

A decorative graphic on the left side of the page, consisting of a vertical orange bar and a blue bar with a white grid pattern.

# WA6011/6012 Outdoor AP

---

## Access Point

### ADMINISTRATOR GUIDE

Release: 1.0

Doc. Code: L3 JA01 2500 01 011 00

**Draft**

UTStarcom Inc.

---





Copyright © 2004 UTStarcom Inc. All rights reserved.

No part of this documentation may be reproduced in any form or by any means or used to make any derivative work (such as translation, transformation, or adaptation) without prior, express and written permission from UTStarcom Inc.

UTStarcom Inc. reserves the right to revise this documentation and to make changes in content from time to time without obligation on the part of UTStarcom Inc. to provide notification of such revision or changes.

UTStarcom Inc. provides this documentation without warranty of any kind, implied or expressed, including but not limited to, the implied warranties of merchantability and fitness for a particular purpose. UTStarcom may make improvements or changes in the product(s) and/or the program(s) described in this documentation at any time.

#### UNITED STATES GOVERNMENT LEGENDS:

If you are a United States government agency, then this documentation and the software described herein are provided to you subject to the following:

**United States Government Legend:** All technical data and computer software is commercial in nature and developed solely at private expense. Software is delivered as Commercial Computer Software as defined in DFARS 252.227-7014 (June 1995) or as a commercial item as defined in FAR 2.101(a) and as such is provided with only such rights as are provided in UTStarcom's standard commercial license for the Software. Technical data is provided with limited rights only as provided in DFAR 252.227-7015 (Nov 1995) or FAR 52.227-14 (June 1987), whichever is applicable. You agree not to remove or deface any portion of any legend provided on any licensed program or documentation contained in, or delivered to you in conjunction with, this User Guide.

UTStarcom, the UTStarcom logo, PAS, mSwitch, Airstar, WACOS, Netman, Total Control, and CommWorks are registered trademarks of UTStarcom Inc. and its subsidiaries. The UTStarcom name, AN-2000, and the CommWorks logo are trademarks of UTStarcom Inc. and its subsidiaries.

Any rights not expressly granted herein are firmly reserved.



# Contents

---

|                                   |          |
|-----------------------------------|----------|
| <b>About This Guide.....</b>      | <b>1</b> |
| Introduction .....                | 1        |
| Conventions.....                  | 1        |
| Notice .....                      | 1        |
| Text.....                         | 1        |
| Figures and Screen Captures ..... | 2        |
| Related Documentation.....        | 2        |

---

|                                        |          |
|----------------------------------------|----------|
| <b>1   Overview .....</b>              | <b>3</b> |
| Product Front View .....               | 3        |
| Product Features .....                 | 3        |
| Network Topology.....                  | 4        |
| AP Mode.....                           | 4        |
| Point To Point Mode (P2P).....         | 4        |
| Point To Multi-Point Mode (M2MP) ..... | 5        |

---

|                                        |          |
|----------------------------------------|----------|
| <b>2   Hardware Installation .....</b> | <b>7</b> |
| Package Contents .....                 | 7        |
| Interface Description.....             | 8        |
| Product Label Description .....        | 9        |
| 电缆连接 Cable Connection .....            | 10       |

---

|                                                      |           |
|------------------------------------------------------|-----------|
| <b>3   Web-based Configuration Introduction.....</b> | <b>13</b> |
| Login AP .....                                       | 13        |
| Web Configuration User Interface .....               | 14        |
| Button Description .....                             | 15        |

---

|                                                   |           |
|---------------------------------------------------|-----------|
| <b>4   Web-based Configuration.....</b>           | <b>17</b> |
| Guide Configuration .....                         | 17        |
| Basic Configuration .....                         | 21        |
| AP Mode Configuration .....                       | 21        |
| Wireless Port1/Wireless Port2 Configuration ..... | 21        |
| DHCP Server Configuration .....                   | 24        |
| WAN Interface Configuration (WA6011) .....        | 26        |
| WAN Interface Configuration (WA6012) .....        | 28        |
| ADSL Configuration (WA6012/Bridge Mode).....      | 29        |
| LAN Interface Configuration .....                 | 29        |
| Advanced Configuration .....                      | 30        |

|                                                                 |           |
|-----------------------------------------------------------------|-----------|
| Wireless Port1 Configuration/Wireless Port2 Configuration ..... | 30        |
| RADIUS Client Configuration .....                               | 32        |
| Authentication.....                                             | 33        |
| Subscriber Configuration.....                                   | 36        |
| ARP Configuration.....                                          | 37        |
| Route Configuration .....                                       | 37        |
| NAT Configuration.....                                          | 38        |
| Isolation & Filter Configuration .....                          | 39        |
| MAC Table Configuration .....                                   | 40        |
| VLAN Configuration.....                                         | 41        |
| System Configuration .....                                      | 41        |
| System Information .....                                        | 42        |
| Change Password .....                                           | 42        |
| Web Management Filter .....                                     | 42        |
| SNMP Configuration.....                                         | 43        |
| File System Management.....                                     | 44        |
| Statistic Information .....                                     | 45        |
| Wireless Port (WA6011).....                                     | 45        |
| ADSL Statistic Information (WA6012) .....                       | 46        |
| WAN/LAN Interface .....                                         | 47        |
| DHCP Server.....                                                | 48        |
| DHCP Relay .....                                                | 48        |
| RADIUS Client.....                                              | 48        |
| ARP .....                                                       | 49        |
| Route .....                                                     | 49        |
| Online User .....                                               | 49        |
| MAC Address .....                                               | 50        |
| <b>5 Typical Configuration Examples.....</b>                    | <b>51</b> |
| AP in Bridge Mode.....                                          | 51        |
| AP in Router Mode .....                                         | 54        |
| AP in P2P Mode .....                                            | 56        |
| <b>6 Term and Acronym List .....</b>                            | <b>59</b> |
| <b>1 Technical Specification .....</b>                          | <b>61</b> |

# List of Tables

|                                                                          |    |
|--------------------------------------------------------------------------|----|
| <b>Table 1</b> Interface Description on Side anel (l).....               | 8  |
| <b>Table 2</b> Label Description.....                                    | 9  |
| <b>Table 3</b> Configuration Description Table (WA6011) .....            | 15 |
| <b>Table 4</b> DHCP Server Parameter Description.....                    | 25 |
| <b>Table 5</b> Wireless Port Parameters Description .....                | 30 |
| <b>Table 6</b> 802.1x Authentication Config Parameter Specification..... | 34 |

## List of Figures

|                                                                                       |    |
|---------------------------------------------------------------------------------------|----|
| <b>Figure 1</b> WA6011/6012 Front View.....                                           | 3  |
| <b>Figure 2</b> Network Topology in AP Mode .....                                     | 4  |
| <b>Figure 3</b> Network Topology in P2P Mode .....                                    | 5  |
| <b>Figure 4</b> WA6011 Network Topology in P2MP Mode .....                            | 5  |
| <b>Figure 5</b> WA6011/6012 Side View (I) .....                                       | 8  |
| <b>Figure 6</b> WA6011/6012 Side Panel (II) .....                                     | 9  |
| <b>Figure 7</b> WA6012 Bottom View.....                                               | 9  |
| <b>Figure 8</b> Logon Window .....                                                    | 14 |
| <b>Figure 9</b> Web Configuration UI (English) .....                                  | 14 |
| <b>Figure 10</b> Web Configuration UI (Chinese) .....                                 | 14 |
| <b>Figure 11</b> Buttons.....                                                         | 15 |
| <b>Figure 12</b> AP Reboot Prompt Window.....                                         | 16 |
| <b>Figure 13</b> Guide Configuration Window.....                                      | 17 |
| <b>Figure 14</b> AP Mode Setting Window.....                                          | 18 |
| <b>Figure 15</b> DHCP Configuration Window .....                                      | 18 |
| <b>Figure 16</b> LAN Port Configuration.....                                          | 19 |
| <b>Figure 17</b> Wireless Port Configuration.....                                     | 19 |
| <b>Figure 18</b> Configuration Completed .....                                        | 20 |
| <b>Figure 19</b> WAN Port Configuration .....                                         | 20 |
| <b>Figure 20</b> AP Mode Configuration .....                                          | 21 |
| <b>Figure 21</b> Prompt Window after Apply AP Mode Changes.....                       | 21 |
| <b>Figure 22</b> Wireless Port Configuration UI (without Wireless Network Card) ..... | 22 |
| <b>Figure 23</b> Wireless Port Configuration.....                                     | 22 |
| <b>Figure 24</b> 108g Optimisation Parameter Configuration UI.....                    | 23 |
| <b>Figure 25</b> Set WNIC2010 to Enable Turbo G Mode .....                            | 23 |
| <b>Figure 26</b> DHCP Server .....                                                    | 24 |
| <b>Figure 27</b> DHCP Server Configuration .....                                      | 25 |
| <b>Figure 28</b> DHCP exclude Address Configuration .....                             | 25 |
| <b>Figure 29</b> DHCP Relay Configuration.....                                        | 26 |
| <b>Figure 30</b> WAN Interface Configuration (WA6011) .....                           | 26 |
| <b>Figure 31</b> PPPoE Configuration.....                                             | 27 |
| <b>Figure 32</b> Obtain Address Automatically Using DHCP .....                        | 27 |
| <b>Figure 33</b> Trusted DHCP Server Configuration .....                              | 27 |
| <b>Figure 34</b> Specify IP Address Manually.....                                     | 28 |
| <b>Figure 35</b> WAN Interface Configuration (WA6012) .....                           | 28 |
| <b>Figure 36</b> ADSL Firmware Configuration.....                                     | 29 |



|                                                                      |    |
|----------------------------------------------------------------------|----|
| <b>Figure 37</b> ADSL Configuration .....                            | 29 |
| <b>Figure 38</b> LAN Interface Configuration .....                   | 30 |
| <b>Figure 39</b> Wireless Port Advanced Configuration.....           | 30 |
| <b>Figure 40</b> WDS Configuration.....                              | 32 |
| <b>Figure 41</b> Radius Client Configuration.....                    | 32 |
| <b>Figure 42</b> Authentication Configuration .....                  | 33 |
| <b>Figure 43</b> User Authentication Configuration.....              | 33 |
| <b>Figure 44</b> 802.1x Authentication Configuration .....           | 34 |
| <b>Figure 45</b> For a Specific User Configuration.....              | 35 |
| <b>Figure 46</b> Initial a Specific User Configuration .....         | 36 |
| <b>Figure 47</b> Re-authenticate a Specific User Configuration ..... | 36 |
| <b>Figure 48</b> Subscriber Configuration .....                      | 36 |
| <b>Figure 49</b> Dynamic User Table .....                            | 36 |
| <b>Figure 50</b> Create a Static User Configuration.....             | 37 |
| <b>Figure 51</b> ARP Configuration.....                              | 37 |
| <b>Figure 52</b> Route Configuration.....                            | 38 |
| <b>Figure 53</b> NAT Configuration .....                             | 38 |
| <b>Figure 54</b> NAT/NAPT Configuration .....                        | 39 |
| <b>Figure 55</b> NAT Advanced Configuration.....                     | 39 |
| <b>Figure 56</b> Isolation and Filter Configuration.....             | 40 |
| <b>Figure 57</b> MAC Table Configuration .....                       | 40 |
| <b>Figure 58</b> VLAN Configuration.....                             | 41 |
| <b>Figure 59</b> System Information.....                             | 42 |
| <b>Figure 60</b> Change Password Configuration Interface.....        | 42 |
| <b>Figure 61</b> Web Management FilterConfiguration Interface.....   | 43 |
| <b>Figure 62</b> SNMP Agent/SNMP End User Filter Interface .....     | 43 |
| <b>Figure 63</b> SNMP Trap Configuration Interface .....             | 44 |
| <b>Figure 64</b> File System Configuration Interface .....           | 44 |
| <b>Figure 65</b> Erase Configuration File Dialog Window .....        | 45 |
| <b>Figure 66</b> Reboot Message Dialog Window .....                  | 45 |
| <b>Figure 67</b> Wireless Port Statistic Information.....            | 46 |
| <b>Figure 68</b> ADSL Statistics Information.....                    | 47 |
| <b>Figure 69</b> WAN/LAN Interface Statistics Information.....       | 47 |
| <b>Figure 70</b> DHCP Server Statistics Information .....            | 48 |
| <b>Figure 71</b> DHCP Relay Statistic Information.....               | 48 |
| <b>Figure 72</b> RADIUS Client Statistic Information .....           | 49 |
| <b>Figure 73</b> ARP Statistic Information.....                      | 49 |
| <b>Figure 74</b> Route Statistic Information .....                   | 49 |



|                                                          |    |
|----------------------------------------------------------|----|
| <b>Figure 75</b> Online User Statistic Information ..... | 50 |
| <b>Figure 76</b> MAC Address Statistic Information ..... | 50 |

# About This Guide

---

## Introduction

This guide is specific guiding the Administrators to operate and configure the outdoor AP WA6011 and WA6012

---

## Conventions

This guide may contain notices, figures, screen captures, and certain text conventions.

