

**ZXR10 WAS (V1.0) IP Wireless Access System
W140A Outdoor Wireless Access
Point/Bridge**

User's Manual

ZTE CORPORATION

**ZXR10 WAS (V1.0) IP Wireless Access System
W140A Outdoor Wireless Access Point/Bridge
User's Manual**

**Manual Version 20040325-R1.0
Product Version V1.0**

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Preface

About This Manual

This manual is applicable to the ZXR10 WAS (V1.0) IP Wireless Access System W140A Outdoor Wireless Access Point/Bridge (W140A for short below).

The ZXR10 WAS IP wireless access system is a proprietary product of ZTE Corporation. It consists of a series of wireless access network products, such as wireless network card, wireless Access Point (AP), wireless router, DSL 2-in-1 wireless router and outdoor wireless access point/bridge.

This manual introduces the function features, installation, operation, use and maintenance of the W140A, so it serves as instructions to the W140A. This manual consists of 6 chapters and 2 appendixes.

Chapter 1, Safety Precautions, introduces the safety precautions of this product and safety symbols used in this manual.

Chapter 2, Overview, presents functions, features and technical parameters of the W140A.

Chapter 3, Structure and Principle, describes structure and principle of W140A.

Chapter 4, Installation and Debugging, deals with the installation and debugging methods of the W140A.

Chapter 5, Command Line Configuration, covers the command line configurations of the W140A.

Chapter 6: WEB configuration, presents the web configurations of W140A.

Chapter 7, Maintenance, puts forward the daily maintenance and version upgrade methods of the W140A.

Appendix A, Packing, Transportation and Storage, outlines the packaging method, storage conditions and transportation precautions of the W140A.

Appendix B, Making of Ethernet cables, introduces the power supply mode of W140A Ethernet and making of Ethernet cables.

Conventions

Four striking symbols are used throughout this manual to emphasize important and critical information during operation:



Danger,



Warning,



Caution and



Note statements are

used throughout this manual to emphasize important and critical information. You must read these statements to help ensure safety and to prevent product damage. The statements are defined below.

Statement: The actual product may differ from what is described in this manual due to frequent update of ZTE products and fast development of technologies. Please contact the local ZTE office for the latest updating information of the product.

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1 Safety Precautions

This chapter introduces the safety precautions of this product and safety symbols used in this manual.

1.1 Safety Precautions

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.

To assure continued compliance, (example - use only shielded interface cables when connecting to computer or peripheral devices). Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: 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 equipment is with high temperature and voltage, so only the professional







personnel who had passed the training can install, operate and maintain it.

ZTE assumes no responsibility for consequences resulting from violation of general specifications for safety operations or of safety rules for design, production and use of equipment.

1.2 Symbol Description

See Table 1.2-1 for the safety symbols used in this manual, which serves to remind the readers of the safety precautions to be taken when the equipment is installed, operated and maintained.

Table 1.2-1 Safety Symbols and Descriptions

Safety Symbol	Meaning
	Call for notice
	Call for antistatic measures
	Warn against electric shock
	Caution against scald
	Warn against laser
	Caution against microwave

Four types of safety levels are available: danger, warning, caution and note. To the right of a safety symbol is the text description of its safety level. Under the symbol is the detailed description about its contents. The formats are as follows.



Danger:

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.



Warning:

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



Caution:

Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to alert against unsafe practices.



Note:

A Note statement is used to notify people of installation, operation, or maintenance information that is important, but not hazard-related.



Tips:

Indicates a suggestion or hint to make things easier or more productive for the reader

2 Overview

This chapter presents functions, features, technical characteristics and parameters of the W140A.

2.1 Preface

The W140A outdoor AP/bridge of ZXR10 WAS (V1.0) IP wireless access system is developed by ZTE and its design totally complies with the international standards.

The W140A uses customized antennas on the roof or a special pole for wide coverage, enabling wireless cellular roaming in a large area.

2.2 Functions and Features

W140A complies with IEEE 802.11b Standard and is compatible with wireless network adapters and APs complying with this standard. The features of the W140A are as follows:

- The maximum access rate is 11 Mbps. At most 100 Stations can be accessed.
- The radio transmission power can be adjusted up to 200 mW.
- Transparent bridge connection provides packet transfer between Basic Service Set (BSS) and Distributed System (DS). The maximum transfer rate is not less than 10 Mbps.
- The load balance adopts the access balance with multiple APs in the same area provided by the internal protocol.
- It provides seamless roaming to enable users to access network easily.
- It provides link integrity function, thus enhancing equipment reliability.
- ESSID provides network authentication to prevent illegal users from accessing the network.
- Static MAC filtration can filter MAC addresses set by users. Up to 100 filtration groups can be set and each of them can be set with 64 MAC address filtration rules.

- It provides data authentication and security management, supports 64-bit and 128-bit WEP encryption, provides mixed encryption for more flexible security.
- Automatic consistent correction system provides Automatic Scale Back Functionality (ASBF) to automatically correct WLAN to the best connection quality.
- High interoperability: the uplink interface is 10/100M adaptive Ethernet interface, which can be connected through a network cable to the 10/100 Mbps Ethernet in compliance with IEEE 802.3 network protocol.
- The uplink Ethernet interface provides VLAN trunk function, wireless access users can be grouped into VLAN through MAC addresses, and W140As can be grouped under the management VLAN.
- The version upgrade function upgrades the W140A software version and supports remote online version loading.
- The embedded SNMP Agent supports SNMP v1/v2 to implement MIB II, IEEE802dot11-MIB, IF-MIB, EtherLike-MIB and private MIB.
- Command line and WEB configuration modes are available for W140A configuration, supporting remote uploading and downloading of configuration files.
- Integrated management server is provided to monitor and manage ZTE wireless network equipment, including W140A, in the distributed environment.
- The reliability design complies with IEC 60529 Standard, waterproof performance reaches level 8, and dustproof performance reaches level 6.
- There is a dedicated lightning protection board the input terminal. For the Ethernet part, the lightning strike surge tolerance is 2 kV between line and ground and 1 kV between line and line. For the power supply part, the surge tolerance should be 4 kV between line and ground and 2 kV between line and line.

2.3 Technical Characteristics and Parameters

The technical indices of W140A are shown in Table 2.3-1.

Table 2.3-1 W140A Technical Indices

Items	Technical Indices
Standard	802.11b, 802.1d, 802.3u
Working band	2,400 MHz ~ 2,483.5 MHz
Spreading mode	DSSS
Modulation mode	CCK, DQPSK, DBPSK
BER	$\leq 10^{-5}$
Data rate	Adaptive 1 Mbps, 2 Mbps, 5.5 Mbps and 11 Mbps
Distance (m)	Outdoor AP and 100 m~700 m; Outdoor bridge, 25 km at the farthest
External interfaces	RJ45 connector and wireless interface
Encryption type	64/128-bit WEP encryption
Channel quantity	EU countries, 13; US and Canada: 11; France: 4; Japan: 14
Recommended number of users/maximum number of users	30/100
MAC address capacity	1024
SNMP agent	Supporting SNMP v1/v2, implementing MIB II, IEEE802dot11-MIB, IF-MIB, EtherLike-MIB and private MIB
Antenna System	Outdoor AP: 8 dBi omni-directional, 8.5 dBi directional and 14 dBi directional are available; Outdoor bridge: 8 dBi omni-directional, 8.5 dBi directional, 14 dBi directional and 21 dBi directional are available
Power supply mode	PoE 48V Ethernet power supply. The remote supply distance is 100m when the Ethernet interface works at 100 Mbps, and the distance is 280m when the Ethernet interface works at 10 Mbps
Total power consumption	< 10 W
Dimensions	360 mm × 300 mm × 80 mm (L × W × H)
Weight	6 kg
Working temperature:	-35 °C ~ +60 °C
Storage temperature	-40 °C ~ +70 °C
Working humidity	5% ~ 95%
Storage humidity	10% ~ 100%

3 Structure and Principle

This chapter introduces the structure and principle of W140A, covering software and hardware structure and principle, interfaces and networking modes.

3.1 Structure and Working Principle

3.1.1 Hardware Structure

With a standard waterproof and dustproof structure, W140A can be installed on the roof, outside the window or on a special pole. The physical appearance of W140A is shown in Fig. 3.1-1.

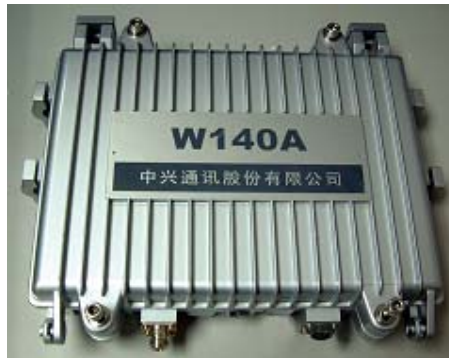


Fig. 3.1-1 Appearance of W140A

CPU is the core of W140A, and its memory may be 512K BOOT, 4M FLASH and 16M SDRAM.

3.1.2 Software Structure

The software function structure of W140A is given in Fig. 3.1-2.

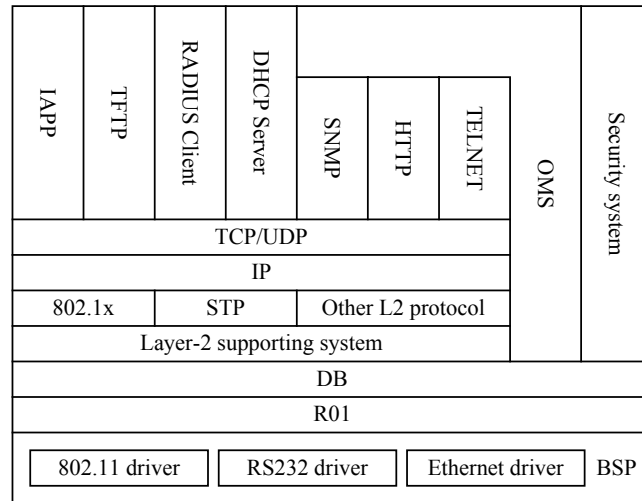


Fig. 3.1-2 W140A Software Structure

The software of W140A comprises the basic service subsystem and network management subsystem.

- The basic service subsystem consists of these items: 802.11b AP drive, 802.3 Ethernet drive, transparent bridge connection, load balance, TCP/IP protocol stack, dynamic address distribution, static MAC address filtration, and VLAN.
- The network management subsystem consists of SNMP Agent, telnet command line configuration module, WEB page configuration module, and GUI integrated management module.

3.2 Units/Components

W140A Rear Control Panel is shown in Fig. 3.2-1

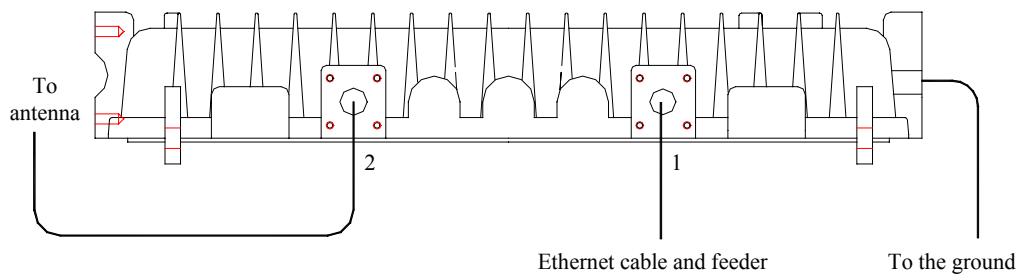


Fig. 3.2-1 W140A Rear Control Panel

The interfaces on the rear control panel are described as follows:

1. Chassis transfer interface 1: Ethernet
2. Chassis transfer interface 2: Antenna interface for antenna installation
3. Chassis grounding interface

3.3 Networking Modes

W140A provides both outdoor wireless access and Wi-Fi bridge function. The operation modes of W140A are as follows.

1. Building small wireless LAN

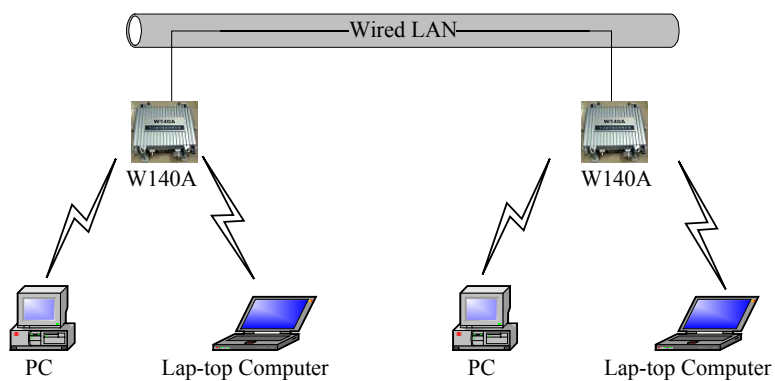


Fig. 3.3-1 Building Small Wireless LAN

2. Building Internet wireless access network together with AC, indoor AP and outdoor bridge.

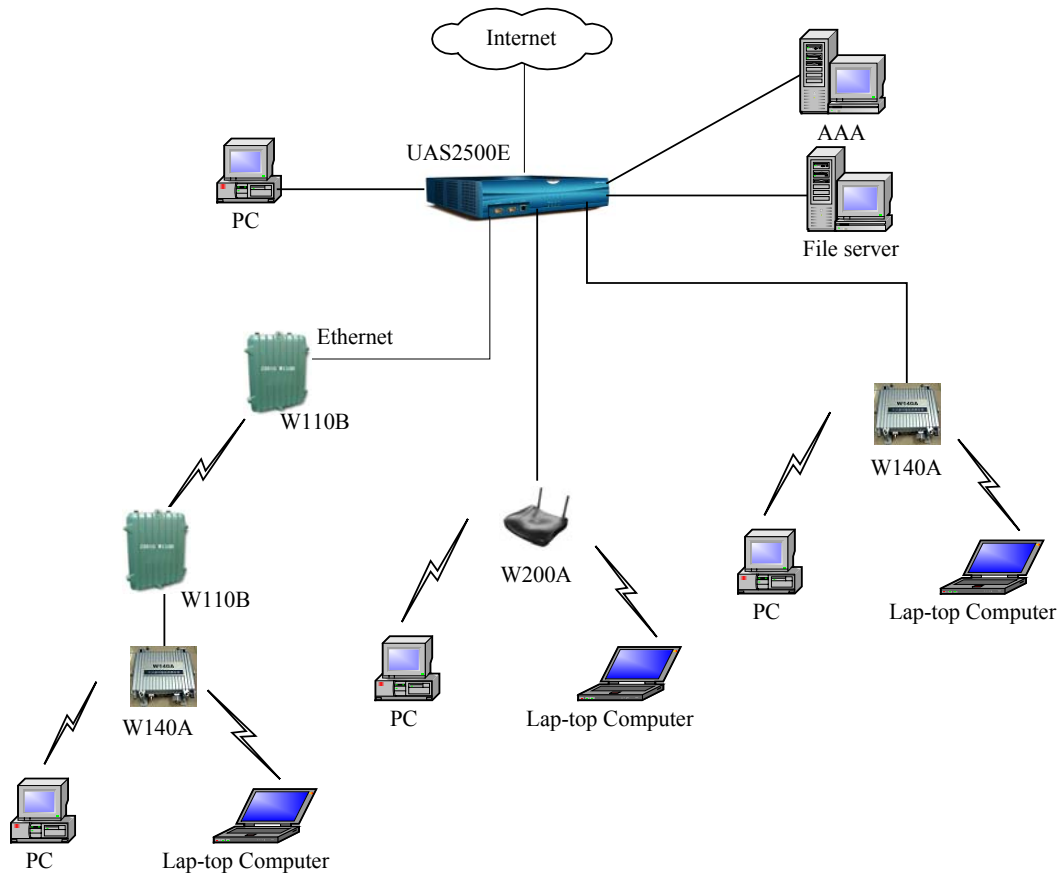


Fig. 3.3-2 Building Internet Wireless Access Network with AC, Indoor AP and Outdoor Bridge

3. Implementing bridge function

If two areas are far from each other or there are some obstacles between them, W140A can be used for bridging. as shown Fig. 3.3-3, the two W140As work in Bridge Server and Bridge Client modes respectively to provide a wireless bridge between LAN1 and LAN2. The bandwidth of the bridge is decided by the Bridge server. The Bridge Server may serve several Bridge Clients at the same time. Considering the performance of wireless connection, Bridge server had better not serve more than four Bridge clients.

