Air Live®
Powered by OvisLink Corp.

WT-2000AP

Turbo-G Wireless Access Point

User's Manual

www.airlive.com

Declaration of Conformity

We, Manufacturer/Importer

OvisLink Corp.
5F., NO.6, Lane 130, Min-Chuan Rd.,
Hsin-Tien City, Taipei County, Taiwan

Declare that the product

Turbo 802.11g Wireless Broadband Router
AirLive WT-2000R / WT-2000AP
is in conformity with

In accordance with 89/336 EEC-EMC Directive and 1999/5 EC-R & TTE Directive

Clause	Description
■ **EN 300 328 V1.6.1 (2004)**	Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband transmission equipment operating in the 2.4GHz ISM band And using spread spectrum modulation techniques; Part 1：technical Characteristics and test conditions Part2：Harmonized EN covering Essential requirements under article 3.2 of the R&TTE Directive
■ **EN 301 489-1 V1.4.1 (2002)** ■ **EN 301 489-17 V1.2.1 (2002)**	Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic compatibility(EMC) standard for radio equipment and Services; Part 17：Specific conditions for wideband data and HIPERLAN equipment
■ **EN 50385:2002**	Product standard to demonstrate the Compliance of radio base stations and Fixed terminal stations for wireless Telecommunication System with the Basic restrictions or the reference levels related to human exposure to radio Frequency electromagnetic fields (110 MHz – 40 GHz) - General public
■ **EN 60950-1: 2001**	Safety for information technology equipment including electrical business equipment
■ **CE marking**	CE 0678 ①

Manufacturer/Importer

Signature：
Name ： **Albert Yeh**
Position/ Title ： **Vice President**

Date： **2006/7/26**

(Stamp)

AirLive WT-2000R/WT-2000AP CE Declaration Statement

Country	Declaration	Country	Declaration
cs Česky [Czech]	OvisLink Corp. tímto prohlašuje, že tento AirLive WT-2000R/WT-2000AP je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.	**lt** Lietuvių [Lithuanian]	Šiuo OvisLink Corp. deklaruoja, kad šis AirLive WT-2000R/WT-2000AP atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
da Dansk [Danish]	Undertegnede OvisLink Corp. erklærer herved, at følgende udstyr AirLive WT-2000R/WT-2000AP overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.	**nl** Nederlands [Dutch	Hierbij verklaart OvisLink Corp. dat het toestel AirLive WT-2000R/WT-2000AP in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
de Deutsch [German]	Hiermit erklärt OvisLink Corp., dass sich das Gerät AirLive WT-2000R/WT-2000AP in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.	**mt** Malti [Maltese]	Hawnhekk, OvisLink Corp, jiddikjara li dan AirLive WT-2000R/WT-2000AP jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC.
et Eesti [Estonian]	Käesolevaga kinnitab OvisLink Corp. seadme AirLive WT-2000R/WT-2000AP vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.	**hu** Magyar [Hungarian]	Az OvisLink Corporation kijelenti, hogy az AirLive WT-2000R/WT-2000AP megfelel az 1999/05/CE irányelv alapvető követelményeinek és egyéb vonatkozó rendelkezéseinek.
en English	Hereby, OvisLink Corp., declares that this AirLive WT-2000R/WT-2000AP is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.	**pl** Polski [Polish]	Niniejszym OvisLink Corp oświadcza, że AirLive WT-2000R/WT-2000AP jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
es Español [Spanish]	Por medio de la presente OvisLink Corp. declara que el AirLive WT-2000R/WT-2000AP cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.	**pt** Português [Portuguese]	OvisLink Corp declara que este AirLive WT-2000R/WT-2000AP está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
el Ελληνική [Greek]	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ OvisLink Corp. ΔΗΛΩΝΕΙ ΟΤΙ AirLive WT-2000R/WT-2000AP ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.	**sl** Slovensko [Slovenian]	OvisLink Corp izjavlja, da je ta AirLive WT-2000R/WT-2000AP v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
fr Français [French]	Par la présente OvisLink Corp. déclare que l'appareil AirLive WT-2000R/WT-2000AP est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE	**sk** Slovensky [Slovak]	OvisLink Corp týmto vyhlasuje, že AirLive WT-2000R/WT-2000AP spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
it Italiano [Italian]	Con la presente OvisLink Corp. dichiara che questo AirLive WT-2000R/WT-2000AP è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.	**fi** Suomi [Finnish]	OvisLink Corp vakuuttaa täten että AirLive WT-2000R/WT-2000AP tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen
lv Latviski [Latvian]	Ar šo OvisLink Corp. deklarē, ka AirLive WT-2000R/WT-2000AP atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.	Íslenska [Icelandic]	Hér með lýsir OvisLink Corp yfir því að AirLive WT-2000R/WT-2000AP er í samræmi við grunnkröfur og aðrar kröfur, sem gerðar eru í tilskipun 1999/5/EC.
sv Svenska [Swedish]	Härmed intygar OvisLink Corp. att denna AirLive WT-2000R/WT-2000AP står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.	**no** Norsk [Norwegian]	OvisLink Corp erklærer herved at utstyret AirLive WT-2000R/WT-2000AP er i samsvar med de grunnleggende krav og øvrige relevante krav i direktiv 1999/5/EF.

A copy of the full CE report can be obtained from the following address:

OvisLink Corp.
5F, No.6 Lane 130,
Min-Chuan Rd, Hsin-Tien City,
Taipei, Taiwan, R.O.C.

This equipment may be used in AT, BE, CY, CZ, DK, EE, FI, FR, DE, GR, HU, IE, IT, LV, LT, LU, MT, NL, PL, PT, SK, SI, ES, SE, GB, IS, LI, NO, CH, BG, RO, TR

Copyright

The contents of this publication may not be reproduced in any part or as a whole, stored, transcribed in an information retrieval system, translated into any language, or transmitted in any form or by any means, mechanical, magnetic, electronic, optical, photocopying, manual, or otherwise, without the prior written permission.

Trademarks

All products, company, brand names are trademarks or registered trademarks of their respective companies. They are used for identification purpose only. Specifications are subject to be changed without prior notice.

FCC Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against radio interference in a commercial environment. This equipment can generate, use and radiate radio frequency energy and, if not installed and used in accordance with the instructions in this manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures are necessary to correct the interference.

CE Declaration of Conformity

This equipment complies with the requirements relating to electromagnetic compatibility, EN 55022/A1 Class B.

The specification is subject to change without notice.

Table of Contents

CHAPTER 1 INTRODUCTION 4

1.1 FUNCTIONS AND FEATURES 4
1.2 PACKING LIST 4

CHAPTER 2 HARDWARE INSTALLATION 5

2.1 PANEL LAYOUT 5
2.1.1. Front Panel *5*
2.1.2. Rear Panel *5*
2.2 PROCEDURE FOR HARDWARE INSTALLATION 6

CHAPTER 3 NETWORK SETTINGS AND SOFTWARE INSTALLATION 7

3.1 MAKE CORRECT NETWORK SETTINGS OF YOUR COMPUTER 7

CHAPTER 4 CONFIGURING WIRELESS ACCESS POINT 8

4.1 START-UP AND LOG IN 8
4.2 STATUS 9
4.3 VIEW LOG 9
4.4 CLIENT LIST 10
4.5 WIZARD 10
4.6 BASIC SETTING 12
4.6.1 Primary Setup – LAN IP Address *12*
4.7 ADVANCED SETTINGS 22
4.7.1 System Time *22*
4.8 MAINTENANCE 23
4.8.1 Change Password *23*
4.8.2 View Log *24*
4.8.3 Firmware Upgrade *24*
4.8.4 Backup Setting *25*
4.8.5 Reset to default *25*
4.8.6 Reboot *25*

APPENDIX A TCP/IP CONFIGURATION FOR WINDOWS 95/98 26

APPENDIX B 802.1X SETTING 31

APPENDIX C WDS SETTING 35

APPENDIX D FAQ AND TROUBLESHOOTING 38

Chapter 1 Introduction

Congratulations on your purchase of this outstanding AirLive Wireless AP This product is specifically designed for Small Office and Home Office needs. Instructions for installing and configuring this product can be found in this manual. Before you install and use this product, please read this manual carefully for fully exploiting the functions of this product.

1.1 Functions and Features

AP Basic functions

- **Auto-sensing Ethernet Switch**
  Equipped with a 4-port auto-sensing Ethernet switch.
- **DHCP server supported**
  All of the networked computers can retrieve TCP/IP settings automatically from this product.
- **Web-based configuring**
  Configurable through any networked computer's web browser using Netscape or Internet Explorer.

Wireless functions

- **High speed for wireless LAN connection**
  Up to 54Mbps data rate by incorporating Orthogonal Frequency Division Multiplexing (OFDM).
- **Roaming**
  Provides seamless roaming within the IEEE 802.11b (11M) and IEEE 802.11g (54M) WLAN infrastructure.
- **IEEE 802.11b compatible (11M)**
  Allowing inter-operation among multiple vendors.
- **IEEE 802.11g compatible (54M)**
  Allowing inter-operation among multiple vendors.
- **Auto fallback**
  54M, 48M, 36M, 24M, 18M, 12M, 6M data rate with auto fallback in 802.11g mode.
  11M, 5.5M, 2M, 1M data rate with auto fallback in 802.11b mode.

Security functions

- **802.1X supported**
  When the 802.1X function is enabled, the Wireless user must authenticate to this router first to use the Network service.
- **Support WPA-PSK and WPA version 1 and 2**
  When the WPA function is enabled, the Wireless user must authenticate to this router first to use the Network service

Advanced functions

- **System time Supported**
  Allow you to synchronize system time with network time server.

1.2 Packing List

- Wireless AP unit
- Installation CD-ROM
- Power adapter
- CAT-5 UTP Fast Ethernet cable

Chapter 2 Hardware Installation

2.1 Panel Layout

2.1.1. Front Panel

Figure 2-1 Front Panel

LED: Ports:

Port	Description
PWR	Power inlet
Port 1-4	the ports where you will connect networked computers and other devices.

2.1.2. Rear Panel

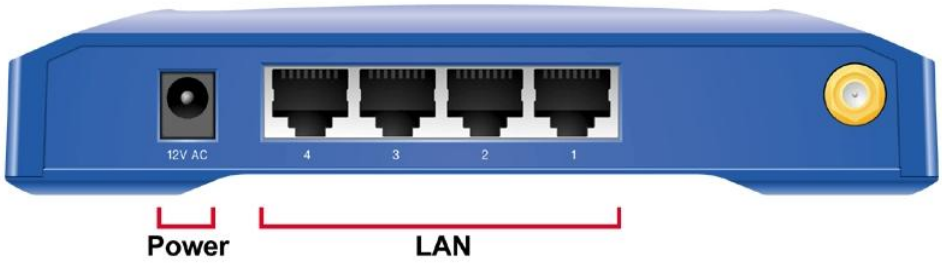


Figure 2-2 Rear Panel

LED:

LED	Function	Color	Status	Description
Power	Power indication	Green	On	Power is being applied to this product.
Status	System status	Green	Blinking	Status is flashed once per second to indicate system is alive.
WLAN	Wireless activity	Green	Blinking	The WAN port is sending or receiving data.
			Blinking	Sending or receiving data via wireless
Link. 1~4	Link status	Green	On	An active station is connected to the corresponding LAN port.
Speed 10/100	Data Rate	Green	Blinking	The corresponding LAN port is sending or receiving data.
			On	Data is transmitting in 100Mbps on the corresponding LAN port.
Reset				To reset system settings to factory defaults

2.2 Procedure for Hardware Installation

2. Decide where to place your Wireless Access Point

You can place your Wireless Access Point on a desk or other flat surface, or you can mount it on a wall. For optimal performance, place your Wireless Access Point in the center of your office (or your home) 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 power and network connection.

2. Setup LAN connection

a. Wired LAN connection: connects an Ethernet cable from your computer's Ethernet port to one of the LAN ports of this product.

b. Wireless LAN connection: locate this product at a proper position to gain the best transmit performance.

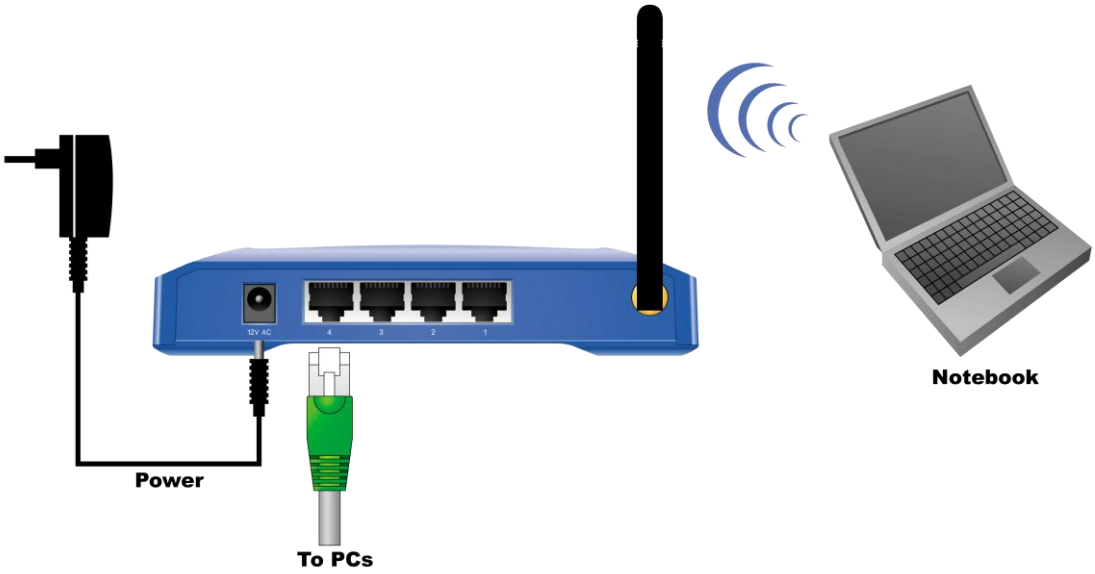


Figure 2-3 Setup of WLAN and LAN connections for this product.

4. Power on

Connecting the power cord to power inlet and turning the power switch on, this product will automatically enter the self-test phase. When it is in the self-test phase, the indicators M1 will be lighted ON for about 10 seconds, and then M1 will be flashed 3 times to indicate that the self-test operation has finished. Finally, the M1 will be continuously flashed once per second to indicate that this product is in normal operation.

Chapter 3 Network Settings and Software Installation

To use this product correctly, you have to properly configure the network settings of your computers and install the attached setup program into your MS Windows platform (Windows 95/98/NT/2000).

3.1 Make Correct Network Settings of Your Computer

The default IP address of this product is 192.168.1.254, and the default subnet mask is 255.255.255.0. These addresses can be changed on your need, but the default values are used in this manual. If the TCP/IP environment of your computer has not yet been configured, you can refer to **Appendix A** to configure it. For example,

1. configure IP as 192.168.1.1, subnet mask as 255.255.255.0 and gateway as 192.168.1.254, or more easier,
2. configure your computers to load TCP/IP setting automatically, that is, via DHCP server of this product.

After installing the TCP/IP communication protocol, you can use the **ping** command to check if your computer has successfully connected to this product. The following example shows the ping procedure for Windows 95 platforms. First, execute the **ping** command

ping 192.168.1.254

If the following messages appear:

Pinging 192.168.1.254 with 32 bytes of data:

Reply from 192.168.1.254: bytes=32 time=2ms TTL=64

a communication link between your computer and this product has been successfully established. Otherwise, if you get the following messages,

Pinging 192.168.1.254 with 32 bytes of data:

Request timed out.

There must be something wrong in your installation procedure. You have to check the following items in sequence:

1. Is the Ethernet cable correctly connected between this product and your computer?

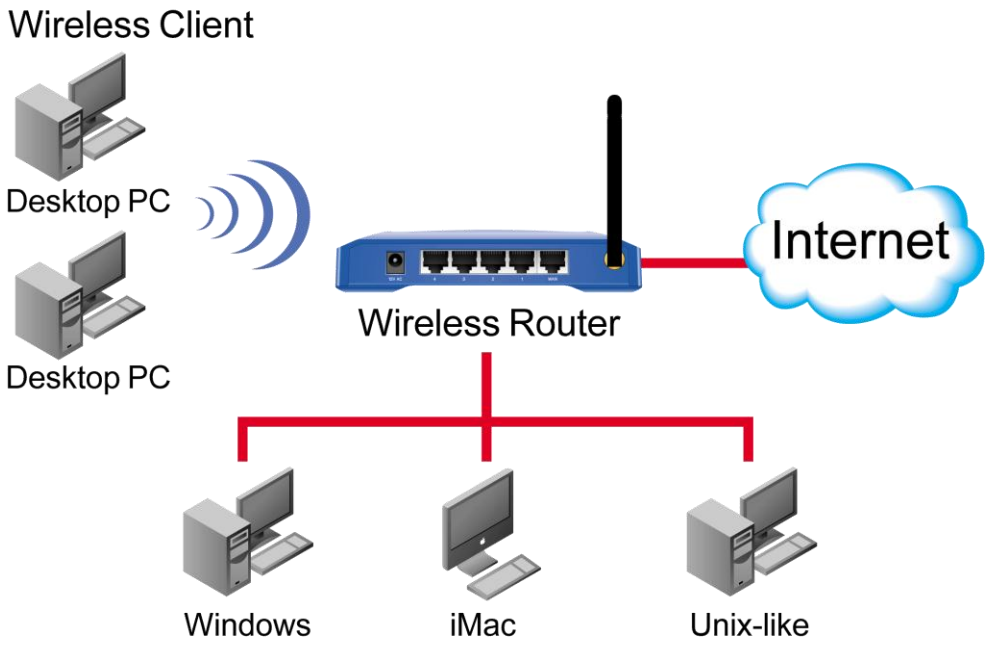
   Tip: The LAN LED of this product and the link LED of network card on your computer must be lighted.

