



Rainbow 2LW IP Phone User Manual

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Contact ATCOM

Overview of ATCOM

ATCOM is the leading VoIP hardware manufacturer in global market. We have been keeping innovating with customer's needs oriented , working with partners to establish a total solution for SMB VoIP with IP phone , IP PBX and Asterisk cards

With over 10 years' experience of R&D , manufacturing and service in network and VoIP filed ; mission of creating the biggest value for IP terminals , we commit ourselves in supplying the competitive IP phone and other terminals for IP PBX , softswitch , IMS , NGN providers and carriers; supplying the competitive total VoIP solution for SMB market. We keep improving the customer's experience and creating the bigger value with our reliable products. Until now, our VoIP products have been available in 100+ countries and used by millions of end users.

Contact Sales

Address	Area C, A2F , Block 3 ,Huangguan Technology Park , #21 Tairan 9th Rd, Chegongmiao , Futian District , Shenzhen China
Tel	+ (86) 755-83018618-8806
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Website Address: <http://www.atcom.cn/>

Download Center: <http://www.atcom.cn/download.html>

1. Overview of Rainbow 2LW



Rainbow 2LW



Rainbow 2LW with Rainbow E

Type	POE	Wi-Fi
Rainbow 2LW	No	Yes

1.1 Interfaces

- Power input: DC 5V, 1000mA (DC 5V, 2000mA when with Rainbow E)
- LAN: RJ45 port
- PC: RJ45 port
- EXPAN: RJ45 port
- Headset jack 1 : RJ9 port
- Handset jack 1 : RJ9 port

1.2 Hardware

- LCD: 224×128 4-gray scale
- FLASH: 16M
- RAM: 32M
- CPU: 262MHz Dual Core
- LED indicator: 1 Status Light , 4 line indicators, 8 BLF indicators, 1 voicemail indicator, 1 headset indicator, 1 mute indicator
- Rainbow E expansion module: 16 programmable keys on each Rainbow E, can connect up to 5 Rainbow E on a Rainbow 2LW.

1.3 Software

- Sip 2.0 (RFC3261) and other related SIP RFCs
- 4 SIP lines registration with 8 concurrent calls
- STUN
- Jitter Buffer, VAD,CNG
- G.711A/u, G.722, G.723, G.729ab, G.726-16, G.726-24, AVT, G.726-32, G.726-40, Lin16-16, iLBC
- Echo Cancellation
- SIP Domain name, Authentication
- DTMF(Inband, RFC2833, SIP INFO)
- Call transfer, Call forward, 3-way conference, Call hold, Call back
- DND(Do Not Disturb), Auto answer, Blacklists, Block Call-ID, Block Anonymous call, Dial plan, IP call
- Phone book with 200 records, 200 answered calls, 200 missed calls, 200 dialed calls
- Auto update via HTTP, FTP, TFTP, PNP
- Syslog
- SNTP
- WEB access with different login level

- Multi-language: English, Chinese, Farsi, French, German, Hebrew, Italian, Portuguese, Russian, Spanish, Turkish
- Soft button: soft button * 4
- BLF
- Redundancy SIP server

1.4 Network

- LAN/PC: Support bridge mode
- Support PPPoE (ADSL, cable modem used for Internet connecting)
- Support VLAN
- Support L2TP VPN
- LAN support Primary and Secondary DNS
- LAN support DHCP Client
- Support QoS

1.5 Management and Maintenance

- Support safe mode and firmware updating under safe mode
- Support different level user management
- Configuration via web , keyboard
- Support multi-language
- Firmware and configuration file auto provision
- Support system log and call log

1.6 Protocol

- IEEE 802.3 /802.3 u 10 Base T / 100Base TX
- PPPoE: PPP over Ethernet
- DHCP: Dynamic Host Configuration Protocol
- SIP RFC3261, RFC3262, RFC3263, RFC3264, RFC3265, RFC2543, RFC3489, RFC3842, RFC3515, RFC2976, RFC3428, RFC2327, RFC2782, RFC1889
- TCP/IP: Transfer Control Protocol/Internet Protocol
- RTP: Real-time Transport Protocol
- RTCP: RTP Control Protocol
- DNS: Domain Name Server
- TFTP: Trivial File Transfer Protocol
- HTTP: Hypertext Transfer Protocol
- FTP: File Transfer Protocol

1.7 Compliant and Certified Standard

- CE: AGC01180140201E2, AGC01180140202E2
- Comply with ROHS in EU
- Comply with ROHS in China



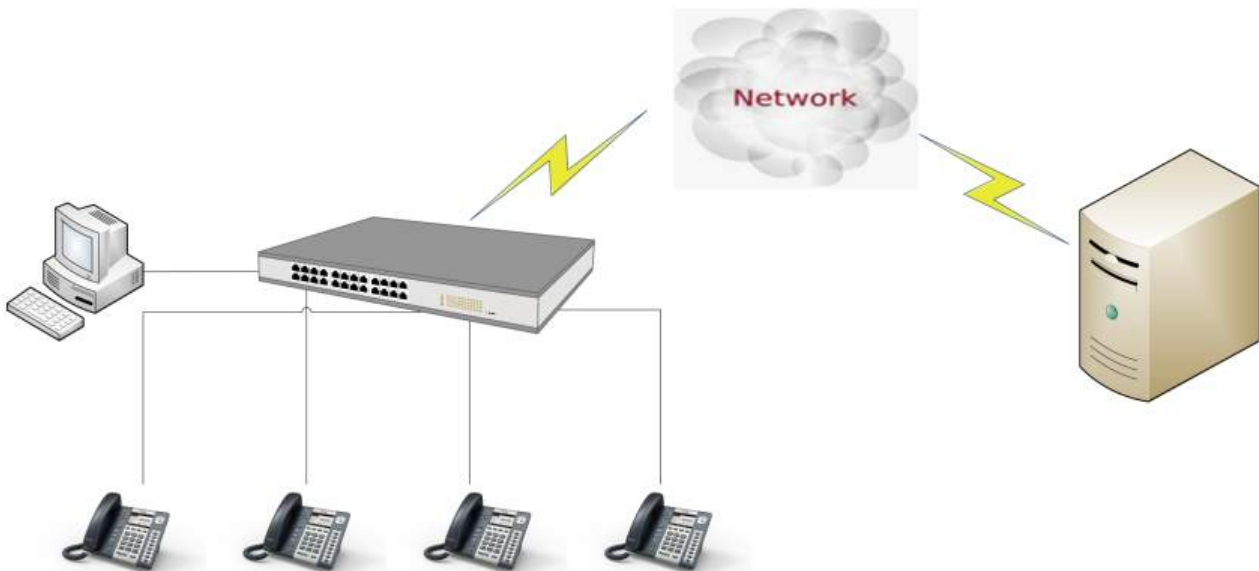
- Operation temperature: lower than 60° C
- Storage temperature: lower than 60° C
- Humidity: 10 to 90% no dew

1.8 Packing List


Model	Phone	Power adapter	Handset	Handset line	Stand bracket	Ethernet Cable	User Manual CD	Rainbow E
Rainbow 2LW	1	1, optional accessories	1	1	1	1, 1.5m	1	1, optional accessories

Note: Power adapter, Input: AC 100~240V, 50/60Hz; Output: 5V,1000/2000mA

1.9 Installation



Rainbow 2LW can connect to network with cable and Wi-Fi, you should connect LAN port to PC with Ethernet cable when connect with cable, or a switch/router which is in the same network as your PC. It uses

DHCP mode by default, and you can review its current IP address by pressing  key on idle state. To access the web interface, you can input the IP address in browser, e.g., Firefox. Type the phone's IP address in the browser to access its webpage. There are two login levels: User and Admin.

English admin

atcom Basic Network Account Phone Update Phonebook Call Log

Status

Wizard

Product

Name:	Rainbow2	Protocol:	SIP
Firmware Version:	1.6.3.21635	Hardware Version:	0
Mac Address:	80:82:87:01:86:56	Serial Number:	R2X140100036

No password is set under factory settings. You can click admin button on the top right corner of the webpage to switch from the user to admin mode. To set the password for user and admin login you can firstly login as admin and enter the Network--->Advance page as following.

English user

atcom Basic Network SIP Account Phone Update Phonebook Call Log

Basic

Advanced

Web Server

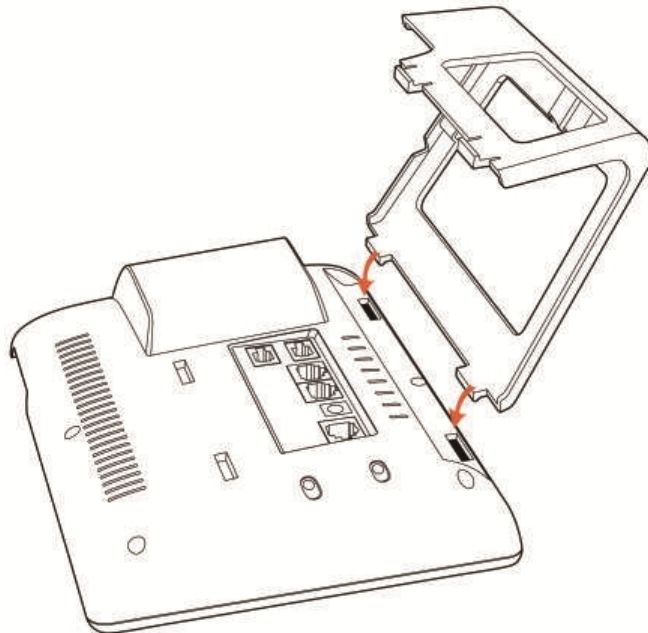
Enable Web Server: Yes

Admin Password: User Password:

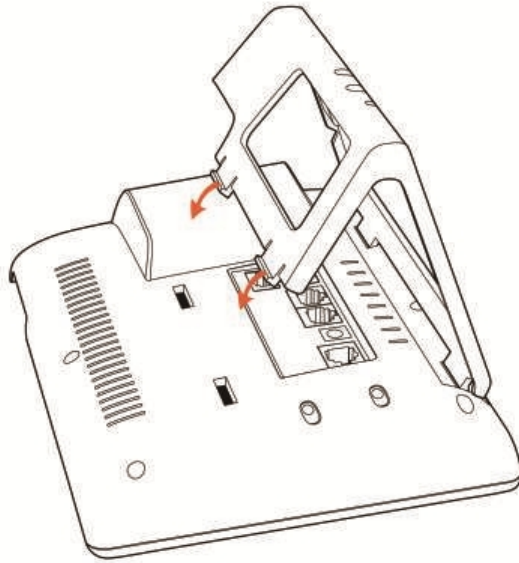
HTTP Port: 80

Stand bracket installation instruction

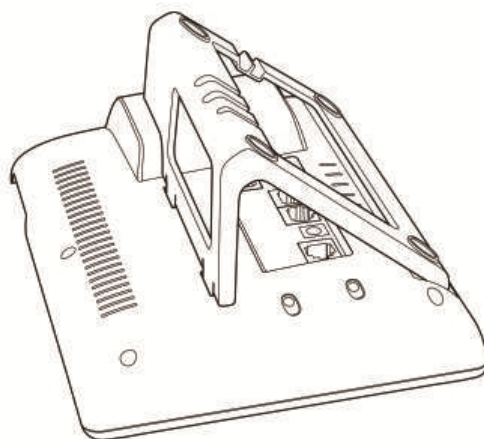
A. Put the bottom side of the IP phone upside and press one-side joints of stand bracket into the slot, please refer the picture as below:



