

CERIO Corporation

DT-200N

Wireless N-Series Streamlining Router

User's Manual

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1 Introduction

1.1 Product Overview

This DT-200N Wireless N-Series Streamlining Router is a cost-effective IP Sharing Router that enables multiple users to share the Internet through an ADSL or cable modem. The DT-200N Wireless N-Series Streamlining Router is embedded with a IEEE 802.11b/g/n access point that allows you to build up a wireless LAN. With the support of new emerged 802.11n standard, the access point provides data transfer of up to 150Mbps, up to 6 times faster than 802.11g.

1.2 Features

Before you begin the installation, please check the items of your package. The package should include the following items:

- DHCP Client, PPPoE Client, Static IP, PPTP Client, L2TP Client
 - Support wireless mode: AP, WDS, AP+WDS, Repeater
 - Client Infrastructure and support wireless security: WEP, WPA/WPA2-PSK
 - WMM / QoS, UPnP
 - IP Access Control
 - Virtual Service / DMZ / Port Trigger
 - VPN Pass-through (Support PPTP, L2TP and IPSec VPN)
1. Fully backward-compatible with 802.11b/g devices and works well with other Wireless N products.

1.3 Package Contents

Thanks for your choice *Cerio Corporation* products, after you purchasing our product from distributor or shop, before you setup it, please open the package and check that all the components listed below are include. If there is any item missing, please contact with the distributor or the shop where you buy.

1. DT-200N x 1
2. RJ-45 UTP Cable x 1
3. 2dBi 2.4GHz Omni Antenna x 1
4. Quick Installation Guide x 1
5. CD-ROM (with User Manual and QIG) x 1
6. Power Adapter (DC 9V/500mA) x 1
7. Warranty Card x 1

2 Hardware Installation

2.1 System Requirement

- ◆ Windows, Macintosh or Unix-like Operating System with an installed Ethernet adapter.
- ◆ Network cables. Use standard Cat.5 or Cat.5e UTP cables with RJ-45 connector.
- ◆ With administrator's PC must be installed or support TCP/IP protocol.
- ◆ For Internet access, and Internet Access account with an ISP, and either of a DSL or Cable modem.

2.2 Hardware Installation Procedures

The procedures to install the DT-200N Wireless N-Series Streamlining Router please refer to Figure 2-3.

1. **Connecting your computer to the LAN port**
Attach one end of the Ethernet cable with RJ-45 connector to your hub, switch or a computer's Ethernet port, and the other end to one of the LAN ports of your DT-200N Wireless N-Series Streamlining Router.
2. **Connecting Cable/ADSL Modem to the WAN port**
Connect the Ethernet cable attaching to your Cable/ADSL modem to the WAN port of your DT-200N Wireless N-Series Streamlining Router.
3. **Connecting the power adapter**
Connect the single DC output connector of the power adapter to the power jack on the side of the DT-200N Wireless N-Series Streamlining Router. Then plug the Power Adapter into an AC outlet.
4. **Power on the following devices in this order:**
Cable/ADSL modem, Router, and PCs.

3 Login

3.1 Configure your PC/NB to connect with DT-200N

Please make sure your network interface card configuration has been completed and activated on your operating system and connected to one of the LAN port of DT-200N through Cat.5 or Cat.5e cable. Please make sure the LED on DT-200N is already on and the LED corresponds with the port which you connected.

By default, the DT-200N will enable DHCP service automatically and distribute an IP address to your host. the DT-200N default IP is "192.168.1.254". make sure your PCs are configured to obtain an IP address automatically from the Router by the steps below.

- **Windows 2000/XP**
Please follow the steps below to setup your computer

1. Go to Start → Settings → Control Panel



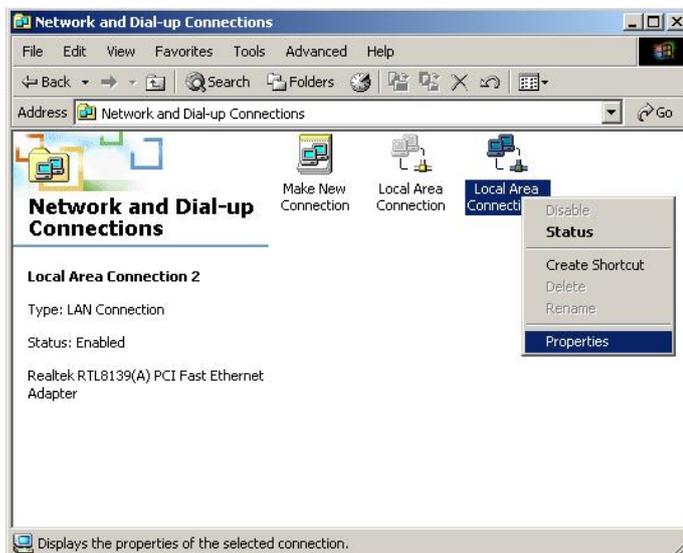
2. Double click the icon **Network and Dial-up Connections**
3. If you are Windows XP user, please do so.
Go to Start → Settings → Control Panel

4. Click **Network and Internet Connections**



5. Click **Network Connections**

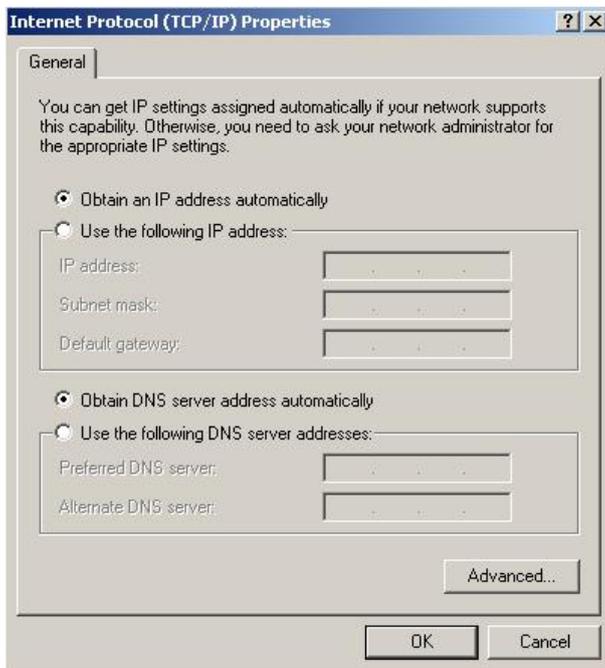
6. Highlight the icon Local Area Connection, right click your mouse, and click Properties



7. Highlight Internet Protocol (TCP/IP), and then press Properties button



8. Choose Obtain an IP address automatically and Obtain DNS server address automatically, and then press OK to close the Internet Protocol (TCP/IP) Properties window



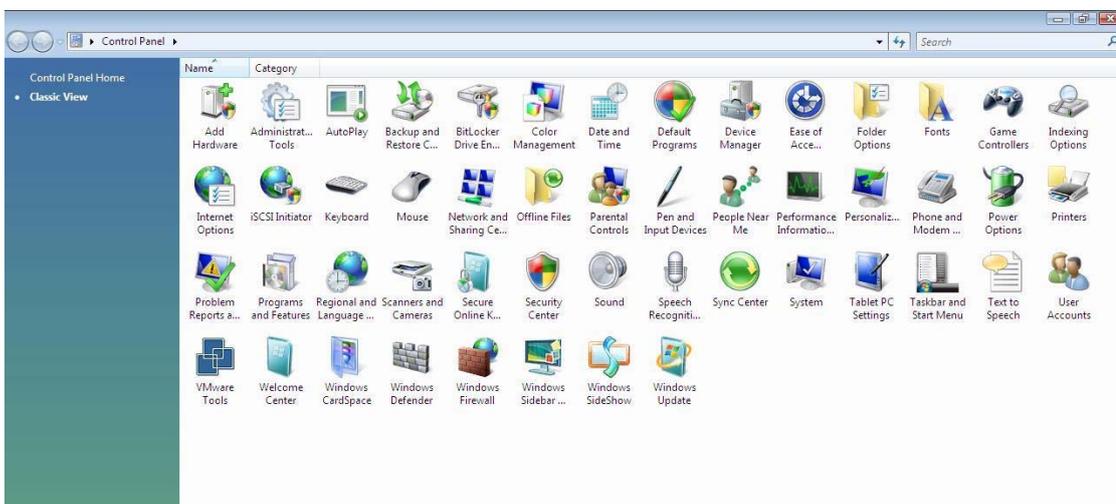
9. Press OK to close the Local Area Connection Properties window