2. Is the TCP/IP environment of your computers properly configured?

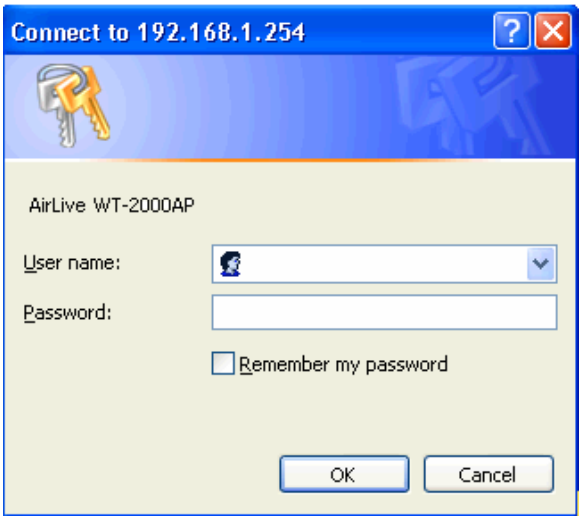
   Tip: If the IP address of this product is 192.168.1.254, the IP address of your computer must be 192.168.1.X and default gateway must be 192.168.1.254.

Chapter 4 Configuring Wireless Access Point

This product provides Web based configuration scheme, that is, configuring by your Web browser, such as Netscape Communicator or Internet Explorer. This approach can be adopted in any MS Windows, Macintosh or UNIX based platforms.



4.1 Start-up and Log in

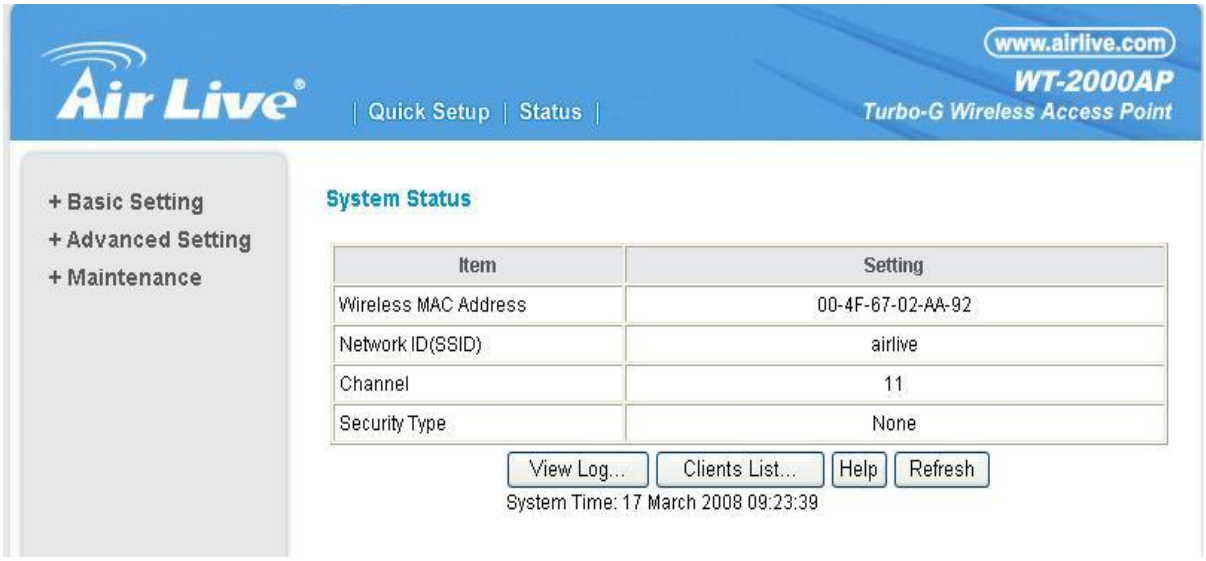


Activate your browser, and **disable the proxy** or **add the IP address of this product into the exceptions**. Then, type this product's IP address in the Location (for Netscape) or Address (for IE) field and press ENTER. For example: **http://192.168.1.254**.

After the connection is established, you will see the web user interface of this product. There are two appearances of web user interface: for general users and for system administrator.

A window would pop-up asking for Login and Password. Please enter "**admin**" for login, and "**airlive**" for password.

4.2 Status

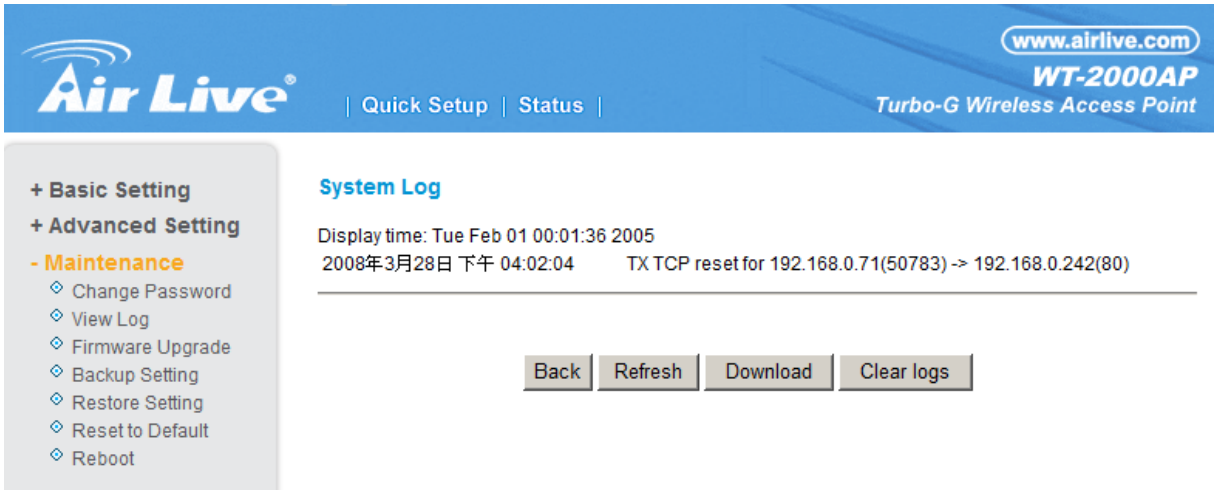


This option provides the function for observing this product's working status:

A. **Wireless MAC Address:** display the MAC address of this Wireless Access Point.
B. **Network ID (SSID):**
The SSID is the network name used to identify a wireless network. The SSID must be the same for all devices in the wireless network (i.e. in the same BSS). Several access points on a network can have the same SSID. The SSID length is up to 32 characters. The default SSID is "**airlive**".
C. **Channel:** display the Channel number of this Wireless Access Point
D. **Security Type**: shows Wireless Security type information

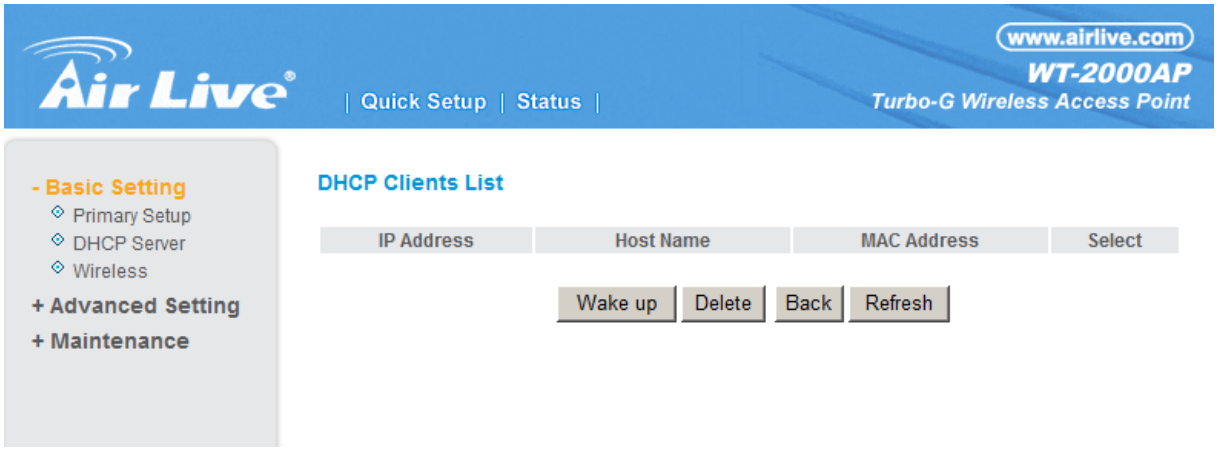
4.3 View Log

Click the View Log button on System Status Page You can see the access logs from this screen also you can download the logs and save to your computer.



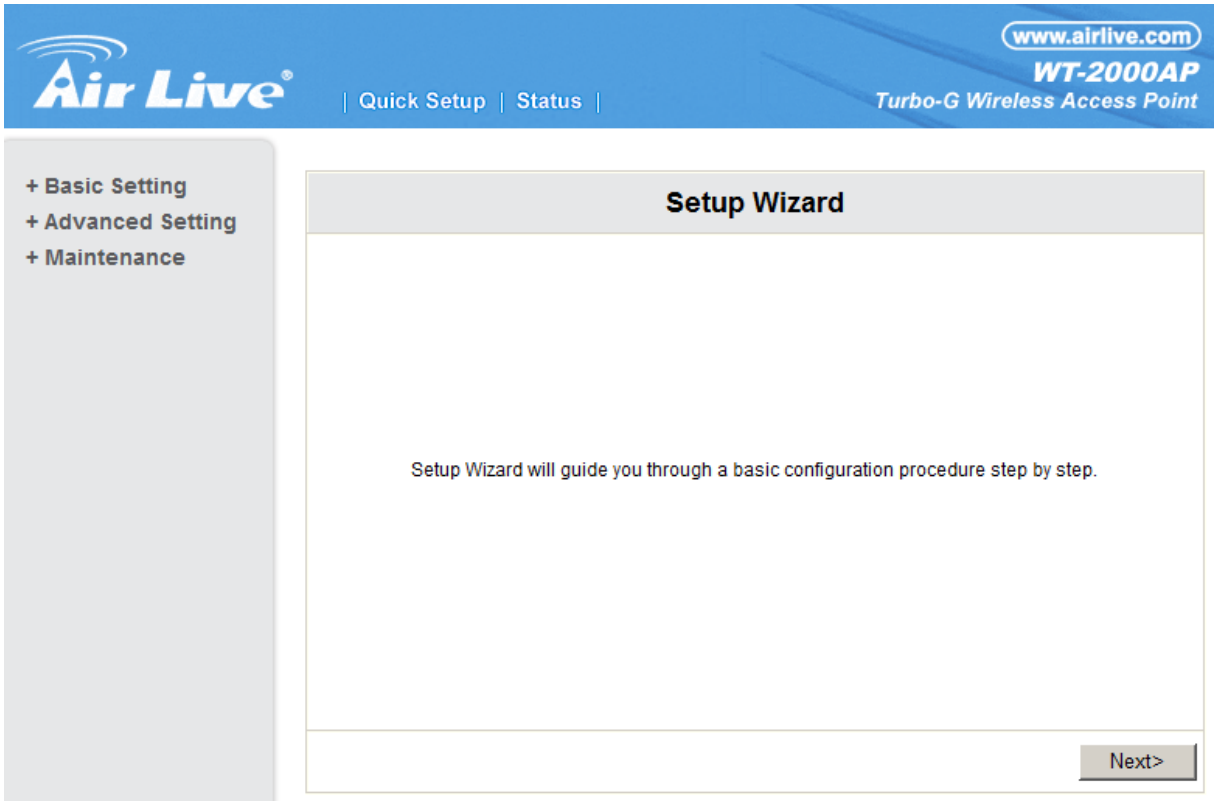
4.4 Client List

You can see the DHCP client information include Client IP,Host Name, Client's MAC address, administrator can select the client and do wake up and Delete actions, before you click the Wake Up button, just make sure the network adapter of the machine support wake on LAN function and turn it on. then just workable.



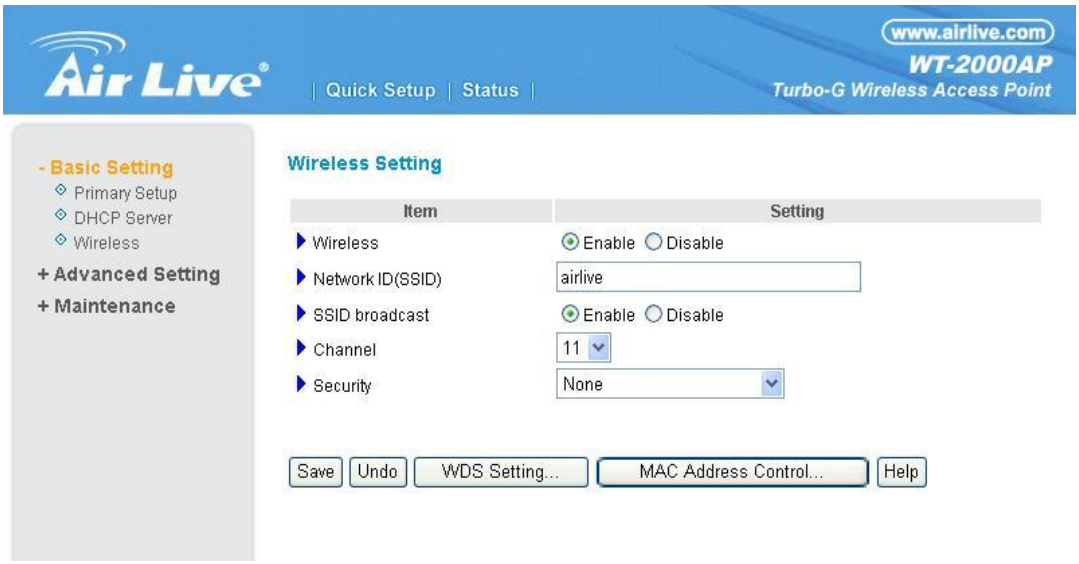
4.5 Wizard

Setup Wizard will guide you through a basic configuration procedure step by step. Press **"Next >"**

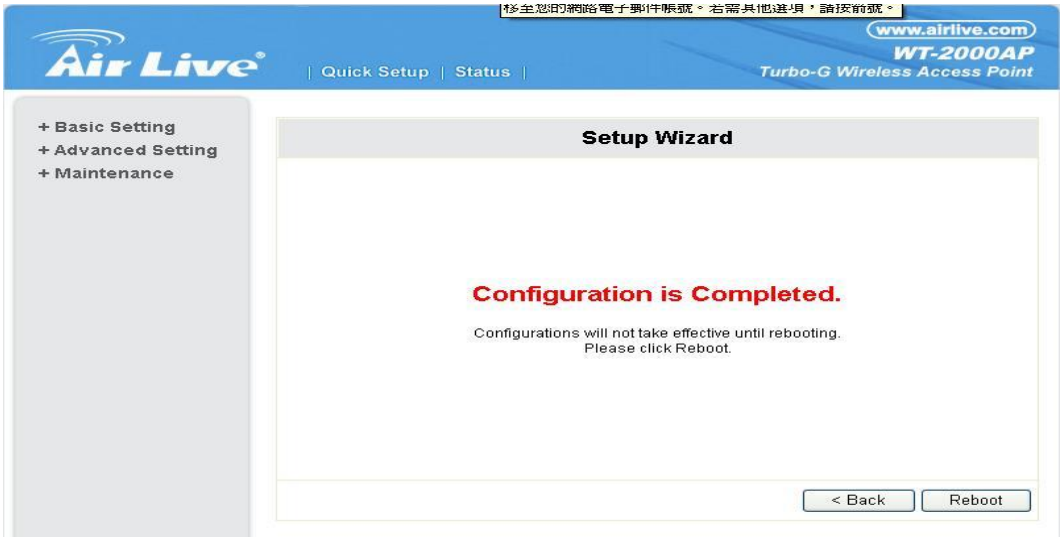


Setup Wizard – LAN IP Address: enter the IP address of this machine.

Setup Wizard – Wireless Setting : for details , please read the Basic Setting → Wireless.:

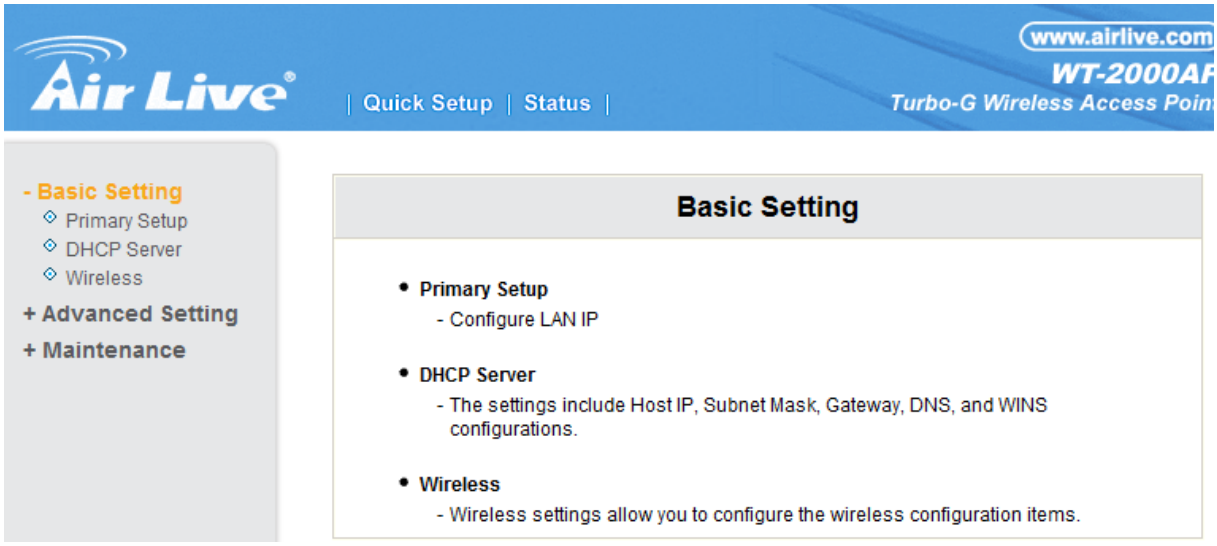


Setup Wizard – Configuration is Completed : save and Reboot this machine

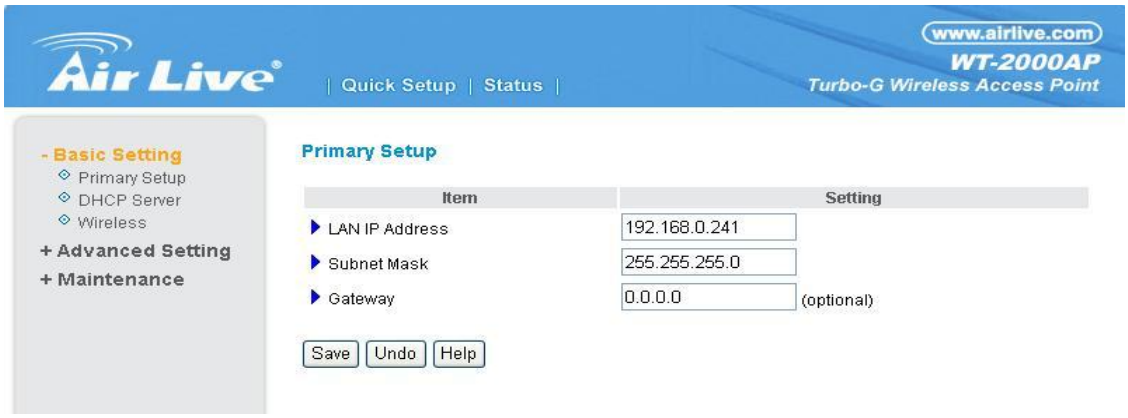


4.6 Basic Setting

Basic Setting have Primary Setup, DHCP Server, and Wireless setting functions.