### Notice

The following table lists notices icons used in this guide.

| Icon                                                                                | Notice Type | Description                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | Note        | Information that contains important features or instructions but is not hazard-related.                                                                                                                                                |
|  | Caution     | Information to alert of potential damage to a program, data, system, or device. If not avoided, may result in minor or moderate injury. It may also alert against unsafe practices and potential program, data, system, device damage. |
|  | Warning     | Information to alert of operations that may cause potential accident, casualty, personal injury, fatality or potential electrical hazard. If not avoided, could result in death or serious injury.                                     |
|  | ESD         | Information that indicates proper grounding precautions is required before handling a product.                                                                                                                                         |

### Text

The following table lists text conventions in this guide.

| Convention                            | Description                                                                                                                                                                                   |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Text represented by Courier New Font  | This typeface represents text that appears on a terminal screen, including, configuration file names (only for system output file names), and command names, for example <code>login</code> . |
| Text represented by <b>bold</b>       | This typeface represents function names, window tabs, field names, for example, Set the <b>Time</b> field.                                                                                    |
| Text represented as <b>user entry</b> | <b>This typeface</b> represents commands entered by the user, for example, <b>cd \$HOME</b> .                                                                                                 |
| Text represented by “ ”               | This typeface represents window and dialogue box names, directory, file names, process name, and command in text, for example, open the “NE Inventory Management” window.                     |

| Convention                                     | Description                                                                                                            |
|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Text represented by [Menu] and [Menu/Sub-menu] | This typeface represents menus such as [File], and [File/New]                                                          |
| Text represented by <Button>                   | This typeface represents button on screen, function key on the keyboard and icon names for example, click <OK>.        |
| Text represented by <i>Document Name</i>       | This typeface represents documents for reference, for example, <i>Netman 2020-based AN2000B-900 Installation Guide</i> |
| Text represented by # File format:             | This typeface represents files in Unix/Linux system files.                                                             |

## Figures and Screen Captures

This guide provides figures and screen captures as example. These examples contain sample data which may vary from the actual data on an installed system.

## Related Documentation

- *WA6011/6012 Outdoor AP CLI Command Reference*

# 1

## Overview

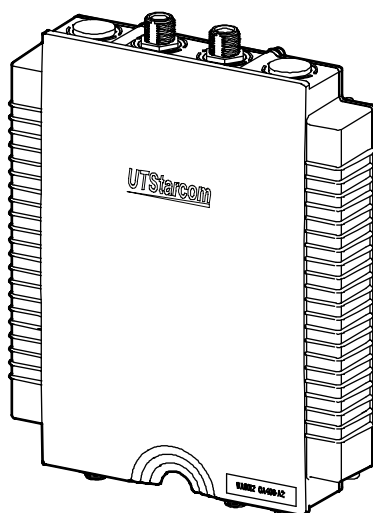
WA6011 and WA6012 is carrier class outdoor model of AP (Access Point) that provides the uplink to Ethernet and ADSL (Asymmetrical Digital Subscriber Loop). It is a typical designed product for Service Providers. WA6011/6012 supports IEEE802.11a/b/g and provides 54 Mbps data transfer speed among buildings.

---

## Product Front View

Figure 1 shows the front view of WA6011/6012. The device is waterproofed by using completely wipe out encapsulation.

**Figure 1** WA6011/6012 Front View



---

## Product Features

- Compliant with IEEE802.11a/b/g
- Supports PTP (point to point), PMP (point to multi-points) wireless bridge mode
- The assembled antenna is facility for user to use the outdoor antenna easily
- Automatically select data transfer rate
- Supports a router mode
- Supports 802.1x to provide high data security
- Supports DHCP server
- Supports RADIUS Client
- Supports 802.1x

- Supports PPPoE pass-through
- Supports NAT
- Supports broadcast threshold
- Supports 64/128-bit WEP encapsulation
- Supports remote firmware management
- Provides load-balancing control based on the volume of traffic and the number of accesses
- Supports MAC address filter configuration
- Provides WEB, SNMP, and CLI based management



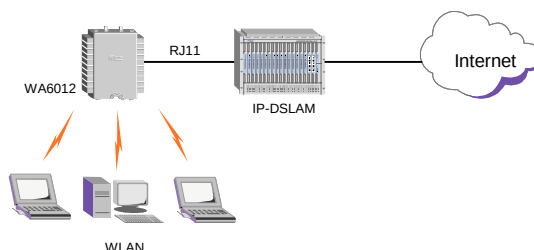
**Note:** In this guide, the description about WA6011 is the same as WA6012 if there is no specific illustration.

## Network Topology

### AP Mode

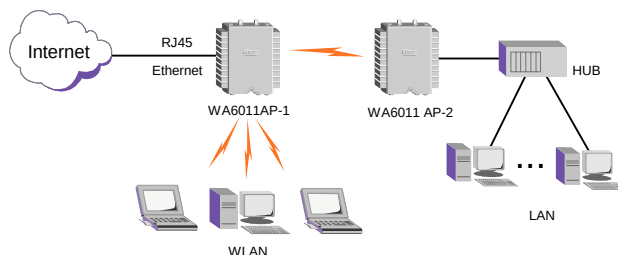
WA6011/6012 can provide wireless access (AP mode). AP is used to establish connection between wireless network and wired network, while its wireless network can support up to hundred users within hundred meters. Figure 2 shows an example of WA6012 in AP mode. AP connects to WAN through ADSL, while it is connected with wireless users through its wireless network card.

**Figure 2** Network Topology in AP Mode



### Point To Point Mode (P2P)

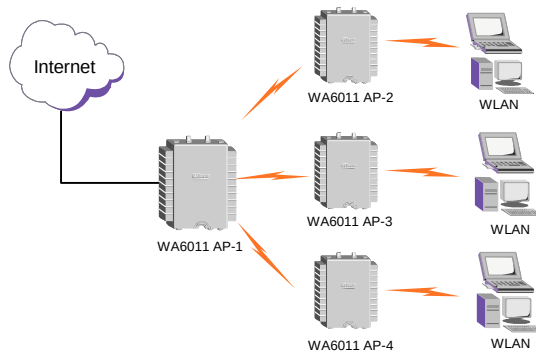
WA6011/6012 can work in P2P mode, connection between wireless network and wired network through two APs realizes resource sharing, as well as network extension. Figure 3 shows that the wired LAN of AP-2 accesses network resource in bridge mode connected with AP-1, meanwhile AP can have wireless access.

**Figure 3** Network Topology in P2P Mode

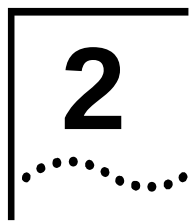
**Note:** WA6011/6012 can configure two network cards simultaneously. One is configured in AP mode for WLAN, the other one is configured in P2P or P2MP mode for wireless bridging among two or more. To avoid radio interference, configuring two network cards on different working channels is recommended.

## Point To Multi-Point Mode (P2MP)

P2MP wireless network bridging is able to connect several individual remote networks together. Its network topology is more complicated than P2P. In P2MP mode, radio signal is sent from one network as the center, other receiving points receive the signals. WA6011/6012 supports up to six remote APs' access.

**Figure 4** WA6011 Network Topology in P2MP Mode





# Hardware Installation

---

## Package Contents

Before the installation, check the following accessories in the box:

- WA6011 (AC Power Supply)
  - One WA6011
  - 50m Ethernet cable
  - 35m AC power cable
  - One Console cable with RS232 Interface (Option)
  - One Installation Rack
  - Four screws
  - Four sleeves
  - One User Guide (this one)
  - One guarantee card
- WA6011 (DC Power Supply)
  - One WA6011
  - One PoE module with power cable
  - 50m Ethernet cable
  - One Console cable with RS232 Interface (Option)
  - One Installation Rack
  - Four screws
  - Four sleeves
  - One User Guide (this one)
  - One guarantee card
- WA6012
  - - One WA6012
  - - 50m ADSL cable
  - - 35m power cable
  - - One Console cable with RS232 Interface (Option)
  - - One Installation Rack
  - - Four screws
  - - Four sleeves
  - - One User Guide (this one)
  - - One guarantee card



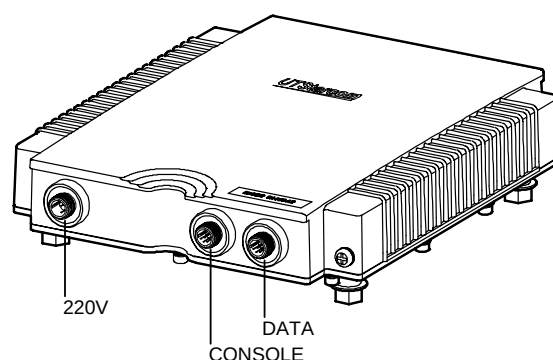
**Note:** 1. If you find anything missing or if the documentation set is incomplete, contact your local dealer immediately.

2. The product is only for professional installation.

## Interface Description

WA6011/6012 side panel (I) is shown in Figure 5. Table 1 describes the interfaces on the side panel (I).

**Figure 5** WA6011/6012 Side View (I)



**Table 1** Interface Description on Side Panel (I)

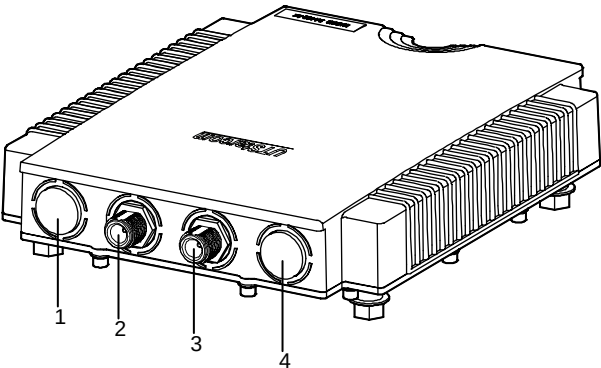
| Interface | Color                          | Description                                                    |
|-----------|--------------------------------|----------------------------------------------------------------|
| 220V      | Red                            | AC Power Connection Adapter                                    |
| CONSOLE   | Green                          | RS232 port provides CLI configuration interface                |
| DATA      | WA6011: Blue<br>WA6012: Yellow | Data Interface:<br>WA6011: Ethernet port;<br>WA6012: ADSL port |



**Note:** WA6011 supports PoE (Power Over Ethernet) mode. Use an Ethernet cable to connect AP's Data interface with the DC power output port in the DC power supply module to implement data transmission and DC power supply.

Figure 6 shows the side panel (II) of WA6011/6012. WA6011 provides four antenna jacks marked with number 1 to 4 from left to right. Two wireless network cards can be installed. Jack 2 & 3 are used if only one network card installed; If two network cards are installed at the same time, jack 1 & 2 are used for one card, jack 3 & 4 are used for the other card.

Figure 6 WA6011/6012 Side Panel (II)



Product Label Description

The label on the bottom of WA6011/6012 marks the product model and code.

Figure 7 WA6012 Bottom View

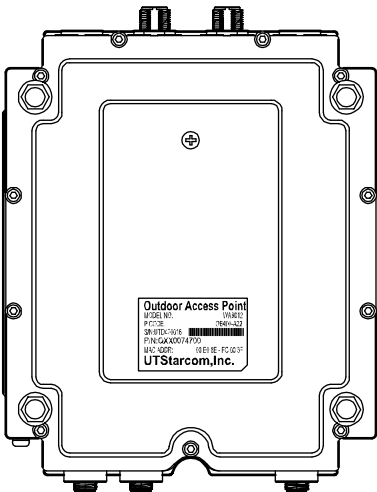


Table 2 Label Description

| Name                 | Description          |
|----------------------|----------------------|
| Outdoor Access Point | Outdoor Access Point |

| Name     | Description                                                                                                                                                                                                                                                                                                    |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MODEL NO | WA6012                                                                                                                                                                                                                                                                                                         |
| P CODE   | Product Code:<br><b>O</b> : outdoor<br><b>E</b> : Ethernet port<br><b>A</b> : ADSL port for WA6012<br><b>400</b> : 400mw power<br><b>A</b> : AC power supply<br><b>D</b> : PoE<br><b>2</b> : Support b/g mode<br><b>3</b> : Supports a/b/g mode. A supplementary digit represents two network cards installed. |
| S/N      | Serial number                                                                                                                                                                                                                                                                                                  |
| MAC ADDR | Device MAC address                                                                                                                                                                                                                                                                                             |

## Cable Connection

WA6011/6012 are outdoor AP, its rack installation, please refer to **WA6011/6012 Outdoor AP Installation Guide**. The cable connection will be described in this section.

### WA6011 in AP mode:

- AC power supply
  - 1 Connect the 220V AC power adapter to the AC power supply
  - 2 Connect the DATA interface in AP to the Internet (usually is a port of an Ethernet switch) through a data cable
  - 3 Configure the wireless network card for wireless users access
- PoE power supply
  - 1 Connect the 220V power connection socket on PoE module to the AC power supply through a power cable
  - 2 Connect the Input jack in PoE module to the internet (usually is a port of an Ethernet switch) through an Ethernet cable
  - 3 Connect the DATA interface in AP to the Output interface in PoE module through a data cable, the cable provides data transmission and DC power
  - 4 Configure the wireless network card for wireless users access

### WA6012 in AP mode:

- 1 Connect the 220V AC power adapter to the AC power supply
- 2 Connect the DATA (ADSL) interface in AP to the internet through a data cable
- 3 Configure the wireless network card for wireless users access





# 3

## Web-based Configuration

### Introduction

There are two working modes available in WA6011: Route and Bridge mode. The default is bridge mode.

#### WA6011 default settings:

- Working mode is Bridge mode
- IP Address of the LAN interface is 172.18.37.1. Mask is 255.255.255.0.
- ESSID of wireless interface is set to "UT". Wireless channel is set to "1"
- When the AP is in route mode, IP Address of the WAN interface is 192.168.1.1. Mask is 255.255.255.0.

If security setting is not requested, only ESSID setting in the wireless network card of user's terminal is configured to be same as the one in the AP, then AP can work properly with the card after power is supplied (WA6012 needs to set VPI/VCI)

---

### Login AP

Access the AP through LAN port or the uplink port:

- After the configuration of AP and PC wireless network card is completed, the user can access AP wirelessly. (AP works in Bridge or Router mode)
  - Install a wireless network card in a PC, set its IP Address the same as the AP's and LAN port's, e.g. 172.18.37.10, Mask: 255.255.255.0, set the ESSID the same as the AP's, check the status of the wireless network card, make sure it connects to the AP. Logon to the WA6011/6012 through the web browser.
- Access AP through the uplink ports
  - In Bridge mode, the IP addresses of the PC and the AP LAN interface should be set the same, e.g. 172.18.37.10. Use the web browser to logon.

