Mobile VoIP -2

User Manual

【Content】

1.Introduction

Mobile VoIP -2 is a 2 channels VoIP GSM Gateway for call termination (VoIP to GSM) and origination (GSM to VoIP). It is SIP based and compatible with Asterisk. It can enable to make 2 calls simultaneously from IP phones to GSM networks and GSM network to IP phone.

2.Function description

2.1 VoIP(SIP)、GSM(MOBILE VOIP) conversion.

2.2 50 sets of LAN->MOBILE routes setting，50 sets of MOBILE->LAN routes setting.

2.3 Voice response for setting and status (dial in from mobile).

2.4 Series connections to save bills.

2.5 Standard SIP(RFC2543,RFC3261) protocol，Communicates with other gateway or PC.

3.Parts list

Please check the parts for any missing parts. If do, please contact our agents：

3.1 「MOBILE VOIP-2」main body

3.2 Power adaptor AC-DC (110V AC – 12V DC) or (220V AC – 12V DC)

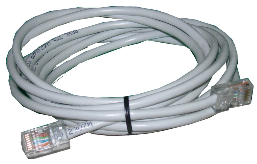
3.3 Network cable

3.4 Antenna

3.5 User Manual

(1)

(2)

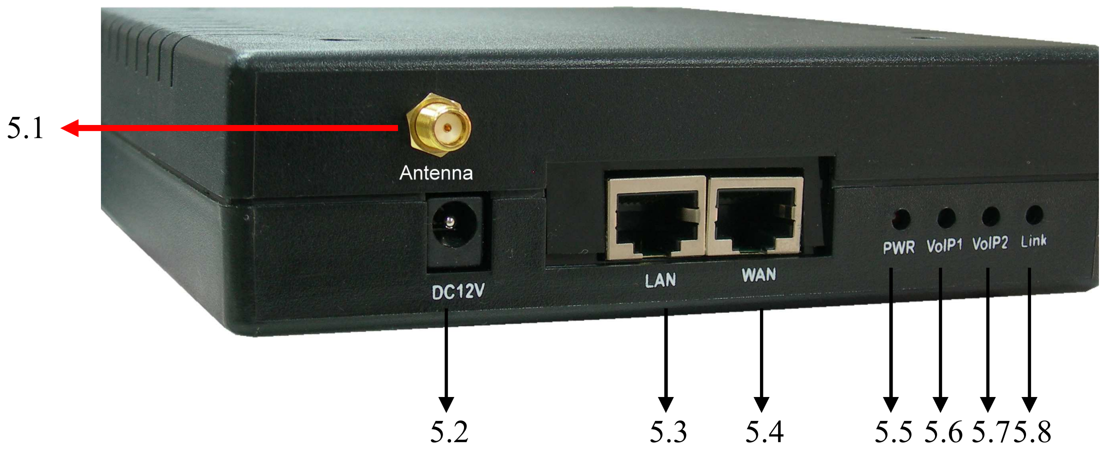


(3)

(4)

4.Dimension

5.Chart of the device



5.1 Antenna：Antenna connector.

5.2 DC 12V：Power input.

5.3 LAN：LAN port. It also can be DHCP Server.

5.4 WAN: RJ-45 internet connector，standard RJ-45 socket，connect to HUB.

5.5 PWR (Power LED)：Light up when power is normal.

5.5 VoIP1：an indicator light of VoIP1

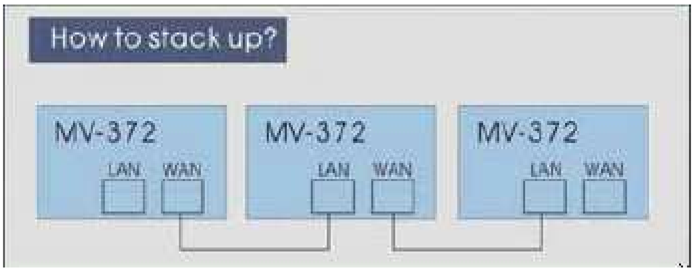
5.6 VoIP2：an indicator light of VoIP2

5.8 LINK Indicator：Light up when network is connected.

6.CABLING

6.1 Connect the internet cable from HUB to the 'WAN' connector of the Mobile VoIP-2.

*If you need to stack up more Mobile VoIP-2,you can stack up as follows.