B. Press the other side joints into the slot according to the direction of the arrow:

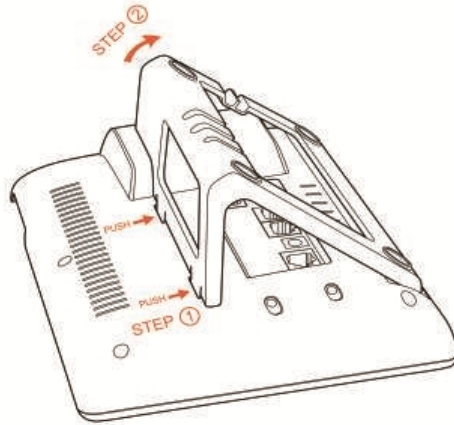


C. It is the right picture after fixing the stand bracket below:

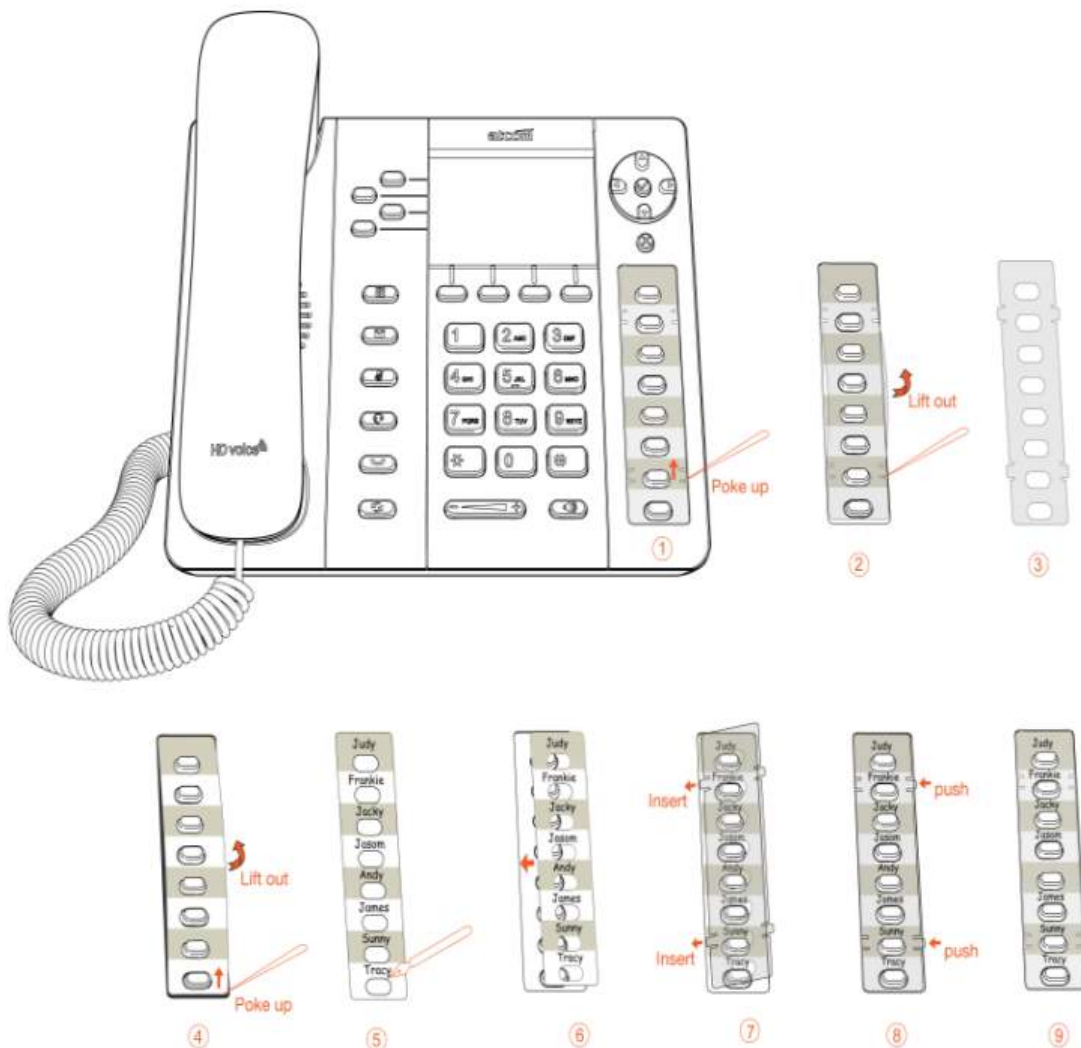


D. Disassemble the stand bracket:

Push the spring joint of stand and pull the stand according to the direction of the arrow. When the joints are pulled out of the slot, you can take off the stand bracket



Programmable keys' paster using instruction



Step1. Use needle or some other tools to insert into the hole of the plastic sheet, hog the plastic sheet.

Step2. Lift out the plastic sheet

Step3. Take off the plastic sheet

Step4. Use needle or some other tools to insert into the edge of the paster, hog and lift out the paster

Step5. Write down the identification of each programmable key on the paster after taking off the paster

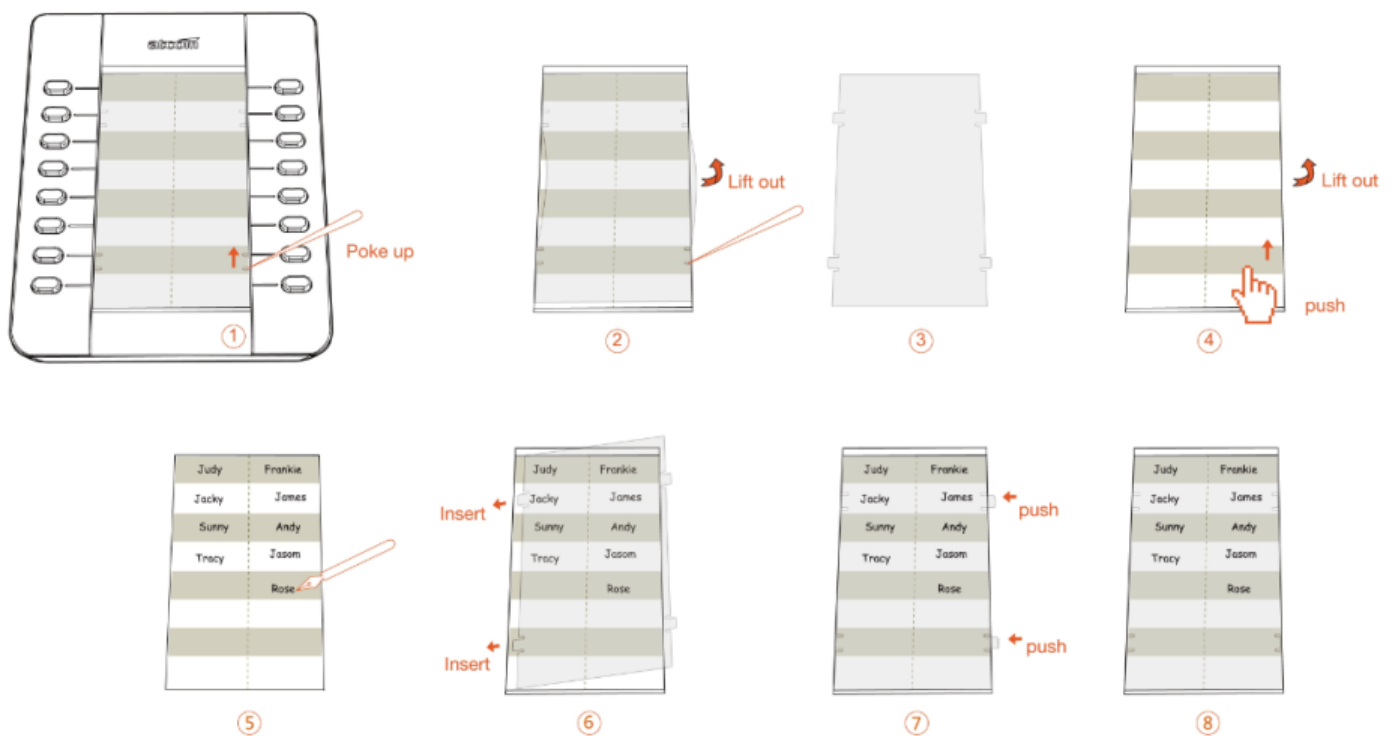
Step6. Put back the paster

Step7. Insert the plastic sheet into the slot

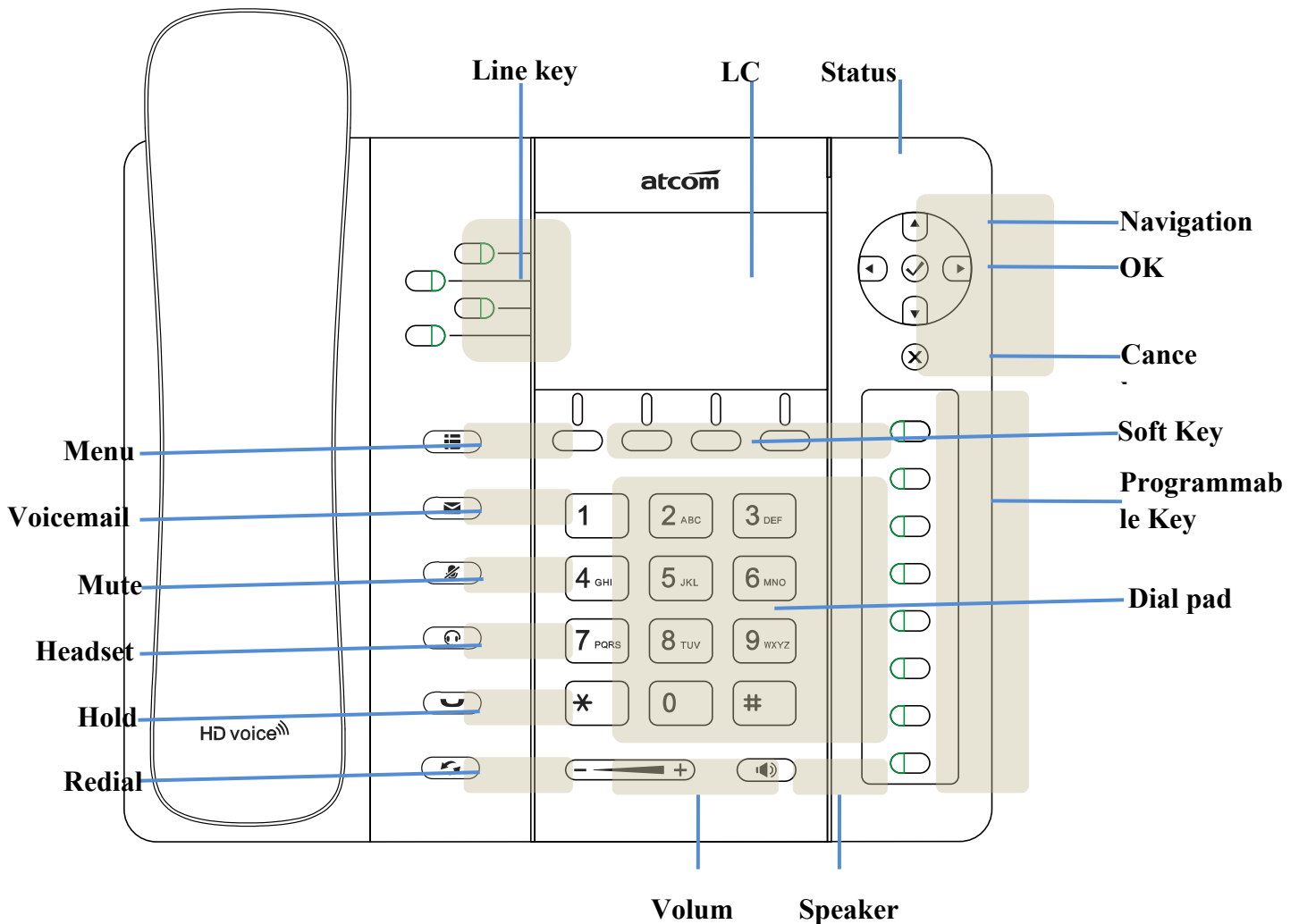
Step8. Push the other side of the plastic sheet into the other slot

