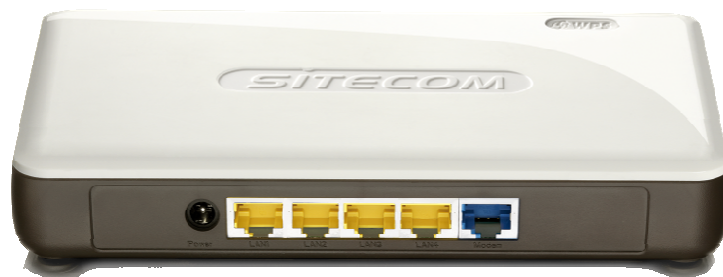




WLR-5001

**Wireless Gigabit VPN Router N600
X5**

(802.11a/b/g/n)



User Manual

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Revision 1.3
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Note: All the information contained in this manual was correct at the time of publication.
However, as our engineers are always updating and improving the product, your device's software may have a slightly different appearance or modified functionality than presented in this manual.

Introduction

Congratulations on your purchase of the Wireless Gigabit VPN Router N600 X5. The WLR-5001 is compliant with 802.11a and 802.11n and up to 6 times faster than standard 802.11g based routers while still being compatible with 802.11g & 802.11b devices. The WLR-5001 is not only a Wireless Access Point, but also doubles as a 4-port full-duplex Gigabit switch that connects your wired-Ethernet devices together at 10/100/1000 Mbps speeds.

At 300 Mbps wireless transmission rate, the Access Point built into the Router uses advanced MIMO (Multi-Input, Multi-Output) technology to transmit multiple streams of data in a single wireless channel, giving you seamless access to multimedia content. The robust RF signal travels farther, eliminates dead spots and extends the network range. For data protection and privacy, the WLR-5001 encodes all wireless transmissions with WEP, WPA, or WPA2 encryption.

With the built-in DHCP Server & powerful SPI firewall, the WLR-5001 protects your computers against intruders and most known Internet attacks and also provides safe VPN pass-through. With the incredible speed and QoS function of 802.11n the WLR-5001 is ideal for media-centric applications like streaming video, gaming, and VoIP telephony to run multiple media-intense data streams through the network at the same time, with no degradation in performance.

With Sitecom Cloud Security, Sitecom goes one step further and ensures that you can surf the Internet even more safely, not only on your PC, but on all the devices in your home which you use to access the Internet. All the Internet devices in your home are protected against the dangers of Internet criminality.

You can use the WLR-5001 as a VPN client to access an external VPN server or you can configure the router as a VPN server to be able to access your home network from any location using the Internet. With VPN technology you always make use of a highly secured and encrypted VPN tunnel.

1 Key Features

Features	Advantages
Incredible Data Rate up to 300Mbps*	Heavy data payloads such as MPEG video streaming
IEEE 802.11n Compliant and backwards compatible with 802.11b/g	Fully Interoperable with IEEE 802.11b / IEEE802.11g compliant devices with legacy protection
Four 10/100/1000 Mbps Gigabit Switch Ports (Auto-Crossover)	Scalability, extend your network.
Firewall supports Virtual Server Mapping, DMZ, IP Filter, ICMP Blocking, SPI	Avoids the attacks of Hackers or Viruses from Internet
Support 802.1x authenticator, 802.11i (WPA/WPA2, AES), VPN pass-through	Provide mutual authentication (Client and dynamic encryption keys to enhance security
WDS (Wireless Distribution System)	Make wireless AP and Bridge mode simultaneously as a wireless repeater
Sitecom Cloud Security	Protect your home against cybercrime while browsing.

** Theoretical wireless signal rate based on IEEE standard of 802.11a, b, g, n chipset used. Actual throughput may vary. Network conditions and environmental factors lower actual throughput rate. All specifications are subject to change without notice.*

2 Package Contents

Open the package carefully, and make sure that none of the items listed below are missing. Do not discard the packing materials, in case of return; the unit must be shipped back in its original package.

1. The WLR-5001 Router
2. A 100V~240V to 12V 1A Switching Power Adapter
3. A Quick Install Guide
4. A CD (with User Manual)
5. A Warranty card
6. An UTP cable

3 Cautions

This router's design and manufacturer has your safety in mind. In order to safely and effectively use this router, please read the following before usage.

3.1 Usage Cautions

The user should not modify this router. The environmental temperature should be within +5 ~ +35 degrees Celsius.

3.2 Power

The router's power voltage is DC 12V 1A.

When using this router, please connect the supplied AC adapter or AC adapter cable to the router's power jack. When placing the adapter cable, make sure it can not get damaged or be subject to pressure. To reduce the risk of electric shock, unplug the adapter first before cleaning it. Never connect the adapter to the router in a humid or dusty area. Do not replace the adapter or cable's wire or connector.

3.3 Repair

If the router has a problem, you should take it to an appointed repair centre and let the specialists do the repair. Never repair the router yourself, you might damage the router or endanger yourself.

3.4 Disposing of the Router

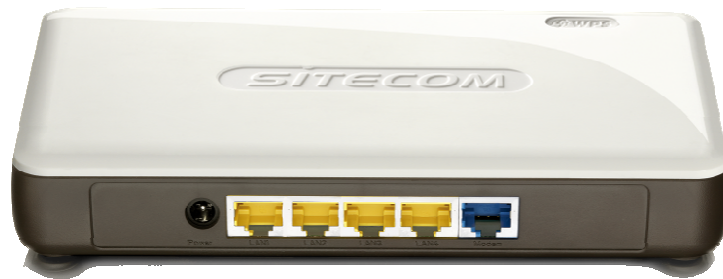
When you dispose of the router, be sure to dispose it appropriately. Some countries may regulate disposal of an electrical device, please consult with your local authority.

3.5 Others

When using this router, please do not let it come into contact with water or other liquids. If water is accidentally spilled on the router, please use a dry cloth to absorb the spillage. Electronic products are vulnerable, when using please avoid shaking or hitting the router, and do not press the buttons too hard.

- Do not let the router come into contact with water or other liquid.
- Do not disassemble the router, repair the router or change the design of the router, any damage done will not be included in the repair policy.
- Avoid hitting the router with a hard object, avoid shaking the router and stay away from magnetic fields.
- If during electrostatic discharge or a strong electromagnetic field the product will malfunction, unplug the power cable. The product will return to normal performance the next time it is powered on.

4 Product Layout



Port	Description
Power connector	Connect the 12V DC adapter to this port
LAN (Yellow)	Connect your PC's or network devices to this port
WAN (Blue)	Connect your ADSL/Cable modem to this port

Backlabel

The backlabel describes the IP address, login details, SSID, security code and WPS button functionality.

The backlabel is a dark blue rectangular sticker with white text and graphics. It is divided into two main sections. The left section provides wireless connection information, including 2.4 GHz and 5 GHz SSID and WPA2 codes, and a field for the Serial No. The right section provides configuration details, including the IP address 192.168.0.1 and the username admin. Below this, it lists WPS button press durations: 0-5 seconds for 2.4 GHz WPS mode, 5-10 seconds for 5 GHz WPS mode, 10 seconds for a reset, and 15 seconds for a factory default. A circular inset shows a hand pressing the WPS button on the router. At the bottom left, there is a barcode with the number 8 716502 023653 and the text 'Made in Taiwan'. The Sitecom logo is in the center, with 'Model No:' below it. To the right of the logo are CE, E, and a warning symbol. At the bottom right, there is a diagram of the router's rear panel with labels for LAN, LAN, LAN, LAN, and WAN ports, and the text 'Designed in Europe'.

To make a wireless connection with this router, choose the network:

2.4 GHz SSID:
WPA2 code:

5 GHz SSID:
WPA2 code:

Serial No.:

To access the router configuration, type the following IP address in your internet browser: **192.168.0.1**
Username: **admin**

Password:

Press **0-5** sec. = 2.4 GHz WPS mode
Press **5-10** sec. = 5 GHz WPS mode
Press **10** sec. = Reset
Press **15** sec. = Factory default

Designed in Europe

LAN LAN LAN LAN WAN

8 716502 023653
Made in Taiwan

SITECOM
Model No:

Button	Description
WPS BUTTON	<p>Press 0-5 seconds for 2.4 GHz WPS mode</p> <p>Press 5-10 seconds for 5 GHz WPS mode</p> <p>Press 10 seconds to reset the router</p> <p>Press 15 Seconds to reset the router to factory defaults.</p>

LED Definition

From left to right.

Port	Description
LAN (Blue)	Shows the cable is connected.
LAN (Blue)	Shows the cable is connected.
LAN (Blue)	Shows the cable is connected.
LAN (Blue)	Shows the cable is connected.
WAN (Blue)	Shows the cable is connected.
WiFi (White)	Shows 5GHz WiFi activity.
WiFi (Blue)	Shows 2.4GHz WiFi activity.
Power (Red)	Shows the device is turned on.
OPS (White)	Shows OPS activity.



5 Network + System Requirements

To begin using the WLR-5001, make sure you meet the following as minimum requirements:

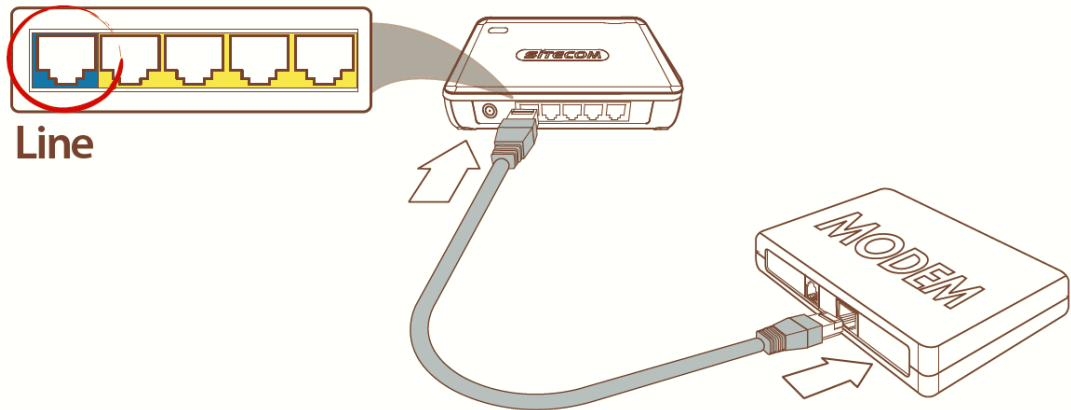
- PC/Notebook.
- Operating System – Microsoft Windows XP/2000/VISTA/7
- 1 Free Ethernet port.
- WiFi card/USB dongle (802.11 b/g/n) – optional.
- External xDSL (ADSL) or Cable modem with an Ethernet port (RJ-45).
- PC with a Web-Browser (Internet Explorer, Safari, Firefox, Opera)
- Ethernet compatible CAT5e cables.

6 WLR-5001 Placement

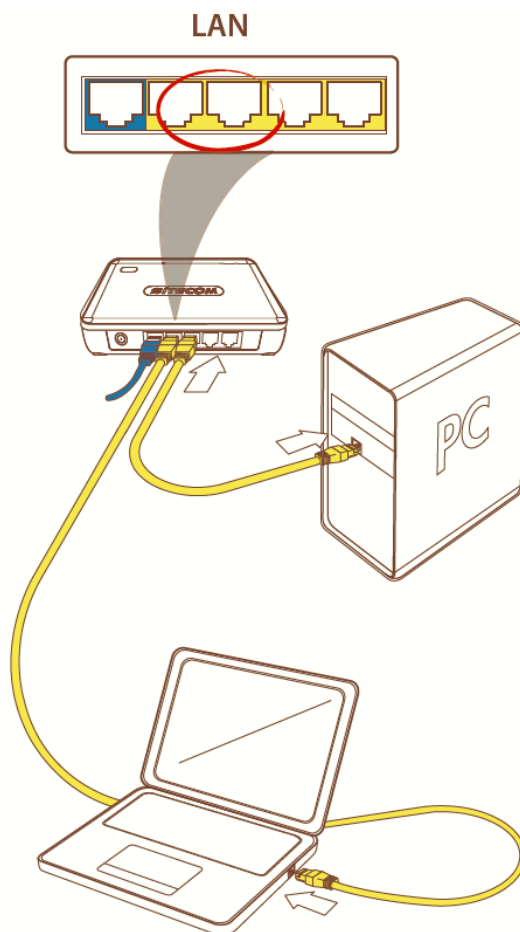
You can place the WLR-5001 on a desk or other flat surface, or you can mount it on a wall. For optimal performance, place your Wireless Broadband Router in the center of your home (or your office) in a location that is away from any potential source of interference, such as a metal wall or microwave oven. This location must be close to a power connection and your ADSL/Cable modem.

7 Setup LAN, WAN

WAN connection:



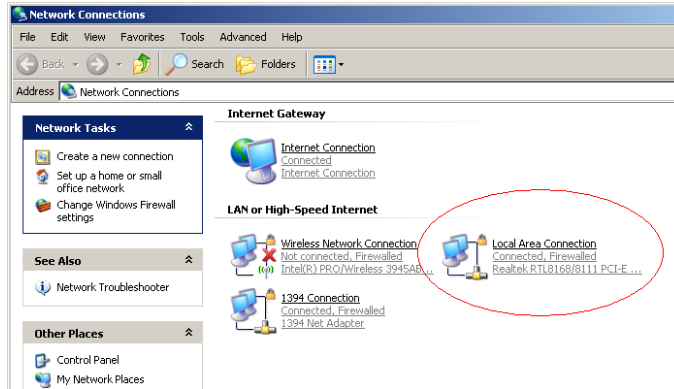
LAN connection:



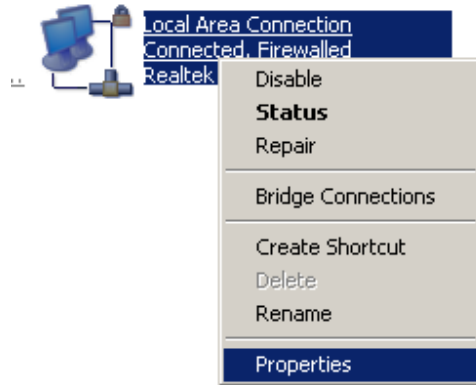
8 PC Network Adapter setup

Windows XP

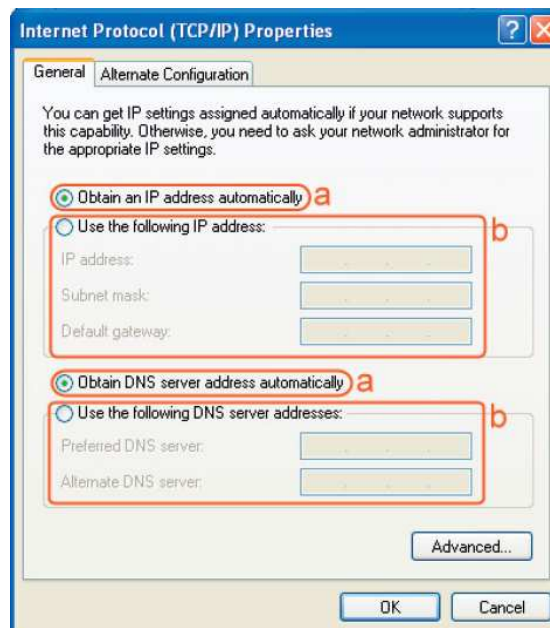
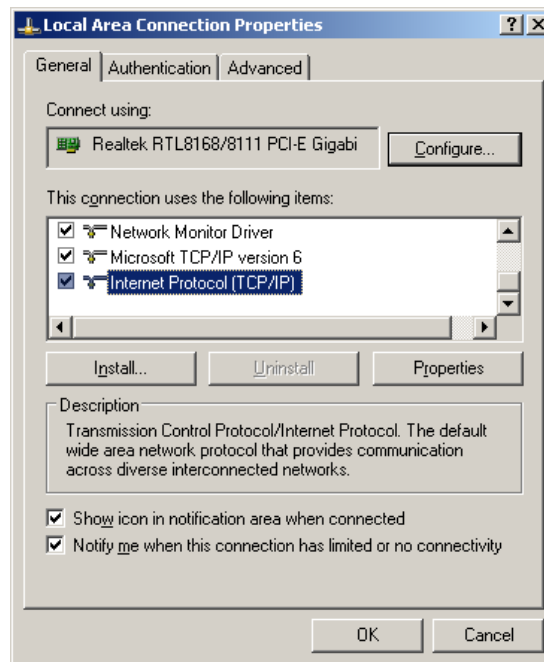
- Enter [Start Menu] → select [Control panel] → select [Network].



- Select [Local Area Connection]) icon=>select [properties]



- Select [Internet Protocol (TCP/IP)] =>Click [Properties].

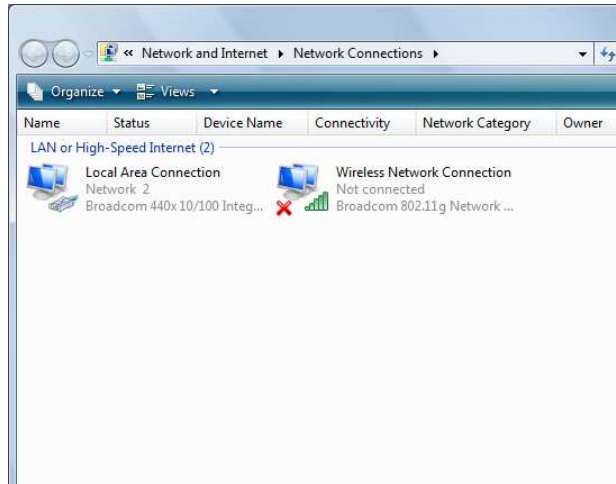


- Select the [General] tab.

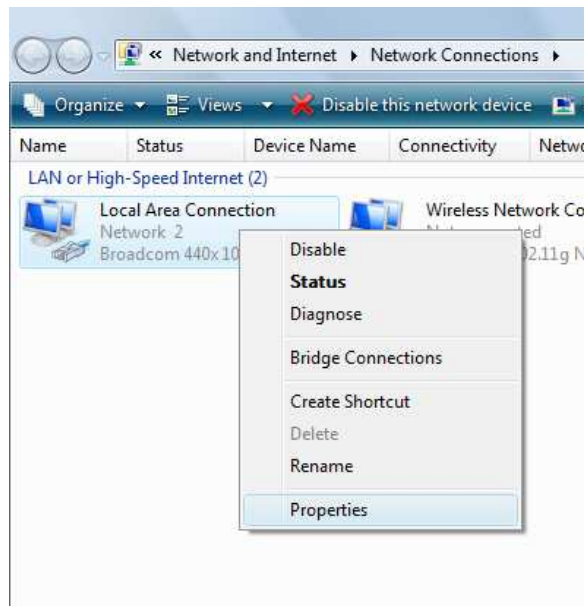
The WLR-5001 supports a [DHCP] function, please select both [Obtain an IP address automatically] and [Obtain DNS server address automatically].

Windows Vista/Seven

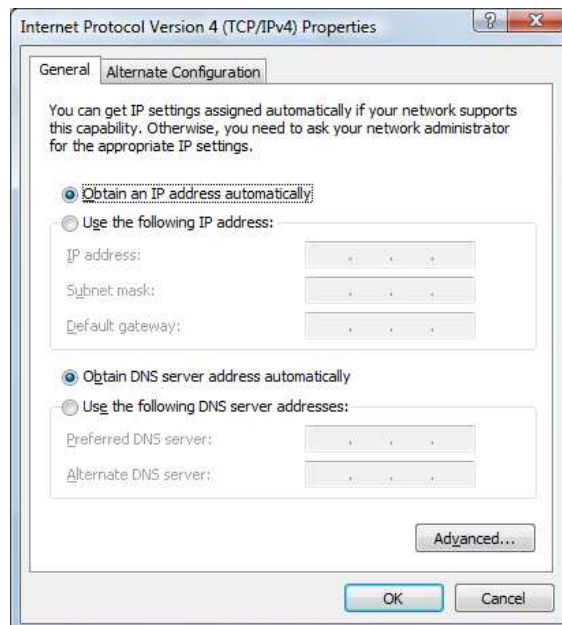
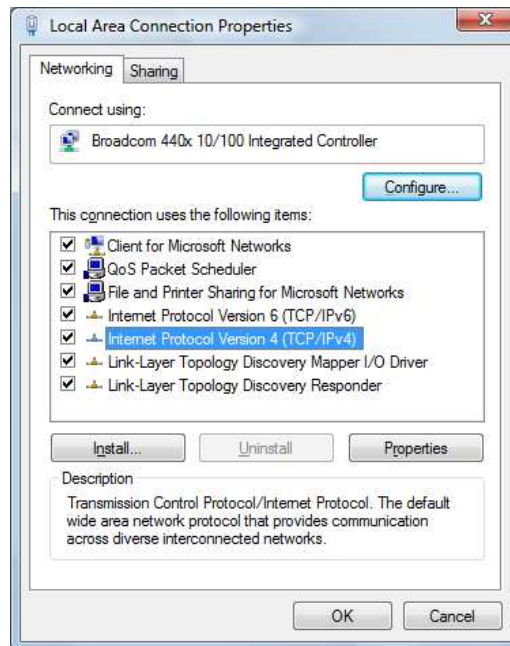
- Enter [Start Menu] → select [Control panel] → select [View network status and tasks] -> select [Manage network connections].



- Select [Local Area Connection] icon=>select [properties]



- Select [Internet Protocol Version 4 (TCP/IPv4)] =>Click [Properties].



- Select the [General] tab.

The WLR-5001 supports a [DHCP] function, please select both [Obtain an IP address automatically] and [Obtain DNS server address automatically].

9 Bring up the WLR-5001

Connect the supplied power-adaptor to the power inlet port and connect it to a wall outlet. Switch the WLR-5001 on by flipping the switch on the back of the device. The WLR-5001 automatically enters the self-test phase. During self-test phase, the Power LED will be lit continuously to indicate that this product is in normal operation.

