WPU-7700 Enterprise Edition
Administrator Manual

UniData Communication Systems Inc.

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Manual Introduction

Before use, kindly read this “Administrator Manual” thoroughly to have an understanding of the contents

After reading, place it within reach at all times such as at the side of this product.

This manual is for administrator who has working knowledge of fundamental terms and concepts of computer networking, converged voice and data networks to include LANs, WANs, and IP switching and routing

Safety Precautions

Since this is provided to make safe and right use of WPU-7700 to prevent any accidents or risks, be sure to carefully read it, follow instructions, and keep it where it is easily noticed.

Warning

This mark is intended to warn users of the risk of a serious injury or death when they violate instructions.


Do not put WPU-7700 in heating appliances such as heaters and microwave ovens to dry them if they are wet.

It can cause explosions, deformation, or troubles. In this case, free services shall not be provided.


Do not use WPU-7700 in places that are too hot or too wet (keep them indoors between 0 ℃ and + 50 ℃).

If they get wet with rain, have drinks spilled, or are used in extremely hot/wet places such as public sauna bathroom, it can cause battery explosions.


Put WPU-7700 and chargers in places out of reach of children or pets.

If one puts batteries his or her mouth, or uses broken batteries, it can hurt his or her body, or cause electric shocks.


Do not disassemble WPU-7700, or apply shocks to them as you please.

If they get damaged while you disassemble them, or inflict shocks on them, you cannot have free services.


Be sure to use designated batteries and accessories only for WPU-7700 provided by our company.

If you use unauthorized batteries or accessories, it can reduce the life of WPU-7700, cause explosions, or damage them. In this case, you cannot have free services.

 Be careful for conductors such as necklaces, keys, and coins not to contact battery terminals (metal section). Since short circuits can cause explosions, be careful for such events never to take place.

 Neither throws batteries, which can inflict shocks on them, nor put them near to heating appliances such as heaters and microwave ovens.

It can cause the leak of battery contents, or explosions.

 Use standard chargers that obtained Unidata authentication for batteries.

Otherwise, batteries will have their life reduced, face explosions, or damage WPU-7700. In this case, free services shall not be provided.

 Refrain from the use of WPU-7700, and leave the power cord of chargers unplugged when thunders and lightening are severe.

Thunderbolts can cause severe physical injuries, or fires.

 Do not hold WPU-7700 to your ears to turn on the power.

It can cause hearing impairments, or physical injuries.

Do not look at the infrared window in a direct way when using remote control.

It can cause visual impairments.

 Do not use chemical detergents such as benzene, thinner, and alcohol to clean WPU-7700.

It can cause fires.

 Never push the power button when WPU-7700 are wet, nor touch WPU-7700, chargers, or power cords with wet hands.

I can cause fires or electric shocks

Precautions

This mark is intended to caution users against violating instructions since it can cause a slight physical injury or product damage.


Correctly install WPU-7700 in compliance with instructions.

Otherwise, it can cause an abnormal operation of WPU-7700, or reduce their life.


Be aware of radio interference.

Since this radio equipment can have radio interference, services related to life safety are not provided.


Do not install WPU-7700 in places exposed to direct sunlight, and on carpets or cushions.

It can cause fires or troubles.


Do not install WPU-7700 in narrow places with poor ventilation, or near heat sources.

It can cause fires or troubles.


Do not install WPU-7700 in places with much dust.

It can cause operational problems, or reduce phone life.


Install WPU-7700 on flat places, not on shelves or slopes.

Otherwise, it can hurt you, or cause troubles when they drop.


Since emergency calls are available only within call coverage, check in advance whether or not calls are available.


Do not use WPU-7700 covered wrap or vinyl.

Coating can be removed.


Record and keep the information contained in WPU-7700 separately.

Since the important information stored in WPU-7700 can be removed due to unavoidable circumstances such as users' carelessness, maintenance, and product upgrade, please keep a record of important information. Take note that manufacturer will not take responsibility for any damage from the loss of information.

If batteries are not used for a long time, keep them at room temperature after charging.

If you want to use again after leaving them for a long time, it is recommended to use them after fully charging.

Keep in mind that WPU-7700 can produce much heat while using for a long time.

Do not install WPU-7700 in heavily shaking places.

It can cause performance degradation, or reduce the life of products.

After using WPU-7700 for a long time, they can produce a weak sound due to their liquid crystal protective vinyl covering the speaker.