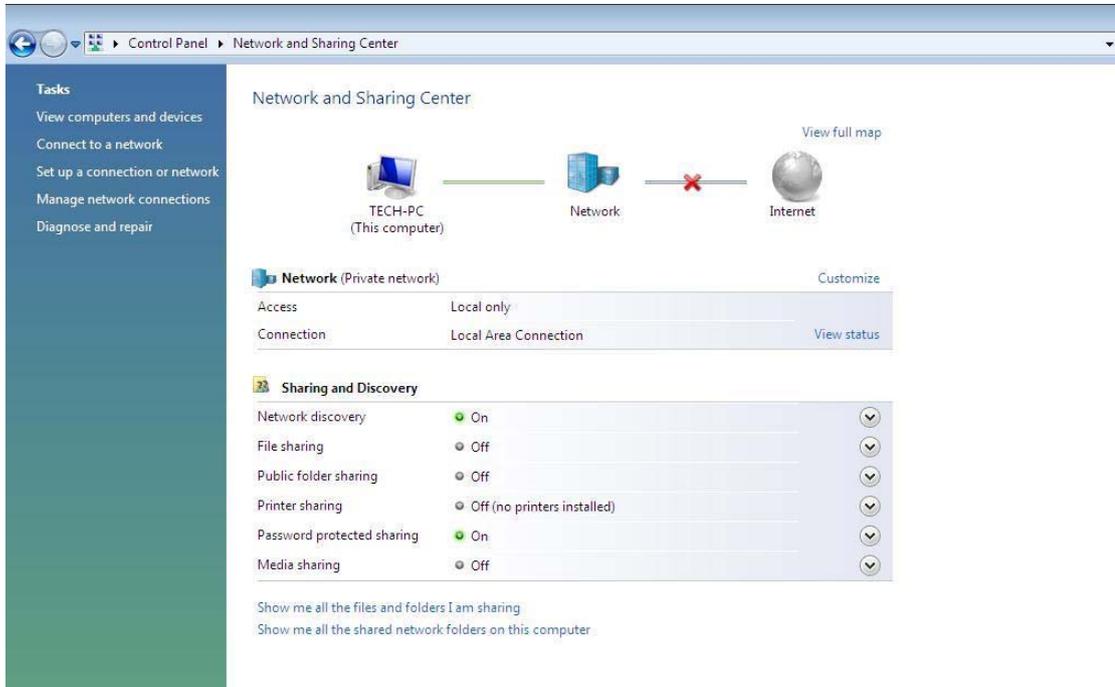
- Windows Vista

Please follow the steps below to setup your computer:

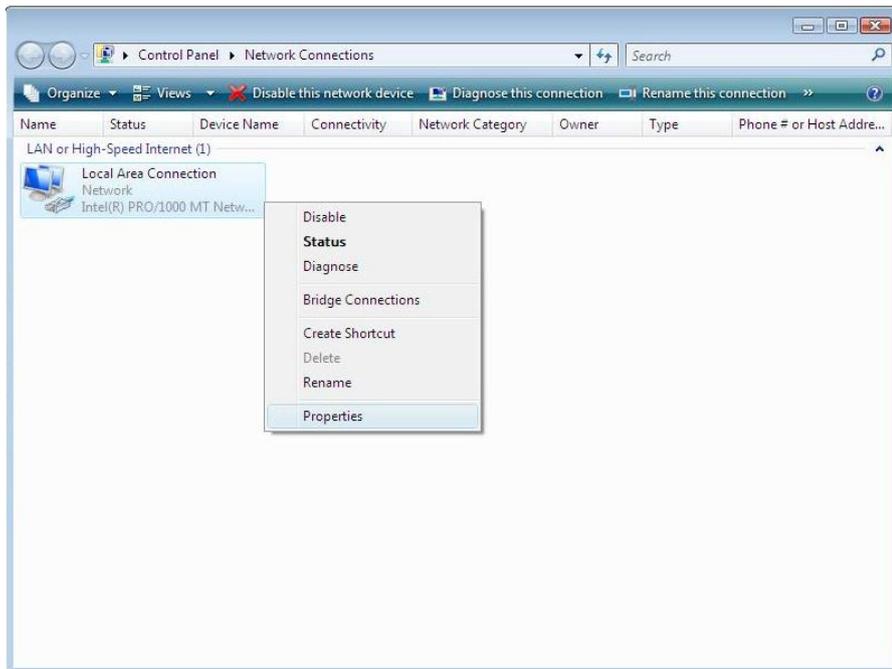
1. Go to Start → Settings → Control Panel
2. Click Network and Sharing Center



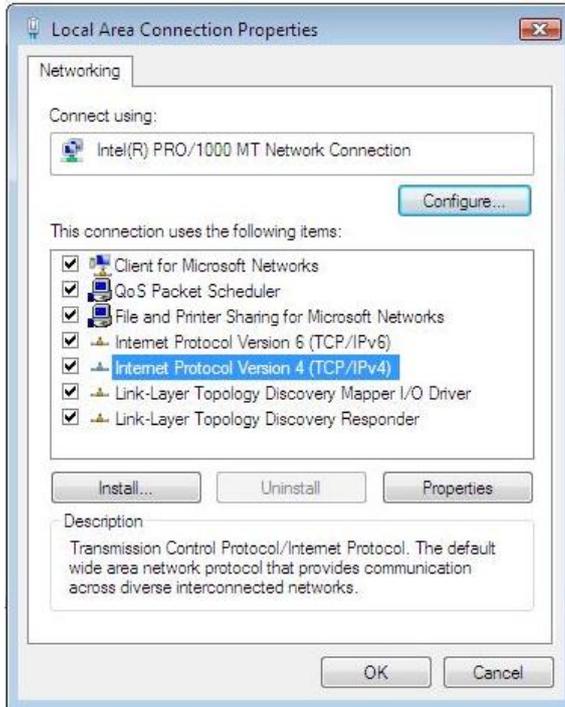
3. Click **Manage Network Connections**



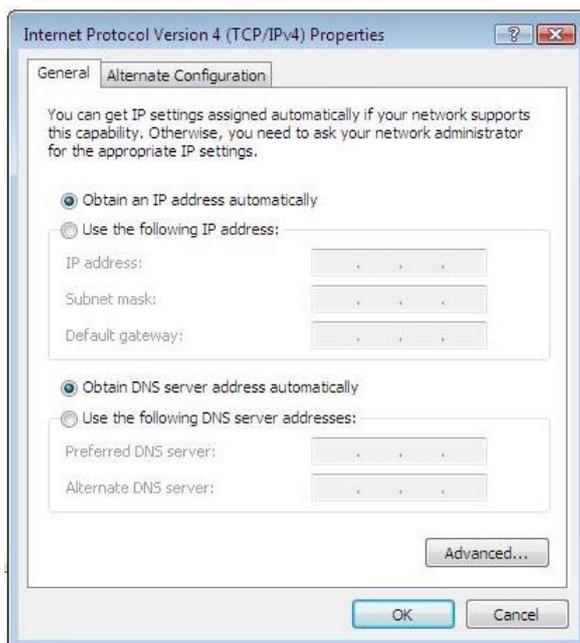
4. Highlight the icon **Local Area Connection**, right click your mouse, and click **Properties**



5. Highlight **Internet Protocol Version 4 (TCP/IP)** and then press **Properties** button



6. Choose **Obtain an IP address automatically** and **Obtain DNS server address automatically**, and then press **OK** to close the Internet Protocol (TCP/IP) Properties window



7. Press **OK** to close the Local Area Connection Properties window

If you finish the operating system TCP/IP setting you can follow the instructions are as follows to check your IP address:

- **Windows98/98se**

1. Click Run... on this menu.
2. In the text box that appears type "winipcfg". The "IP address" field shows the IP address for the default network adapter.
3. If you can't find your adapter IP address, please use the drop-down menu near the top of the window to browse IP address information for alternate network adapters.