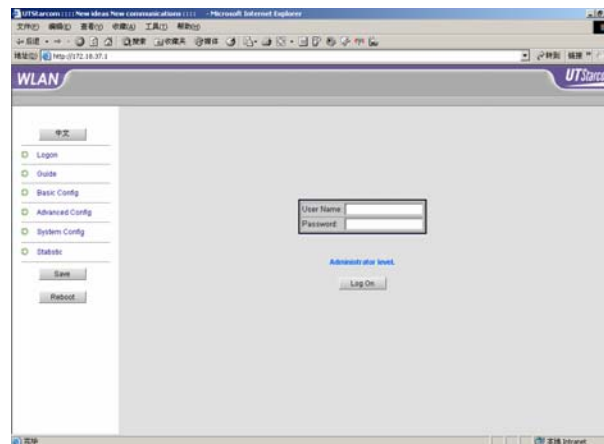


**Note:** To access AP through the Ethernet port on DSLAM because the uplink of WA6012 is ADSL (RJ11)

- In Route mode, the IP addresses of the PC and the AP's WAN interface should be set the same, e.g. 192.168.1.10. Set the Mask to 255.255.255.0. Use the web browser to logon.

The Logon Interface is displayed in Figure 8. The user name for administrator is "admin", and password is "admin". The user name for guest (read only) is "guest", the password is "guest". The administrator has right to set all configurations for the AP, but guests can read the AP status and statistic information only

Figure 8 Logon Window



## Web Configuration User Interface

WA6011 web user interface (UI) is shown in Figure 9. The left panel lists all configuration options, save and reboot buttons. Click on the <中文> button to switch the UI to Chinese mode, see Figure 10

Table 3 lists all configuration options in Bridge and Route modes (WA6011)

Figure 9 Web Configuration UI (English)

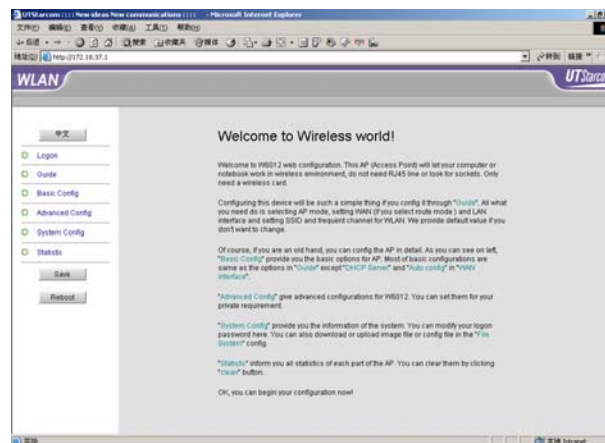
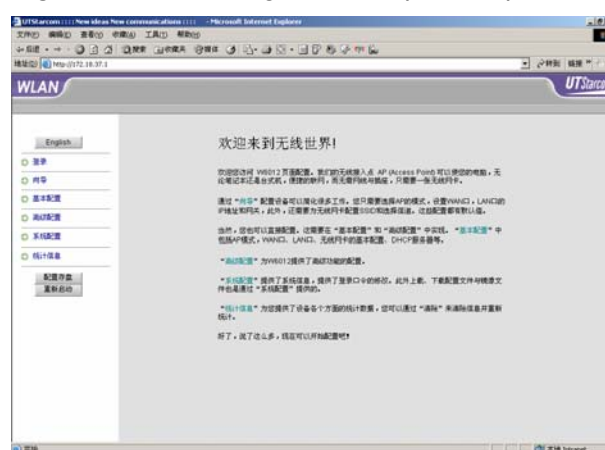


Figure 10 Web Configuration UI (Chinese)



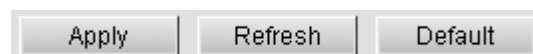
**Table 3** Configuration Description Table (WA6011)

| Menu            | Bridge Mode                                                                                                            | Router Mode                                                                                                                                 |
|-----------------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Basic Config    | ➡ 基本配置<br>➡ AP 模式<br>➡ 无线基本配置1<br>➡ 无线基本配置2<br>➡ LAN 接口                                                                | ➡ 基本配置<br>➡ AP 模式<br>➡ 无线基本配置1<br>➡ 无线基本配置2<br>➡ DHCP 服务器<br>➡ WAN 接口<br>➡ LAN 接口                                                           |
| Advanced Config | ➡ 高级配置<br>➡ 无线高级配置1<br>➡ 无线高级配置2<br>➡ RADIUS 客户端<br>➡ 认证配置<br>➡ 用户配置<br>➡ ARP配置<br>➡ 隔离 & 过滤<br>➡ MAC 地址管理<br>➡ VLAN配置 | ➡ 高级配置<br>➡ 无线高级配置1<br>➡ 无线高级配置2<br>➡ RADIUS 客户端<br>➡ 认证配置<br>➡ 用户配置<br>➡ ARP配置<br>➡ 路由配置<br>➡ NAT配置<br>➡ 隔离 & 过滤<br>➡ MAC 地址管理<br>➡ VLAN配置 |
| System Config   | ➡ 系统配置<br>➡ 系统信息<br>➡ 配置用户管理<br>➡ Web管理控制<br>➡ SNMP配置<br>➡ 文件系统                                                        | ➡ 系统配置<br>➡ 系统信息<br>➡ 配置用户管理<br>➡ Web管理控制<br>➡ SNMP配置<br>➡ 文件系统                                                                             |
| Statistic       | ➡ 统计信息<br>➡ 无线端口<br>➡ WAN/LAN接口<br>➡ RADIUS 客户端<br>➡ ARP表<br>➡ 在线用户<br>➡ MAC 地址表                                       | ➡ 统计信息<br>➡ 无线端口<br>➡ WAN/LAN接口<br>➡ DHCP 服务器<br>➡ DHCP 中继<br>➡ RADIUS 客户端<br>➡ ARP表<br>➡ 路由表<br>➡ 在线用户<br>➡ MAC 地址表                        |

## Button Description

In the main configuration options window, there are two more buttons, “Save” and “Reboot” available in the left panel of the logon screen, click <Reboot> to re-start the AP.

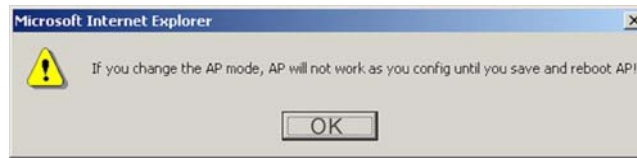
The buttons shown in Figure 11 will appear during the configuration.

**Figure 11** Buttons

- <Apply>: Press to apply a configuration changes. Some configurations are applied only after saving and rebooting the AP. The corresponding prompt window will pop up.
- <Refresh>: Press <Refresh> to refresh the interface.
- <Default>: Press <Default> to restore the default parameters.

For some parameter's configuration, e.g. ESSID, click <Apply>, the system will prompt that the configuration will be effective after save and reboot the AP, see Figure 12

**Figure 12** AP Reboot Prompt Window



**Note:** Click <Save> to save the configuration changes even if it has been applied by clicking <Apply>

# 4

## Web-based Configuration

This chapter will introduce all Web configurations in Route mode. The Web-based configuration in Bridge mode will not be described here because they are included in the configurations in Route mode.

### Guide Configuration

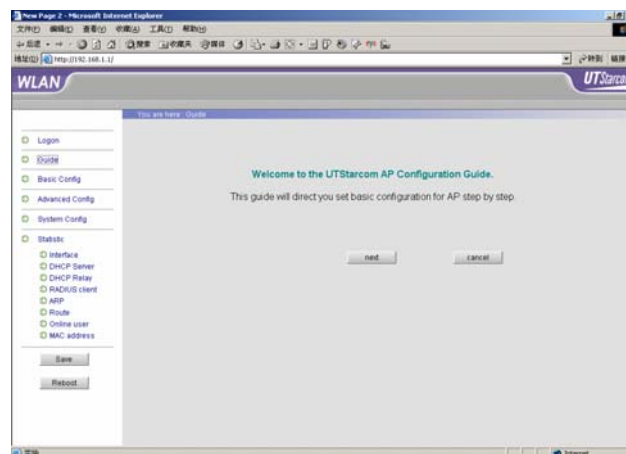
“Guide” provides users the ability to configure the AP in Route/Bridge mode according to the instructions in the Web interface.



**Note:** User can configure more functions via “Basic config” and “Advanced config”

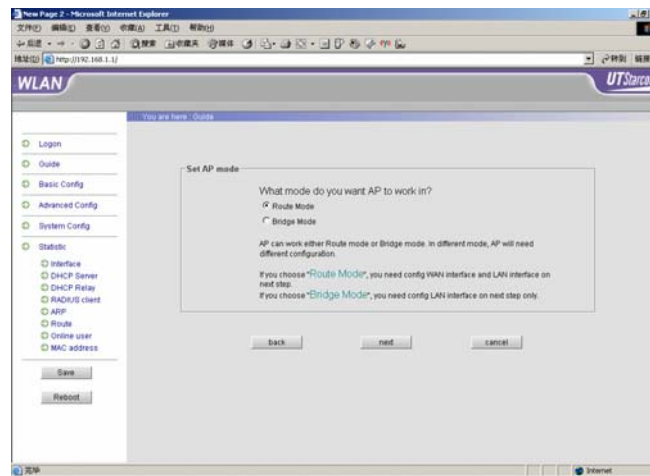
Refer to Figure 13, click “Guide” on the left panel of the Logon interface.

**Figure 13** Guide Configuration



Entering the Guide configuration window, as shown in Figure 14

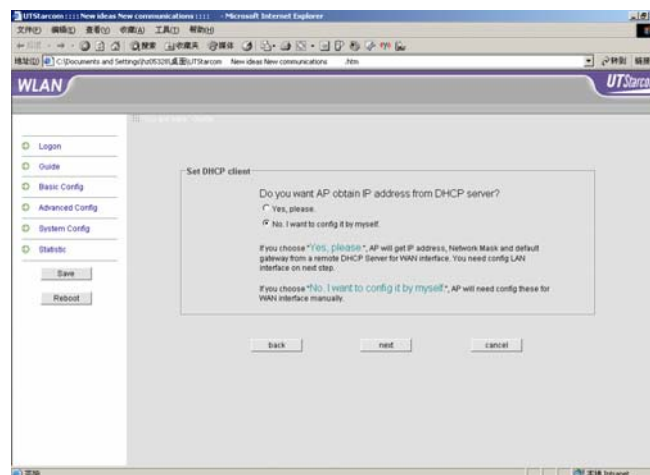
Figure 14 AP Mode Setting



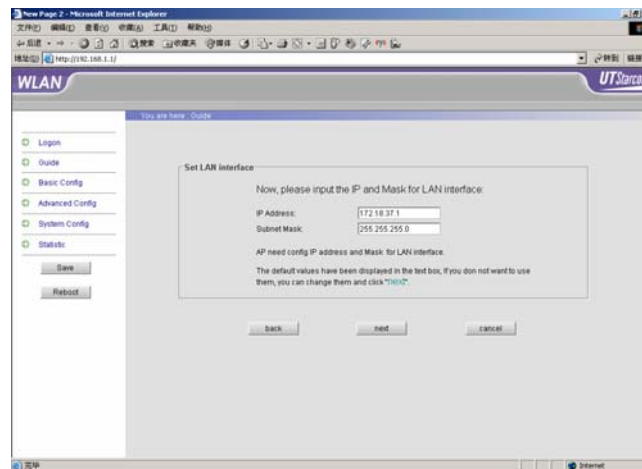
- Configuration in Route Mode

Select “Route Mode” in Figure 14, click “next” to go to the route mode configuration screen as shown in Figure 15.

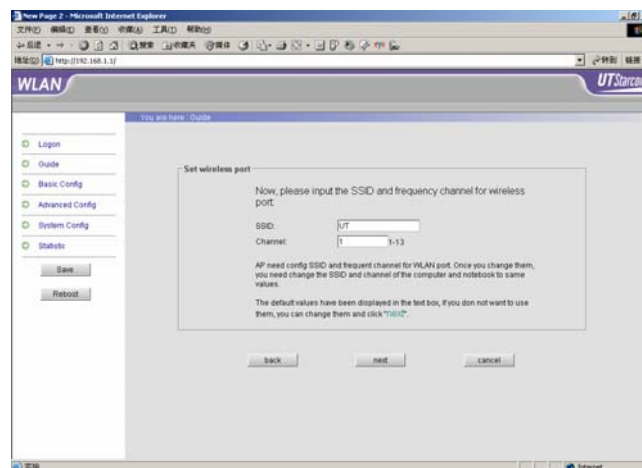
Figure 15 DHCP Configuration



If you want to obtain the IP address for the WAN port from the DHCP server, select “**Yes, please**”, then click <next> to go to the LAN port configuration window, as shown in Figure 16

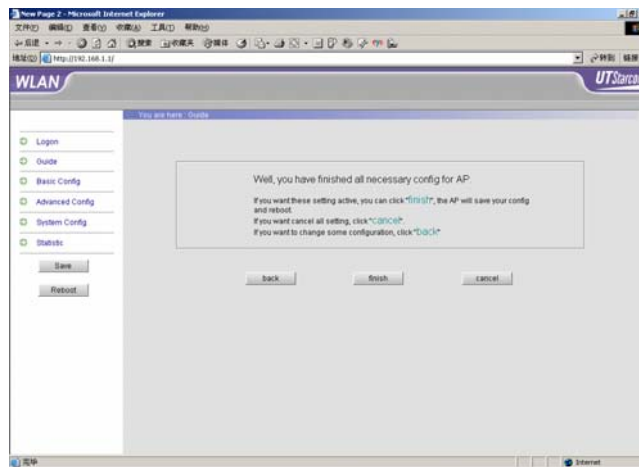
**Figure 16 LAN Port Configuration**

The LAN port configuration window displays the default IP Address and Mask. The IP address is able to enter a new one, then click <next> to go to the wireless port configuration, as shown in Figure 17

**Figure 17 Wireless Port Configuration**

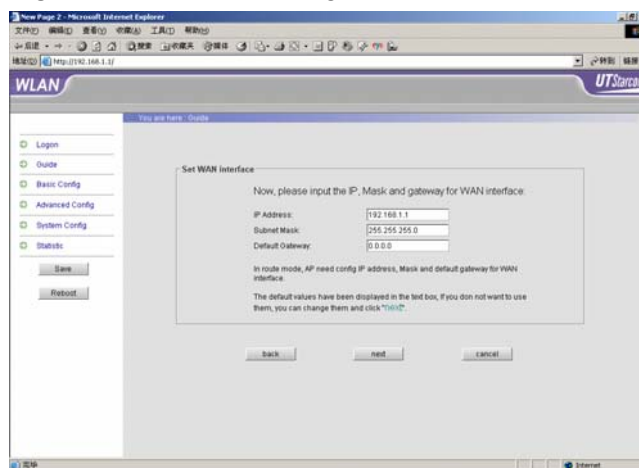
The default SSID is “UT”, and the Channel is “1”. The value of SSID and channel are changeable. User can access the AP only when the ESSID setting in the wireless network card of user’s terminal is configured to be same as the one in the AP. Click <next> to go to the completed configuration window shown in Figure 18. Click <finish>, the AP will save the configuration and restart automatically.