Rainbow E's paster using instruction




Steps to use Rainbow E's paster are the same as programmable keys' as below:









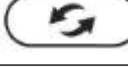


2. Keypad of IP Phone



2.1 Describe of the buttons and Screen

Soft Keys	Press to select a function which displayed at the softkey zone of screen Display all optional functions at the last line of LCD screen.
Status Indicator	Indicates the phone's status.
LCD Screen	All information such as date, time, phone number, incoming caller's ID(if available),line/call status, extension numbers and the soft key features are displayed on it.
Line Key	Shows extension number and status.
Navigation keys	Allow users to navigate (left, right, up, down). Press  can enter "Directory". Press  can enter "History".
Dial pad	Entering numbers or characters.
Programmable Keys	All the programmable keys can be defined as BLF key, Redial key etc.
	Adjust the volume (speaker/headset/headset/ring). Volume level will be

	displayed on LCD when pressing volume key.
	Confirm users' operation and show status when Rainbow 2LW is idle.
	Cancel users' operation.
	Enter menu settings.
	Pick up and hung up under the speaker mode, the LED of the button is lighted when speaker on.
	Mute the mic in a conversation by pressing the Mute button; this prevents the person on the active call from hearing what you or someone else in the room is saying. If the call is muted, the mute LED is lighted in red. To un-mute, press the Mute button again.
	Pick up and hung up under headset mode. The LED button will be lighted when talking in headset mode.
	Check the Voicemail status. The LED button will be lighted when there is a new message.
	Hold the current call.
	Redial the last dialed number.

2.2 Line keys LED

LED Status	Description
Off	The line is idle or disabled for register
Blink quickly in green	The line has incoming call
Green	The line is talking
Blink quickly in red	The line is held

2.3 Status Indicator

LED Status	Description
On	Rainbow 2LW is being started
Off	Rainbow 2LW is standby
Blink in red at 120ms on, 120ms off	There is incoming call














2.4 Programmable keys LED

LED Status	Description
Off	The monitored account is unregistered
Green	The monitored account is idle
Red	The monitored account is talking
Fast blink in red	The monitored account is ringing

When powering on, all LEDs will be lighted once.

When there is an incoming call, the corresponding line LED and status LED will be blinking.

2.5 LCD screen icons



Icon	Description
	The extension is registered
	The extension is unregistered
	There is a new voice mail
	Rainbow 2LW is dialing
	Rainbow 2LW is talking
	Rainbow 2LW is calling
	There is an incoming call
	The call is held
	Rainbow 2LW is in speaker mode
	Rainbow 2LW is in handset mode
	Rainbow 2LW is in headset mode
	Rainbow 2LW is in conference
	Connect to Wi-Fi successfully, ×means failed, and ? means connecting

3. Basic functions and operations




3.1 Answer the calls

When there is an incoming call, phone will remind user with ringing. There are 3 ways to answer the call:




A. Answer by handset

Pick up the handset and talk with the caller. If you want to hang up, just put back the handset. When you are talking with the handset and want to switch to speaker or headset mode, please press  key or  key, and then put down the handset.

B. Answer by speaker

Press  key and talk with callers by built-in Micro-phon and Speaker. If you want to hang up, please press  key again. Switch calling or talking into handset mode by lifting the handset under speaker mode. Press  key will switch calling or talking into headset mode.

C. Answer by headset


Keep your microphone connected with the RJ9 headset jack, when there is an incoming call, press  and talk with the caller. If you want to hang up, please press  again. Pressing  can change calling or talking into speaker mode, and lifting the handset switches to handset mode.

3.2 Make Call

A. Use the handset


Pickup the handset, the LCD will show the current lines (user is able to switch from line1 to line4 by pressing the line key beside the LCD). Press soft key "Send" to dial the number. When you hear the tones of “du~du~” and the phone number your dialed is being displayed on the LCD, the phone at the side of being called should be ringing. If the called party answers this calling, the call is established and the calling timer is started immediately.

B. Use the speaker



Press  key, the LCD will show the current lines (user is able to switch from line1 to line4 by pressing the line key beside the LCD). Input the phone number and press soft key "Send" to dial the number.

When caller hear the tones of “du~~du~~” and the phone number your dialed is being displayed on the LCD, the phone at the side of being called should be ringing. If the called party answers this calling, the call is established and the calling timer is started immediately.

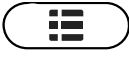

C. Use the headset

Press  Key, the LCD will show the current lines (user is able to switch from line1 to line4 by pressing the line key beside the LCD). Input the phone number and press soft key "Send" to dial the number. When caller hear the tones of “du~~du~~” and the phone number your dialed is being displayed on the LCD, the phone at the side of being called should be ringing. If the called party answers this calling, the call is established and the calling timer is started immediately.

D. Dial from phone book

1. Press  key and input the keypad password 123 to enter the menu and choose “Directory” option. Press "Select" soft key and then find the contact person by navigation keys. When the certain contact person is highlighted, press "Dial" or just pick up the handset to call this number.
2. Pick up the handset, press "Directory" soft key, then select the contact person and press "Dial" soft key.
3. Pick up the handset, press  and enter “Directory”, then select the contact person and press “Dial” soft key.

E. Dial from call history

1. Press  key and input the keypad password 123 to enter the menu and choose “History” option, then enter sub-directory “Dialed Calls”, “Received Calls” or ” Missed Calls” to select one of call history entry, and press "Dial" soft key or pickup the handset to call this number.
2. Pickup the handset, press "History” soft key, then select one of call history entry, and press "Dial" soft key to call this number.
3. Pickup the handset, press  and enter “Call History” ,then select one of call history entry, and press "Dial" soft key to call this number.

3.3 Pre-dial

It's a method to dial a phone number immediacy at standby mode.

The method is as below :

- A、Dial-up the phone number at standby mode;
- B、Press soft key "Dial" to send out the number .

Multiple line dial-up

Rainbow 2LW supports 4 SIP lines. That means user can register on 4 different sip accounts simultaneity. User is able to choose line1, line2, line 3 or line 4 by pressing corresponding line key. Line1 is the priority line.


Rainbow 2LW maximum supports 8 concurrent calls. When there is an incoming call to another line, LCD will show the incoming telephone number and line LED will be blinking in green. User is able to press the corresponding line key or press soft key "Hold" the current line on which you're talking then press "Answer" to receive the incoming call from another line.

3.4 Hang up the phone


1. Handset hang up

Put back the handset at handset mode, the current calling will be hung up.

2. Speaker hang up

Press  key at speaker model, the current calling will be hung up.

3. Headset Hang up

Press  key at headset model, the current calling will be hung up.

4. Hang up one line call

Press the hook to hang up the current calling when 2 calls happened simultaneously.

3.5 Call Transfer

1. Attended call transfer

The attended transfer allows user to call a third-party before transferring the calling.



While calling, press the "Transfer" soft key to hold the current call and phone the third party. Then dial the target number you want to transfer to on the activated line and press "Send" soft key to call that number. After the target party answers the call, press "Transfer" soft key again to complete the transfer.

2. Blind call transfer



The blind transfer allows user to transfer a call without speaking to the third party. On the user side, the call will be ended as soon as the target phone number is dialed.

Operating steps: Press "More" soft key to get more option, then press "Bxfer" soft key, input the transfer target number and press "Send" soft key.



3.6 Voicemail

 is used for entering voicemail box and indicating new voicemail. Press  to enter the menu to configure voicemail number if you have never configured it previously. Otherwise, the voicemail number will be called after pressing it. If you want to modify it after configured it, please go to the Account webpage to modify voicemail number.

3.7 Mute calls

The input audio will be not transmitted to peer phone after pressing , and the phone will be muted even switched among different modes of speaker, handset and headset. To un-mute, just press  again.

3.8 Call Hold

The current calling will be hold by pressing soft key “Hold” or . And the held call will be resumed after pressing soft key “Resume” or  or the corresponding line key. Even on 3-way conference calling, the conference will be held after pressing “Hold” key, and be resumed to 3-way conference after pressing “Hold” Key again. Remember the conversation is still on hold without being ended even if hung up under the status of hold.

3.9 3-Way Conference Call


To initiate a conference call:

Press “More” soft key on calling to get more options, then press “Conf” soft key to start a conference call. Enter the phone number of the third party and press “Send” soft key to send it out.






1. After the third party answers the call, pressing "Conf" key again to establish the 3-way conference.
2. 3-way conference initiator can press "Exit" soft key to quit from the conference and leave the other two parties still in the conversation.
3. If the initiator hangs up the call or press the “End Conf” soft key, the conference will be ended and the calling between the other two parties will be hung up.

















3.10 Call History

Rainbow 2LW supports 200 missed calls, 200 incoming calls and 200 dialed calls. When the storage is full, the old record will be erased by the new one.

Press "History" soft key or  when Rainbow 2LW is standby, all the incoming(->), outgoing(<-) and missed calls(!) will be listed. There is another way to check them:

A. Missed call

1. Press .
2. Press  or  to select “Call History” then press “Select” soft key.
3. Press  or  to select “Missed Calls” then press “Select” soft key.

4. Press  or  to browse the missed call record. If there is no record, the LCD display will be indicated “List is Empty”.
- B. Answered call
1. Press .
 2. Press  or  to choose “Call History” and then press “Select” soft key.
 3. Press  or  to choose “Answered Calls” and then press “Select” soft key.
 4. Press  or  to browse the answered call records. If there is no record, the LCD display will be indicated “List is Empty”.
- C. Dialed call
- 1) Press .
 - 2) Press  or  to select "Call History" and then press “Select” soft key.
 - 3) Press  or  to select “Dialed Calls” and then press “OK” soft key.
 - 4) Press  or  to browse the dialed call records. If there is no record, the LCD display will be indicated “List is Empty”.

3.11 Default Password

Password is needed to access menu and web. The default password for accessing menu is 123.

There are 2 modes to access web: User mode and Admin mode. All the parameters can be visible at Admin mode while part of them can be visible at User mode.


➤ User Mode

Username: user Default password is null

➤ Admin Mode:

Username: admin Default password is null

3.12 Check the Phone's IP address

Press , then the status of the phone will be displayed on the screen and you will see the current IP address of the phone.

3.13 Dial Plan

Dial plan specify the rule to dial number. The Rainbow 2LW syntax for the dial plan closely resembles the corresponding syntax specified by MGCP and MEGACO.