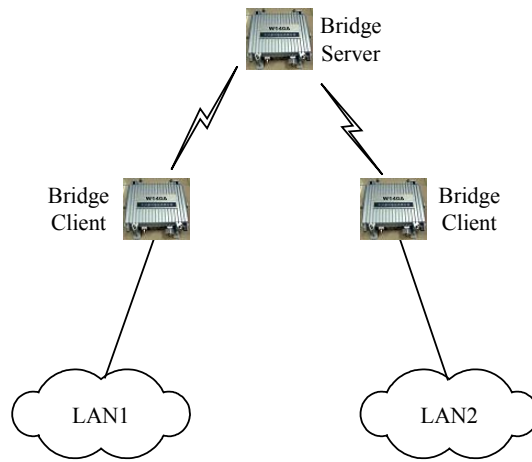


Fig. 3.3-3 Wireless Bridge Mode

4 Installation and Debugging

See document “ZXR10 WAS (V1.0) IP Wireless Access System W140A Outdoor Wireless Access Point/Bridge Professional Installation Instruction manual”

5 Command Line Configuration

This chapter describes the operation methods and configuration commands of the W140A command line configuration.

5.1 Overview

The W140A provides the Command Line Interface (CLI) for configuring the W140A data.

The CLI configuration of the W140A has the following features:

1. The CLI configuration of the W140A allows users to perform configuration through the Ethernet interface and wireless network card in the Telnet mode.
2. The CLI provides five command modes: User, privileged, configure, Ethernet interface configuration and wireless interface configuration modes. One mode is the execution environment of a group of related commands, and one command can be executed only in the corresponding command mode. To obtain the valid commands in the current command mode, just input “?” in the current mode.
3. Commands are divided into information query command and function command. The information query command serves to obtain some information to be queried. The function command serves to change the function configuration of the W140A. The changed configuration is saved in the running configuration information library. To cancel the function configuration, execute the reverse command of the former command (that is, **no** + key word + original command).
4. The CLI provides perfect help system: At any time, you can input “?” to obtain the related help information.
5. The command inputting provides the fuzzy match function: Once the information input by the user is enough for determining a command, it is not necessary to input the full spell.
6. The CLI provides the command history function: You can select a historical command for executing through “↑” or “↓” of the keyboard.

7. The CLI provides two layers of password protection to reject illegal users. The first layer password authentication appears on the Telnet welcome interface, then the safety authentication for accessing the user mode is required. The default user name is "root" and default password is "public". In the user mode, input the **enable** command and correct password to enter the privileged mode, the default password is "zte".
8. The CLI can automatically page the output commands on the terminal: "—More—" at the lower left corner of the command output window indicates more output commands. At this time, you can press CTRL to display the next page, press ENTER to output the next line and press other keys to exit.
9. The W140A CLI provides the basic command line editing function. The short-cut keys for editing command lines are described as follows:
 - Ctrl + U: Delete the whole command being input.
 - Ctrl + A: Move the cursor to the first character of the command line.
 - Ctrl + E: Move the cursor to the last character of the command line.
 - Ctrl + X: Delete all the characters before the cursor.
 - Ctrl + K: Delete all the characters after the cursor (containing the character at the cursor)
 - Ctrl + C: Give up all the input contents. Enter the new line and the prompt character will appear.

When the Telnet mode is used for configuring the W140A, you just need to input "telnet *working IP address of W140A*", as shown in Fig. 5.1-1. By default, the W140A working IP address is 192.168.1.254 and the sub-network mask is 255.255.255.0.

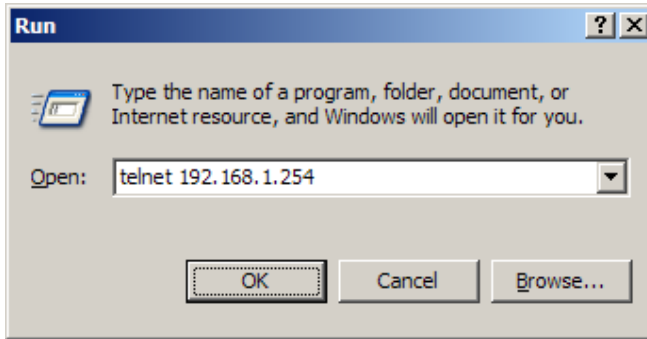


Fig. 5.1-1 Telnet to W140A

These five configuration modes of the W140A and all the available commands under each mode are described in detail as follows: The stipulation of command format is as follows:

1. The abc refers to the contents to be input by the user.
2. The {abc | def} means that the user should input either of the two items.
3. [A ~ B] indicates the digital range of the configuration parameters that the user can input.
4. For the contents included in [], the user can choose to input or not input them..

5.2 User Mode

Mode of entry: Telnet

Exit mode: exit

Default prompt: wlan>

Note: When an ordinary user logs in to the W140A via Telnet, he/she will not be able to enter the user mode unless he/she passes the username and password authentication. By default, the username and password are "root" and "public". To prevent illegal users from attempting the password frequently, the system will cut the Telnet connections of a user automatically if incorrect passwords have been entered 3 times continuously.

5.3 Privileged Mode

Mode of entry: Type in the enable command in the in use mode and enter the correct password.

Exit mode: disable for entering the user mode; exit for exiting the privileged mode and go back to the system.

Default prompt: wlan#

5.3.1 Command to Test Network Connectivity

Command mode: privileged mode

Function: Test the network connectivity

Command format: ping *A.B.C.D* [-n *echo-number*] [-w *timeout*] [-l *packet-size*]

Parameter description:

Name	Range	Description
<i>A.B.C.D</i>	IP address	Destination IP address
-n	Null	Sets the flag bits for the number of PING packets
<i>echo-number</i>	1~40	The number of PING packets
-w	Null	Sets the flag bits for the maximum timeout interval
<i>Timeout</i>	1~2	Maximum timeout interval (unit: s)
-l	Null	Sets the flag bits for the capacity of buffer area
<i>packet-size</i>	0~1504	Capacity of buffer area

5.3.2 Command to Save Configurations to Flash

Command mode: privileged mode

Function: Save configurations to flash

Command format: wlan#write flash

5.3.3 Command to Reset Software

Command mode: privileged mode

Function: Reset W140A

Command format: wlan#reboot

5.3.4 Command to Enter Configure Mode

Command mode: privileged mode

Function: Enter configuration modes

Command format: wlan#configure terminal

5.3.5 Command to Exit Privileged Mode

Command mode: privileged mode

Function: Exit Privileged Mode and enter User Mode

Command format: wlan#disable

5.3.6 Command to Exit TELNET Configuration

Command mode: privileged mode

Function: Exit Telnet and go back to the system

Command format: wlan#exit

Note: This command can only be used via Telnet. If you log in by using a hyperterminal mode via the serial port, this command will not be available.

5.4 Configure Mode

Mode of entry: Enter the configure terminal command in Privileged Mode

Exit mode: Exit and enter privileged mode

Default prompt: wlan (config) #

Note: In this mode (including the sub-mode), all the configuration commands can be executed.

5.4.1 Commands to Configure Wireless Access-Bridge

1. access-bridge client connect-server

Command mode: Configure mode

Function: Configure the MAC address of the access bridge connecting the server

Command format: wlan (config) #access-bridge client connect-server *mac*

Parameter description:

Name	Range	Description
<i>mac</i>	MAC address in the xx-xx-xx-xx-xx-xx format	MAC address of the access bridge connecting the server

2. access-bridge client enable

Command mode: Configure mode

Function: Enable/disable the wireless bridge client

Command format: wlan (config) #[no] access-bridge client enable

3. access-bridge server connect-client

Command mode: Configure mode

Function: Configure the MAC address of the access bridge connecting clients

Command format: wlan (config) #[no] access-bridge server connect-client *mac*

Parameter description:

Name	Range	Description
<i>mac</i>	MAC address in the xx-xx-xx-xx-xx-xx format	MAC address of the access bridge connecting clients

4. access-bridge server enable

Command mode: Configure mode

Function: Enable/disable the wireless bridge server

Command format: wlan (config) #[no] access-bridge server enable

5.4.2 Command to Configure Bridge Information

bridge filterdb

Command mode: Configure mode

Function: Configure bridge filtration or cancel the configuration

Command format: wlan (config) #[no] bridge filterdb *max-user aging-time alarm-percent*

Parameter description:

Name	Range	Description
<i>max-user</i>	512~1024	Maximum capacity of the MAC address list
<i>aging-time</i>	10~100,000	Aging time of the MAC address list entries
<i>alarm-percent</i>	1~10	Percent of alarms

5.4.3 Commands to Configure DHCP Server

1. dhcp server dns

Command mode: Configure mode

Function: Configure the IP addresses of the master/slave DNS server in the DHCP server

Command format: wlan (config) # dhcp server dns *A.B.C.D* [*A.B.C.D*]

Parameter description:

Name	Range	Description
<i>A.B.C.D</i>	IP address	IP address of the master DNS server
[<i>A.B.C.D</i>]	IP address	IP address of the slave DNS server (optional)

2. dhcp server gateway

Command mode: Configure mode

Function: Configure the IP address of the default gateway of the DHCP server

Command format: wlan (config) # dhcp server gateway *A.B.C.D*

Parameter description:

Name	Range	Description
<i>A.B.C.D</i>	IP address	IP address of the gateway

3. dhcp server leasetime

Command mode: Configure mode

Function: Configure the address lease time of the DHCP server

Command format: wlan (config) # dhcp server leasetime *time-value*

Parameter description:

Name	Range	Description
<i>time-value</i>	60~3600	DHCP server address lease time (unit: s), 60s by default

4. dhcp server run

Command mode: Configure mode

Function: Start, stop or restart the DHCP server

Command format: wlan (config) # dhcp server run *run-flag*

Parameter description:

Name	Range	Description
<i>run-flag</i>	start, stop, restart	start: Start the DHCP server stop: Stop the DHCP server restart: Restart the DHCP server

5. dhcp server start-flag

Command mode: Configure mode

Function: Configure the start flag of the DHCP server for the restart of the system

Command format: wlan (config) # dhcp server start-flag {true|false}

Parameter description:

Name	Range	Description
{true false}	True, false	Start flag of the DHCP server. If it is set to true , it will be started when the system is restarted. If false , the DHCP server will not be started.

5.4.4 Discover commands

1. discover device

Command mode: Configure mode

Function: Configure the multicasting address for the integrated management and the port number of the equipment

Command format: wlan (config) #discover device *A.B.C.D* [0~65535]

Parameter description:

Name	Range	Description
<i>A.B.C.D</i>	IP address	Multicasting address for the integrated management of the equipment
[0~65535]	0~65535	Snooping port number for the integrated management of the equipment

2. discover manager

Command mode: Configure mode

Function: Configure the multicasting address and port number for the integrated management server

Command format: wlan (config) #discover manager *A.B.C.D* [0~65535]

Parameter description:

Name	Range	Description
<i>A.B.C.D</i>	IP address	Multicasting address for the integrated management server
[0~65535]	0~65535	Snooping port number for the integrated management server

5.4.5 Commands to Configure 802.1X Parameters

1. dot1x enable

Command mode: Configure mode

Function: Enable or disable 802.1x

Command format: wlan (config) #[no] dot1x enable

2. dot1x max-reauth

Command mode: Configure mode

Function: Configure the maximum number of attempts for 802.1x authentication

Command format: wlan (config)# dot1x max-reauth *max-reauth-times*

Parameter description:

Name	Range	Description
<i>max-reauth-times</i>	0~10	the maximum number of attempts for 802.1x authentication

3. dot1x max-request

Command mode: Configure mode

Function: Configure the maximum number of requests for 802.1x authentication

Command format: wlan (config) # dot1x max-request max-request-times

Parameter description:

Name	Range	Description
<i>max-request-times</i>	1~10	Maximum number of requests for 802.1x authentication

4. dot1x md5-domain

Command mode: Configure mode

Function: Configure the domain name in the EAP-MD5 authentication mode

命令格式: wlan (config) Command format: wlan (config) # dot1x md5-domain *string*

Parameter description:

Name	Range	Description
<i>String</i>	No more than 32 characters	Domain name in the EAP-MD5 authentication mode

5. dot1x nas-id

Command mode: Configure mode

Function: Configure the NAS-ID field for 802.1x

Command format: wlan (config) # dot1x nas-id *string*

Parameter description:

Name	Range	Description
<i>String</i>	No more than 64 characters	NAS-ID character string

6. dot1x portable

Command mode: Configure mode

Function: Enable or disable 802.1x port control

Command format: wlan (config) # [no] dot1x portable

7. dot1x quiet-period

Command mode: Configure mode

Function: Configure the quiet-period for 802.1x

Command format: wlan (config) # dot1x quiet-period *value*

Parameter description:

Name	Range	Description
<i>value</i>	1~255	802.1x quiet-period (unit: s)

8. dot1x server-timeout

Command mode: Configure mode

Function: Configure the hold time for the 802.1x authentication server

Command format: wlan (config) # dot1x server-timeout *value*

Parameter description:

Name	Range	Description
<i>value</i>	1~255	Hold time of the authentication server (unit: s)

9. dot1x sim-domain

Command mode: Configure mode

Function: Configure the domain name in the EAP-SIM authentication mode

Command format: wlan (config) # dot1x sim-domain *string*

Parameter description:

Name	Range	Description
<i>string</i>	No more than 32 characters	the domain name in the EAP-SIM authentication mode

10. dot1x supp-timeout

Command mode: Configure mode

Function: Configure the supp hold time for 802.1x

Command format: wlan (config) # dot1x supp-timeout *value*

Parameter description:

Name	Range	Description
<i>value</i>	1~255	Hold time of the 802.1x client (unit: s)

11. dot1x tx-period

Command mode: Configure mode

Function: Configure the transmission period for 802.1x

Command format: wlan (config) # dot1x tx-period *value*

Parameter description:

Name	Range	Description
<i>value</i>	1~255	802.1x transmission-period (unit: s)

5.4.6 Command to Set User Password in Privileged Mode

Command mode: Configure mode

Function: Set user passwords in privileged mode

Command format: wlan (config) #enable-password *password*

Parameter description:

Name	Range	Description
<i>password</i>	No more than 30 characters	User password in privileged mode

5.4.7 Command to Delete Filtration Rules

erase mac-access-rule

Command mode: Configure mode

Function: Delete MAC rules according to global rule numbers

Command format: wlan (config) #erase mac-access-rule {static} *acl-rule-number*

Parameter description:

Name	Range	Description
{static}	static	Static mac-access-rule flag
<i>acl-rule-number</i>	0~1023	Filtration rule number

5.4.8 Command to Exit Configuration Mode

Command mode: Configure mode

Function: Exit configure mode and enter privileged Mode

Command format: wlan (config) #exit

5.4.9 Commands to Configure IAPP (Load-balance)

1. iapp balance

Command mode: Configure mode

Function: Set the load-balance group ID and nominal capacity

Command format: wlan (config) #iapp balance group-id capability

Parameter description:

Name	Range	Description
<i>group-id</i>	1~65535	Load-balance group ID
<i>capability</i>	1~30	Nominal capacity

2. iapp enable-flag

Command mode: Configure mode

Function: Enable or disable load balance and the restriction to the maximum number of users allowed

Command format: wlan (config) #iapp enable-flag {disable|balance|max-user}

Parameter description:

Name	Range	Description
{disable balance max-user}	disable, balance, max-user	disable: Disable the IAPP function. Neither load-balance nor the restriction to the maximum number of users will be enabled. balance: Enable load-balance Max-user: Enable the restriction to the maximum number of users

**Tips:**

The **iapp balance** and **iapp max-user** configurations cannot take effect at the same time.

3. iapp max-user

Command mode: Configure mode

Function: Set the number of users allowed

Command format: wlan (config) #iapp max-user *value*

Parameter description:

Name	Range	Description
<i>Value</i>	1~150	Sets the number of users allowed

5.4.10 Interface Skip

1. interface ethernet

Command mode: Configure mode

Function: Skip to the Ethernet interface configuration mode. This command ends with the unit number of the Ethernet interface. For equipment, multiple Ethernet interfaces are available.

Command format: wlan (config) #interface ethernet {0}

Parameter description:

Name	Range	Description
{0}	0	Unit number of the Ethernet interface. W140A has only one Ethernet interface with the unchangeable value of 0.