Figure 18 Configuration Completed



To obtain the IP Address for the WAN port by manually, select “**No, I want config it by myself**” as shown in Figure 15, then click <next>, see Figure 19.

Figure 19 WAN Port Configuration



The AP default IP address for the WAN port is 192.168.1.1, Mask is 255.255.255.0, and the default Gateway is 0.0.0.0.

Click <next>, the system prompts the LAN port and Wireless port configuration. Finally, click <finish>, the AP will save the configuration changes and restart automatically.

- Configuration in Bridge Mode

Select “Bridge Mode” in Figure 14, the system will guide user how to configure the IP address for LAN port, and the SSID and Channel for wireless port. The details will not be described here because they are included in the configurations in Route mode. Please refer to the configuration steps in Router mode.

## Basic Configuration

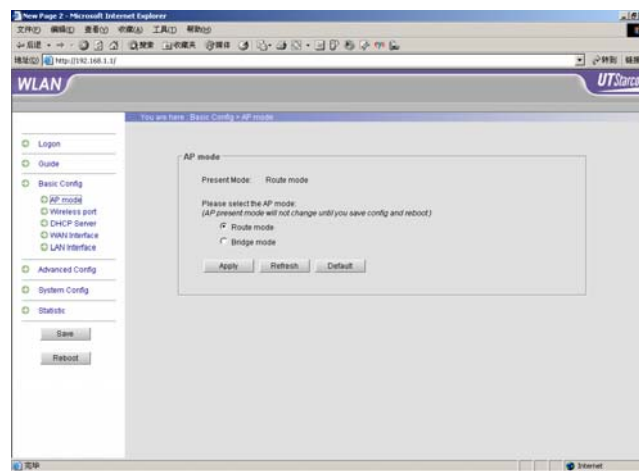
This section introduces each item of the basic configuration of WA6011 including WAN, LAN and wireless port configuration.

Click “Basic Config” on left panel of the Logon interface, the basic configuration items of the AP will be displayed. The following sections will describe each item.

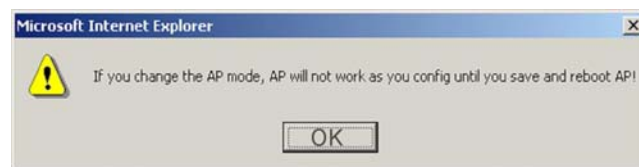
## AP Mode Configuration

Click “AP mode” on left panel of the Logon interface, see Figure 20, Route Mode is the default. Click <Apply> after configuration completed. See Figure 21, the popup dialogue box prompts that the configuration will not work until it's saved, then reboot the AP.

**Figure 20** AP Mode Configuration

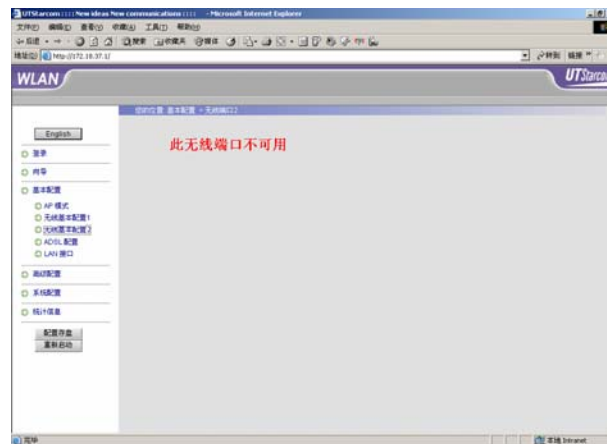


**Figure 21** Prompt Window after Apply AP Mode Changes

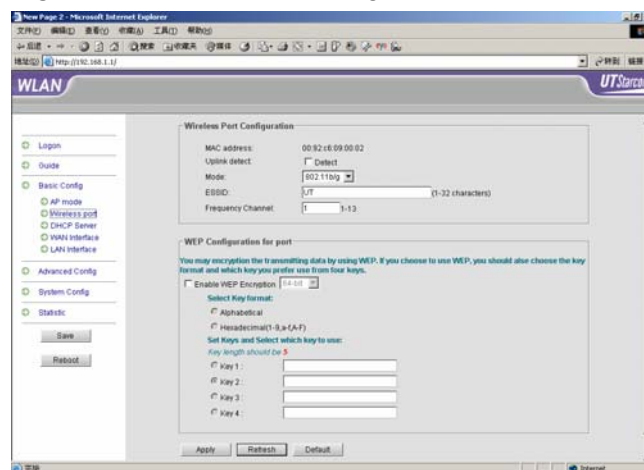


## Wireless Port1/Wireless Port 2 Configuration

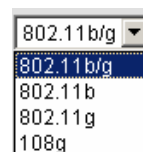
Two wireless network cards can be installed in WA6011. Their corresponding configuration ports are wireless port 1 and wireless port 2. Figure 22 displays the port configuration without wireless network card plugged.

**Figure 22** Wireless Port Configuration (without Wireless Network Card)

Click “Wireless port 1” to go to the Wireless Port Configuration section on the top of the window as shown in Figure 23.

**Figure 23** Wireless Port Configuration

- **Wireless Port Configuration**
  - **Uplink detect:** If the “Detect” check box is selected, after click <Apply>, the AP will automatically disconnect from the wireless LAN when the uplink has been lost or does not work properly.
  - **Mode:** WA6011 complies with the 802.11b/g which is the default working mode. Data transfer speed in 108g mode is 108Mbps. Click <Apply>, the system will prompt to save the configuration and reboot the AP.





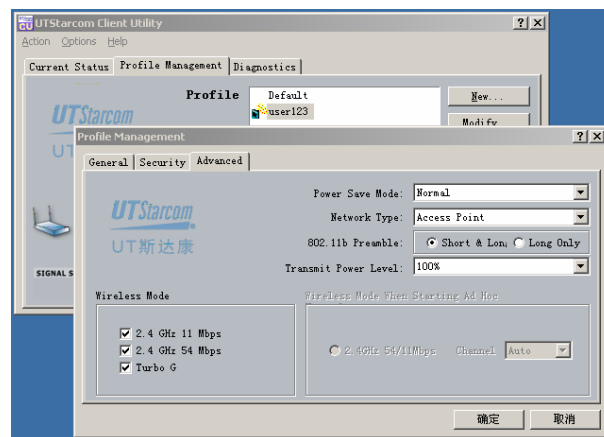
**Note:** When the 108g mode is selected, the “108g optimization” parameter option in “Advance Config/Wireless Port Config” has to be activated. See Figure 24

**Figure 24** 108g Optimisation Parameter Configuration

|         |                                            |         |
|---------|--------------------------------------------|---------|
| 信标间隔:   | 100                                        | 20-1000 |
| DTIM间隔: | 2                                          | 1-255   |
| 108g 优化 | <input checked="" type="checkbox"/> enable |         |
| 功率:     | 100%                                       |         |
| 传输速率:   | 自动                                         | Mbit/s  |

In addition, the wireless network card should support 108g to implement 108g mode, e.g. UTStarcom WNIC2010 Wireless Network Card. See Figure 25, select the “Turbo G” function in the “Advance” option menu in WNIC2010 Utility Settings.

**Figure 25** Set WNIC2010 to Enable Turbo G Mode



- **ESSID:** Each AP can be set with a specific ESSID (or they can be set the same), also each wireless card can be set with a specific ESSID. The AP only accepts wireless access when the ESSID of the wireless card matches the AP's ESSID. Specific ESSIDs can be used for grouping users to avoid security and access problems arising from random roaming. the default ESSID of WA6011 is “UT”, but other ESSIDs are accepted between 1-32 characters. Click <Apply>, the system will prompt to save the configuration and reboot the AP.
- **Frequency Channel:** The Channel can be set in the range of 1-13. The default is 1.



**Note:** The Frequency Channel is fixed to 6 by the system when the Mode is “Dynamic G” or 108g.

- WEP Configuration

WEP encryption uses a static secret key, each WLAN terminal uses the same key to access the wireless network. WA6011 supports 64-bit or 128-bit static WEP encryption, to prevent illegal access of data.

- Enable WEP encryption: select either 64-bit or 128-bit encryption mode
- Select Key format: Select either Alphabetical or Hexadecimal.

#### Description:

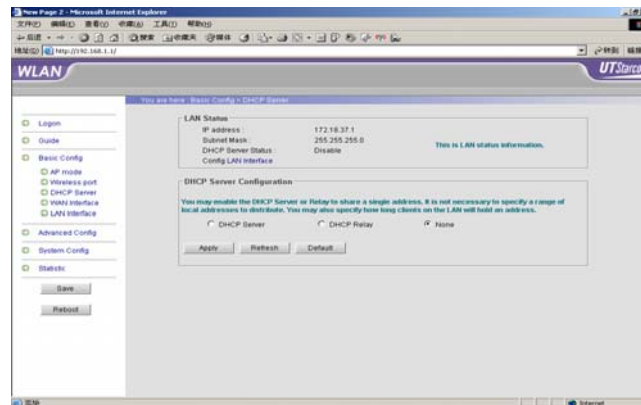
- 64-bit WEP keys (password) can use any 5 alphanumeric characters between “a-z”, “A-Z” and “0-9” or 10 hexadecimal digits between (0-9, A-F). For example, a 5-character password string could be “MyKey”. Or input 10 digits like “11AA22BB33” for a Hexadecimal key.
- 128-bit WEP keys (passwords) can use any 13 alphanumeric characters between “a-z”, “A-Z” and “0-9”, or 26 hexadecimal digits between (0-9, A-F). For example, a 13-character password string could be: *utstarcomKey1*. Or input 26 digits: “00112233445566778899AABBCC” for a Hexadecimal key.

Switch the configuration to wireless port advance configuration by clicking the “Advanced Config” link on the bottom-right screen.

## DHCP Server Configuration

Click “DHCP Server”, see Figure 26, “LAN Status” shows the AP’s current LAN configuration. The default DHCP Server Status is “Disable”

Figure 26 DHCP Server



- DHCP Server

Select “DHCP Server”, the configuration window will appear as shown in Figure 27.

**Figure 27** DHCP Server Configuration

Table 4 describes the configuration parameters of DHCP server

**Table 4** DHCP Server Parameter Description

| Parameters    | Descriptions                                                                         |
|---------------|--------------------------------------------------------------------------------------|
| Network IP    | IP address of DHCP address pool                                                      |
| Network Mask  | The network IP address pool plus a Subnet Mask to define a DHCP server address pool. |
| Lease Time    | IP address lease time                                                                |
| Gateway       | Gateway address, i.e. IP address of LAN interface.                                   |
| DNS Server1-4 | DNS servers, up to 4 servers can be configured.                                      |

Configure those IP address which are not allowed to assign to users by click “DHCP server Config” on the bottom screen. See Figure 28, set a specific IP address or a subnet.

**Figure 28** DHCP exclude Address Configuration

- The first IP address (byte) of a specific IP address or an IP subnet
- The last IP address (byte) of an IP subnet

- DHCP Relay

Select “DHCP Relay”, the configuration details are shown in Figure 29.

**Figure 29 DHCP Relay Configuration**

DHCP Server Configuration

You may enable the DHCP Server or Relay to share a single address. It is not necessary to specify a range of local addresses to distribute. You may also specify how long clients on the LAN will hold an address.

☐ DHCP Server
 ☒ DHCP Relay
 ☐ None

| No. | Enable                              | Trust server for DHCP relay |
|-----|-------------------------------------|-----------------------------|
| 1   | <input checked="" type="checkbox"/> | 11.11.11.2                  |
| 2   | <input type="checkbox"/>            |                             |
| 3   | <input type="checkbox"/>            |                             |

Three IP addresses of trusted DHCP server can be set here. The AP will obtain LAN's IP address, Subnet mask, Gateway, and DNS server from the DHCP server configured here.

DHCP exclude IP address can be configured in DHCP Relay mode.

- None

Select "None" to disable the DHCP server

## WAN Interface Configuration (WA6011)

Click "WAN Interface", see Figure 30, "WAN Interface Status" displays the current WAN port status.