- **Windows 2000/XP/Vista**

1. Please make sure that you do have the authority to login as "administrator" privilege.
2. Click "Start → Program → Accessories → Command Prompt" or "Start → Run...", and then type in "cmd.exe" and press "ENTER" button.
3. It will prompt a "Windows Command-Line" window.
4. Type "ipconfig" after the command of "C:>" and then press "ENTER" button.
5. The "Windows Command-Line" will show you the "Network Interface Card" information in the window, please take notice of the value of "IP Address" and "Default Gateway".
6. The value of "Default Gateway" is the IP address of DT-200N.

- **Linux / Unix-Like**

1. At first please make sure that your NIC are already enable and works property.
2. And be sure you have "root" privilege or you already are one of the member of "network" group is depending on your Linux distribution or Unix-like type.
3. Please login to your Linux console and make sure your Linux support "DHCP client" function then after "#" type "ifconfig" or "ifconfig -a" then press "ENTER" button.
4. It will appear your present network interface card IP address in the console, please take notice of the value of "IP address" and "Gateway".
5. The value of "Gateway" is the IP address of DT-200N

3.2 Additional Settings for Wireless Client

If you choose to access the router via a wireless client, also verify the following:

1. Make sure your PC is equipped with 802.11b 802.11g or 802.11n wireless adapter and has appropriate WLAN card driver/utility and TCP/IP installed.
2. Set the wireless adapter to use appropriate TCP/IP settings as described in previous section.
3. Launch the wireless adapter's provided utility and verify that your wireless client is configured with these settings:
 - **Operation Mode:** Infrastructure
 - **SSID:** default
 - **Authentication:** Disabled
 - **Encryption:** Off
 - **Radio Band:** 802.11B/G/N

3.3 Checking PC's IP and Connection with the Router

After configuring the TCP/IP protocol, use the ping command to verify if the computer can communicate with the Router. To execute the ping command, open the DOS window and ping the IP address of the DT-200N Wireless N-Series Streamlining Router at the DOS prompt:

- For Windows 98/Me: Start -> Run. Type command and click OK.
- For Windows 2000/XP: Start -> Run. Type cmd and click OK.

At the DOS prompt, type the following command:

If the Command window returns something similar to the following:

```
C:\Documents and Settings\admin>ping 192.168.1.254

Pinging 192.168.1.254 with 32 bytes of data:

Reply from 192.168.1.254: bytes=32 time=1ms TTL=64

Ping statistics for 192.168.1.254:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 1ms, Average = 1ms
```

Then the connection between the router and your computer has been successfully established.

If the computer fails to connect to the router, the Command window will return the following:

```
C:\Documents and Settings\admin>ping 192.168.1.254

Pinging 192.168.1.254 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

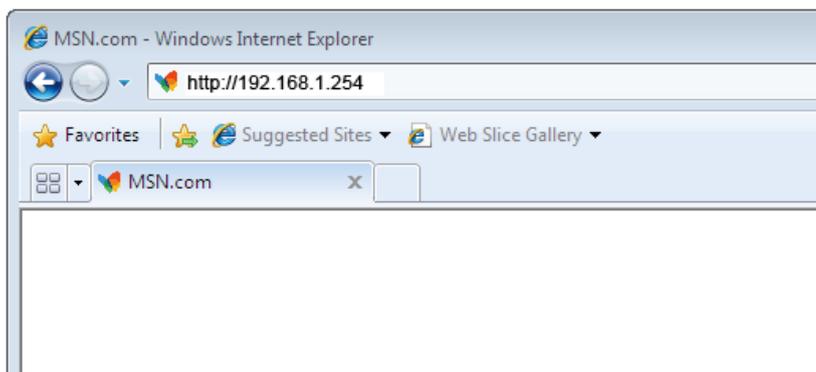
Ping statistics for 192.168.1.254:
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss)
```

Verify your computer's network settings are correct and check the cable connection between the router and the computer. In order to make the whole network operate successfully, it is necessary to configure the DT-200N through your computer has a WEB browser installed. Please follow up the steps listed below.

3.4 Login to DT-200N

Now, we will going to setup DT-200N through your WEB browser that installed on your PC/NB, please do as follow:

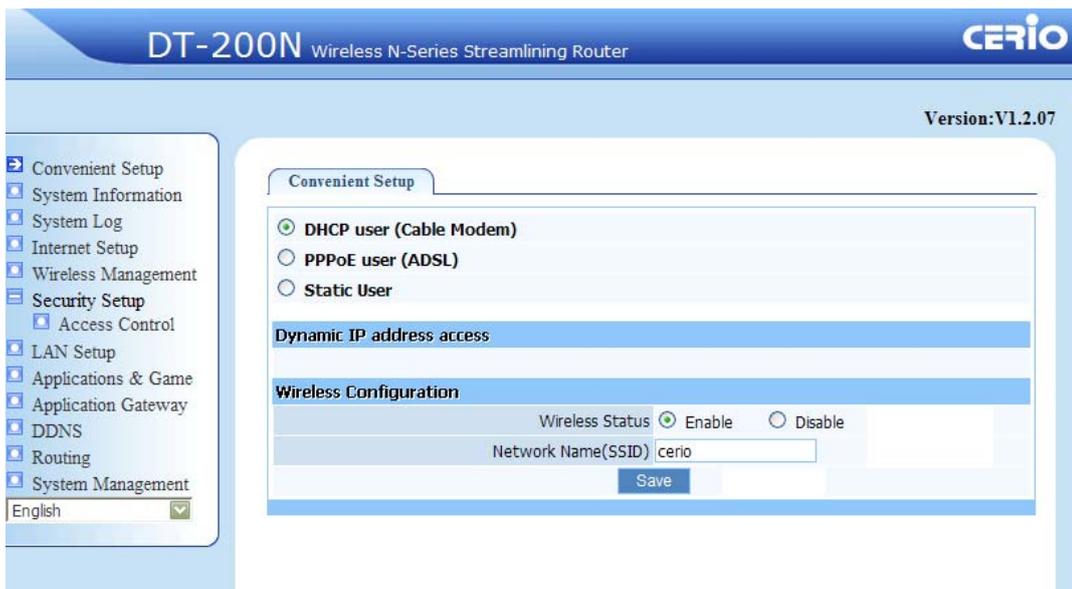
1. Startup Internet Explorer and enter **http://192.168.1.254**, then press **Enter**



2. You will enter the user name and password. The default user name is “**admin**”; password is “**default**”. You can’t modify your user name but can modify your password. You need modify your password when you successfully login, incase anyone else may invade your Internet illegally.