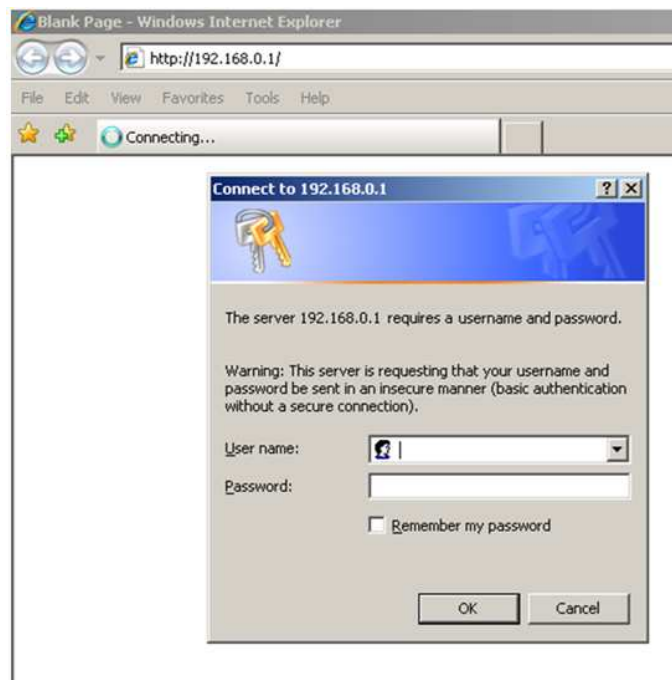
10 Initial Setup WLR-5001

LOGIN procedure

1. OPEN your browser (e.g. Internet Explorer).



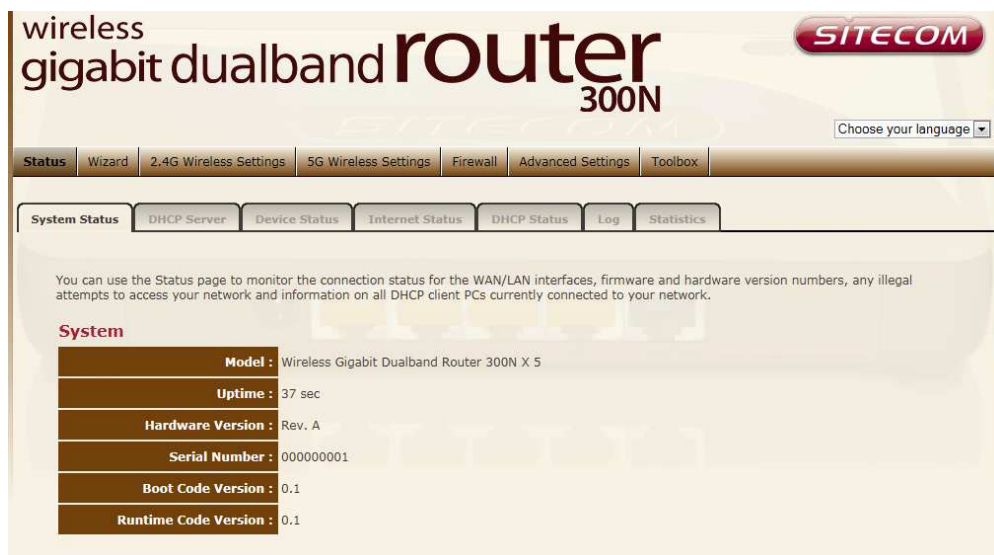
2. Type <http://192.168.0.1> in the address bar and press [Enter]



3. Type user name and password. The default username is admin, the password can be found on the back label on the bottom of your router.



4. Click **OK**.
5. You will see the home page of the WLR-5001.



The System status section allows you to monitor the current status of your router, the UP time, hardware information, serial number as well as firmware version information is displayed here.

LAN settings

The LAN tab gives you the opportunity to change the IP settings of the WLR-5001.



The screenshot shows the LAN settings configuration page for a WLR-5001 router. The page has a navigation bar at the top with tabs for Status, Wizard, 2.4G Wireless Settings, 5G Wireless Settings, Firewall, Advanced Settings, and Toolbox. Below the navigation bar, there are sub-tabs for System Status, DHCP Server, Device Status, Internet Status, DHCP Status, Log, and Statistics. The main content area contains a message: "You can enable the Broadband routers DHCP server to dynamically allocate IP Addresses to your LAN client PCs. The broadband router must have an IP Address for the Local Area Network." Below this message, there are two sections: "LAN IP" and "DHCP Server".

LAN IP	
IP Address :	192.168.0.1
IP Subnet Mask :	255.255.255.0
802.1d Spanning Tree :	Disabled
DHCP Server :	Enabled
Lease Time :	Two days

DHCP Server	
Start IP :	192.168.0.100
End IP :	192.168.0.200
Domain Name :	sitecomwlr5000

At the bottom right of the page, there are two buttons: "Apply" and "Cancel".

Click **<Apply>** at the bottom of this screen to save any changes.

IP address 192.168.0.1. It is the router's LAN IP address (Your LAN clients default gateway IP address).

IP Subnet Mask 255.255.255.0 Specify a Subnet Mask for your LAN segment.

802.1d Spanning Tree is Disabled by default. If the 802.1d Spanning Tree function is enabled, this router will use the spanning tree protocol to prevent network loops.

DHCP Server Enabled by default. You can enable or disable the DHCP server. When DHCP is disabled no ip-addresses are assigned to clients and you have to use static ip-addresses. When DHCP server is enabled your computers will be assigned an ip-address automatically until the lease time expires.

Lease Time Forever. In the Lease Time setting you can specify the time period that the DHCP lends an IP address to your LAN clients. The DHCP will change your LAN client's IP address when this time threshold period is reached.

IP Address Pool You can select a particular IP address range for your DHCP server to issue IP addresses to your LAN Clients.

Note: default IP range is 192.168.0.100 ~ 192.168.0.200. If you want your PC(s) to have a static/fixed IP address, then you'll have to choose an IP address outside this IP address Pool

Domain Name You can specify a Domain Name for your LAN. Or just keep the default (sitecomwlr5001).

Device Status

View the Broadband router's current configuration settings. Device Status displays the configuration settings you've configured in the Wizard / Basic Settings / Wireless Settings section.

The screenshot shows a web interface for a broadband router. At the top, there is a navigation bar with tabs: Status, Wizard, 2.4G Wireless Settings, 5G Wireless Settings, Firewall, Advanced Settings, and Toolbox. Below this is a secondary navigation bar with tabs: System Status, DHCP Server, Device Status (selected), Internet Status, DHCP Status, Log, and Statistics. The main content area displays the current setting status of the device. It includes sections for 2.4G Wireless Configuration, 5G Wireless Configuration, and LAN Configuration, each with a list of settings and their values.

View the current setting status of this device.

Mode : AP

2.4G Wireless Configuration

Channel : 1

SSID_1

ESSID : 697_2.4

Security : WPA2 pre-shared key

BSSID : 00:0C:F6:AE:C7:F8

Associated Clients : 0

5G Wireless Configuration

Channel : 36

SSID_1

ESSID : 697_5

Security : WPA2 pre-shared key

BSSID : 00:0C:F6:AE:C7:FC

Associated Clients : 0

LAN Configuration

IP Address : 192.168.0.1

Subnet Mask : 255.255.255.0

DHCP Server : Enabled

MAC Address : 00:0C:F6:AE:C7:F8

Internet Status

This page displays whether the WAN port is connected to a Cable/DSL connection. It also displays the router's WAN IP address, Subnet Mask, and ISP Gateway as well as MAC address, the Primary DNS. Press **Renew** button to renew your WAN IP address.

wireless gigabit dualband router 300N SITECOM

Choose your language ▾

Status Wizard 2.4G Wireless Settings 5G Wireless Settings Firewall Advanced Settings Toolbox

System Status DHCP Server Device Status **Internet Status** DHCP Status Log Statistics

View the current internet connection status and related information.

Attain IP Protocol :	Dynamic IP Address
IP Address :	192.168.2.2
Subnet Mask :	255.255.255.0
Default Gateway :	192.168.2.254
MAC Address :	00:0C:F6:AE:C7:C9
Primary DNS :	192.168.2.254

Renew

DHCP Client Status

DHCP This page shows all DHCP clients (LAN PCs) currently connected to your network. The table shows the assigned IP address, MAC address and expiration time for each DHCP leased client. Use the Refresh button to update the available information.

You can check **Enable Static DHCP IP**. It is possible to add more static DHCP IPs. They are listed in the table **Current Static DHCP Table**. IP can be deleted at will from the table.

Click the **Apply** button to save the changed configuration.

The screenshot shows the DHCP Client Status page of a Sitecom wireless gigabit dualband router 300N. The page features a navigation menu with options like Status, Wizard, 2.4G Wireless Settings, 5G Wireless Settings, Firewall, Advanced Settings, and Toolbox. Below this, there are tabs for System Status, DHCP Server, Device Status, Internet Status, DHCP Status (selected), Log, and Statistics. The main content area displays a table of DHCP leased clients with columns for IP address, MAC address, and Expiration Time. A single client is listed with IP 192.168.0.100, MAC B8:AC:6F:76:BD:1D, and an expiration time of 1 day 23:53:45. A Refresh button is present below the table. Below the table, there is a checkbox for 'Enable Static DHCP IP' which is currently unchecked. Underneath, there are input fields for IP address and MAC address, along with Add and Reset buttons. At the bottom, there is a section for the 'Current Static DHCP Table' with a table header including No., IP address, MAC address, and Select. Below this table are buttons for Delete Selected, Delete All, and Reset. Finally, there are Apply and Cancel buttons at the bottom right of the page.

IP address	MAC address	Expiration Time
192.168.0.100	B8:AC:6F:76:BD:1D	1 day 23:53:45

Enable Static DHCP IP

IP address	MAC address
<input type="text"/>	<input type="text"/>

Current Static DHCP Table:

No.	IP address	MAC address	Select
-----	------------	-------------	--------

WLR-5001 Log

View the operation log of the WLR-5001. This page shows the current system log of the Broadband router. It displays any event occurred after system start up. At the bottom of the page, the system log can be saved **<Save>** to a local file for further processing or the system log can be cleared **<Clear>** or it can be refreshed **<Refresh>** to get the most updated information. When the system is powered down, the system log will disappear if not saved to a local file.

The screenshot shows the web interface of a Sitecom wireless gigabit dualband router 300N. The page title is "wireless gigabit dualband router 300N" with the Sitecom logo. A navigation bar includes "Status", "Wizard", "2.4G Wireless Settings", "5G Wireless Settings", "Firewall", "Advanced Settings", and "Toolbox". Below this, a sub-navigation bar highlights "Log" among other options like "System Status", "DHCP Server", "Device Status", "Internet Status", "DHCP Status", and "Statistics".

The main content area displays system operation information with a scrollable log window. The log text is as follows:

```
Aug 18 14:00:12 [SYSTEM]: AutoFW: New check in 94176 seconds.
Aug 18 13:59:53 [SYSTEM]: AutoFW: Firmware upgrade detected.
Aug 18 13:59:43 [SYSTEM]: NTP, Local time=2011/08/18 13:59:43
Aug 18 13:59:43 [SYSTEM]: NTP, Daylight saving from Month/Day to Month/Day: 3/27 ~ 10/27
Aug 18 13:59:43 [SYSTEM]: NTP, Daylight saving status: Enable
Aug 18 13:59:43 [SYSTEM]: NTP, Time zone = +1.0 Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna
day 1 00:00:22 [SYSTEM]: NTP, start NTP Client
day 1 00:00:19 [SYSTEM]: UPnP, Start
day 1 00:00:16 [SYSTEM]: UPnP, Stopping
day 1 00:00:16 [SYSTEM]: DNS, start DNS Proxy
day 1 00:00:14 [SYSTEM]: NET, start Firewall
day 1 00:00:14 [SYSTEM]: NET, start NAT
day 1 00:00:14 [SYSTEM]: NET, stop Firewall
day 1 00:00:14 [SYSTEM]: NET, stop NAT
day 1 00:00:14 [SYSTEM]: WAN, IP changed, restart services
day 1 00:00:14 [SYSTEM]: WAN, New IP = 192.168.2.2
day 1 00:00:12 [SYSTEM]: DHCP Server, Sending ACK of 192.168.0.100
day 1 00:00:05 [SYSTEM]: WLAN, start LLTD
day 1 00:00:05 [SYSTEM]: HTTP, start
day 1 00:00:05 [SYSTEM]: UPnP, Start
```

At the bottom of the log window, there are three buttons: "Save", "Clear", and "Refresh".

WLR-5001 Statistics

Shows the counters of packets sent and received on WAN, LAN & WLAN.

The screenshot displays the web interface for a Sitecom wireless gigabit dualband router 300N. The page is titled "wireless gigabit dualband router 300N" and features the Sitecom logo. A navigation menu includes "Status", "Wizard", "2.4G Wireless Settings", "5G Wireless Settings", "Firewall", "Advanced Settings", and "Toolbox". The "Statistics" tab is selected, showing a table of packet counters for various network interfaces. The table lists "Sent Packets" and "Received Packets" for 2.4G Wireless LAN, 5G Wireless LAN, Ethernet LAN, and Ethernet WAN. A "Refresh" button is located at the bottom left of the statistics section.

Interface	Packet Type	Count
2.4G Wireless LAN :	Sent Packets	690
	Received Packets	4565
5G Wireless LAN :	Sent Packets	45
	Received Packets	3919
Ethernet LAN :	Sent Packets	8245
	Received Packets	5229
Ethernet WAN :	Sent Packets	4288
	Received Packets	8127

[Refresh](#)

11 Configuration Wizard

Click **Internet Settings** to configure the router. Here you can choose your internet connection type.



Depending on the chosen setting, you may need to enter your user name and password, MAC address or hostname in the following window. After you have entered the correct information, click **Apply** to save the settings.

11.1 Connecting to an external VPN service

This section explains how to connect the WLR-5001 to an external VPN service by making use of the supported protocols **PPTP**, and **L2TP+IPSec**. If you want to set up the WLR-5001 as a VPN server, you should go to Section 15 "WLR-5001 as a VPN server".

In order to properly connect to an external VPN service you must first make sure that your WLR-5001 is connected to the Internet. The Internet connection can be configured as either "Dynamic IP Address" or "PPP over Ethernet". Once you are successfully connected to the Internet with either of these two methods you may continue with the set-up of the VPN connection.

Once you are sure the WLR-5001 has Internet connectivity, please follow the following steps:

1. First of all, make sure you are connected to the WLR-5001. It does not matter if you are connected either wirelessly or via a cable connected to one of the LAN ports (yellow ports) of the device.
2. Open your web browser and type in the address bar the LAN IP address of the device. Note: the default value for the LAN IP is "192.168.0.1"
3. Click on the Tab called "Internet Settings" where you can see your current Internet configuration.
4. Click on "Login Method". This action will display a small menu containing the different connectivity options, as you can see in the following image:



This is a configuration example, where the default configuration for the Internet connection is Dynamic IP Address, but you may also have PPP over Ethernet established as default.

5. At this point you must choose the type of VPN connection you want to set-up. Depending on the VPN service you want to connect to, choose out of:

5a. Connect to a **PPTP** service.

Click on the "PPTP" option in the menu. You should see the following page:



Although most of the VPN servers will give you an IP address dynamically, some VPN servers must be configured statically. If you want to configure your IP address dynamically, please skip this step. If you want to configure the VPN statically, click on "Use the following IP address". Next, fill in the information provided from your VPN service regarding:

1. *IP address*. This is the IP address that the VPN service has assigned to you.
2. *Subnet mask*. If you are configuring your IP address statically, your VPN service should have provided you with a subnet mask value along with your IP address.
3. *Default Gateway*. If connected statically, this value is also provided from your VPN service to route packets properly to the VPN server.

Fill in the Login information to connect to the VPN service. VPN servers use this information for user authentication. Please fill in the following information:

4. *Username* and *Password*. This information must have been provided from your VPN service provided.
5. *PPTP Gateway*. This value corresponds to either the **domain name** or **public IP address** of the VPN server you are trying to connect to. It must have been also provided from your VPN service provider.

Click on "Apply". Now your router will save the new configuration, and it will restart with the new configuration, trying to connect to the VPN server.

- 5b. Connect to a **L2TP + IPSec** service.

Click on the "L2TP IPSec" option in the menu. You should see the following page:

The screenshot shows the web interface of a Sitecom wireless gigabit router 450N. The page is titled "IPv4 Settings" and is part of the "Internet Settings" menu. It provides instructions for configuring the IPv4 connection type. The "Login Method" is set to "L2TP IPSec". There are two options for obtaining an IP address: "Obtain an IP address automatically" (selected) and "Use the following IP address". The "Obtain an IP address automatically" section includes fields for Hostname, MAC Address, and a "Clear Mac" button. The "Use the following IP address" section includes fields for IP Address, Subnet Mask, Default Gateway, Username, Password, Shared Key, and VPN Gateway. There is also an MTU field set to 1400 and a Connection Type dropdown set to "Keep connection". The Idle Time is set to 10 minutes. The page has "Apply" and "Cancel" buttons at the bottom right.

Although most of the VPN servers will give you an IP address dynamically, some VPN servers must be configured statically. If you want to configure your IP address dynamically, please skip this step. If you want to

configure the VPN statically, click on "Use the following IP address". Next, fill in the information provided from your VPN service regarding:

1. *IP address*. This is the IP address that the VPN service has assigned to you.
2. *Subnet mask*. If you are configuring your IP address statically, your VPN service should have provided you with a subnet mask value along with your IP address.
3. *Default Gateway*. If connected statically, this value is also provided from your VPN service to route packets properly to the VPN server.

Fill in the Login information to connect to the VPN service. VPN servers use this information for user authentication. Please fill in the following information:

4. *Username, Password, and Shared Key*. This information must have been provided from your VPN service provider.
5. *PPTP Gateway*. This value corresponds to either the **domain name** or **public IP address** of the VPN server you are trying to connect to. It must have been also provided from your VPN service provider.

Click on "Apply". Now your router will save the new configuration, and it will restart with the new configuration, trying to connect to the VPN server.

12 Wireless Settings

You can set parameters that are used for the wireless stations to connect to this router for the **2.4Ghz** radio or **5Ghz** radio. The parameters include Mode, ESSID, Channel Number and Associated Client.

Wireless Function



Enable or Disable Wireless function here. Click **Apply** and wait for module to be ready & loaded.

Basic Settings

The screenshot shows the configuration interface for a Sitecom 300N wireless gigabit dualband router. The page title is "wireless gigabit dualband router 300N" with the Sitecom logo. A navigation bar includes "Status", "Wizard", "2.4G Wireless Settings" (selected), "5G Wireless Settings", "Firewall", "Advanced Settings", and "Toolbox". Below this is a sub-menu with "Enable", "Basic" (selected), "Advanced", "Security", "ACL", and "WPS". A descriptive text states: "This page allows you to define ESSID, and Channel for the wireless connection. These parameters are used for the wireless stations to connect to the Access Point." The configuration fields are as follows:

Mode :	AP
Power Saving :	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Band :	2.4 GHz (802.11b/g/n)
Enable SSID#:	1
SSID1 :	SitecomAEC7FC
Channel :	1

Buttons for "Apply" and "Cancel" are located at the bottom right of the form.

Mode Allows you to set the AP to AP, Station, Bridge or WDS mode.

Band Allows you to set the AP fixed at 802.11b or 802.11g mode. You can also select B+G mode to allow 802.11b and 802.11g clients at the same time. For the 5GHz mode you can set 802.11a, 802.11n or 802.11a/n mode.

ESSID This is the name of the wireless signal which is broadcasted. All the devices in the same wireless LAN should have the same ESSID.

Channel The channel used by the wireless LAN. All devices in the same wireless LAN should use the same channel.

Advanced Settings

This tab allows you to set the advanced wireless options. The options included are Authentication Type, Fragment Threshold, RTS Threshold, Beacon Interval, and Preamble Type. You should not change these parameters unless you know what effect the changes will have on the router.



The screenshot shows the 'Advanced Settings' tab for '2.4G Wireless Settings'. The page includes a warning: '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 changes will have on your Broadband router.' The settings are as follows:

Setting	Value	Range
Fragment Threshold	2346	(256-2346)
RTS Threshold	2347	(1-2347)
Beacon Interval	100	(20-1024 ms)
DTIM Period	1	(1-255)
Data Rate	Auto	
N Data Rate	Auto	
Channel Bandwidth	<input checked="" type="radio"/> Auto 20/40 MHz <input type="radio"/> 20 MHz	
Preamble Type	<input checked="" type="radio"/> Long Preamble <input type="radio"/> Short Preamble	
CTS Protection	<input checked="" type="radio"/> Auto <input type="radio"/> Always <input type="radio"/> None	
Tx Power	100 %	

Buttons: Apply, Cancel

Authentication Type There are two authentication types: "Open System" and "Shared Key". When you select "Open System", wireless stations can associate with this wireless router without WEP encryption. When you select "Shared Key", you should also setup a WEP key in the "Encryption" page. After this has been done, make sure the wireless clients that you want to connect to the device are also setup with the same encryption key.

Fragment Threshold "Fragment Threshold" specifies the maximum size of a packet during the fragmentation of data to be transmitted. If you set this value too low, it will result in bad performance.

RTS Threshold When the packet size is smaller than the RTS threshold, the wireless router will not use the RTS/CTS mechanism to send this packet.

Beacon Interval is the interval of time that this wireless router broadcasts a beacon. A Beacon is used to synchronize the wireless network.

Data Rate The "Data Rate" is the rate that this access point uses to transmit data packets. The access point will use the highest possible selected transmission rate to transmit the data packets.

N Data Rate The "Data Rate" is the rate that this access point uses to transmit data packets for N compliant wireless nodes. Highest to lowest data rate can be fixed.

Channel Bandwidth is the range of frequencies that will be used.

Preamble Type The "Long Preamble" can provide better wireless LAN compatibility while the "Short Preamble" can provide better wireless LAN performance.

Broadcast ESSID If you enabled "Broadcast ESSID", every wireless station located within the coverage of this access point can discover this access point easily. If you are building a public wireless network, enabling this feature is recommended. Disabling "Broadcast ESSID" can provide better security.