Dial plan is stipulated by the below configurable parameters:

- Interdigit Long Timer——refer to [Interdigit long timer](#) for more detail description
- Interdigit Short Timer——refer to [Interdigit short timer](#) for more detail description
- Dial Plan

Dial plan contains a series of digit sequences, separated by the ‘|’ character. The collection of sequences is enclosed in parentheses ‘(‘ and ‘)’.

Default: (*xx.|xxxxxxxxxxxxx.)

When user dials a series of digits, Rainbow 2LW will response in below way:

- No candidate sequences matched, the number will be rejected and display “call ended” on the screen. For instance, the default dial plan only supports digits. And ‘*’ character or letters will be rejected when input them.
- More than one candidate sequences matched, Rainbow 2LW will wait for more digits input.
- When input timeout occurs, Rainbow 2LW will dial the input digits.
- When input ‘#’ character, Rainbow 2LW will dial the input digits.

Digit Sequence Syntax:

x Matches any one numeric digit (‘0’ ... ‘9’)

[] Numeric ranges are allowed within ‘[]’. For example, [389] means ‘3’ or ‘8’ or ‘9’, [3-6] means ‘3’ or ‘4’ or ‘5’ or ‘6’, [235-8*] means ‘2’ or ‘3’ or ‘5’ or ‘6’ or ‘7’ or ‘8’ or ‘*’.

. Any element can be repeated zero or more times by appending a ‘.’ Character, e.g., 01. matches 01,011,0111,01111,...,011111111...etc.

<> subsequence substitution. For example, ‘<8:1650>xxxxxxx’ would match ‘85551212’ and the first digit ‘8’ will be replaced by ‘1650’ and ‘16505551212’ will be dialed.

, An “outside line” dial tone can be generated within a sequence by appending a ‘,’ character between digits. Thus, the sequence “9,1xxxxxxxxx” sounds an “outside line” dial tone after the user presses ‘9’, until the ‘1’ is pressed.

! A sequence can be barred (rejected) by placing a ‘!’ character at the end of the sequence. For example, “137xxxxxxxx!” will forbid numbers which have 11 digits and start by 137 to be dialed.

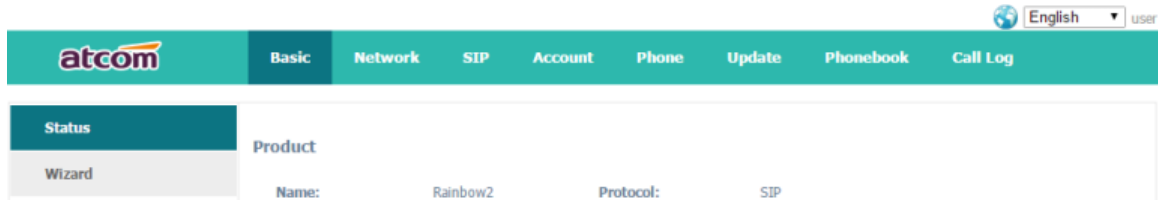
Example:

(xxxxxxxx[*#]xxxx|9,1xxxxxxxx|00xxx!) contains 4 subsequences:

1. Allow to dial numbers with 7 digits
2. Allow to dial numbers with 4 digits and start by ‘*’ or ‘#’
3. Allow to play an “outside line” dial tone after pressing ‘9’ and dial numbers with 11 digits and start by 1
4. Forbid to dial numbers with 5 digits and start by 00

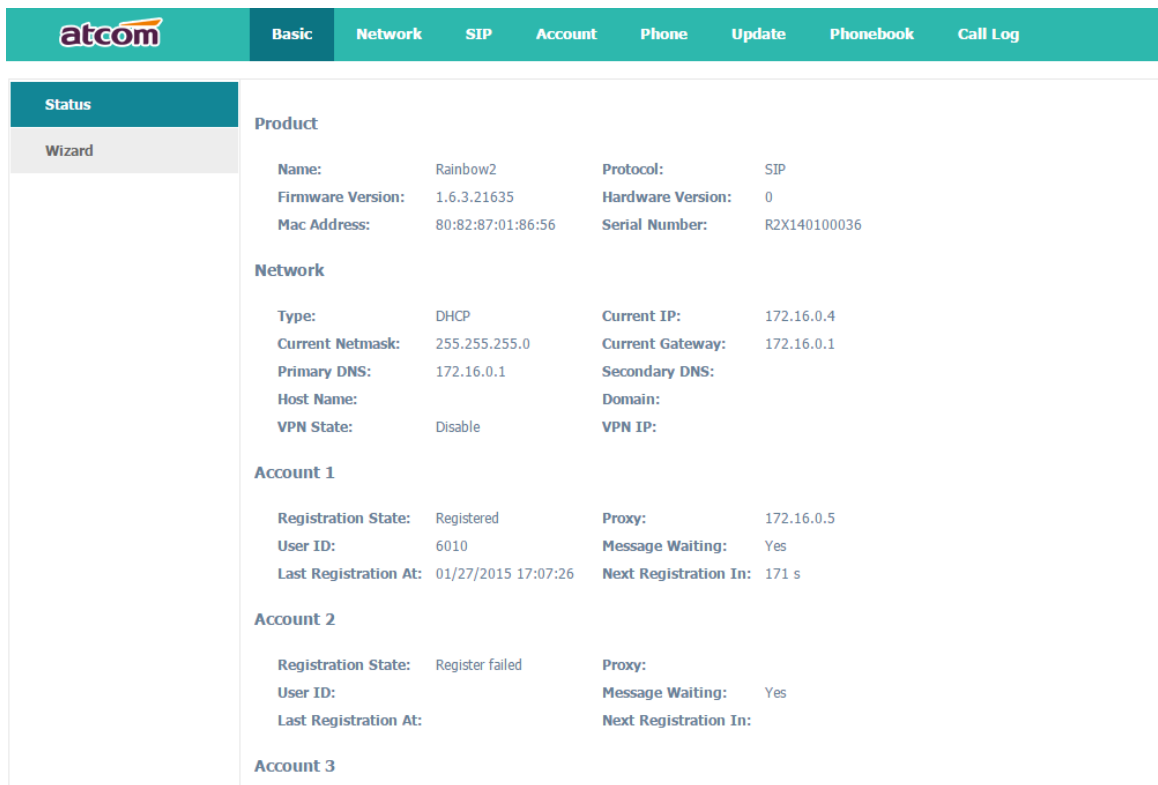
4. Web settings

Access to Rainbow 2LW's user webpage, and then click "admin" which is on the right corner to enter administrator webpage.



4.1 Basic

4.1.1 Status



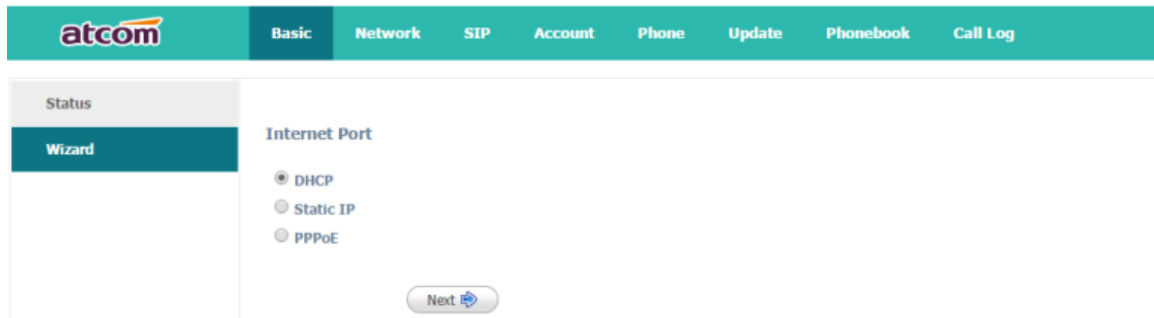
This page shows the IP phone's system status.

1. **Product** shows the product name, protocol, software and hardware version, Mac address and serial number.
2. **Network** shows the network connection type, IP, netmask, gateway, DNS, host name, domain and VPN information.
3. **Account 1/2/3/4** shows registration state, proxy, user ID, message waiting on or off, the last and next registration time.

4.1.2 Wizard

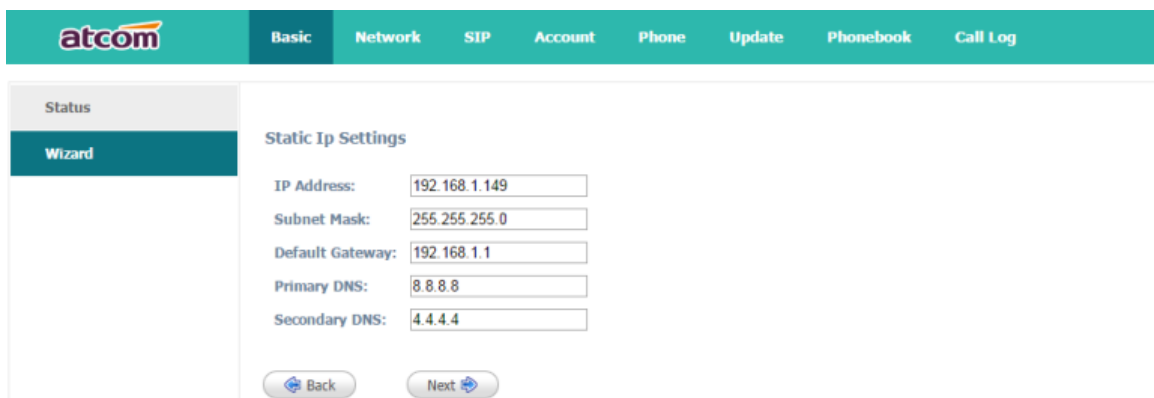
Wizard is an interface to configure network access type and SIP accounts quickly.

There are 3 ways available when configuring Internet Port:



The screenshot shows the 'Internet Port' configuration page. The 'atcom' logo is in the top left. The navigation menu includes 'Basic', 'Network', 'SIP', 'Account', 'Phone', 'Update', 'Phonebook', and 'Call Log'. The 'Basic' tab is active. On the left, there are 'Status' and 'Wizard' buttons. The main content area is titled 'Internet Port' and contains three radio buttons: 'DHCP' (selected), 'Static IP', and 'PPPoE'. A 'Next' button is located at the bottom center.

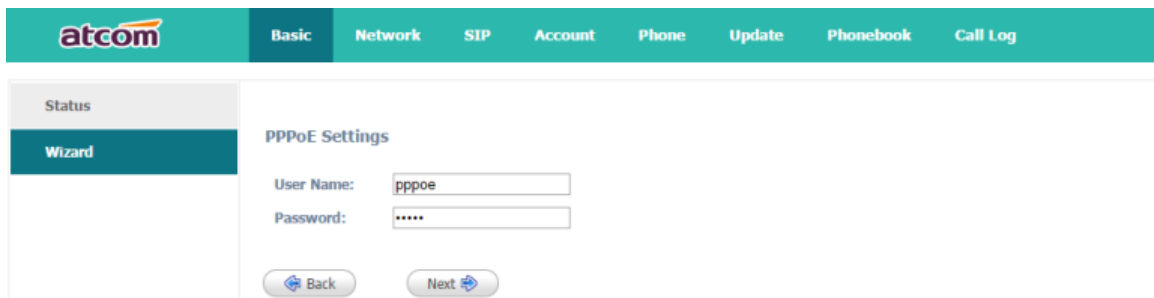
1. If choose DHCP, the telephone will be assigned a IP address automatically, click the button “Next” to enter the web page of “SIP Settings”.
2. If choose Static IP, you should input the IP address manually for the telephone, click the button “Next” to enter the web page of “Static IP Settings”.