6.2 Connect the antenna and put it in proper position to get the best signal reception.

6.3 Insert the SIM card from back of the main body. (take the slide off first).

6.4 Connect the power adaptor. The 'POWER' LED should be light up.

7. IP Setting

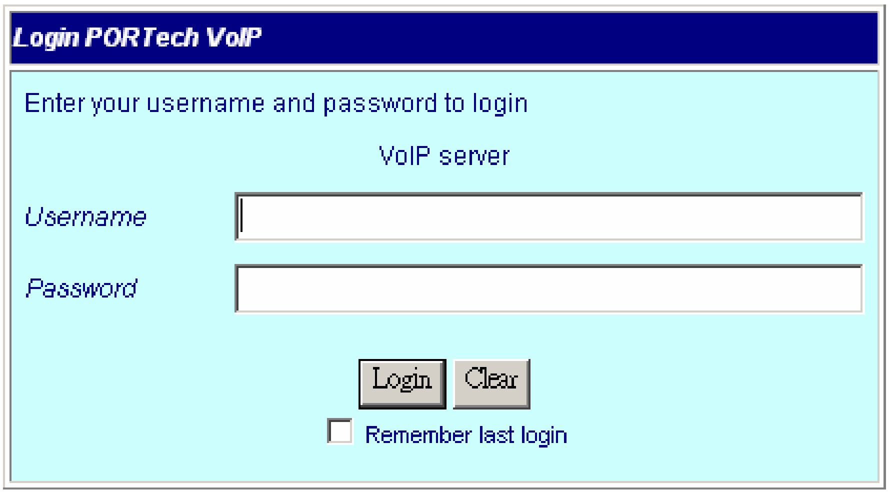
The operator can setup or query the network parameters by dialing in the mobile number which it SIM card has been put in the main body. The status or result is response by voice. In the first 20 seconds after power-on, the VoIP GSM Gateway enters the IP setting mode. The operator may dial in the mobile number during this period to set or query the network parameters.

Item	IVR Action	IVR Menu Choice	Notes
1	Reboot	#195#	After you hear “Option Successful,” hang-up. Unit will reboot automatically.
2	Factory Reset	#198#	System will automatically Reboot.WARNING: ALL User-Changeable” NONDEFAULT SETTINGS WILL BE LOST! This will include network and service provider data.
3	Check IP Address	#120#	IVR will announce the current IP address , Default : 192.168.0.100
4	Check IP Type	#121#	IVR will announce if DHCP in enabled or disabled. default : OFF
5	Check Network Mask	#123#	IVR will announce the current network mask.Default : 255.255.255.0
6	Check Gateway IP	#124#	IVR will announce the current gateway IP address,

	Address		Default : 192.168.0.254
7	Check Primary DNS Server	#125#	IVR will announce the current setting in the Primary DNS field. Default : 192.168.0.1
8	Check Firmware Version	#128#	IVR will announce the version of the firmware running
9	Set as DHCP client	#111#	The system will change to DHCP Client type
10	Set Static IP Address	#112xxx*xxx*xxx*xxx#	DHCP will be disabled and system will change to the Static IP type. Enter IP address using numbers on the telephone key pad. Use the * (star) key when entering a decimal point.
11	Set Network Mask	#113xxx*xxx*xxx*xxx#	Must set Static IP first. Enter value using numbers on the telephone key pad. Use the * (star) key when entering a decimal point.
12	Set Gateway IP Address	#114xxx*xxx*xxx*xxx#	Must set Static IP first. Enter IP address using numbers on the telephone key pad. Use the * (star) key when entering a decimal point.
13	Set Primary DNS Server	#115xxx*xxx*xxx*xxx#	Must set Static IP first. Enter IP address using numbers on the telephone key pad. Use the * (star) key when entering a decimal point.