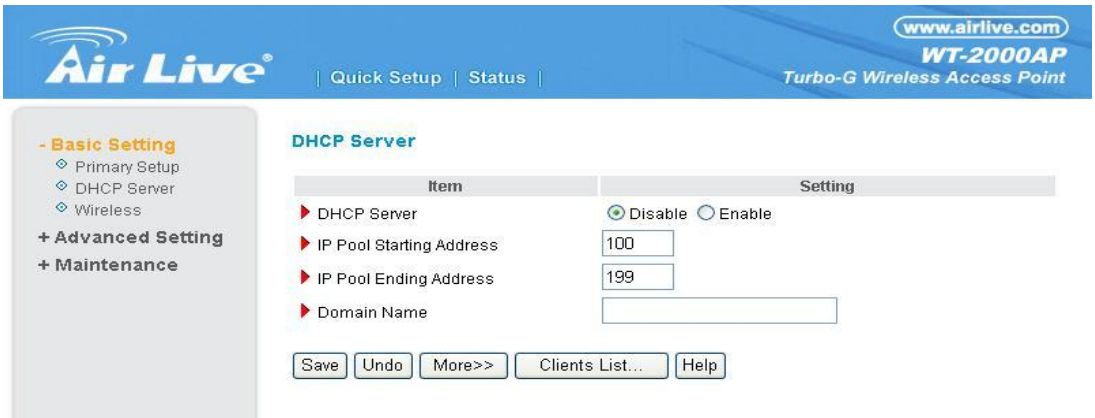


4.6.1 Primary Setup – LAN IP Address



Entering the IP Address: default ip is 192.168.1.254, you can change ip address in this field and Press **"Save"**

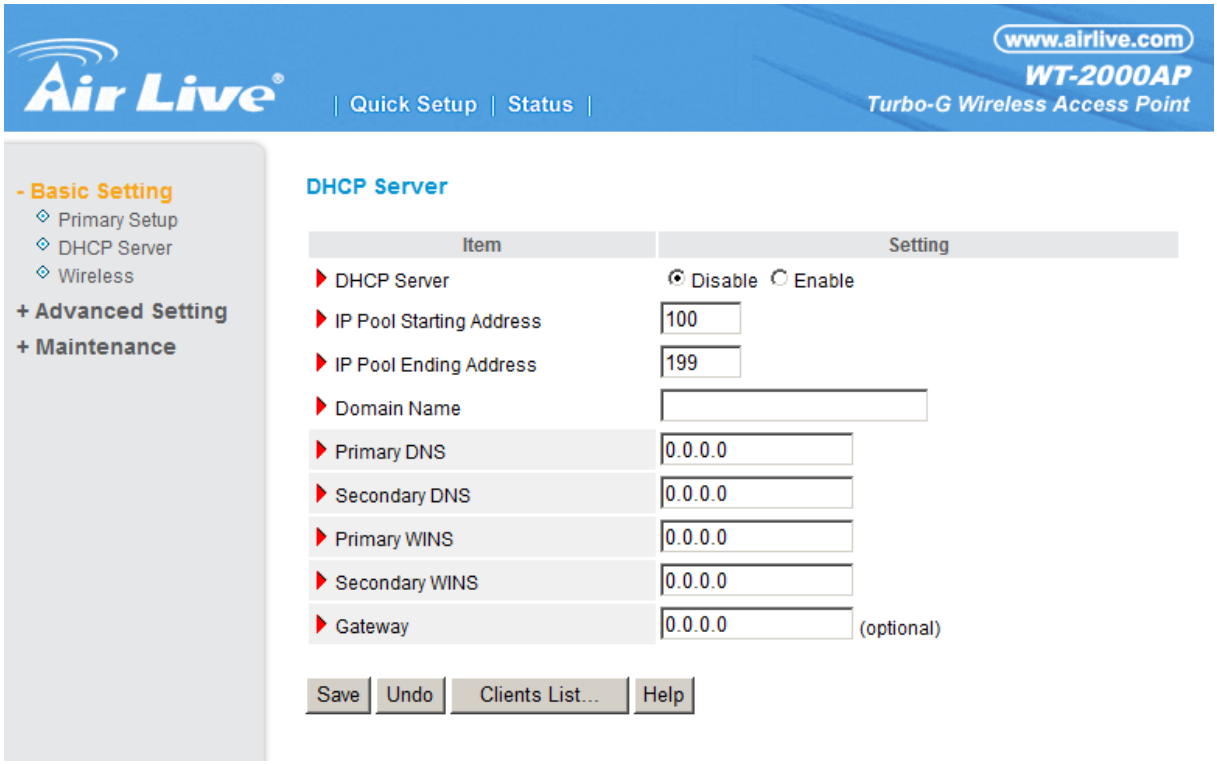
4.6.2 DHCP Server



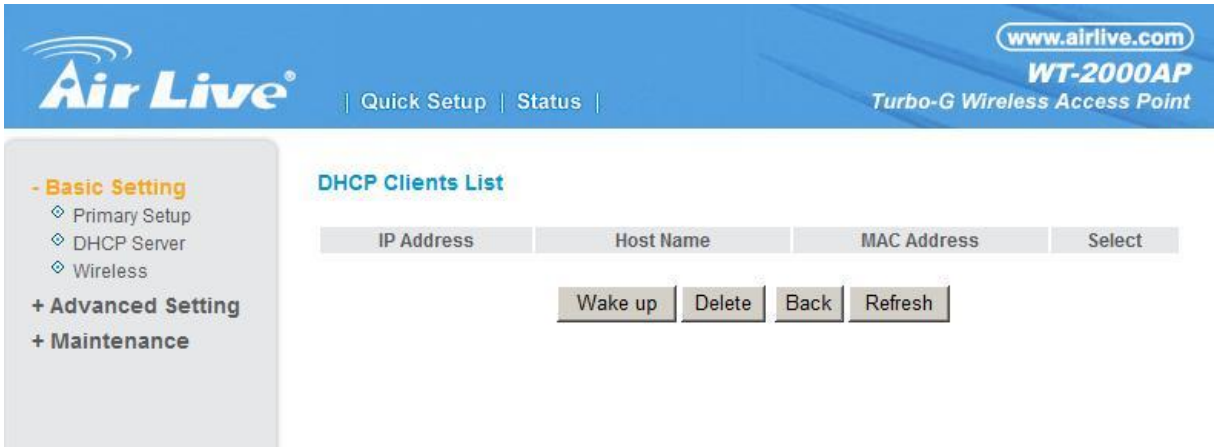
The settings of DHCP server include the following items:

1. **DHCP Server**: Choose "Disable" or "Enable."

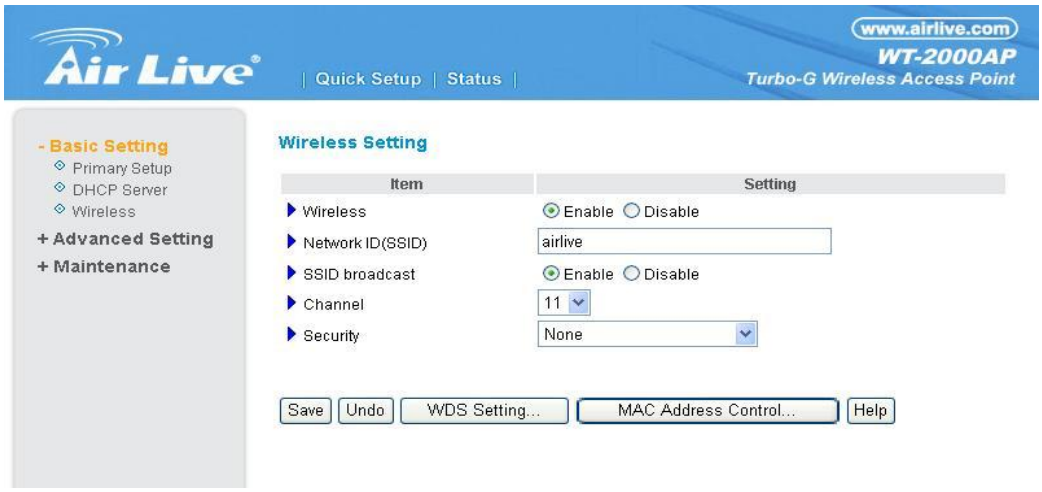
2. **IP pool starting Address/ IP pool ending Address**: Whenever there is a request, the DHCP server will automatically allocate an unused IP address from the IP address pool to the requesting computer. You must specify the starting and ending address of the IP address pool.
3. **Domain Name**: Optional, this information will be passed to the client. press "**More>>**" button into the other settings :



4. **Primary DNS/Secondary DNS**: This feature allows you to assign DNS Servers
5. **Primary WINS/Secondary WINS**: This feature allows you to assign WINS Servers
6. **Gateway**: The Gateway Address would be the IP address of an alternate Gateway. This function enables you to assign another gateway to your PC, when DHCP server offers an IP to your PC. press **"Client List >"** button into client list page

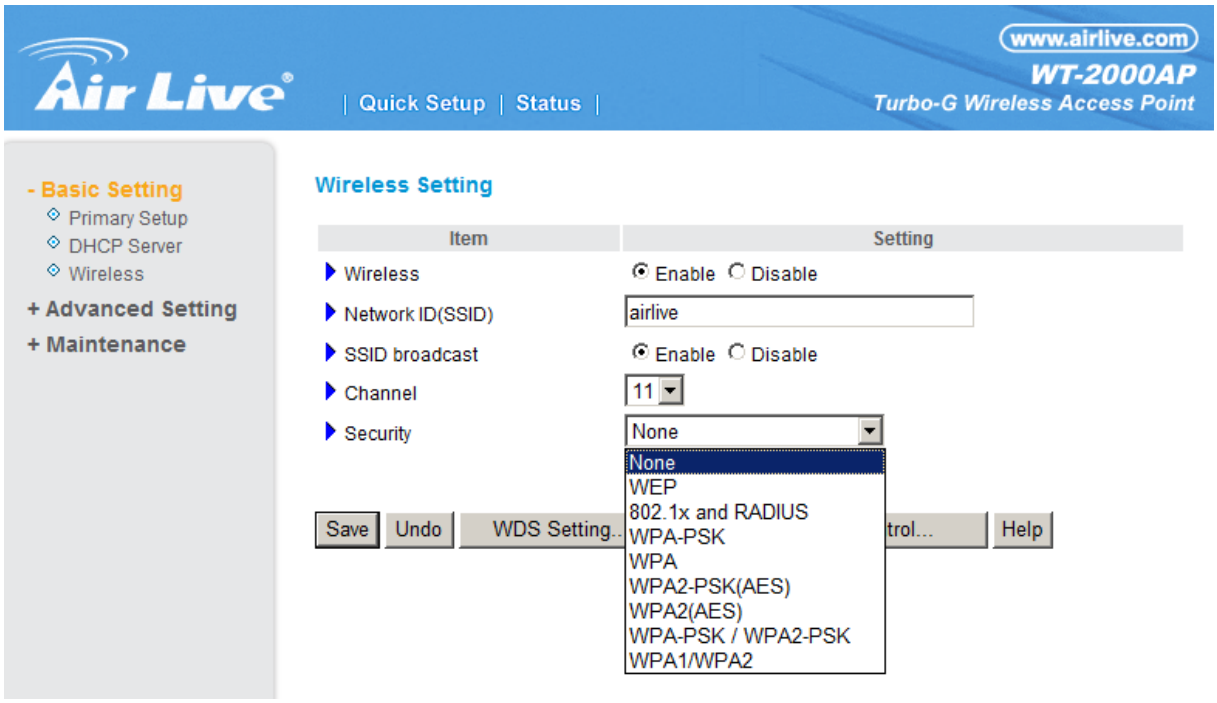


4.6.3 Wireless Setting, 802.1X setting and WDS



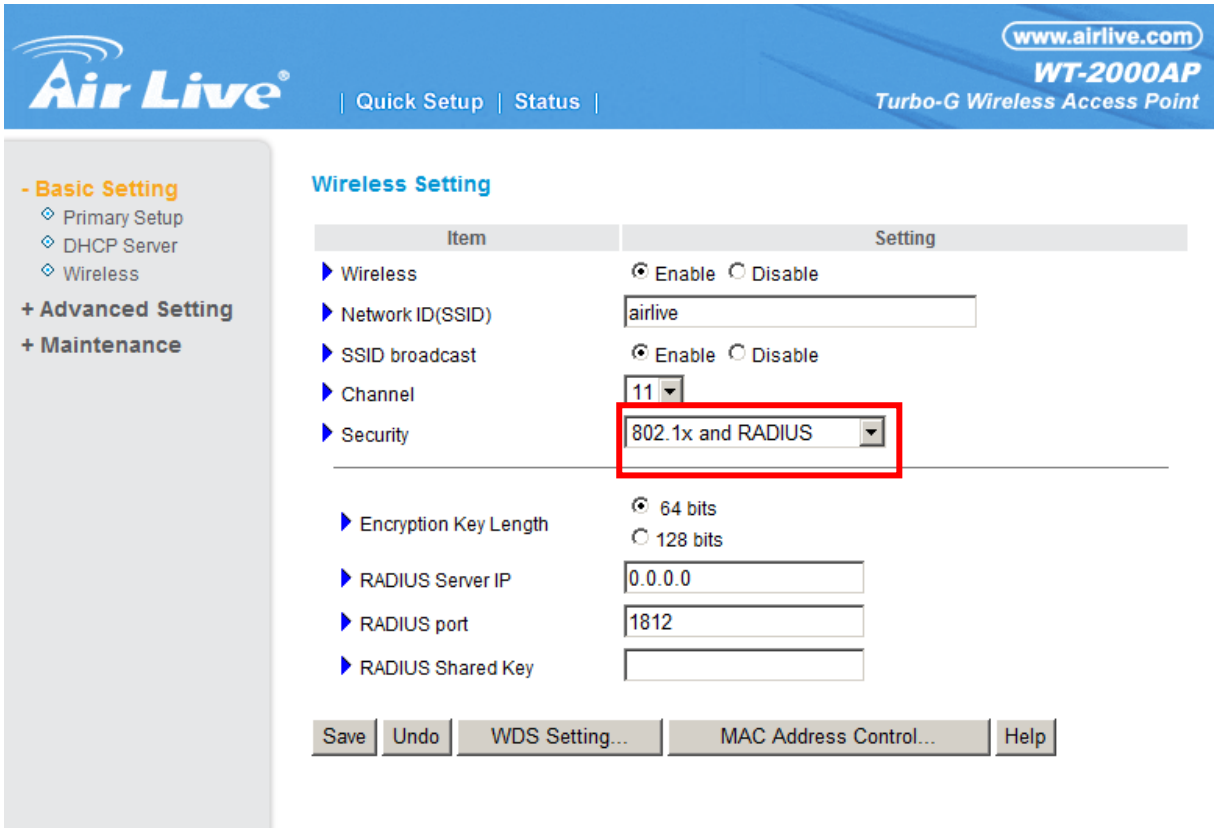
Wireless settings allow you to set the wireless configuration items.

1. **Wireless :** The user can enable or disalbe wireless function.
2. **Network ID (SSID)**: Network ID is used for identifying the Wireless LAN (WLAN). Client stations can roam freely over this product and other Access Points that have the same Network ID. (The factory setting is "**default**")
3. **Channel**: The radio channel number. The permissible channels depend on the Regulatory Domain. The factory setting is as follow: **channel 6** for North America; **channel 7** for European (ETSI); **channel 7** for Japan.



4. **WEP Security**: Select the data privacy algorithm you want. Enabling the security can protect your data while it is transferred from one station to another. The standardized IEEE 802.11 WEP (128 or 64-bit) is used here.
5. **WEP Key 1, 2, 3 & 4**: When you enable the 128 or 64 bit WEP key security, please select one WEP key to be used and input 26 or 10 hexadecimal (0, 1, 2…8, 9, A, B…F) digits.
6. Pass-phrase Generator: Since hexadecimal characters are not easily remembered, this device offers a conversion utility to convert a simple word or phrase into hex.