3. After successful login, in the home page of the DT-200N, the left navigation bar shows the main options to configure the system. In the right navigation screen is the summary of system status for viewing the configurations.



4 System configuration

4.1 Convenient Setup

Providing you the convenient and simplest method for configure the router, the purpose of this item is to provide an easy way for you to use it and configure your router to access the Internet quickly; including "DHCP", "PPPoE", "Static IP" and "Wireless Configuration". This is the most convenient tool for you to configure router.

- DHCP user (Cable Modem)

The screenshot shows the 'Convenient Setup' configuration page. It has three radio button options: 'DHCP user (Cable Modem)' (selected), 'PPPoE user (ADSL)', and 'Static User'. Below these is a section for 'Dynamic IP address access'. The 'Wireless Configuration' section includes 'Wireless Status' with 'Enable' selected and 'Disable' unselected, and a text field for 'Network Name (SSID)' containing 'cerio'. A 'Save' button is located at the bottom right of the configuration area.

After select this item, you will obtain an IP address from your ISP automatically, those ISP who supply Cable modem always use DHCP technology.

- Wireless Status

You can **enable** or **disable** the wireless function here. If you chose the "Disable" status, the router will become a wired broadband router without wireless function, so be careful when you choose this status.

- Network Name (SSID)

The SSID is your wireless network's name shared among all points in a wireless network. The SSID must be identical for all devices in the wireless network. It is case-sensitive and must not exceed 32 characters. Make sure all points in the wireless network have the same SSID. For added security, you should change the default SSID to a unique name.

1. PPPoE user (ADSL)

If your ISP provides you the PPPoE service (all ISP with DSL transaction will supply this service, such as the most popular ADSL technique), please select this item. In the "Convenient configuration" You can input your PPPoE username and password to access the Internet.

Convenient Setup

DHCP user (Cable Modem)

PPPoE user (ADSL)

Static User

PPPoE Client Access

PPPoE Username

PPPoE Password

Wireless Configuration

Wireless Status Enable Disable

Network Name(SSID)

Save

- **PPPoE Username**
Input PPPoE username provided by ISP
- **PPPoE Password**
Input PPPoE password provided by ISP.
- **Wireless Status**
You can choose "Enable" or "Disable" to enable or disable the wireless function. The default setting is "enable". If you chose the "Disable" status, the router will become a wired broadband router without wireless function, so be careful when you choose this status.
- **Network Name (SSID)**
The SSID is your wireless network's name shared among all points in a wireless network. The SSID must be identical for all devices in the wireless network. It is case-sensitive and must not exceed 32 characters. Make sure all points in the wireless network have the same SSID. For added security, you should change the default SSID to a unique name.

2. Static User

This item should only be used when users use a static IP address to access Internet, you should input your "WAN IP address", "subnet mask", "default gateway" and "DNS server (domain name server) IP address" according to the information provided by your ISP. And every IP address should be input in appropriate IP field, a IP address only divided into four IP octets by sign "." is acceptable.

The screenshot shows the 'Convenient Setup' interface. Under the 'Static User' option, the 'Static IP address access' section contains the following fields:

| | |
|-----------------|--------------|
| WAN IP address | 0.0.0.0 |
| Subnet Mask | 0.0.0.0 |
| Default Gateway | 0.0.0.0 |
| Primary DNS | 168.95.1.1 |
| Secondary DNS | 168.95.192.1 |

The 'Wireless Configuration' section shows:

- Wireless Status: Enable Disable
- Network Name (SSID): cerio

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

- **WAN IP address**
Enter the IP address provide by your ISP.
- **Subnet Mask**
Enter the Subnet Mask provide by your ISP.
- **Default Gateway**
Enter the default gateway IP address provided by your ISP
- **Primary DNS**
DNS server is used for resolve domain name. Your ISP will provides you with at least one DNS IP address, input IP address of your DNS server in this field
- **Secondary DNS**
Input IP address of backup DNS server or you can leave this field blank.
- **Wireless Status**
You can **enable** or **disable** the wireless function here. If you chose the "Disable" status, the router will become a wired broadband router without wireless function, so be careful when you choose this status.
- **Network Name (SSID)**

The SSID is your wireless network's name shared among all points in a wireless network. The SSID must be identical for all devices in the wireless network. It is case-sensitive and must not exceed 32 characters. Make sure all points in the wireless network have the same SSID. For added security, you should change the default SSID to a unique name.

4.2 System information

This page indicate current status of the router, including "Internet Access Info", "LAN Info", "Primary AP Info", "System Info" and "statistics info" about the bits router send and received. This item is used for monitor the current status of router for administrator, and also supplies help information about judge working situation of router

1. Internet Access Info

This feature provides running status information of the WAN port (the port connect to the Internet)

| Internet Access Info | | LAN Info | Primary AP Info | System Info | Statistics Info |
|--|-------------------|----------|-----------------|-------------|-----------------|
| Connection Type | DHCP | | | | |
| Physical Address | 00:00:00:cc:00:02 | | | | |
| IP Address | 0.0.0.0 | | | | |
| Subnet Mask | 0.0.0.0 | | | | |
| Default Gateway | 0.0.0.0 | | | | |
| Primary DNS | | | | | |
| Secondary DNS | | | | | |
| MTU: | 1496 | | | | |
| <input type="button" value="connect"/> | | | | | |
| Version | | | | | |
| Current version: APR-R3A4-V1.1.05EN(1T1R), 2009.08.07.13:48. | | | | | |

- **Connection Type(ISP)**
Display router's current connection type, It should be one of "PPPoE", "DHCP", "Static IP", depending on what kind of connection type your ISP provides.
- **MAC Address**
The MAC address of WAN port, this is a unique address assigned by manufacturer.
- **IP Address**
The IP address you obtained after connect to the Internet, if you haven't connected to the Internet yet, this

field is blank.

- **Subnet Mask**

The Subnet mask you obtained after connect to the Internet, if you haven't connected to Internet yet, this field is blank

- **Default Gateway**

The IP address of Default gateway you obtained after connect to the Internet, if you haven't connected to Internet yet, this field is blank.

- **Primary DNS**

The DNS server translates domain or website names into IP address, input the most common DNS server address you used or provided by your ISP.

- **Secondary DNS**

Input IP address of a backup DNS server or you can leave this field blank

- **MTU**

The MTU (Maximum Transmission Unit) setting specifies the largest packet size permitted for network transmission. Most DSL users should use the value 1492. You can set MTU manually, and you should leave this value in the 1200 to 1500 range. If the value you set is not in accord with the value ISP provide, it may causes some problems, such as fail to send Email, or fail to browse website. So if that happen, you can contact your ISP for more information and correct your router's MTU value

- **Version**

The version information of your current firmware

2. LAN Info

| Internet Access Info | LAN Info | Primary AP Info | System Info | Statistics Info |
|---|----------|-----------------|-------------|-----------------|
| MAC address: 00:00:00:cc:00:01 | | | | |
| IP address: 192.168.1.1 | | | | |
| Subnet Mask: 255.255.255.0 | | | | |
| DHCP Server: Start | | | | |
| DHCP Server IP Pool: 192.168.1.2 --- 192.168.1.63 | | | | |

This item provides information about router's LAN port, display LAN port's MAC address, IP address and current situation of DHCP server.