CTS Protection: It is recommended to enable the protection mechanism. This mechanism can decrease the rate of data collision between 802.11b and 802.11g wireless stations. When the protection mode is enabled, the throughput of the AP will be a little lower due to a lot of frame-network that is transmitted.

TX Power can be set to a bare minimum or maximum power.

WMM WiFi Multi Media if enabled supports QoS for experiencing better audio, video and voice in applications.

Security

This Access Point provides complete wireless LAN security functions, included are WEP, IEEE 802.11x, IEEE 802.11x with WEP, WPA with pre-shared key and WPA with RADIUS. With these security functions, you can prevent your wireless LAN from illegal access. Please make sure your wireless stations use the same security function, and are setup with the same security key.

Disable

When you choose to disable encryption, it is very insecure to operate the WLR-5001.



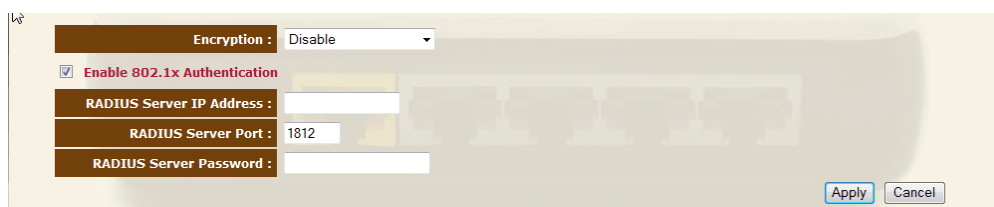
The screenshot shows the 'Security' configuration page in the WLR-5001 web interface. The page title is '2.4G Wireless Settings' and the sub-tab is 'Security'. The page contains the following fields:

- SSID Selection: 697_2.4
- Broadcast ESSID: Enable
- WMM: Enable
- Encryption: WPA pre-shared key
- WPA Type: WPA(TKIP), WPA2(AES) (selected), WPA2 Mixed
- Pre-shared Key Type: Passphrase
- Pre-sharedKey: TH82VLGUNXTV

Buttons: Apply, Cancel

Enable 802.1x Auth

IEEE 802.1x is an authentication protocol. Every user must use a valid account to login to this Access Point before accessing the wireless LAN. The authentication is processed by a RADIUS server. This mode only authenticates users by IEEE 802.1x, but it does not encrypt the data during communication



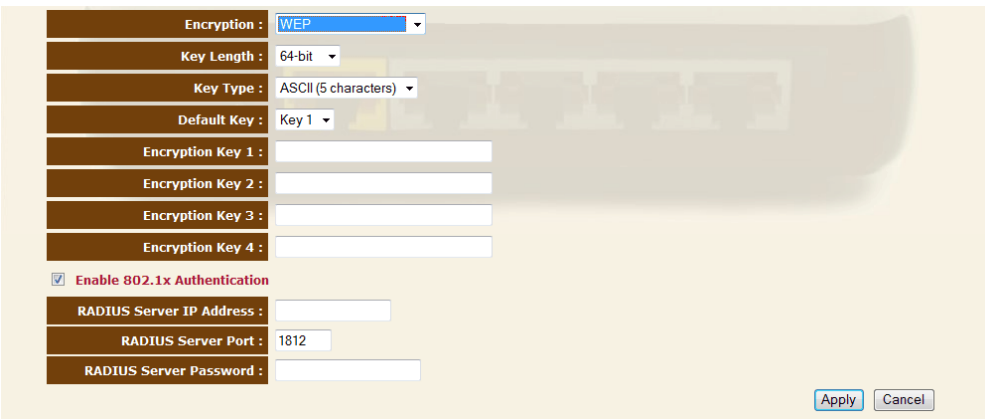
The screenshot shows the 'Security' configuration page in the WLR-5001 web interface, specifically the 'Enable 802.1x Authentication' section. The page contains the following fields:

- Encryption: Disable
- Enable 802.1x Authentication
- RADIUS Server IP Address: [Empty]
- RADIUS Server Port: 1812
- RADIUS Server Password: [Empty]

Buttons: Apply, Cancel

WEP

When you select 64-bit or 128-bit WEP key, you have to enter WEP keys to encrypt data. You can generate the key by yourself and enter it. You can enter four WEP keys and select one of them as a default key. Then the router can receive any packets encrypted by one of the four keys.



The screenshot shows a configuration interface for WEP. It includes the following fields and options:

- Encryption: WEP (dropdown)
- Key Length: 64-bit (dropdown)
- Key Type: ASCII (5 characters) (dropdown)
- Default Key: Key 1 (dropdown)
- Encryption Key 1: [text input]
- Encryption Key 2: [text input]
- Encryption Key 3: [text input]
- Encryption Key 4: [text input]
- Enable 802.1x Authentication
- RADIUS Server IP Address: [text input]
- RADIUS Server Port: 1812 (text input)
- RADIUS Server Password: [text input]
- Buttons: Apply, Cancel

Key Length You can select the WEP key length for encryption, 64-bit or 128-bit. The larger the key will be the higher level of security is used, but the throughput will be lower.

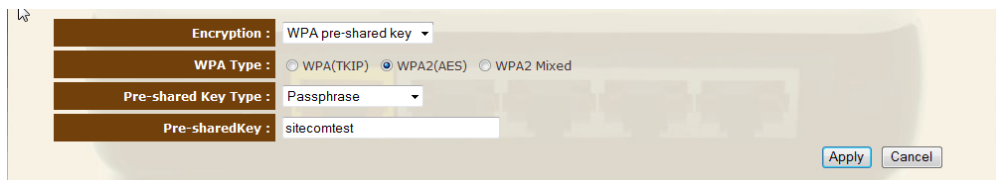
Key Format You may select ASCII Characters (alphanumeric format) or Hexadecimal Digits (in the "A-F", "a-f" and "0-9" range) to be the WEP Key.

Key1 - Key4 The WEP keys are used to encrypt data transmitted in the wireless network. Use the following rules to setup a WEP key on the device. 64-bit WEP: input 10-digits Hex values (in the "A-F", "a-f" and "0-9" range) or 5-digit ASCII character as the encryption keys. 128-bit WEP: input 26-digit Hex values (in the "A-F", "a-f" and "0-9" range) or 13-digit ASCII characters as the encryption keys.

Click <Apply> at the bottom of the screen to save the above configurations. You can now configure other sections by choosing Continue, or choose Apply to apply the settings and reboot the device.

WPA Pre-shared Key

Wi-Fi Protected Access (WPA) is an advanced security standard. You can use a pre-shared key to authenticate wireless stations and encrypt data during communication. It uses TKIP or CCMP (AES) to change the encryption key frequently. So the encryption key is not easy to be cracked by hackers. This is the best security available.



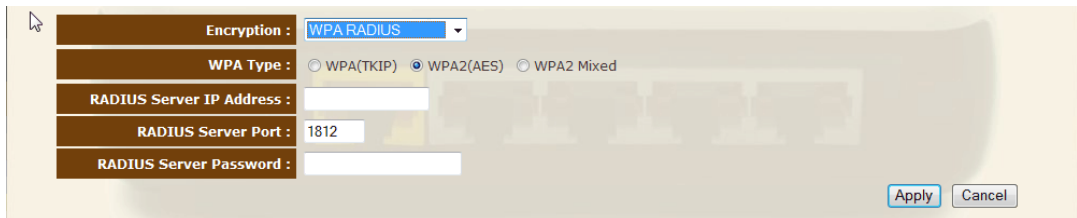
The screenshot shows a configuration window for WPA Pre-shared Key. It features a dark brown header and a light beige background. The settings are as follows:

Encryption :	WPA pre-shared key
WPA Type :	<input type="radio"/> WPA(TKIP) <input checked="" type="radio"/> WPA2(AES) <input type="radio"/> WPA2 Mixed
Pre-shared Key Type :	Passphrase
Pre-sharedKey :	sitecomtest

At the bottom right, there are two buttons: "Apply" and "Cancel".

WPA-Radius

Wi-Fi Protected Access (**WPA**) is an advanced security standard. You can use an external RADIUS server to authenticate wireless stations and provide the session key to encrypt data during communication. It uses **TKIP** or CCMP (**AES**) to change the encryption key frequently. Press **Apply** button when you are done.



The screenshot shows a configuration window for WPA-Radius. It features a dark brown header and a light beige background. The settings are as follows:

Encryption :	WPA RADIUS
WPA Type :	<input type="radio"/> WPA(TKIP) <input checked="" type="radio"/> WPA2(AES) <input type="radio"/> WPA2 Mixed
RADIUS Server IP Address :	
RADIUS Server Port :	1812
RADIUS Server Password :	

At the bottom right, there are two buttons: "Apply" and "Cancel".

ACL

This wireless router supports MAC Address Control, which prevents unauthorized clients from accessing your wireless network.

The screenshot shows the '2.4G Wireless Settings' page with the 'ACL' tab selected. The page title is 'MAC Address Filtering Table'. Below the title is a table with columns 'NO.', 'MAC address', 'Comment', and 'Select'. The table is currently empty. Below the table are buttons for 'Delete Selected', 'Delete All', and 'Reset'. There is a checkbox labeled 'Enable Wireless Access Control' which is currently unchecked. Below the checkbox is a 'New:' section with input fields for 'MAC address' and 'Comment', and buttons for 'Add' and 'Reset'. At the bottom right of the page are 'Apply' and 'Cancel' buttons.

Enable wireless access control Enables the wireless access control function

Adding an address into the list Enter the "MAC Address" and "Comment" of the wireless station to be added and then click "Add". The wireless station will now be added into the "Current Access Control List" below. If you are having any difficulties filling in the fields, just click "Clear" and both "MAC Address" and "Comment" fields will be cleared.

Remove an address from the list If you want to remove a MAC address from the "Current Access Control List", select the MAC address that you want to remove in the list and then click "Delete Selected". If you want to remove all the MAC addresses from the list, just click the "Delete All" button. Click "Reset" will clear your current selections.

Click <Apply> at the bottom of the screen to save the above configurations. You can now configure other sections by choosing Continue, or choose Apply to apply the settings and reboot the device.

WPS

Wi-Fi Protected Setup (WPS) is the simplest way to establish a connection between the wireless clients and the wireless router. You don't have to select the encryption mode and fill in a long encryption passphrase every time when you try to setup a wireless connection. You only need to press a button on both wireless client and wireless router, and WPS will do the rest for you.

The wireless router supports two types of WPS: WPS via Push Button and WPS via PIN code. If you want to use the Push Button, you have to push a specific button on the wireless client or in the utility of the wireless client to start the WPS mode, and switch the wireless router to WPS mode. You can simply push the WPS button of the wireless router, or click the 'Start to Process' button in the web configuration interface. If you want to use the PIN code, you have to know the PIN code of the wireless client and switch it to WPS mode, then fill-in the PIN code of the wireless client through the web configuration interface of the wireless router.



The screenshot shows a web configuration interface for WPS. At the top, there are tabs for 'Status', 'Wizard', '2.4G Wireless Settings', '5G Wireless Settings', 'Firewall', 'Advanced Settings', and 'Toolbox'. Below these, there are sub-tabs for 'Enable', 'Basic', 'Advanced', 'Security', 'ACL', and 'WPS'. The 'WPS' sub-tab is selected. The main content area shows 'WPS' with a checked 'Enable' checkbox. Below this is a section titled 'Wi-Fi Protected Setup Information' with several fields: 'WPS Current Status' is 'Configured' with a 'Release configuration' button; 'Self Pin Code' is '14544606'; 'SSID' is '697_2.4'; 'Authentication Mode' is 'WPA2 pre-shared key'; 'Passphrase Key' is 'TH82VLGUNXTV'; 'WPS Via Push Button' has a 'Start to Process' button; and 'WPS Via PIN' has an empty input field and a 'Start to Process' button.

WPS Check the box to enable WPS function and uncheck it to disable the WPS function.

WPS Current Status If the wireless security (encryption) function of this wireless router is properly set, you'll see a 'Configured' message here. Otherwise, you'll see 'UnConfigured'.

Self Pin Code This is the WPS PIN code of the wireless router. You may need this information when connecting to other WPS-enabled wireless devices.

SSID This is the network broadcast name (SSID) of the router.

Authentication Mode It shows the active authentication mode for the wireless connection.

Passphrase Key It shows the passphrase key that is randomly generated by the wireless router during the WPS process. You may need this information when using a device which doesn't support WPS.

WPS via Push Button Press the button to start the WPS process. The router will wait for the WPS request from the wireless devices within 2 minutes.

WPS via PIN You can fill-in the PIN code of the wireless device and press the button to start the WPS process. The router will wait for the WPS request from the wireless device within 2 minutes.

13 Firewall Settings

The Broadband router provides extensive firewall protection by restricting connection parameters, thus limiting the risk of hacker attacks, and defending against a wide array of common Internet attacks. However, for applications that require unrestricted access to the Internet, you can configure a specific client/server as a Demilitarized Zone (DMZ).

Note: To enable the Firewall settings select Enable and click Apply



DMZ

If you have a client PC that cannot run an Internet application (e.g. Games) properly from behind the NAT firewall, then you can open up the firewall restrictions to unrestricted two-way Internet access by defining a DMZ Host. The DMZ function allows you to re-direct all packets going to your WAN port IP address to a particular IP address in your LAN. The difference between the virtual server and the DMZ function is that the virtual server re-directs a particular service/Internet application (e.g. FTP, websites) to a particular LAN client/server, whereas DMZ re-directs all packets (regardless of services) going to your WAN IP address to a particular LAN client/server.

The screenshot shows the web interface of a Sitecom wireless gigabit dualband router 300N. The page is titled "wireless gigabit dualband router 300N" and features the Sitecom logo. A navigation bar includes "Status", "Wizard", "2.4G Wireless Settings", "5G Wireless Settings", "Firewall", "Advanced Settings", and "Toolbox". The "Firewall" section is active, with sub-tabs for "Enable", "DMZ", "DoS", "Access", and "URL block". The "DMZ" tab is selected, and the "Enable DMZ" checkbox is checked. Below this, there are two input fields: "Public IP Address" and "Client PC IP Address". The "Public IP Address" field is set to "Dynamic IP" with a dropdown menu showing "Session 1". There are also "Add" and "Reset" buttons. Below the input fields is a "DMZ table" with columns for "NO.", "Public IP Address", "Client PC IP Address", and "Select". At the bottom of the page, there are "Apply" and "Cancel" buttons.

Enable DMZ Enable/disable DMZ

Public IP Address The IP address of the WAN port or any other Public IP addresses given to you by your ISP

Client PC IP Address Fill-in the IP address of a particular host in your LAN that will receive all the packets originally going to the WAN port/Public IP address above.

Click **<Apply>** at the bottom of the screen to save the above configurations.

Denial of Service (DoS)

The Broadband router's firewall can block common hacker attacks, including Denial of Service, Ping of Death, Port Scan and Sync Flood. If Internet attacks occur the router can log the events.



Ping of Death Protections from Ping of Death attack

Discard Ping From WAN The router's WAN port will not respond to any Ping requests

Port Scan Protects the router from Port Scans.

Sync Flood Protects the router from Sync Flood attack.

Access

You can restrict users from accessing certain Internet applications/services (e.g. Internet websites, email, FTP etc.), Access Control allows users to define the traffic type permitted in your LAN. You can control which PC client can have access to these services.

Status Wizard 2.4G Wireless Settings 5G Wireless Settings **Firewall** Advanced Settings Toolbox

Enable DMZ DoS **Access** URL block

Access Control allows users to define the traffic type permitted or not permitted in your LAN. You can control which PC uses what services or has access to. If both MAC filtering and IP filtering are enabled, the MAC filtering table will be checked first.

Enable MAC filtering Deny Allow

Client PC MAC Address	Comment
<input type="text"/>	<input type="text"/>

Add Reset

MAC Filtering table:

NO.	Client PC MAC Address	Comment	Select
-----	-----------------------	---------	--------

Delete Selected Delete All Reset

Enable IP Filtering Table Deny Allow

NO.	PC Description	PC IP Address	Client Service	Protocol	Port range	Select
-----	----------------	---------------	----------------	----------	------------	--------

Add Delete Selected Delete All

Apply Cancel

Deny If you select "Deny" then all clients will be allowed to access Internet except for the clients in the list below.

Allow If you select "Allow" then all clients will be denied to access Internet except for the PCs in the list below.

Filter client PCs by IP Fill in "IP Filtering Table" to filter PC clients by IP.

Add PC You can click Add PC to add an access control rule for users by IP addresses.

Remove PC If you want to remove some PCs from the "IP Filtering Table", select the PC you want to remove in the table and then click "Delete Selected". If you want to remove all PCs from the table, just click the "Delete All" button.

Filter client PC by MAC Check "Enable MAC Filtering" to enable MAC Filtering.

Add PC Fill in "Client PC MAC Address" and "Comment" of the PC that is allowed to access the Internet, and then click "Add". If you find any typo before adding it and want to retype again, just click "Reset" and the fields will be cleared.

Remove PC If you want to remove some PC from the "MAC Filtering Table", select the PC you want to remove in the table and then click "Delete Selected". If you want to remove all PCs from the table, just click the "Delete All" button. If you want to clear the selection and re-select again, just click "Reset".

Click <**Apply**> at the bottom of the screen to save the above configuration.

URL block

You can block access to some Web sites from particular PCs by entering a full URL address or just keywords of the Web site.

You can block access to certain Web sites for a particular PC by entering either a full URL address or just a keyword of the Web site

Enable URL Blocking

URL/keyword :

Current URL Blocking Table:

NO.	URL/keyword	Select
-----	-------------	--------

Enable URL Blocking Enable/disable URL Blocking

Add URL Keyword Fill in "URL/Keyword" and then click "Add". You can enter the full URL address or the keyword of the web site you want to block.

Remove URL Keyword If you want to remove some URL keywords from the "Current URL Blocking Table", select the URL keyword you want to remove in the table and then click "Delete Selected". If you want remove all URL keywords from the table, just click "Delete All" button. If you want to clear the selection and re-select again, just click "Reset".

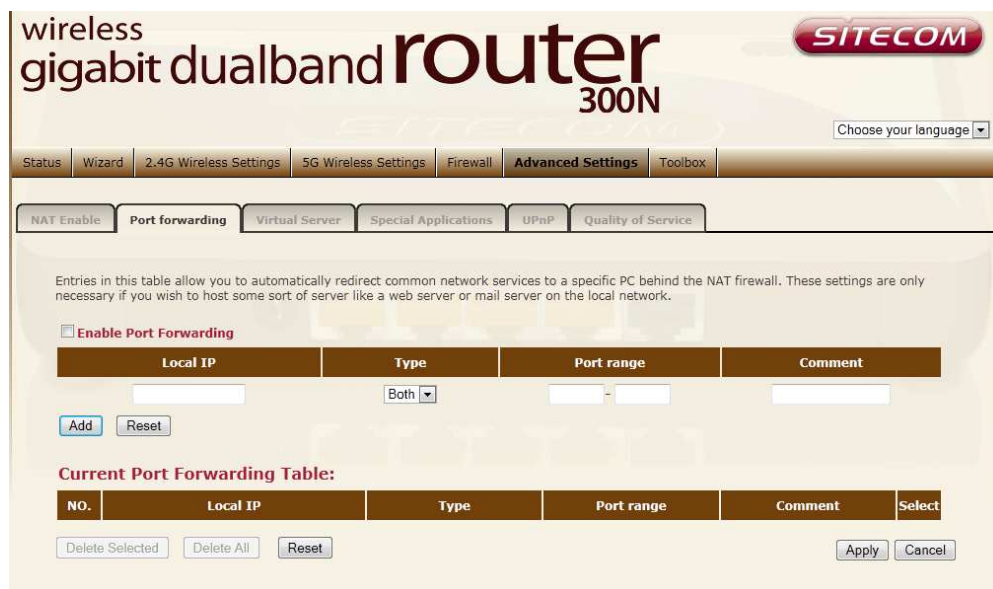
Click **<Apply>** at the bottom of the screen to save the above configurations

14 Advanced Settings

Network Address Translation (NAT) allows multiple users at your local site to access the Internet through a single Public IP Address or multiple Public IP Addresses. NAT provides Firewall protection from hacker attacks and has the flexibility to allow you to map Private IP Addresses to Public IP Addresses for key services such as Websites and FTP. Select Disable to disable the NAT function.

Port Forwarding

Port Forwarding allows you to re-direct a particular range of service port numbers (from the Internet/WAN Port) to a particular LAN IP address. It helps you to host servers behind the router NAT firewall.



Enable Port Forwarding Enable Port Forwarding

Local IP This is the private IP of the server behind the NAT firewall.

Type This is the protocol type to be forwarded. You can choose to forward "TCP" or "UDP" packets only, or select "both" to forward both "TCP" and "UDP" packets.

Port Range The range of ports to be forward to the private IP.

Comment description of this setting.

Add Fill in the "Private IP", "Type", "Port Range" and "Comment" of the setting to be added and then click "Add". Then this Port Forwarding setting will be added into the "Current Port Forwarding Table" below.

Remove If you want to remove a Port Forwarding setting from the "Current Port Forwarding Table", select the Port Forwarding setting that you want to remove in the table and then click "Delete Selected". If you want to remove all Port Forwarding settings from the table, just click "Delete All" button. Click "Reset" will clear your current selections.

Virtual Server

Use the Virtual Server function when you want different servers/clients in your LAN to handle different service/Internet application type (e.g. Email, FTP, Web server etc.) from the Internet. Computers use numbers called port numbers to recognize a particular service/Internet application type. The Virtual Server allows you to re-direct a particular service port number (from the Internet/WAN Port) to a particular LAN private IP address and its service port number.

The screenshot shows the web interface of a Sitecom wireless gigabit dualband router 300N. The page is titled "Virtual Server" and is part of the "Advanced Settings" menu. It includes a navigation bar with tabs for "NAT Enable", "Port forwarding", "Virtual Server", "Special Applications", "UPnP", and "Quality of Service". The main content area contains a checkbox to "Enable Virtual Server" and a table for configuring virtual servers. The table has columns for "Local IP", "Local Port", "Type", "Public Port", and "Comment". Below the table are "Add" and "Reset" buttons. A "Current Virtual Server Table" section shows a table with columns for "NO.", "Local IP", "Local Port", "Type", "Public Port", "Comment", and "Select", with "Delete Selected", "Delete All", and "Reset" buttons below it. The "Apply" and "Cancel" buttons are at the bottom right.