7. **802.1X Setting**



802.1X

Check Box was used to switch the function of the 802.1X. When the 802.1X function is enabled, the Wireless user must **authenticate** to this router first to use the Network service.

RADIUS Server

IP address or the 802.1X server's domain-name.

RADIUS Shared Key

Key value shared by the RADIUS server and this router. This key value is consistent with the key value in the RADIUS server.

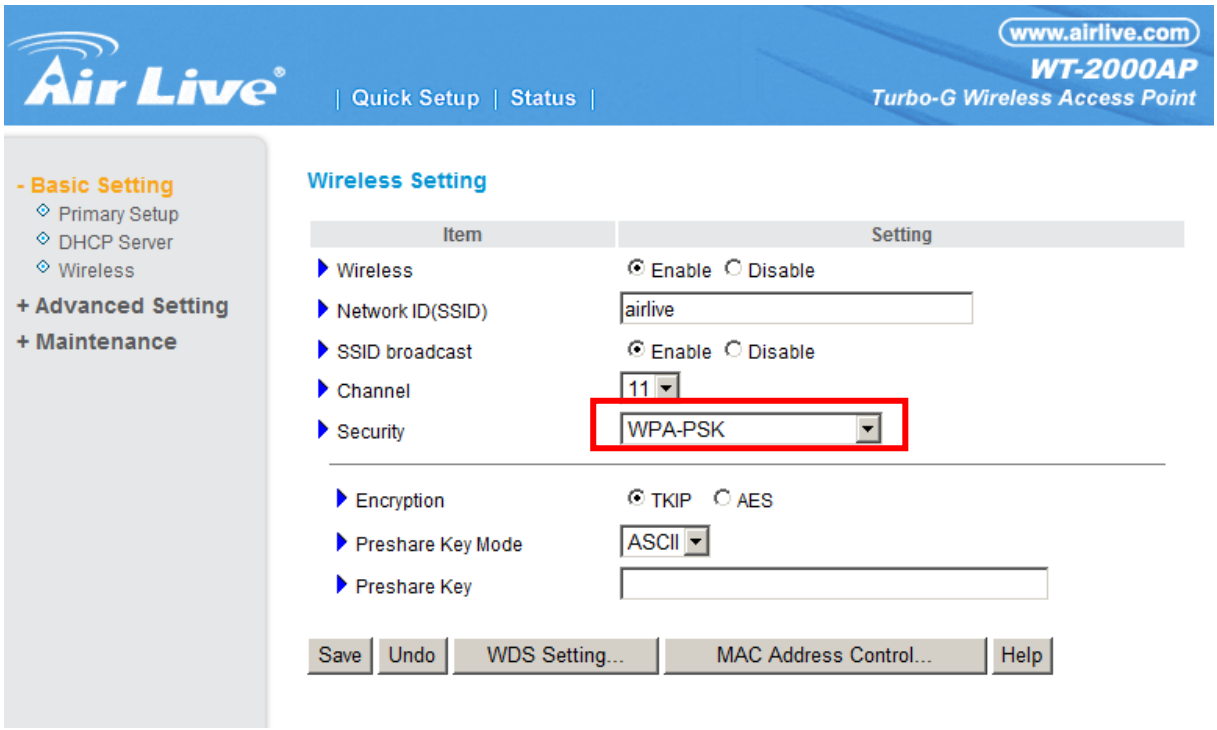
WPA-PSK

1. Select Encryntion and Preshare Key Mode

If you select HEX,you have to fill in 64 hexadecimal (0, 1, 2…8, 9, A, B…F) digits

If ASCII,the length of preshare key is from 8 to 63.

2. Fill in the key, Ex 12345678



WPA

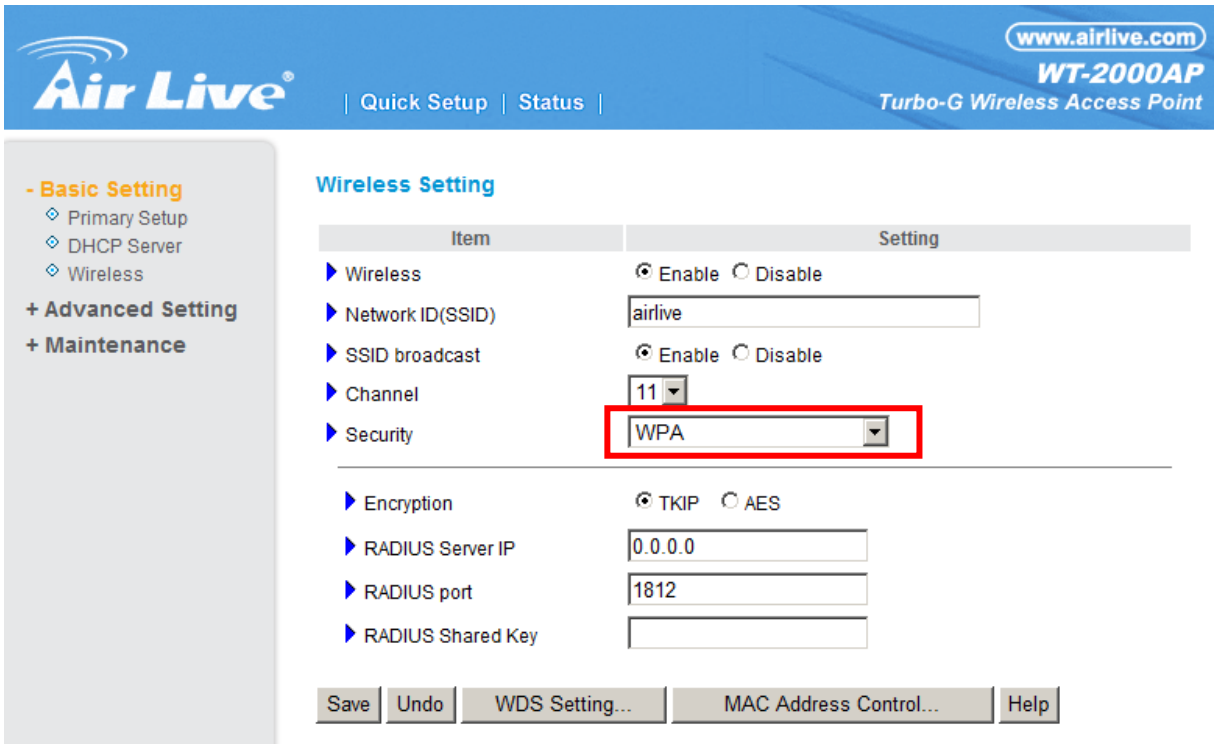
Check Box was used to switch the function of the WPA. When the WPA function is enabled, the Wireless user must **authenticate** to this router first to use the Network service. RADIUS Server

IP address or the 802.1X server's domain-name.
Select Encryption and RADIUS Shared Key

If you select HEX,you have to fill in 64 hexadecimal (0, 1, 2…8, 9, A, B…F) digits

If ASCII,the length of preshare key is from 8 to 63.

Key value shared by the RADIUS server and this router. This key value is consistent with the key value in the RADIUS server.



WPA2-PSK(AES)

1. Select Pre-share Key Mode

If you select HEX, you have to fill in 64 hexadecimal (0, 1, 2…8, 9, A, B…F) digits

If ASCII, the length of Pre-share key is from 8 to 63.

2. Fill in the key, Ex 12345678

WPA2(AES)

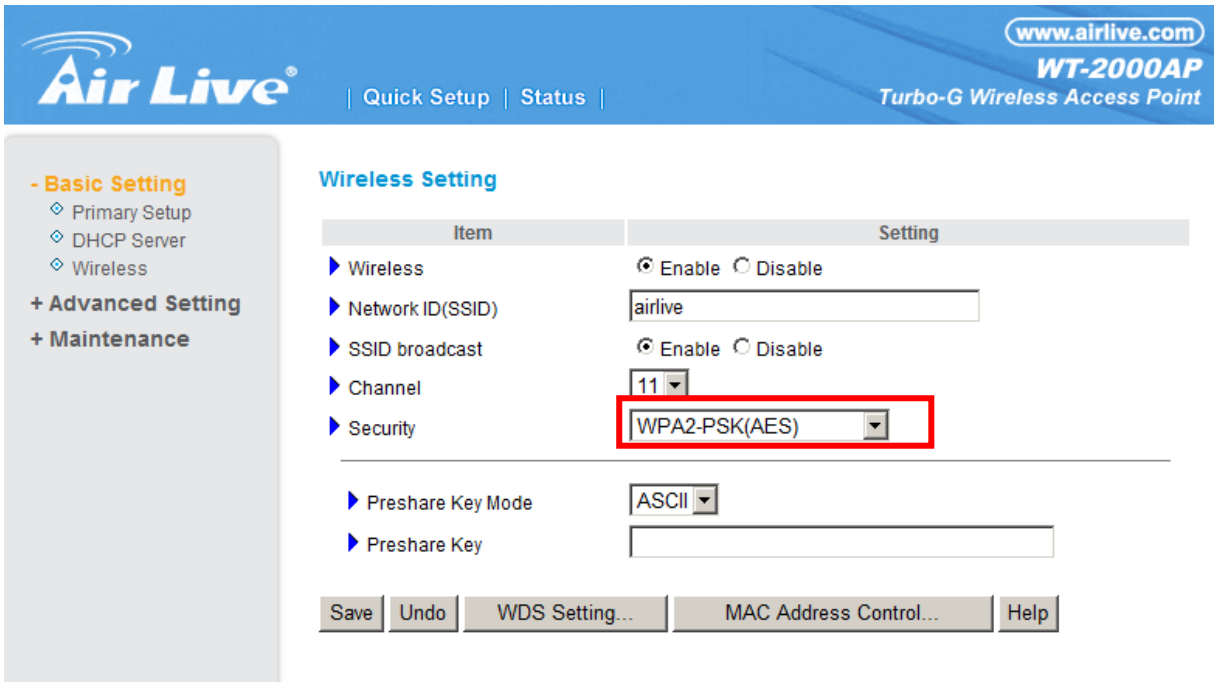
Check Box was used to switch the function of the WPA. When the WPA function is enabled, the Wireless user must **authenticate** to this router first to use the Network service. RADIUS Server

IP address or the 802.1X server's domain-name.
Select RADIUS Shared Key

If you select HEX, you have to fill in 64 hexadecimal (0, 1, 2…8, 9, A, B…F) digits

If ASCII, the length of Pre-share key is from 8 to 63.

Key value shared by the RADIUS server and this router. This key value is consistent with the key value in the RADIUS server.



WPA-PSK /WPA2-PSK

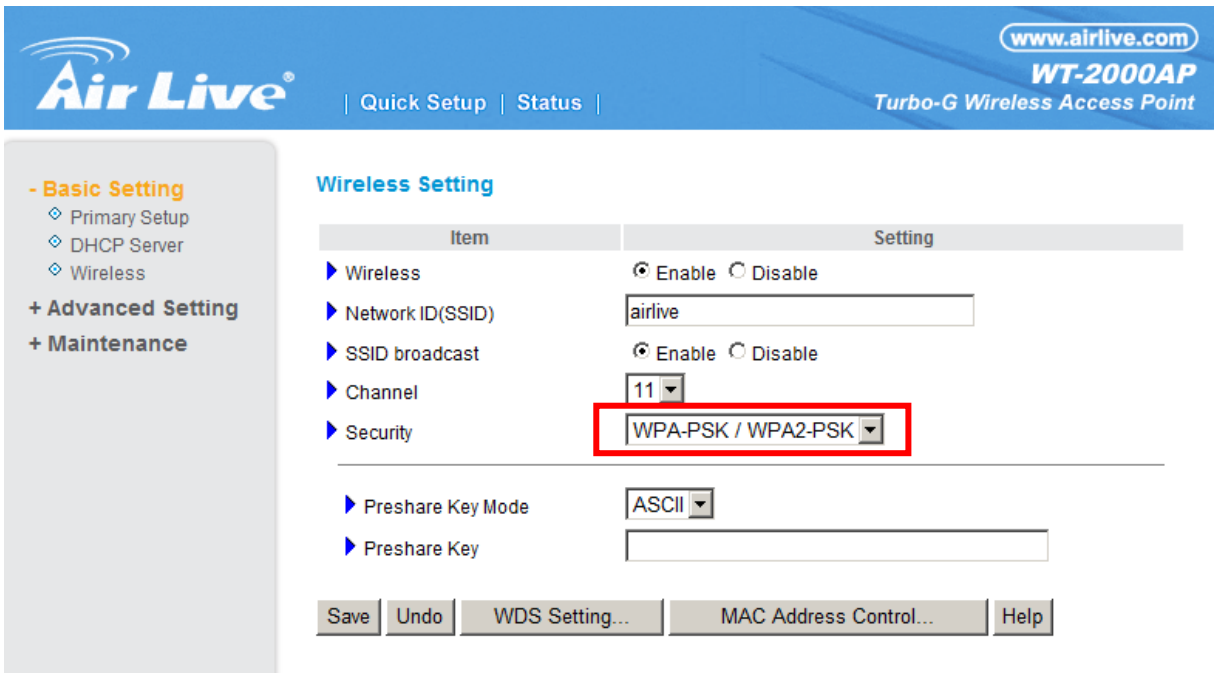
The router will detect automatically which Security type(Wpa-psk version 1 or 2) the client uses to encrypt.

1. Select Pre-share Key Mode

If you select HEX, you have to fill in 64 hexadecimal (0, 1, 2…8, 9, A, B…F) digits

If ASCII, the length of Pre-share key is from 8 to 63.

2. Fill in the key, Ex 12345678



WPA/WPA2
Check Box was used to switch the function of the WPA. When the WPA function is enabled, the Wireless user must **authenticate** to this router first to use the Network service. RADIUS Server

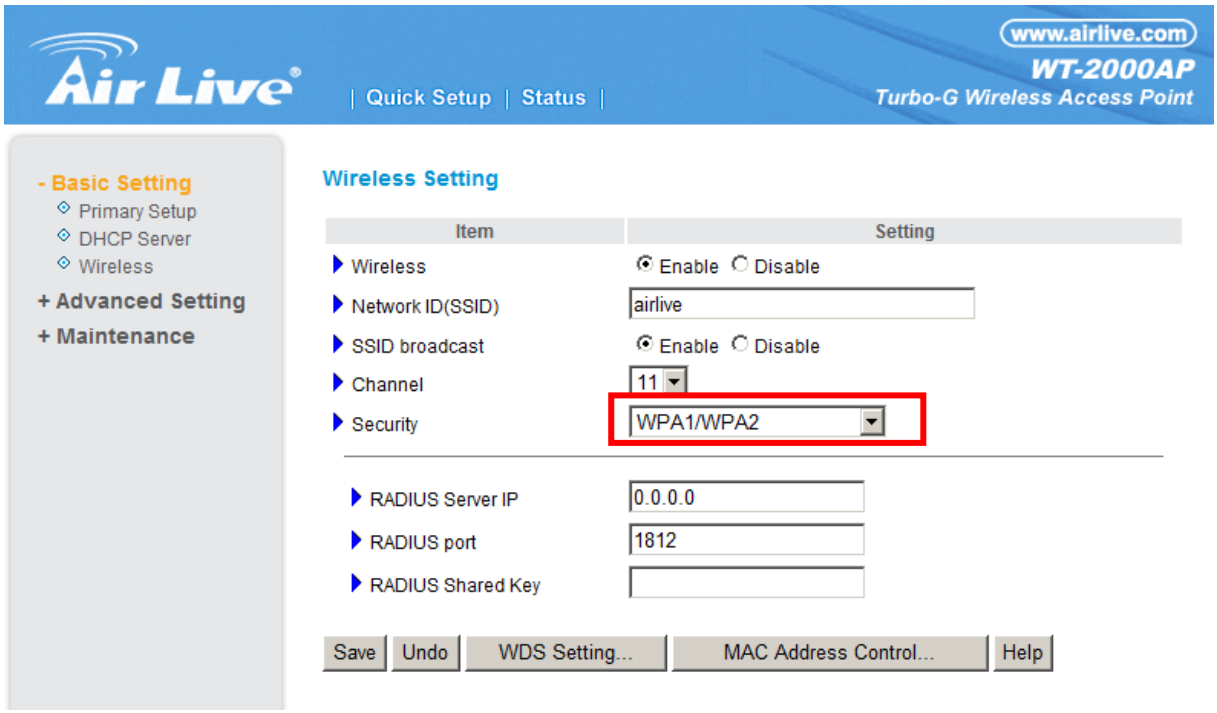
The router will detect automatically which Security type(Wpa-psk version 1 or 2) the client

uses to encrypt.
IP address or the 802.1X server's domain-name.
Select RADIUS Shared Key

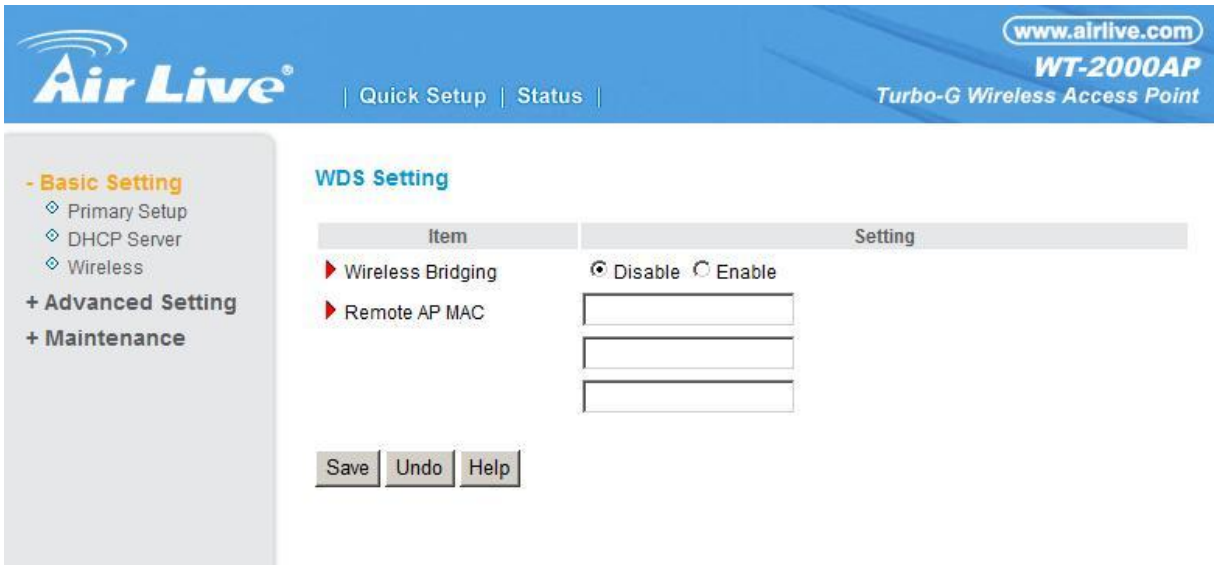
If you select HEX, you have to fill in 64 hexadecimal (0, 1, 2…8, 9, A, B…F) digits

If ASCII, the length of Pre-share key is from 8 to 63.