3. Primary AP Info

| Internet Access Info | LAN Info | Primary AP Info | System Info | Statistics Info |
|---------------------------------|----------|-------------------|-------------|-----------------|
| Wireless Status: | | On | | |
| Number of Wireless Client: | | 2 | | |
| Wireless Mode: | | AP | | |
| Channel: | | 6 | | |
| SSID: | | Default | | |
| Wireless Interface MAC Address: | | 00:00:00:cc:00:01 | | |
| SSID Broadcasting: | | on | | |
| Security Mode: | | None | | |

- **Wireless status**
Display wireless interface status is enabled or not
- **Number of Wireless Client**
Display the current number of wireless stations associated with router
- **Wireless Mode**
Current wireless mode of wireless router → the default setting is "AP(Access Point)" mode.
- **Channel**
Display current channel of your wireless router.
- **SSID**
SSID (Service Set Identifier) is your wireless network's name shared among all points in a wireless network. The SSID must be identical for all devices in the wireless network. So make sure all points in the wireless network have the same SSID, I suggested to use the default SSID.
- **Wireless Interface MAC Address**
The MAC address is used for wireless communication
- **SSID Broadcasting**
You can select "enable" or "disable" to enable or disable the broadcast SSID function, If the setting of this field is disable, wireless client can not obtain this SSID to login in, then user have to input the SSID value manually
- **Security Mode**
Display whether your security wireless function have been applied.

4. System Info

| Internet Access Info | LAN Info | Primary AP Info | System Info | Statistics Info |
|---|----------|-----------------|-------------|-----------------|
| System Uptime: 0 Day(s) 0 Hour(s) 14 Minute(s) 26 Second(s) | | | | |
| CPU Usage: % | | | | |
| Memory Usage: 19% | | | | |
| Firmware Version: APR-R3A4-V1.1.05EN(1T1R), 2009.08.07.13:48. | | | | |
| Refresh | | | | |

This item provides current running information of System

5. Statistics Info

| Internet Access Info | LAN Info | Primary AP Info | System Info | Statistics Info |
|-------------------------|-----------------|-------------------|-----------------------|------------------------|
| Type | Sending Packets | Receiving Packets | Sending data (Kbytes) | Receiving data(KBytes) |
| LAN | 1656 | 1380 | 746 | 158 |
| WAN | 39 | 0 | 22 | 0 |
| WLAN | 5304 | 25940 | 1650 | 2948 |
| Refresh | | | | |

This item provides statistics information about the bits router sends and received

4.3 System log

| System Logs | | | |
|-------------|--|-----------------|-----------|
| No. | Time | Connection type | Descript |
| 1 | klogd started: BusyBox v1.00-pre8 (2009.07.01-16:01+0000) | klogd | undefined |
| 2 | RTL8192SE driver version 1.15 (2009-07-10) | klogd | undefined |
| 3 | wlan0: A wireless client is associated - 00:00:00:00:00:1B | wlan | undefined |
| 4 | wlan0: A wireless client is associated - 00:00:00:00:00:1B | wlan | undefined |
| 5 | wlan0: A wireless client is associated - 00:00:00:00:00:1B | wlan | undefined |
| 6 | wlan0: A wireless client is associated - 00:00:00:00:00:1B | wlan | undefined |
| 7 | wlan0: A wireless client is associated - 00:00:00:00:00:1B | wlan | undefined |
| 8 | wlan0: A wireless client is associated - 00:00:00:00:00:1B | wlan | undefined |
| 9 | wlan0: A wireless client is associated - 00:00:00:00:00:1B | wlan | undefined |
| 10 | wlan0: A wireless client is associated - 00:00:00:00:00:1B | wlan | undefined |

4Pages

Examine system log, there are most ten logs can be showed in one Page

4.4 Internet Setup

The purpose of this item is to provide an easy way for you to use it and configure your router to access the Internet quickly,

1. DHCP User (Cable Modem)

After select this item, you will obtain an IP address from your ISP automatically, those ISP who supply Cable modem always use DHCP

- **Clone MAC address**

The WAN port of router has a unique MAC address assigned by manufacturer; it called as "Default MAC". The "Clone MAC" is used for some special situations; For example, ISP only allows certain MAC address to access the Internet, thus you can modify your WAN port's MAC address in accord with the requirement of ISP, avoiding ISP's detection

- **MTU**

The MTU (Maximum Transmission Unit) setting specifies the largest packet size permitted for network transmission. Most DSL users should use the value 1492. You can set MTU manually, and you should leave this value in the 1200 to 1500 range. If the value you set is not in accord with the value ISP provide, it may causes some problems, such as fail to send Email, or fail to browse website. So if that happened, you can contact your ISP for more information and correct your router's MTU value

- **Primary DNS**

DNS server is used for resolve domain name. Your ISP will provide you with at least one DNS IP address, input IP address of your DNS server in this field

- **Secondary DNS**

Input IP address of backup DNS server, or you can leave this field blank

2. PPPoE User(ADSL)

If your ISP provides you the PPPoE service (all ISP with DSL transaction will supply this service, such as the most popular ADSL technique), please select this item. In the "Convenient Setup" You can input your PPPoE username and password to access the Internet

Internet Setup

| | |
|---|---|
| <input type="radio"/> DHCP user (Cable Modem) | |
| <input checked="" type="radio"/> PPPoE user (ADSL) | |
| <input type="radio"/> Static user | |
| PPPoE Client Access | |
| PPPoE Username | <input type="text"/> |
| PPPoE Password | <input type="password"/> |
| Clone MAC address | 00:00:00:cc:00:02 Clone MAC address |
| Default MAC address | 00:00:00:cc:00:02 Default MAC address |
| MTU | 1492 |
| Primary DNS | <input type="text"/> |
| Secondary DNS | <input type="text"/> |
| <input checked="" type="radio"/> Connect to Internet automatically (Default) <input type="radio"/> Auto disconnect when idle, time out ,After <input type="text" value="5"/> (1-30) minutes, if no found the access request then auto-break off! <input type="radio"/> Connect to Internet manually | |
| Save Settings | |

- **PPPoE Username**
Input PPPoE username provided by ISP
- **PPPoE Password**
Input PPPoE password provided by ISP
- **Clone MAC address**
If your ISP fix your network interface card you can clone your network interface card MAC address to WAN side interface of DT-200N
- **Default MAC Address**
The MAC address of WAN port, this is a fixed, unique address assigned by manufacturer
- **Primary DNS**
DNS server is used for resolve domain name. Your ISP will provide you with at least one DNS IP address, input IP address of your DNS server in this field
- **Secondary DNS**
Input IP address of backup DNS server, or you can leave this field blank

- You can select three modes: connect to Internet automatically (Default), auto disconnect when idle or time out, connect to Internet manually

3. Static user

Internet Setup

DHCP user (Cable Modem)
 PPPoE user (ADSL)
 Static user

Static IP address Access

| | | |
|---------------------|--|--|
| WAN IP address | <input type="text" value="0.0.0.0"/> | |
| Subnet Mask | <input type="text" value="0.0.0.0"/> | |
| Default Gateway | <input type="text" value="0.0.0.0"/> | |
| Clone MAC address | <input type="text" value="00:00:00:cc:00:02"/> | <input type="button" value="Clone MAC address"/> |
| Default MAC address | <input type="text" value="00:00:00:cc:00:02"/> | <input type="button" value="Default MAC address"/> |
| MTU | <input type="text" value="1500"/> | |
| Primary DNS | <input type="text"/> | |
| Secondary DNS | <input type="text"/> | |

This should be used only you are connecting through a static IP address. You should input your "WAN IP address", "subnet mask", " default gateway" and "DNS server (domain name server) IP address" according to the information provided by your ISP. And IP address input should be filled in appropriate IP field, a IP address only divided into four IP octets by sign"." is acceptable