Enable Virtual Server Enable Virtual Server.

Local IP This is the LAN client/host IP address that the Public Port number packet will be sent to.

Local Port This is the port number (of the above Private IP host) that the below **Public Port** number will be changed to when the packet enters your LAN (to the LAN Server/Client IP).

Type Select the port number protocol type (TCP, UDP or both). If you are unsure, then leave it to the default "both" setting. **Public Port** Enter the service (service/Internet application) port number from the Internet that will be re-directed to the above Private IP address host in your LAN

Comment The description of this setting.

Add Fill in the "Private IP", "Private Port", "Type", "Public Port" and "Comment" of the setting to be added and then click "Add". Then this Virtual Server setting will be added into the "Current Virtual Server Table" below.

Reset If you want to remove Virtual Server settings from the "Current Virtual Server Table", select the Virtual Server settings you want to remove in the table and then click "Delete Selected". If you want to remove all Virtual Server settings from the table, just click the "Delete All" button. Click "Reset" will clear your current selections.

Click <**Apply**> at the bottom of the screen to save the above configurations.

Special Applications

Some applications require multiple connections, such as Internet games, video Conferencing, Internet telephony and others. In this section you can configure the router to support multiple connections for these types of applications.

wireless gigabit dualband router 300N SITECOM

Choose your language ▾

Status Wizard 2.4G Wireless Settings 5G Wireless Settings Firewall **Advanced Settings** Toolbox

NAT Enable Port forwarding Virtual Server **Special Applications** UPnP Quality of Service

Some applications require multiple connections, such as Internet gaming, video conferencing, Internet telephony and others. These applications cannot work when Network Address Translation (NAT) is enabled. If you need to run applications that require multiple connections, specify the port normally associated with an application in the "Trigger Port" field, select the protocol type as TCP or UDP, then enter the public ports associated with the trigger port to open them for inbound traffic.

Enable Trigger Port

Trigger port	Trigger type	Public Port	Public type	Comment
<input type="text"/>	Both ▾	<input type="text"/>	Both ▾	<input type="text"/>

Popular applications :

Current Trigger-Port Table:

NO.	Trigger port	Trigger type	Public Port	Public type	Comment	Select
-----	--------------	--------------	-------------	-------------	---------	--------

Enable Trigger Port Enable the Special Application function.

Trigger Port This is the out going (Outbound) range of port numbers for this particular application.

Trigger Type Select whether the outbound port protocol is "TCP", "UDP" or both.

Public Port Enter the In-coming (Inbound) port or port range for this type of application (e.g. 2300-2400, 47624)

Public Type Select the Inbound port protocol type: "TCP", "UDP" or both

Comment The description of this setting.

Popular applications This section lists the more popular applications that require multiple connections. Select an application from the Popular

Applications selection. Once you have selected an application, select a location (1-10) in the Copy to selection box and then click the Copy to button. This will automatically list the Public Ports required for this popular application in the location (1-10) you specified.

Add Fill in the "Trigger Port", "Trigger Type", "Public Port", "Public Type", "Public Port" and "Comment" of the setting to be added and then click "Add". The Special Application setting will be added into the "Current Trigger-Port Table" below. If you happen to make a mistake, just click "Clear" and the fields will be cleared.

Reset If you want to remove Special Application settings from the "Current Trigger-Port Table", select the Special Application settings you want to remove in the table and then click "Delete Selected". If you want remove all Special Application settings from the table, just click the "Delete All" button. Click "Reset" will clear your current selections.

UPnP

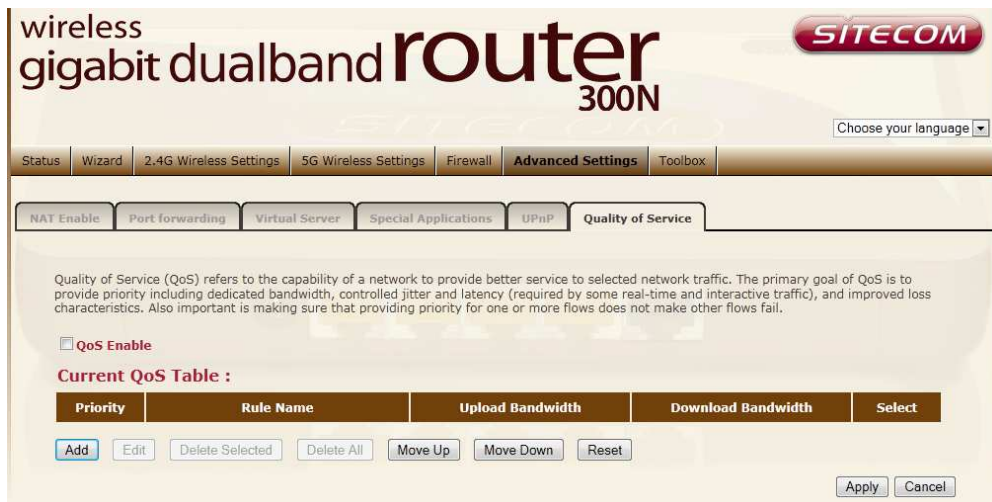
With UPnP, all PCs in your Intranet will discover this router automatically, so you don't have to configure your PC and it can easily access the Internet through this router.



UPnP Feature You can enable or Disable the UPnP feature here. After you enable the UPnP feature, all client systems that support UPnP, like Windows XP, can discover this router automatically and access the Internet through this router without having to configure anything. The NAT Traversal function provided by UPnP can let applications that support UPnP connect to the internet without having to configure the virtual server sections.

QoS

QoS can let you classify Internet application traffic by source/destination IP address and port number. You can assign priority for each type of application and reserve bandwidth for it. The packets of applications with higher priority will always go first. Lower priority applications will get bandwidth after higher priority applications get enough bandwidth. This can let you have a better experience in using critical real time services like Internet phone, video conference ...etc. All the applications not specified by you are classified as rule name "Others". The rule with a smaller priority number has a higher priority; the rule with a larger priority number has a lower priority. You can adjust the priority of the rules by moving them up or down.



wireless gigabit dualband router 300N SITECOM

Choose your language ▾

Status Wizard 2.4G Wireless Settings 5G Wireless Settings Firewall **Advanced Settings** Toolbox

NAT Enable Port forwarding Virtual Server Special Applications UPnP **Quality of Service**

Quality of Service (QoS) refers to the capability of a network to provide better service to selected network traffic. The primary goal of QoS is to provide priority including dedicated bandwidth, controlled jitter and latency (required by some real-time and interactive traffic), and improved loss characteristics. Also important is making sure that providing priority for one or more flows does not make other flows fail.

QoS Enable

Current QoS Table :

Priority	Rule Name	Upload Bandwidth	Download Bandwidth	Select
----------	-----------	------------------	--------------------	--------

Enable/Disable QoS You can check "Enable QoS" to enable QoS functionality for the WAN port.

Add a QoS rule into the table Click "Add" then enter a form of the QoS rule. Click "Apply" after filling out the form the rule will be added into the table.

Remove QoS rules from the table If you want to remove QoS rules from the table, select the QoS rules you want to remove in the table and then click "Delete Selected". If you want remove all QoS rules from the table, just click the "Delete All" button. Clicking "Reset" will clear your current selections.

Edit a QoS rule Select the rule you want to edit and click "Edit", then enter the detail form of the QoS rule. Click "**Apply**" after editing the form and the rule will be saved.

Adjust QoS rule priority You can select the rule and click "Move Up" to make its priority higher. You also can select the rule and click "Move Down" to make its priority lower.

15 VPN

WARNING: This section explains how to set-up the WLR-5001 as a VPN server, so you may connect VPN clients (MacOS, Windows, Android, or any other VPN-ready devices) and establish a Virtual Private Network. If your need is to connect to an external VPN server (i.e. HideMyAss, StrongVPN, SwitchVPN) please refer to Section 11 "Connecting to an external VPN service".

A Virtual Private Network (VPN) provides a secure connection between two or more computers or protected networks over the public Internet. It provides authentication to ensure that the information is going to and from the correct parties and security to protect the information from viewing or tampering en route. The WLR-5001 supports IPSec (Site to Site, Remote to Site) and L2TP over IPSec methods to establish VPN connections and the maximum VPN session number is up to 5.

Status

This page displays the connect status of VPN connection. You can select one of them to connect or disconnect the VPN connection.

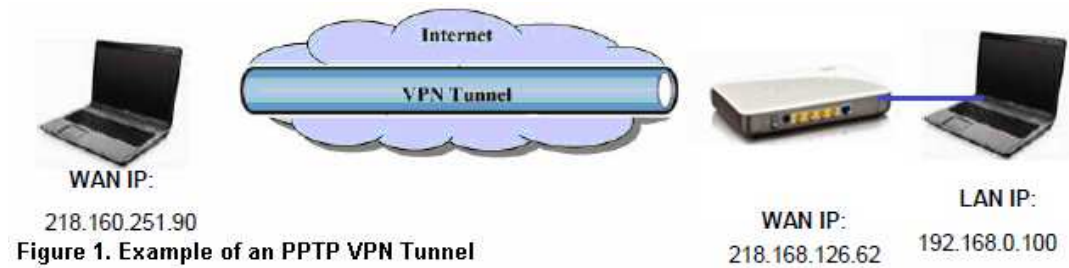
All of your VPN connection details are displayed on this page.

NO.	Name	Type	Gateway/Peer IP address	Sent Packets	Received Packets	Uptime	Select
-----	------	------	-------------------------	--------------	------------------	--------	--------

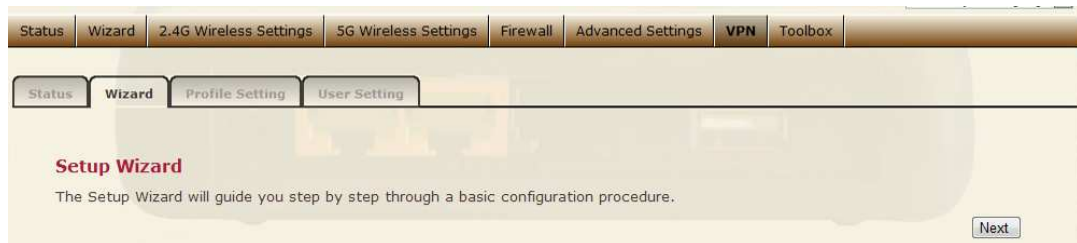
To **Connect** or **Disconnect** an existing tunnel. Select the tunnel from the list by ticking the corresponding check box and click connect or disconnect.

Note: If the connection type is remote dial-in (Client to Site or L2TP over IPSec), you can't disconnect this session manually.

Using the Wizard to Configure the WLR-5001 for a PPTP VPN tunnel.



1. In the Top Menu on the right side, click **VPN**.
2. In the submenu, click **Wizard** to add a VPN profile.
3. Click **Next** to create a VPN profile.



4. In the **Name** field, enter a name for the PPTP VPN tunnel. This name is for reference purposes. Click **Next** to continue.



5. Click **PPTP** and click **NEXT** to continue.

The screenshot shows a configuration wizard with tabs for Status, Wizard, Profile Setting, and User Setting. The current step is 'Step2: VPN Connection Type'. It asks the user to choose a VPN connection type from four options: IPsec, L2TP over IPsec, L2TP, and PPTP. The PPTP option is selected. Below the options are three buttons: Previous, Next, and Cancel.

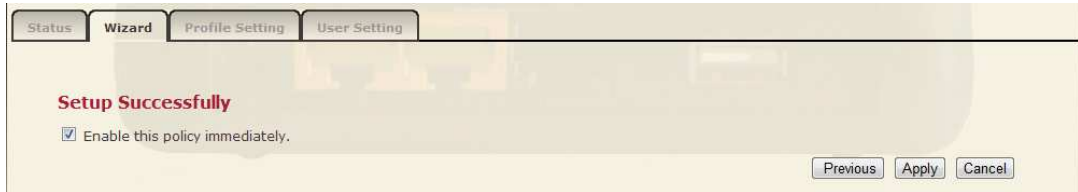
6. Complete the following fields :

- User Name** Enter a name for authentication.
Password Enter a password for authentication.
Server IP Enter any private IP address on a different subnet than the LAN IP address of the computer connected behind the WLR-5001. (When WLR-5001 is on default settings, the LAN IP address is 192.168.0.100. In this case you can select any private IP address other than 192.168.0.x, for example 192.168.3.x).
Remote IP Range Enter an IP range that is on the same subnet as the Server IP address you have entered in the Server IP address field, but the range should not include Server IP. (For example if you specified a Server IP address of 192.168.2.1, you can define a Remote IP Range of 192.168.2.100 – 200.)

Click **Next** to continue.

The screenshot shows a configuration wizard with tabs for Status, Wizard, Profile Setting, and User Setting. The current step is 'Step4: VPN PPTP Setting'. It asks the user to enter the settings for PPTP. The settings are organized into two sections: 'PPTP setting' and 'VPN Server IP Setting'. The PPTP setting section includes fields for Authentication Mode (MSCHAP_V2), Encryption (128-bit), Name (guest), and Password (nk9543). The VPN Server IP Setting section includes fields for IP address (10.0.174.45) and Remote IP Range (10.0.174.66 - 100). Below the settings are three buttons: Previous, Next, and Cancel.

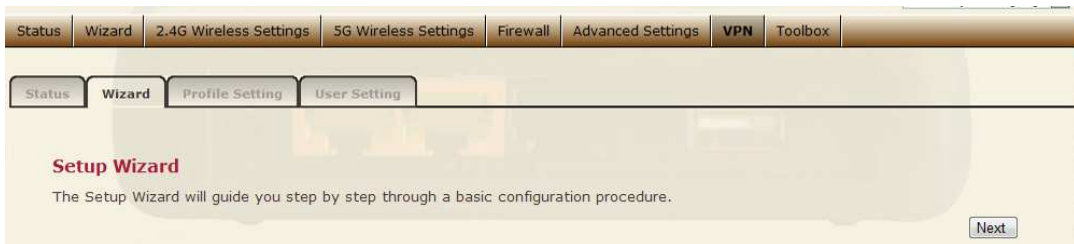
8. Enable the VPN policy, and then click **Apply** to save the VPN profile.



The screenshot shows a configuration wizard with four tabs: Status, Wizard, Profile Setting, and User Setting. The Wizard tab is active. The main content area displays the message "Setup Successfully" in red. Below this message is a checked checkbox with the text "Enable this policy immediately." At the bottom right of the wizard, there are three buttons: "Previous", "Apply", and "Cancel".

Using the Wizard to Configure the WLR-5001 for L2TP over IPSec VPN tunnel.

1. In the Top Menu on the right side, click **VPN**.
2. In the submenu, click **Wizard** to add a VPN profile.
3. Click **Next** to create a VPN profile.



4. In the **Name** field, enter a name for the L2TP VPN tunnel. This name is for reference purposes. Click **Next** to continue.



5. Click **L2TP** and click **NEXT** to continue.



6. Complete the following fields:

- User Name** Enter a name for authentication.
Password Enter a password for authentication.
Server IP Enter any IP address on a different subnet than the LAN IP address of the computer connected behind the WLR-5001. (When WLR-5001 is on default settings, the LAN IP address is 192.168.0.1. In this case you can select any IP address other than 192.168.0.x).
Remote IP Range Enter an IP range that is on the same subnet as the Server IP address you have entered in the Server IP address field, but the range should not include Server IP. (For example if you specified a Server IP address of 192.168.2.1, you can define a Remote IP Range of 192.168.2.100 – 200.)

Click **Next** to continue.

The screenshot shows a configuration wizard with tabs for Status, Wizard, Profile Setting, and User Setting. The current step is "Step 4: VPN L2TP Setting". Below the title, it says "Please enter the setting of L2TP". There are two sections: "L2TP Setting" and "VPN Server IP Setting".

L2TP Setting

- Authentication Mode:
- Name: (eg: guest)
- password: (eg: nk9543)

VPN Server IP Setting

- IP address: (eg: 10.0.174.45)
- Remote IP Range: - (eg: 10.0.174.66 -100)

Buttons: Previous, Next, Cancel

7. In the **Shared Key** field, enter the Security key you wish to use.

The screenshot shows the "Step 5: Shared Key" configuration screen. It says "Please enter the shared key for the VPN".

SA: ESP-3DES-SHA1

Shared Key: (eg: apple123)

Buttons: Previous, Next, Cancel

8. **Enable the VPN policy**, and then click **Apply** to save the VPN profile.

The screenshot shows a confirmation screen titled "Setup Successfully". It has a checkbox labeled "Enable this policy immediately." which is checked. Buttons: Previous, Apply, Cancel

In the following examples it is assumed that the WLR-5001 is placed behind a bridged modem. This means that the Router will receive a public IP address on the WAN side. The **WAN/Internet IP address** can be found on the Internet status page of the WLR-5001.

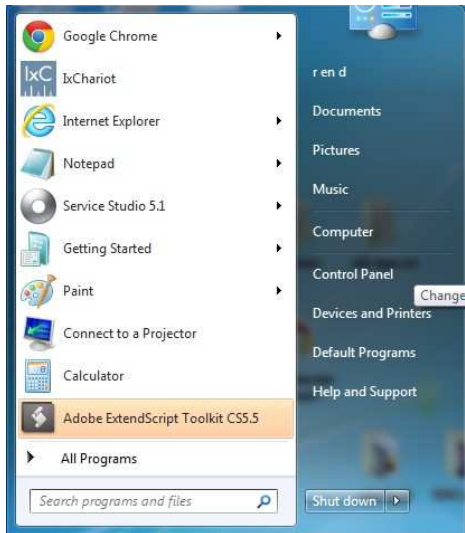


If the WAN IP address of the WLR-5001 is not a public IP address but a local IP address (for example any IP address in the following ranges: 10.X.X.X, 172.16.X.X or 192.168.X.X)

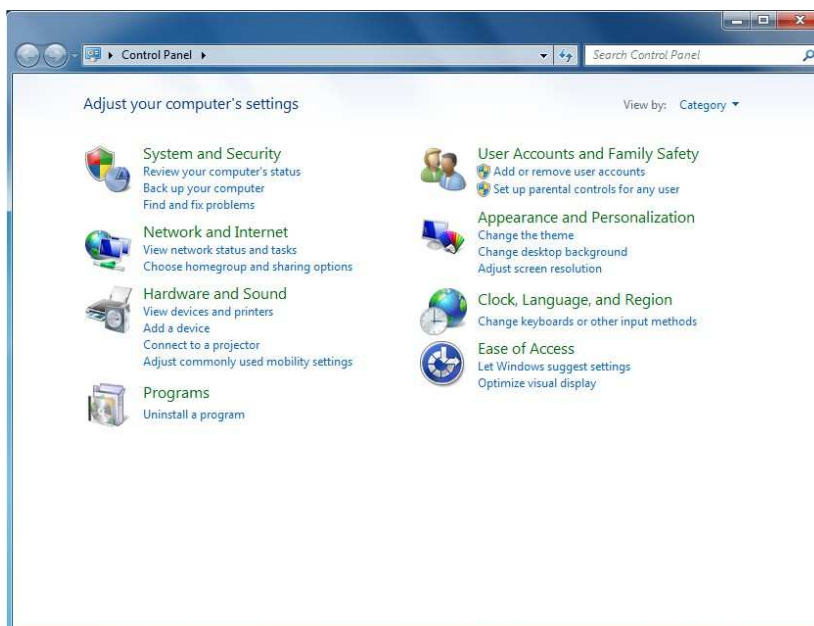
In this situation your WLR-5001 is placed behind a NAT enabled modem. In this case consult your manual to make sure your modem supports VPN pass through and the GRE47 protocol and set it up to allow access to the VPN server behind the modem.

Configuring a Microsoft Windows 7 VPN Client

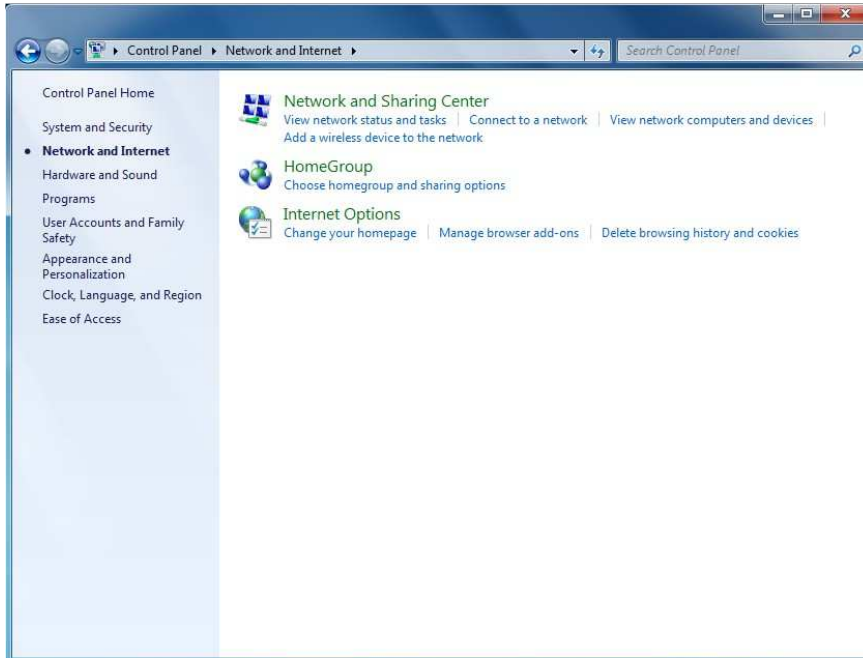
Click the **Start** button and open the **Control Panel**.