8.Web Page Setting

When the IP setting is done, the operator may setup all the rest parameters via web page. Browse the IP address from Internet Explorer (e.g. http://192.168.0.100)。The following page shows up：

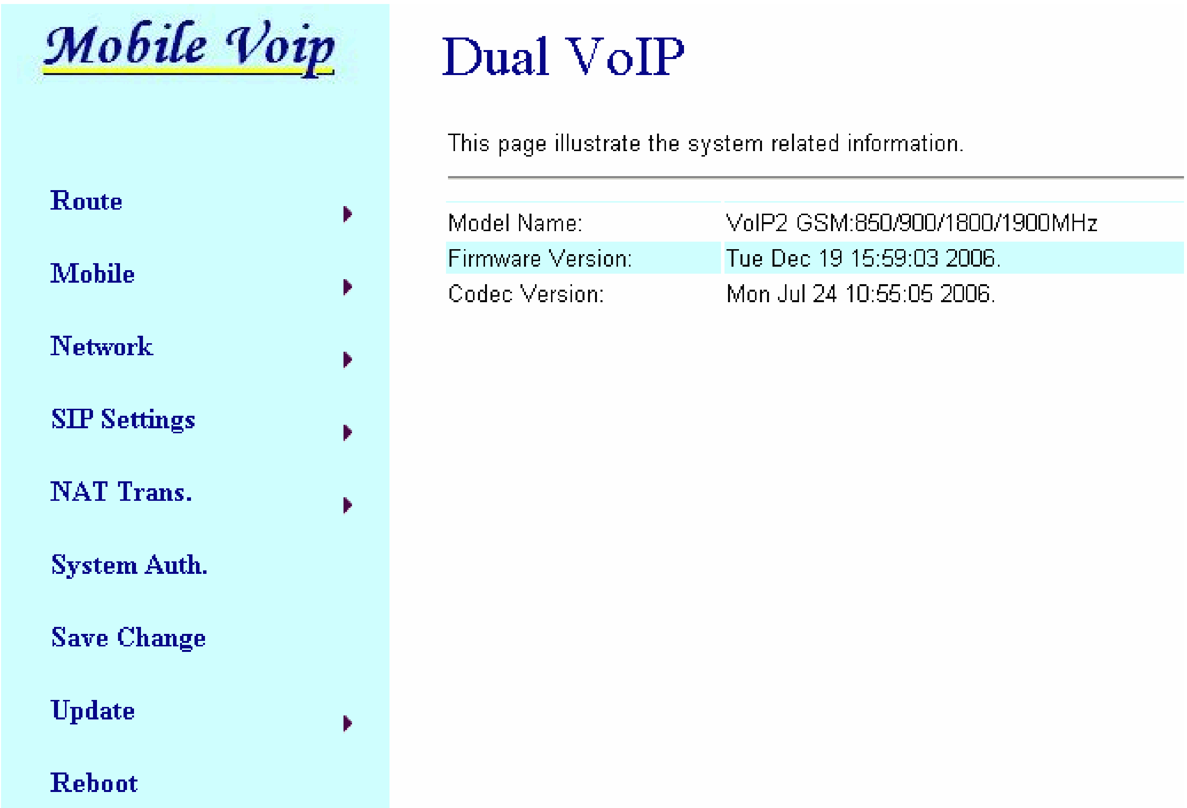


Enter the username and password for authentication. (default username=voip, password=1234). The page follows when the username and password are correct.

9.System Information.

9.1 When you login the web page, you can see the demo system current system information like firmware version, company… etc in this page.