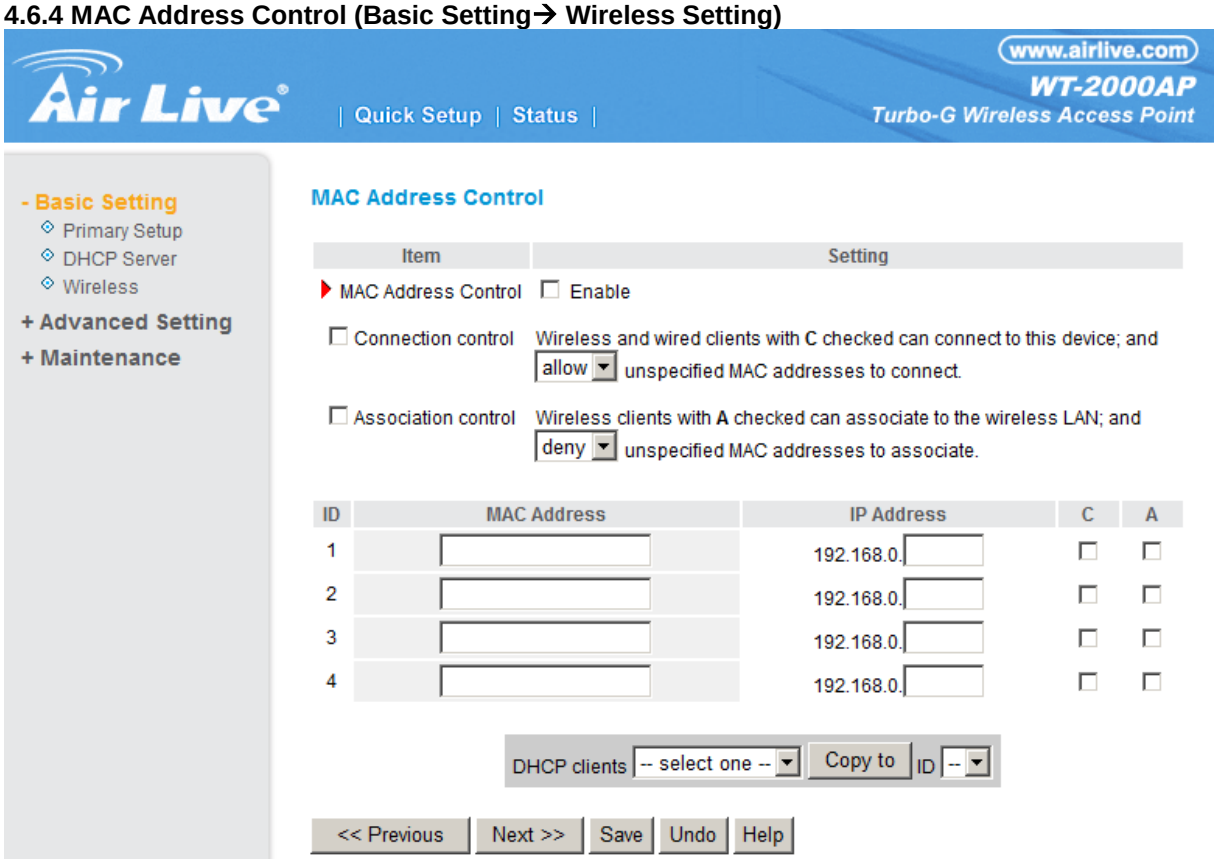
Key value shared by the RADIUS server and this router. This key value is consistent with the key value in the RADIUS server.



WDS(Wireless Distribution System)
WDS operation as defined bythe IEEE802.11 standard has been made available. Using WDS it is possible to wirelessly connect Access Points, and in doing so extend a wired infrastructure to locations where cabling is not possible or inefficient to implement.



4.6.4 MAC Address Control (Basic Setting→ Wireless Setting)



MAC Address Control allows you to assign different access right for different users and to assign a specific IP address to a certain MAC address.

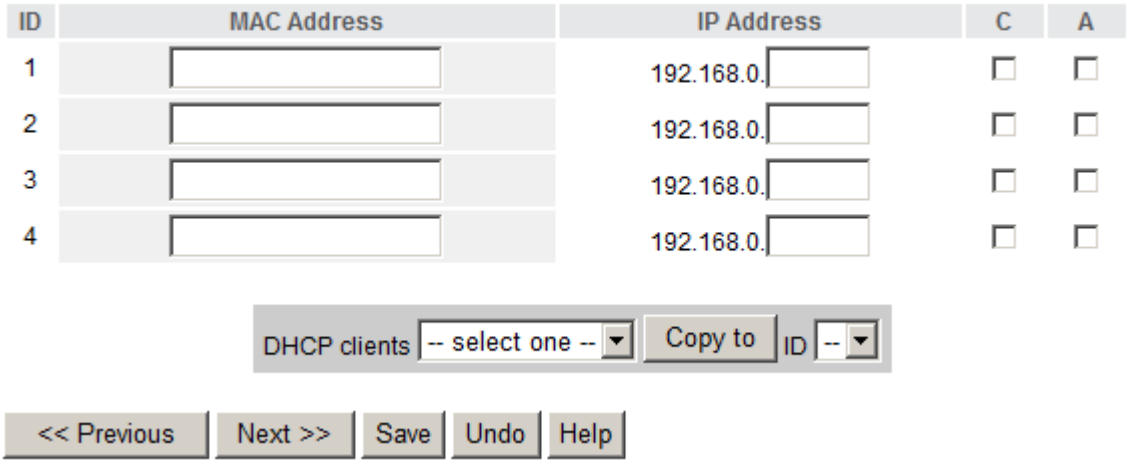
MAC Address Control Check “Enable” to enable the “MAC Address Control”. All of the settings in this page will take effect only when “Enable” is checked.

Connection control Check "Connection control" to enable the controlling of which wired and wireless clients can connect to this device. If a client is denied to connect to this device, it means the client can't access to the Internet either. Choose

"allow" or "deny" to allow or deny the clients, whose MAC addresses are not in the "Control table" (please see below), to connect to this device.

Association control Check "Association control" to enable the controlling of which wireless client can associate to the wireless LAN. If a client is denied to associate to the wireless LAN, it means the client can't send or receive any data via this device. Choose "allow" or "deny" to allow or deny the clients, whose MAC addresses are not in the "Control table", to associate to the wireless LAN.

Control table



- "Control table" is the table at the bottom of the "MAC Address Control" page. Each row of this table indicates the MAC address and the expected IP address mapping of a client. There are four columns in this table:

MAC Address	MAC address indicates a specific client.
IP Address	Expected IP address of the corresponding client. Keep it empty if you don't care its IP address.
C	When "**Connection control**" is checked, check "**C**" will allow the corresponding client to connect to this device.
A	When "**Association control**" is checked, check "**A**" will allow the corresponding client to associate to the wireless LAN.

In this page, we provide the following Combobox and button to help you to input the MAC address.

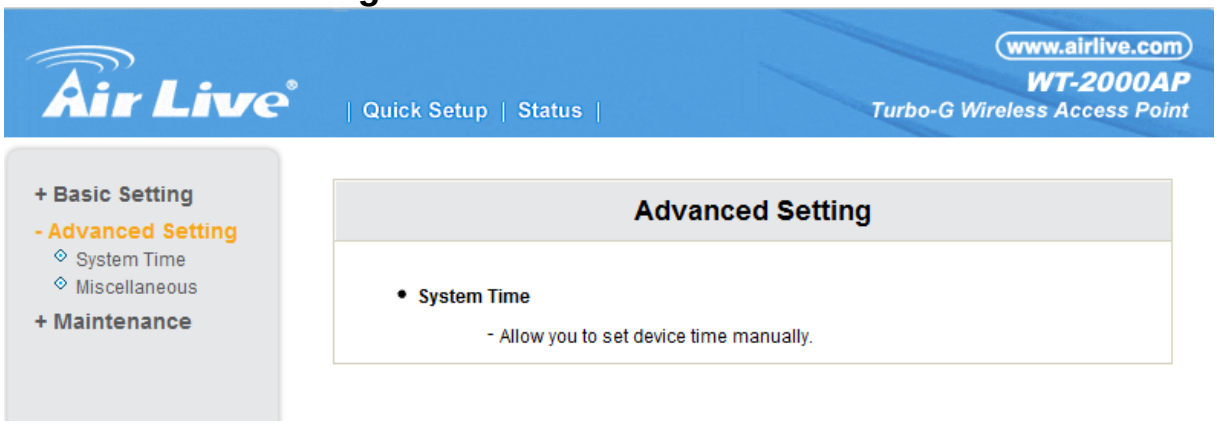
You can select a specific client in the “DHCP clients” Combobox, and then click on the “Copy to” button to copy the MAC address of the client you select to the ID selected in the “ID” Combobox.

Previous page and Next Page

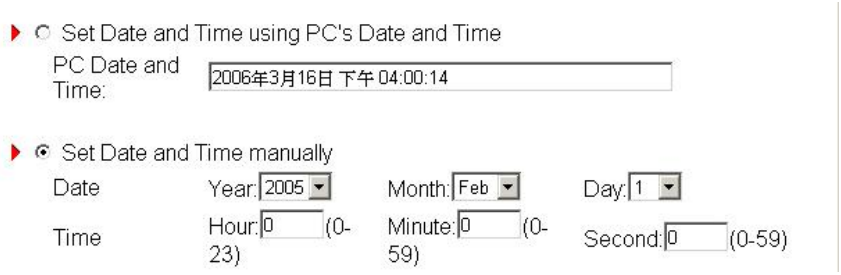
To make this setup page simple and clear, we have divided the “Control table” into several pages.

You can use these buttons to navigate to different pages.

4.7 Advanced Settings



4.7.1 System Time



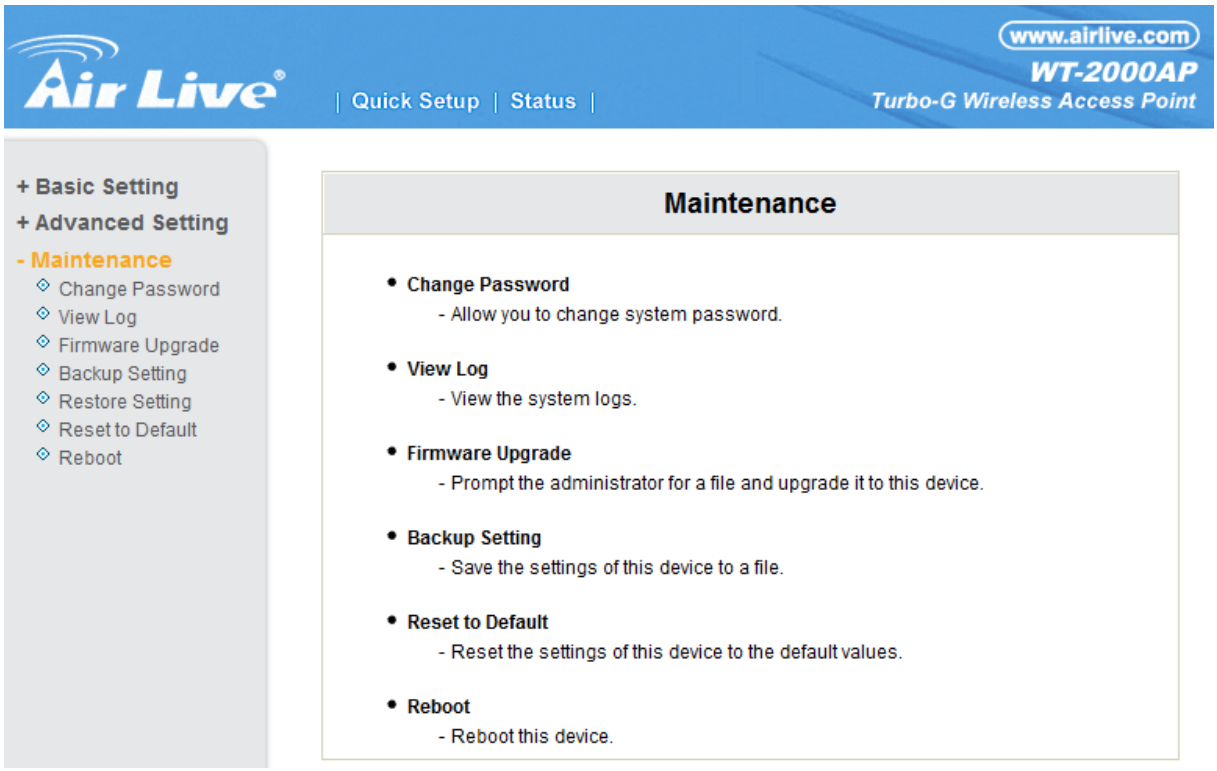
Set Date and Time using PC's Date and Time

Use PC Date and Time as Machine

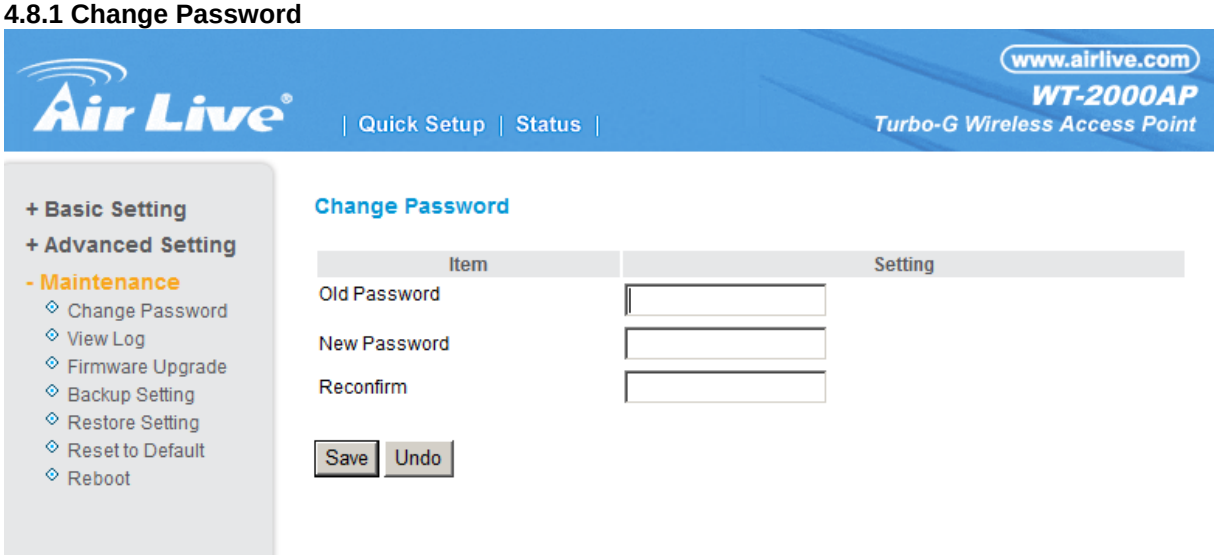
Set Date and Time manually

Selected if you want to Set Date and Time manually.