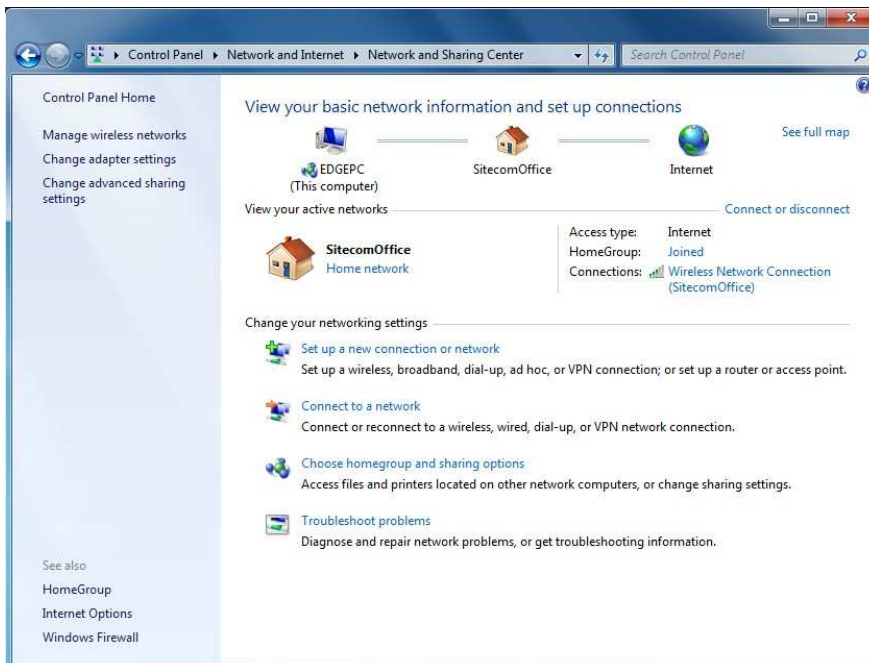
From the **Control Panel**, select **Network and Internet**. (If your control panel view has been set to Icons you can directly go to step 4)



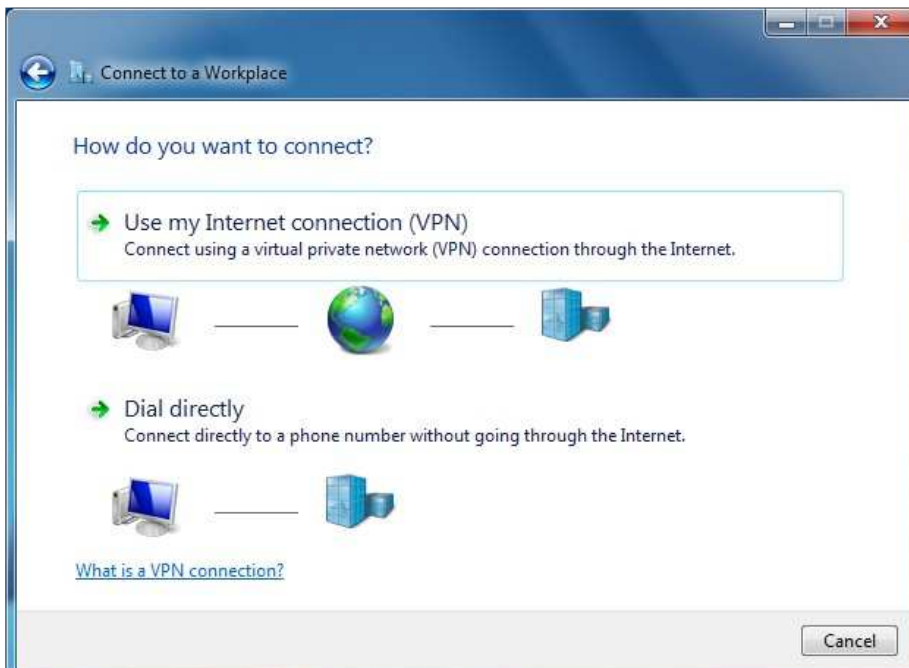
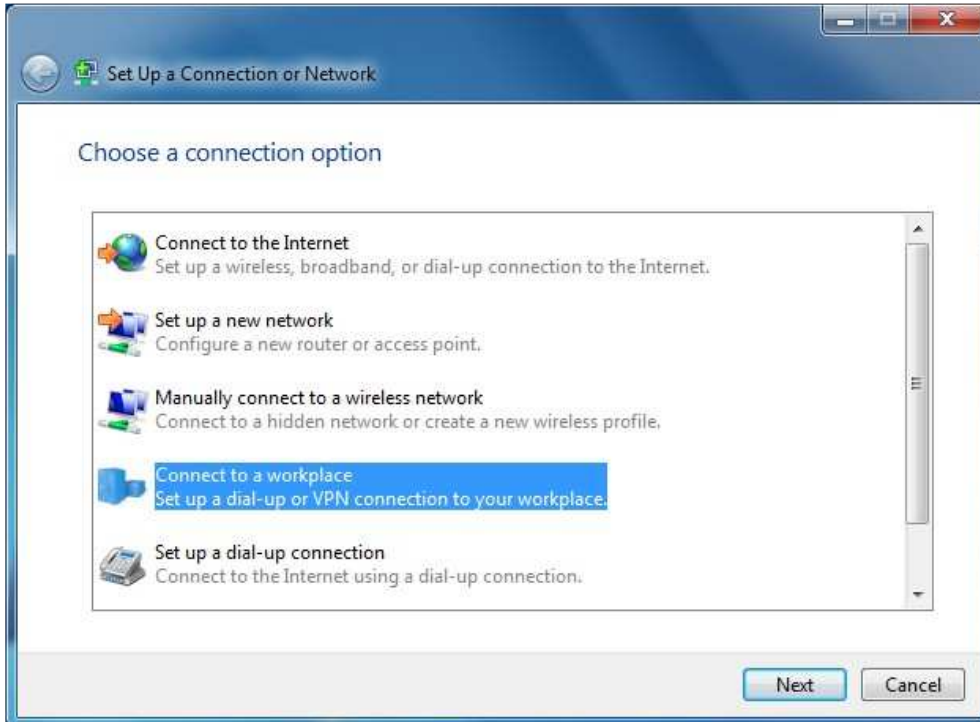
3. From **Network and internet**, select **Network and Sharing center** .



4. Under **Network and Sharing Center**, select **Setup a new connection or network**.



5. Click **Connect to a workplace**, and click **Use my internet connection (VPN)**.



6. Complete the following fields:

Internet Address Enter the WLR-5001 WAN IP address.

Destination name Enter a name for the VPN client.

We recommend to select: Don't connect now. Just set it up so I can connect later.

Click **next** to continue.

Connect to a Workplace

Type the Internet address to connect to

Your network administrator can give you this address.

Internet address: [Example:Contoso.com or 157.54.0.1 or 3ffe:1234::1111]

Destination name: VPN Connection

Use a smart card

Allow other people to use this connection
This option allows anyone with access to this computer to use this connection.

Don't connect now, just set it up so I can connect later

Next Cancel

7. Complete the following fields:

User name Enter the username used to log onto the VPN tunnel.

Password Enter the password used to log onto the VPN tunnel.

Click **Create** to continue.

Connect to a Workplace

Type your user name and password

User name: []

Password: []

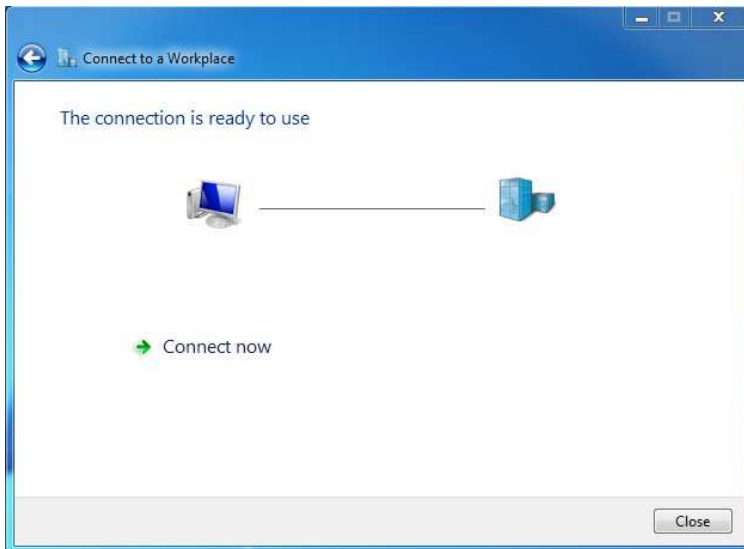
Show characters

Remember this password

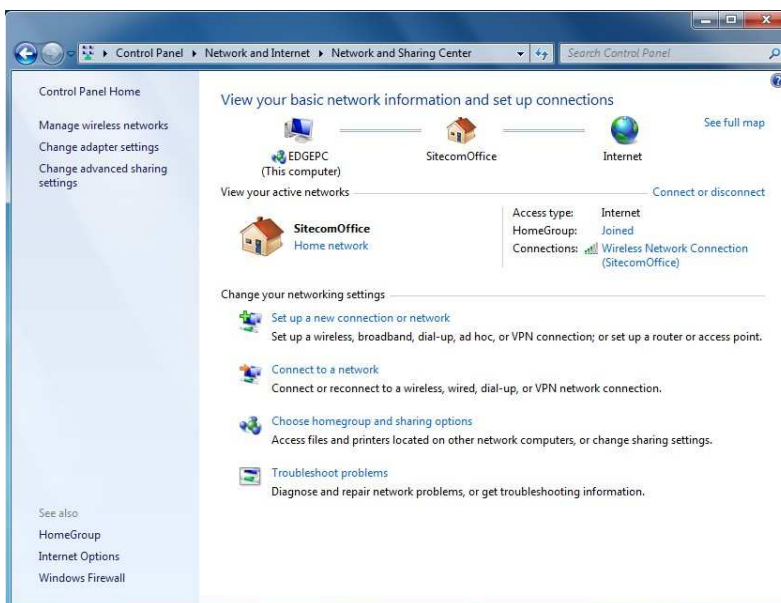
Domain (optional): []

Create Cancel

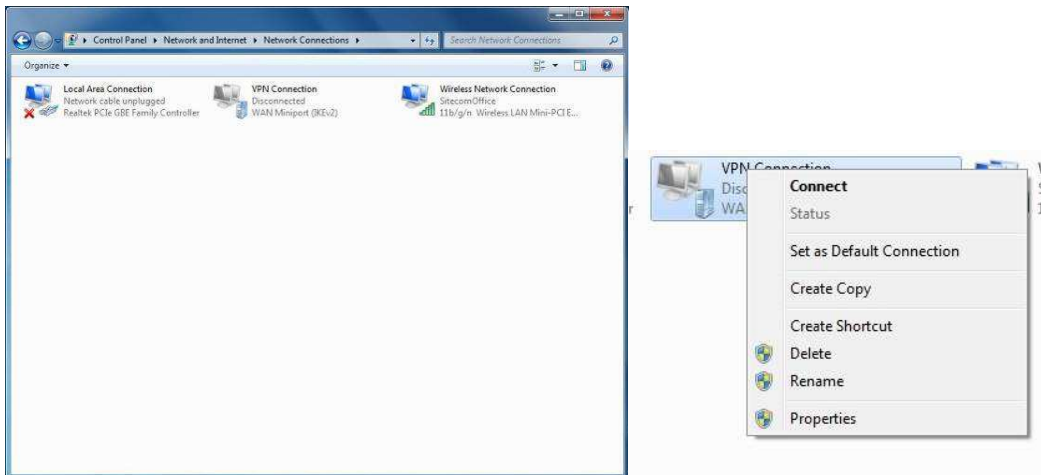
8. When the following screen appears, click the **Close** button to close the VPN connection setting.



9. Select **Change adapter settings** on the left side of the window.



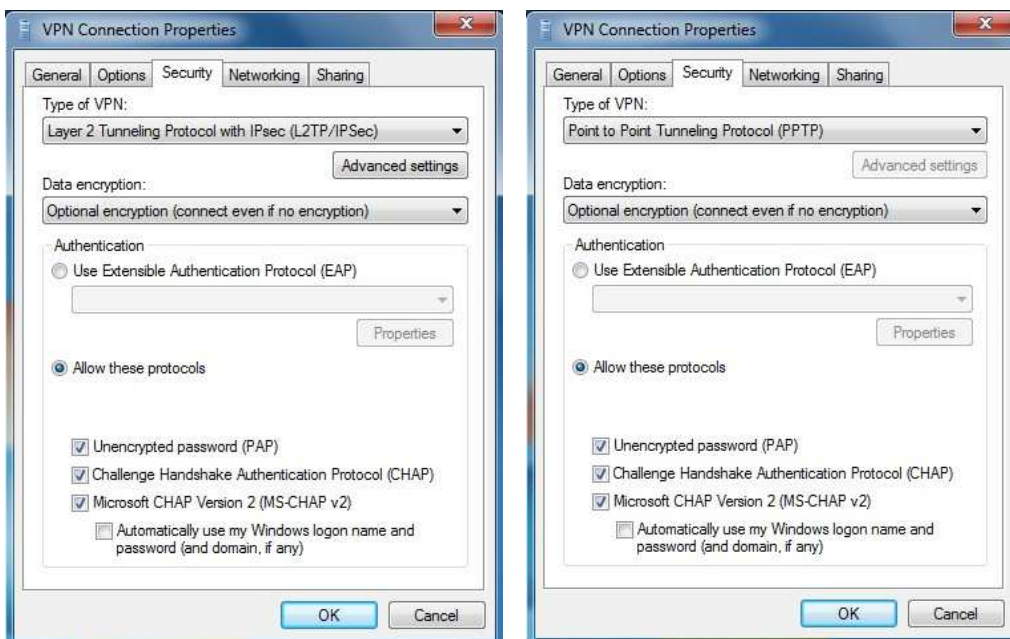
10. Select the VPN connection you just set, right-click VPN Connection, and select **Properties**.



11. Go to the Security tab and configure the following settings :

Under the **Type of VPN**, select the Protocol that has been set in the WLR-5001, **Point to point tunneling protocol(PPTP)** or **Layer 2 Tunneling Protocol with IPsec (L2TP-IPSec)** .

- Check **unencrypted password (PAP)**.
Check **Challenge Handshake Authentication Protocol (PPTP)**.
Check **Microsoft CHAP Version 2 (MS-CHAP v2)**.



12. Go to **Network and Sharing Center** on the bottom-right of the windows.



Under VPN Connection click **Connect**.

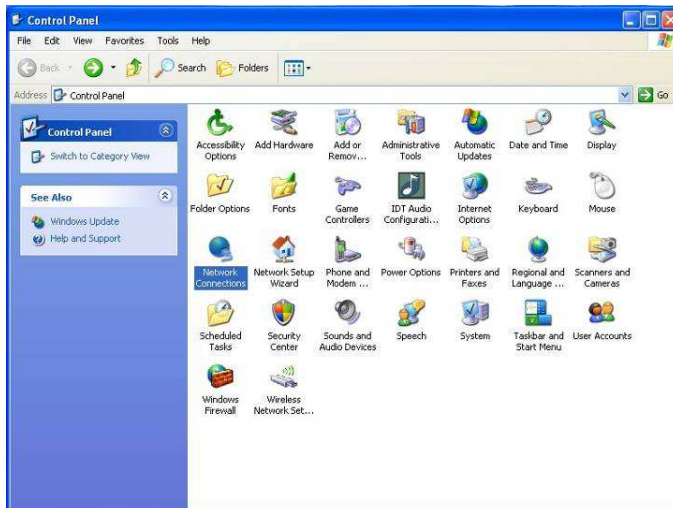


Configuring a Microsoft Windows XP VPN Client

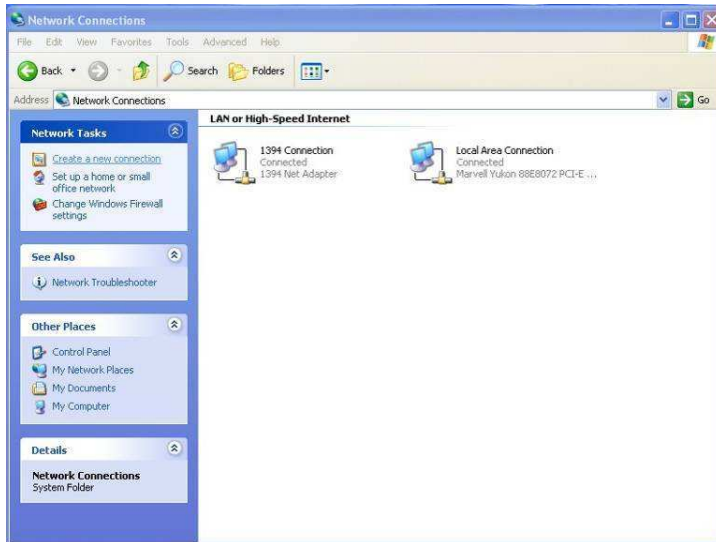
1. Click the **Start** button and open the **Control Panel**.



2. From the **Control Panel**, Click on **Network Connections**.



3. Click on **Create a network** from the left side of the window.



4. Click **Next** to continue to setup the VPN client.



5. Select **Connect to the network at my workplace** and click Next to continue.



6. Select **Virtual Private network connection** and click **Next** to continue.



7. Enter a **Company name**, this name is only for reference purposes.



The screenshot shows a Windows-style dialog box titled "New Connection Wizard". The main heading is "Connection Name" with a sub-instruction: "Specify a name for this connection to your workplace." There is a small icon of a computer and a mouse in the top right corner. Below the heading, it says "Type a name for this connection in the following box." followed by "Company Name:" and a text input field. A note below the field reads: "For example, you could type the name of your workplace or the name of a server you will connect to." At the bottom, there are three buttons: "< Back", "Next >", and "Cancel".

8. Enter the **Hostname**, this should be the WLR-5001 WAN IP address and click **Next** to continue.



The screenshot shows a Windows-style dialog box titled "New Connection Wizard". The main heading is "VPN Server Selection" with a sub-instruction: "What is the name or address of the VPN server?". There is a small icon of a computer and a mouse in the top right corner. Below the heading, it says "Type the host name or Internet Protocol (IP) address of the computer to which you are connecting." followed by "Host name or IP address (for example, microsoft.com or 157.54.0.1):" and a text input field. At the bottom, there are three buttons: "< Back", "Next >", and "Cancel".

9. Click **Finish** to continue, you may choose to add a shortcut for this connection on the Desktop by clicking the checkbox before you click **Finish**.



10. Click on **Properties**.



11. Click on the **Security** Tab from the top in the window and select **Advanced**, click **Settings** to continue.



12. Configure the following settings:

Under **Data encryption**, select Optional encryption (connect even if no encryption)

- | | |
|---------|---|
| Check | Unencrypted password (PAP) |
| Check | Challenge Handshake Authentication Protocol (SPAP) |
| Uncheck | Microsoft CHAP (MS-CHAP) |
| Check | Microsoft CHAP Version 2 (MS-CHAP v2) |

Click **OK** to continue.



13. Click **Yes** to continue. If the VPN type you have configured in the WLR-5001 is PPTP you can skip step 14.



- 14a. If the VPN Type of the tunnel you have set up in the WLR-5001 is L2TP over IPSec You have also entered a **Shared key** in the WLR-5001(see step 7 of chapter **Using the Wizard to Configure the WLR-5001 for L2TP over IPSec** for reference).

Click on **IPSec Settings...**



- 14b. Check Use pre-shared key for authentication.
Key, Enter the shared key you have entered in the WLR-5001.



Configuring a MacOS VPN Client

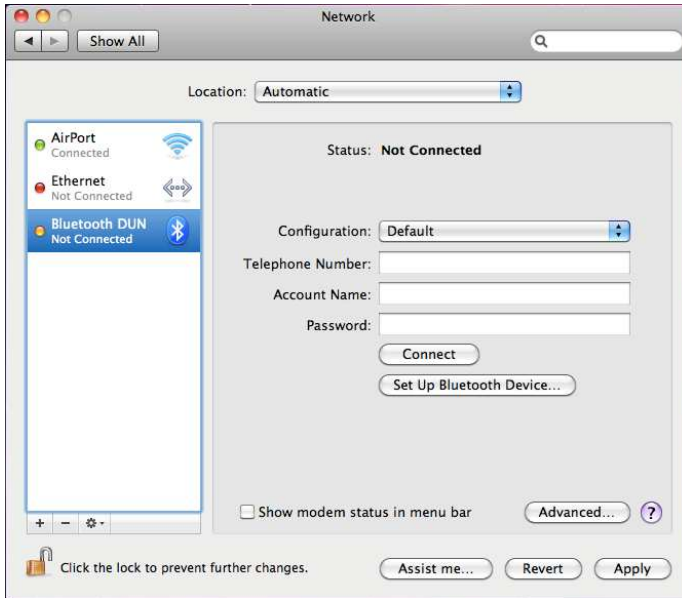
1. Select **System Preferences**.



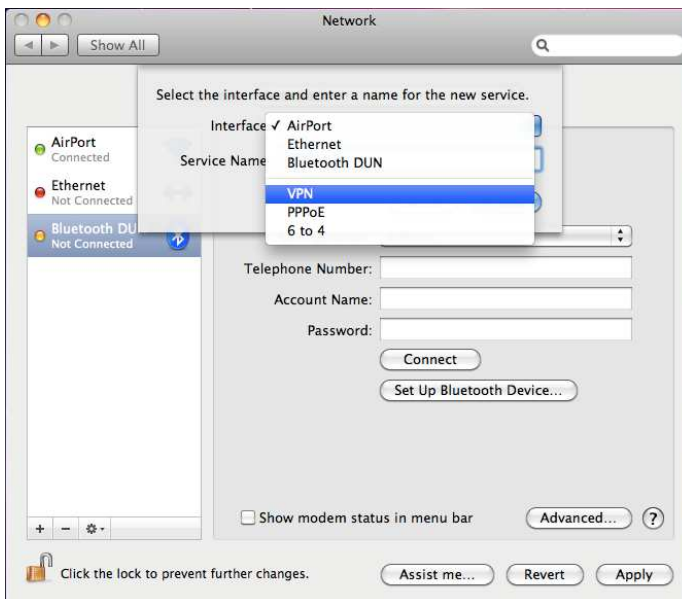
2. On the **System preferences** panel, Click **Network**.