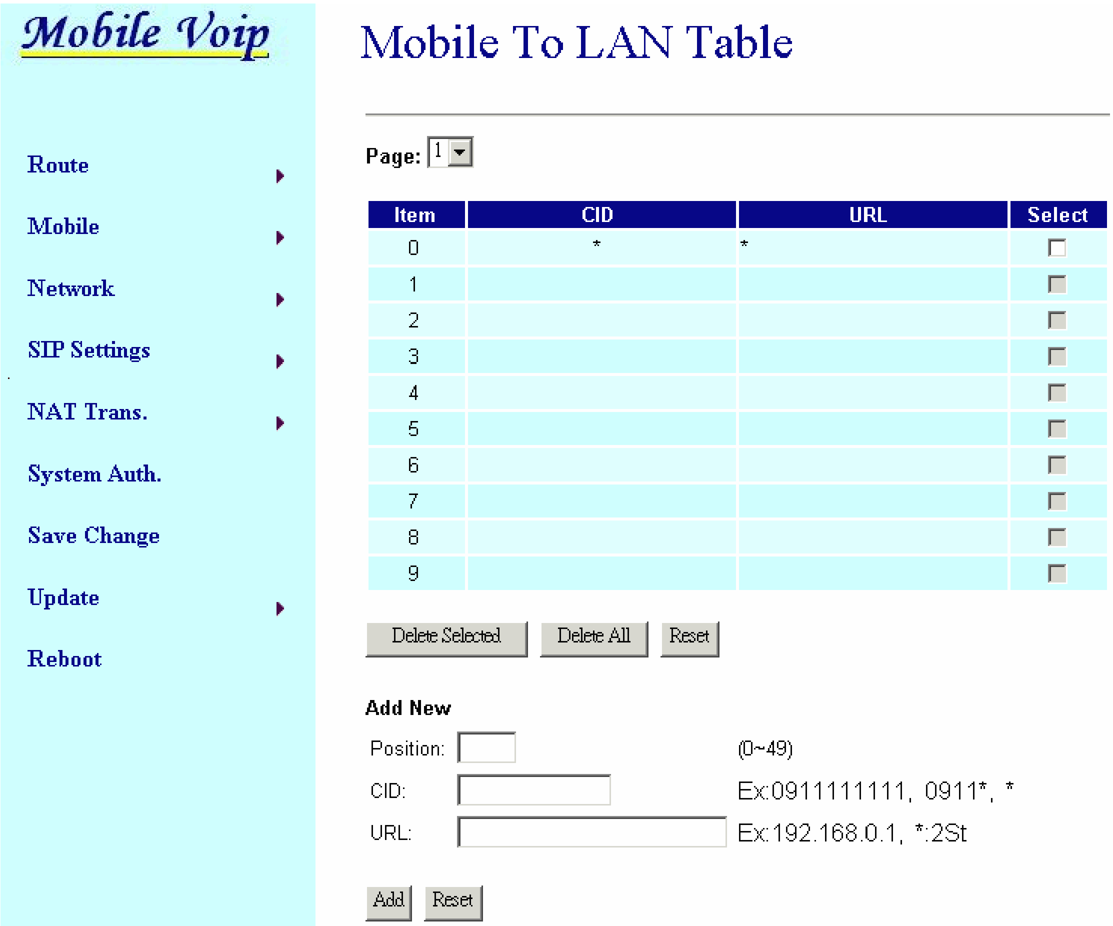
9.2 Also you can see the function lists in the left side. You can use mouse to click the function you want to set up.



10. Route

10.1 Mobile TO LAN Settings

The operator may assign 50 sets of routing rule to transfer the call incoming from MOBILE to LAN.



The MOBILE VOIP will transfer to the URL according to the caller ID of the Mobile.

*CID：

(1) may enter the whole number, e.g. 0911111111

(2) only part of the number (prefix) e.g. 0911* means any number starting with 0911 will be accepted

(3) * means all numbers can be accepted

(4) N means the calls without the CID

Please note the priority of the rules. The item which has more digits will have higher priority. If the digits are the same, then former one gets the higher priority.