**Figure 30 WAN Interface Configuration (WA6011)**

WLAN

Logon

Guide

Basic Config

- AP mode
- Wireless port
- DHCP Server
- WAN Interface**
- LAN Interface

Advanced Config

System Config

Save

Reboot

Statistics

WAN Interface Status

IP Address: 192.168.1.1

Subnet Mask: 255.255.255.0

PPPoE Status: Disconnected

DHCP Client Status: Disabled

This is the current status of your WAN interface.

WAN Interface Configuration

☐ PPPoE  
☐ Obtain address automatically using DHCP  
☒ Specify IP address below

If you input IP and Mask manually, auto config will be disabled.

IP Address: 192.168.1.1

Subnet Mask: 255.255.255.0

Default Gateway: 0.0.0.0

Enter values then click on Apply to confirm changes.

Auto Config

If you ENABLE auto-config, AP will auto reboot to get the config parameters for wireless port, WEP, RADUIS client.

☐ Disable
 ☐ Enable

If you obtain IP address from DHCP server, you can config Trusted DHCP server.

- PPPoE: WA6011 can obtain the WAN IP address via PPPoE dialup, see Figure 31.

**Figure 31** PPPoE Configuration

Enter user name and password provided by the service provider. Click <Connect> to dial up, when the dialup is successful, the <Disconnect> button will be activated. Select “Auto-connect when boot” to automatically connect after the AP is rebooted.

- Obtain address automatically using DHCP

Click “Obtain address automatically using DHCP”, see Figure 32. The WAN IP address is automatically assigned to AP through DHCP server

**Figure 32** Obtain Address Automatically Using DHCP

Click “DHCP Trusted Server”, see Figure 33.

**Figure 33** Trusted DHCP Server Configuration

After the configuration of Trusted DHCP Server IP address, the AP will obtain the WAN IP address from the configured Trusted DHCP Server only. Click “Back to DHCP client” will return back to WAN interface configuration window.

- *Specify IP address:*

Click “Specify IP address”, user can configure the WAN IP address manually as shown in Figure 34. Click <Apply> to take the configuration effective.

**Figure 34** Specify IP Address Manually

The screenshot shows the 'WAN Interface Configuration' window. It has three radio buttons: 'PPPoE', 'Obtain address automatically using DHCP', and 'Specify IP address below'. The third option is selected. Below this, there is a blue text note: 'If you input IP and Mask manual, auto-config will be disable.' There are three input fields: 'IP Address' (192.168.1.1), 'Subnet Mask' (255.255.255.0), and 'Default Gateway' (0.0.0.0). To the right of these fields is a blue text note: 'Enter values then click on Apply to confirm changes.' Below the input fields, there is an 'Auto Config' section with a blue text note: 'If you ENABLE auto-config, AP will auto reboot to get the config parameters for wireless port, WEP, RADIUS client.' There are two radio buttons: 'Disable' (selected) and 'Enable'. At the bottom, there are three buttons: 'Apply', 'Refresh', and 'Default'. At the very bottom, there is a small blue text note: 'If you obtain IP address from DHCP server, you can config Trusted DHCP server.'

## WAN Interface Configuration (WA6012)

WA6012 WAN interface configuration window is shown in Figure 35. It contains “WAN Interface Status”, “ADSL Set” and “ADSL Firmware” options.

**Figure 35** WAN Interface Configuration (WA6012)

The screenshot shows the 'WAN Interface Configuration' window for WA6012. It has a sidebar on the left with a tree view containing 'Basic Settings', 'Advanced Settings', 'System Settings', and 'Network Settings'. The 'Basic Settings' section is expanded, showing 'AP Mode', 'Basic Settings 1', 'Basic Settings 2', 'DHCP Server', 'WAN Port', and 'LAN Port'. The 'WAN Port' option is selected. The main area shows 'WAN Interface Status' with 'PPPoE Status' as 'Disconnected' and 'DHCP Client Status' as 'Disabled'. Below this is the 'ADSL Set' section. It has a checkbox 'Reboot after ADSL reconnection' which is checked. There are input fields for 'VPI' (0) and 'VCI' (35). Below these are radio buttons for 'Bridged' (selected) and 'Bridged'. There are also input fields for 'IP Address' (192.168.1.1), 'Subnet Mask' (255.255.255.0), and 'Default Gateway' (0.0.0.0). At the bottom, there are buttons for 'Apply', 'Refresh', and 'Default'. At the very bottom, there is a small blue text note: 'If you obtain IP address from DHCP server, you can config Trusted DHCP server.'

- **ADSL Configuration**
  - *Reboot ADSL after Reconnection:* ADSL module will get reboot when ADSL re-connects every time
  - *VPI/VCI:* VPI/VCI setting is same as what DSLAM setting is
  - *Network bridge WEP:* Ifc bridged/vcmux bridged, the default is “Ifc bridged”

For the detailed configuration of “PPPoE”, “Obtain address automatically using DHCP” and “Specify IP address”, please refer to “WAN Interface Configuration (WA6011)” section.

- Figure 36 shows the ADSL firmware configuration

ADSL module upgrade or ADSL image files backup can be done through “ADSL Firmware”.

**Figure 36** ADSL Firmware Configuration

- *Host IP address*: Access AP host IP address
- *Initialization File Name/Execution File Name*: AP image files

Execute TFTP program and configure file path, click <Download> to start ADSL module upgrade, or click <Upload> to backup ADSL image file.

## ADSL Configuration (WA6012 in Bridge Mode)

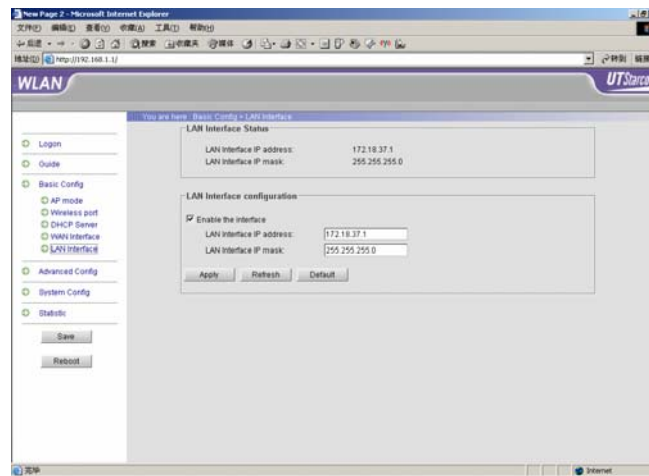
WA6012 ADSL configuration in Bridge mode contains “ADSL config” and “ADSL firmware” options, as shown in Figure 37

**Figure 37** ADSL Configuration

## LAN Interface Configuration

Click “LAN Interface”, the current LAN IP address and MAC address are shown in Figure 38. Click <Apply> to take the IP address effective.

Figure 38 LAN Interface Configuration



## Advanced Configuration

### Wireless Port1 Configuration/Wireless Port2 Configuration

Click “Advanced Config/Wireless Port 1 Advanced Configuration”, see Figure 39.

Figure 39 Wireless Port Advanced Configuration



**Note:** Same as the wireless basic configuration, the interface will display “the wireless port cannot be used” when the wireless network card is unplugged.

Table 5 Wireless Port Parameters Description

| Parameters      | Specifications                                                                                                                       | Default |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------|---------|
| Beacon Interval | Interval between Beacon packets, the Beacon packet contains network card information, duration of broadcast to the wireless network. | 100(ms) |

| Parameters         | Specifications                                                                                                                                                                                                                                                                          | Default                    |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| DTIM Interval      | Interval between Delivery Traffic Indication Messages.                                                                                                                                                                                                                                  | 2 x Actual beacon interval |
| Power              | Transmitting power of the AP wireless port. Possible values: 12%, 25%, 50%, 100%.                                                                                                                                                                                                       | 100% (400mw)               |
| Tx Rate            | Transmission rate. The range of selectable values is decided based on the wireless mode set in the basic configuration. If Auto is chosen, the network card will select current the optimum rate.                                                                                       | auto                       |
| Basic Rate         | The network card is restricted to operating at a selected Tx rate at least.                                                                                                                                                                                                             | 1,2,5.5,11Mb it/s          |
| Antenna            | Possible values: Both, Ant A, Ant B                                                                                                                                                                                                                                                     | Both                       |
| RTS/CTS Threshold  | WLAN is using the mechanism of Request To Send/Clear To Send. RTS/CTS threshold can be set, RTS/CTS is used when the data packet size exceeds the threshold. Choose a setting within a range of 0 – 2347. It is advisable not to change this setting.                                   | 2346                       |
| Fragment Threshold | Fragment threshold is used to improve the efficiency in a high volume wireless network. Define the data packet size limit here. Any packet greater than this value will be fragmented. Choose a setting within a range of 256 – 2346 bytes. It is advisable not to change this setting. | 2346                       |

WA6011 is able to work in multiple modes:

- **AP mode:** The AP is connected to the WAN through its uplink port and provides access to the wireless network through its wireless ports. In this way, the AP implements a combination of a wireless network with the WAN.
- **Repeater mode:** The AP is implemented as a signal relay that enhances signal strength. In this way, it extends the coverage of the wireless network. The central AP is connected to the WAN and the remote APs are connected to the central AP in bridge mode.

Select “Repeater Mode”, click <Apply>, the system will prompt to save the configuration and reboot the AP. The WDS (Wireless Distribution System) configuration window is shown in Figure 40.

**Figure 40** WDS Configuration

Enter MAC address, click <Add>, and set the other party of AP in Repeater mode, then configure its MAC address



**Note:** Implement the wireless bridge and AP coverage by setting one AP's wireless network card in AP mode, and the other in Repeater mode.

- P2MP

Click “P2MP mode”. The configuration steps are similar to those in “Repeater mode”. A central AP can connect to a maximum of 6 remote APs. Add MAC addresses for each remote AP through the window as shown in Figure 40. Configure each remote AP by setting the mode to “P2MP mode”, and then add the MAC address for the central AP.

## RADIUS Client Configuration

Click “Radius Client” to configure the authentication server and the accounting server. See Figure 41 for the details.

**Figure 41** Radius Client Configuration

- Figure 41 shows the RADIUS Client configuration user interface
- *Priority Level (1-3)*: AP will select a RADIUS server with 1<sup>st</sup> priority. Click “Apply” to enable the selected RADIUS server.
- *Authentication/Accounting Key*: In the AP, the authentication/Accounting key must be set to match the key in the RADIUS server.
- *Authentication/Accounting port*: Authentication/Accounting port number

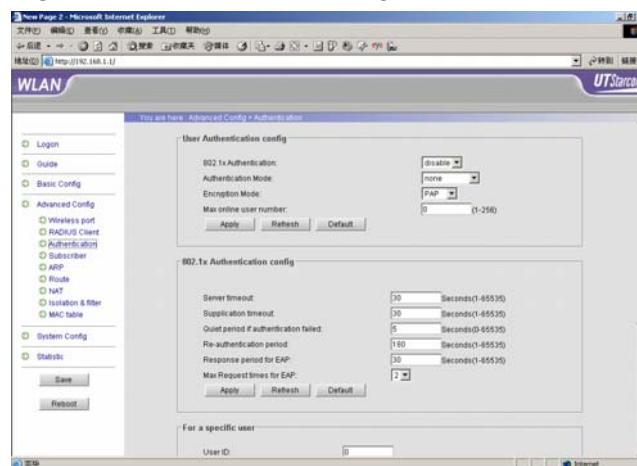
- **Server dead time/Server timeout time/Server transmit times:** If the request sent to the Radius Server does not get a response within Timeout value, the request is re-sent to the server until the number of re-tries reaches the value set in the Transmit Times. If any re-try does not get a response, then the AP considers that the Radius server failed. It will wait a period of time as defined in the Dead Time. Then the AP will re-send a request.

## Authentication

WA6011 provides 802.1x authentication mode. The user can configure the static or dynamic user information through “Subscriber”, and configure 802.1x authentication through “802.1x Authentication Config”.

Click “Advanced Config/Authentication”, see the configuration details in Figure 42.

**Figure 42** Authentication Configuration



- User Authentication Configuration user interface is shown in Figure 43

**Figure 43** User Authentication Configuration



- **Port:** Display the installed wireless ports of Wireless port 1 and Wireless port 2
- **802.1x Authentication:** disable or enable, the default is “disable”
- **Authentication Mode:**

The available options are:

- **None**
- **local-remote:** WA6011 is the authentication point.
- **remote:** RADIUS server authentication.

- *local-remote*: implement the remote authentication after the local authentication is failed.
- *remote-local*: implement the local authentication after the remote authentication is failed.
- *Encryption Mode*: Choose either PAP or CHAP encryption mode.
- *Max online user number*: The range of the maximum number of online users is 1-256.
- *802.1x Authentication Config*: The configuration interface is shown in Figure 44. Table 6 describes the configuration parameters' specifications.