4.8 Maintenance

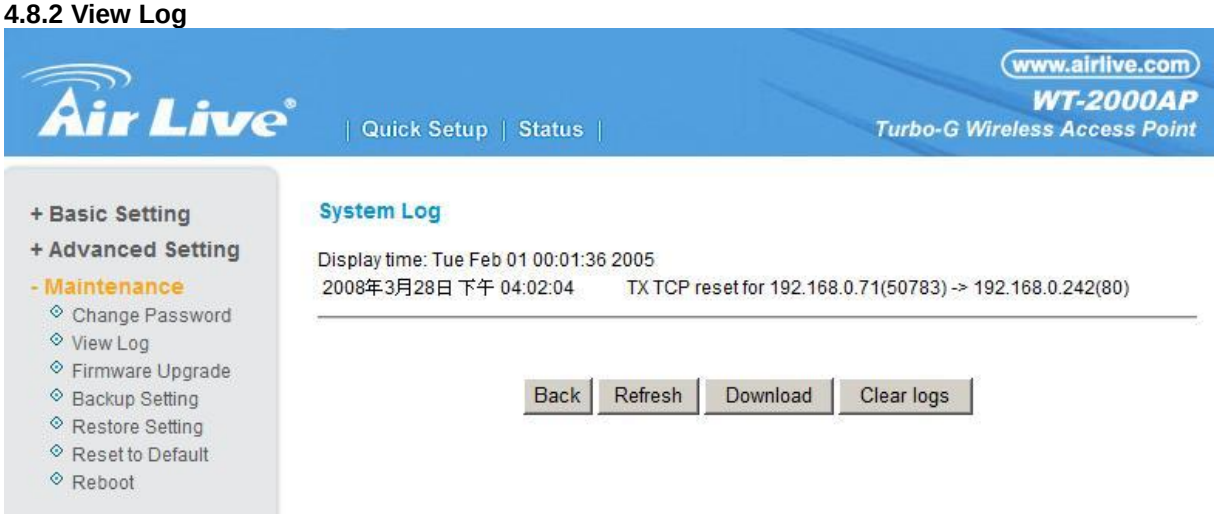


4.8.1 Change Password



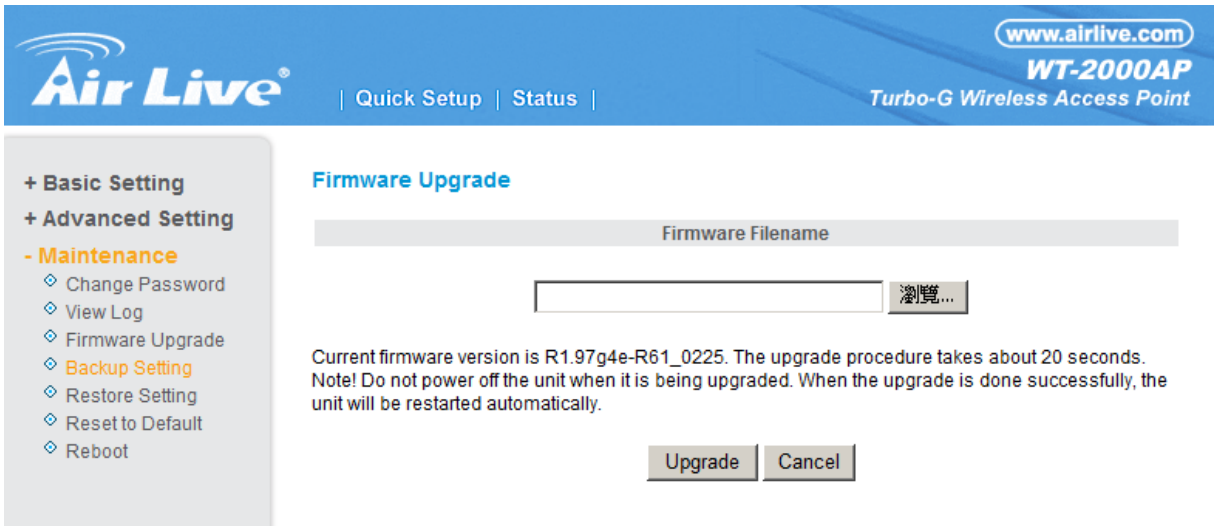
You can change Password here. We **strongly** recommend you to change the system password for security reason.

4.8.2 View Log



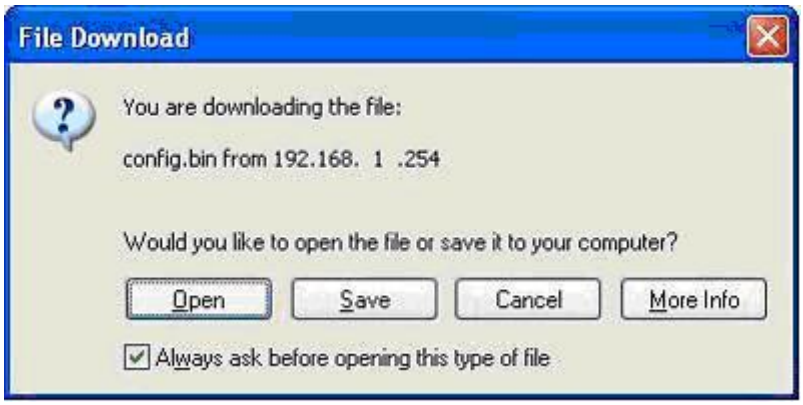
You can View system log by clicking the **View Log** button

4.8.3 Firmware Upgrade



You can upgrade firmware by clicking **Firmware Upgrade** button.

4.8.4 Backup Setting



You can backup your settings by clicking the **Backup Setting** button and save it as a bin file. Once you want to restore these settings, please click **Firmware Upgrade** button and use the bin file you saved.

4.8.5 Reset to default

You can also reset this product to factory default by clicking the **Reset to default** button.

4.8.6 Reboot

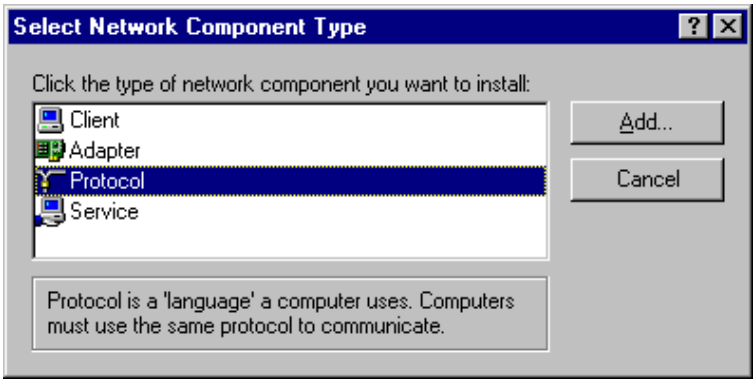
You can also reboot this product by clicking the **Reboot** button.

Appendix A TCP/IP Configuration for Windows 95/98

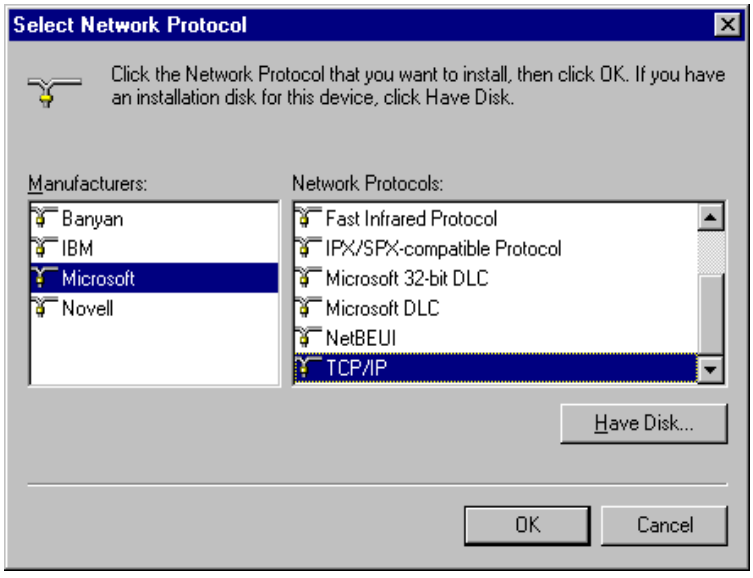
This section introduces you how to install TCP/IP protocol into your personal computer. And suppose you have been successfully installed one network card on your personal computer. If not, please refer to your network card manual. Moreover, the Section B.2 tells you how to set TCP/IP values for working with this NAT Router correctly.

A.1 Install TCP/IP Protocol into Your PC

1. Click **Start** button and choose **Settings**, then click **Control Panel**.
2. Double click **Network** icon and select **Configuration** tab in the Network window.
3. Click **Add** button to add network component into your PC.
4. Double click **Protocol** to add TCP/IP protocol.



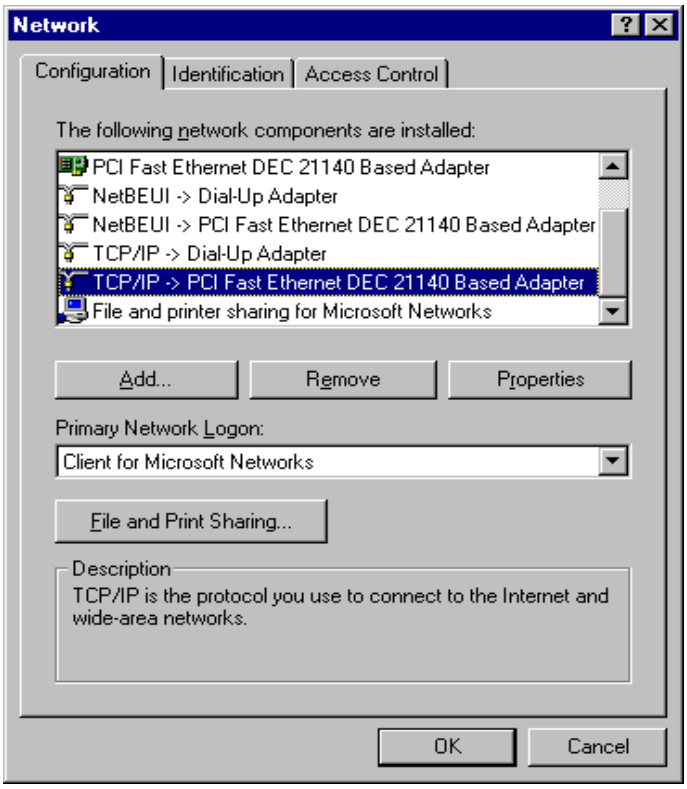
5. Select **Microsoft** item in the manufactures list. And choose **TCP/IP** in the Network Protocols. Click **OK** button to return to Network window.



6. The TCP/IP protocol shall be listed in the Network window. Click **OK** to complete the install procedure and restart your PC to enable the TCP/IP protocol.

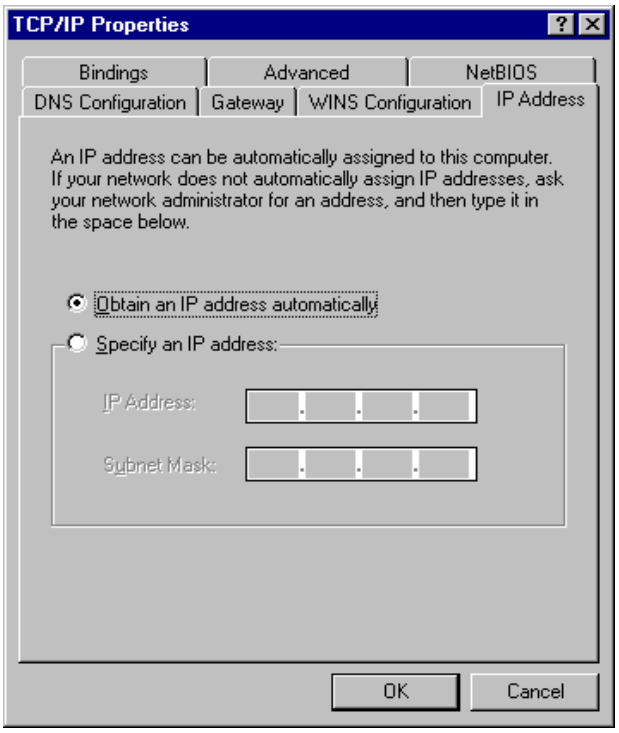
A.2 Set TCP/IP Protocol for Working with NAT Router

1. Click **Start** button and choose **Settings**, then click **Control Panel**.
2. Double click **Network** icon. Select the TCP/IP line that has been associated to your network card in the **Configuration** tab of the Network window.

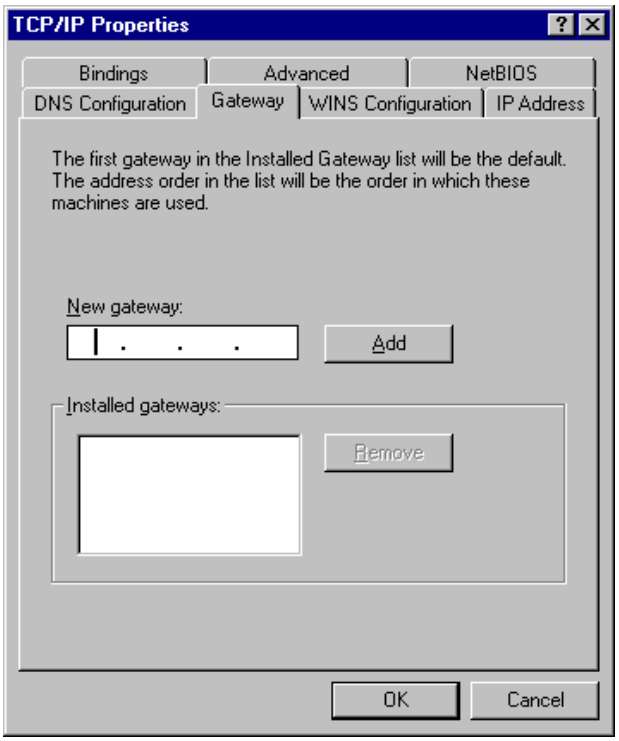


3. Click **Properties** button to set the TCP/IP protocol for this NAT Router.
4. Now, you have two setting methods:

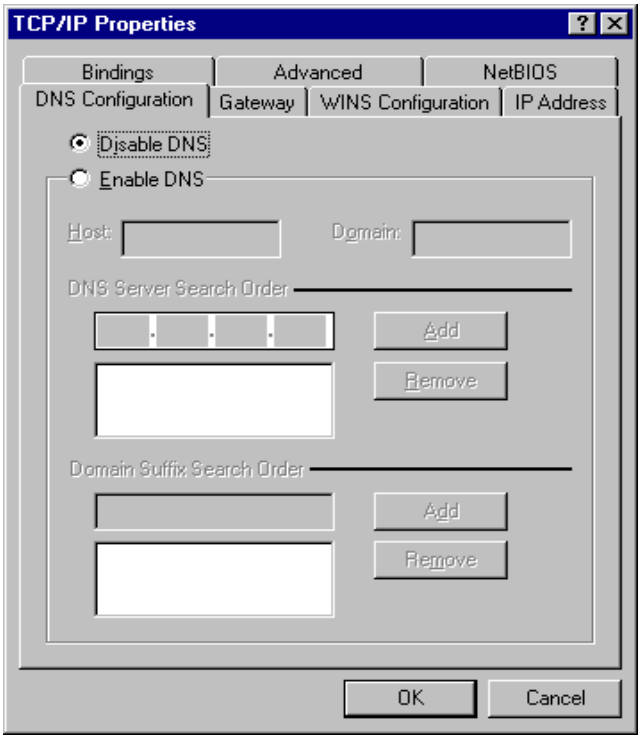
a. Select **Obtain an IP address automatically** in the IP Address tab.



b. Don't input any value in the Gateway tab.

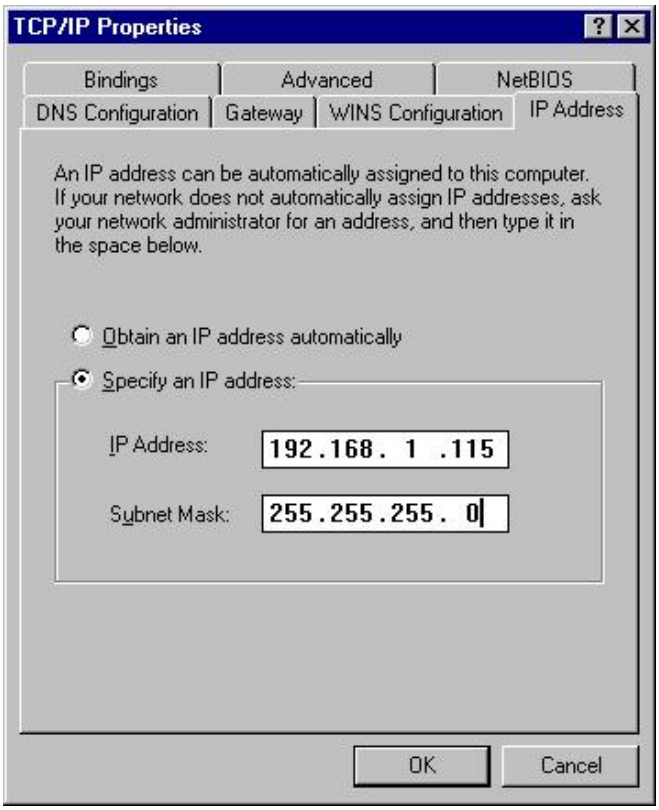


c. Choose **Disable DNS** in the DNS Configuration tab.

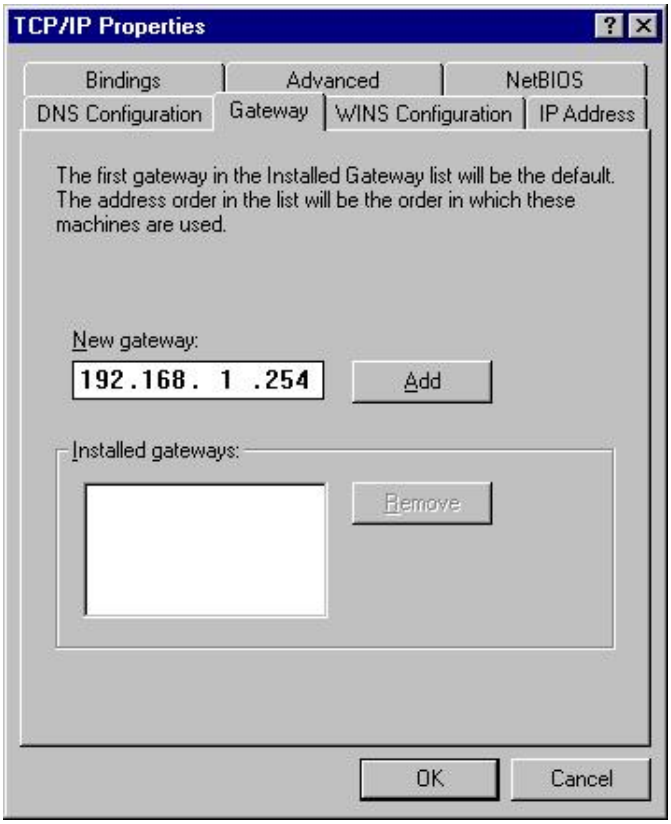


B. Configure IP manually

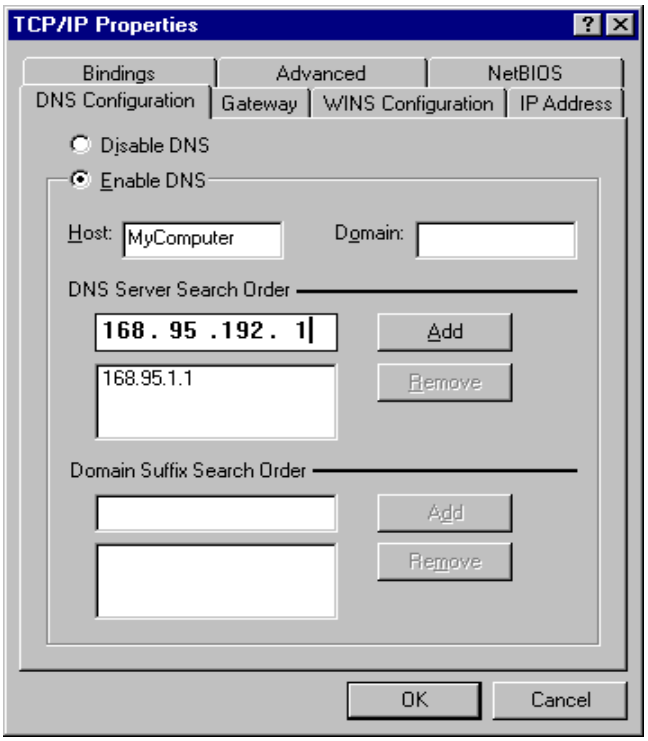
a. Select **Specify an IP address** in the IP Address tab. The default IP address of this product is 192.168.1.254. So please use 192.168.1.xxx (xxx is between 1 and 253) for IP Address field and 255.255.255.0 for Subnet Mask field.



b. In the Gateway tab, add the IP address of this product (default IP is 192.168.1.254) in the New gateway field and click **Add** button.



c. In the DNS Configuration tab, add the DNS values which are provided by the ISP into DNS Server Search Order field and click **Add** button.