*URL：The IP address to transfer this call

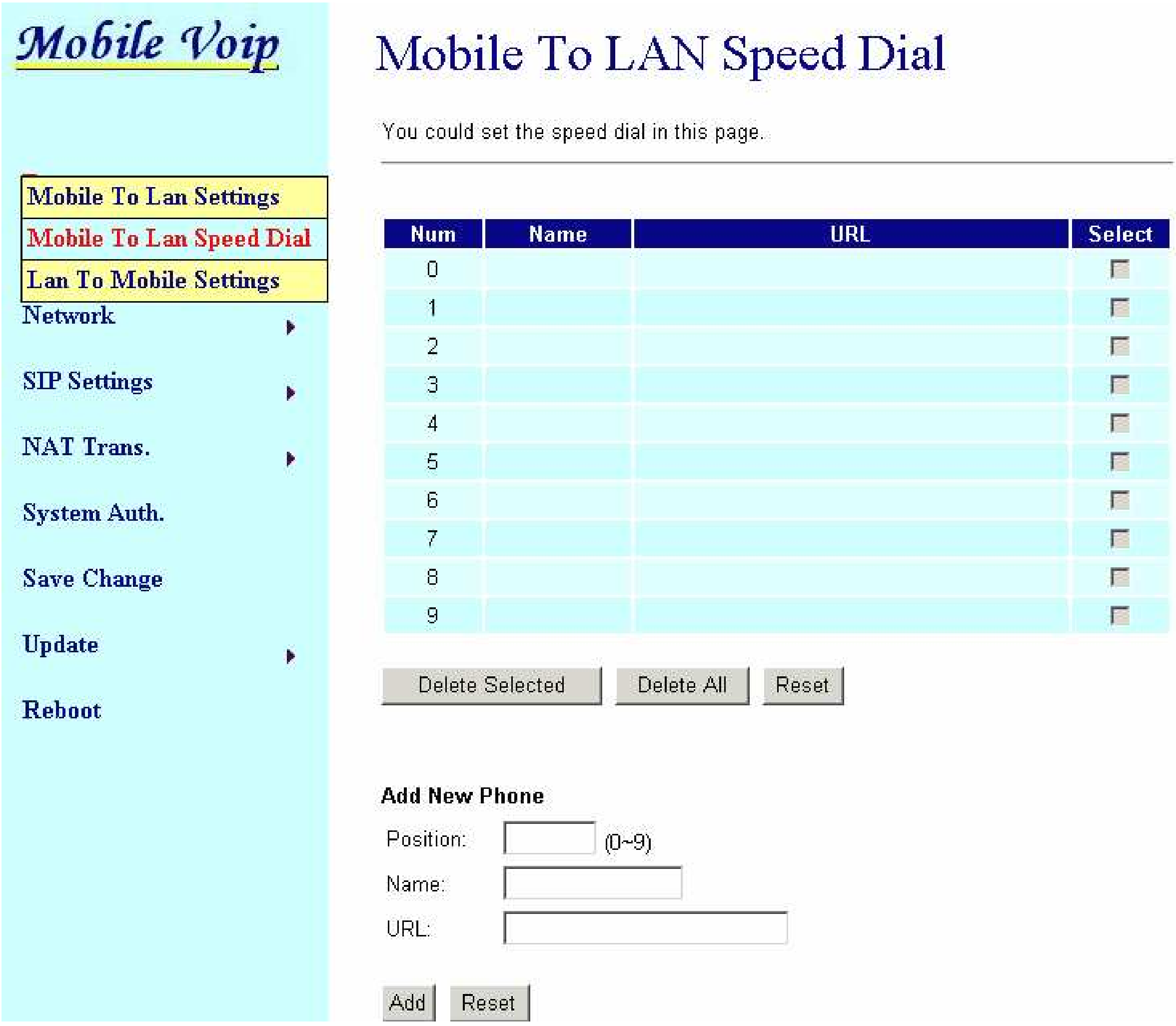
(1) may enter the whole IP address, e.g. 192.168.0.101 or proxy extension .

(2) If this field is blank or simply ‘N’, it means refuse to transfer.

(3) If an ‘*’ entered, it means 2-stages-dialing. The call will be answered and prompt dial tone again to receive the IP address as the destination. The caller may enter the IP such as 192*168*0*101#.