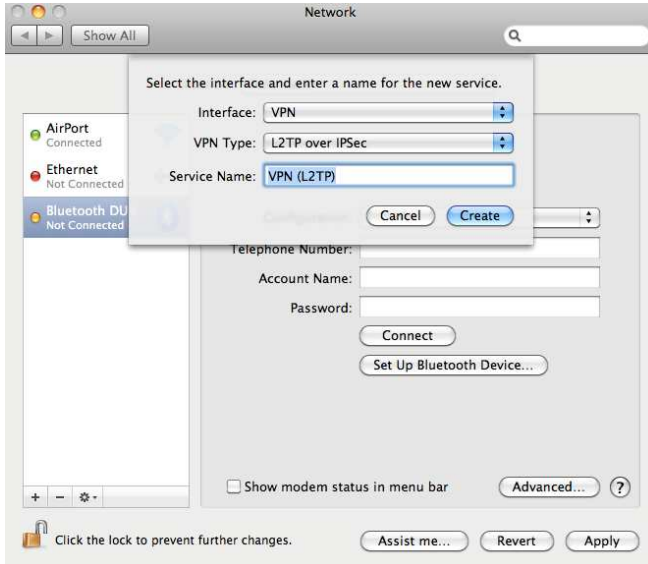
3. Click on the + sign on the bottom left.



4. Select the **VPN** interface.



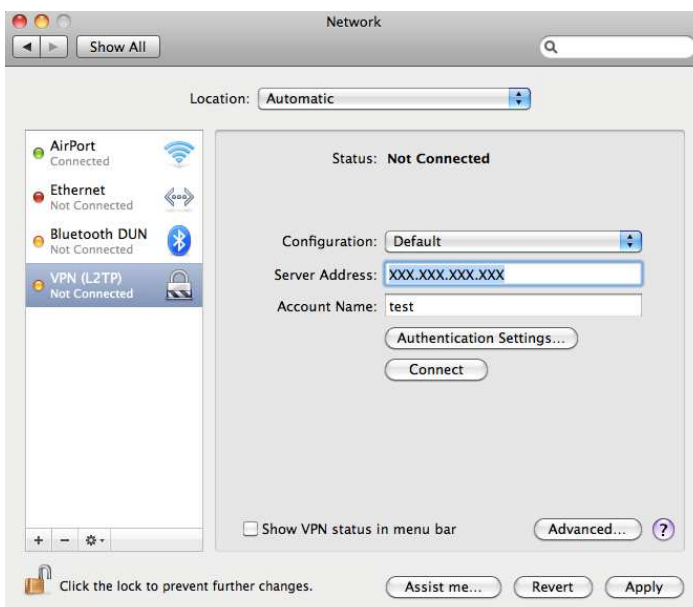
5. Under the **VPN Type** dropdown, select the option that corresponds to the **VPN Type** you have configured in the WLR-5001. Enter a name for this profile (this name is for reference purpose only)



6. Complete the following fields:

Server address Enter the WAN IP address of the WLR-5001.
Account Name Enter the name used to log onto the VPN tunnel (this must be one of the users you have set in the VPN user table of the WLR-5001)

Click **Authentication Settings** to continue.



7. Complete the following fields:

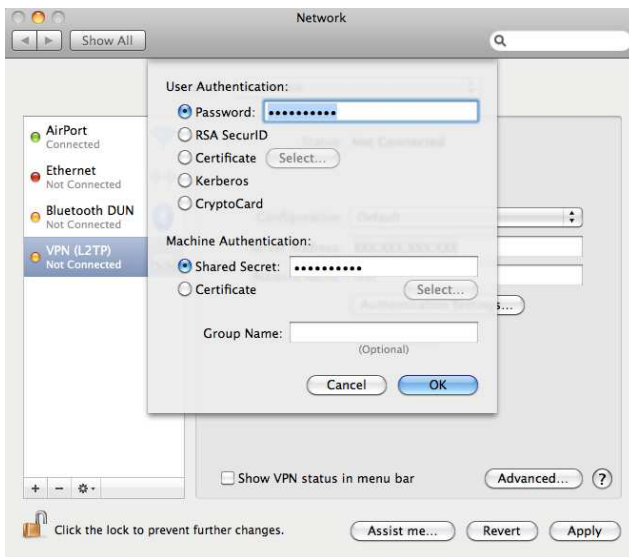
Password

Enter the password that belongs to the Account name which you have entered in step 6 of this Guide.

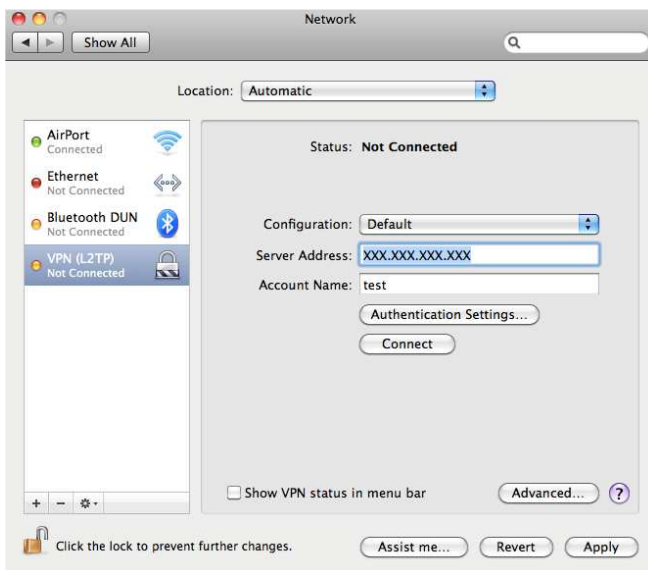
Shared Key

If the VPN Type of the VPN tunnel you have set up in the WLR-5001 is L2TP over IPsec You have also entered a **Shared key** in the WLR-5001 (see step 7 of chapter **Using the Wizard to Configure the WLR-5001 for L2TP over IPsec** for reference) Enter the same key in this field.

Click **OK** to continue.



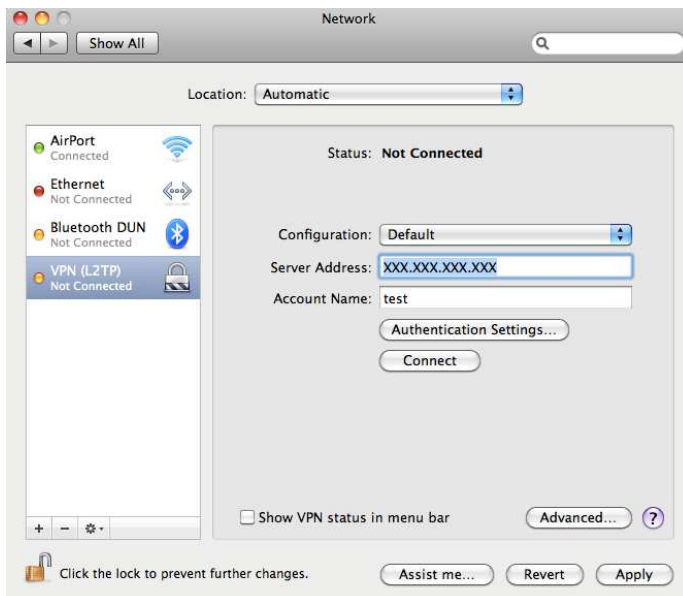
8. Click on **Advanced** in the network panel to continue.



9. Select the checkbox **Send all traffic over VPN connection**.
Click **OK** to continue.



10. If the VPN tunnel is already connected, click **Disconnect** and **Connect** again for the changes made in step 9 to take effect.

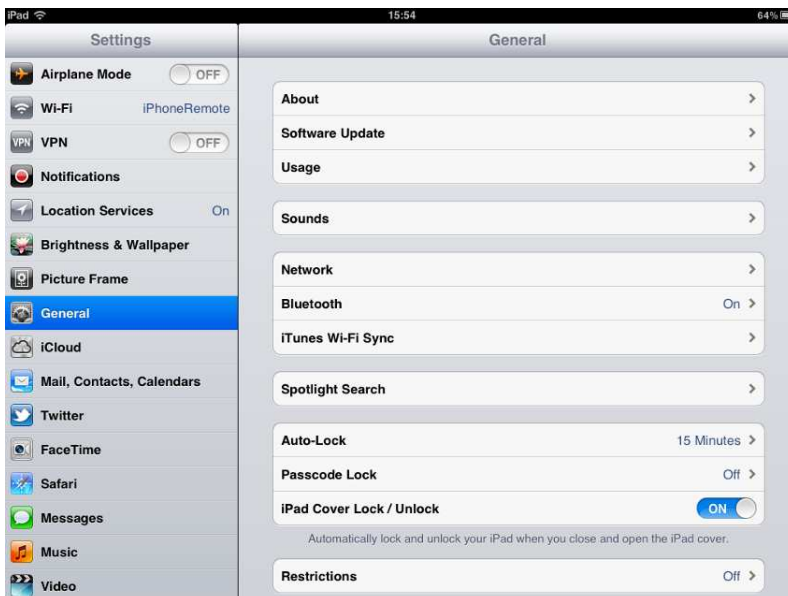


Configuring a VPN client on iOS

1. Click **Settings** on the Springboard.



2. Select **General** on from the panel of the left side and Click on **Network**.



3. Click on **VPN**.



4. click on **Add VPN Configuration...**



3. Select the **VPN Type** that corresponds to the **VPN Type** you have configured in the WLR-5001.

Complete the following fields:

- Description** Enter a name for your VPN connection, this name is for reference purposes only.
- Server Account** Enter the WLR-5001 WAN IP address
Enter the name used to log onto the VPN tunnel (this must be one of the users you have set in the VPN user table of the WLR-5001)
- Password Secret(L2TP only)** Enter the Password used to log onto the VPN tunnel.
If the VPN Type of the VPN tunnel you have set up in the WLR-5001 is L2TP over IPsec You have also entered a **Shared key** in the WLR-5001 (see step 7 of chapter **Using the Wizard to Configure the WLR-5001 for L2TP over IPsec** for reference) Enter the same key in this field.

The image displays two screenshots of the 'Add Configuration' wizard interface. Both screenshots show a 'Cancel' button on the top left and a 'Save' button on the top right. The left screenshot has the 'PPTP' tab selected, while the right screenshot has the 'L2TP' tab selected. The 'IPSec' tab is also visible in both. The fields in both screenshots are: 'Description' (Required), 'Server' (Required), 'Account' (Required), 'RSA SecurID' (OFF), 'Password' (Ask Every Time), 'Encryption Level' (Auto >), and 'Send All Traffic' (ON). The 'Proxy' section at the bottom of both screenshots has 'Off', 'Manual', and 'Auto' options, with 'Off' selected.

4. Set the Switch to **ON** to connect to the VPN Network.

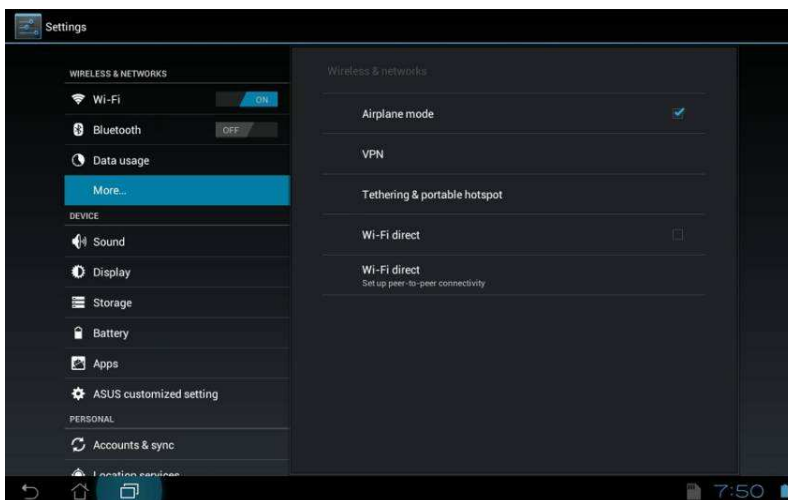


Configuring a VPN client on Android

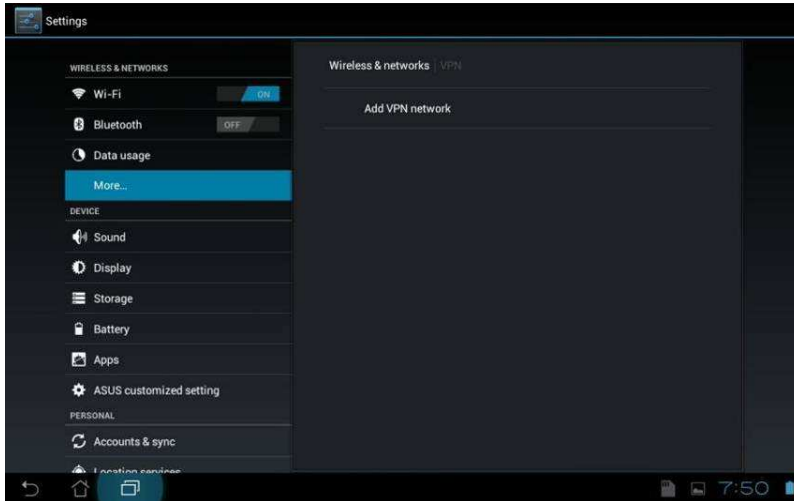
1. Click on **Settings**.



2. click on **More..** from the Settings menu on the upper left. Then Click on **VPN**.



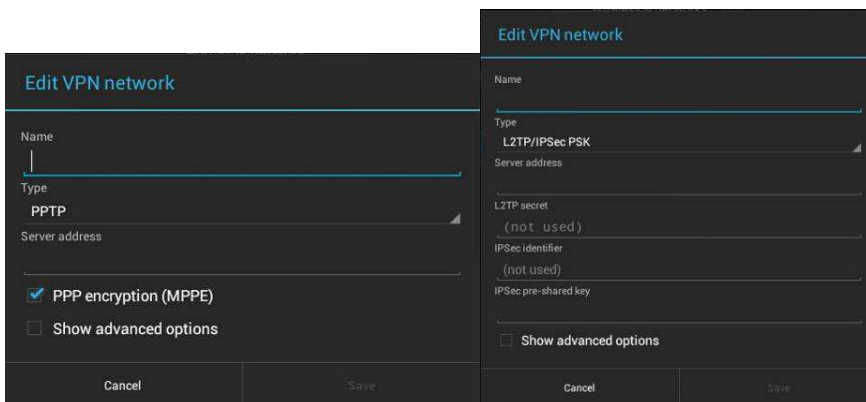
2. Click on **Add VPN Network**.



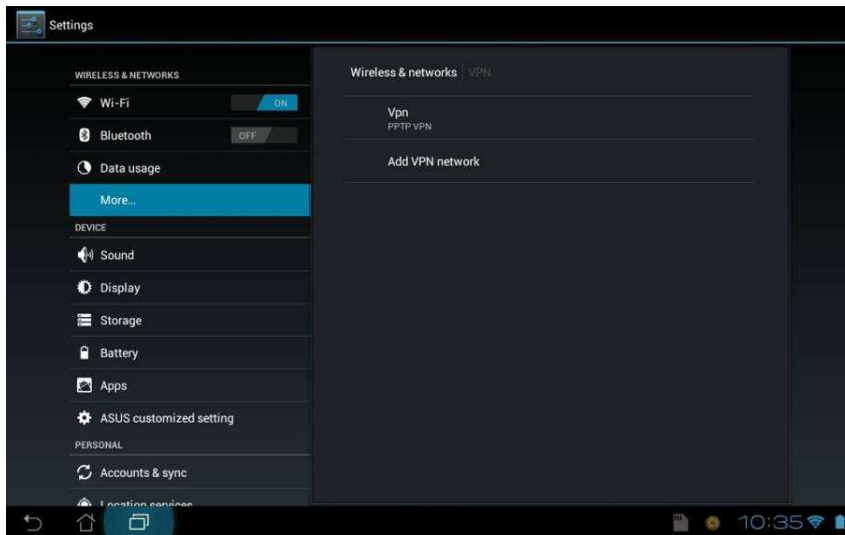
3. Select the **VPN Type** that corresponds to the **VPN Type** you have configured in the WLR-5001.

Complete the following fields:

- | | |
|-----------------------------------|--|
| Description | Enter a name for your VPN connection, this name is for reference purposes only. |
| Server Account | Enter the WLR-5001 WAN IP address
Enter the name used to log onto the VPN tunnel (this must be one of the users you have set in the VPN user table of the WLR-5001) |
| Password Secret(L2TP only) | Enter the Password used to log onto the VPN tunnel.
If the VPN Type of the VPN tunnel you have set up in the WLR-5001 is L2TP over IPsec You have also entered a Shared key in the WLR-5001(see step 7 of chapter Using the Wizard to Configure the WLR-5001 for L2TP over IPsec for reference) Enter the same key in this field. |



4. Click on the VPN network you have just created to connect.



Profile Setting

This page allows you to Add, Edit and Delete VPN profiles.

The screenshot shows the configuration interface for a Sitecom wireless gigabit router 450N. The page title is "wireless gigabit router 450N" with the Sitecom logo. A navigation menu includes Status, Wizard, 2.4G Wireless Settings, 5G Wireless Settings, Firewall, Advanced Settings, VPN (selected), and Toolbox. Below this, there are sub-tabs for Status, Wizard, Profile Setting (selected), and User Setting. The main content area features a table with the following columns: NO., Enable, Name, Type, Local Address, Remote Address, Crypto-suite, Gateway, and Select. Below the table are buttons for Add, Edit, Delete Selected, and Delete All. At the bottom right, there are Apply and Cancel buttons.

NO.	Enable	Name	Type	Local Address	Remote Address	Crypto-suite	Gateway	Select
-----	--------	------	------	---------------	----------------	--------------	---------	--------

Add click here if you wish to manually add a new VPN profile.

Edit to edit an existing profile, select one from the list by selecting the corresponding radio button and click 'Edit'.

Click "**Apply**" to save the settings and apply the changes.

Add Users to an existing Profile

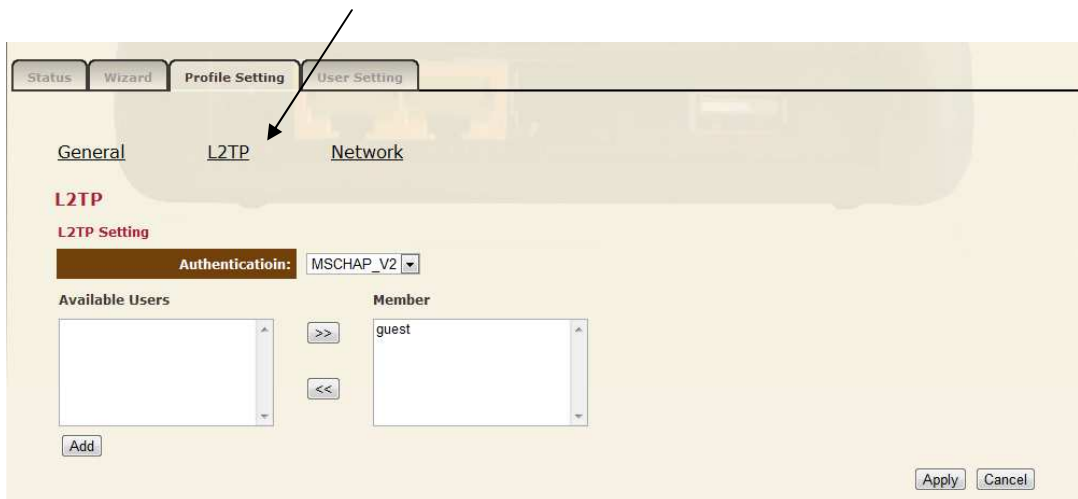
Click on **Profile Setting**.



The screenshot shows the web interface of a Sitecom wireless gigabit router 450N. The top navigation bar includes tabs for Status, Wizard, 2.4G Wireless Settings, 5G Wireless Settings, Firewall, Advanced Settings, VPN, and Toolbox. The 'Profile Setting' tab is selected. Below the navigation bar, there is a table with columns: NO., Enable, Name, Type, Local Address, Remote Address, Crypto-suite, Gateway, and Select. Below the table are buttons for Add, Edit, Delete Selected, and Delete All. At the bottom right, there are Apply and Cancel buttons.

Select the Profile for which you wish to modify user settings and click on **Edit**.

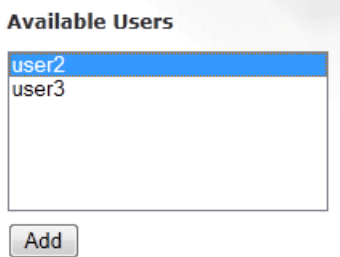
Then Click on the protocol name you selected to edit.



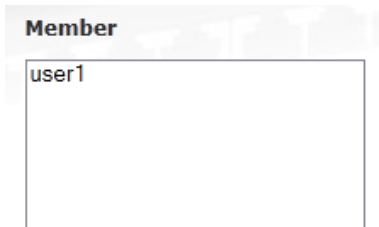
The screenshot shows the L2TP profile settings page. The 'Profile Setting' tab is selected, and the 'L2TP' sub-tab is active. The 'Authentication' dropdown is set to 'MSCHAP_V2'. There are two lists: 'Available Users' (empty) and 'Member' (containing 'guest'). There are '>>' and '<<' buttons between the lists. An 'Add' button is at the bottom left, and 'Apply' and 'Cancel' buttons are at the bottom right. An arrow points from the 'L2TP' sub-tab to the 'L2TP' section.

From here all current users that you have created will be shown.