**Figure 44** 802.1x Authentication Configuration

802.1x Authentication config

Server timeout: 30 Seconds(1-65535)

Supplication timeout: 30 Seconds(1-65535)

Quiet period if authentication failed: 5 Seconds(0-65535)

Re-authentication period: 180 Seconds(1-65535)

Response period for EAP: 30 Seconds(1-65535)

Max Request times for EAP: 2

Apply Refresh Default

**Table 6** 802.1x Authentication Config Parameter Specification

| Parameter            | Specification                                                                                                                                                                                                                          | Default |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Server timeout       | Interval between retries of sending a request frame from AP to Server (second). If within the Timeout period the Server doesn't respond to the AP's request, the AP will re-send the request frame. Possible values: 1-65535 seconds.  | 30      |
| Supplication timeout | Interval between retries of sending a request frame from AP to Client (second). If within the Timeout period the Client does not respond to the AP's request, the AP will re-send the request frame. Possible values: 1-65535 seconds. | 30      |

| Parameter                             | Specification                                                                                                                                                                                  | Default |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Quiet period if authentication failed | If the user name or password failed because of authentication, the AP will not process the authentication request from the Client within Quiet-period value. Possible values: 1-65535 seconds. | 5       |
| Re-authentication period              | Interval to re-authenticate a client. Possible values: 1-65535 seconds.                                                                                                                        | 180     |
| Response period for EAP               | Interval of AP sending Request-challenge request to the client under EAP authentication (Re-sending because the Response-challenge was not received). Possible values: 1-65535 seconds.        | 30      |
| Max Request times for EAP             | Maximum number of retries to send a Request-challenge request from AP to client under EAP authentication (Re-sending because the Response-challenge was not received). Possible values: 1-2.   | 2       |

- *For a specific user:* The configuration user interface is shown in Figure 45

**Figure 45** For a Specific User Configuration

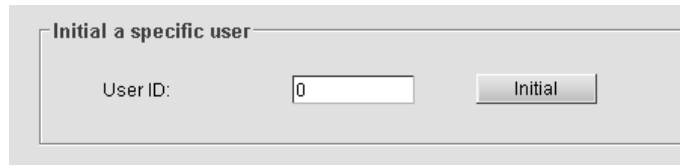
The screenshot shows a web-based configuration interface titled "For a specific user". It contains two input fields: "User ID:" with a text box containing the number "0", and "Re-authentication" with a dropdown menu currently showing "enable". Below these fields is an "Apply" button.

- *User ID:* The system automatically generates an unique ID when creating a new user.
- *Re-authentication:* Enable or disable re-authentication.



**Note:** User ID can be searched through "Statistic Information" and "Online User".

- Initial a specific user configuration interface is shown in Figure 46

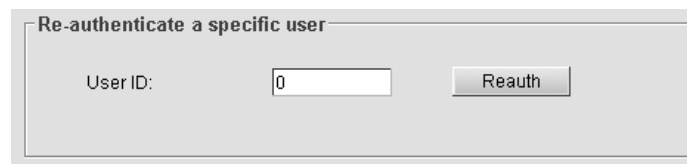
**Figure 46** Initial a Specific User Configuration


Initial a specific user

User ID:

Select a "User ID", click <Initial>, the user's information will be initialized.

- *Re-authenticate a specific user* configuration interface is shown in Figure 47

**Figure 47** Re-authenticate a Specific User Configuration


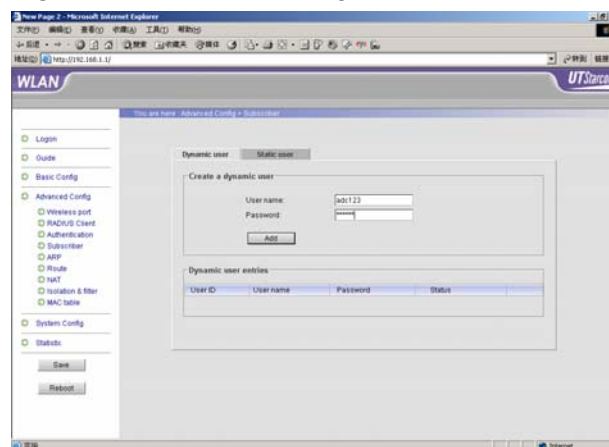
Re-authenticate a specific user

User ID:

Select user ID, click <Reauth>, AP starts the re-authentication for the user

## Subscriber Configuration

Click "Advanced Config/Subscriber", the dynamic subscriber configuration interface is shown in Figure 48.

**Figure 48** Subscriber Configuration


WLAN

You are here: Advanced Config > Subscriber

Dynamic user Static user

Create a dynamic user

User name:

Password:

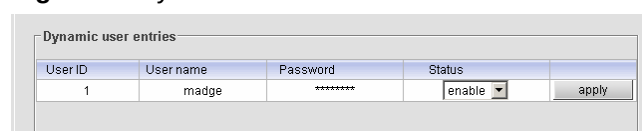
Dynamic user entries

| User ID | User name | Password | Status |
|---------|-----------|----------|--------|
|         |           |          |        |

Save Reboot

- Create a dynamic user

Enter User name and Password as shown in Figure 48, and then click <Add>. A new entry will be added in the table as shown in Figure 49. Select a status of enable/disable/delete, click <Apply> to take the configuration effect.

**Figure 49** Dynamic User Table


Dynamic user entries

| User ID | User name | Password | Status                                      |
|---------|-----------|----------|---------------------------------------------|
| 1       | madge     | *****    | enable <input type="button" value="apply"/> |

- Create a static user

Enter the static user's MAC address, click <Add>, see Figure 50. The format of MAC address is xx:xx:xx:xx:xx:xx or xx-xx-xx-xx-xx-xx. Select one status of enable/disable/delete, click <Apply> to take the configuration effect.

**Figure 50** Create a Static User Configuration

## ARP Configuration

Click “ARP”, the ARP configuration interface is shown in Figure 51.

**Figure 51** ARP Configuration

The user can add a new static ARP entry by entering the IP and MAC addresses. All ARP entries can be displayed for verification. Click <Add> to add new entry. The <Refresh> button will refresh the display of all ARP entries.

## Route Configuration

Click “Advanced Config/Route”, the Route Configuration interface is shown in Figure 52.

**Figure 52** Route Configuration

You are here : Advanced Config > Route

add a new route entry

IP address:

Mask:

Next Hop:

Route entries

| IP address  | Mask          | Next Hop    | Interface |                                       |
|-------------|---------------|-------------|-----------|---------------------------------------|
| 192.168.1.0 | 255.255.255.0 | 192.168.1.1 | Unknown   | <input type="button" value="Remove"/> |
| 172.18.37.0 | 255.255.255.0 | 172.18.37.1 | LAN       | <input type="button" value="Remove"/> |

Enter IP address, Mask and the IP address of the Next Hop, click <Add> to add a new route entry. The <Refresh> button is used to refresh the display of all route entries. The <Remove> button is used to remove a route.

## NAT Configuration

Click “Advanced/NAT”, NAT (Network Address Translation) configuration interface is shown in Figure 53

**Figure 53** NAT Configuration

You are here : Advanced Config > NAT

NAT Config

☒ Enable NAT

☒ NAPT ☐ Basic NAT

NAT Timeout:  1-3600 seconds

NAT Interface inside: LAN

NAT Interface outside: WAN

Select “Enable NAT”, choose either NAPT mode or Basic NAT mode. The range of NAT Timeout is 1 – 3600 seconds. Click <Apply> to take the configuration effect, and then the NAT Advanced Configuration is available.

- NAPT (Network Address and Port Translation) mode configuration is shown in Figure 54

**Figure 54 NAT/NAPT Configuration**

返回

基于 IP 地址的映射 (最多30条)

本地 IP 地址:

外部 IP 地址:

添加

输入一个新的 IP 地址映射, 单击“添加”

基于 IP 地址的映射表:

| 本地 IP 地址 | 外部 IP 地址 |
|----------|----------|
|          |          |

单击“删除”, 您可以逐条删除此映射

基于端口的映射 (最多10条)

本地 IP 地址:

外部端口号:  (1-65535)

添加

输入一个新的基于端口的映射, 单击“添加”

基于端口的映射表:

| 本地 IP 地址 | 外部端口 |
|----------|------|
|          |      |

单击“删除”, 您可以逐条删除此映射

IP Address mapping:

- *Local IP address*: IP address inside NAT interface
- *Remote IP address*: IP address outside NAT interface

Port mapping:

- *Local IP address*: Local IP address used for port mapping.
- *External port*: TCP port number used to differentiate the hosts
- NAT (Network Address Translation) advanced configuration is shown in Figure 55.

**Figure 55 NAT Advanced Configuration**

NAT 地址池

NAT地址池起始 IP:  192.168.1.1

NAT地址池掩码:  255.255.255.0

应用 默认

基于 IP 地址的映射 (最多30条)

本地 IP 地址:

外部 IP 地址:

添加

输入一个新的 IP 地址映射, 单击“添加”

基于 IP 地址的映射表:

| 本地 IP 地址 | 外部 IP 地址 |
|----------|----------|
|          |          |

单击“删除”, 您可以逐条删除此映射

NAT Address Pool:

- *The starting IP address in NAT address pool*: The first IP address of an external network address pool, it is mapped to the internal network by a way of dynamic address allocation.
- *NAT Mask*: the range of the address pool is defined by Mask and the first IP address in the pool.

IP address mapping:

- *Local IP address*: IP address inside NAT interface.
- *Remote IP address*: IP address outside NAT interface.

## Isolation & Filter Configuration

Click “Advanced Config/Isolation and Filter”, the configuration is shown in Figure 56

**Figure 56** Isolation and Filter Configuration

- **Isolation**
  - *Wired-wireless Isolation:* Wired users and wireless users cannot access with each other.
  - *Wired Isolation:* Wired users cannot access with each other.
  - *Wireless Isolation:* Wireless users cannot access with each other.
- **Config broadcast limit:** Configure the broadcast restriction, the range is 1-65535, the default value is 64.
- **Load balance:** Enable load balance in either “User based” or “Flux based” mode.

Click <Apply> to take the configuration effect.

- **Add a MAC address to the black list:** Add a MAC address to the black list, click <Add>, the user with this MAC address will then be blocked from accessing the AP.

## MAC Table Configuration

Click “Advanced Config/MAC Table”, the configuration interface is shown in Figure 57.

**Figure 57** MAC Table Configuration

- **MAC age time:** Configure the MAC address age time, the range is 10-65535 seconds, the default is 300 seconds.

- *Add a MAC address to static MAC table:* Add MAC addresses to the MAC address table, two available ports, WLAN1/WLAN2. Click <Add> after the configuration.
- *MAC table entries:* Display MAC entries.

## VLAN Configuration

Click “Advanced Config/VLAN”, the configuration user interface is shown in Figure 58. VLAN ID used for differentiating users access levels depends on access privilege. E.g. Administrators and Guests are two different groups of users depends on their VLAN ID.

**Figure 58** VLAN Configuration

- *Enable VLAN:* Enable the AP's VLAN function
- To differentiate the user access privilege by enabling the VLAN tag.
- *VLAN mode:* Three modes are available. They are “User based”, “Port based” and “Mix”.
- *User based VID*
  - *Default VID:* The possible value are 1-4094, the default is 1.
  - *Employee default VID:* The VLAN ID used for company employees to access network. The possible values are 1-4094. The default value is 1000.
  - *Guest default VID:* The VLAN ID used for guests to access network. The possible values are 1-4094. The default value is 4000.
- *Port based VID:* The usable WLAN port (WLAN1/WLAN2) is displayed on the screen. Configure the WLAN port VLAN ID, the possible values are 1-4094, the default value is 1.

Click <Apply> to take the configuration effect, the “VLAN bounding table” displays the current users information bounding with VLAN.

## System Configuration

WA6011 provides password change, AP Management and Upgrade in System Configuration.

## System Information

Click “System Config/System”, the System Information configuration interface is shown in Figure 59. It includes the following fields:

- Product Serial No.
- Hardware version
- Software version

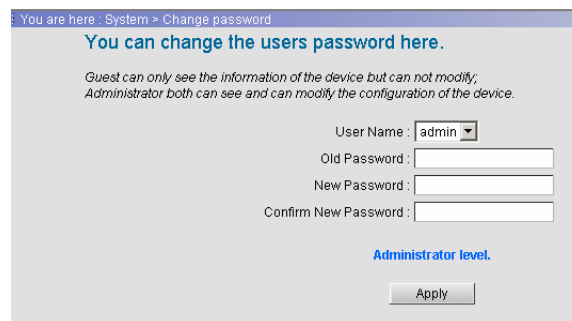
**Figure 59** System Information



## Change Password

Click “System Config/Change Password”, the configuration interface is shown in Figure 60

**Figure 60** Change Password Configuration Interface



*User Name* and *Password* can be modified. Click <Apply> to submit and save the change

Two types of users can log in the system: admin and guest.

An “admin” has the privilege to perform all operations to the device, including information browse, configuration and modification and so on; while a “guest” only has the privilege to browse information.

An “admin” can modify passwords for all users in the system; while a “guest” can only modify his own password.

## Web Management Filter

Click “Advanced Config/Web Management Filter”, the configuration interface is shown in Figure 61. This function implements the control of Web users.

Figure 61 Web Management Filter Configuration

- Filter based on IP address
  - *Enable Subnet or Mainframe Filter*: After activate the IP address filter function, the only configured IP address can access the AP.
  - *IP Address/Subnet Mask*: A mainframe has one only IP address input, a subnet mask needs one IP address and a subnet mask.
- Port based Network Access (Forbidden)
  - *Prohibit WAN Port Management*: User is unable to implement the management through WAN port after it is activated.
  - *Prohibit Wireless Port Management*: Wireless users are not able to access the AP after it's activated.

Click <Apply> to submit and save the change

## SNMP Configuration

Click “Advanced Config/SNMP Config”, it contains SNMP agent, SNMP end user filter and SNMP trap configuration.

- SNMP agent config/SNMP end user filter configuration interface is shown in Figure 62

Figure 62 SNMP Agent/SNMP End User Filter Interface

### SNMP agent Setting:

- *Enable SNMP agent*: Activate SNMP agent function
- *Read-only Community Name*: The default is “public”, 1-64 alphanumeric letters.

- *Read-write community Name*: The default is “private”, 1-64 alphanumeric letters.
- The system name, location name and principle name can also be configured, 0-255 alphanumeric letters.

### SNMP End-user Filter

The maximum SNMP end-user can be configured is 4. The only configured IP address can access AP through SNMP.

- SNMP trap host (Maximum number is 8)

The configuration interface is shown in Figure 63. There are totally 8 IP addresses can be configured for alarm server. If no IP address was configured for SNMP end-user, which means that all IP addresses can access AP through SNMP.