2. interface wlan

Command mode: Configure mode

Function: Skip to the wireless interface configuration mode. This command ends with the unit number of the wireless interface. For equipment, multiple wireless interfaces are available.

Command format: wlan (config) #interface wlan {0}

Parameter description:

Name	Range	Description
{0}	0	Unit number of the wireless interface. W140A has only one wireless interface with the unchangeable value of 0.

5.4.11 Commands to Configure Layer 2 Isolation

1. intra-security enable

Command mode: Configure mode

Function: Enable or disable Layer 2 Isolation

Command format: wlan (config) #[no] intra-security enable

2. intra-security gateway

Command mode: Configure mode

Function: Configure the IP address or MAC address of the gateway

Command format: wlan (config) # intra-security gateway {ip *A.B.C.D* | mac *xx-xx-xx-xx-xx-xx*}

Parameter description:

Name	Range	Description
<i>A.B.C.D</i>	IP address	IP address of the gateway
<i>xx-xx-xx-xx-xx-xx</i>	MAC address	MAC address of the gateway

5.4.12 Commands to Configure IP network Parameters

1. ip arp

Command mode: Configure mode

Function: Add/delete ARP list entries

Command format: wlan (config) #[no] ip arp *A.B.C.D* *xx-xx-xx-xx-xx-xx*

Parameter description:

Name	Range	Description
<i>A.B.C.D</i>	IP address	IP address of the host
<i>xx-xx-xx-xx-xx-xx</i>	MAC address	Hardware address of the host

2. ip route

Command mode: Configure mode

Function: Configure the default routing address for the system

Command format: wlan (config) #[no] ip route $A.B.C.D^1$ $A.B.C.D^2$ $A.B.C.D^3$

Parameter description:

Name	Range	Description
$A.B.C.D^1$	IP address	IP address of the host
$A.B.C.D^2$	Subnet mask	IP address mask of the host
$A.B.C.D^3$	IP address	IP address of the next-hop router

3. ip pool

Command mode: Configure mode

Function: Configure the IP address pool for the system

Command format: wlan (config) #[no] ip pool *index* $A.B.C.D^1$ $A.B.C.D^2$
 $A.B.C.D^3$

Parameter description:

Name	Range	Description
<i>index</i>	0~9	Group number of the IP address pools
$A.B.C.D^1$	IP address	Starting IP address of the host address pool
$A.B.C.D^2$	IP address	Ending IP address of the host address pool
$A.B.C.D^3$	Subnet mask	Subnet mask of the addresses in an address pool

5.4.13 Command to Configure Log Print Information

1. logmsg all-enable

Command mode: Configure mode

Function: Open or close the log print information in all modules

Command format: wlan (config) #[no] logmsg all-enable

2. logmsg level

Command mode: Configure mode

Function: Configure the level of log print information to be output

Command format: wlan (config) # logmsg level *level-num*

Parameter description:

Name	Range	Description
<i>level-num</i>	Lowest (Flood) Lower (Info) Higher (Error) Highest (Fatal)	Level of the log print information to be output. Only the information with a higher level will be output.

3. logmsg mod-enable

Command mode: Configure mode

Function: Determine the module whose log print information should be output

Command format: wlan (config) # [no] logmsg mod-enable *module*

Parameter description:

Name	Range	Description
<i>module</i>	A specified module name	Module whose log print information should be output

4. logmsg telnet-log

Command mode: Configure mode

Function: Set the log print information output window to the active Telnet window.

Command format: wlan (config) #[no] logmsg telnet-log

5.4.14 Command to Configure MAC Filter

Command mode: Configure mode

Function: Add/delete an access list by serial number

Command format: wlan (config) #[no] mac-access-list *acl-list-number* {deny|permit}
{*macaddr*|any}

Parameter description:

Name	Range	Description
<i>acl-list-number</i>	1~99	MAC filter group number
{ deny permit }	Deny, permit	Deny: If the conditions meet the requirements, the MAC communication is denied. Permit: If the conditions meet the requirements, the MAC communication is allowed.

Name	Range	Description
{ <i>macaddr</i> any}	MAC address in the xx-xx-xx-xx-xx-xx format or any	MAC address from which MAC packets are sent. The source address can be specified in two ways: One is to use six 48-bit hexadecimal numbers with dashes between them (HYPHEN), e.g. 00-d0-d0-f1-c4-ef Another is to use the any keyword as the abbreviation of source 00-00-00-00-00-00. It is not recommended to use this keyword.

5.4.15 Command to Configure MAC Address Authentication

Command mode: Configure mode

Function: Configure MAC address authentication

Command format: wlan (config) #[no] mac-authen {deny|permit} {*macaddr*|any}

Parameter description:

Name	Range	Description
{deny permit}	Deny, permit	deny: If the conditions meet the requirements, the MAC communication is denied. permit: If the conditions meet the requirements, the MAC communication is allowed.
{ <i>macaddr</i> any}	MAC address in the xx-xx-xx-xx-xx-xx format or any	MAC address from which MAC packets are sent. The source address can be specified in two ways: One is to use six 48-bit hexadecimal numbers with dashes between them (HYPHEN), e.g. 00-d0-d0-f1-c4-ef Another is to use the any keyword as the abbreviation of source 00-00-00-00-00-00. It is not recommended to use this keyword.

5.4.16 Command to Configure Users

Command mode: Configure mode

Function: Add/delete usernames

Command format: wlan (config) #[no] manage-user *username password*

Parameter description:

Name	Range	Description
<i>username</i>	1~32 characters	Username
<i>password</i>	1~32 characters	User password

5.4.17 Commands to Configure Radius Server

1. radius-server account

Command mode: Configure mode

Function: Add/delete the accounting server of an ISP

Command format: wlan (config) #[no] radius-server account isp-name master-flag A.B.C.D key-string

Parameter description:

Name	Range	Description
<i>isp-name</i>	1~255 characters	ISP name
<i>master-flag</i>	master, slave	Master/slave flag of the accounting server
<i>A.B.C.D</i>	IP address	IP address of the accounting server
<i>key-string</i>	1~255 characters	Shared key string for accounting

2. radius-server authen

Command mode: Configure mode

Function: Add/delete the authentication server of an ISP

Command format: wlan (config) wlan (config) #[no] radius-server authen *isp-name master-flag A.B.C.D key-string*

Parameter description:

Name	Range	Description
<i>isp-name</i>	1-255 characters	ISP name
<i>master-flag</i>	master, slave	Master or slave authentication server. Only one master server can be set.
<i>A.B.C.D</i>	IP address	IP address of the authentication server
<i>key-string</i>	1-255 characters	Shared key string for authentication

3. radius-server dns

Command mode: Configure mode

Function: Add/delete the DNS server of an ISP

Command format: wlan (config) #[no] radius-server dns isp-name A.B.C.D
[A.B.C.D]

Parameter description:

Name	Range	Description
<i>isp-name</i>	1~255 characters	ISP name
<i>A.B.C.D</i>	IP address	IP address of the master DNS server
[<i>A.B.C.D</i>]	IP address	IP address of the slave DNS server

4. radius-server isp-name

Command mode: Configure mode

Function: Add/delete an ISP

Command format: wlan (config) #[no] radius-server isp-name *isp-name*

Parameter description:

Name	Range	Description
<i>isp-name</i>	1~255 character	ISP name

5. radius-server retry-times

Command mode: Configure mode

Function: Set the number of retries of RADIUS authentication of an ISP

Command format: wlan (config) #radius-server retry-times *isp-name retry-time*

Parameter description:

Name	Range	Description
<i>isp-name</i>	1~255 characters	Name of an ISP which has been created.
<i>retry-time</i>	1~10	Number of retries of RADIUS authentication

6. radius-server timeout

Command mode: Configure mode

Function: Set the hold time of the RADIUS authentication of an ISP

Command format: wlan (config) #radius-server timeout *isp-name timeout*

Parameter description:

Name	Range	Description
<i>isp-name</i>	1~255 characters	Name of an ISP which has been created.
<i>timeout</i>	1~65535	Hold time of the RADIUS authentication (unit: s)

5.4.18 Command to Configure SNMP Module

1. snmp access-host

Command mode: Configure mode

Function: Add and delete host IP addresses allowed to access

Command format: wlan (config) #[no] snmp access-host *A.B.C.D*

Parameter description:

Name	Range	Description
<i>A.B.C.D</i>	IP address	Host IP addresses (up to 10) in dotted decimal format (A.B.C.D)

2. snmp access-mode

Command mode: Configure mode

Function: Allow all hosts or hosts in the server-list to access this agent

Command format: wlan (config) #snmp access-mode {all|list}

Parameter description:

Name	Range	Description
{all list}	all, list	all: All users are allow to access list: Users in server-list are allowed to access

3. snmp community

Command mode: Configure mode

Function: Configure the SNMP access community string and its access right

Command format: wlan (config) #snmp community *comstr* {read-only|read-write}

wlan (config) #no snmp community *comstr*

Parameter description:

Name	Range	Description
<i>comstr</i>	1~32 characters	Names of the SNMP access community strings (up to 10). <i>comstr</i> is a string with up to 32 characters
{read-only read-write}	read-only, read-write	read-only: read-only access read-write: Read-write access

4. snmp contact

Command mode: Configure mode

Function: Set the name and contact information of the equipment administrator

Command format: wlan (config) #snmp contact *sysContact*

Parameter description:

Name	Range	Description
<i>sysContact</i>	1~255 characters	A management variable of the system group in MIB II, denotes the name and contact information of the equipment administrator

5. snmp location

Command mode: Configure mode

Function: Configure the geographical location of the managed equipment

Command format: wlan (config) #snmp location *sysLocation*

Parameter description:

Name	Range	Description
<i>sysLocation</i>	1~255 characters	A management variable of the system group in MIB, used to define the geographic location of the managed equipment

6. snmp nodecode

Command mode: Configure mode

Function: Configure the network element (NE) codes of the managed equipment

Command format: wlan (config) #snmp nodecode *node-code*

Parameter description:

Name	Range	Description
<i>node-code</i>	>= 0 (integer)	A management variable of the system group in MIB, used to define the NE code of the managed equipment

7. snmp nodeid

Command mode: Configure mode

Function: Configure the NE ID of the managed equipment

Command format: wlan (config) #snmp nodeid *node-id*

Parameter description:

Name	Range	Description
<i>node-code</i>	1~31 characters	A management variable of the system group in MIB, used to define the NE ID of the managed equipment

8. snmp nodecreatdate

Command mode: Configure mode

Function: Configure the NE creation date of the managed equipment

Command format: wlan (config) #snmp nodecreatdate *hh:mm:ss month day year*

Parameter description:

Name	Range	Description
<i>hh:mm:ss</i>	Time	hh (hour): mm (minute): ss (second)
<i>month</i>	1~12	Month
<i>day</i>	1~31	Day
<i>year</i>	2002~2130	Year: 4 bits

hh:mm:ss month day year: A management variable of the system group in MIB, used to define the NE creation date of the managed equipment

9. snmp proxytraphost

Command mode: Configure mode

Function: Add the address information of a proxy Trap destination host

Command format: wlan (config) #[no] snmp proxytraphost *A.B.C.D*

Parameter description:

Name	Range	Description
<i>A.B.C.D</i>	IP address	Addresses of the proxy Trap destination hosts (up to 10)

10. snmp sysname

Command mode: Configure mode

Function: Set the name of the managed equipment

Command format: wlan (config) #snmp sysname *sysName*

Parameter description:

Name	Range	Description
<i>sysName</i>	1~255 characters	A management variable of the system group in RFC1213 MIB, used as the name of the managed equipment

11. snmp trap enable

Command mode: Configure mode

Function: Configure if the SNMP Agent is allowed to send Trap

Command format: wlan (config) #[no] snmp trap enable

12. snmp authtrap enable

Command mode: Configure mode

Function: Configure if the SNMP Agent is allowed to send the authentication failed Trap

Command format: wlan (config) #[no] snmp authtrap enable

13. snmp traphost

Command mode: Configure mode

Function: Add the address of a trap destination host and the trap version number

Command format: wlan (config) #snmp traphost *A.B.C.D* [version *version*]

wlan (config) #no snmp traphost *A.B.C.D*

Parameter description:

Name	Range	Description
<i>A.B.C.D</i>	IP address	Addresses of Trap destination hosts
<i>version</i>	1~2	Trap version number

5.4.19 Command to Manage Telnet Idle Timeout

Command mode: Configure mode

Function: Set the automatic exit time when the Telnet window is idle

Command format: wlan (config) #telnet idle-timeout *time-value*

Parameter description:

Name	Range	Description
<i>time-value</i>	300~3600 (unit: s)	The automatic exit time when the Telnet window is idle (300s by default)

5.4.20 Commands to Upload/download TFTP Files

1. tftp dir

Command mode: Configure mode

Function: Check the free space of a flash disk (unit: byte)

Command format: wlan (config) #tftp dir

2. tftp pic

Command mode: Configure mode

Function: Download graphics files from the Web configuration pages on the TFTP server and save them to a flash disk.

Command format: wlan (config) #tftp pic *A.B.C.D*

Parameter description:

Name	Range	Description
<i>A.B.C.D</i>	IP address	IP Address of a TFTP server in dotted decimal format

3. Download files using tftp get

Command mode: Configure mode

Function: Download files from the TFTP server using TFTP and save them to

the flash disk.

Command format: wlan (config) #tftp get A.B.C.D *flash-file-name*

Parameter description:

Name	Range	Description
<i>A.B.C.D</i>	IP address	IP Address of a TFTP server in dotted decimal format
<i>flash-file-name</i>	Filename of a version	Full name (including the extension name) of the file to be transmitted from the TFTP server

4. Upload files using tftp put

Command mode: Configure mode

Function: Upload files from the flash disk to the TFTP server using TFTP

Command format: wlan (config) #tftp put A.B.C.D *flash-file-name*

Parameter description:

Name	Range	Description
<i>A.B.C.D</i>	IP address	IP Address of a TFTP server in dotted decimal format
<i>flash-file-name</i>	Filename of a version	Full name (including the extension name) of the file to be transmitted from the flash disk

5.4.21 Commands to Configure VLAN

1. vlan ap-vid

Command mode: Configure mode

Function: Configure the VLAN ID of AP

Command format: wlan (config) #**vlan ap-vid** *value*

Parameter description:

Name	Range	Description
<i>value</i>	0~4094	VLAN ID

2. vlan enable

Command mode: Configure mode

Function: Enable VLAN

Command format: wlan (config) **#vlan enable**

3. vlan keep-vid

Command mode: Configure mode

Function: Allow a terminal to switch over with the same VLAN ID between different APs

Command format: wlan (config) **#vlan keep-vid**

4. vlan sta-default-vid

Command mode: Configure mode

Function: Configure the default VLAN ID of the STA accessed from the AP

Command format: wlan (config) **#vlan sta-default-vid** *value*

Parameter description:

Name	Range	Description
<i>value</i>	1~4094	Default VLAN ID when the STA is accessed

5. vlan sta-vid

Command mode: Configure mode

Function: Configure the specified VLAN ID of the STA accessed from the AP

Command format: wlan (config) **#vlan sta-vid** *xx-xx-xx-xx-xx-xx* wlan *value*

Parameter description:

Name	Range	Description
<i>value</i>	1~4094	Default VLAN ID when the STA is accessed
<i>xx-xx-xx-xx-xx-xx</i>	MAC address	MAC address of the accessed STA

5.4.22 Show Commands

1. show access-bridge

Command mode: Configure mode

Function: Display configured parameters of a wireless bridge

Command format: wlan (config) **#show access-bridge**

2. show alarm

1) show alarm all

Command mode: Configure mode

Function: Display all alarm information

Command format: wlan (config) #show alarm all

2) show alarm bycode

Command mode: Configure mode

Function: Display alarm Information by alarm code

Command format: wlan (config) #show alarm bycode *code*

Parameter description:

Name	Range	Description
<i>code</i>	1001~3999	Code of an alarm

3) show alarm bylevel

Command mode: Configure mode

Function: Display alarm information by alarm level

Command format: wlan (config) #show alarm bylevel *level*

Parameter description:

Name	Range	Description
<i>level</i>	1~3	Alarm level

3. show bridge configure

Command mode: Configure mode

Function: Display configured bridge parameters

Command format: wlan (config) #show bridge configure

4. show dhcp server

Command mode: Configure mode

Function: Display DHCP server parameters

Command format: wlan (config) #show dhcp server

5. show discover

Command mode: Configure mode

Function: Display configured discover parameters of the equipment

Command format: wlan (config) #show discover

6. show dot1x-cfg

Command mode: Configure mode

Function: Display 802.1x parameters

Command format: wlan (config) #show dot1x-cfg

7. show dynamic-key

Command mode: Configure mode

Function: Display dynamic WEP key parameters

Command format: wlan (config) #show dynamic-key

8. show iapp

Command mode: Configure mode

Function: Display configured load-balance parameters

Command format: wlan (config) #show iapp

9. show interface

Command mode: Configure mode

Function: Display configured interface parameters

Command format: wlan (config) #show interface {ethernet|wlan} Function:
Display configured Layer 2 isolation parameters

Command format: wlan (config) #show intra-security

11. show ip

1) show ip arp

Command mode: Configure mode

Function: Display ARP address resolution information

Command format: wlan (config) #show ip arp

2) show ip if-stat

Command mode: Configure mode

Function: Display IP interface status information

Command format: wlan (config) #show ip if-stat

3) show ip pool

• show ip pool config

Command mode: Configure mode

Function: Display information of all IP address pools

Command format: wlan (config) #show ip pool config

• show ip pool used

Command mode: Configure mode

Function: Display information of allocated IP addresses in the specified IP address pool

Command format: wlan (config) #show ip pool used index

Parameter description:

Name	Range	Description
<i>Index</i>	0~9	Serial number of an IP address pool

4) show ip route

Command mode: Configure mode

Function: Display configured IP route parameters

Command format: wlan (config) #show ip route

12. show logmsg

Command mode: Configure mode

Function: Display all configured log print information

Command format: wlan (config) #show logmsg

13. show mac-access-list

Command mode: Configure mode

Function: Display configured mac-access-list information

Command format: wlan (config) #show mac-access-list {static} [1~99]

14. show mac-authen

Command mode: Configure mode

Function: Display configured mac-authen parameters

Command format: wlan (config) #show mac-authen

15. show manage-user

Command mode: Configure mode

Function: Display configured manage-user parameters

Command format: wlan (config) #show manage-user

16. show radius

Command mode: Configure mode

Function: Display configured radius parameters

Command format: wlan (config) #show radius

17. show snmp

1) show snmp access-host

Command mode: Configure mode

Function: Display configured snmp access-host parameters

Command format: wlan (config) #show snmp access-host

2) show snmp community

Command mode: Configure mode

Function: Display configured snmp community parameters

Command format: wlan (config) #show snmp community

- 3) show snmp nodeinfo
Command mode: Configure mode
Function: Display configured snmp nodeinfo parameters
Command format: wlan (config) #show snmp nodeinfo
- 4) show snmp sysinfo
Command mode: Configure mode
Function: Display configured snmp sysInfo parameters
Command format: wlan (config) #show snmp sysinfo
- 5) show snmp traphost
Command mode: Configure mode
Function: Display configured snmp traphost parameters
Command format: wlan (config) #show snmp traphost
18. show telnet idle-timeout
Command mode: Configure mode
Function: Display the configured interval for telnet idle time-out
Command format: wlan (config) #show telnet idle-timeout
19. show version
Command mode: Configure mode
Function: Display the software version number
Command format: wlan (config) #show version
20. show vlan
Command mode: Configure mode
Function: Display configured VLAN information
Command format: wlan (config) #show vlan

5.5 Ethernet Interface Configuration Mode

Mode of entry: Enter the **interface ethernet** command in configure mode

Exit mode: Exit and enter configure mode

Default prompt: wlan (config-int-ethernet)#

Note: In this mode (including the sub-mode), all information can be configured for relevant interfaces.

5.5.1 Configurations in the Ethernet Interface Mode

Command mode: Ethernet Interface Configuration Mode

Function: Set the mode of rate negotiation for the Ethernet interface

Command format: wlan (config-int-ethernet)# ethernet-mode *mode*

Parameter description:

Name	Range	Description
<i>mode</i>	10M, autoNeg (100M/10M)	Mode of the Ethernet Interface

5.5.2 Command to Exit the Ethernet Interface Configuration Mode

Command mode: Ethernet Interface Configuration Mode

Function: Exit Ethernet interface configuration mode and enter configure Mode

Command format: wlan (config-int-ethernet)# #exit

5.5.3 Command to Configure Ethernet interface IP addresses

Command mode: Ethernet Interface Configuration Mode

Function: Set the IP address of the Ethernet interface

Command format: wlan (config-int-ethernet) #ipaddr $A.B.C.D^1$ $A.B.C.D^2$ [second]

wlan (config-int-ethernet) #no ipaddr $A.B.C.D^1$ [$A.B.C.D^2$]

Parameter description:

Name	Range	Description
$A.B.C.D^1$	IP address	IP address of an interface
$A.B.C.D^2$	IP address	IP address mask of an interface
[second]	Optional	The additional IP address flag of an interface

5.5.4 Command to Configure MAC filter for the Ethernet Interface

Command mode: Ethernet Interface Configuration Mode

Function: Configure MAC filter for the Ethernet interface

Command format: wlan (config-int-ethernet) #[no] mac-access-group *acl-number* *direction*

Parameter description:

Name	Range	Description
<i>acl-num</i>	1~99	MAC filter entry number bound to the interface
<i>direction</i>	in	Bind to the "in" direction of the interface

5.6 Wireless Interface Configuration Mode

Mode of entry: Enter the **interface wlan** command in configure mode

Exit mode: Exit and enter configure mode

Default prompt: wlan (config-int-wlan)#

Note: In this mode (including the sub-mode), all information can be configured for relevant interfaces.

5.6.1 Command to Configure 80211b-related Parameters for the Wireless Interface

1. 80211b channel

Command mode: Wireless interface configuration mode

Function: Set the current operating channel

Command format: wlan (config-int-wlan) #80211b channel *channel-num*

Parameter description:

Name	Range	Description
<i>channel-num</i>	1~13	Wireless channel number: 6 by default

2. 80211b dynamic-key

Command mode: Wireless interface configuration mode

Function: Set the dynamic key of the wireless network

Command format: wlan (config-int-wlan) #80211b dynamic-key key

xx-xx-xx-xx-xx-xx key1-string key2-string used-key

wlan (config-int-wlan) #no 80211b dynamic-key *xx-xx-xx-xx-xx-xx*

wlan (config-int-wlan) #80211b dynamic-key enable *xx-xx-xx-xx-xx-xx*

wlan (config-int-wlan) #no 80211b dynamic-key enable *xx-xx-xx-xx-xx-xx*

Note: The **80211b dynamic-key key** command is used to set the dynamic key for a specified MAC address. The **80211b dynamic-key enable** command is used to enable this dynamic key.

Parameter description:

Name	Range	Description
<i>xx-xx-xx-xx-xx-xx</i>	MAC address	MAC address of the wireless user using the dynamic key
<i>key1-string</i>	5 or 13 characters	First dynamic key (the key length can only be 5 or 13 characters)
<i>key2-string</i>	5 or 13 characters	Second dynamic key (the key length can only be 5 or 13 characters)
<i>used-key</i>	key1, key2	Key number that is used

3. 80211b enh-security enable

Command mode: Wireless interface configuration mode

Function: Set to enable or disable the enhanced security function of AP

Command format: wlan (config) #[no] 80211b enh-security enable

Note: If the enhanced security function is enabled, the wireless terminal will not be able to scan the AP. If this function is disabled, the AP can be scanned.

4. 80211b essid

Command mode: Wireless interface configuration mode

Function: Set ESSID of the wireless network

Command format: wlan (config-int-wlan) #80211b essid *ssid-string*

Parameter description:

Name	Range	Description
<i>ssid-string</i>	1~31 characters	ESSID of the wireless network. By default, it is zxwlan.

5. 80211b frg-threshold

Command mode: Wireless interface configuration mode

Function: Set fragment threshold

Command format: wlan (config-int-wlan) #80211b frg-threshold *value*

Parameter description:

Name	Range	Description
<i>value</i>	256~2346 (even)	Threshold of fragments, 2346 by default

6. 80211b power

Command mode: Wireless interface configuration mode

Function: Set the transmission power of the wireless network card

Command format: wlan (config-int-wlan) #80211b power *value*

Parameter description:

Name	Range	Description
<i>value</i>	auto, 10/20/30/40/50/60/70/80/90/100 (unit: mW) max	auto: automatic power control (default) 10/20/30/40/50/60/70/80/90/100: fixed transmission power max: maximal transmission power

7. 80211b rts-threshold

Command mode: Wireless interface configuration mode

Function: Set RTS threshold

Command format: wlan (config-int-wlan) #80211b rts-threshold *value*

Parameter description:

Name	Range	Description
<i>value</i>	0~2347	RTS threshold, 2347 by default

5.6.2 Command to Exit Wireless Interface Configuration Mode

Command mode: Wireless interface configuration mode

Function: Exit wireless interface configuration mode and enter configure mode

Command format: wlan (config-int-wlan)# exit

5.6.3 Command to Enable Link Integrity Detection

Command mode: Wireless interface configuration mode

Function: Set to enable or disable link integrity detection

Command format: wlan (config-int-wlan)#[no] link-integrity enable

Note: the link integrity detection function of AP means that when the Ethernet link of the AP is disconnected, the AP will release all connected wireless users, close the wireless port, and deny the connection requests of other wireless terminals. When the link is recovered, the AP will open the wireless port and accept connections of wireless users.

5.6.4 WEP Configuration of the Wireless Interface

1. wep mode

Command mode: Wireless interface configuration mode

Function: Set WEP encryption mode and WEP key format

Command format: wlan (config-int-wlan) #wep mode {disable | wep64 | wep128 | mix-wep64 | mix-wep128} {Alphanumeric|Hexadecimal}

Parameter description:

Name	Range	Description
{disable wep64 wep128 mix-wep64 mix-wep128}	disable wep64 wep128 mix-wep64 mix-wep128	Disable: disable the WEP encryption function wep64: Use the 64-bit WEP encryption wep128: Use the 128-bit WEP encryption mix-wep64: Use a mixed 64-bit WEP encryption. In this mode, the clients can communicate normally with a correct 64-bit encryption key or without encryption. Mix-wep128: Use a mixed 128-bit WEP encryption. In this mode, the clients can communicate normally with a correct 128-bit encryption key or without encryption.
{Alphanumeric Hexadecimal}	Alphanumeric Hexadecimal	Alphanumeric: WEP key in string format Alphanumeric: WEP key in hexadecimal format

2. wep set-key

Command mode: Wireless interface configuration mode

Function: Set the key of WEP encryption

Command format: wlan (config-int-wlan) #wep set-key *key-id key-text*

Parameter description:

Name	Range	Description
<i>key-id</i>	key1, key2, key3, key4	Entry number of the key to be set
<i>key-text</i>	5 or 13 characters, or a combination of 10 or 26 hexadecimal digits	If it is set to 64-bit encryption, the <i>key_text</i> argument can be 5 case sensitive characters (in alphanumeric format), e.g. MyKey, or 10 hexadecimal digits (in hexadecimal format), e.g. 11AA22BB33 If it is set to 128-bit encryption, the <i>key_text</i> argument can be 13 case sensitive characters (in alphanumeric format), e.g. MyKey12345678, or 26 hexadecimal digits (in hexadecimal format), e.g. 00112233445566778899AABBCC

3. wep use-key

Command mode: Wireless interface configuration mode

Function: Set the WEP encryption key to be used

Command format: wlan (config-int-wlan) #wep use-key *key-id*

Parameter description:

Name	Range	Description
<i>Key-id</i>	key1, key2, key3, key4	Entry number of the key to be used

5.6.5 Command to Configure MAC Filter in Wireless Interface Configuration

Command mode: Wireless interface configuration mode

Function: Configure MAC filter for the wireless interface

Command format: wlan (config-int-wlan) #[no] mac-access-group *acl-list-number direction*

Parameter description:

Name	Range	Description
<i>Acl-list-number</i>	1~99	MAC filter entry number bound to the interface
<i>direction</i>	in	Bind to the "in" direction of the interface

5.6.6 Command to Configure Authentication Mode in Wireless Interface Configuration

Command mode: Wireless interface configuration mode

Function: Configure authentication mode for the wireless interface

Command format: wlan (config-int-ethernet) #authmode *auth mode*

Parameter description:

Name	Range	Description
Authmode	OpenSystem	OpenSystem: Authentication using Opensystem
	SharedKey	SharedKey: Authentication using Sharedkey
	Both	Both: Both authentication modes are supported

6 WEB Configuration

This chapter describes the operation methods and configuration pages of the W140A web configuration.

6.1 Overview

For the W140A, we also provide a WEB configuration page to configure the various parameters of the W140A. The configuration page is same as an ordinary Web page, and the followings are some instructions on WEB configuration:

1. We provide a means to log into the W140A in the HTTP mode to configure parameters. Users can open the WEB configuration login page of the W140A by entering **http://Working IP Address of W140A** in the address bar of the WEB browser (the default working IP address of the W140A is 192.168.1.254, and the subnet is 255.255.255.0).
2. To simplify operation, only one operation mode is available at present for WEB configuration (similar to the CONFIG mode in CLI configuration), with two levels of password protection. The first level of password allows users to browse the current parameters. To submit data for the first time after login, users must enter the privileged user password, and it is unnecessary to re-enter the privileged user password for submitting other data pages if the password is correct. These two levels of passwords are same as those of the CLI configuration.
3. Browsing and setting functions: After you logs in successfully, you can open a certain WEB page to browse the current parameters. To modify a certain parameter, you just need to enter the new value and then submit the modification. If the setting operation is successful, you can view the new setting by returning to the previous page. WEB configuration will resolve the newly entered value, and a failure message will be returned if the format is incorrect.
4. At present, only one user is allowed to configure or browse parameters for WEB configuration. If the user is idle for over 5 minutes, he will automatically exit and another user can log in for configuration.

The path diagram of WEB configuration is as shown in Fig. 6.1-1.

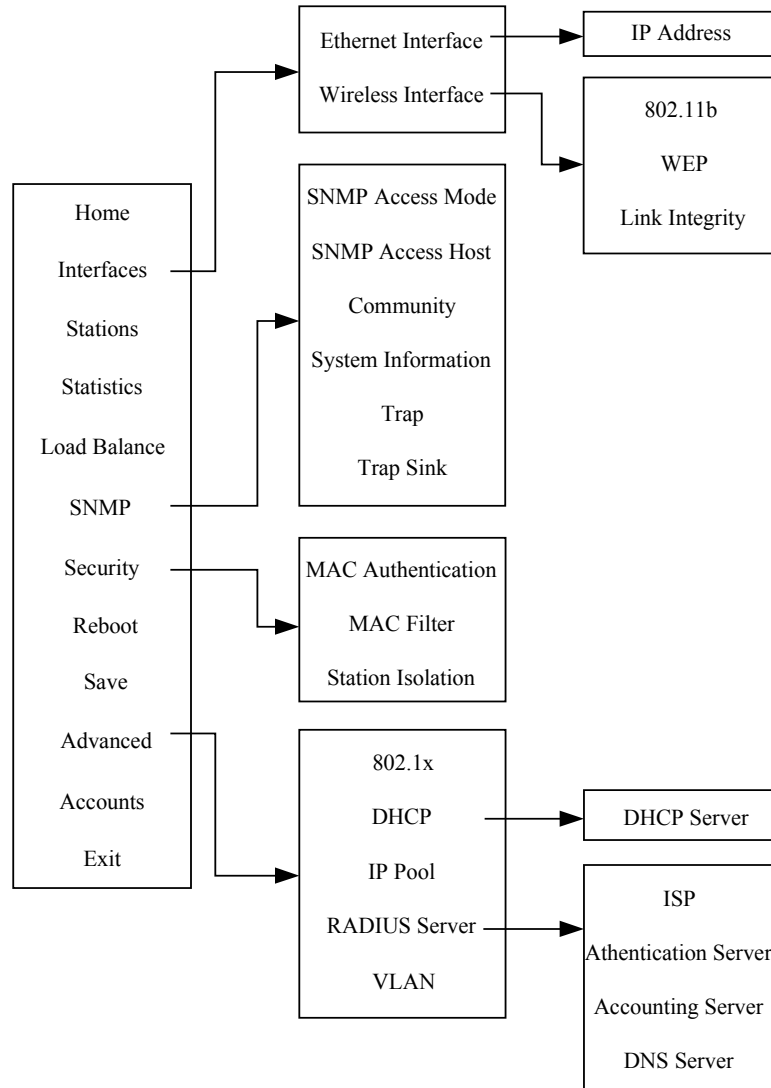


Fig. 6.1-1 Path diagram of WEB configuration

6.2 Opening the login WEB page

Open the WEB browser, and enter “**Http://Working IP Address of the W140A**” in the address bar of the browser to display the WEB page shown in Fig. 6.2-1. You can open the parameter-browsing page by entering the correct user name and password in this page.