The screenshot shows the 'Static Ip Settings' page. The 'atcom' logo is in the top left. The navigation menu includes 'Basic', 'Network', 'SIP', 'Account', 'Phone', 'Update', 'Phonebook', and 'Call Log'. The 'Basic' tab is active. On the left, there are 'Status' and 'Wizard' buttons. The main content area is titled 'Static Ip Settings' and contains five input fields: 'IP Address' (192.168.1.149), 'Subnet Mask' (255.255.255.0), 'Default Gateway' (192.168.1.1), 'Primary DNS' (8.8.8.8), and 'Secondary DNS' (4.4.4.4). 'Back' and 'Next' buttons are located at the bottom.

After IP address filled manually, click the button “Next” to enter the web page of “SIP Settings”, or click the button “Back” to back to web page of “Internet Port”.

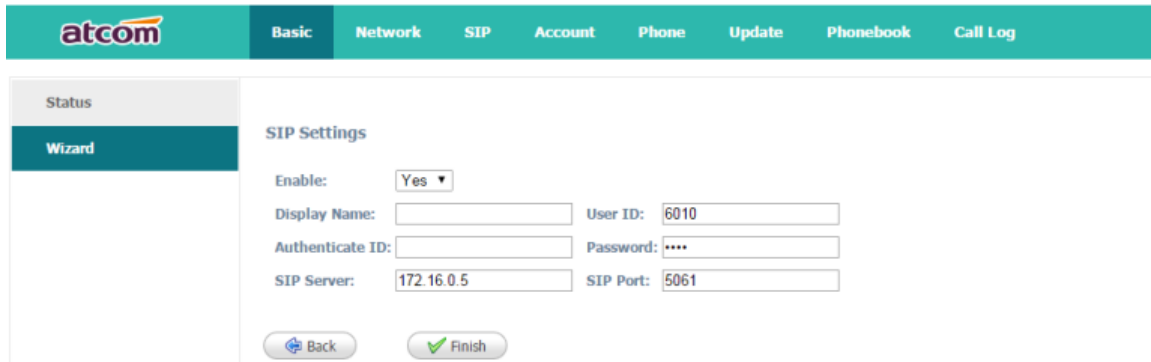
3. If choose PPPoE, you should input the username/password (provide by ISP) of PPPoE manually and then click the button “Next” to enter the web page of “PPPoE Settings”,



The screenshot shows the 'PPPoE Settings' page. The 'atcom' logo is in the top left. The navigation menu includes 'Basic', 'Network', 'SIP', 'Account', 'Phone', 'Update', 'Phonebook', and 'Call Log'. The 'Basic' tab is active. On the left, there are 'Status' and 'Wizard' buttons. The main content area is titled 'PPPoE Settings' and contains two input fields: 'User Name' (pppoe) and 'Password' (masked with dots). 'Back' and 'Next' buttons are located at the bottom.

After the username/password of PPPoE filled manually, click the button “Next” to enter the web page of “Account Configuration”, or click the button “Back” to back to web page of “Internet Port”.

The configuration of SIP Settings will be saved to Line 1 automatically.

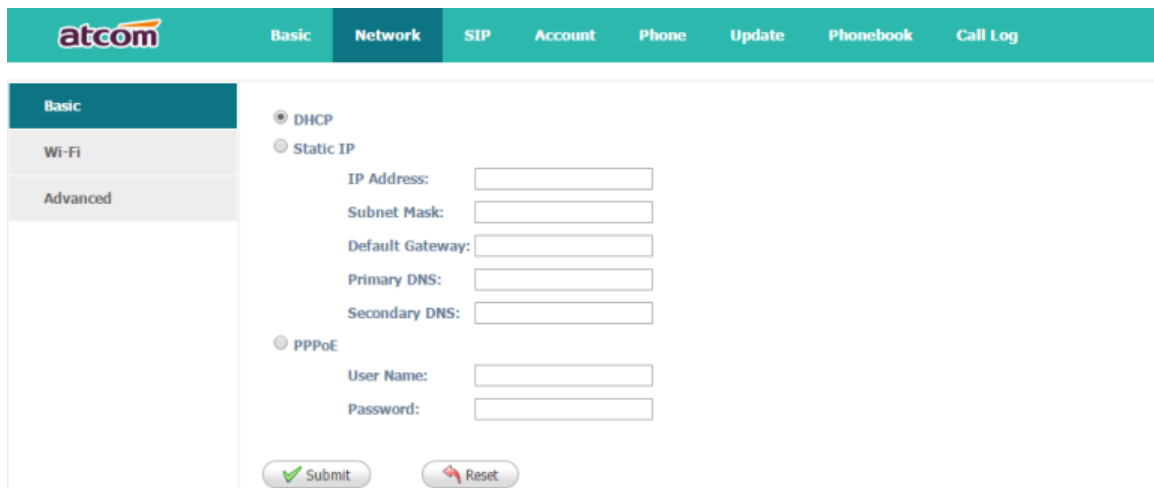


Click the button “Finish” to save configurations, and click “Back” back to the previous web page.

4.2 Network

4.2.1 Basic

There are 3 ways to connect to the internet: DHCP, Static and PPPoE, please choose one according to your own situation.



Network mode: DHCP, Static IP and PPPoE

1. DHCP

Auto obtains dynamic IP from DHCP server.

2. Static IP

- a) IP Address: set IP address
- b) Subnet Mask : set netmask
- c) Default Gateway : set gateway
- d) Primary DNS : set primary DNS server
- e) Secondary DNS : set secondary DNS server

3. PPPoE

Dial-up via PPPoE, you should fill in user name and password which were assigned by ISP (internet service provider).

- a) User name : set PPPoE user name
- b) Password : set PPPoE password

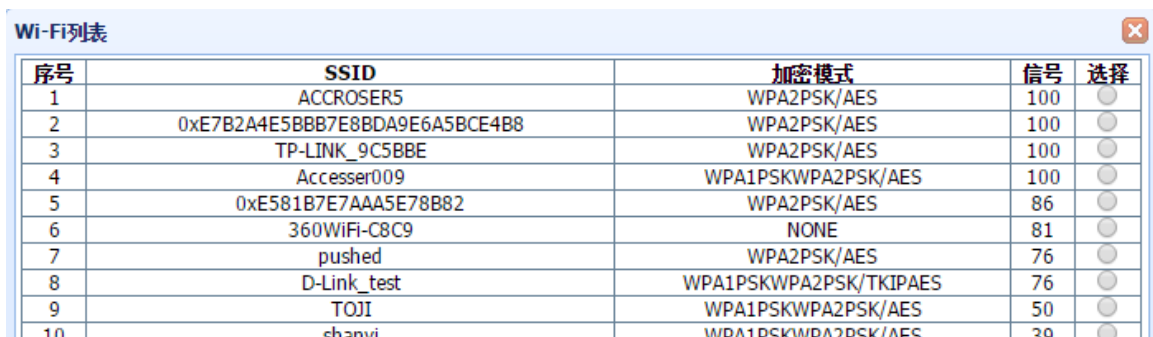
Press ‘Submit’ button after finishing setting and all the settings will be saved and take effect after Rainbow 2LW reboots.

4.2.2 Wi-Fi

Rainbow 2LW connect to network via Wi-Fi acquiescently, click “Search Wi-Fi” button to search the available Wi-Fi.



After all available Wi-Fi hotspots are list out, click the round behind the available Wi-Fi which you want to connect.

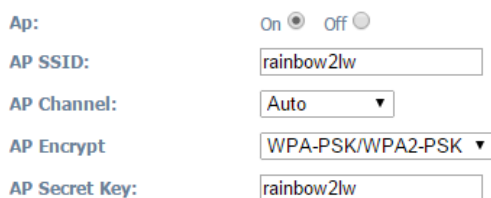


序号	SSID	加密模式	信号	选择
1	ACCROSER5	WPA2PSK/AES	100	<input type="radio"/>
2	0xE7B2A4E5BBB7E8BDA9E6A5BCE4B8	WPA2PSK/AES	100	<input type="radio"/>
3	TP-LINK_9C5BBE	WPA2PSK/AES	100	<input type="radio"/>
4	Accesser009	WPA1PSKWPA2PSK/AES	100	<input type="radio"/>
5	0xE581B7E7AAA5E78B82	WPA2PSK/AES	86	<input type="radio"/>
6	360WiFi-C8C9	NONE	81	<input type="radio"/>
7	pushed	WPA2PSK/AES	76	<input type="radio"/>
8	D-Link_test	WPA1PSKWPA2PSK/TKIPAES	76	<input type="radio"/>
9	TOJI	WPA1PSKWPA2PSK/AES	50	<input type="radio"/>
10	chsnvi	WPA1PSKWPA2PSK/AES	20	<input type="radio"/>

Input the right “Secret Key” and then click the “Submit” button, the phone will reboot, and you should disconnect the wire that connect to Rainbow 2LW during rebooting, or the phone will connect to network via wire preferentially. The Wi-Fi icon will display on the home screen, it means connect failed when the icon come with ×, you should to check the configuration.

Rainbow 2LW can be turned into a Wi-Fi hotspot after connecting to one successfully. Switch on “AP” and the new parameters will be displayed.

AP Setting



After configuration,click “Submit” button and wait for the phone to reboot, then you can connect your cellphones and computers to the network via Rainbow 2LW.

4.2.3 Advance

➤ Web Server

Web Server

Enable Web Server:

Admin Password:
 User Password:

HTTP Port:

1. Enable Web Server: enable or disable web access. If choose "no", you can't access Rainbow 2LW's webpage until enable it on the phone.
2. Admin password: set admin webpage access password. Enter 'http://ip-address/index.asp' in the web browser to access admin's login webpage after setting the admin password, then input username(admin) and password to access the admin's webpage.
3. User password: set user webpage access password. Enter 'http://ip-address/user.asp' in the web browser to access user's login webpage after setting the user password, then input username(user) and password to access the user's webpage.
4. HTTP port: set port for HTTP(defaults to 80). For example, Rainbow 2LW's IP is 192.168.1.223, HTTP port was set as 100, you have to type "http://192.168.1.223:100" in web browser to enter Rainbow 2LW webpage.

➤ VPN

VPN

VPN Enable:
 VPN Type:

Server Address:

User Name:
 Password:

1. VPN Enable: whether to enable VPN
2. VPN Type: only support L2TP VPN
3. Server address: VPN server address
4. Username: VPN account's username
5. Password: VPN account's password

After apply, the phone will reboot. The VPN IP will be shown on the Basic Status webpage.

➤ VLAN

VLAN

You should receive the tagging values of a virtual LAN from your provider. Wrong settings will require factory reset.

LAN VLAN Enable:
 PC VLAN Enable:

LAN Identifier(1~4094):
 PC Identifier(1~4094):

LAN Priority:
 PC Priority:

1. VLAN Enable: Whether to enable VLAN
2. Voice VLAN Identifier(1..4094) : Assign VLAN id for voice stream, range from 1 to 4094
3. Voice VLAN Priority: the degree is 0-7, 7 is the highest priority.
4. Data VLAN Identifier(1..4094) : Assign VLAN id for data stream, range from 1 to 4094
5. Data VLAN Priority: the degree is 0-7, 7 is the highest priority.

➤ Port Link

Port Link

LAN Port Link: PC Port Link:

Choose the network type and port link of LAN/PC.