Appendix B 802.1x Setting

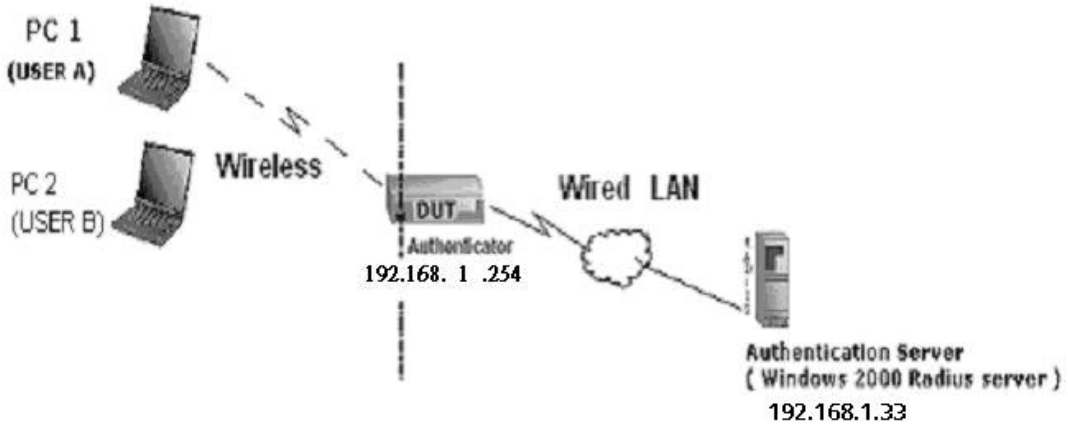


Figure 1: Testing Environment (Use Windows 2000 Radius Server)

1 Equipment Details

PC1:

Microsoft Windows XP Professional without Service Pack 1.

AMIT 531C Wireless Cardbus:3.0.3.0

Driver version:

PC2:

Microsoft Windows XP Professional with Service Pack 1a or latter.

AMIT 561C Wireless Cardbus:1.0.1.0

Driver version: 1.7.29.0 (Driver date: 10.20.2001)

Authentication Server: Windows 2000 RADIUS server with Service Pack 3 and HotFix Q313664.

Note. Windows 2000 RADIUS server only supports PEAP after upgrade to service pack 3 and HotFix Q313664 *(You can get more information from http://support.microsoft.com/default.aspx?scid=kb; en-us;313664)*

2 DUT

Configuration:

1.Enable DHCP server.

2.LAN IP address: 192.168.1.254/24.

3.Set RADIUS server IP.

4.Set RADIUS server shared key.

5.Configure WEP key and 802.1X setting.

The following test will use the inbuilt 802.1X authentication method such as ,EAP_TLS, PEAP_CHAPv2(Windows XP with SP1 only), and PEAP_TLS(Windows XP with SP1 only) using the Smart Card or other Certificate of the Windows XP Professional.

3. DUT and Windows 2000 Radius Server Setup

3-1-1. Setup Windows 2000 RADIUS Server

We have to change authentication method to MD5_Challenge or using smart card or other certificate on RADIUS server according to the test condition.

3-1-2. Setup DUT

1.Enable the 802.1X (check the “Enable checkbox“).

2.Enter the RADIUS server IP.

3.Enter the shared key. (The key shared by the RADIUS server and DUT).

4.We will change 802.1X encryption key length to fit the variable test condition.

3-1-3. Setup Network adapter on PC

1.Choose the IEEE802.1X as the authentication method. (Fig 2)

Note.

Figure 2 is a setting picture of Windows XP without service pack 1. If users upgrade to service pack 1, then they can’t see MD5-Challenge from EAP type list any more, but they will get a new Protected EAP (PEAP) option.

2.Choose MD5-Challenge or Smart Card or other Certificate as the EAP type.

3.If choosing use smart card or the certificate as the EAP type, we select to use a certificate on this computer. (Fig 3)

4. We will change EAP type to fit the variable test condition.

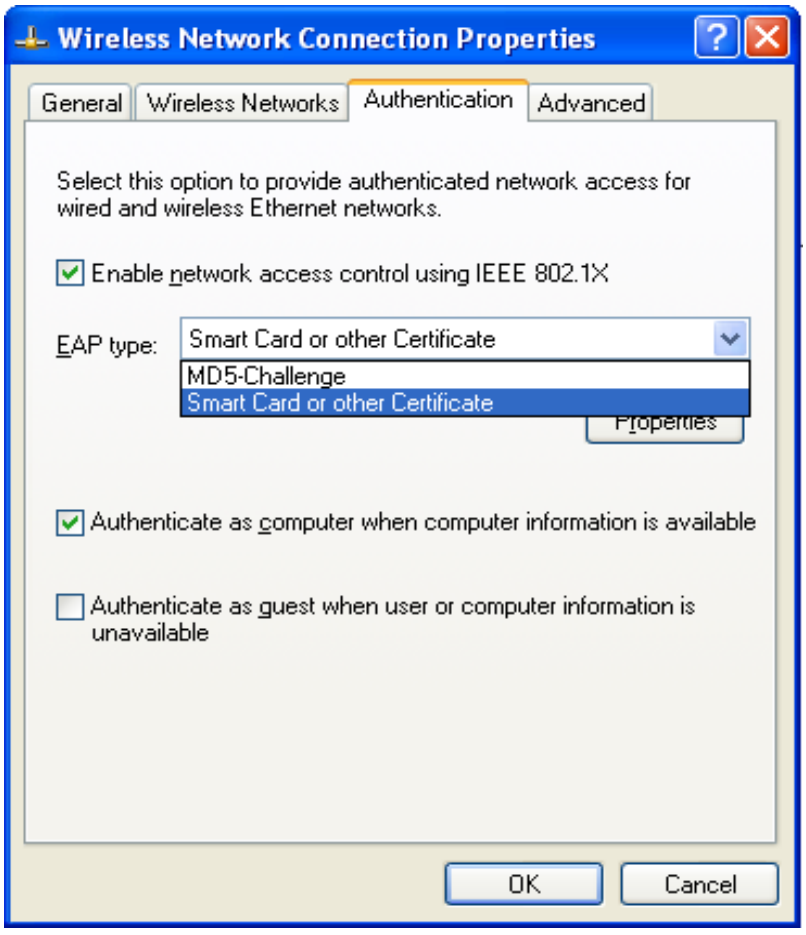


Figure 2: Enable IEEE 802.1X access control

4. Windows 2000 RADIUS server Authentication testing:

4.1DUT authenticate PC1 using certificate. (PC2 follows the same test procedures.)

1. Download and install the certificate on PC1. (Fig 4)
2. PC1 choose the SSID of DUT as the Access Point.
3. Set authentication type of wireless client and RADIUS server both to EAP_TLS.
4. Disable the wireless connection and enable again.
5. The DUT will send the user's certificate to the RADIUS server, and then send the message of authentication result to PC1. (Fig 5)
6. Windows XP will prompt that the authentication process is success or fail and end the authentication procedure. (Fig 6)
7. Terminate the test steps when PC1 get dynamic IP and PING remote host successfully.

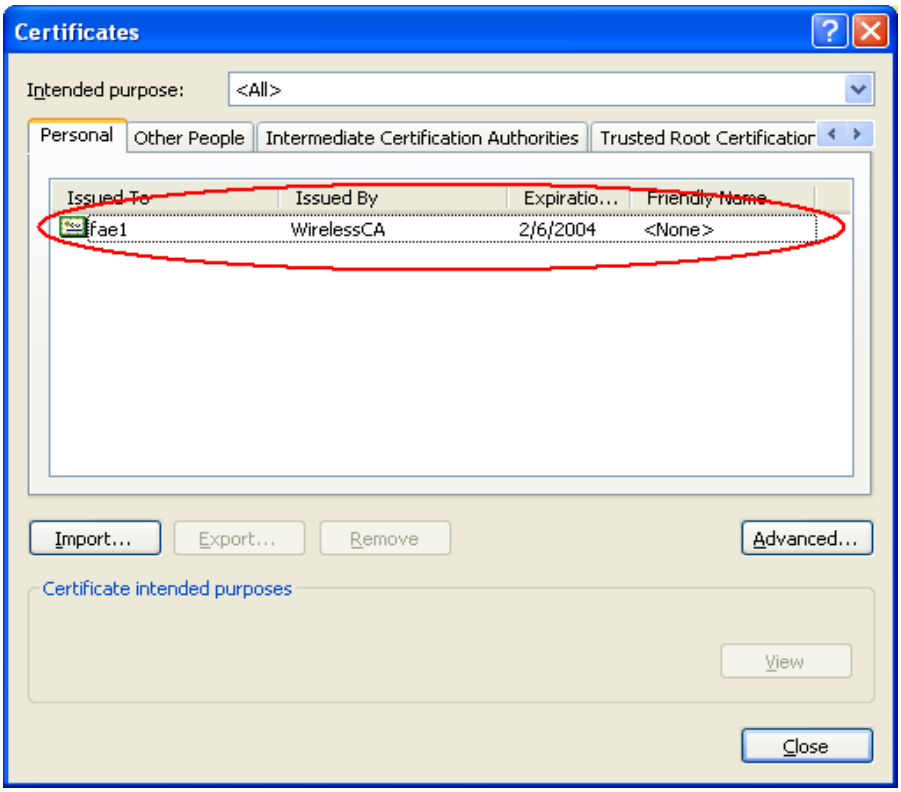


Figure 4: Certificate information on PC1

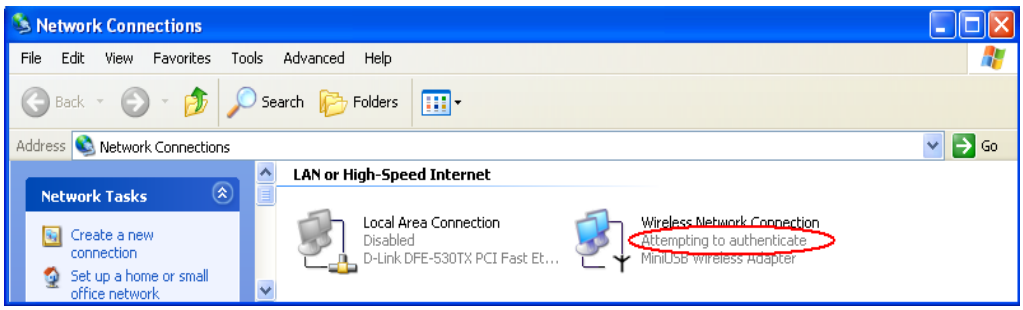


Figure 5: Authenticating

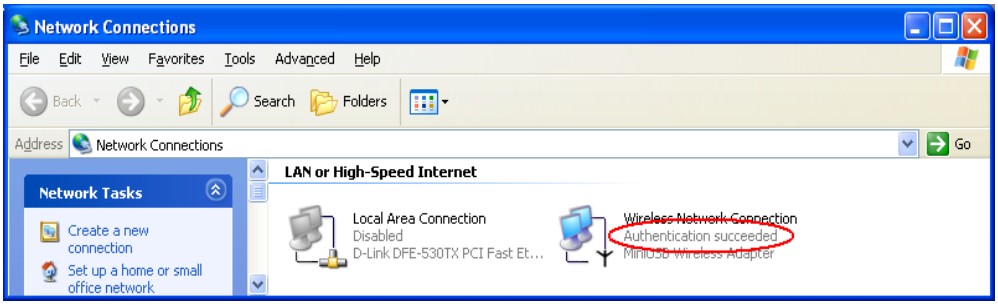


Figure 6: Authentication success

4.2DUT authenticate PC2 using PEAP-TLS.

1. PC2 choose the SSID of DUT as the Access Point.
2. Set authentication type of wireless client and RADIUS server both to PEAP_TLS.
3. Disable the wireless connection and enable again.
4. The DUT will send the user's certificate to the RADIUS server, and then send the message of authentication result to PC2.
5. Windows XP will prompt that the authentication process is success or fail and end the authentication procedure.
6. Terminate the test steps when PC2 get dynamic IP and PING remote host successfully.

Support Type: The AP supports the types of 802.1x Authentication: PEAP-CHAPv2 and PEAP-TLS.

Note:

1.PC1 is on Windows XP platform without Service Pack 1.
2.PC2 is on Windows XP platform with Service Pack 1a.
3.PEAP is supported on Windows XP with Service Pack 1 only.
4.Windows XP with Service Pack 1 allows 802.1x authentication only when data encryption function is enable.

Appendix C WDS Setting

How to setup and work:

First, check the Wlan-mac address of AP1,AP2 and AP3.Please goto command mode and use

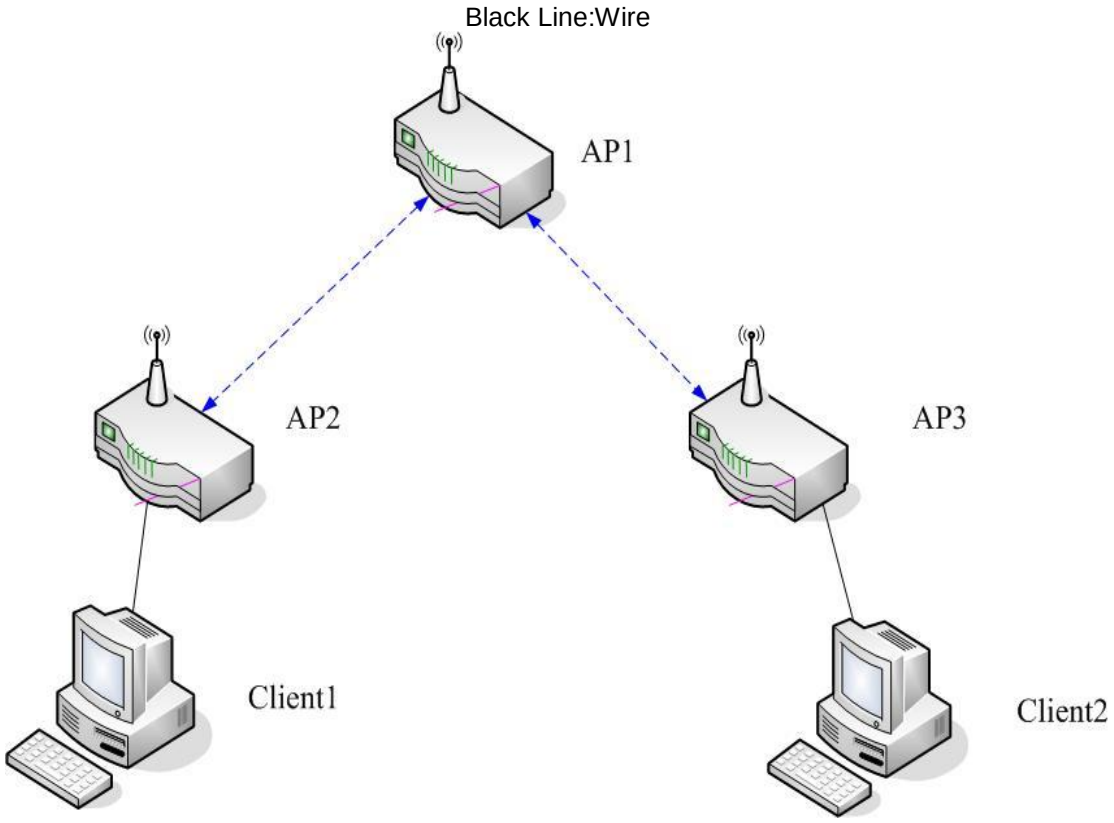
“Arp –a ”.