10.2 Mobile to LAN Speed Dial Settings

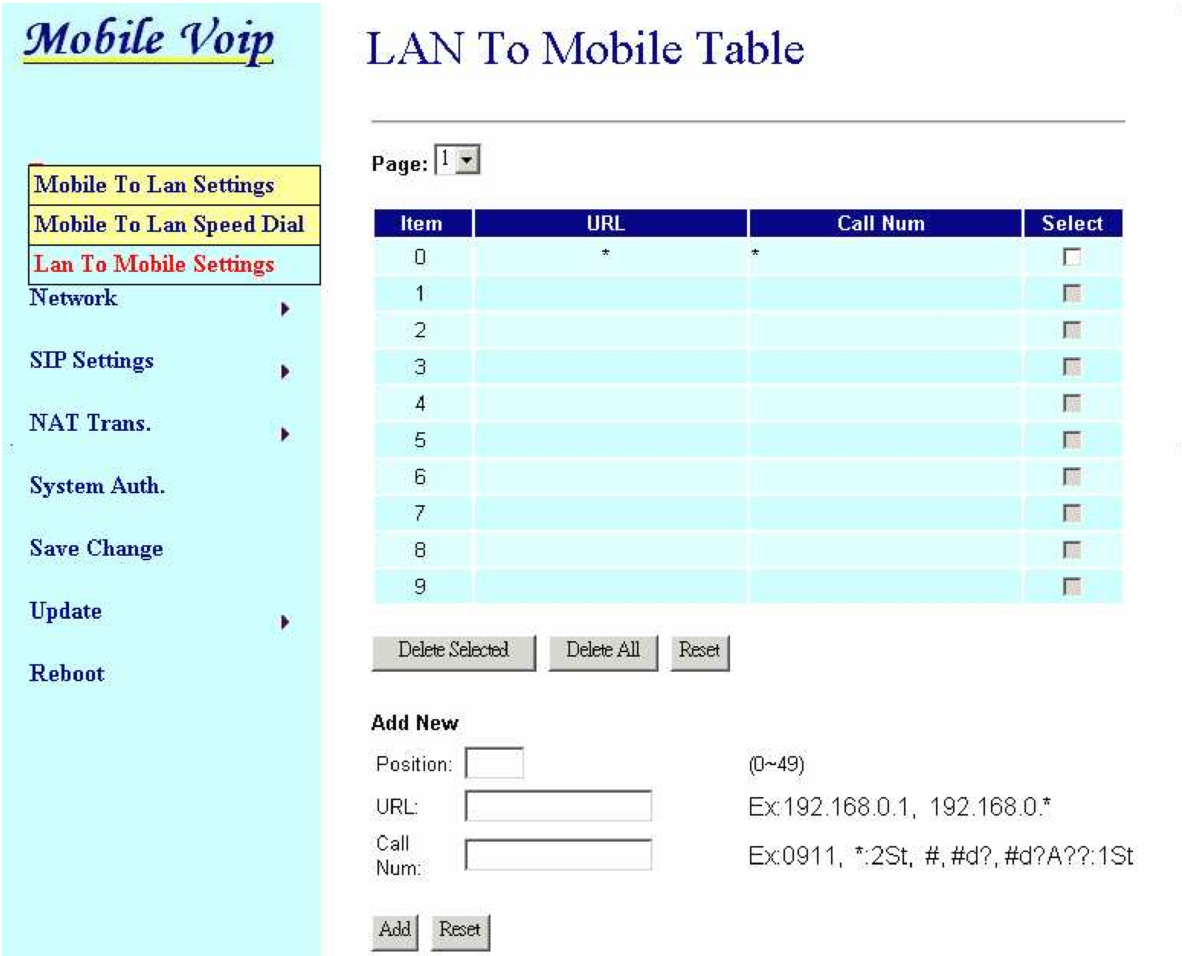
When you set Mobile to LAN Speed Dial Settings and Mobile to LAN at the same time,Mobile VoIP-2 will give priority to Mobile to LAN Speed Dial Settings.



*The call will be answered and prompt dial tone again. When the caller may enter the “Num”, system will connect the “URL” as destination.

10.3 LAN to Mobile Settings

The operator may assign 50 sets of routing rule to transfer the call incoming from LAN to MOBILE.



The MOBILE VOIP will transfer to the mobile number according to the incoming URL

*URL：The IP address of the incoming call.

may enter the whole IP address, e.g. 192.168.0.101 or proxy server’s extension. If a simple ‘*’ is entered, means no restriction for the incoming IP address.

*Call Num：

1.may enter the whole number, e.g. 0911111111

2.a simple *”means 2-stages-dialing. The call will be answered and prompt dial tone again to receive the called number as the destination, e.g. 0911111111 or 0911111111#

3.#['d'n]['a'ppp] for one-stage dialing

[...] is option

'd'n means to delete the beginning n codes,

'a'ppp means to add 'ppp' in front.