1. LAN Port Link: Auto negotiate, full duplex 10Mbps, full duplex 100Mbps, half duplex 10Mbps, half duplex 100Mbps.
2. PC Port Link: Auto negotiate, full duplex 10Mbps, full duplex 100Mbps, half duplex 10Mbps, half duplex 100Mbps.

➤ Qos

QoS

SIP Qos(0~63): Voice Qos(0~63):

QoS: Quality of service.

1. SIP Qos: Quality of service for SIP (Diffserv).
2. Voice Qos: Quality of service for RTP (Diffserv).

➤ Syslog

Syslog

Enable Syslog: Log Level:
Syslog Server: Port:

1. Enable Syslog: whether to enable syslog.
2. Log level: None, Alert, Critical, Error, Warning, Notice, Info, Debug. The debug level is the most detailed.
3. Syslog Server: Syslog Server address.
4. Port: Syslog server port, defaults to 514.

4.3 SIP Setting

➤ Sip Timer Values

Sip Timer Values

Sip T1: Sip T2:
Sip T4:
Reg Retry Intvl: Sub Retry Intvl:

1. Sip T1: RFC 3261 T1 value (RTT). Range: 0 – 64 sec, defaults to 0.5.
2. Sip T2: RFC 3261 T2 value (Maximum retransmit interval for non-INVITE requests and INVITE responses). Range: 0 – 64 sec, defaults to 4.
3. Sip T4: RFC 3261 T4 value (Maximum duration a message will remain in the network). Range: 0 – 64 sec, defaults to 5.
4. Reg Retry Intvl: Interval to wait before the phone retries registration again after encountering a failure condition during last registration. Range: 0 – 65535, defaults to 8.

- Sub Retry Intvl: Interval to wait before the phone retries subscriber again after encountering a failure condition during last subscriber. Range: 0 –65535, defaults to 10.

➤ RTP Parameters

RTP Parameters

RTP Port Min:	<input type="text" value="16384"/>	RTP Port Max:	<input type="text" value="16482"/>
RTP Packet Size(ms):	<input type="text" value="20"/>		

- RTP Port Min: Minimum port number for RTP transmission and reception. Range: 1–65535, defaults to 16384
- RTP Port Max: Maximum port number for RTP transmission and reception. <RTP Port Max> should be at least 2 larger than <RTP port Min>.Range: 1–65535, defaults to 16482
- RTP Packet Size(ms): Packet size in milliseconds, which can be 10ms, 20ms, 30ms, 40ms, 60ms

➤ SDP Payload Types

SDP Payload Types

G711a Codec Name:	<input type="text" value="PCMA"/>	G711u Codec Name:	<input type="text" value="PCMU"/>
G723 Codec Name:	<input type="text" value="G723"/>	G722 Codec Name:	<input type="text" value="G722"/>
G729ab Codec Name:	<input type="text" value="G729"/>		
AVT Dynamic Payload:	<input type="text" value="101"/>	AVT Codec Name:	<input type="text" value="telephone-event"/>
iLBC Dynamic Payload:	<input type="text" value="98"/>	iLBC Codec Name:	<input type="text" value="iLBC"/>
G726r16 Dynamic Payload:	<input type="text" value="108"/>	G726r16 Codec Name:	<input type="text" value="G726r16"/>
G726r24 Dynamic Payload:	<input type="text" value="109"/>	G726r24 Codec Name:	<input type="text" value="G726r24"/>
G726r32 Dynamic Payload:	<input type="text" value="110"/>	G726r32 Codec Name:	<input type="text" value="G726r32"/>
G726r40 Dynamic Payload:	<input type="text" value="111"/>	G726r40 Codec Name:	<input type="text" value="G726r40"/>
Lin16 Dynamic Payload:	<input type="text" value="107"/>	Lin16 Codec Name:	<input type="text" value="L16"/>

- G711a Codec Name---G711a codec name used in SDP, defaults to PCMA.
- G711u Codec Name---G711u codec name used in SDP, defaults to PCMU.
- G723 Codec Name---G723 codec name used in SDP, defaults to G723.
- G722 Codec Name---G722 codec name used in SDP, defaults to G722.
- G729ab Codec Name---G729ab codec name used in SDP, defaults to G729.
- AVT Dynamic Payload---RFC2833 payload type. Defaults to 101.
- AVT Codec Name---AVT codec name used in SDP, defaults to telephone-event.
- iLBC Dynamic Payload---iLBC dynamic payload type, defaults to 98.
- iLBC Codec Name---iLBC codec name used in SDP, defaults to iLBC.
- G726r16 Dynamic Payload ---G726r16 dynamic payload type, defaults to 108.
- G726r16 Codec Name---G726r16 codec name used in SDP, defaults to G726r16.
- G726r24 Dynamic Payload ---G726r16 dynamic payload type, defaults to 109.
- G726r24 Codec Name---G726r24 codec name used in SDP, defaults to G726r24.
- G726r32 Dynamic Payload ---G726r32 dynamic payload type, defaults to 110.

15. G726r32 Codec Name---G726r32 codec name used in SDP, defaults to G726r32.
16. G726r40 Dynamic Payload ---G726r16 dynamic payload type. Defaults to 111.
17. G726r40 Codec Name---G726r40 codec name used in SDP, defaults to G726r40.
18. Lin16 Dynamic Payload ---Lin16 dynamic payload type, defaults to 102.
19. Lin16 Codec Name---Lin16 codec name used in SDP, defaults to L16.

➤ NAT Support Parameters

NAT Support Parameters

Enable Stun: Stun Server:

1. Enable Stun: Whether to use stun to discover NAT mapping.
2. Stun Server: Set stun server, which can be IP address or domain name.

4.4 Account

Account

Account:

Rainbow 2LW has 4 line keys mapping Account 1, Account 2, Account 3 and Account 4 respectively.

➤ SIP

SIP

Enable:

Display Name: User ID:

Authenticate ID: Password:

SIP Server: SIP Port:

SIP Redundancy Server:

Use Outbound Proxy:

Outbound Proxy Server: Outbound Proxy Port:

Local SIP Port:

Register Expires: Subscribe Expires:

Transport Type: SIP 100Rel Require:

Session Timer Enable: Early Update Enable:

Caller ID Display: Auto Subscribe MWI:

Server List: Dns Mode:

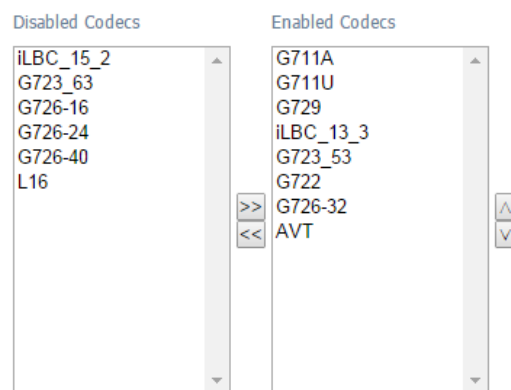
BLF List URI:





1. Enable: whether to enable register.
2. Display Name: This name will display on the LCD screen. It will show the User ID instead if leave Display Name as blank.
3. User ID: Username of sip account.
4. Authenticate ID: normally is the same with User ID, can also leave it as blank.
5. Password: Password of SIP account.
6. SIP Server: SIP server address, support both IP address and domain name.

7. SIP Port: SIP server port, defaults to 5060.
8. SIP Redundancy Server: SIP redundancy server address.
9. Use Outbound Proxy: Whether to use outbound proxy.
10. Outbound Proxy Server: Outbound proxy server address. All signaling request will be send to outbound proxy server firstly.
11. Outbound Proxy Port: Outbound proxy server port.
12. Local SIP Port: SIP port that the phone itself uses, defaults to 5060.
13. Register Expires: register expire time, defaults to 300 seconds.
14. Subscribe Expires: subscribe expire time, defaults to 3600 seconds.
15. Transport Type: UDP/TCP/TLS. Defaults to UDP.
16. SIP 100Rel Require: whether to enable 100Rel. If enabled, 100rel parameters will be added to the SIP request to support PRACK.
17. Session Timer Enable: whether to enable Session Timer.
18. Early Update Enable: whether to enable Early Update.
19. Caller ID Display: whether to display Caller ID.
20. Auto Subscribe MWI: whether to enable Auto Subscribe MWI.
21. Server List: choose the server type.
22. DNS Mode: choose the DNS mode
23. BLF List URI: set BLF list URI when Rainbow 2LW cooperates with Broadsoft server.

➤ Codec Configuration

Codec Configuration



1. Disabled Codecs: The codecs in this frame are disabled, choose one and then click  to enable the specified codec.
2. Enabled Codecs: The codecs in this frame are enabled, the uppermost codec has the maximum priority. Choose one and then click  to disable the specified codec, click  to promote priority and click  to reduce priority.

➤ Call Feature Setting

Call Feature Settings

Message Waiting:	<input type="text" value="Yes"/>	Voice Mail Number:	<input type="text"/>
Pickup Service Code:	<input type="text" value="*8"/>		
UDP Keep Alive Enable:	<input type="text" value="No"/>	UDP Keep Alive Intvl:	<input type="text" value="15"/>
Default Ring:	<input type="text" value="1"/>		
SRTP:	<input type="text" value="No"/>		

1. Message Waiting: whether to prompt if there is a voicemail.
2. Voice Mail Number: set voicemail number.
3. Pickup Service Code: set Pickup Service Code.
4. UDP Keep Alive Enable: whether to enable UDP keep alive. If enabled, Rainbow 2LW sends UDP packets periodically to keep the server port alive.
5. UDP Keep Alive Intvl: Set interval to send UDP packets.
6. Default Ring: set default ring tone.
7. SRTP: whether to enable SRTP (Secure Real Time Control Protocol). Only can be used if server supports SRTP.

➤ Dial Plan

Dial Plan

Dial Plan:

Dial Plan: Configure dialing rules for SIP account, please refer to [dial plan](#).

4.5 Phone Setting

4.5.1 Preference

Output Volume(1~8)

Handset Volume:	<input type="text" value="5"/>	SpeakerPhone Volume:	<input type="text" value="5"/>
Headset Volume:	<input type="text" value="5"/>	Ring Volume:	<input type="text" value="6"/>

Input Gain

Handset Gain:	<input type="text" value="0"/>	SpeakerPhone Mic Gain:	<input type="text" value="0"/>
Headset Gain:	<input type="text" value="0"/>		

LCD

Backlight Level:	<input type="text" value="7"/>	Backlight Time(Seconds):	<input type="text" value="10"/>
Contrast:	<input type="text" value="6"/>	Keypad Password:	<input type="text" value="..."/>

➤ Output Volume(1~8)

1. Handset Volume: Specify handset volume grade
2. SpeakerPhone Volume: Specify speaker volume grade
3. Headset Volume: Specify headset volume grade
4. Ring Volume: Specify ring tone volume grade

➤ Input Gain

1. Handset Gain: Specify handset gain, the bigger the gain, the louder the other end heard.
2. SpeakerPhone Mic Volume: Specify speaker gain, the bigger the gain, the louder the other end heard.
3. Headset Volume: Specify headset gain, the bigger the gain, the louder the other end heard.