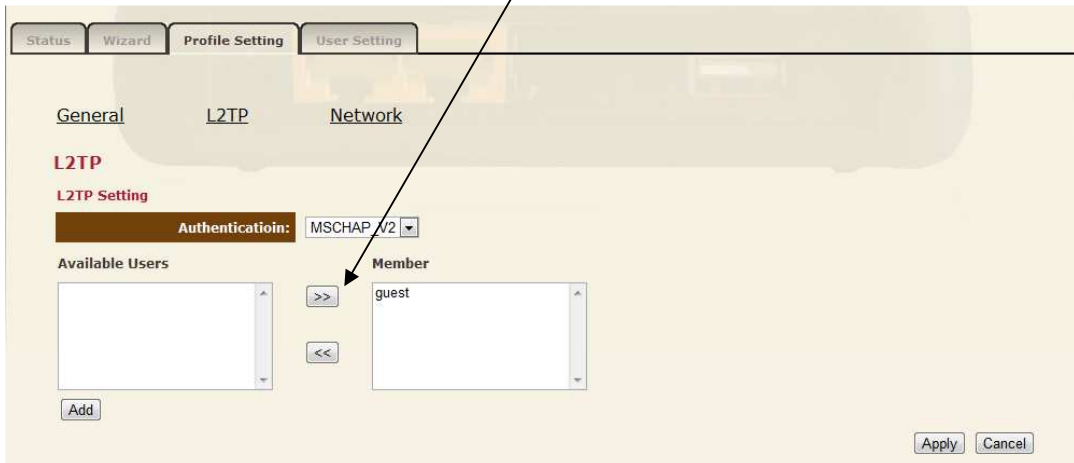
In the **Available** box existing users are displayed that do not have access to this VPN Tunnel yet.



The **Member** box displays users that already have access to this VPN Tunnel.



To Add or remove users to the VPN Tunnel, click on the username you wish you Add or Remove and press the '<<' '>>' buttons to the desired box.



Click Apply Click **Apply** to save the settings and apply the changes.

PPTP

The Point-to-Point Tunneling Protocol (PPTP) is a method for implementing virtual private networks. PPTP uses a control channel over TCP and a GRE tunnel operating to encapsulate PPP packets.

The PPTP specification does not describe encryption or authentication features and relies on the PPP protocol being tunneled to implement security functionality. However the most common PPTP implementation, shipping with the Microsoft Windows product families, implements various levels of authentication and encryption natively as standard features of the Windows PPTP stack. The intended use of this protocol is to provide similar levels of security and remote access as typical VPN products.

General

This page allows you to configure the general VPN settings.

Name	Enter a name for your VPN policy
Connection Type	Supports IPSec and L2TP over IPSec methods to establish VPN connection.

PPTP

Authentication	Select the desired authentication protocol (PAP, CHAP, Auto). Select Auto by default.
Encryption	Supports 40-bit , 128-bit or No encryption.
User Name	Enter the username for authentication.
Password	Enter the password for authentication.

Network

Server IP	Enter the VPN Server IP address.
Remote IP Range	Assign a range of IP addresses. The assigned IP range should be on the same IP network but not the in the same range as your DHCP IP range.

L2TP

In computer networking, Layer 2 Tunneling Protocol (L2TP) is a tunneling protocol used to support virtual private networks (VPNs). It does not provide any encryption or confidentiality by itself; it relies on an encryption protocol that it passes within the tunnel to provide privacy.

General

This page allows you to configure the general VPN settings.

Name	Enter a name for your VPN policy
Connection Type	Supports IPSec and L2TP over IPSec methods to establish VPN connection.

L2TP

Authentication	Select the desired authentication protocol (PAP, CHAP, Auto). Select Auto by default.
User Name	Enter the username for authentication.
Password	Enter the password for authentication.

Network

Server IP	Enter the VPN Server IP address.
Remote IP Range	Assign a range of IP addresses. The assigned IP range should be on the same IP network but not the in the same range as your DHCP IP range.

IPSec

IPSec (Internet Protocol Security) is a protocol suite for securing Internet Protocol (IP) communications by authenticating and encrypting each IP packet of a communication session.

IPSec also includes protocols for establishing mutual authentication between agents at the beginning of the session and negotiation of cryptographic keys to be used during the session.

IPSec is an end-to-end security scheme operating in the Internet Layer of the Internet Protocol Suite. It can be used in protecting data flows between a pair of hosts (host-to-host), between a pair of security gateways (network-to-network), or between a security gateway and a host (network-to-host).

General

This page allows you to configure the general VPN settings.

Name	Enter a name for your VPN policy
Connection Type	Supports IPSec and L2TP over IPSec methods to establish VPN connection.
Authentication Type	Supports pre-shared key method for authentication.
Shared Key	Enter the Shared Key.
Confirm	Enter your Shared Key again for verification.
Local ID Type	Supports IP Address, Domain Name, Email Address methods for Local ID Type.
Local ID	Identify and authenticate the local VPN endpoint.
Peer ID Type	Supports IP Address, Domain Name, Email Address methods for Peer ID Type.
Peer ID	Enter an ID to identify and authenticate the remote VPN endpoint.

SA (Security Association)

A Security Association (SA) is the establishment of shared security attributes between two network entities to support secure communication.

An SA may include attributes such as:

cryptographic algorithm and mode; traffic encryption key; and parameters for the network data to be passed over the connection.

Establishment of an SA is described in RFC 2408, the Internet Security Association and Key Management Protocol.

This page allows you to configure SA.

IKE (Phase 1) Proposal Exchange

Select Main Mode or Aggressive Mode for IKE Phase 1 negotiation.

- Main Mode: Select this option to configure the standard negotiation parameters for IKE Phase 1 of the VPN Tunnel. (Recommended Setting)
- Aggressive Mode: Select this option to configure IKE Phase 1 of the VPN Tunnel to carry out negotiation in a shorter amount of time. (Not Recommended - Less Secure)

DH Group

Select a DH Group from the drop-down menu (Group 1, Group2, Group5 and Group14). As the DH Group number increases, the higher the level of encryption implemented for IKE Phase 1.

Encryption

The WLR-5001 supports DES, 3DES, AES128, AES192, AES256 encryption methods for traffic through the VPN.

Authentication

The WLR-5001 supports SHA1, MD5 methods for authentication.

Life Time Enter the number of seconds for the IKE Lifetime. The period of time to pass before establishing a new IKE security association (SA) with the remote endpoint. The default value is 28800.

IPSec (Phase 2) Proposal Protocol

Select ESP (Encapsulating Security Payload) or AH (Authentication Header) for traffic through the VPN.

- **AH (Authentication Header)** to provide connectionless integrity and data origin authentication for IP datagrams and to provide protection against replay attacks.
- **ESP (Encapsulating Security Payload)** to provide confidentiality, data origin authentication, connectionless integrity, an anti-replay service (a form of partial sequence integrity), and limited traffic flow confidentiality.

Encryption

The WLR-5001 supports **DES, 3DES, AES128, AES192, AES256** encryption methods for traffic through the VPN.

Authentication

The WLR-5001 supports **SHA1, MD5** methods for authentication.

Perfect Forward Secrecy

Select Enable or Disable to enable or disable PFS (Perfect Forward Secrecy). PFS is an additional security protocol.

DH Group

Select a PFS DH Group from the drop-down menu (**Group 1, Group2, Group5, Group14**). As the DH Group number increases, the higher the level of encryption implemented for PFS.

Life Time

Enter the number of seconds for the IPSec Lifetime. The period of time to pass before establishing a new IPSec security association (SA) with the remote endpoint. The default value is 28800.

Network

This page allows you to configure the VPN server and local/remote subnet.

Security Gateway Type	Security Gateway Type supports IP Address and Domain Name. Select one of them.
Security Gateway	The IP address or domain name of the VPN server.
Local Network	Enter the local (LAN) subnet and mask. (ex. 192.168.0.0/255.255.255.0)
Remote Network	Enter the remote subnet and mask. (ex. 192.168.9.0/255.255.255.0)

Advanced

This page allows you to configure advanced VPN settings.

Nat Traversal

Enabling **NAT Traversal** allow IPsec traffic from this endpoint to traverse through the translation process during NAT. The remote VPN endpoint must also support this feature and it must be enabled to function properly over the VPN.

Dead Peer Detection

Enable **DPD (Dead Peer Detection)** to delete the VPN tunnel if there is no traffic detected. The VPN will re-establish once traffic is again sent through the tunnel.

L2TP over IPSec

L2TP over IPSec VPNs enable a business to transport data over the Internet, while still maintaining a high level of security to protect data. You can use this type of secure connection for small or remote office clients that need access to the corporate network. You can also use L2TP over IPSec VPNs for routers at remote sites by using the local ISP and creating a demand-dial connection into corporate headquarters.

General

Name	Enter a name for your VPN policy
Connection Type	Supports IPSec and L2TP over IPSec methods to establish VPN connection.
Authentication Type	Supports pre-shared key method for authentication.
Shared Key	Enter the Shared Key.
Confirm	Enter your Shared Key again for verification.

L2TP/PPTP

Authentication	Select the desired authentication protocol (PAP, CHAP, Auto). Select Auto by default.
User Name	Enter the username for authentication.
Password	Enter the password for authentication.

Network

Server IP	Enter the VPN Server IP address.
Remote IP Range	Assign a range of IP addresses. The assigned IP range should be on the same IP network but not the in the same range as your DHCP IP range.

User Setting

This page allows you to maintain VPN users.

The screenshot shows the configuration page for a Sitecom wireless gigabit router 450N. The page title is "wireless gigabit router 450N" with the Sitecom logo. A navigation bar includes "Status", "Wizard", "2.4G Wireless Settings", "5G Wireless Settings", "Firewall", "Advanced Settings", "VPN", and "Toolbox". Below this, a sub-navigation bar shows "Status", "Wizard", "Profile Setting", and "User Setting". The main content area has the heading "You can maintain VPN users in this page." and contains three input fields: "Name :", "Password :", and "Confirm password :". Below these are "Add" and "Reset" buttons. A table titled "Current VPN User Table" has columns for "NO.", "User Name", and "Select". Below the table are "Delete Selected", "Delete All", and "Reset" buttons. At the bottom right are "Apply" and "Cancel" buttons.

Add a user Enter the desired name and password, for verification the password has to be entered twice. Click 'Add' to add the user to the current VPN user table

Reset This button will clear all values from the input boxes.

Current VPN user table shows all existing VPN users.

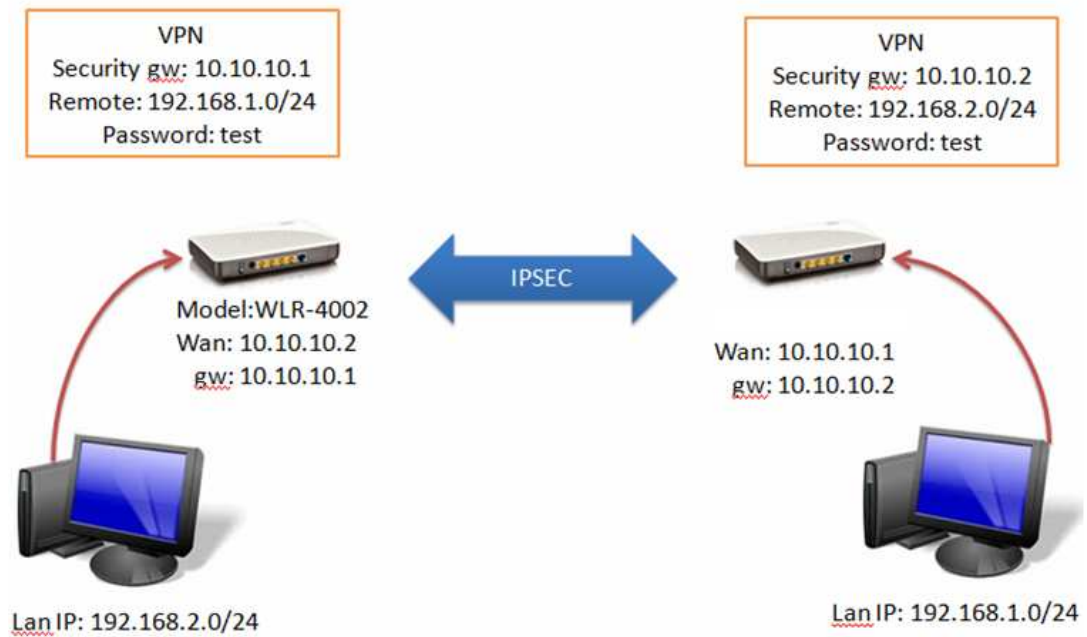
Delete Selected Select a user from the table and Click Delete Selected to delete this user.

Delete ALL This deletes all current VPN user from the current table.

Click "**Apply**" to save the settings and apply the changes.

Example of configuring IPsec Site to Site architecture

In this guide we give an example how to set up a IPsec Site to Site architecture. The values in this example are only to give an impression of how to do the configuration.



Configuring Location B

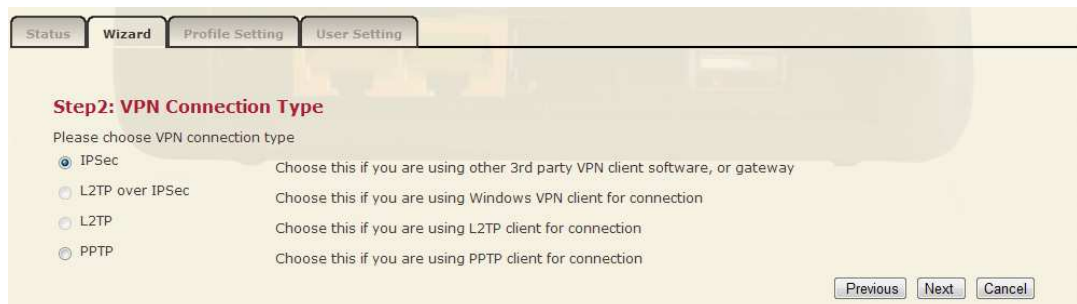
1. Click on **VPN** in the top menu then click **Wizard** in the submenu.
Click **Next** to continue.



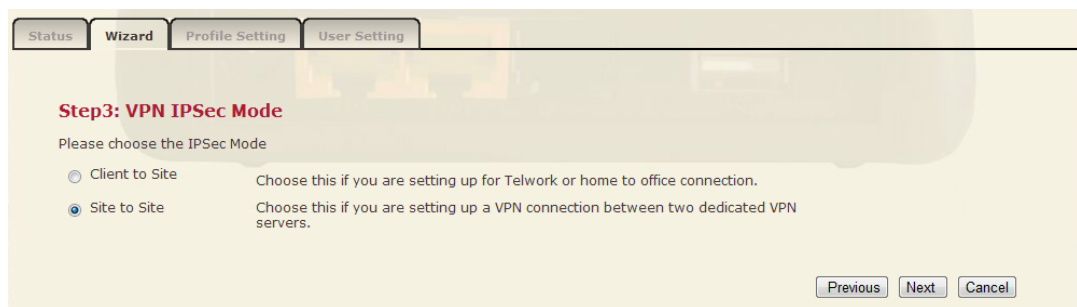
2. In the **Name** field, enter a name for the IPSec VPN tunnel. This name is for reference purposes. Click **Next** to continue.



3. Click **IPSec** and click **NEXT** to continue.



4. Click **Site to Site** and click **NEXT** to continue.



5. Complete the following fields :

Security Gateway Type Choose the type of **Security Gateway** you wish to use(In this example we use IP address.

Security Gateway Enter the **WAN IP address** of the **remote VPN Server**(In our example this is the WAN IP address of the WLR-5001 in Location A, 77.193.12.20)

Remote Address Enter an **IP address** that is on the same **Subnet** as the Local LAN of the remote VPN server (In our example the WLR-5001 in location A has a **local IP** of 192.168.2.1 so we set the **Remote address** to 192.168.2.0)

Remote Netmask Enter the Netmask of the Remote Local LAN(In our example the WLR-5001 in Location A has a **IP Subnet Mask** of 255.255.255.0)

click **NEXT** to continue.

The screenshot shows a configuration wizard with four tabs: Status, Wizard, Profile Setting, and User Setting. The 'Wizard' tab is active. The screen is titled 'Step4: VPN Network' and contains the following fields:

- Security Gateway Type:** A dropdown menu set to 'IP address'.
- Security Gateway:** A text input field containing '77.193.12.20'. Below it is a small text example: '(eg:69.100.100.100 or www.google.com.tw)'
- Remote Network:** A section header.
- Remote Address:** A text input field containing '192.168.2.0'. To its right is a small text example: '(eg: 192.168.2.0)'
- Remote Netmask:** A text input field containing '255.255.255.0'. To its right is a small text example: '(eg: 255.255.255.0)'

At the bottom right, there are three buttons: 'Previous', 'Next', and 'Cancel'.

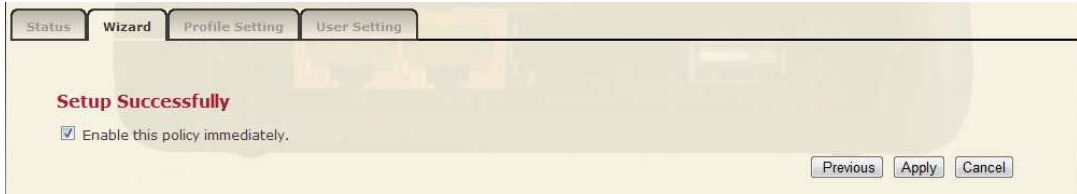
6. Enter the **Shared Key** you wish to use, this shared key must be used in both VPN servers.(In this example we used 'sharedkey')

The screenshot shows the same configuration wizard with the 'Wizard' tab active. The screen is titled 'Step5: Shared Key' and contains the following fields:

- SA:** A text input field containing 'ESP-3DES-SHA1'.
- Shared Key:** A text input field containing 'sharedkey'. Below it is a small text example: '(eg:apple123)'

At the bottom right, there are three buttons: 'Previous', 'Next', and 'Cancel'.

7. **Enable the VPN policy**, and then click **Apply** to save the VPN profile.



8. Repeat these steps 1~7 for the other VPN server.
9. Once Both VPN routers have been completely set up. Click on **Status** in the submenu of the VPN menu and click **Connect** to establish the IPSec Site to Site connection.



16 TOOLBOX Settings

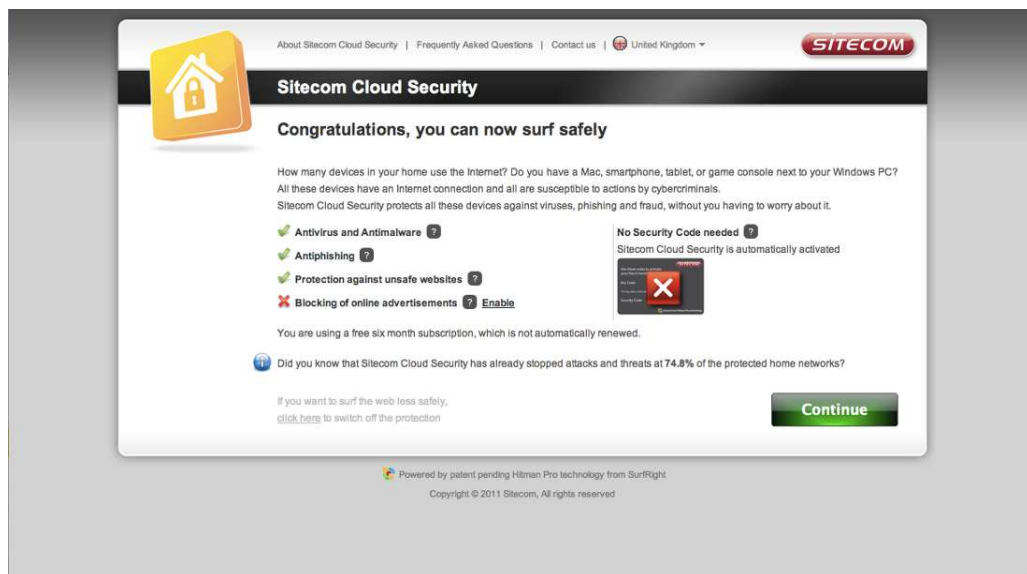
Sitecom Cloud Security

Antivirus software alone is not safe enough. You can now benefit from additional built-in security in your modem or router. Protect all devices in your home network against cybercrime while browsing. Activate in just one click, your network and devices are better secured than ever before.

Your Sitecom device comes with a 6 month free *Sitecom cloud security* subscription.

After you have set up your Sitecom device for internet access, open the webbrowser and enter <http://www.sitecomcloudsecurity.com> in the address bar.

If the device has been properly configured the following web page should be shown.



Here you can select which security features you would like to use.

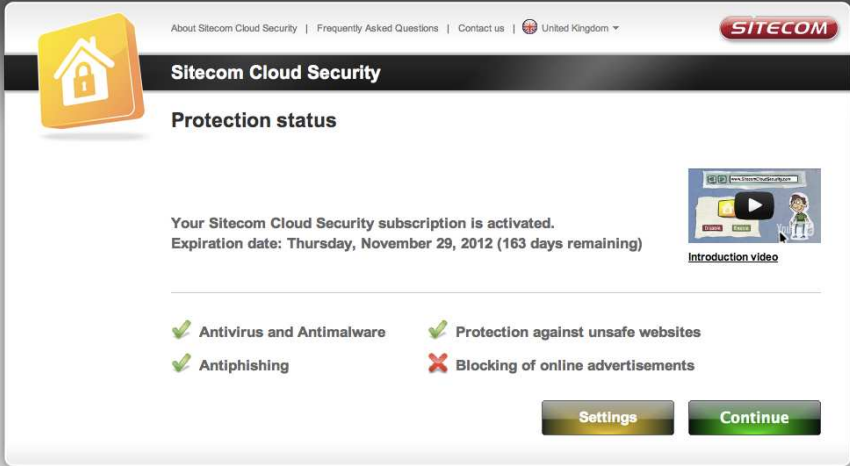
The *Sitecom Cloud Security* service offers the following protection options:

- Anti-Malware
- Anti-Phishing
- Protection against unsafe websites
- Advertisement blocking

After selecting your preferred protection options, enter the Key code and

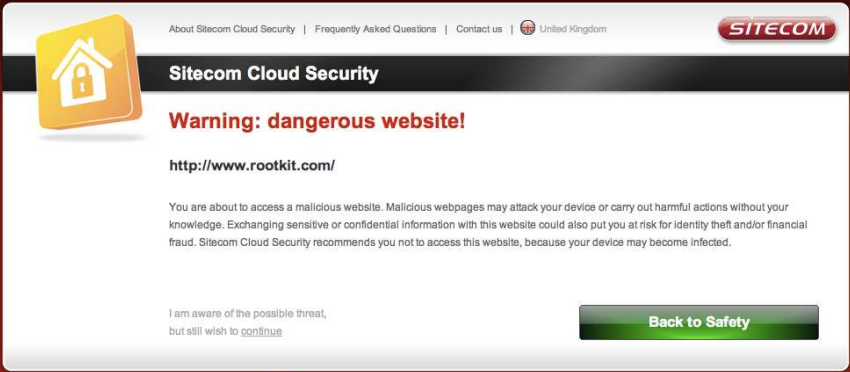
Security code that you have received with your Sitecom product.