If WPU-7700 are separated from AP or chargers for a long time, they cannot work due to battery discharge.

INDEX

BASIC USAGE

Names and functions of the KEY

Key Name	Icon	Basic functions
Direction key	▲▼◀▶	Used for menu viewing, Can be pressed up and down, left and right
Left soft key Right soft key	L R	Submenu operation etc
Send key	SEND	Used for receiving and making calls
End key	END	Used to end a call and to switch the power ON/ OFF
Ok key	OK	Used to confirm
AP search key		Used for searching Access Point
Alarm key		Alarm/ Wake up call
My menu key	My Menu	Using user-defined function
Message key		Using message function
Google Service key		Using Google service
Mute key	MUTE	Mute ON / OFF
Vibration key		Vibration ON / OFF
Clear key	CLR	Removing characters or figures entered, or moving to previous screens
Lock key	#	Locks/ Unlocks button

Get to Administrator Menu and Change Password

Then, push the left direction key to go to the settings mode. Select the Admin Menu to enter

1	Press the left soft key to enter menu in standby mode	
2	Press the direction key ▲▼◄► to Admin Menu	
3	Enter Administrator password. Default administrator password is 000000 and user password is 0000	
4	Administrator can only change the Administrator password and User password. To change Password, select “Admin Pwd” or “User Pwd”	

5	Enter Password	

NETWORK

Connect to new Temporary profile

It is only for the temporarily connected profile. The existing temporary profile will be disappeared if you select another temporary profile. The profile will not be remained if you are rebooting the phone.

1	Press the AP search key to search available WiFi Access Points in Standby mode	
2	Select an access point using the direction key ▲▼◄► and the OK key	
3	Enter security and authentication type of WiFi access point. Please refer to Security and TCP/IP	

Saved profile

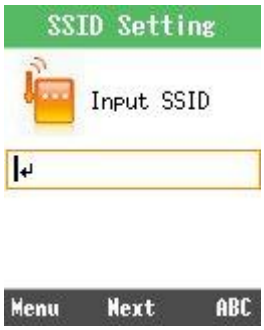
Search results of WiFi networks

Have no encryption set in WiFi network

Have encryption set in WiFi network

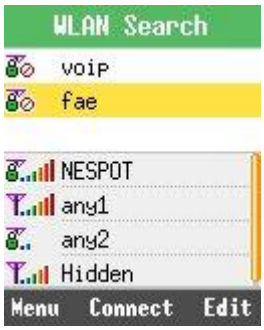
Make New Network Profile

WPU-7700 supports 4 profiles to provide a function of connecting WPU-7700 to various wireless LAN environments. Based on the results of search of wireless LAN services, select wireless LAN service to which profiles will be added.

1	Press the AP search key to search available WiFi Access Points in Standby mode.	
2	Select “Menu” and “ 3. Add Profile” using the Left soft key to make new profile	
3	Enter admin password, SSID, security and authentication type of WiFi access point. To change Alphanumeric to numeric,press the right softkey . If 4 profiles is saved already, it is not able to add.	
5	Enter security and authentication type of WiFi access point. Please refer to Security and TCP/IP chapter	

Modify Network Profile

WPU-7700 supports feature to modify saved profiles.

1	Press the AP search key to enter WLAN search mode in Standby mode	
2	After move cursor to target AP, press “Edit”. Then enter admin password, SSID, security and authentication type of WiFi access point.	
3	If you want to add a profile which is not exist, select menu “3. Add Profile”	

Delete Network Profile

WPU-7700 supports feature to delect saved profiles. In WLAN search mode, select Menu then 4.Delete to remove WiFi Network profile. After confirm with entering administrator password, select “Yes”, it will be deleted.