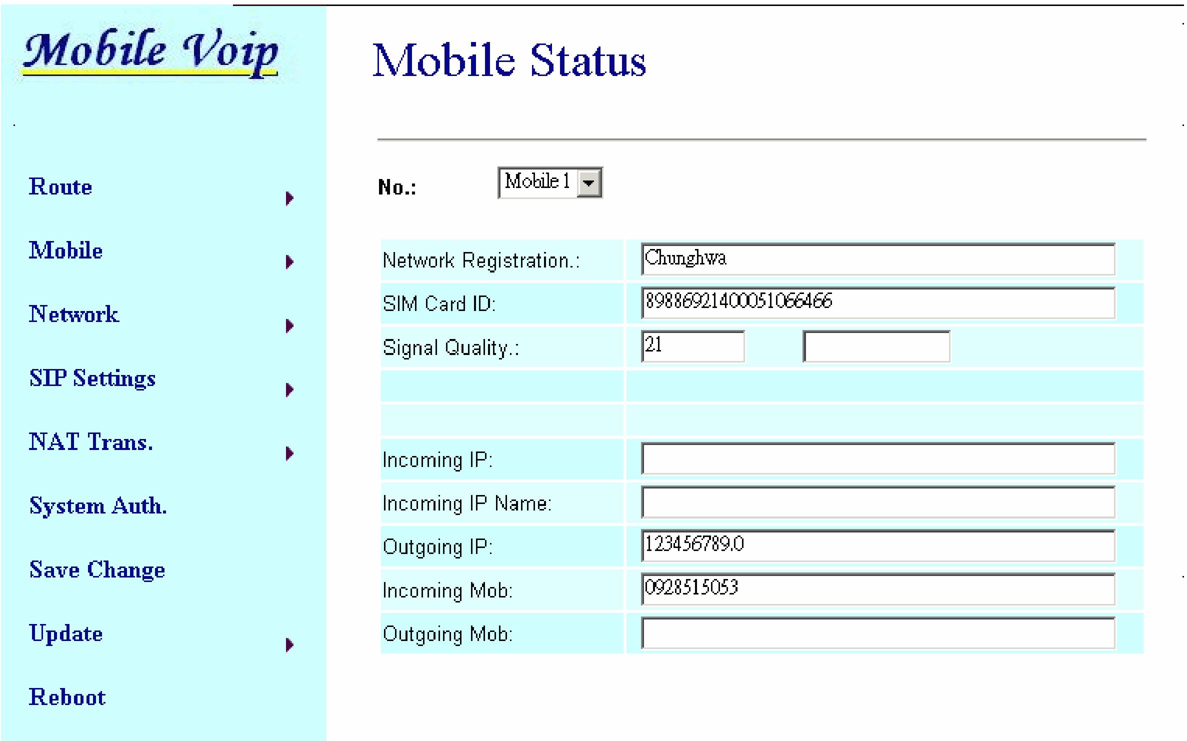
for example #d2a09 means one-stage dialing,

delete the first 2 codes from your destination number,

then add 09 in front as the new destination number.

11.Mobile

11.1 Mobile Status



(1)Network Registration：The telecom carrier which the SIM card been registered.

(2)SIM Card ID：SIM card ID.

(3)Signal Quality：Signal quality.

(4)Incoming IP：The IP address of the last incoming call from LAN.