4.5 Wireless management

1. Wireless Basic

It contains the following parts: wireless basic, security, host filter, association table, advanced

| Wireless Basic | | Security | Host Filter | Association Table | Advanced |
|--|---|----------|-------------------------------|-------------------|----------|
| Wireless Network Status | <input checked="" type="radio"/> Enable | | <input type="radio"/> Disable | | |
| Radio Band | 802.11b+g+n ▼ | | | | |
| Radio Mode | Access Point ▼ | | | | |
| SSID | Default | | | | |
| SSID Broadcasting | <input checked="" type="radio"/> Enable | | <input type="radio"/> Disable | | |
| Channel Width | <input checked="" type="radio"/> 20MHZ | | <input type="radio"/> 40MHZ | | |
| Channel | Channel 6 ▼ | | | | |
| <input type="button" value="Save Settings"/> | | | | | |

Providing basic configuration items for wireless router users, including "wireless network status", "Radio Band", "Radio Mode", "SSID", "SSID broadcasting", "Channel width", and "Channel" seven basic configuration items. Wireless basic configuration affects both primary and secondary AP

- **Wireless network status**

You can choose "enable" or "disable" to enable or disable the "Wireless Network Status", if what you choose is "Disable", the AP function of wireless router will be turned off

- **Radio band**

You can select the wireless standards running on your network, If you have Wireless-G, and Wireless-B devices in your network, keep the default setting, 802.11b/g Mixed

- **Radio mode**

You can select radio mode of wireless router, the default setting is AP mode

- **SSID**

You can input the wireless network name of "DT-200N" here, The default value is "default"

- **SSID Broadcasting**

You can choose "enable" or "disable" to enable or disable the "SSID broadcasting"

- **Channel width**

This switch allows you to set Router's wireless bandwidth modes:

20MHz: Setting the Router to this mode allows only 20MHz operation. This mode is compatible with router, draft 802.11n, 802.11g and 802.11b compliant devices, but will limit router, draft 802.11n compliant device's bandwidth by half reducing bandwidth to 20MHz operation might solve some wireless

problems.

40MHz: Setting the Router to this mode allows only 40MHz operation. This mode is compatible only with router, draft 802.11n compliant devices. It may affect legacy 802.11b/g devices. Use only when you have a pure router, draft 802.11n wireless network

- **Channel sideband**

It controls your wireless router use higher or lower channel when working on 40MHz

- **Channel**

In 20MHz, you can select one channel from 1 to 11 manually, and in 40MHz ,you can select one channel from 5 to 11, which provides a choice of avoiding interference

2. Security

The screenshot shows the 'Security' configuration page. At the top, there are five tabs: 'Wireless Basic', 'Security', 'Host Filter', 'Association Table', and 'Advanced'. The 'Security' tab is active. Below the tabs, there is a form with a dropdown menu for 'Authentication Type' currently set to 'None'. At the bottom of the form, there is a 'Save Settings' button.

The item allows you to encrypt your wireless communication, and you can also protect your wireless network from unauthorized user access "Security Mode" supplies "None", "WEP", "WPA-PSK", "WPA2-PSK" and "WPA/WPA2-PSK" five different encryption modes.

- **"None"** means do not encrypt wireless data

- **WEP**

There are two basic levels of WEP encryption, 64 bits and 128 bits, the more bits password have, the better security wireless network is, at the same time the speed of wireless is more slower. If you select WEP to encrypt your data, choose the bits of password, it should be 64 bits or 128 bits. Then choose the format of password; it should be HEX or ASCII. The valid character for HEX format should be numbers from 0 to 9 or letters from A to F. HEX doesn't support mixed letter and number mode. And ASCII supports mixed both letters and numbers. By default, router provides four fields to input four groups of password, you can input all of them or only one of them, and the client's password only need to match one group of password

- **WPA-PSK**

You can select the algorithm you want to use, TKIP or AES. TKIP means "Temporal Key Integrity Protocol", which incorporates Message Integrity Code (MIC) to provide protection against hackers. AES, means "Advanced Encryption System", which utilizes a symmetric 128-Bit block data

- **WPA2-PSK**

The WPA2-PSK is similar to WPA-PSK and with stronger encryption method than WPA-PSK, using WPA2-PSK; you should input password (leave this value in the range of 8 to 63 characters) and key renewal time (leave this value in the range of 60 to 86400 seconds).

- **WPA/WPA2-PSK**

This item mixed WPA-PSK and WPA2-PSK mode, which provides higher security level; you can configure it according with WPA-PSK or WPA2-PSK

3. Host Filter

The screenshot shows the 'Host Filter' configuration page. At the top, there are navigation tabs: 'Wireless Basic', 'Security', 'Host Filter', 'Association Table', and 'Advanced'. The 'Host Filter' tab is selected. Below the tabs, there is a section titled 'Wireless Access Control' with a sub-section 'Wireless Access Control Status' containing two radio buttons: 'Enable' and 'Disable'. The 'Disable' radio button is selected. Below this is a 'Save Settings' button. The next section is 'Rule Description', which includes a text input field for 'MAC Address' and an 'Add' button. At the bottom, there is a table with three columns: 'ID', 'MAC Address', and 'Delete'.

You can filter wireless users by enabling this function; thus unauthorized users can not access the network. To disable "Wireless Host Filter", keep the default setting "Disable". To enable "Wireless Host Filter", follow these steps to set "Wireless Host Filter".

- Add MAC address you want to control in the "MAC address" field (the format is XX-XX-XX-XX-XX-XX), then click "Add" button, and you will see the MAC address has displayed in the MAC list.
- There are two items supplied, "Permit wireless connection for MAC address listed (others are Denied)" and "Deny wireless connection for MAC address listed (others are Permitted)", Select the item you want, and click "Save Settings" button

4. Association table

| Wireless Basic Security Host Filter Association Table Advanced | | | | | | |
|--|------|-----------|-----------|----------------|--------------|------------------|
| MAC Address | Mode | Tx Packet | Rx Packet | Tx Rate (Mbps) | Power Saving | Expired Time (s) |
| 00:00:00:00:00:39 | 11n | 2326 | 2305 | 72.2 | no | 293 |
| 00:00:00:00:00:1b | 11n | 3 | 54 | 72.2 | no | 199 |
| Refresh | | | | | | |

Display current status of the wireless client associate with AP

5. Advanced

| Wireless Basic Security Host Filter Association Table Advanced | |
|--|---|
| Authentication Type | Auto <input type="button" value="v"/> |
| Beacon Interval | 100 (20-1000) |
| RTS Threshold | 2347 (256-2347) |
| Aggregation | AMPDU+AMSDU <input type="button" value="v"/> |
| Fragmentation Threshold | 2346 (256-2346) |
| Transmission Rate | Auto <input type="button" value="v"/> |
| ShortGI | <input checked="" type="radio"/> Enable <input type="radio"/> Disable |
| Protection | <input checked="" type="radio"/> Enable <input type="radio"/> Disable |
| Preamble Type | <input checked="" type="radio"/> Long <input type="radio"/> Short |
| Save Settings | |

These settings are only for more technically advanced users who have a sufficient knowledge about wireless LAN. These settings should not be changed unless you know what effect the change will have on your AP

- **Authentications type**

The default is set to "Auto Select", which allows "Open System" or "Shared Key" authentication to be used. Select "Shared Key" if you only want to use "Shared Key" authentication (the sender and recipient use a WEP key for authentication)

- **Beacon Interval**

The interval time of this DT-200N Wireless N-Series Streamlining Router broadcast a beacon. Beacon is used to synchronize the wireless network. The valid interval is 20-1000, the default is 100