1	Press the AP search key to enter WLAN search mode in Standby mode	
2	After move cursor to target AP, press “menu” by the Left soft key. Then select “4. Delete” to delete selected AP follow by entering password.	
3	If you want to delete all profile, select menu “5. Delete all” follow by entering password	

Change Priority Network Profile

The higher position profile in the screen has higher priority to connect automatically

1	Press the AP search key to enter WLAN search mode in Standby mode	
2	After choosing the profile you want to change priority, select Up or Down in menu. "VoIP" profile can be changed by the autoprovisioning configuration only	

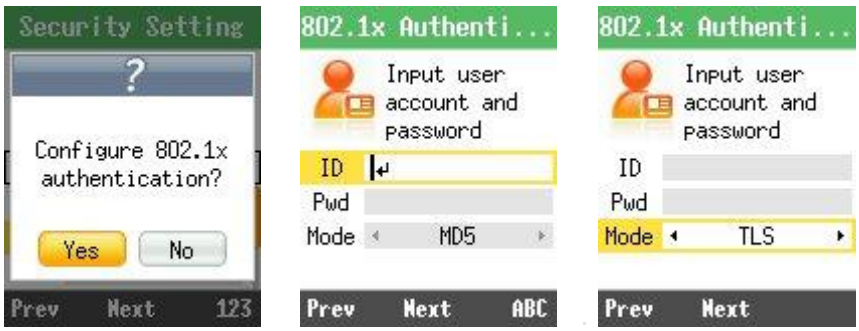
Security

While set the profile up, security option can be set.

Select setup for security using the direction key ▲▼◄►, and confirm using the Ok key. If no security on AP, this procedure is passed. The supporting security is 64-bits WEP, 128-bits WEP, WPA-PSK, WPA2-PSK, WPA-EAP and WPA2-EAP.

Authentication

If 802.1x authentication is using, select Yes to configure. Then select “None”,”PEAP”,”TTLS” or “TLS” the direction key ▲▼◄►, and confirm using the Ok key.



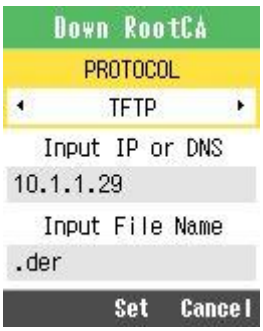
Certification manager

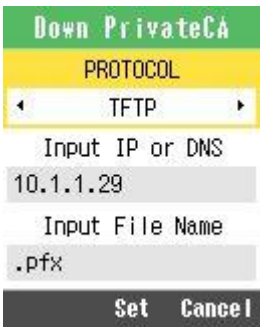
In case of EAP-TLS, Select “Certs manger” in administrator menu. You can see the message below if you select “View Root CA” or “View Private CA” before download them.

Reference and download of the Root CA and Private CA is possible in order to use 802.1x (EAP-TLS, PEAP, TTLS). You can select which of TFTP, HTTP or HTTPS as a download system.

Root certificate	Supporting .der, .cer and .pem Encode system
Private certificate	Supporting .pfx and .p12 Encode system

:



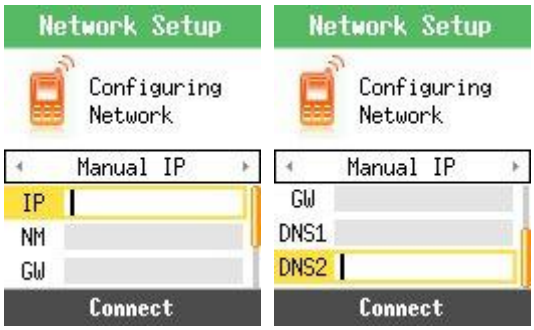


Certificate will be deleted when select “Delete CA”

TCP/IP

. WPU-7700 support DHCP and manual IP. Select “DHCP” or ”Manual IP” using the direction key ▲▼◄► in network setup screen, and confirm using the Ok key during set the profile up

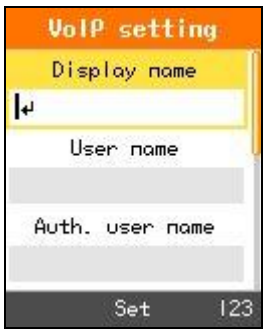
In case of using manual IP in network setup, IP, Netmask, Gateway and DNS should be entered using the direction key ▲▼◄►.



VoIP

SIP

In System mode, Select “VoIP setting” Using the (-) key. After choosing the VoiP setting, enter display name, User name, Auth User name, Domain, 1st proxy and 2nd proxy.