If you can not find the information of Mac, please make the cable to plug in lan-port of ap and ping the lan ip address then arp –a. There are some information in the screen. For example:

```
C:\>ping 192.168.122.217

Pinging 192.168.122.217 with 32 bytes of data:

Reply from 192.168.122.217: bytes=32 time<10ms TTL=64

Ping statistics for 192.168.122.217:
    Packets: Sent = 1, Received = 1, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum =  0ms, Average =  0ms
Control-C
^C
C:\>arp -a

Interface: 192.168.122.14 on Interface 0x1000003
  Internet Address      Physical Address      Type
  192.168.122.3         00-50-fc-3f-cc-ed     dynamic
  192.168.122.217       00-50-18-00-0f-d9     dynamic
```

AP 1:	AP2:	AP3:
IP:192.168.1.254	IP:192.168.1.253	IP:192.168.1.252
Mac:00-50-18-00-0f-fe	Mac:00-50-18-00-0f-fd	Mac:00-50-18-00-0f-fc
SSID:Default	SSID:Default	SSID:Default
Channel:11	Channel:11	Channel:11
Dhcp Server:Enable		

Blue Line:Wireless

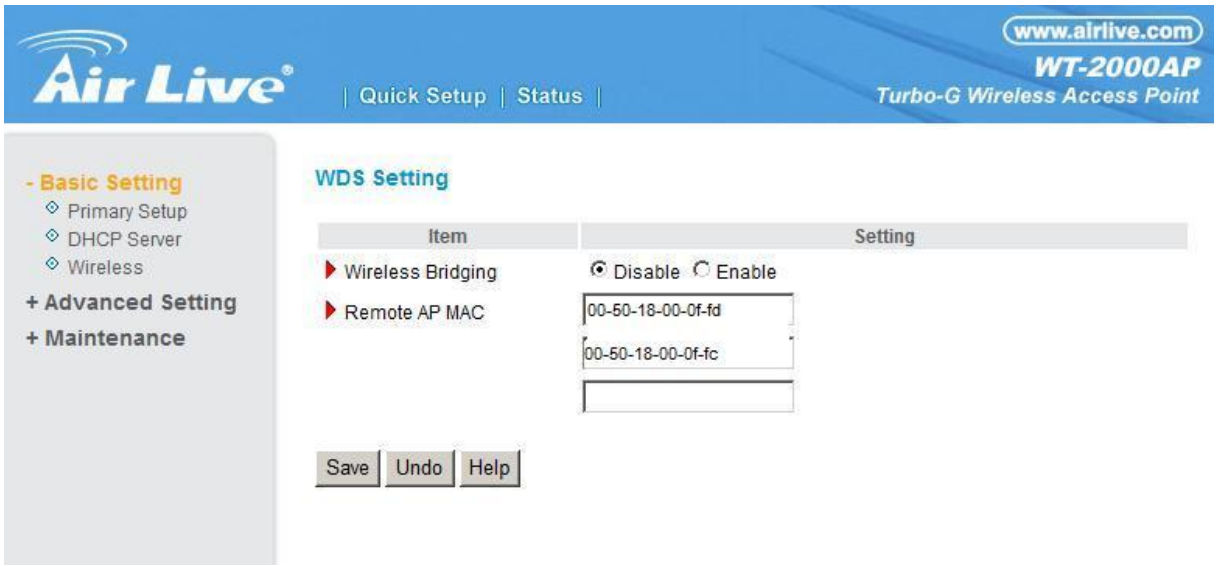


If the Settings are ok,the client1 and client2 can get ip from dhcp server of AP1.Then Client1 and Client2 can get information each other.

AP1 Setting:

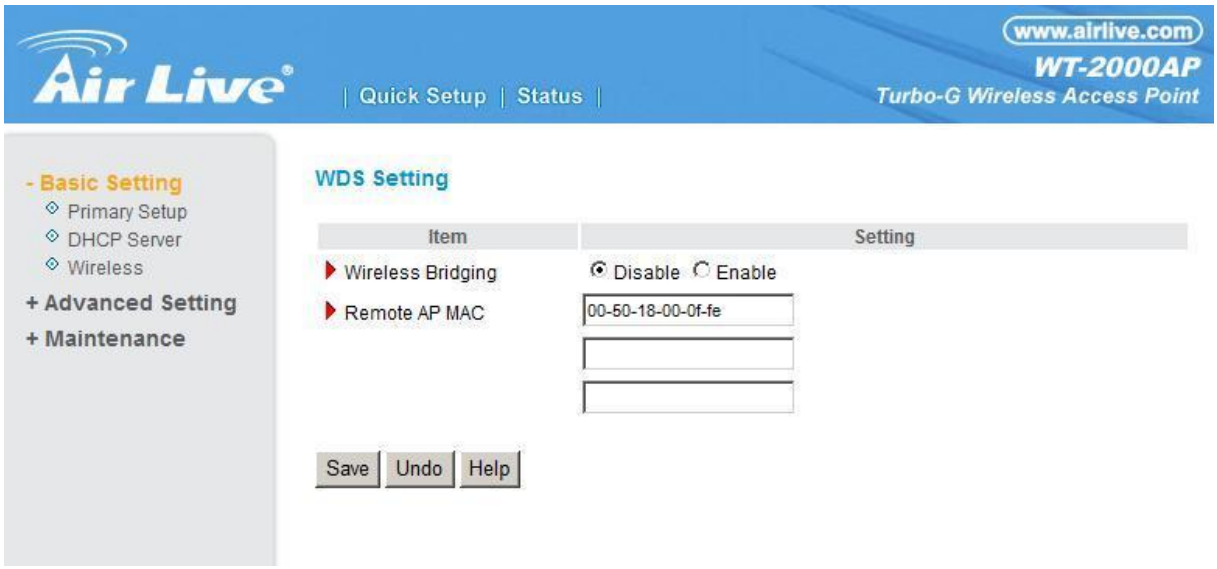
AP1←→ AP2(Remote Mac: 00-50-18-00-0f-fd)

AP1←→ AP3(Remote Mac: 00-50-18-00-0f-fc)



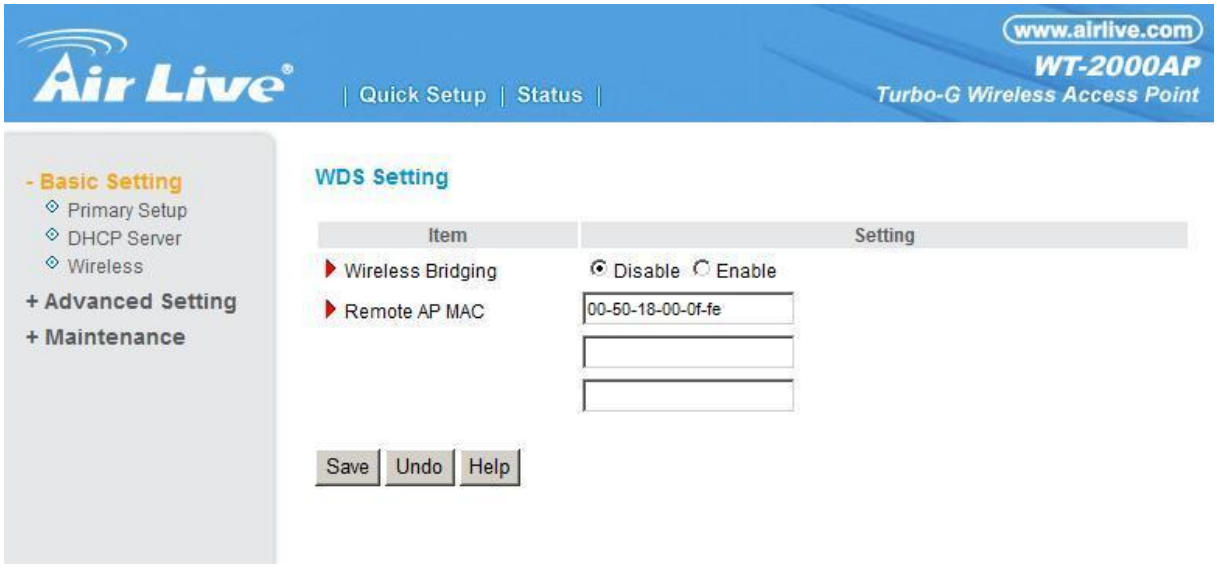
AP2 Setting:

AP2←→ AP1(Remote Mac: 00-50-18-00-0f-fe)



AP3 Setting

AP3←→ AP1(Remote Mac: 00-50-18-00-0f-fe)

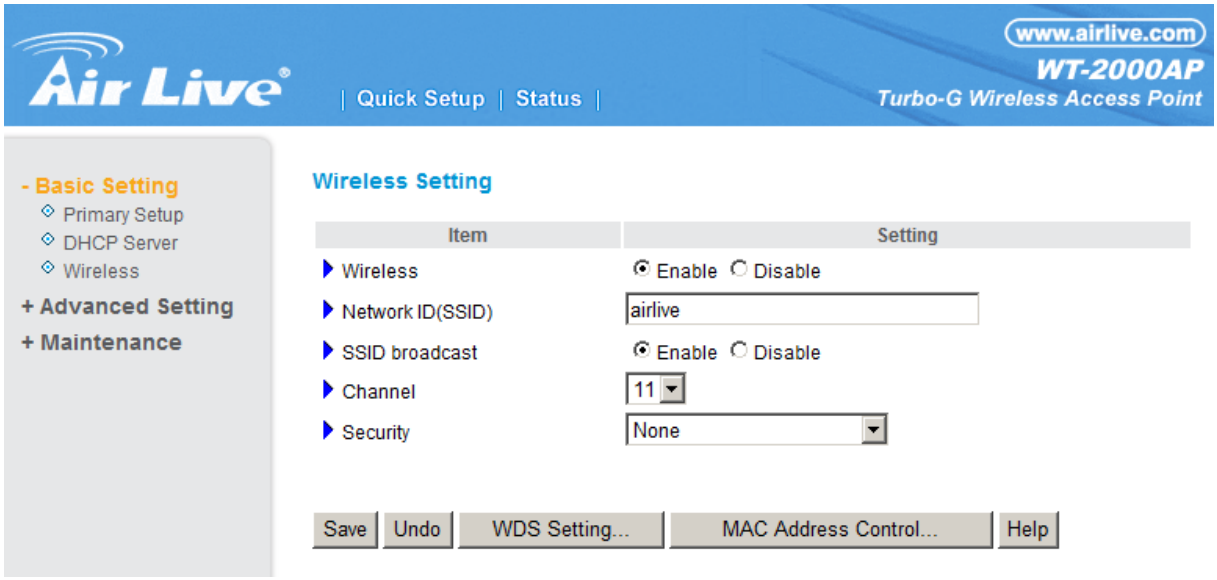


Appendix D FAQ and Troubleshooting

How do I connect AP by using wireless?

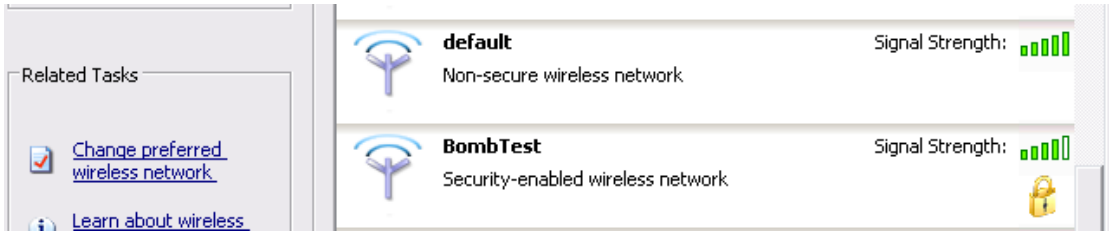
1.How to start to use wireless?

A: First, make sure that you already installed wireless client device in your computer. Then check the Configuration of wireless router. The default is as below:

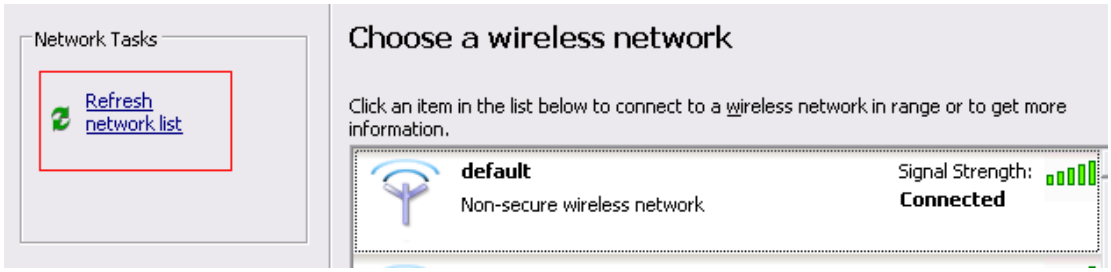


About wireless client, you will see wireless icon:

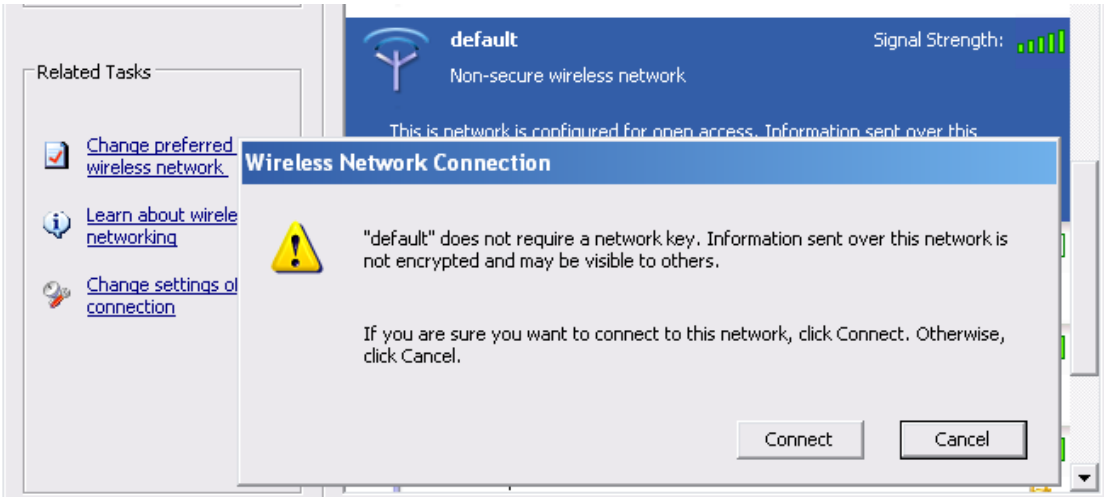
Then click and will see the ap list that wireless client can be accessed:



If the client can not access your wireless router, please refresh network list again. However, I still can not fine the device which ssid is “default”, please refer to Q3.



Choose the one that you will want to connect and Connect:

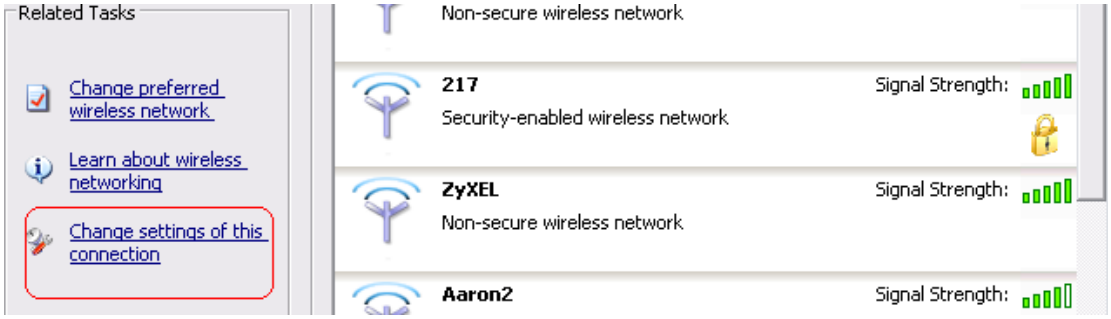


If successfully, the computer will show

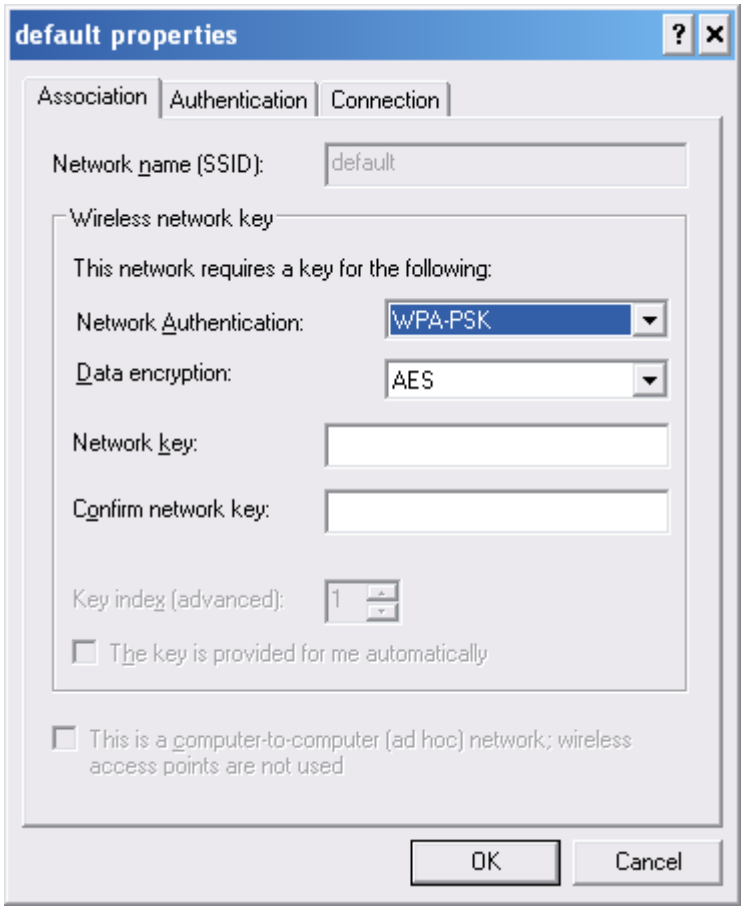
and get ip from router:

2.When I use AES encryption of WPA-PSK to connect even if I input the correct pre-share key?

A: First, you must check if the driver of wireless client supports AES encryption. Please refer to the below:



If SSID is default and click “Properties” to check if the driver of wireless client supports AES encryption.


default properties
Association
Authentication
Connection
Network name (SSID):
default
Wireless network key
This network requires a key for the following:
Network Authentication:
WPA-PSK
Data encryption:
AES
Network key:
Confirm network key:
Key index (advanced):
1
The key is provided for me automatically
This is a computer-to-computer (ad hoc) network; wireless access points are not used
OK
Cancel