**Figure 63** SNMP Trap Configuration

SNMP trap主机: (最大数目: 8)  
请输入SNMP trap主机设置:

☒ 启用 trap

| 序号 | IP 地址   | 版本号(1-2) | 端口 | 共同体名(1-64 字符) |
|----|---------|----------|----|---------------|
| 1  | 0.0.0.0 | 0        | 0  |               |
| 2  | 0.0.0.0 | 0        | 0  |               |
| 3  | 0.0.0.0 | 0        | 0  |               |
| 4  | 0.0.0.0 | 0        | 0  |               |
| 5  | 0.0.0.0 | 0        | 0  |               |
| 6  | 0.0.0.0 | 0        | 0  |               |
| 7  | 0.0.0.0 | 0        | 0  |               |
| 8  | 0.0.0.0 | 0        | 0  |               |

应用

## File System Management

Click “Advanced Config/File System”, the configuration interface is shown in Figure 64.

**Figure 64** File System Configuration

You are here: System > File system

**Erase Config File from AP:** Erase

**Download new image from Host:**  
Host IP Address:   
Image path and name: W3001S.Z Start.....

**Download new Config file from Host:**  
Host IP Address:   
Config path and name: W3001S.cfg Start.....

**Upload image to Host:**  
Host IP Address:   
Image path and name: W3001S.Z Start.....

**Upload Config File to Host:**  
Host IP Address:   
Config path and name: W3001S.cfg Start.....

Erase Config File from AP: Click <Erase> to erase the current configuration file from the AP; a dialog box will appear as shown in Figure 65. Click <OK> and a message box will appear as shown in Figure 66. It prompts the rebooting device and initiates the configuration erase.

**Figure 65** Erase Configuration File Dialog Window



**Figure 66** Reboot Message Dialog Window



For system file (including image and configuration file) management, specify the host IP address, set the system file path and file name. Click <Start> to start the download/upload AP Image or Config File.

---

## Statistic Information

This section will introduce the system statistic information of AP

### Wireless Port (WA6011)

Click "Statistic/Wireless Port", the configuration user interface will be shown in Figure 67.

**Figure 67** Wireless Port Statistic Information

## ADSL Statistic Information (WA6012)

WA6012 ADSL statistic Information is shown in Figure 68

Figure 68 ADSL Statistics Information

Refresh

ADSL Statistics:

**Common Information:**

ADSL status:

Up speed: 0kbps

Down speed: 0kbps

**Performance:**

Fast channel receive cell counter: 0

Interleaved channel receive cell counter: 0

Fast channel transmit cell counter: 0

Interleaved channel transmit cell counter: 0

**Line operation:**

Downstream relative capacity occupation: 0

Upstream relative capacity occupation: 0

Downstream noise margin:

Upstream noise margin:

Downstream output power:

Upstream output power:

Downstream Attenuation:

Upstream Attenuation:

**Channel operate:**

Near end Interleaved channel bit rate: 0kbps

Near end fast channel bit rate: 0kbps

Far end Interleaved channel bit rate: 0kbps

Far end fast channel bit rate: 0kbps

## WAN/LAN Interface

Click "Statistic/WAN/LAN Interface", the statistic information of WAN and LAN interfaces are shown in Figure 69.

Figure 69 WAN/LAN Interface Statistics Information

WAN Interface Statistics:

MTU: 1500

Packets received: 1645

Total bytes received: 241544

Error packets received: 0

Dropped packets: 0

Packets sent: 2143

Total bytes sent: 117852

Error packets sent: 0

LAN Interface Statistics:

MTU: 1500

Packets received: 150

Total bytes received: 27429

Error packets received: 0

Dropped packets: 0

Packets sent: 4

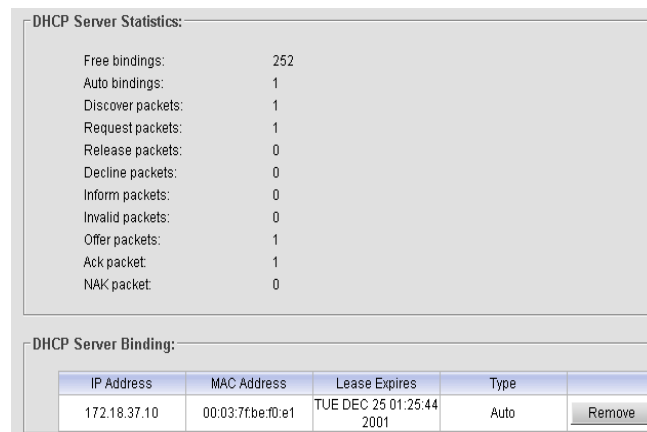
Total bytes sent: 1288

Error packets sent: 0

## DHCP Server

Figure 4-44 shows DHCP related information. Figure 70 describes the related parameters.

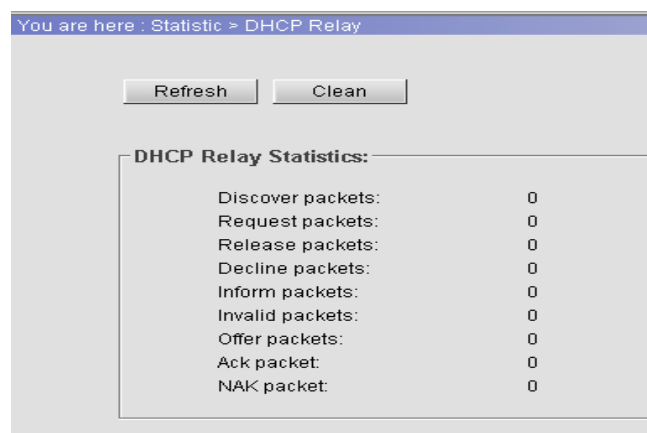
**Figure 70 DHCP Server Statistics Information**



## DHCP Relay

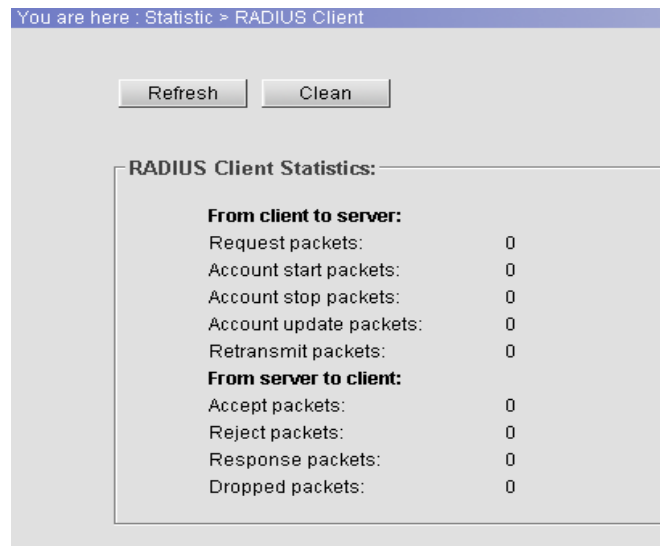
Click "Statistic/DHCP Relay", Figure 71 shows the DHCP Relay statistic information.

**Figure 71 DHCP Relay Statistic Information**



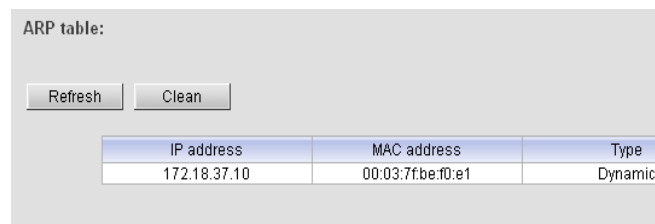
## RADIUS Client

Click "Statistic/RADIUS Client", Figure 72 displays the RADIUS Client statistic information.

**Figure 72** RADIUS Client Statistic Information

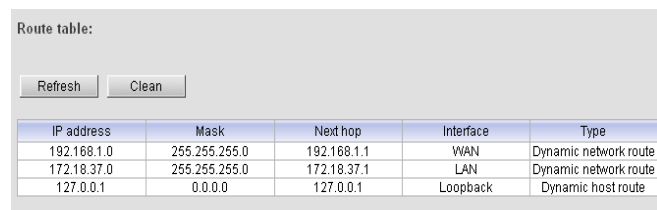
## ARP

Click “Statistic/ARP”, Figure 73 displays ARP statistic information.

**Figure 73** ARP Statistic Information

## Route

Click “Statistic/Route”, the current route information is shown in Figure 74.

**Figure 74** Route Statistic Information

## Online User

Click “Statistic/Online User”, Figure 75 shows online user statistic information. Click “Force Offline”, the user will be disconnected in force.

**Figure 75 Online User Statistic Information**

You are here: Statistic > Online user

Online User Information:

Refresh

| User ID | User Name | Auth Type | Auth Mode | Status                 | IP      | MAC               | Accounting Type | Elapsed Time | Force offline |
|---------|-----------|-----------|-----------|------------------------|---------|-------------------|-----------------|--------------|---------------|
| 1       | aaa       | 802.1X    | Local     | dot1x L2 success state | 0.0.0.0 | 00:03:7f:bf:09:79 |                 |              | Online        |

## MAC Address

Click “Statistic/MAC Address”, Figure 76 shows MAC addresses learnt by the AP.

**Figure 76 MAC Address Statistic Information**

MAC address learned:

Refresh Clean

| MAC               | Status  | Port | Pass time | Age time |
|-------------------|---------|------|-----------|----------|
| 00:03:7f:bf:f0:e1 | Dynamic | WLAN | 0         | 300      |
| 00:92:c6:09:00:02 | Dynamic | WAN  | 0         | 300      |

# 5

## Typical Configuration Examples

### AP in Bridge Mode

Take WA6012 as example:

#### Configuration Information:

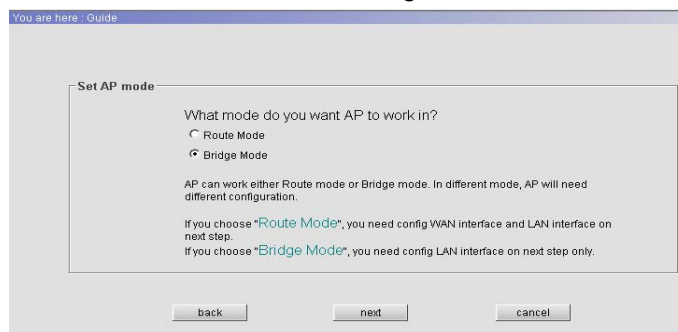
- 1 AP working mode: Bridge mode
- 2 The default IP address for AP's LAN interface is 172.18.37.1; Subnet mask is 255.255.255.0
- 3 Set ESSID to "AP123", set Channel to 1
- 4 Enable WEP Encryption, use key1: mykey
- 5 VPI/VCI: 0/35
- 6 Wireless network card configuration:  
SSID: AP123  
Use key1: mykey

The network topology refers to Figure 2.

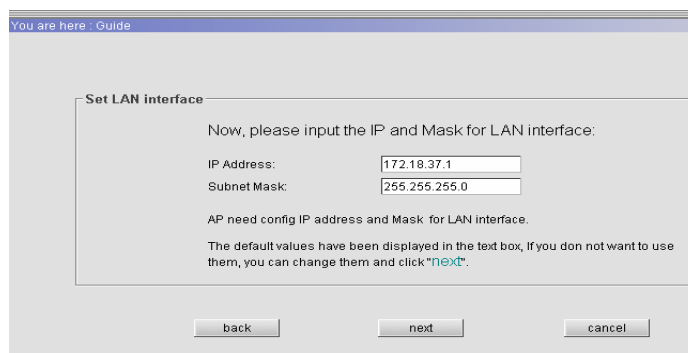
#### Detailed Instructions:

**Step 1:** Refer to section "Login AP" in Chapter 3.

**Step 2:** Click the "Guide" link to go to the "Set AP mode" configuration window. The default mode is Bridge mode, then click <next>.



- The "Set LAN interface" configuration window appears, use the default IP address, then click <next>.



You are here : Guide

**Set LAN interface**

Now, please input the IP and Mask for LAN interface:

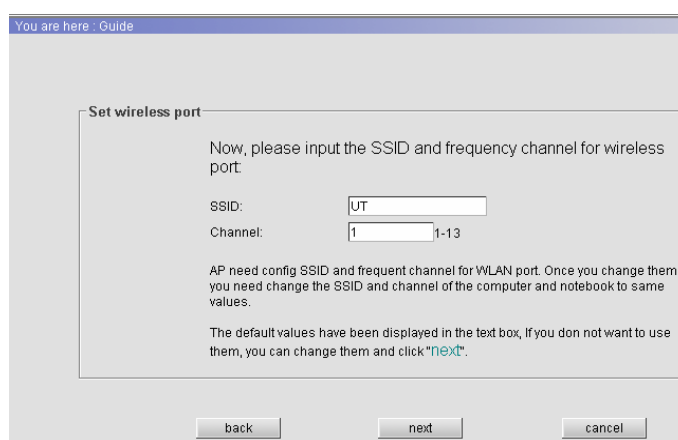
IP Address:

Subnet Mask:

AP need config IP address and Mask for LAN interface.

The default values have been displayed in the text box, If you don't want to use them, you can change them and click "next".

- The "Set wireless port" configuration window appears. Set SSID to "AP123", Channel to "1".



You are here : Guide

**Set wireless port**

Now, please input the SSID and frequency channel for wireless port:

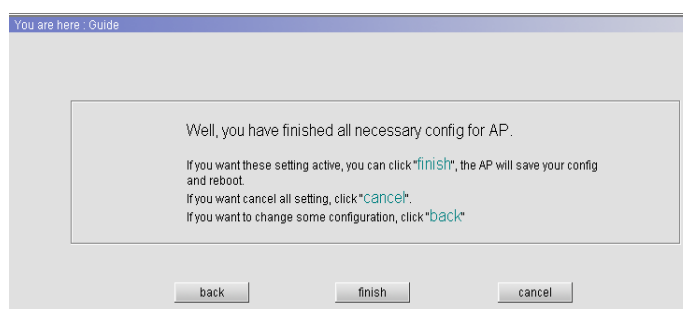
SSID:

Channel:  1-13

AP need config SSID and frequent channel for WLAN port. Once you change them, you need change the SSID and channel of the computer and notebook to same values.