1	Select “5.VoIP setting” in System mode	
2	Put into Display name, User name and Ath.user name Display name: type the display name of phone User name: type phone number or user name registered in SIP Proxy Auth. User name: User ID for SIP Proxy	
3	Put into Auth.Password and Domain. Auth. Password: User Password for SIP Proxy Domain: Domain Server	 

4	Put 1st_Proxy and 2nd_Proxy. 1st_proxy: SIP 1st proxy 2nd_proxy: SIP 2nd proxy	 

QoS

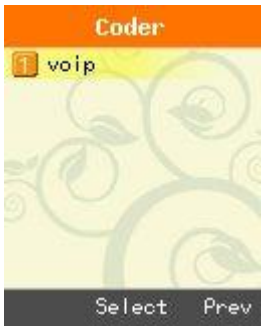
Qos: Quality of Service

1	Select “8.QoS” in System mode	
2	Select “VoIp” in QoS mode	

3	Enter Signal DSCP and Voice DSCP.	

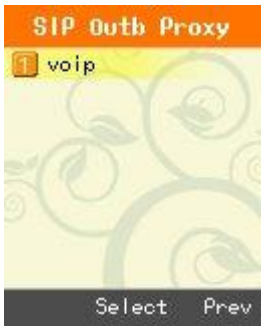
Coder

WPU-7700 supports G.711-ALaw-64K, G.729, G729 codec.

1	Select “9. Coder” in System mode	
2	Select “Coder” in Coder mode	
3	Press the OK key (OK) to set Multiframe. Select the coder type you wish to set it.	

		
4	Select “Menu” in Voip mode to set the priority. Set the priority order of audio coder.	 

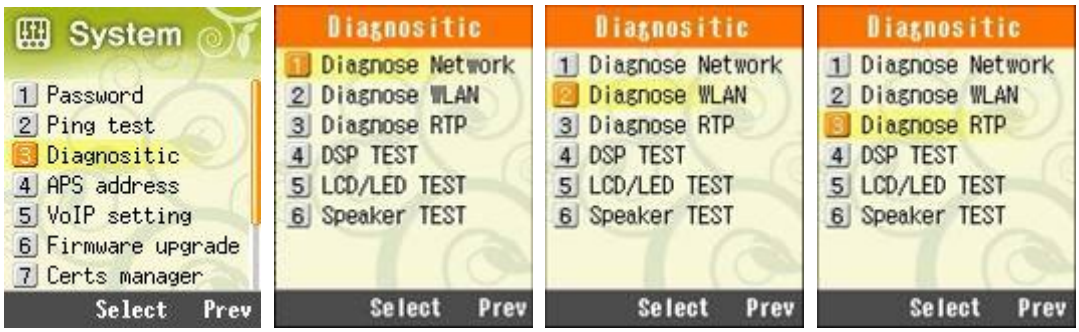
SIP Outbound Proxy

1	Select “10. SIP Outb Proxy” in System mode.	
2	Select “Voip” in SIP Outb Proxy mode	
3	Put the SIP Outbound Proxy.	

DIAGNOSTIC

Diagnose Network

Select “Diagnostic” in System mode. Diagnose Network, WLAN and RTP.



Results of Diagnose Network

In NetDiag, if performing the diagnosis of the Network, diagnosis of the connection of wireless LAN, TCP/IP LAN/WAN, LAN/WAN PER test is by turns performed. It takes about three to five seconds to finish all the processes, and all input key shall be inactive until finish the diagnose network.

While diagnosing the network, it is possible to know if the network is off, the spot causing is pinpointed, and the unstable area is able to be pinpointed when there is a bad connection while connected, for example, wireless signal in good condition, PER of local area of LAN doesn’t excel 5%, while when that of WAN excel 20%, the connection to AP is no bad, but the connection from AP to L2/L3 device Is bad – ex, because of virus of PC, Broadcast packet is congested.

VoIP forum and WiFi alliance, and etc. say that PER will not to excel 8%, if in over 20%, Speaking by telephone may be impossible for its bad connection.

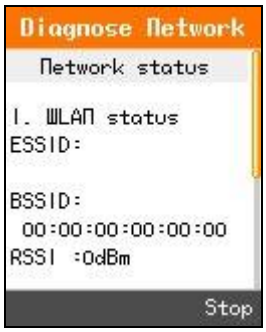
Diagnose Network explanation

1. WANN status (Connection of wireless LAN)

ESSID: Present-connected SSID of AP

BSSID: Present-connected MAC Address of AP

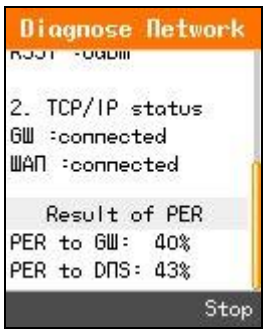
RSSI: Received Signal Strength Indication from the AP present-connected



2. TCP/IP status (Connection of TCP/IP)

GW: connection to Gateway

WAN: connection to WAN



3. Result to PER (Packet Error Rate)

PER to GW: packet error rate to GW. PER test to Gateway (ping to GW per 20ms period, 100 units)

PER to DNS: packet error rate to DNS. PER test to DNS1 (ping to DNS1 per 20ms period, 100 units)

Diagnose WLAN

WLAN and search available Access Point. It will be searching the unit of the Access Point and the unit of the Channel‘s Access Point.