- **RTS Threshold**
You can set RTS Threshold value in this field, the valid range should be 256-2347 and default value is 2347. If a network packet is smaller than the preset RTS threshold size, the RTS/CTS mechanism will not be enabled
- **Aggregation**
You can accelerate the wireless transmission speed by enabling the aggregation function. The default is AMPDU + AMSDU
- **Fragmentation Threshold**
It specifies the maximum size of packet during the fragmentation of data to be transmitted
- **Transmission Rate**
Transmit rate indicates the transmission speed of wireless LAN access. The default setting is "Auto" and you can set this value between 1-54Mbps range
- **ShortGI**
You can select "Enable" or "disable" for shortgi
- **Protection**
Using 802.11b and 802.11g mixed mode may result in poor network performance. By enabling 802.11 protection, it will ameliorate performance of 802.11g devices in your wireless network
- **Preamble Type**
"Short Preamble" is suitable for heavy traffic wireless network. "Long Preamble" provides much communication reliability; the default setting is "Long Preamble"

4.6 LAN Setup

It includes LAN IP address and DHCP Server. You can change the default IP address of LAN port by using this item, after changing IP address of LAN port, the router will restarted automatically. You can also choose enable or disable of the DHCP server, set the range of DHCP address pools

1. LAN IP address

| | | | |
|----------------|---------------|-------------|--|
| LAN IP address | | DHCP Server | |
| IP Address | 192.168.1.1 | | |
| Subnet Mask | 255.255.255.0 | | |
| Save Settings | | | |

The IP address is for LAN port that connect by your PC/NB with DT-200N directly; here you can set IP address you need. and default IP address is 192.168.1.1, the default subnet mask is 255.255.255.0.

2. DHCP Server

| LAN IP address | DHCP Server |
|--|-------------|
| DHCP Server Status <input checked="" type="radio"/> Enable <input type="radio"/> Disable | |
| IP Address Pool <input type="text" value="192.168.1.2"/> - <input type="text" value="192.168.1.63"/> | |
| <input type="button" value="Save Settings"/> | |

- **DHCP Server Status**
Keep the default setting "Enable", so router is able to use DHCP function. If a DHCP server has already existed in the network, please select "Disable".
- **IP Address Pool**
The IP Address pool is used for allocate IP address by DHCP server; The IP Address pool range is also changeable

4.7 Applications and Gaming

This item provides configuration items and related templates about optimize games and applications, including "Virtual server", "DMZ", and "UPNP".

1. Virtual Server

| Virtual Server Setting | | | | | | |
|--|-------------|---|----------|---------------|---------------|--------|
| Description | | <input type="text"/> | | | | |
| Internal Host IP Address | | <input type="text"/> | | | | |
| Protocol | | ALL <input type="button" value="v"/> | | | | |
| External Port | | <input type="text"/> - <input type="text"/> | | | | |
| Internal Port | | <input type="text"/> | | | | |
| <input type="button" value="Save Settings"/> | | | | | | |
| ID | Description | Internal host IP address | Protocol | External Port | Internal Port | Delete |

Some games, servers, and applications (such as BT, QQ video, Edonkey, Web server) are no longer effect when behind the NAT router, so this item provides function of port mapping from LAN to WAN.

- **Description**
Describe current virtual server item
- **Internal Host IP Address**
The "Internal Host IP Address" indicates IP address of the internal host using virtual server

- **Protocol**
The protocol item supplies several protocols. For example, if you have web server within LAN, you can select the HTTP template then the router will input port number 80 automatically
- **External Port**
Input an extranet port number(the users in Internet can see these ports)
- **Internal Port**
Input an intranet port number

2. DMZ

| | | |
|--|--------------------------------------|--|
| DMZ Status | <input type="radio"/> Enable | <input checked="" type="radio"/> Disable |
| DMZ Host IP Address | <input type="text" value="0.0.0.0"/> | |
| <input type="button" value="Save Settings"/> | | |

DMZ opens all the ports of one computer, exposing the computer to the Internet. So it should only be used for some special-purpose, especial for Internet online games. Using this function you can select "DMZ" item and input IP address of DMZ host, then click "Save Setting". For the purpose of security, we suggested that using "Virtual server" instead of "DMZ"

3. UPnP

| | | |
|--|------------------------------|--|
| UPNP Status | <input type="radio"/> Enable | <input checked="" type="radio"/> Disable |
| <input type="button" value="Save Settings"/> | | |

The UPnP function supports load Application's port forward record automatically. Select "Enable" to enable this function

4.8 Application gateway

1. VPN Pass-through

| VPN Pass-through | | |
|--|------------------------------|--|
| PPTP Pass-through | <input type="radio"/> Enable | <input checked="" type="radio"/> Disable |
| L2TP Pass-through | <input type="radio"/> Enable | <input checked="" type="radio"/> Disable |
| IPSEC Pass-through | <input type="radio"/> Enable | <input checked="" type="radio"/> Disable |
| <input type="button" value="Save Settings"/> | | |

VPN is commonly used for encapsulate and encrypt data across the public network. For VPN tunnel, the router supports IPSEC pass-through, PPTP pass-through and L2TP pass-through

- **PPTP Pass-through**

PPTP means the "Point to Point Tunneling Protocol", you can select "enable" to allow PPTP pass-through the router

- **L2TP Pass-through**

L2TP means the "Layer 2 Tunneling Protocol", you can select "enable" to allow L2TP pass-through the router

- **IPSEC Pass-through**

IPSEC (Internet Protocol Security) is a suite of protocols used to implement secure exchange; you can select "enable" to allow IPSEC pass-through the router

4.9 Security management

This feature provides security and network protection by using "Internet access control", "Firewall" and some other options

1. MAC Filter

You can filter wired users by enabling this function; thus unauthorized users can not access the network. Follow these steps to set MAC filter:

- Add MAC address you want to control in the "MAC address" field (the format is XX-XX-XX-XX-XX-XX), then click "Add" button, and you will see the MAC address has displayed in the MAC list.
- There are two items supplied, "Permit wireless connection for MAC address listed (others are Denied)" and "Deny wireless connection for MAC address listed (others are Permitted)", Select the item you want, and click "Save Settings" button.

2. Internet Access Control

MAC Filter
Internet Access Control
DNS Filter

IP Filter Parameter

| | |
|--------------------------|--|
| IP Firewall Status | <input type="radio"/> Enable <input checked="" type="radio"/> Disable |
| Default IP Firewall Rule | <input type="radio"/> Deny through the router for IP address listed, others are permitted <input checked="" type="radio"/> Permit through the router for IP address listed, others are denied |

Save Settings

IP Filter List Management

| | |
|-------------------|--|
| Description | <input style="width: 90%;" type="text"/> |
| Rule | Enable ▼ |
| Source IP Address | <input style="width: 90%;" type="text"/> |
| Protocol and Port | ALL ▼ <input style="width: 30px;" type="text"/> - <input style="width: 30px;" type="text"/> |

Save Settings

| ID | Description | Source IP | Protocol | Destination Port | Rule | Delete |
|----|-------------|-----------|----------|------------------|------|--------|
| | | | | | | |

The rules of "Internet access control" based on source IP, port number and protocol. Follow these steps to set Internet Access Control:

- You can select "Default IP Firewall Rule" and click "Save Settings" to enable "Internet Access Control" function. This is only the first step, you should continued to create appropriate rules for "Internet Access Control".
- Input description information for current access control rule in the "Description" field. Input IP address of host you want to restrict .If the rule has already existed in "Protocol Template". You can select appropriate item and apply it. Or you can input protocol type and port number manually, click "add" button, then the item will displayed in the list.
- There are two items supplied, "Permit wireless connection for MAC address listed (others are Denied)" and "Deny wireless connection for MAC address listed (others are Permitted)", Select the item you want, and click "Save Settings" button
- If you want to delete certain item on the list, select appropriate item on the list, click "delete" to delete it

3. DNS Filter

DNS Filter Parameter

DNS Filter Status: Enable Disable

Default DNS Filter Rule: Deny through the router for DNS Key words listed, others are Permitted Permit through the router for DNS Key words listed, others are Denied

Save Settings

DNS Filter List Management

Rule:

DNS Filter Key words:

Add

| ID | DNS Filter Key words | Rule | Delete |
|----|----------------------|------|--------|
|----|----------------------|------|--------|

“DNS filter” is able to filter certain domain name such as www.sina.com Follow these steps to set DNS filter:

- You can select “Default DNS filter rule” and click “Save Settings” to enable “DNS Filter” function. This is only the first step, you should continued to create appropriate rules for “DNS Filter”.
- Input website name or Domain name in the “DNS Key Words” field, such as www.facebook.com.
- There are two items supplied, “Permit wireless connection for MAC address listed (others are Denied)” and “Deny wireless connection for MAC address listed (others are Permitted)”, Select the item you want, and click “Save Settings” button
- If you want to delete certain item on the list, select appropriate item on the list, click “delete” to delete it

4.10 DDNS

The DDNS feature allows you using domain name (not IP address) to access Internet. Before you can use this feature, you need to register an account for DDNS service at DDNS service providers, such as "DynDNS".