Fig. 6.2-1 Login page for WEB configuration

If someone has already logged in for WEB configuration (or you have opened the WEB configuration window), the following message will be given after you submit your user name and password, as shown in Fig. 6.2-2.

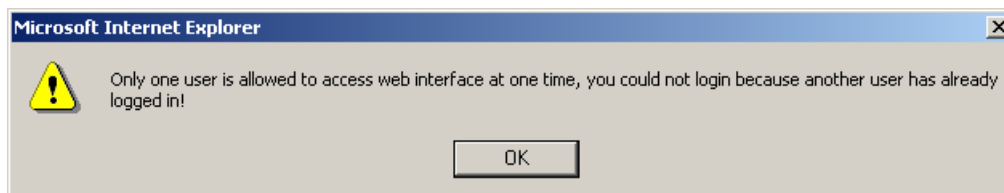


Fig. 6.2-2 Alert box for prompting that someone has already logged in for WEB configuration

If the entered user name and password are incorrect, the following message will be given after you submit your user name and password, as shown in Fig. 6.2-3.



**Error username or
password!**

[Back to Login Page](#)

Fig. 6.2-3 Alert box for prompting that the entered user name and password are incorrect

6.3 Main menu of WEB configuration

After you log into the system successfully, the main menu page for user browsing will be opened. The main menu includes the following items: **Home, Interfaces, Stations, Statistics, Load Balance, SNMP, Security, Reboot, Save, Advanced, Accounts** and **Exit**. Among them, **Interfaces, SNMP, Security** and **Advanced** also have submenus, while other configuration modules only have one WEB page for configuration. The main menu is on the left of the WEB page, as shown in Fig. 6.3-1, and the right pane is the page of the currently selected configuration module.

6.3.1 Home page (basic product information)

The contents in this page are read-only, which can only be browsed and cannot be set.



The screenshot shows a web interface with a blue sidebar menu on the left and a main content area on the right. The sidebar menu includes: Home, Interfaces, Stations, Statistics, Load Balance, SNMP, Security, Reboot, Save, Advanced, Accounts, and Exit. The main content area features a header image of a modern building and a table with the following data:

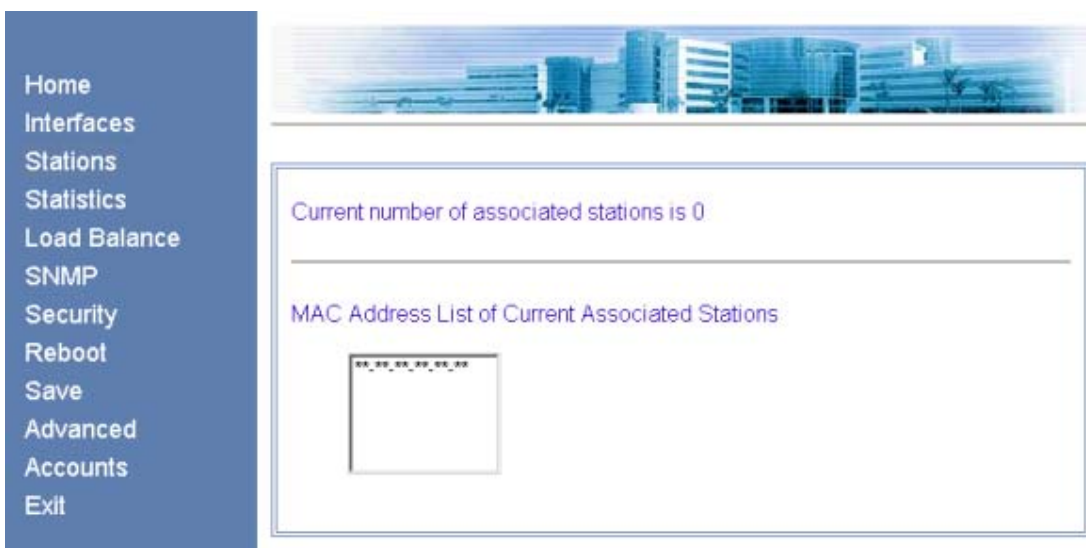
Product Type	ap
Script Version	V1.0000
Firmware Version	v1.0.02.i
Database Version	v1.0.02.i

Attention:
If you want to quit web interface, please click **Exit** link on the left.
If you directly close the browser window, this operation will be considered as abnormal quit, you have to wait for 5 minutes before you login again.

Fig. 6.3-1 Home page (basic product information)

6.3.2 Stations page

Click **Stations** in the main menu to display the page as shown in Fig. 6.3-2.



The screenshot shows the same web interface as Fig. 6.3-1, but with the 'Stations' menu item selected. The main content area displays the following information:

Current number of associated stations is 0

MAC Address List of Current Associated Stations

xx.xx.xx.xx.xx.xx

Fig. 6.3-2 Stations page

This page displays the information about the wireless users who have logged into this AP. The parameters include the number of wireless users and the MAC address of the users.

6.3.3 Statistics Page

Click **Statistics** in the main menu to display the page as shown in Fig. 6.3-3.



Fig. 6.3-3 Statistics page

This page displays the flow information of each wireless user, including uplink flow, downlink flow, uplink packets and downlink packets.

6.3.4 Load Balance page

Click **Load Balance** in the main menu to display the page as shown in Fig. 6.3-4.

Home
Interfaces
Stations
Statistics
Load Balance
SNMP
Security
Reboot
Save
Advanced
Accounts
Exit

Balance Mode

(Note: The following parameter is invalid when balance mode is disable.)

(Note: Only when balance mode is balance, this parameter is valid)

Balance Parameter:

AP Balance Group Number(1-65535)

Blance Policy

Balance by Wireless User Number (Threshold: 1-30)

Balance by Flow (Threshold: 1-65535)

Balance Threshold

Fig. 6.3-4 Load Balance page

This page is used to configure IAPP parameters, including balance mode, AP load balance (AP group number and nominal capacity) and the maximum number of users, all of which have a certain value range. Three balance modes are available: disable, balance and max-user. When you configure the mode as “disable”, the IAPP mode will be disabled; when you configure the mode as “balance”, the AP load balance will be enabled, and the parameter in the “AP Balance Group Number (1-65535)” box will take effect; and when you configure the mode as “max-user”, the parameter in the “Balance Threshold” box will take effect.

**Note:**

You can only select one from AP load balance or Max-user.

6.3.5 SNMP page

Click **SNMP** in the main menu to display the page as shown in Fig. 6.3-5.



Fig. 6.3-5 Submenu for SNMP configuration

On the left of this page is the submenu for SNMP configuration: SNMP Access Mode, SNMP Access Host, Community, System Information, Trap, Trap Sink and Back.

6.3.5.1 SNMP Access Mode page

Click **SNMP Access Mode** in the **SNMP** menu to display the page as shown in Fig. 6.3-6.

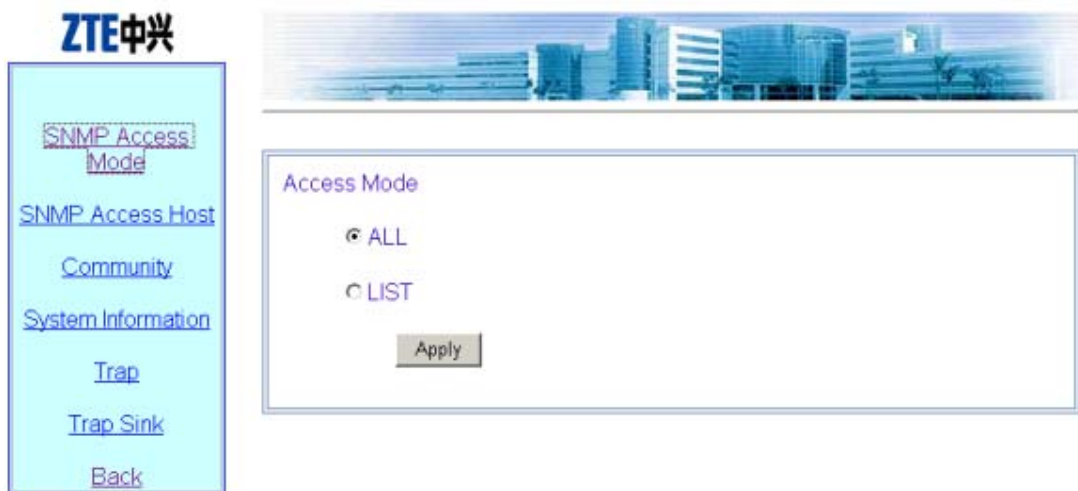


Fig. 6.3-6 Access mode configuration page of the SNMP module

This page is used to configure the access mode of SNMP, with two options: **all** and **list**.

6.3.5.2 SNMP Access Host page

Click **SNMP Access Host** in the **SNMP** menu to display the page as shown in Fig. 6.3-7.

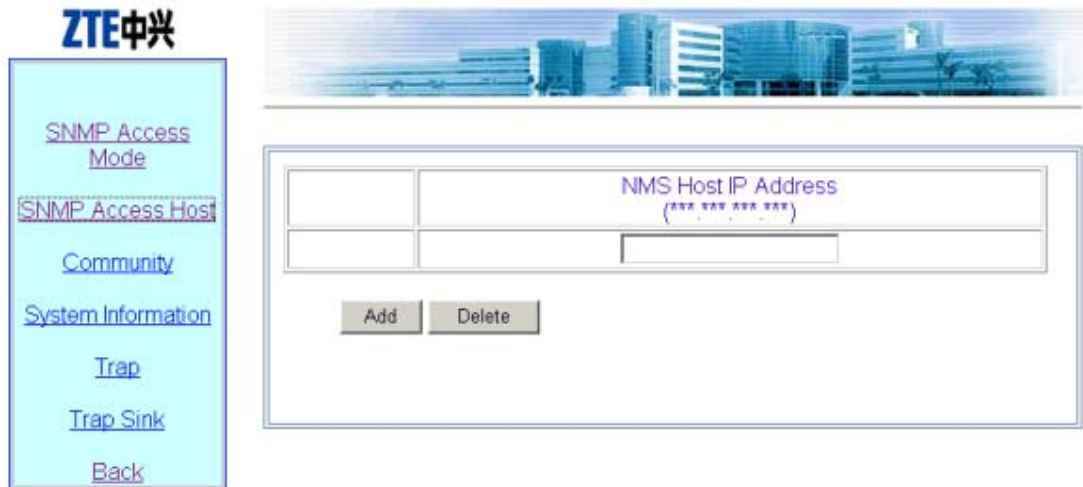


Fig. 6.3-7 Access host configuration page of the SNMP module

This page is used to add or delete the IP address of SNMP access host, and the parameter includes the IP address of the accessible host .

Operation instructions: there are two buttons “Add” and “Delete” on the page. To perform the adding operation, you just need to enter the data in the blank box on the bottom; and to perform the deleting operation, you just need to check off the record to be deleted (you may delete multiple records simultaneously).



Tips:

The operation for other pages with multiple records is similar to this.

6.3.5.3 Community page

Click **Community** in the **SNMP** menu to display the page as shown in Fig. 6.3-8.



Fig. 6.3-8 Community configuration page of the SNMP module

This page is used to add or delete SNMP community strings, and the parameters include community ID and access right.

6.3.5.4 System information page

Click **System Information** in the **SNMP** menu to display the page as shown in Fig. 6.3-9.

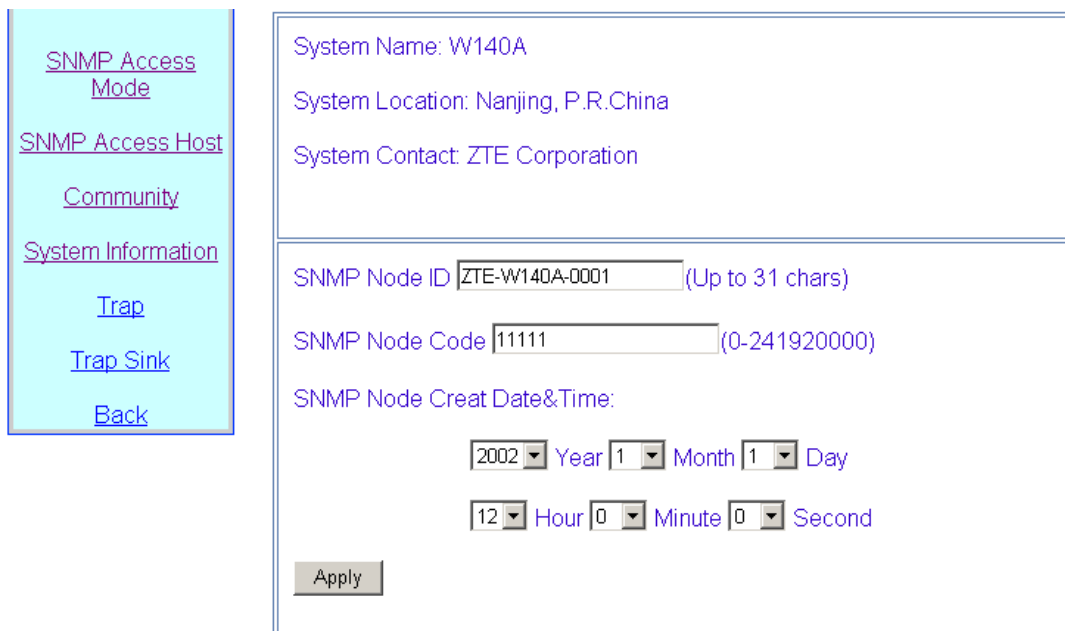


Fig. 6.3-9 System information configuration page of the SNMP module

This page displays the name, location and contact information of the current SNMP management equipment. You can also configure the related information of the NE in this page, including NE ID, NE code and NE creation date and time.

6.3.5.5 Trap page

Click **Trap** in the **SNMP** menu to display the page as shown in Fig. 6.3-10.

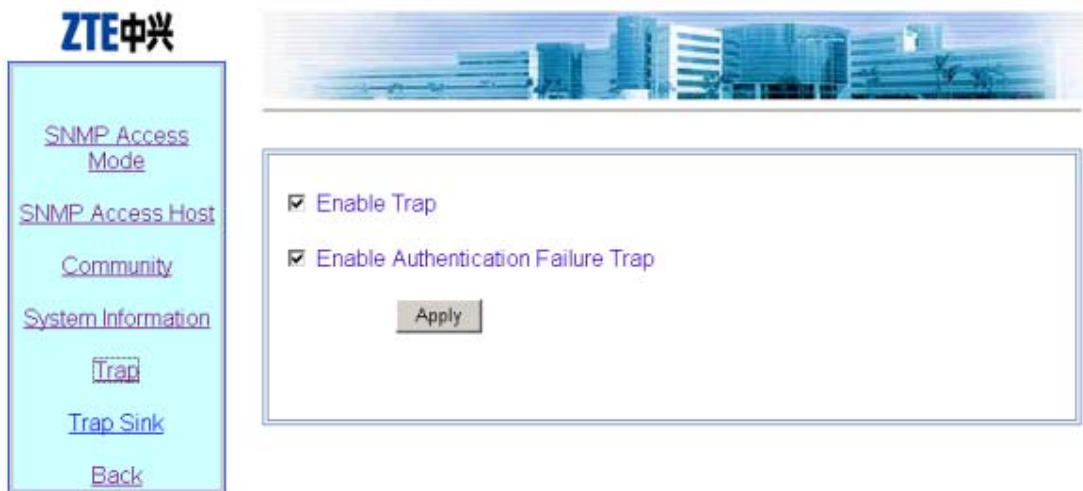


Fig. 6.3-10 Trap configuration page of the SNMP module

This page is used to configure the Trap of the SNMP module, with two parameters for configuration: **Enable Trap** and **Enable Authentication Failure Trap**.

6.3.5.6 Trap Sink page

Click **Trap Sink** in the **SNMP** menu to display the page as shown in Fig. 6.3-11.