Can not receive the call while scan WLAN network.

Results of the Diagonose WLAN

The diagnosis of wireless[radio] communication surroundings is possible to find out the connection from WPU-7700 to AP, the units of AP around and inside of the present-connected channel, and variables of the surroundings through diagnosing the status of wireless local area

Each output information is automatically updated once per one minute, AP status around can be updated pressing on the soft key (searching). Automatic update of AP around net-time is not recommended, but need to press on the button when needed, because frequent updating by scanning could give bad influence, when engaged

Each information unit is, except for dBm, is (RSSI/SNR/NF) hexadecimal of them.

RSSI: Received Signal Strength Indication (dBm)

SNR: Signal to Noise Ratio (dBm)

NF: Noise Floor (dBm)

RP: Rx Packet Count/Rx Bytes

TP: Tx Packet Count/Tx Bytes

RE: Rx Error Count/Rx Dropped Count/Rx Length Error Count TE: Tx Error Count/Tx Dropped Count

FC : Tx Failed Count - Increments when a MSDU is not successfully transmitted

RC : Retry Count - Increments when a MSDU is successfully transmitted after one or more retransmissions

MRC : Multiple Retry Count - Increments when a MSDU is successfully transmitted after more than one retransmission

FDC : Frame Duplicate Count - Increments when a frame is received that the Sequence Control field is indicating a duplicate count

RSC : RTS Success Count - Increments when a CTS is received in response to an RTS

RFC : RTS Failure Count - Increments when a CTS is not received in response to an RTS

AFC : Ack Failure Count - Increments when an Ack is not received when expected

FEC : FCS Error Count - Increments when a FCS error is detected in a received MPDU

TFC : Transmitted Frame Count - Increments for each successfully transmitted MSDU

WUC : WEP Undecryptable Count - Increments when a frame is received with the WEP subfield of the Frame Control filed set to one The WEP On value for the key mapped to the TA's MAC address indicates that the frame is not encrypted or frame is discarded because the receiving station is not implementing the privacy option

Scanned AP

Scanned AP: Searched units of AP around.

0 channel: AP units of present-associated channel

Diagnose RTP

Present-displayed screen show that the phone is disconnected.

Present-displayed screen show that the phone is connected.

Oral input/output diagnosis

When the one-way call of inbound/outbound happens, it is possible to know if present RTP packet, to DSP device, is input/output

When engaged, through the diagnosis of wireless [radio] communication surroundings, it's possible to notice if the status of input/output to DSP is in good progress, when the Tx/Rx count is increasing.

Following information is, being automatically-updated, printed every two seconds.

RX: Rx Count/Rx Lost Count

TX: Tx Count/Tx Lost Count

Jitter: jitter

Delay: delay (When RTCP is not active, Output Coder of 0xffffffff:

-0x2 : G711A

-0x4 : G711U

-0x20 : G729AB

Diagnosis by checking RTP

-Connect phone from P1 to P2.

-Having a Hold in P1.

-In P1, Press on the Hidden key before pressing on SEND.

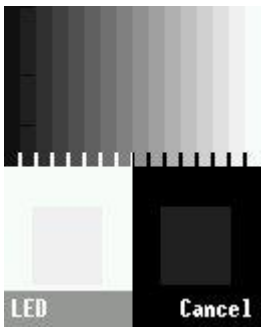
-Diagnosis by clicking RTP.

-Result value is displayed.