The default values have been displayed in the text box, If you don't want to use them, you can change them and click "next".

- Click <next>, the popped up window below prompts the completion of the configuration. Click <finish>, AP will reboot. The configuration will be effective after rebooting.



You are here : Guide

Well, you have finished all necessary config for AP.

If you want these setting active, you can click "finish", the AP will save your config and reboot.

If you want cancel all setting, click "cancel".

If you want to change some configuration, click "back".

### Step 3: Set the WEP encryption for the AP

- Click "Basic Config/Wireless Port 1", enable WEP encryption with 64-bit, select "Alphabetical" as a key format, enter "mykey" as the key1 value

**Wireless Port Configuration**

MAC address: 00:92:c6:09:00:02

Uplink detect: ☐ Detect

Mode: 802.11b/g

ESSID: AP123 (1-32 characters)

Frequency Channel: 1 1-13

---

**-WEP Configuration for port-**

You may encryption the transmitting data by using WEP. If you choose to use WEP, you should also choose the key format and which key you prefer use from four keys.

☒ Enable WEP Encryption 64-bit

Select Key format:

☒ Alphabetical

☐ Hexadecimal(1-9,a-f,A-F)

Set Keys and Select which key to use:

Key length should be 5

☒ Key 1 : mykey

☐ Key 2 :

☐ Key 3 :

☐ Key 4 :

Apply Refresh Default

- Click <Apply>, the system will remind you to save the configuration, and then restart the AP in order to take effect the configuration

**Step 4:** Click “Basic Config/ADSL Config”, set PVC to 0/35, enable “Reboot ADSL module while reconnection”, then click <apply>.

**ADSL设置**

☒ 重连时重启ADSL模块. 重连

VPI: 0 (0-255) VCI: 35 (0-65535)

网桥封装方式: Ilc bridged

应用 刷新 默认

**Step 5:** In the “General” of the WNIC2010 Utility, set the SSID value to the same value as the AP

UTStarcom Client Utility

Action Options Help

Current Status Profile Management Diagnostics

Profile Default

user123

UTStarcom

UT斯达康

General Security Advanced

Profile user123

Network Names

SSID1: AP123

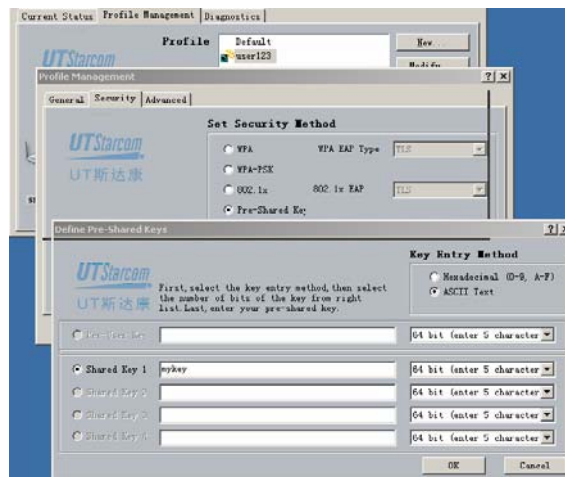
SSID2:

SSID3:

SIGNAL STRENGTH: EXCELLENT

确定 取消

**Step 6:** In the “Security/Pre-Shared Key” of the WNIC2010 utility, enter “mykey” as the Key1 value



## AP in Router Mode

Take WA6011 as example:

### Description:

This example setup is used for establishing a small range network consisting of less than 10 users. AP supports IEEE 802.1x. There has a remote Radius/AAA (Authentication, Authorization and Accounting) server.

### AP Configuration Information:

- AP working mode: Route mode
- IP address for AP's WAN interface: assigned through DHCP server
- IP address for AP's LAN interface: the default one is 172.18.37.1
- AP acts as a DHCP server to assign the IP addresses for the WLAN
- Managed by NAT
- Configure the Radius server
- Enable the 802.1x authentication of AP, set the maximum number of online users to 10

### Detailed Instruction:

**Step 1:** Set the working mode to "Route mode" through the "Guide" link, get the WAN interface IP address through DHCP server, user the default IP address for LAN interface, and configure SSID. Click <Apply>, the pop-up window will remind user to save and reboot the AP to effect the configuration.

**Step 2:** Enable the DHCP Server through the "Basic Config/DHCP Server Configuration" link, set Network IP, Network Mask, DNS server and other parameters. Set the Gateway IP address to the one for AP LAN port, and then click <Apply>.

**DHCP Server Configuration**

You may enable the DHCP Server or Relay to share a single address. It is not necessary to specify a range of local addresses to distribute. You may also specify how long clients on the LAN will hold an address.

☒ DHCP Server
 ☐ DHCP Relay
 ☐ None

Network IP : 172.18.37.0      Network Mask: 255.255.255.0  
 Gateway : 172.18.37.1      Lease Time : 24 days 0 hour 0 minute  
 DNS Server1 : 172.18.9.21  
 DNS Server2 : 172.18.9.23  
 DNS Server3 :  
 DNS Server4 :

**Step 3:** Through the “Advanced Config/RADIUS Client” link to set the IP address for the remote Radius Server. If the authentication is enabled on Radius server, the same authentication has to be set for AP. Click on the <Apply> button to effect the configuration

**RADIUS 认证服务器:**

| 启用                                  | 优先级 | 服务器IP地址    | 认证密码  | 认证端口 | 恢复时间<br>(1-1440) 分钟 | 超时<br>(1-16) 秒 | 重传次数<br>(1-6) |
|-------------------------------------|-----|------------|-------|------|---------------------|----------------|---------------|
| <input checked="" type="checkbox"/> | 1   | 11.11.11.2 | ***** | 1812 | 5                   | 5              | 3             |
| <input type="checkbox"/>            | 2   |            |       | 0    | 0                   | 0              | 0             |
| <input type="checkbox"/>            | 3   |            |       | 0    | 0                   | 0              | 0             |

**RADIUS 计费服务器:**

| 启用                                  | 优先级 | 服务器IP地址    | 计费密码  | 计费端口 | 恢复时间<br>(1-1440) 分钟 | 超时<br>(1-16) 秒 | 重传次数<br>(1-6) |
|-------------------------------------|-----|------------|-------|------|---------------------|----------------|---------------|
| <input checked="" type="checkbox"/> | 1   | 11.11.11.2 | ***** | 1813 | 5                   | 5              | 3             |
| <input type="checkbox"/>            | 2   |            |       | 0    | 0                   | 0              | 0             |
| <input type="checkbox"/>            | 3   |            |       | 0    | 0                   | 0              | 0             |

**Step 4:** Enable NAT configuration through the “Advanced Config/NAT” link.

You are here : Advanced Config > NAT

**NAT Config**

☒ Enable NAT

☒ NAPT
 ☐ Basic NAT

NAT Timeout: 120 1-3600 seconds

NAT Interface inside: LAN

NAT Interface outside: WAN

**Step 5:** Through the “Advanced Config/Authentication” link to go to the “Authentication” configuration window. Enable the 802.1x authentication, set the Authentication mode to “Remote”, set the max online user number to “10”.

You are here: Advanced Config > Authentication

**User Authentication config**

802.1x Authentication:

Authentication Mode:

Encryption Mode:

Max online user number:  (1-256)

**802.1x Authentication config**

Server timeout:  Seconds(1-65535)

Supplication timeout:  Seconds(1-65535)

Quiet period if authentication failed:  Seconds(0-65535)

Re-authentication period:  Seconds(1-65535)

Response period for EAP:  Seconds(1-65535)

Max Request times for EAP:

**Step 6:** For the detail of SSID configuration in client wireless network card, please refer to the section “AP in Bridge Mode” in Chapter 5.

## AP in P2P Mode

Take WA6012 as example:

### Configuration Information:

Set the working mode of AP-1 and AP-2 to Bridge mode, connect AP-1 to the network through its uplink, AP-2 connects to the network through AP-1.

For example, wireless bridging can be done through network card 1 of AP-1 and AP-2

### AP-1 Configuration:

- Set the working mode to Bridge mode
- Through the “Advanced Config/Wireless Port 1” link, select “Repeater mode”, click <apply>, the pop-up window will remind user to save and reboot the AP to effect the configuration.

无线端口高级配置

☐ AP模式 ☒ Repeater模式 ☐ 点对多点

信标间隔:  20-1000

DTIM间隔:  1-255

RTS/CTS 门限:  0-2347

分片门限:  256-2346

无线端口1 基本选项

Microsoft Internet Explorer

您的配置只有在保存配置并重启AP之后才会生效!

- Click <OK>, the WDS configuration user interface appears. Add AP-2's MAC address into the “MAC address” field. Click <Add>, the address will be displayed in the MAC address table.

无线端口WDS配置

添加对等MAC地址:  
最多可添加6条MAC地址.

MAC 地址:

MAC地址列表:

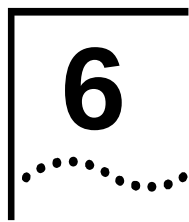
| 对等MAC             |                                   |
|-------------------|-----------------------------------|
| 00:e0:8e:fc:00:3f | <input type="button" value="删除"/> |

### AP-2 Configuration:

Set the working mode to Bridge mode, select "Repeater Mode" in "Advanced Config/Wireless Port 1" configuration.

Connect the AP-2 to the wired network through its Ethernet port when AP-2 is WA6011, Meanwhile, AP can implement its network coverage by configuring the other network card. For the details of LAN interface IP address, SSID and other parameter configurations, please refer to the section "AP in Bridge Mode" in Chapter 5



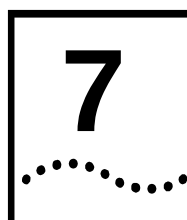


## Term and Acronym List

These terms and acronyms are used throughout the UTStarcom 4007 SS7 Signaling Gateway documentation. While not all terms in this list are used in this particular document, the complete list is provided to ensure fast access to the definition of these terms regardless of how they are encountered.

|       |                                                     |
|-------|-----------------------------------------------------|
| AP    | Access Point                                        |
| CLI   | Command Line Interface                              |
| DHCP  | Dynamic Host Configuration Protocol                 |
| IEEE  | Institute of Electrical and Electronics Engineering |
| LAN   | Local Area Network                                  |
| MAC   | Media Access Control                                |
| NAT   | Network Address Translation                         |
| NAPT  | Network Address Port Translation                    |
| PPPoE | PPP over Ethernet                                   |
| SSID  | Service Set Identifier                              |
| WEP   | Wired Equivalent Privacy                            |
| WDS   | Wireless Distribution System                        |
| WLAN  | Wireless Local Area Network                         |





# Technical Specification

| Product                      | WA6011/6012                                                                                                                                                                                             |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Uplink                       | WA6011: RJ45, 10/100Mbps Adaption;<br>WA6012: RJ11, ADSL interface                                                                                                                                      |
| Auto Fall Back Rate Options  | 802.11b: 11Mbps & 5.5Mbps CCK, 2Mbps DQPSK, 1mbps DBPSK<br>802.11g: 54, 48, 36, 24, 18, 12, 9, 6Mbps (108Mbps in Super G mode)                                                                          |
| Standard Compliance          | IEEE 802.11b<br>IEEE 802.11g<br>IEEE 802.3<br>IEEE 802.1x                                                                                                                                               |
| Operational Frequency Range  | North America/FCC: 2.412~2.462GHz (11 channels)<br>China/Europe/ETSI: 2.412~2.472GHz (13 channels)                                                                                                      |
| Radio Frequency Output Power | 4 adjustable levels within 400mw                                                                                                                                                                        |
| Sensitivity                  | -73dBm@54Mbps PER< 8% OFDM<br>-90dBm@11Mbps PER< 8% CCK<br>-92dB @6Mbps PER< 8% OFDM<br>-95dBm@1Mbps PER< 8% CCK                                                                                        |
| Coverage                     | Outdoors: >500m                                                                                                                                                                                         |
| Power Supply                 | AC: 220(±20%)V 50~60Hz(±20%)<br>PoE power Supply (WA6011): Cat5 x 2, 48V/1.2A adapter                                                                                                                   |
| Power Consumption            | Transmission: 30W<br>Reception: 25W                                                                                                                                                                     |
| Operation Temperature        | -33 °C~ 55°C                                                                                                                                                                                            |
| Storage Temperature          | -40°C ~ 80°C                                                                                                                                                                                            |
| Humidity                     | 0~90%                                                                                                                                                                                                   |
| Waterproof Level             | 5 <sup>th</sup> level                                                                                                                                                                                   |
| Antenna                      | External, various antennae can be assembled                                                                                                                                                             |
| Dimensions                   | 239(198)mm x 198(158)mm x 42mm (LxW.H)                                                                                                                                                                  |
| Weight                       | 2050g                                                                                                                                                                                                   |
| EMC/EMI                      | CE mark:<br>EN55022 (1997) Class A.<br>EN55024 (1998)<br>EN61000-4-2/3/4/5/6/11<br>EN61000-2-2 Class A.<br>EN61000-2-3<br>FCC CFR 47 part 15 Class A(USA EMC standard)<br>VCCI Class A<br>CISPR Class A |



## **Federal Communication Commission 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 harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

### **IMPORTANT NOTE:**

#### **FCC Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.



---

**UTStarcom Inc. USA**

1275 Harbor Bay Parkway Alameda, CA 94502, USA

Tel: 510-864-8800

Fax: 510-864-8802

<http://www.utstar.com>

## **Federal Communication Commission 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 harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

### **IMPORTANT NOTE:**

#### **FCC Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

IEEE 802.11b or 802.11g operation of this product in the U.S.A. is firmware-limited to channels 1 through 11.