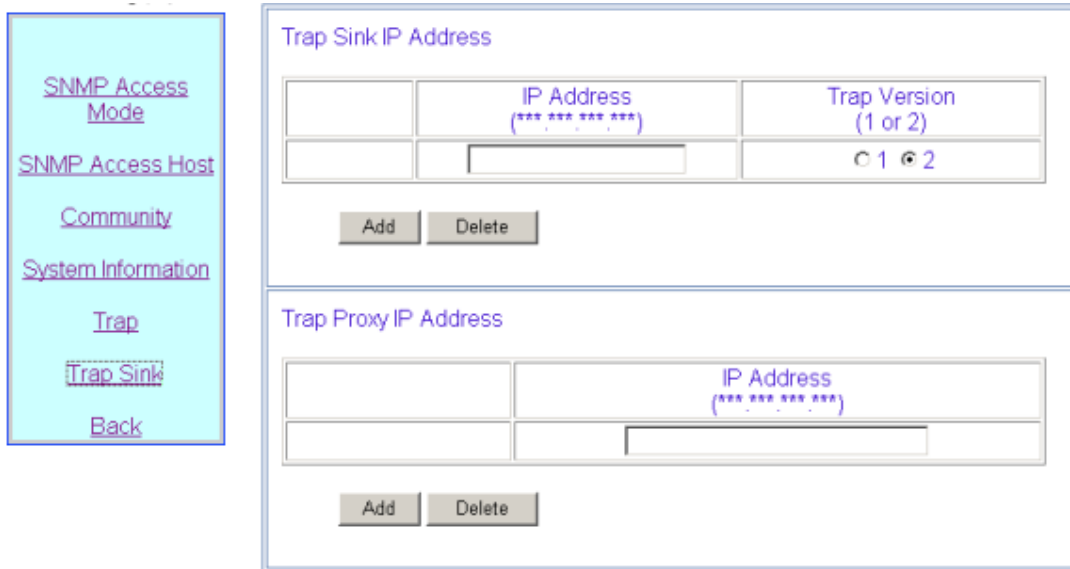


Fig. 6.3-11 Trap sink configuration page of the SNMP module

This page is used to add or delete the Trap Sink host and Trap Proxy host of the SNMP module. The parameters include the IP address and Trap version.

6.3.6 Security page

Click **Security** in the main menu to display the page as shown in Fig. 6.3-12.

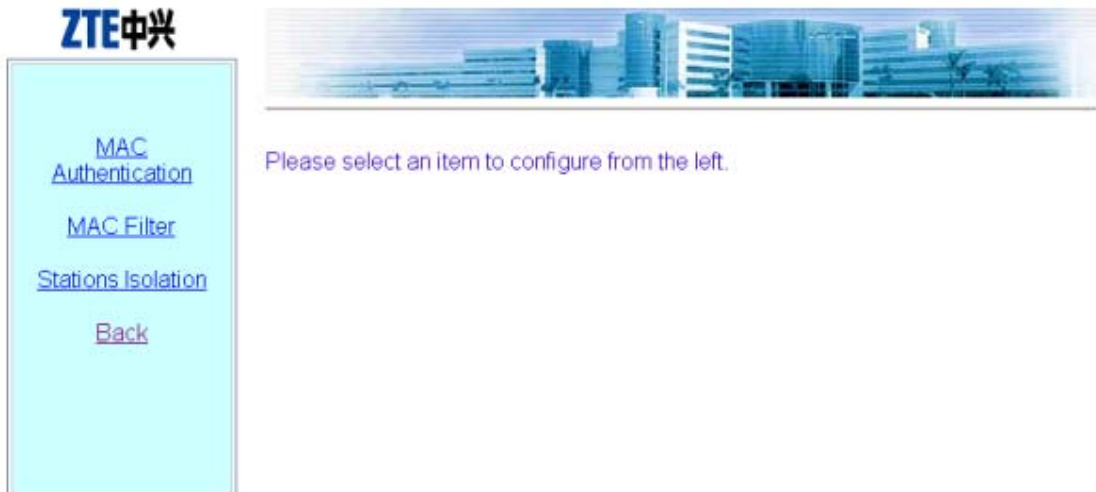


Fig. 6.3-12 Submenu of security configuration

On the left of this page is the security configuration submenu: MAC Authentication, MAC Filter, Stations Isolation and Back.

6.3.6.1 MAC Authentication page

Click **MAC Authentication** in the **Security** menu to display the page as shown in Fig. 6.3-13.

Rule Number	Access Mode	MAC Address (any/mac_addr)
	<input checked="" type="radio"/> deny <input type="radio"/> permit	<input checked="" type="radio"/> single <input type="radio"/> any If you select single mode, please enter a MAC address: <input type="text"/>

Add Delete

Fig. 6.3-13 MAC authentication configuration page

This page is used to add or delete MAC authentication rules, and the parameters include Access Mode (permit or deny) and filter type (any or single).

6.3.6.2 MAC filter page

Click **MAC filter** in the **Security** menu to display the page as shown in Fig. 6.3-14.

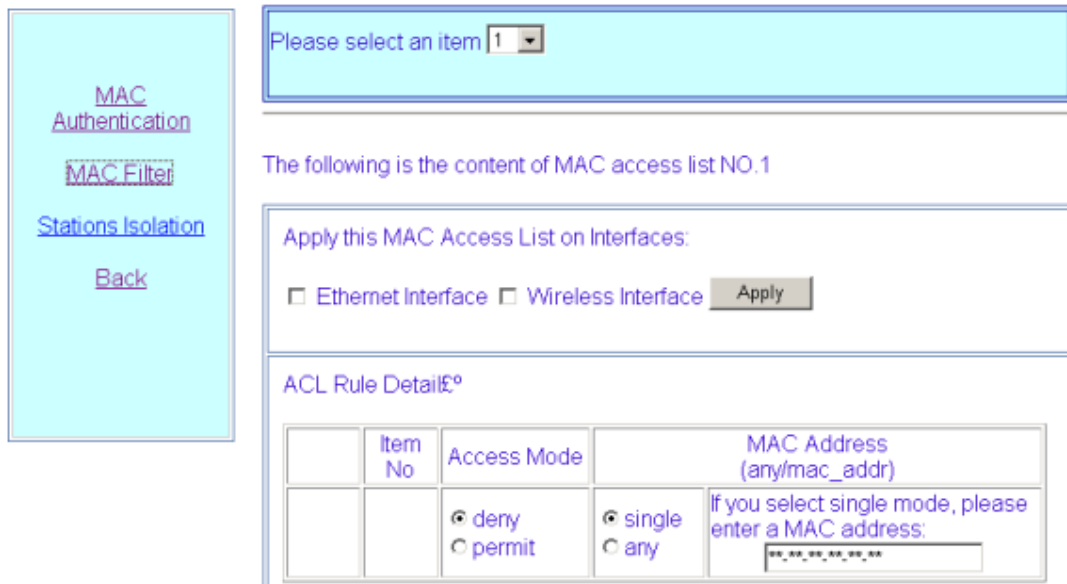


Fig. 6.3-14 MAC filter rule configuration page

This page is used to add or delete a certain filter rule and configure whether to apply the setting for certain interfaces. The parameters include filter mode and filter type.

6.3.6.3 Stations Isolation page

Click **Stations Isolation** in the **Security** menu to display the page as shown in Fig. 6.3-15.

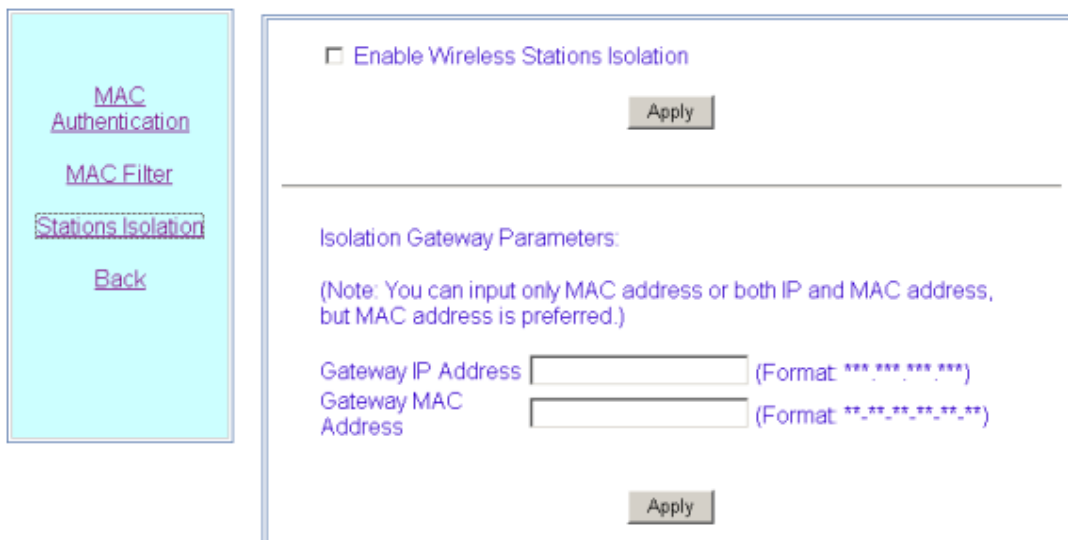


Fig. 6.3-15 Stations Isolation page

This page is used to enable wireless stations isolation and set the gateway IP address or MAC address for stations isolation. The parameters include Gateway IP Address and Gateway MAC Address.

6.3.7 Save page

Click **Save** in the main menu to display the page as shown in Fig. 6.3-16.

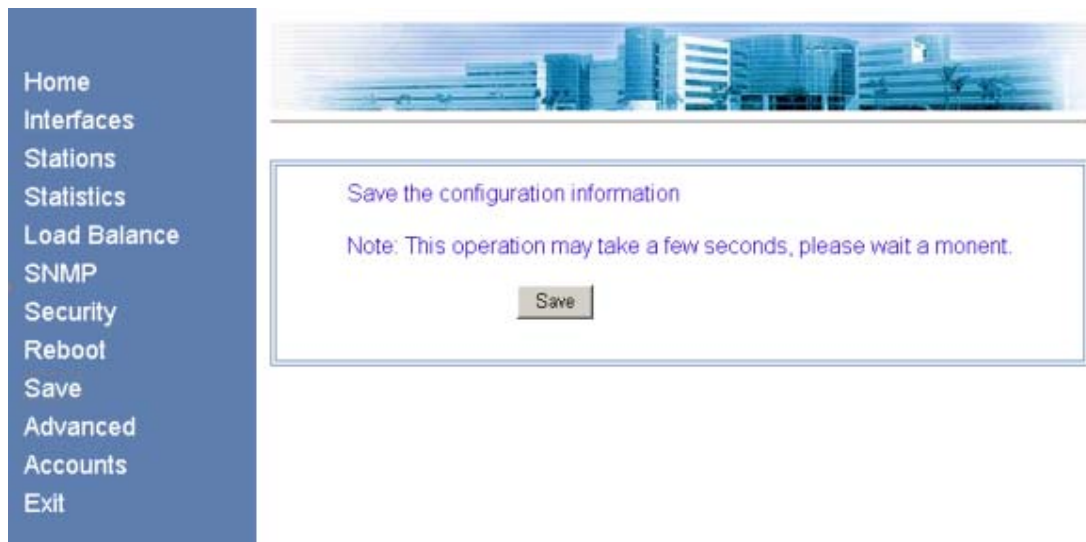


Fig. 6.3-16 Save page

This page is used to save the configured parameters in FLASH.

6.3.8 Reboot page

Click **Reboot** in the main menu to display the page as shown in Fig. 6.3-17.

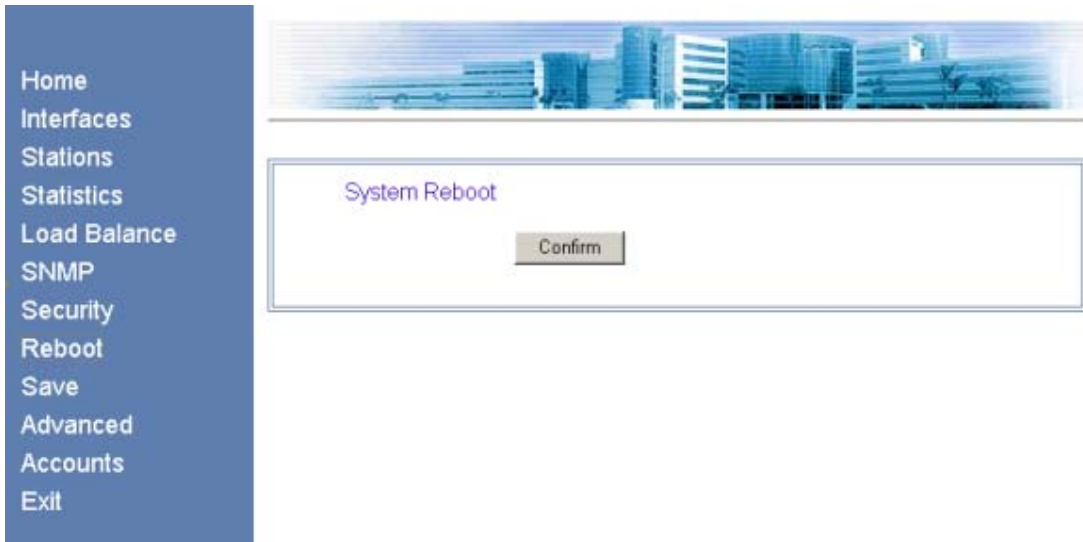


Fig. 6.3-17 Reboot page

This page is used to execute the reboot operation. This window will be closed after clicking the button.

6.3.9 Advanced options page

Click **Advanced** in the main menu to display the page as shown in Fig. 6.3-18.



Fig. 6.3-18 Submenu of advanced options configuration

On the left of this page is the submenu of the advanced options configuration: 802.1x, DHCP, IP Pool, RADIUS Server, VLAN and Back.

6.3.9.1 DHCP page

Click **DHCP** in the **Advanced** menu to display the page as shown in Fig. 6.3-19.

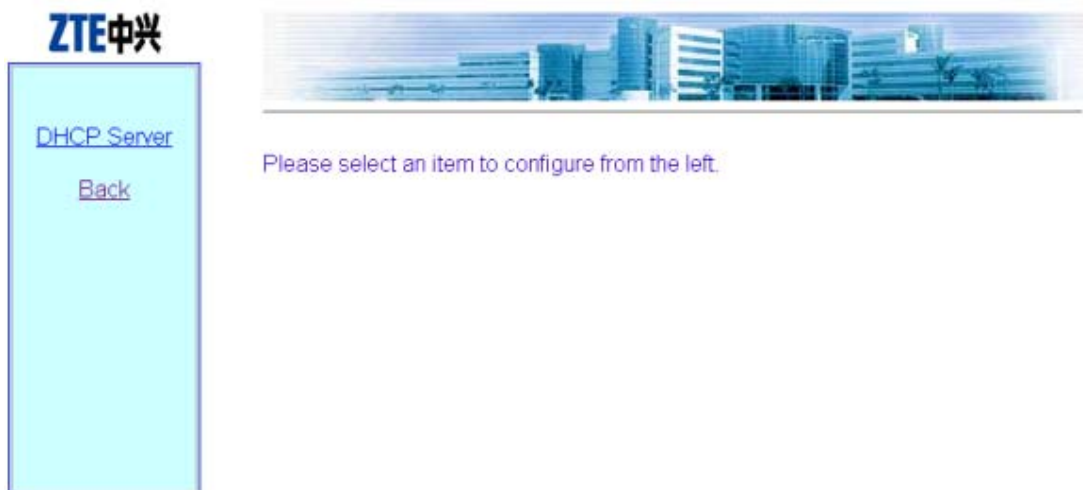


Fig. 6.3-19 Submenu of DHCP module

Click **DHCP Server** in the **DHCP** submenu to display the page as shown in Fig. 6.3-20.



Fig. 6.3-20 DHCP server configuration page

This page is used to configure the related parameters of the DHCP server: Primary DNS Server IP address, Secondary DNS Server IP Address, Default Gateway IP Address, and Lease time.

6.3.9.2 IP Pool page

Click **IP Pool** in the **Advanced** menu to display the page as shown in Fig. 6.3-21.