DSP TEST

1	Select “4. DSP TEST” in Diagnostic mode.	
2	Diagnose the Digital Signal Processing of the phone.	

LCD/LED test

1	Select “5.LCD/LED TEST” in Diagnostic mode.	
2	Diagnose the LCD and LED of the phone. .	

Speaker TEST

1	Select “6. Speaker TEST” in Diagnostic mode.	
2	Diagnose the speaker of the phone. .	

Ping test

1	Select “2. Ping test” in System mode. Ping Test is accessible for simple diagnosis of network.	
2	Select “1.Gateway, DNS server, APS address or Manual input” in Ping test mode. .	
3	Send the ping through the Gateway, DNS server, APS address and Manual input. . DNS server APS server	 

	Manual Input	 

AUTOPROVISINING GUIDE

WPU-7700 supports autoprovisioning to configure and to update firmware.

General Sequence of Autoprovisioning

① Get IP from DHCP Server

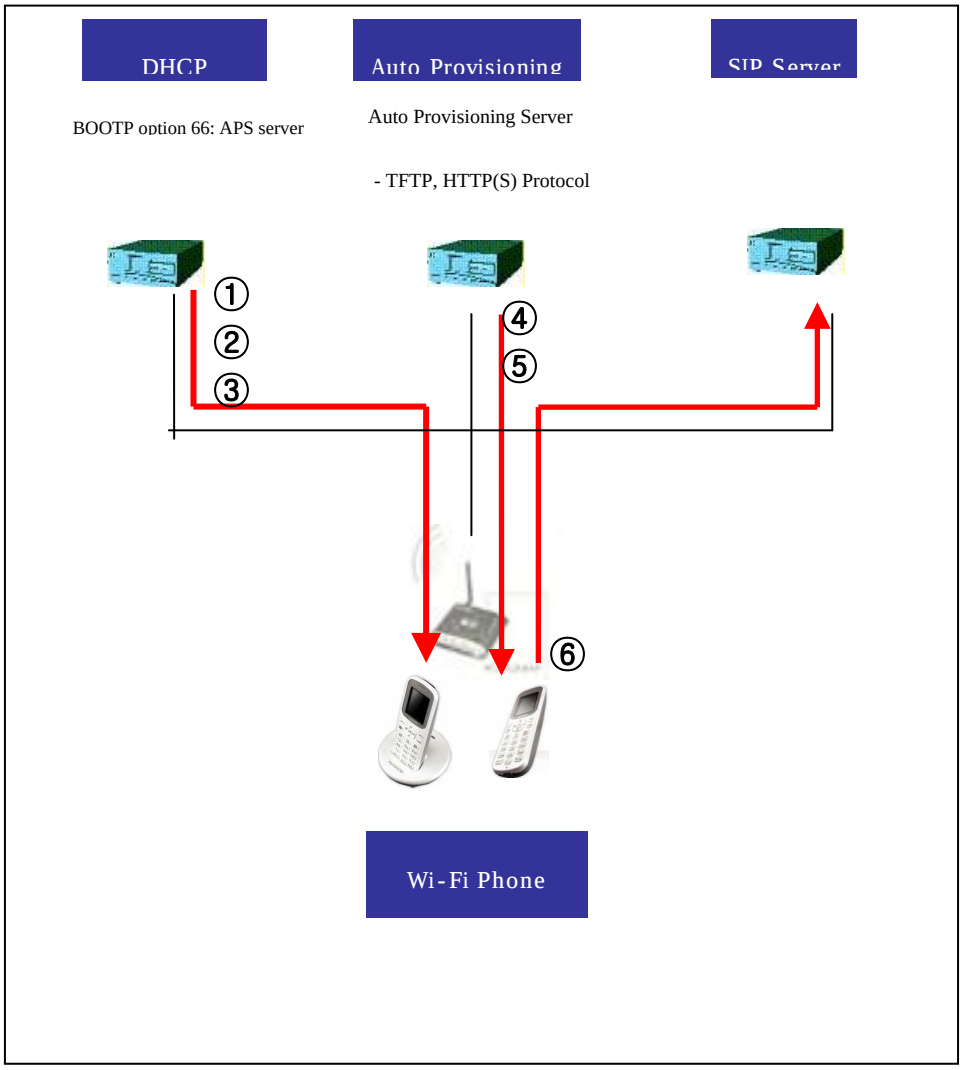
② Get APS Address from BOOTP option 66

③ Get General. ini (Configuration file)

④ Get Mac. Ini (Configuration file)