➤ LCD

1. Backlight Level: select the backlight level
2. Backlight Time(Seconds): select the backlight time
3. Contrast: select the contrast level
4. Keypad Password: set keypad access password

➤ Control Timer Values(Seconds)

Control Timer Values(Seconds)

Interdigit Long Timer(1~64):	<input type="text" value="20"/>	Interdigit Short Timer(1~64):	<input type="text" value="8"/>
Reorder Delay(0~60):	<input type="text" value="3"/>	Reorder Time(0~60):	<input type="text" value="5"/>

1. Interdigit Long Timer: If the numbers or characters input are not finished and they have not matched the full dial plan, the phone will wait for the long time that has been set and then dial them out automatically. Range: 1 – 64 sec.
2. Interdigit Short Timer: If the numbers or characters input are matched the full dial plan, the phone will wait for the short time that has been set and then dial them out automatically. Range: 1 – 64 sec.
3. Reorder Delay: Delay after far end hangs up before reorder tone is played. 0 means play reorder tone immediately. Range: 0 – 60 sec.
4. Reorder Time: Set the duration of showing Call ended. Range: 0 – 60 sec.


➤ Date And Time

Date And Time

NTP

NTP Server:	<input type="text" value="pool.ntp.org"/>
Time Zone:	<input type="text" value="(GMT+08:00)Beijing,Chongqing,Hong Kong,Urumqi"/>



Manual

Set Local Date(YYYY/mm/dd):	<input type="text" value=""/> 
Set Local Time(HH:mm:ss):	<input type="text" value=""/> 

NTP: Network time protocol

1. NTP Server: Set NTP server address, which can be IP address or domain name.
2. Time Zone: Choose your own time zone.

Manual

1. Set Local Date(YYYY/mm/dd): manually set local date or click  to choose local date. Format: year/month/day.
2. Set Local Time(HH:mm:ss) : manually set local time or click  to adjust local time. Format: hour/minute/second. e.g. 12:00:00.

➤ Daylight Saving Time

Daylight Saving Time

Daylight:	<input type="text" value="Disable"/>	
Fixed Type:	<input checked="" type="radio"/> By Date <input type="radio"/> By Week	
Start Month:	<input type="text" value="June"/>	Stop Month: <input type="text" value="November"/>
Start Date:	<input type="text" value="1"/>	Stop Date: <input type="text" value="1"/>
Start Hour of Day:	<input type="text" value="0"/>	Stop Hour of Day: <input type="text" value="0"/>
Start Day of Week:	<input type="text" value="Monday"/>	Stop Day of Week: <input type="text" value="Monday"/>
Start Week of Month:	<input type="text" value="First In Month"/>	Stop Week of Month: <input type="text" value="First In Month"/>
Offset(minutes):	<input type="text" value="0"/>	

1. Daylight: Whether to enable daylight rules or not.
2. Fixed Type: The type that daylight saving time rules begin to take effects.
3. Start Month: The month that daylight saving time rules begin to take effects.
4. Stop Month: The month that daylight saving time rules lose efficacy.
5. Start Date: When set the Fixed Type as By Date, the date that daylight saving time rules begin to take effects.
6. Stop Date: When set the Fixed Type as By Date, the date that daylight saving time rules lose efficacy.
7. Start Hour of Day: When set the Fixed Type as By Date, the hour of the day that daylight saving time rules begin to take effects.
8. Stop Hour of Day: When set the Fixed Type as By Date, the hour of the day that daylight saving time rules lose efficacy.
9. Start Day of Week: When set the Fixed Type as By Week, the day of a week that daylight saving time rules begin to take effects.
10. Stop Day of Week: When set the Fixed Type as By Week, the day of a week that daylight saving time rules lose efficacy.
11. Start Week of Month: When set the Fixed Type as By Week, the week of a month that daylight saving time rules begin to take effects.
12. Stop week of Month: When set the Fixed Type as By Week, the week of a month that daylight saving time rules lose efficacy.
13. Offset(minutes): The time that adds or reduces when the daylight saving time take effects, e.g., -20, means the time shows on the phone will be 20 minutes earlier than standard time.

4.5.2 Features

➤ Speed Dial

Speed Dial

Speed Dial 2:	<input type="text"/>	Speed Dial 3:	<input type="text"/>
Speed Dial 4:	<input type="text"/>	Speed Dial 5:	<input type="text"/>
Speed Dial 6:	<input type="text"/>	Speed Dial 7:	<input type="text"/>
Speed Dial 8:	<input type="text"/>	Speed Dial 9:	<input type="text"/>

Set speed dial for 2-9. For example, set Speed Dial 2: 123456789, then if you press 2, 123456789 will be dialed immediately. 3/4/5.../9 also can be set as speed dial.

➤ Call Forward

Call Forward

Always Target:	<input type="text"/>	Busy Target:	<input type="text"/>
No Answer:	<input type="text"/>		
After Ring Time(Seconds):	<input type="text" value="5"/>		

1. Always Target: Every incoming call will forward to this target.
2. Busy Target: The incoming call will forward to this target when Rainbow 2LW is busy.
3. No Answer: The incoming call will forward to this target when there is no answer.
4. After Ring Time (Seconds): After this time, the incoming call will be forwarded to the no answer target. Defaults to 5.

The priority of Always Target is highest when Always Target, Busy Target and No Answer Target have been set. This means all the incoming call will be forwarded to the Always Target.

➤ Call Settings, Others

Call Settings

Do Not Disturb:	<input type="text" value="No"/>	Call Waiting:	<input type="text" value="Yes"/>
Block Call ID:	<input type="text" value="No"/>	Block Anc Call:	<input type="text" value="No"/>
Auto Answer:	<input type="text" value="No"/>	Auto Answer Delay:	<input type="text" value="0"/>

Others

Send Key:	<input type="text" value="#"/>
-----------	--------------------------------

1. Do Not Disturb: Whether to enable Do Not Disturb, when enabled, all the incoming call will be rejected. If Always Target or Busy Target was set at the same time, then incoming call will be forwarded to the targets preferentially.
2. Call Waiting: When enable Call Waiting and Rainbow 2LW is in conversation, incoming call will not be rejected and the ringback tone can be heard by the far end. When disable Call Waiting, there should be only one conversation no matter how many accounts have been registered on Rainbow 2LW.
3. Block Call ID: When enable Block caller ID, Rainbow 2LW will call others as anonymous.
4. Block Anc Call: When enable block anonymous call, Rainbow 2LW will reject anonymous caller.
5. Auto Answer: When enable Auto Answer, Rainbow 2LW will answer the incoming call by speaker automatically.
6. Auto Answer Delay: When enable Auto Answer, Rainbow 2LW will answer the incoming call by speaker automatically after this time, defaults to 0.
7. Send key: Define the send key as # or *, press # or * after dial number, then number will be sent out immediately.

4.5.3 Voice

Echo Cancellation

VAD: CNG:

Jitter Buffer

Type:
 Min Delay: Max Delay:
 Normal Delay:

Echo Cancellation

1. VAD: Whether to enable VAD(Voice Active Detection). If enable, RTP packets will not be send when Rainbow 2LW is mute.
2. CNG: Whether to enable CNG(Comfort Noise Generator). If enable, comfort noise will be send to the far end to let it perceive the activity of the conversation when Rainbow 2LW is mute.

Jitter Buffer

Rainbow 2LW can buffer incoming voice packets to minimize out-of-order packet arrival. This process is known as jitter buffer.

1. Type: Choose type of jitter buffer. When choose Fixed, the size jitter buffer is fixed. When choose Adaptive, the size of jitter buffer is the sum of Min Delay and the size of RTP packets.
2. Min Delay: The minimum delay of the jitter buffer.
3. Max Delay: The maximum delay of the jitter buffer.
4. Normal Delay: It is used for fixed jitter buffer which should be between Min Delay and Max Delay.

4.5.4 Ring

Notes: Ring tone must be wav file, 8k sampling rate, 8 Bit u-law compression. File size should less than 200KB

Upload Ring Tone: No file chosen
 Ring Tone Type:

Administer can upload 2 user define ring for Rainbow 2LW. The ring file should be wav(8k, 8bit, u-law) and no larger than 200 KBytes.

4.5.5 Tone

Tone

Country Stands:
 Dial Tone:
 Outside Dial Tone:
 Busy Tone:
 Reorder Tone:
 Off Hook Warning Tone:
 Ring Back Tone:
 MWI Dial Tone:
 Holding Tone:
 Conference Tone:

Set the Tone Script for each tone.

For example, MWI Dial Tone: 350@-19,440@-19;2(.1/,1/1=2);10(*0/1+2)

Frequency1, Frequency2; Cadence Section1; Cadence Section2

350@-19: Frequency1 is 350HZ at -19dBm

440@-19: Frequency2 is 440HZ at -19dBm

2(.1/,1/1=2): Cadence Section length is 2s, 0.1s on, 0.1s off, with frequencies 1 and 2

10(*0/1+2): Cadence Section length is 10s, always on(* means always, 0 means never), with frequencies 1 and 2.

1. Country stands: select a country standard tone as default.
2. Dial Tone: Play when prompting the user to enter a phone number.
3. Outside Dial Tone: An alternative to Dial Tone usually used to prompt the user to enter an external phone number (versus an internal extension). This is triggered by a “,” character encountered in the dial plan.
4. Busy Tone: Play when a 486 RSC is received for an outbound call.
5. Reorder Tone: Play when an outbound call has failed or after the far end hangs up during an established call.
6. Off Hook Warning Tone: Play when user does not place the handset on the cradle properly.
7. Ring Back Tone: Play for an outbound call when the far end is ringing.
8. MWI Dial Tone: Play when there are unheard voicemails.
9. Holding Tone: Indicate to the local user that the far end has placed the call on hold.
10. Conference Tone: Play to all parties when a 3 way conference is in progress.

4.5.6 Line Key

	Mode	Account	Number
Line Key 1	Line ▼	Account 1 ▼	<input type="text"/>
Line Key 2	Line ▼	Account 2 ▼	<input type="text"/>
Line Key 3	Line ▼	Account 3 ▼	<input type="text"/>
Line Key 4	Line ▼	Account 4 ▼	<input type="text"/>

Configure functions for link keys, defaults to Line, BLF and speed dial are available.

4.5.7 Programmable key

	Mode	Account	Number
Key 1	None ▼	Account 1 ▼	<input type="text"/>
Key 2	None ▼	Account 1 ▼	<input type="text"/>
Key 3	None ▼	Account 1 ▼	<input type="text"/>
Key 4	None ▼	Account 1 ▼	<input type="text"/>
Key 5	None ▼	Account 1 ▼	<input type="text"/>
Key 6	None ▼	Account 1 ▼	<input type="text"/>
Key 7	None ▼	Account 1 ▼	<input type="text"/>
Key 8	None ▼	Account 1 ▼	<input type="text"/>

✓ Mode:

1. None: This programmable key is disabled.
2. Speed dial: Set the key as making a specified call conveniently.
3. BLF: Busy lamp field, need to fill a BLF number to monitor.
4. DTMF : send DTMF number.

✓ Account: The account to use this function.

✓ Number: The number to set for speed dial, BLF and DTMF.