ID (0-9)	Begin IP (xxx.xxx.xxx.xxx)	End IP (xxx.xxx.xxx.xxx)	IP Mask (xxx.xxx.xxx.xxx)
0			

Add / Modify Delete

Fig. 6.3-21 IP pool page

This page is used to add, modify and delete IP pools. The parameters include ID, Begin IP, End Ip and IP Mask.

6.3.9.3 802.1x page

Click **802.1x** in the **Advanced** menu to display the page as shown in Fig. 6.3-22.

ZTE中兴

[802.11x](#)
[DHCP](#)
[IP Pool](#)
[RADIUS Server](#)
[VLAN](#)
[Back](#)

Enable 802.11x
 Enable Port Control

NAS-ID	ZXWLAN_AC	
SIM Domain	SIM	
MD5 Domain	USR	
Max Reauth Times	2	(0-10)
Max Request Times	1	(1-10)
Server Timeout	120	(Seconds: 1-255)
Supplicant Timeout	30	(Seconds: 1-255)
Quiet Period	1	(Seconds: 1-255)
Tx Period	40	(Seconds: 1-255)

Fig. 6.3-22 802.11x configuration page

This page is used to configure 802.11x authentication parameters, including two check boxes: Enable 802.11x and Enable Port Control, and some other parameters: NAS-ID, SIM Domain, MD5 Domain, Max Reauth Times, Max Request Times, Server Timeout, Supplicant Timeout, Quiet Period and Tx Period.

6.3.9.4 RADIUS Server page

Click **RADIUS Server** in the **Advanced** menu to display the page as shown in Fig. 6.3-23.

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[ISP](#)
[Authentication Server](#)
[Accounting Server](#)
[DNS Server](#)
[Back](#)

Please select an item to configure from the left.

Fig. 6.3-23 Submenu of RADIUS server configuration

The RADIUS configuration submenu includes: ISP, Authentication Server, Accounting Server, DNS Server and Back.

- ISP Page

Click **ISP** in the **RADIUS Server** menu to display the page as shown in Fig. 6.3-24.

	ISP Name (Up to 32 chars)	Timeout (Seconds: 1-65535)	Max Retransmissions (1-10)
	<input type="text"/>	<input type="text"/>	<input type="text"/>

Fig. 6.3-24 ISP configuration page

- Authentication Server page

Click **Authentication Server** in the **RADIUS Server** menu to display the page as shown in Fig. 6.3-25.

ISP Name	Master/Slave	IP Address (*** ***)	Port (0-65535)	Secret Key (Up to 255 chars)
<input type="text"/>	<input type="radio"/> Master <input checked="" type="radio"/> Slave	<input type="text"/>	<input type="text"/>	<input type="text"/>

Fig. 6.3-25 Authentication Server configuration page

- Accounting Server page

Click **Accounting Server** in the **RADIUS Server** menu to display the page as shown in Fig. 6.3-26.

ISP Name	Master/Slave	IP Address (*** ***)	Port (0-65535)	Secret Key (Up to 255 chars)
<input type="text"/>	<input type="radio"/> Master <input checked="" type="radio"/> Slave	<input type="text"/>	<input type="text"/>	<input type="text"/>

Fig. 6.3-26 Accounting Server configuration page

- DNS Server page

Click **DNS Server** in the **RADIUS Server** menu to display the page as shown in Fig. 6.3-27.



Fig. 6.3-27 DNS configuration page

6.3.9.5 VLAN page

Click **VLAN** in the **Advanced** menu to display the page as shown in Fig. 6.3-28.

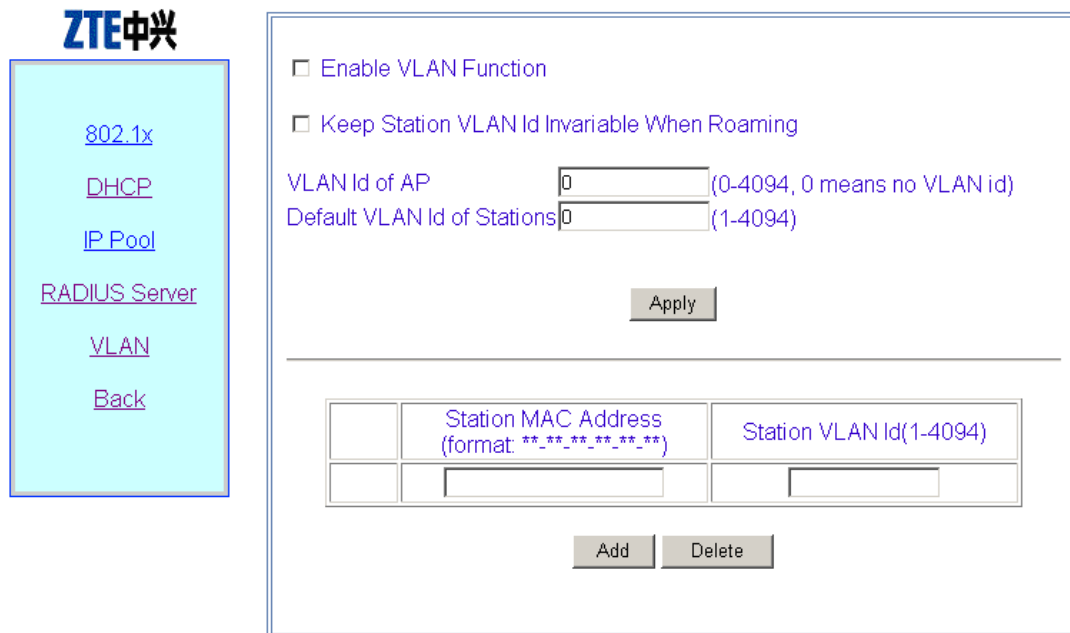


Fig. 6.3-28 VLAN configuration Page

This page serves to enable/disable the VLAN and configure its parameter.

6.3.10 Accounts page

Click **Accounts** in the main menu to display the page as shown in Fig. 6.3-29.

	Username (Up to 32 chars)	Password (Up to 32 chars)
<input type="checkbox"/>	root	*****
	<input type="text"/>	Password <input type="text"/>
		Confirm Password <input type="text"/>

Fig. 6.3-29 Account configuration page

This page is used to add, delete or modify an ordinary user name and password.

6.4 Interfaces page

Open the submenu page of interface configuration by clicking **Interfaces** in the main menu. The W140A product involves the configuration of Ethernet interface and Wireless interface.

[Ethernet Interface](#)

[Wireless Interface](#)

[Back](#)

Please select an item to configure from the left.

Fig. 6.4-1 Submenu for interface configuration

6.4.1 Ethernet Interface page

Click **Ethernet Interface** in Fig. 6.4-1 to open the submenu for Ethernet interface configuration, as shown in Fig. 6.4-2.



Fig. 6.4-2 Submenu for Ethernet interface configuration

On the left of this page is the submenu for Ethernet interface configuration: IP Address.

6.4.1.1 IP Address page

Click **IP Address** in the **Ethernet Interface** submenu to display the page as shown in Fig. 6.4-3.



Fig. 6.4-3 IP address configuration page of Ethernet interface

This page is used to add or delete the IP address of the Ethernet interface module. The parameters include IP Address, IP Mask and Master/Slave.

6.4.2 Wireless Interface page

Click **Wireless Interface** in Fig. 6.4-1 to open the submenu for wireless interface configuration, as shown in Fig. 6.4-4.



Fig. 6.4-4 Submenu for wireless interface configuration

On the left is the submenu for wireless interface configuration: 802.11b, WEP, Link Integrity and Back.

6.4.2.1 802.11b page

Click **802.11b** in the **Wireless Interface** submenu to display the page as shown in Fig. 6.4-5.

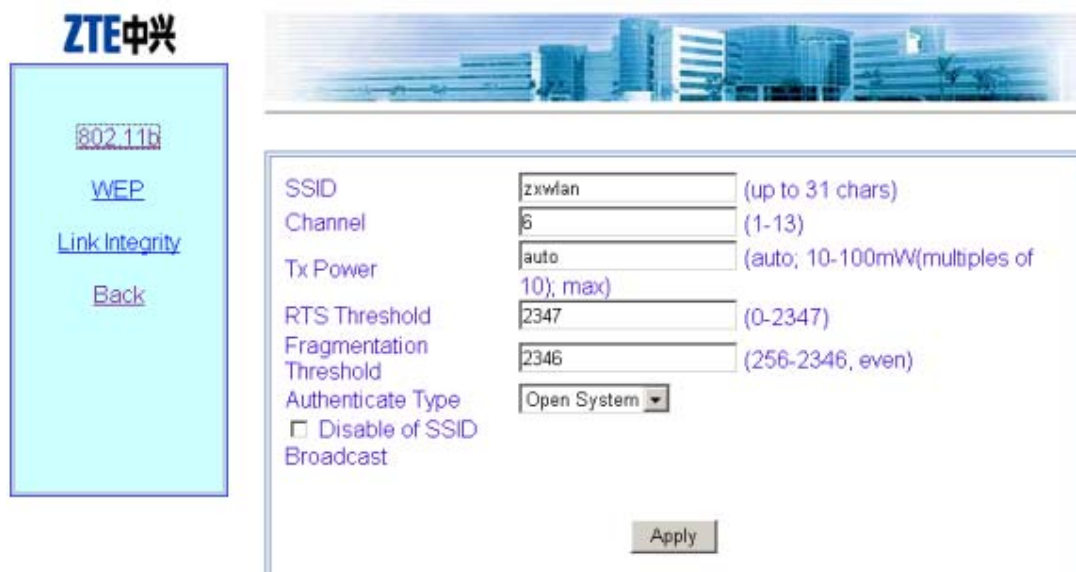


Fig. 6.4-5 802.11b parameter configuration page of wireless interface

This page is used to configure the 802.11b parameters of the wireless interface module. The parameters include SSID, Channel, Tx Power, RTS Threshold, Fragmentation Threshold, Authentication Type, and the check box “Disable SSID Broadcast”.

6.4.2.2 WEP page

Click **WEP** in the **Wireless Interface** submenu to display the page as shown in Fig. 6.4-6.

The screenshot shows the WEP configuration page. On the left is a sidebar with the ZTE logo and navigation links: [802.11b](#), [WEP](#), [Link Integrity](#), and [Back](#). The main content area features a dropdown menu currently set to 'disable'. Below this is the 'WEP Key Format' section with two radio button options: 'Alphanumeric' and 'Hexadecimal'. Under 'Alphanumeric', it specifies 'wep64/mix-wep64: 5 characters' and 'wep128/mix-wep128: 13 characters'. Under 'Hexadecimal', it specifies 'wep64/mix-wep64: 10 hexadecimal digits(0-9, a-f/A-F)' and 'wep128/mix-wep128: 26 hexadecimal digits(0-9, a-f/A-F)'. At the bottom, there is a table with the following structure:

WEP Key	
<input type="radio"/>	<input type="text"/>
<input type="radio"/>	<input type="text"/>
<input type="radio"/>	<input type="text"/>
<input type="radio"/>	<input type="text"/>

Fig. 6.4-6 WEP configuration page of wireless interface

This page is used to configure the WEP parameters of the wireless interface module. The parameters include WEP mode, WEP value and WEP keyword.

6.4.2.3 Link Integrity page

Click **Link Integrity** in the **Wireless Interface** submenu to display the page as shown in Fig. 6.4-7.



Fig. 6.4-7 Link integrity configuration page of wireless interface

This page is used to configure the link integrity parameters of the wireless interface module. The parameter includes the check box “Enable Link Integrity”.

6.5 Data submission flow for WEB configuration

When you open a certain WEB configuration page and enter parameters in the corresponding text boxes, you can click “Submit” to immediately proceed to the next page. If you submit data for the first time after login, a page will pop up for you to enter the password of privileged user, as shown in Fig. 6.5-1. If you have already submitted data with correct password, the system will skip this page and directly proceed to the next page to prompt you whether the data have been submitted successfully when you submit data again.

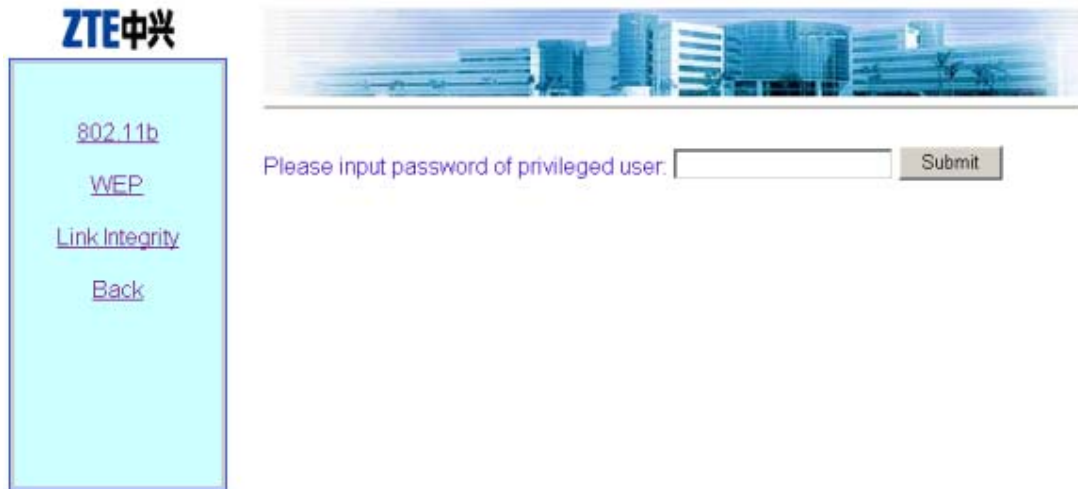


Fig. 6.5-1 The page for entering the password of privileged user

If the entered password is incorrect, a message will pop up, prompting you that the password is incorrect, as shown in Fig. 6.5-2. You can click “Back” to reselect page connection.

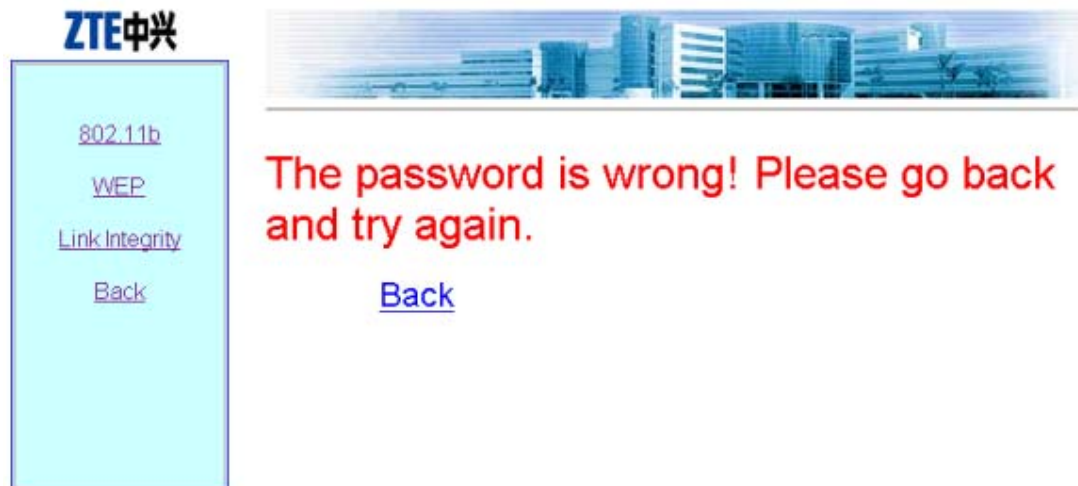


Fig. 6.5-2 The page indicating that the privileged user password is incorrect

If the entered password of the privileged user is correct, the system will resolve the entered data and judge whether the format and range are correct. Then, depending on whether the setting is successful, a corresponding prompting message will be returned, as shown in Fig. 6.5-3 (successful setting), and Fig. 6.5-4 (Failure in setting). You can

click “Back” to return to the WEB page before submission, and the displayed data are the submitted new parameters.