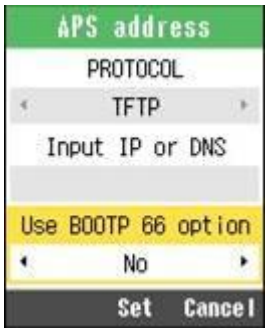
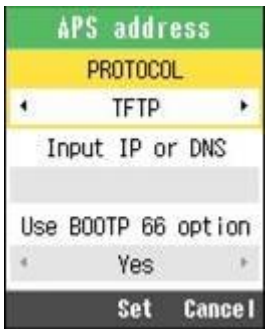
⑤ Firmware download from APS

⑥ SIP Registration



Setting Auto provisioning Server Address

There are two way to set Auto provisioning Server address. The first one is input address in menu via the key pad; another one is getting the address by DHCP server with the bootp option 66.

1	Select “4. APS address Ping test” in System mode.	
2	To set the address in manually, choose APS address in the administrator menu. Three protocols, HTTP, HTTPs and TFTP are available. Please make sure USE BOOTP 66 option is NO when using in manually setting the address. .	
3	To set the address by DHCP BOOTP 66 option, please make empty in the input IP or DNS field. Make USE BOOTP 66 option filed to YES. WPU-7700 will get configuration file from autoprovsioning server in the next boot up. .	

Setting the .ini file in Autoprovisioning Server

Users use the value of two Entry after modifying according to each condition. Make sure that sever IP will be root directory of autoprovisioning server.

e1_Common .ini(Configuration Entry)

Entry: example/explanation

[SYSTEM]

Language: 1 / select language min : 0, max : 65535 Eng:1

Admin_Password = 000000 / min:5 digits , max :7 digits

Country_Tone_Type = 44 / min: 1, max: 999

Tone table:

U.S 1 South Africa 27 Greece 30 Netherlands 31

Belgium 32 Spain 34 Italy 39 Switzerland 41 Austria 43

United Kingdom 44 Denmark 45 Sweden 46 Germany 49

Brasil 55 Japan 81 Korea 82 China 86 Hong Kong 852

[RTP_RTCP]

Use_RTCP = 1/ min:0 (disable), max : 1 (enable)

RTP_Port_Min = 9000 / min:1024 , max :65535

RTP_Port_Max = 9020 / min:1024 , max :65535

RTCP_Report_Interval = 5000 / min:0 , max :65535: sending RTCP term

RTCP_CNAME = WPU-7700 / min:0 char, max :24 chars

Last_RTP_Received_Timeout = 0 / min:0 , max :65535, 0 : disable, 30 : default, 0 ~ 65535 (sec)

[TIME]

ntp_refresh_interval = 7200 / min : 60, max : 3153600: get information interval from NTP server(sec)

ntp_server1 = ‘203.248.240.103’ / min 0, max: min : 0, max : 50 chars

ntp_server2 = "203.254.163.74" / min 0, max: min : 0, max : 50 chars

[SIP]

local_port: 5060 / min:5000, max:40000, SIP default port

[MWI]

Use_MWI = 1 / min: 0(not use), max : 1 (use): Message waiting indication

Use_Subscribe = 1 / min: 0(not use), max : 1 (use): Message subscribe

Subscribe_Server =”null” min: 0, max :50 chars (sending subscribe server address, Null case SIP sever suscribe)

Subscribe_Expire = 3600 / min: 180, max :65535(sec)

VMS_Alias = "" / min: 0, max :40 chars(Setting MWI number account)

[WIFI]

Enable_Check_Server_Cert = 0 / min : 0, max : 1 (BOOL) change to be enabled to check certification of server

[WIFI_SCAN]

scan_channel_list : 1,2,3,4,5,6,7,8,9,10,11,12,13 ,14 / min: 0, max : 40 chars channel

Making CSV Format 1~ 14 using channel(default 1~14 included)

[ROAMING]

Try_Beacon_Signal_Level = -77 / min :-103, max : 0

Try to roaming if received beacon frame is signal strength less than setting value

Try_Rx_Signal_Level = -77/ min :-103, max : 0(signal level(dBm))

Try_Over_TxError_Count = 5 / min:0 , max : 255

Try to roaming if Tx error is continuously occurred more than setting value

[NETWORK1]

Enable = 1 / min : 0, max : 1 (BOOL)

SIP_Outbound_Proxy = "0.0.0.0" / min :0, max : 50 chars

SSID = voip / min :0, max : 32 chars

Enable_DHCP = 1 / min : 0, max : 1 (BOOL)