Before you can now activate your subscription you will have to accept the license agreement. After this click the activation button. You will be shown the status of your *Sitecom cloud security* and the expiration date of your current subscription.



The screenshot displays the Sitecom Cloud Security dashboard. At the top, there is a navigation bar with links for 'About Sitecom Cloud Security', 'Frequently Asked Questions', 'Contact us', and a location dropdown set to 'United Kingdom'. The Sitecom logo is in the top right corner. Below the navigation bar, a yellow house icon with a lock is on the left, and the title 'Sitecom Cloud Security' is centered. The main section is titled 'Protection status'. It states: 'Your Sitecom Cloud Security subscription is activated. Expiration date: Thursday, November 29, 2012 (163 days remaining)'. To the right of this text is a video player thumbnail with a play button and the text 'Introduction video'. Below this, there are four protection features listed in a 2x2 grid: 'Antivirus and Antimalware' (checked), 'Antiphishing' (checked), 'Protection against unsafe websites' (checked), and 'Blocking of online advertisements' (unchecked, marked with a red X). At the bottom right of the main content area are two buttons: 'Settings' and 'Continue'. At the very bottom of the page, there is a small footer with the text: 'Powered by patent pending Hitman Pro technology from SurfRight. Copyright © 2011 Sitecom, All rights reserved. UTM/1.1.2 (WLR-4000v1002; 1.0)'.

With the protection of *unsafe websites* activated the *Sitecom Cloud Security* will always check if a website is safe. If it is not safe it will inform you that is not safe to enter.

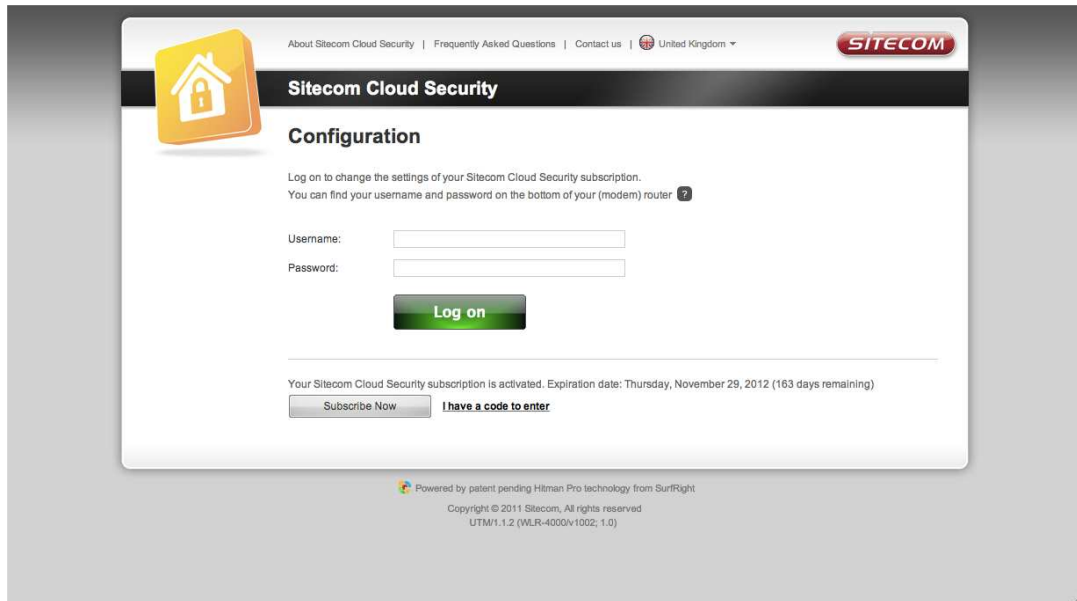


The screenshot shows a warning page from Sitecom Cloud Security. At the top left is a yellow house icon with a padlock. The top navigation bar includes links for 'About Sitecom Cloud Security', 'Frequently Asked Questions', 'Contact us', and 'United Kingdom', along with the 'SITECOM' logo. The main heading is 'Sitecom Cloud Security'. Below this, a red warning message reads 'Warning: dangerous website!' followed by the URL 'http://www.rootkit.com/'. A paragraph explains the risk: 'You are about to access a malicious website. Malicious webpages may attack your device or carry out harmful actions without your knowledge. Exchanging sensitive or confidential information with this website could also put you at risk for identity theft and/or financial fraud. Sitecom Cloud Security recommends you not to access this website, because your device may become infected.' At the bottom left, there is a link 'I am aware of the possible threat, but still wish to continue'. At the bottom right, there is a green button labeled 'Back to Safety'. The footer contains the text: 'Powered by patent pending Hitman Pro technology from SurRight', 'Copyright © 2011 Sitecom. All rights reserved', and 'UTM/I: 1.2 (WLR-4000/v1002; 1.0)'.

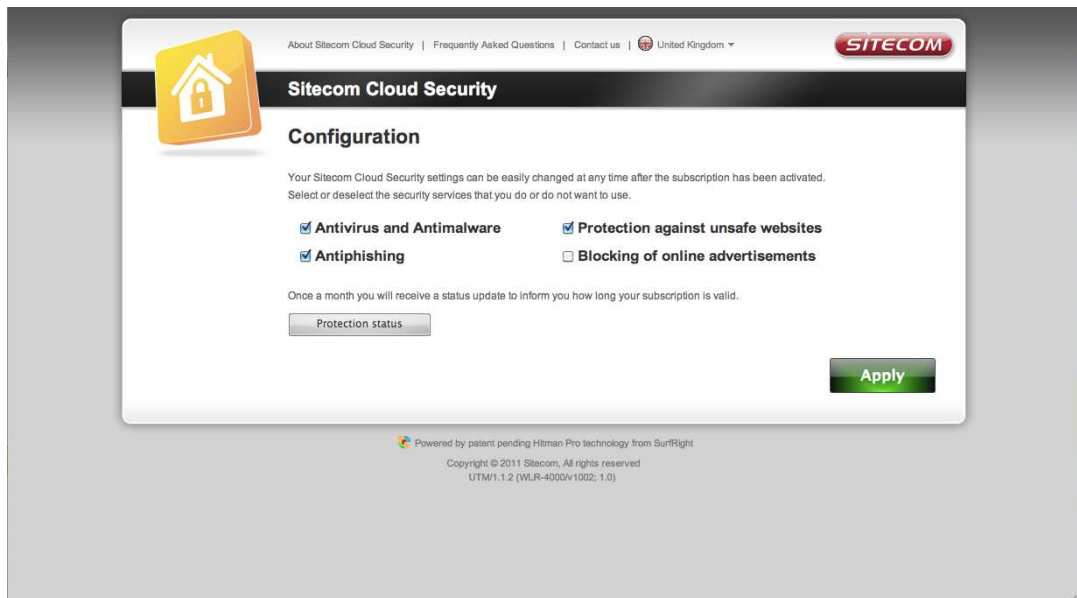
If you still wish to visit this webpage click on 'proceed anyway'. Alternatively click 'Back to Safety' so that your security will not be breached.

If you wish to change your security options or to extend your subscription at any time, open <http://www.sitecomcloudsecurity.com> from your web browser.

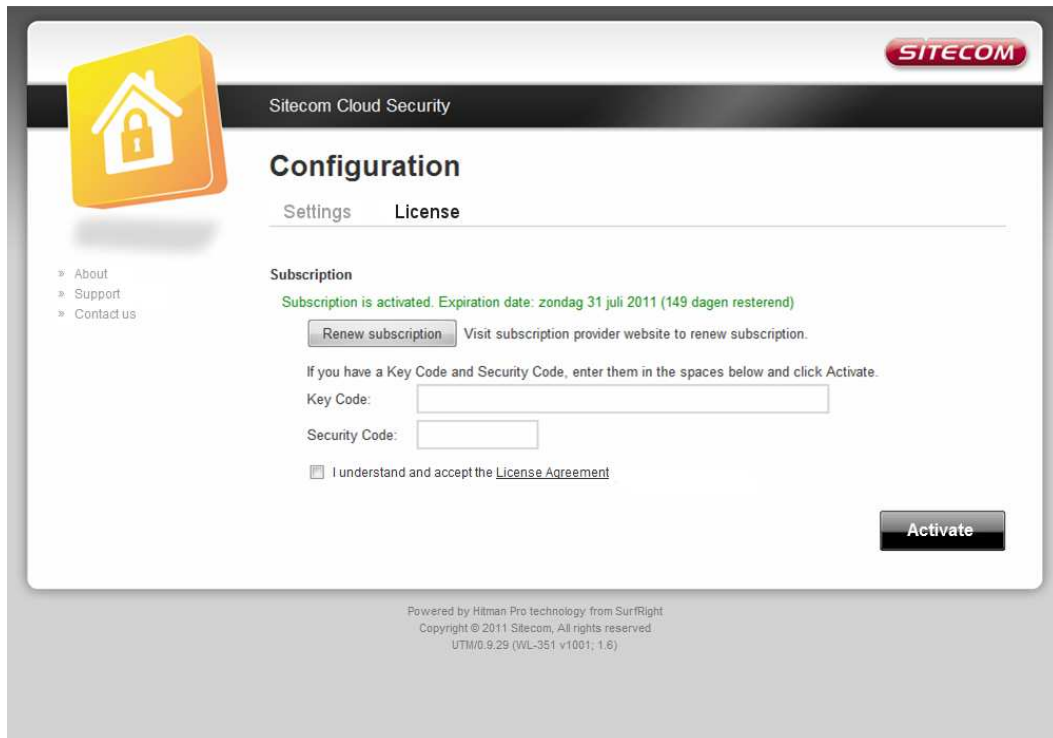
You will be asked for a username and password. These can be found on the backlabel on the bottom of your Sitecom router or modem.



If the login succeeded you can click on 'Settings' to change your security options.



Or click 'License' to renew your subscription.



If you wish to disable Sitecom cloud security at any time, open the webpage of your Sitecom product and log in with the supplied credentials (these can be found on the back label on the bottom of your Sitecom device).

Go to Toolbox and select "Sitecom Cloud Security".



Click the "Disable" radio button and click 'Apply' for the settings to take effect.

Password change options

You can change the password required to log into the broadband router's system web-based management. Passwords can contain 0 to 12 alphanumeric characters, and are case sensitive.



The screenshot shows the web management interface for a Sitecom wireless gigabit dualband router 300N. The page title is "wireless gigabit dualband router 300N" with the Sitecom logo. A navigation menu includes Status, Wizard, 2.4G Wireless Settings, 5G Wireless Settings, Firewall, Advanced Settings, and Toolbox. A sub-menu includes Sitecom Cloud Security, Password, Timezone, Remote, Firmware, Back-up, Reset, and DDNS. The "Password" sub-menu is selected, and the page displays the following text: "You can change the password which is required to log on to the router. By default, the password is admin. Passwords can contain 0 to 30 alphanumeric characters, and are case sensitive." Below this text are three input fields: "Current Password:", "New Password:", and "Confirm Password:". At the bottom right, there are "Apply" and "Cancel" buttons.

Current Password Fill in the current password to allow changing to a new password.

New Password Enter your new password.

Confirmed Password Enter your new password again for verification purposes.

Click <**Apply**> at the bottom of the screen to save the above configurations

Time Zone

The Time Zone allows your router to base its time on the settings configured here, which will affect functions such as Log entries and Firewall settings.



The screenshot shows the configuration page for the Time Zone on a Sitecom wireless gigabit dualband router 300N. The page has a navigation bar with tabs for Status, Wizard, 2.4G Wireless Settings, 5G Wireless Settings, Firewall, Advanced Settings, and Toolbox. Below the navigation bar, there are sub-tabs for Sitemcom Cloud Security, Password, Timezone, Remote, Firmware, Back-up, Reset, and DDNS. The main content area contains the following settings:

- Set Time Zone :** (GMT+01:00)Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna
- Time Server Address :** europe.pool.ntp.org
- Daylight Saving :** Enable From March 27 To October 27

At the bottom right, there are buttons for Apply and Cancel.

Set Time Zone Select the time zone of the country you are currently in. The router will set its time based on your selection.

Time Server Address You can set an NTP server address.

Enable Daylight Savings The router can also take Daylight savings into account. If you wish to use this function, you must check/tick the enable box to enable your daylight saving configuration (below).

Start Daylight Savings Time Select the period in which you wish to start daylight Savings Time

End Daylight Savings Time Select the period in which you wish to end daylight Savings Time

Click <**Apply**> at the bottom of the screen to save the above configurations

Remote Management

The remote management function allows you to designate a host in the Internet the ability to configure the Broadband router from a remote site. Enter the designated host IP Address in the Host IP Address field.



The screenshot shows the configuration page for the remote management function on a Sitecom wireless gigabit dualband router 300N. The page has a navigation menu with tabs for Status, Wizard, 2.4G Wireless Settings, 5G Wireless Settings, Firewall, Advanced Settings, and Toolbox. Below this is a sub-menu with tabs for Sitecom Cloud Security, Password, Timezone, Remote, Firmware, Back-up, Reset, and DDNS. The main content area contains a text box explaining the function: "The remote management function allows you to designate a host from the Internet to have management/configuration access to the router from a remote site. Enter the designated host IP Address in the Host IP Address field." Below this is a table with three columns: Host Address, Port, and Enable. The Host Address field is empty, the Port field contains "8080", and the Enable field has a checked checkbox. At the bottom right are "Apply" and "Cancel" buttons.

Host Address	Port	Enable
<input type="text"/>	<input type="text" value="8080"/>	<input checked="" type="checkbox"/>

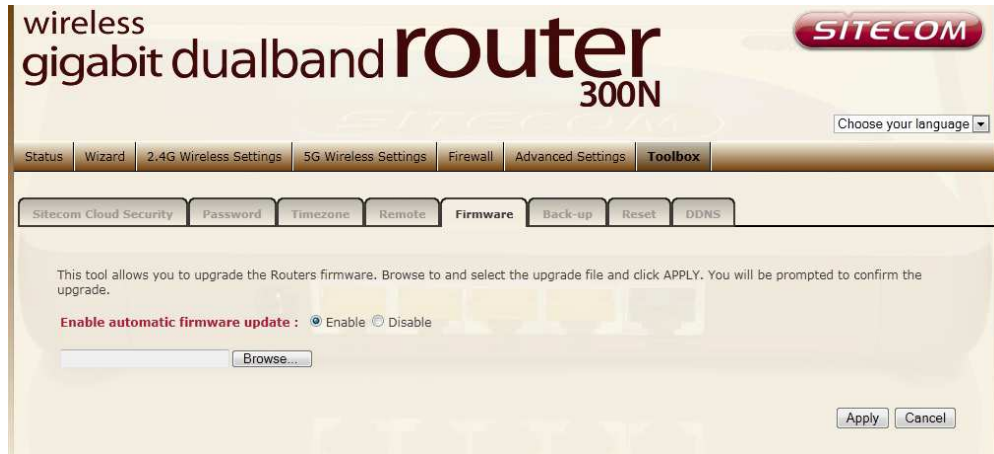
Host Address This is the IP address of the host in the Internet that will have management/configuration access to the Broadband router from a remote site. If the Host Address is left 0.0.0.0 this means anyone can access the router's web-based configuration from a remote location, providing they know the password.

Port The port number of the remote management web interface.

Enabled Select "**Enabled**" to enable the remote management function.

Click <**Apply**> at the bottom of the screen to save the above configurations.

Firmware Upgrade



The screenshot shows the web interface for a Sitecom wireless gigabit dualband router 300N. The page title is "wireless gigabit dualband router 300N" with the Sitecom logo. A language selection dropdown is visible. The navigation menu includes Status, Wizard, 2.4G Wireless Settings, 5G Wireless Settings, Firewall, Advanced Settings, and Toolbox. The Firmware section is active, showing options for Sitecom Cloud Security, Password, Timezone, Remote, Firmware, Back-up, Reset, and DDNS. The main content area contains instructions: "This tool allows you to upgrade the Routers firmware. Browse to and select the upgrade file and click APPLY. You will be prompted to confirm the upgrade." Below this, there is a checkbox for "Enable automatic firmware update" with "Enable" selected and "Disable" as an alternative. A file selection field with a "Browse..." button is provided. At the bottom right, there are "Apply" and "Cancel" buttons.

Firmware Upgrade This tool allows you to upgrade the Broadband router's system firmware. To upgrade the firmware of your Broadband router, you need to download the firmware file to your local hard disk, and enter that file name and path in the appropriate field on this page. You can also use the Browse button to find the firmware file on your PC.

Once you've selected the new firmware file, click <**Apply**> at the bottom of the screen to start the upgrade process

Backup Settings

The Backup screen allows you to save (Backup) the router's current configuration settings. When you save the configuration setting (Backup) you can re-load the saved configuration into the router through the Restore selection. If extreme problems occur you can use the Restore to Factory Defaults selection, this will set all configurations to its original default settings (e.g. when you first purchased the router).



Use the "Backup" tool to save the Broadband router current configuration to a file named "**config.bin**" on your PC. You can then use the "Restore" tool to restore the saved configuration to the Broadband router. Alternatively, you can use the "Restore to Factory Defaults" tool to force the Broadband router to perform a power reset and restore the original factory settings.

Reset

You can reset the router's system should any problem exist. The reset function essentially re-boots your router's system.



DDNS

DDNS allows you to map the static domain name to a dynamic IP address. You must get an account, password and your static domain name from the DDNS service providers. This router supports DynDNS, TZO and other common DDNS service providers.

The screenshot shows the DDNS configuration page of a Sitecom wireless gigabit dualband router 300N. The page has a header with the router model and a 'SITCOM' logo. Below the header is a navigation menu with tabs for Status, Wizard, 2.4G Wireless Settings, 5G Wireless Settings, Firewall, Advanced Settings, and Toolbox. The DDNS tab is selected. The main content area contains a description of DDNS and a form with the following fields:

- Dynamic DNS :** Radio buttons for Enable and Disable (Disable is selected).
- Provider :** A dropdown menu with '3322(qdns)' selected.
- Domain Name :** A text input field.
- Account/E-mail :** A text input field.
- Password/Key :** A text input field.

At the bottom right of the form are 'Apply' and 'Cancel' buttons.

Enable/Disable Enable or disable the DDNS function of this router

Provider Select a DDNS service provider

Domain name Fill in your static domain name that uses DDNS

Account/E-mail The account that your DDNS service provider assigned to you

Password/Key The password you set for the DDNS service account above

Click <**Apply**> at the bottom of the screen to save the above configurations.

Parts of the firmware of the WLR-5001v1001 Wireless Broadband Router are subject to the [GNU general public license](#).

Appendix A: Licensing Information

This product includes third-party software licensed under the terms of the [GNU General Public License](#). You can modify or redistribute this free software under the terms of the [GNU General Public License](#). Please see Appendix B for the exact terms and conditions of this license.

Specifically, the following part of this product is subject to the GNU GPL:

#	Package name	Source
1	Linux v2.6.21	www.kernel.org
2	Iptables v1.3.5	www.netfilter.org/
3	Bridge-utils v1.2	bridge.sourceforge.net/
4	Busybox v1.7.5	www.busybox.net/
5	Rp-pppoe v3.8	freshmeat.net/projects/rp-pppoe/
6	Pptp-client v1.7.1	pptpclient.sourceforge.net/
7	Ppp v2.4.3	ppp.samba.org/
8	Udhcp v0.9.9-pre	udhcp.busybox.net/
9	iproute2 v2.6.16-060323	www.linux-foundation.org/en/Net:Iproute2
10	Dnsmasq v2.39	www.thekelleys.org.uk/dnsmasq/doc.html
11	Ez-ipupdate v3.0.11b8	ez-ipupdate.com/
12	Libupnp v1.6.0	upnp.sourceforge.net/
13	Wireless-tools v28	RaLink SDK 3.1.0.0
14	U-boot v1.1.3	RaLink SDK 3.1.0.0
15	gcc-3.3.6	RaLink SDK 3.1.0.0
16	Uclibc-0.9.29	RaLink SDK 3.1.0.0

Availability of source code

Sitecom Europe BV has made available the full source code of the GPL licensed software, including any scripts to control the compilation and installation of the object code on the CD-ROM that's shipped with this product.

No Warranty

The free software included in this product is distributed in the hope that it will be useful, but WITHOUT ANY LIABILITY OF OR ANY WARRANTY FROM THE LICENSOR.

Appendix B: GNU GENERAL PUBLIC LICENSE

Version 2, June 1991 Copyright (C) 1989, 1991 Free Software Foundation, Inc. 59 Temple Place - Suite 330, Boston, MA 02111-1307, USA Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

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Sitecom Europe BV

EC Declaration of Conformity

We
Sitecom Europe BV
Linatebaan 101
3045 AH Rotterdam
The Netherlands

Hereby declare under our sole responsibility that the Sitecom product:

Product number: WLR-5001 v1 001
Product description: Wireless Gigabit VPN Router N600 X5

To which this declaration relates is in conformity with the requirements of the following standards:

CE/LVD

· EN 60950-1: 2006+A11 (2009)

CE/EMC

· EN 301 489-1 V1.8.1
· EN 301 489-17 V2.1.1

RADIO SPECTRUM

· EN 300 328 V1.7.1 2006-10
· EN 50385 2002
· EN 301 893 V1.5.1.

This certifies that the following designated Sitecom product:

Product description: Wireless Gigabit VPN Router N600 X5
Product No.: WLR-5001 v1 001

Complies with the requirements of the following directives and carries the CE marking accordingly:
R&TTE Directive 99/5/EC, EMC directive 2004/95/EC and Low Voltage Directive 2006/95/EC.
This declaration is the responsibility of the manufacturer / importer:

Sitecom Europe B.V.
Rotterdam, 29 May 2012

P. Schoonenberg,



CEO



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