DDNS

DDNS Setup

| | |
|------------------------|---|
| DDNS Status : | <input checked="" type="radio"/> Enable <input type="radio"/> Disable |
| DDNS Server Provider : | DynDNS ▼ www.oray.net |
| Username : | <input type="text"/> |
| Password : | <input type="password"/> |
| Dynamic Domain Name : | <input type="text"/> |
| Status : | |

- **DDNS Status**
Current status of DDNS server
- **DDNS Server Provider**
For example, if you want to use service of "DynDNS", you have to first register and accounts for it. Other DDNS service providers as the same
- **Username, Password, Dynamic Domain Name**
After register an DDNS account from DDNS service providers, you will get "User Name", "Password", "Dynamic Domain Name", Input information in appropriate field
- **Status**
If your account and other information is correct, the DT-200N will try to connect with the DDNS service provider that you specify, here will show you the connect status.

4.11 Routing

Most of broadband router and wireless router are using NAT mode, so this feature is designed for most common network environment

Routing

Routing Table Configuration

| | |
|---|--|
| Type | NET ▼ |
| Destination Network or IP address | |
| Subnet Mask | |
| Next-Hop IP address | |
| <div style="background-color: #0056b3; color: white; padding: 2px 10px; border-radius: 5px; display: inline-block;">Save Settings</div> | |

Routing Table

| ID | Type | Destination Network or IP address | Subnet Mask | Next-hop address | Delete |
|----|------|-----------------------------------|-------------|------------------|--------|
| | | | | | |

- **Destination Network or IP Address**
Specify a certain destination Network or IP address which static route forward to
- **Subnet Mask**
Subnet mask is used for distinguish Network portion and Host portion for an IP address
- **Next-hop IP Address**
This is an IP address of the next-hop device (and also is the gateway address for local host) that allows forwarding data between router and remote network or host
- **Routing Table**
You can check out all current route items , click "delete" button to delete an route item existed in routing table

4.12 System management

System management includes password setting, firmware update, restart system, restore default and wake up PC

1. Password setting

The default username/password is guest/guest. To ensure the Router's security, It is suggested that you change the default password to one of your choice, here enter a new password and then Re-enter it again to Confirm your new password. Click "Save Settings" button to save settings

2. Web Setup

This function will allow you login to DT-200N Web management page from remote side, by default DT-200N will not allow you login as your global IP address (WAN side IP address) from remote for security reason. If you want to enable this function please choice "Enable" and assign a port number in "Management Port" field.

3. Firmware upgrade

Click "Browse..." button and select a File to upgrade, after you have selected the appropriate file, click "Upgrade" button to execute upgrade procedure. Do not cut off the power supply during the process of upgrading

4. Restart system



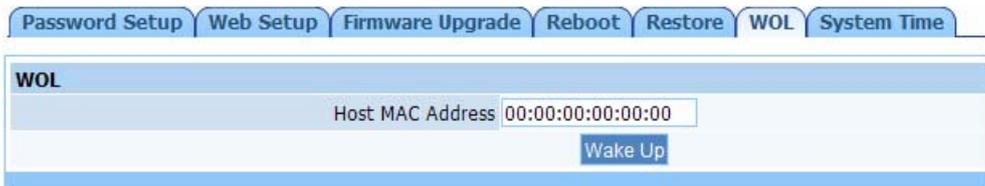
Click "Restart System" button to restart the router

5. Restore default



Click "Restore Default" button, the Router will erase all of your settings and replace them with the factory defaults, make sure you have backup current settings before click this button

6. Wake up PC



Input host MAC address, and then click button of "Wake up" to wake up the target host which in the LAN

5 Product Specification

| Hardware Specifications | |
|---|--|
| Wireless Radio | 802.11nbg |
| Antenna | 2dBi Antenna |
| Standards Conformance | IEEE 802.11b, IEEE 802.11g, IEEE 802.11n IEEE 802.11e, IEEE 802.11h, IEEE 802.11k, IEEE 802.11i, IEEE 802.3 10Base-T, IEEE 802.3u 100Base-TX |
| Wireless Specifications | |
| Data Transfer Rates | IEEE802.11n : 150Mbps (TX) /150MBps (RX) (Max) IEEE802.11b : 1 / 2 / 5.5 / 11Mbps (auto sensing) IEEE802.11g : 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54(auto sensing) |
| Frequency Range | 2.412GHz-2.4835GHz |
| Media Access Protocol | CSMA / CA with ACK |
| Modulation Method | IEEE802.11n : OFDM(64-QAM,16-QAM,QPSK,BPSK) IEEE802.11g : OFDM(64-QAM,16-QAM,QPSK,BPSK) IEEE802.11b : DSSS (DBPK,DQPSK,CCK) |
| Operating Channels | USA, Canada(FCC):11channels(2.412GHz-2.462GHz) Europe(CE): 13 channels (2.412GHz-2.472GHz) Japan: 14 channels (2.412GHz-2.4835GHz) |
| Transmission Distance | Indoor up to 200m, outdoor up to 600m (Standard transmission distance, it is limited in an environment). |
| Transmit Power Variation | Max : 20dBm |
| Receiver Sensitivity | Max : -90dBm |
| Environmental & Mechanical Characteristics | |
| Operating Temperature | 0 °C ~ 40 °C |
| Storage Temperature | -20 °C ~ 70 °C |
| Operating Humidity | 10% to 90% Non-Condensing |
| Storage Humidity | 5% to 90% Non-Condensing |
| Power Consumption | 6W Max. |
| Power Supply | Input 100-240V AC Power, Output 9 VDC, 500mA |
| Dimensions (W x H x D) | 160 x 108 x 31 mm |
| Unit Weight | 210g |
| LED Indicators | SYS WAN&LAN: Link/Activity |
| Certification | FCC Part 15 Class A, CE, NCC applying ,ROHS compliant |

Industry Canada Statement

This device complies with RSS-210 of the Industry Canada Rules. Operation is subject to the following two conditions:

- 1) this device may not cause interference and
- 2) this device must accept any interference, including interference that may cause undesired operation of the device

IMPORTANT NOTE:

IC Radiation Exposure Statement:

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. To maintain compliance with IC RF exposure compliance requirements, please follow operation instruction as documented in this manual.

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*Theoretical maximum wireless signal rate derived from IEEE 802.11g standard and IEEE 802.11n draft specification version 2.0. Actual data throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, mix of wireless products used, radio frequency interference (e.g., cordless telephones and microwaves) as well as network overhead lower actual data throughput rate. Specifications are subject to change without notice. All products and trademarks are the property of their respective owners. Copyright ©2009 CERIO Corporation®