Address = 0.0.0.0 / IP Address Format

Netmask = 255.255.255.0 / IP Address Format

Gateway = 0.0.0.0 / IP Address Format

DNS1 = 0.0.0.0 / IP Address Format

DNS2 = 0.0.0.0 / IP Address Format

Security = 2 / min :0, max : 5

Security(0: none, 1: WEP, 2: WPA-PSK, 3: WPA2-PSK, 4: WPA-EAP, 5: WPA2-EAP)

WEP_Bits = 0 /min :0 (0: 64bits), max : 1 (128bits)

Default_WEP_Key = 1 / min :1, max : 4

WEP_Key1 = "" (null) / min :0, max : 87 digits ex) 00:00:00:00:00

WEP_Key2 = "" (null) / min :0, max : 87 digits ex) 00:00:00:00:00

WEP_Key3 = "" (null) / min :0, max : 87 digits ex) 00:00:00:00:00

WEP_Key4 = "" (null) / min :0, max : 87 digits ex) 00:00:00:00:00

Post_Authentication_Mode = 0 / min :0, max : 2 (0:Auto, 1:open, 2:shared)

8021X_Name = "" (null)/ min :0, max : 20 chars

8021X_Password = "" (null)/ min :0, max : 20 chars

WPA_PSK_PassPhrase = un1d4t4wpu7700 / min :0, max : 63 chars

WPA_PSK_Key = 5ae4b848d871fdcba8dda23716245901b0e5ea8047b06e4445e94d96ec27ee23

Use_WPA_PSK_Key_Hex_Mode = 1 / min : 0, max : 1 (BOOL) 0: ASCII, 1: HEX (default ASCII)

Proactive_Key_Caching = 1 / min : 0, max : 1 (BOOL)

This entry can be used to enable proactive key caching which is also known as opportunistic PMKSA caching for WPA2. This is disabled (0) by default. Enable by setting this to (1)

PMK_LifeTime = 43200 / min : 100, max : 86400 (0 : disable) Lifetime of a PMK

PMK_Max_Count = 32 / min : 1, max : 100

DiffServ_Signal = 46 / min :0, max : 63

DiffServ_Media = 46 / min :0, max : 63

WMM = 1 / min : 0, max : 1 (BOOL)

Jitter_Buffer_Size = 60 / min :20, max : 200(ms)

Payload_Type = 8,18,0 / min :0, max : 20 chars(Csv format)

Multiframe = 2,2,2 / min :0, max : 20 chars

[NETWORK2~4]

Reference Network 1

[PROVISION]

Firmware_Version = 02.01.00 / min: 0, max :30 chars

Firmware_Name = wpu7700-common-20081031-02-01-00.zip / min: 0, max :128 chars

e1_respective_mac.ini(Configuration Entry)

[USER_ACCOUNT]

Displayname = “null”/ min:0 , max :30 chars

Phone_Number = “null”/ min:0 , max :30 chars

User_ID = “null”/ min:0 , max :30 chars :authentication ID

User_Password =“null”/ min:0 , max :30 chars : authentication password

[SERVER_SETTINGS]

1st_Proxy = "" (Null) / min:0, max : 70 chars : primary sip proxy server

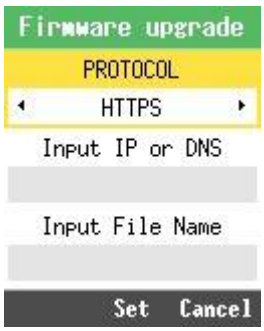
2nd_Proxy = "" (Null) / min:0, max : 70 chars : primary sip proxy

Domain_Realm ="" (Null) / min:0, max : 64 chars; Domain Name/Realm

Register_Expire = 3600/ min:60 ,max : 86400(sec)

FirmWare upgrade

There are two way to set Firm ware update. The first one is input address in menu via the key pad; another one is upgraded by Autoprovisoning server automatically.

1	Select “6.Firmware Upgrade” in System mode.	
2	Select protocol, input IP and File name.. “procotol/server.IP/filename.ini In case of server with HTTP, 192.168.1.10 and unidata.ini, enter “HTTP/192.168.1.10/unidata.ini”	
3	Frimware will be updated. It can not be upgraded if the Firmware version is same or less than. Make sure that the server should be root directory. Don’t tune the phone off during update. Make sure battery is enough. Power off during update will cause phone malfunction.