configured by the pull down menu of IP Release Time.
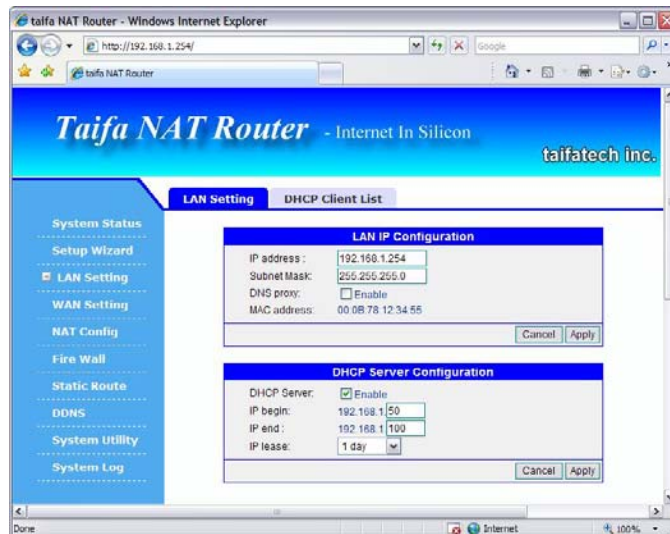
4.2.2   DHCP Client List

DHCP client list shows all DHCP client devices connected to the router.

4. 3.   WAN Settings

WAN setting page has WAN connection type, DNS setup and MAC clone.

4.3.1.   WAN Connection Type and DNS Setup

The router supports three types of WAN, PPPoE, static IP and Dynamic IP. You can types all necessary parameters in the Setup Wizard and select the type in WAN Connection Type to activate quickly.

Domain name server (DNS) translates computer host names to the IP addresses that networking equipment needs for delivering information or vice versa.   The DHCP server automatically gives one or two DNS server IP to the router. When you select "automatically", the router will use the DNS server IP addresses given by DHCP server. If you want to use other DNS server, select "manually" and type the DNS server IP addresses in Primary DNS and Secondary DNS fields.   The router can accept up to two DNS server IP addresses.