4.5.8 EXT Key

Attendant Module 1

	Mode	Account	Number
Key 1	None ▼	Account 1 ▼	<input type="text"/>
Key 2	None ▼	Account 1 ▼	<input type="text"/>
Key 3	None ▼	Account 1 ▼	<input type="text"/>
Key 4	None ▼	Account 1 ▼	<input type="text"/>
Key 5	None ▼	Account 1 ▼	<input type="text"/>
Key 6	None ▼	Account 1 ▼	<input type="text"/>
Key 7	None ▼	Account 1 ▼	<input type="text"/>
Key 8	None ▼	Account 1 ▼	<input type="text"/>
Key 9	None ▼	Account 1 ▼	<input type="text"/>
Key 10	None ▼	Account 1 ▼	<input type="text"/>
Key 11	None ▼	Account 1 ▼	<input type="text"/>
Key 12	None ▼	Account 1 ▼	<input type="text"/>
Key 13	None ▼	Account 1 ▼	<input type="text"/>
Key 14	None ▼	Account 1 ▼	<input type="text"/>
Key 15	None ▼	Account 1 ▼	<input type="text"/>
Key 16	None ▼	Account 1 ▼	<input type="text"/>

Attendant Module 2(Not Found)

	Mode	Account	Number
--	------	---------	--------

Attendant Module 3(Not Found)

	Mode	Account	Number
--	------	---------	--------

Attendant Module 4(Not Found)

	Mode	Account	Number
--	------	---------	--------

Attendant Module 5(Not Found)

	Mode	Account	Number
--	------	---------	--------

Rainbow 2LW can connect 5 Rainbow E at most. There are 16 keys on Rainbow E. After connecting Rainbow E to Rainbow 2LW's EXT port, Rainbow 2LW will auto detect Rainbow E. Rainbow E can be configured to support two functions: Speed dial and BLF.

✓ Event:

1. None: Do not use this BLF key
2. Speed dial: Speed dial, need to fill a speed dial number.
3. BLF: Busy lamp field, need to fill a BLF number to monitor.

When the BLF number is ringing, the BLF key will turn to green and blink.

When the BLF number is during a call, the BLF key will stay for green.

The BLF key will be off, if the BLF number is idle or not online. And you can press the BLF Key to call the monitored number.

- ✓ Account: which account you want to use.
- ✓ Number: number set for Speed dial and BLF.

4.6 Update

4.6.1 Manual Update

Firmware Version:	1.6.2.21903	
Hardware Version:	4	
Firmware:	<input type="button" value="Choose file"/> No file chosen	<input type="button" value="Upgrade"/>
Configuration:	<input type="button" value="Choose file"/> No file chosen	<input type="button" value="Upgrade"/> <input type="button" value="Download"/>
Phonebook:	<input type="button" value="Choose file"/> No file chosen	<input type="button" value="Upgrade"/> <input type="button" value="Download"/>
Attendant Keys:	<input type="button" value="Choose file"/> No file chosen	<input type="button" value="Upgrade"/> <input type="button" value="Download"/>

1. Firmware Version: The current firmware version.
2. Hardware Version: The current hardware version.
3. Firmware: Download firmware from ATCOM's webpage, then select firmware from your PC to upgrade.
4. Configuration: Upgrade config.xml file.
5. Phone Book: Upgrade phonebook.xml file.
6. Attendant Keys: Upgrade Rainbow E's configuration.

4.6.2 Update/Auto Provision

Auto Provision

Provisioning Server:

User Name: **Password:**

Common AES Key:

Check New Config: On Off

Repeatedly: On Off **Interval(minutes):**

Weekly: On Off **Time:** --

Day of Week:

- Sunday
- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Saturday

1. Provisioning Server: The address to save control file for auto upgrading, it can filled by http, https, tftp server, ftp server, for example, tftp://192.168.1.111/upgrade_control_file.xml
2. User Name: The user name to access the file server
3. Password: The password to access the file server
4. AES Key: If the configuration file has been encrypted, the AES key will be used to decrypt for auto-upgrading
5. Check New Config: If set this parameter as "On", the phone will do some check for upgrading, and it will upgrade automatically once the conditions are met
6. Repeatedly: If set this parameter as "On", the phone will do some check for upgrading after "Interval(minutes)", and it will upgrade automatically once the conditions are met

7. Interval(minutes) : This parameter is configurable once the Repeatedly is “On”
8. Weekly: If set this parameter as “On”, the phone will do the check for upgrading at a certain time in every week
9. Time: The time range that the phone do the check for upgrading every week, and it’s configurable once the Repeatedly is “On”
10. Day of week: The day of week that the phone do the check for upgrading every week, and it’s configurable once the Repeatedly is “On”

The sample of control file:

```

-----
<?xml version="1.0"?>
<AUTOUPDATE Model="Rainbow4(s)">
  <Config URL="http://www.atcom.com.cn/temp/$MAC.tar.gz"/>
  <PhoneBook URL="tftp://192.168.1.190/phonebook.xml"/>
  <Firmware MD5="cadfadfaqedadfadfa"
    URL="http://www.atcom.com.cn/temp/Rainbow4(s)-V1.5.1.fw"/>
</AUTOUPDATE>
-----

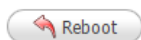
```

\$MAC.tar.gz refers to the specified files that named as the phones’ MAC address, the phone will find the tar.gz file which named as its MAC address automatically once a phone uses this control file to upgrade the Config file at the specified location, for example, a Rainbow4(s)’s MAC address is EA:F5:GA:54:4D:DR, the corresponding control file should name as EAF5GA544DDR.tar.gz。

MD5 is the property of a file, and it’s always used for integrity checking, you can get it by using specified software. When upgrade the Firmware, the phone will compare the firmware’s MD5 with the specified MD5, and it will refuse to upgrade if they are not the same.

4.6.3 Reset & Reboot

Reboot system now



Warning: Reboot system will terminate all active calls!

Reset to Factory Setting



Warning: Factory Reset will erase all configuration data on the system! Please do not power off the system. Any power interruption during this time could cause damage to the system!

1. Reboot: Reboot will terminate all active calls, and cost a little time to restart.
2. Reset: Reset will set Rainbow 2LW to factory default, please backup the config.xml, phonebook.xml and attendant_keypad.xml before reset.

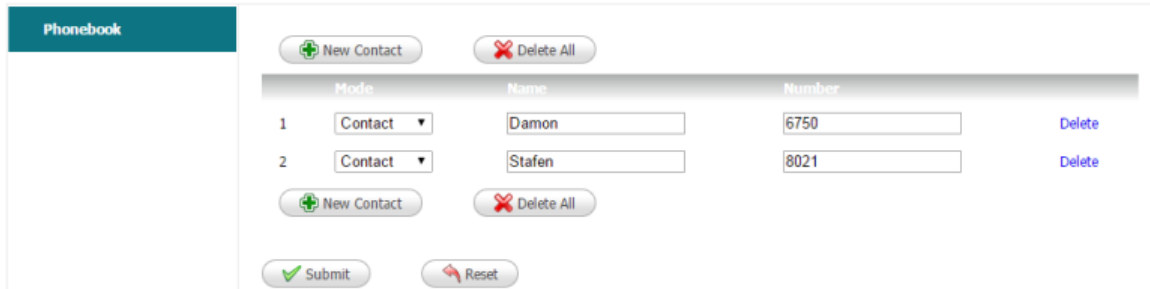
4.6.4 Debug



Rainbow 2LW support the function of capturing packages, click Start to begin capturing, and Stop after finishing it, then click Export to download the file.

If the Pcap Feature is not enabled when something wrong happened with the phone, you can click the Download button to get the syslog file, and then send it to ATCOM to help you to solve issues.

4.7 Phone Book



	Mode	Name	Number	
1	Contact	Damon	6750	Delete
2	Contact	Stafen	8021	Delete

1. New Contact: Add a new phonebook record.
2. Delete All: Delete all the phonebook records.
3. Mode: Directory or Blacklist. Numbers in Blacklist will be rejected when calling.
4. Name: name of a number, when the call of this number comes in the LCD will show the name.
5. Number: phone number.
6. Delete: Delete this record.
7. Submit: Submit to apply the change.
8. Reset: Cancel the inputting.

Notice: The maximum of records in the phone book is 200.

4.8 Call Log

Dialed	Delete All			
Received	Name	Number	Time	
Missed	1 :	5041	5041	29/01 14:51
	2 :	6750	6750	29/01 14:50

Dialed	Delete All			
Received	Name	Number	Time	
Missed	1 :	5042	5042	29/01 14:47
	2 :	5041	5041	29/01 14:47

Dialed	Delete All			
Received	Name	Number	Time	
Missed	1 :	5045	5045	29/01 14:56
	2 :	5044	5044	29/01 14:48


1. Dialed: Record of dialed list, maximum 200 records.
2. Received: Record of received list, maximum 200 records.
3. Missed: Record of Missed list, maximum 200 records.

5. FAQ & Trouble Shooting

5.1 How to make a factory reset

There are three ways to make a factory reset:

1. Factory reset from keyboard, steps are:

- a) Press  and input password 123.
- b) Find and select '12 Factory Reset'.
- c) Press 'OK', then the phone will restart automatically and factory reset.

2. Factory reset through web, please refer to [Reset & Reboot](#);

3. Factory reset during rebooting, steps are:

- a) Keep pressing '*' and '#' key.
- b) Plug in the power adapter.
- c) Wait for about 5 seconds and Rainbow 2LW will reset to factory after rebooted.

5.2 Upgrade firmware under safe mode

If the phone could not start up normally, upgrade firmware under safe mode. Steps are:

1. Build a TFTP server and set its IP address as 192.168.1.200.
2. Copy the firmware to the root directory of the TFTP server and modify the file name as Rainbow 2LW.FW.
3. Make sure the TFTP server and the phone are connecting with the same switch and reachable to each other;
4. Keep pressing '#' key and start up the phone until the LCD displays 'Upgrading...';
5. The phone will download the firmware from the TFTP server;
6. After the download is done, the phone will upgrade automatically;
7. After the update is finished, the phone will start up with the factory configuration.

5.3 How to make direct IP call

When hook off/ pressing speaker or headset key,

1. Press soft key 'Num' until it switch to 'IP'.
2. Using '*' key to input '.'. If user wants to dial 192.168.1.100, then press 192*168*1*100.
3. After inputting the IP address, press dial key to dial it out.

6. Trouble Shooting

6.1 *The phone can't register successfully*

1. Check the IP address, and if the mode of WAN port is DHCP, please make sure the DHCP server is in service.
2. Check the gateway.
3. Check the DNS.
4. Make sure the information of the account is consistent with which offered by the service supplier.
5. Make sure the SIP server is on.
6. Check the port of the SIP server whose default value is 5060.

6.2 *The phone can't obtain IP address*

1. Make sure the cable has been connected to the LAN port of the phone.
2. Make sure the cable and the switch's port that connected with the cable is available.
3. Make sure the DHCP server is on and there are some assignable IP addresses in the address pool.
4. Try to change the LAN port mode as Static.

6.3 *Only one part can hear the voice during the call*

1. Make an IP dial-up call to make sure the telephone receiver and microphone are normal.
2. Enable STUN on web page.
3. Set STUN server as stun.sipgate.com.
4. Click 'submit' and wait for the phone to restart.
5. Try to make calls again.

7. Abbreviations

DND : Do Not Disturb

CFWD : Call Forward

Bxfer : Blind Transfer

Conf : Conference

Num : Number

DelChr : Delete Char

Y/N : Yes/No

SIP: Session Initiate Protocol

RTP: Real-time Transport Protocol

SDP: Session Description Protocol

VPN: Virtual Private Network

VLAN: Virtual Local Area Network

QoS: Quality of Service

Syslog : System log

UDP: User Data Protocol

TCP: Transmission Control Protocol

TLS: Transport Layer Security Protocol

BLF: Busy Lamp Field

DNS: Domain Name System

SRTP: Secure Real-time Transport Protocol

NTP: Network Time Protocol

VAD: Voice Activity Detection

CNG: Comfort Noise Generator