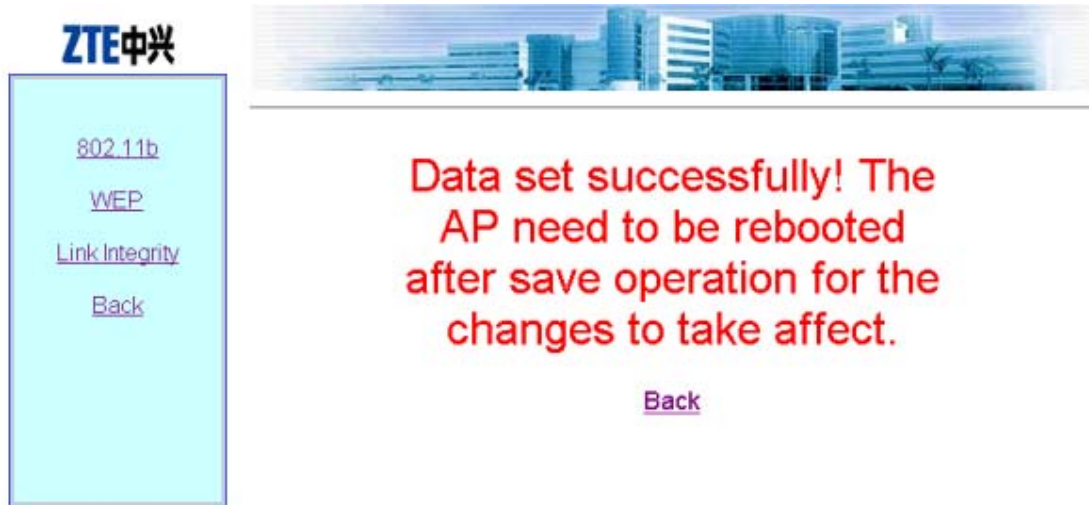


Fig. 6.5-3 A message indicating successful data submission



Fig. 6.5-4 A message indicating failure in data submission

7 Maintenance

This chapter introduces the daily maintenance work of the W140A and the loading and upgrade of the version

7.1 Maintenance Descriptions

To guarantee the normal and stable running of the equipment, please pay attention to the following suggestions and make the daily maintenance according to the daily maintenance operation instructions.

1. Keep the equipment room clean and neat, take dustproof and dampproof measures and prevent rats and insects from damaging the cables and other devices.
2. According to related contents of the daily maintenance operation instructions, make routine checks and test every day and make records.
3. Contact the local ZTE office at once when you cannot handle the problems. Handle any emergency calmly.
4. Handle major faults, such as breakdown, according to the major fault handling procedure and contact the local ZTE office immediately.
5. Never reset and load the devices or change data, unless necessary. Back up the data before modifying the data (if necessary). After the running of the device with changed data is confirmed normal, backup the new data. Be sure to separate the new data from the old data. Delete the old data after confirming that everything is OK one week later.
6. Please paste the necessary contact information, such as the phone number and fax number of the local ZTE office, on a conspicuous place of the equipment room, and make sure that all the personnel in the equipment room know this information.

7.2 Daily Maintenance

The running conditions of the device can be detected through the following operations:

1. From the Ethernet switch, PING the management port addresses of all the APs of this switch, to check whether the AP wired ports work normally.
2. For the hot spots adopting the DHCP mode, check whether the legal users can obtain such parameters as IP address, gateway and DNS.
3. Check whether the exit route between the user and Internet is smooth.
4. With the wireless network card, in the AP signal coverage ranges, observe the signal strength and link quality of different areas, PING the gateway IP address, observe packet losses, and check whether Internet access is normal.
5. Make roaming and handover operations in different AP signal coverage ranges, and observe packet losses when pinging the gateway IP addresses, and check whether Internet accesses are normal.

7.3 Version Loading and Upgrade

Before delivering the W140A, the file set and graphical file set of the running version have been loaded into the W140A flash.

The running version file set comprises the following files:

Runbin	Running software
Database.dat	Database file
Zxipcmd.dat	Command script file
Tf010102.hex	Wireless network adapter third party firmware file
Th010000.hex	Wireless network adapter third party firmware file

There may be two wireless network adapter third party firmware files, but W140A needs only one of them.

The graphical file set is the graph library of the WEB configuration page.

TFTP online loading is used for version loading. With TFTP online loading, the running version file and graphical file sets can be loaded.

7.3.1 TFTP File Loading Commands

Through the Telnet client, log on to the W140A and enter the configure mode, execute the tftp command to load the required file.

1. Load the running version file

Command format: `tftp get A.B.C.D file-name`

Description: *A.B.C.D* is the TFTP host address, *file-name* is the file to be loaded, such as files runbin, database.dat, zxipcmd.dat, tf010102.hex and th010000.hex.

```
wlan (config)#tftp get 168.1.15.204 database.dat
tftp fetch of database.dat from host 168.1.15.204 (168.1.15.204) started
wlan (config)#Have receive 10240 BYTE:7%
Have receive 20480 BYTE:14%
Have receive 30720 BYTE:21%
Have receive 40960 BYTE:29%
Have receive 51200 BYTE:36%
Have receive 61440 BYTE:43%
Have receive 71680 BYTE:50%
Have receive 81920 BYTE:58%
Have receive 92160 BYTE:65%
Have receive 102400 BYTE:72%
Have receive 112640 BYTE:80%
Have receive 122880 BYTE:87%
Have receive 133120 BYTE:94%
%get file successful!!

Done with tftp get of database.dat
wlan (config)#tftp get 168.1.15.204 ?
runbin
tf010102.hex
th010000.hex
zxipcmd.dat
database.dat
wlan (config)#
```

2. Load the graphical file set.

Command format: `tftp pic A.B.C.D`

Description: *A.B.C.D* is the TFTP host address.

```
wlan (config)#tftp pic 168.1.15.204
tftp fetch of zte.gif from host 168.1.15.204 (168.1.15.204) started
wlan (config)#% get file successful!

Done with tftp get of zte.gif
wlan (config)#tftp fetch of back.gif from host 168.1.15.204
(168.1.15.204) started
% get file successful!

Done with tftp get of back.gif
wlan (config)#tftp fetch of login33.jpg from host 168.1.15.204
(168.1.15.204) started
% get file successful!

Done with tftp get of login33.jpg
wlan (config)#tftp fetch of login23.jpg from host 168.1.15.204
(168.1.15.204) started
% get file successful!

Done with tftp get of login23.jpg
(Omitted)
wlan (config)#
```

Appendix A Package, Transportation and Storage

It describes the packing methods, storage conditions and transportation precautions. It serves as a guide to the transportation, unpacking, installation and relocation of the equipment.

A.1 Package

The following parts are included in the package of the ZXB10-S300:

1. For details about W140A and its fittings, see **Error! Reference source not found. Error! Reference source not found.**
2. A set of delivery attached documents
3. A warranty card
4. A quality certificate

Outside each package, there are obvious marks indicating the model, product name, placement direction, warnings against moisture, water and breakage. Avoid damages, confusion and mismatching while storing and transporting the equipment.

A.2 Transportation

Operate according to the transportation marks on the containers.

When loaded, the heavier or bigger containers are arranged at the bottom. The barycenter height should be less than 2m. Containers are piled up orderly and securely. The loading weight shall not exceed the allowed loading capacity.

When loading the equipment onto the vehicle, the requirements for the height of the goods in transportation must be followed. Keep the package flat and straight in the truck.

During transportation, the speed of the truck should be kept within 25 km/h ~ 45 km/h based on the actual road conditions.

Never load the flammables, explosives and corrosives in the same truck.

Rain-proof, dustproof, sunproof and impact-proof measures are necessary in the equipment transportation. For the open truck transportation, cover the goods with tarpaulin.

During transportation, use vans.

Trailers or other vehicles loaded with the communication equipment can be carried by open wagons during rail transportation.

If some equipment is damaged in the transportation or handling, notify the relevant department in time for handling.

Ensure personal safety during transportation. Assign skilled workers. Work collaboratively in accordance with relevant regulations during while handling the product. Prevent the goods from being crushed or falling down. Take care not to remove or erase product identifiers and relevant inspection and test labels.

Precision instrument and meters, equipment and computer shall be delivered and stored according to the anti-damp, anti-shock and anti-pressing labels in the packing box. Take care not to put them upside down.

A.3 Storage

1. All the storage sites must be clean, well-organized, well-ventilated and dry, and equipped with the air-conditioning and lighting facilities. The temperature and humidity should be adjusted according to the product requirements. The goods should be kept away from direct sunshine or other heat sources. The windows and curtains should not be opened without permission. The daily record should be maintained for the indoor temperature and humidity. The corresponding anti-static measures are necessary for the static-sensitive products.
2. Goods are arranged in order. Shelves have no dust. Containers are in order. Sections are labeled with cards.
3. Complete, clear and real records are required during the storage, which can be managed via PC or account book. Goods location codes and necessary marks are required in the storage.

4. The products in storage should be checked regularly. If any product has expired, oxidized or got damp, report to the leader in charge for handling. The inventory should be made once a month to make sure the account, goods and cards are consistent.
5. Anti-static floor should be installed at the entrance to the warehouses.
6. Materials in all the warehouses should be “First-in-first-out”. The one that is entered first should be delivered first.
7. For the products stored over six months in the warehouse, open the packing container, and connect it to power supply over two hours, then restore the original package and storage.

Appendix B Making of Ethernet Cable

It introduces the power supply mode of W140A Ethernet and making of Ethernet cables.

B.1 W140A System Application Modes

W140As are generally installed outdoors, as on roofs and special poles. The installation environment is complicated, AC power is unsuitable, so Ethernet power supply (PoE) is used. The system application mode is shown in Figure B.1-1.

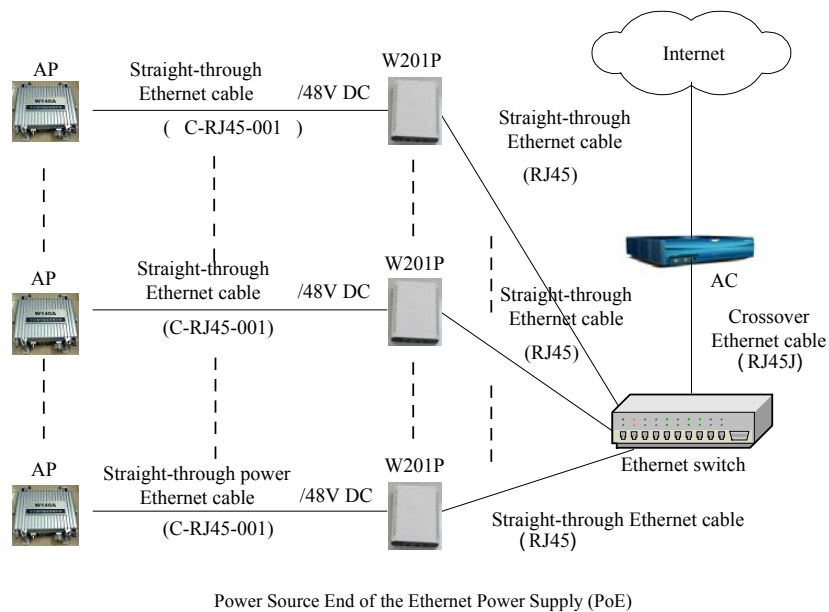


Figure B.1-1 W140A System Application

In Figure B.1-1, Ethernet cables are: straight through Ethernet cable, straight through Ethernet power cable and crossover Ethernet cable. In practical applications, AP and AC may come from different producers, so the network cables should be determined according to the detailed configurations.

According to the Ethernet specifications, 100 Base-T Ethernet features less than 100m transmission distance and 10 Base-T Ethernet features not greater than 300m

transmission distance. So, in the wireless LAN system, no matter whether Ethernet power supply is adopted, when the total wiring length (L) between the AP and Ethernet switch is greater than 100m (less than 300m), it is suggested to configure the Ethernet switch port as 100 M.

B.2 Making of Ethernet Cables

B.2.1 Making of Straight Through Ethernet Cables (RJ45)

In IP wireless access system, the following network cables must adopt the straight through Ethernet cables:

1. The Ethernet cable between the Ethernet switch (end A) and W201P (end B).
2. If no switch is used, the AC downlink port is directly connected to W201P, and the Ethernet cable between AC (end A) and W201P (end B) is a straight through Ethernet cable.

The connections of the straight through Ethernet cables are shown in Table B.2-1.

Table B.2-1 Connections of Straight Through Ethernet Cables (RJ45)

End A	Signal Name	Conductor Color	End B	Signal Name	Conductor Color
1	Data receiving Rx+	White/orange	1	Data transmitting Tx+	White/orange
2	Data receiving Rx-	Orange	2	Data transmitting Tx-	Orange
3	Data transmitting Tx+	White/green	3	Data receiving Rx+	White/green
4	MATCH1	Blue	4	MATCH1	Blue
5	MATCH2	White/blue	5	MATCH2	White/blue
6	Data transmitting Tx-	Green	6	Data receiving Rx-	Green
7	MATCH3	White/brown	7	MATCH3	White/brown
8	MATCH4	Brown	8	MATCH4	Brown

B.2.2 Making of Straight Through Power Supply Ethernet Cables (C-RJ45-001)

The Ethernet cable between the W201P (end A) and AP (end B) not only serves as the Ethernet data signal cable, but also provides -48V DC power for two twisted pairs 4&5 and 7&8 on the load balance, to power AP remotely.

The connection method of this cable is the same as that of the straight through cable without power supply, and the connection table is shown in Table B.2-2.

Table B.2-2 Connections of Straight Through Power Supply Ethernet Cables (C-RJ45-001)

End A	Signal Name	Conductor Color	End B	Signal Name	Conductor Color
1	Data receiving Rx+	White/orange	1	Data transmitting Tx+	White/orange
2	Data receiving Rx-	Orange	2	Data transmitting Tx-	Orange
3	Data transmitting Tx+	White/green	3	Data receiving Rx+	White/green
4	GND	Blue	4	GND	Blue
5	GND	White/blue	5	GND	White/blue
6	Data transmitting Tx-	Green	6	Data receiving Rx-	Green
7	-48V	White/brown	7	-48V	White/brown
8	-48V	Brown	8	-48V	Brown

**Note:**

These cables are with -48 V DC power supply, so make sure to prevent short circuits, otherwise, the signal will be interrupted and the equipment may not work normally, and even the equipment protection action will be activated. GND and -48 V each occupy one twisted pair. These twisted pairs should be separate, otherwise short circuit may occur.

B.2.3 Making of Crossover Ethernet Cables (RJ45J)

The connections of the crossover Ethernet cables are shown in Table B.2-3.

Table B.2-3 Connections of Crossover Ethernet Cables (RJ45J)

End A	Signal Name	Conductor Color	End B	Signal Name	Conductor Color
1	Data receiving Rx+	White/orange	3	Data transmitting Tx+	White/green
2	Data receiving Rx-	Orange	6	Data transmitting Tx-	Green
3	Data transmitting Tx+	White/green	1	Data receiving Rx+	White/orange
4	MATCH1	Blue	4	MATCH1	Blue
5	MATCH2	White/blue	5	MATCH2	White/blue
6	Data transmitting Tx-	Green	2	Data receiving Rx-	Orange
7	MATCH3	White/brown	7	MATCH3	White/brown
8	MATCH4	Brown	8	MATCH4	Brown

**Note:**

The signals and connection methods mentioned here are designed according to the signal definitions of the ZTE AC equipment interface. If the AC in the actual engineering is not from ZTE, modify the cable making methods according to the actual conditions.

B.2.4 Ethernet Cable Label

After the Ethernet cable is crimped, paste labels on ends A and B of the network cable, indicating name and length of this cable.

1. Label of the straight through Ethernet cable

The label of the straight through Ethernet cable (RJ45) is shown in Figure B.2-1.

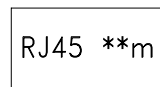


Figure B.2-1 Straight through Ethernet label

In the diagram, “**m” indicates the actual length of the cable.

2. Label of the straight through power supply Ethernet cable

The label of the straight through power supply Ethernet cable (C-RJ45-001) is shown in Figure B.2-2.

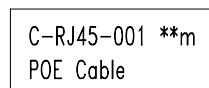


Figure B.2-2 Label of the Straight Through Power Supply Ethernet Cable

In the diagram, “**m” indicates the actual length of the cable; “PoE Cable” indicates that this is the Ethernet power cable.

3. Label of the Crossover Ethernet Cable

The label of the crossover Ethernet cable (RJ45J) is shown in Figure B.2-3.



Figure B.2-3 Crossover Ethernet Cable Label

In the diagram, “**m” indicates the actual length of the cable; “J” after “RJ45” indicates that this is the crossover Ethernet cable.

Warning:

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment. Any change to the equipment will void FCC grant.

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 or more 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.