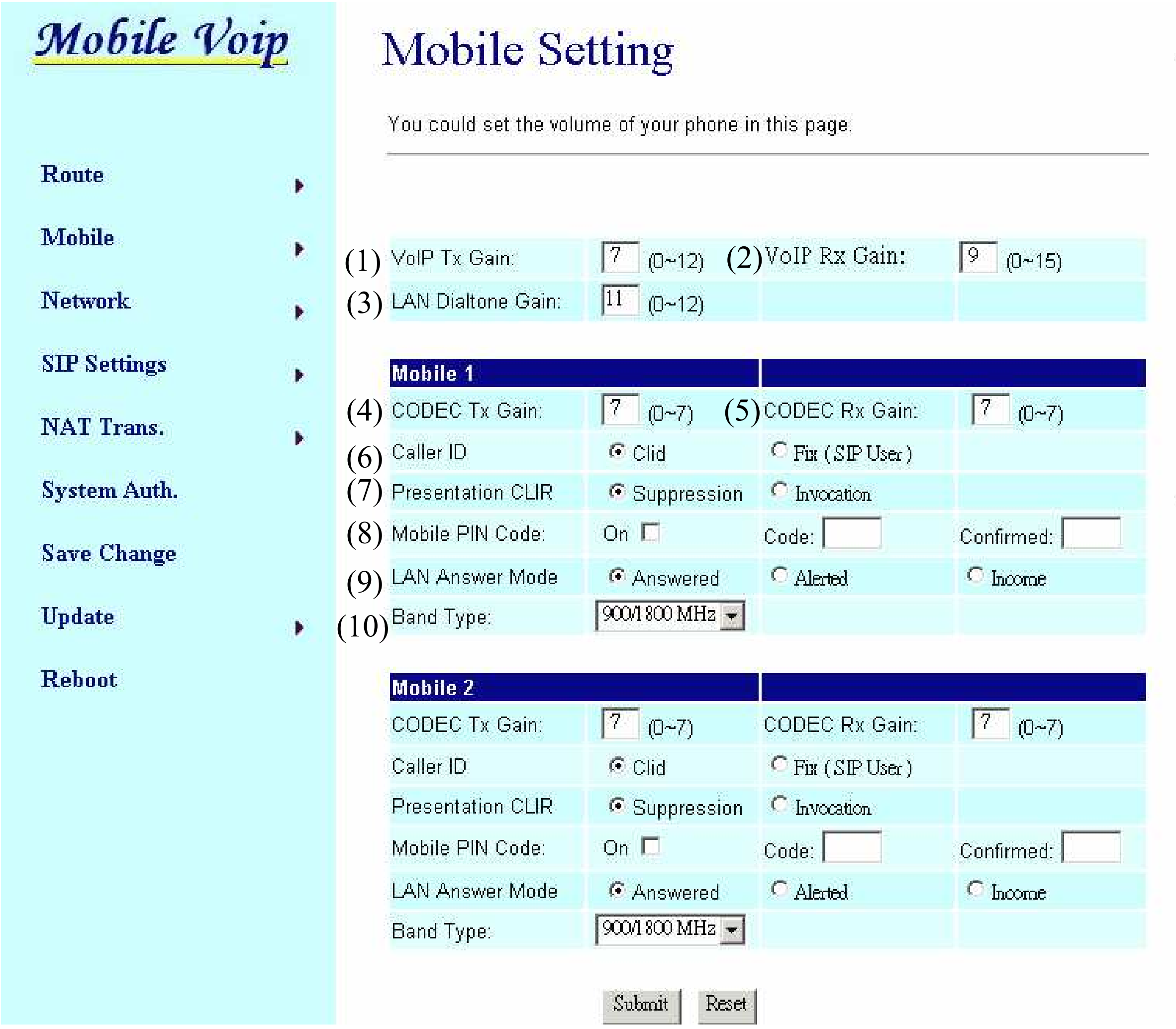
(5)Incoming IP Name: proxy server name

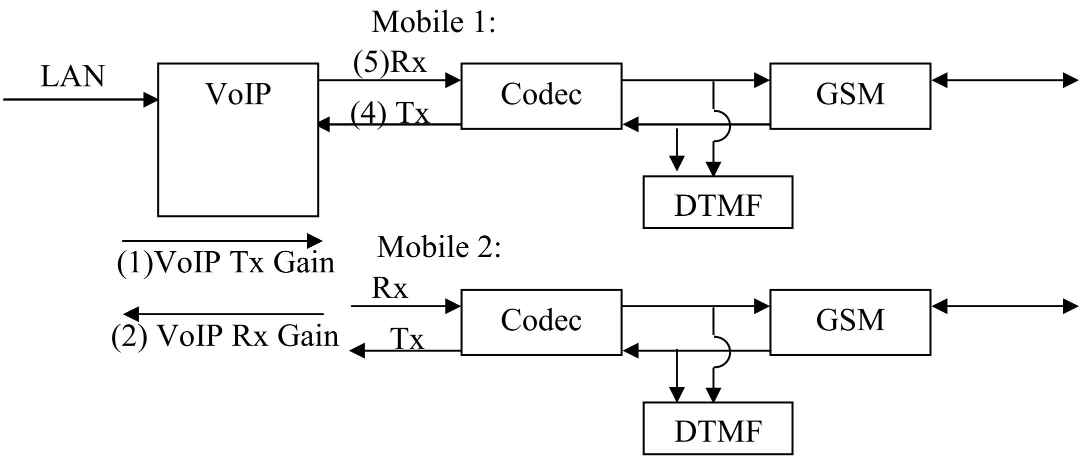
(6)Outgoing IP：The IP address of the last outgoing call to LAN.

(7)Incoming Mob：The caller ID of the last incoming call from MOBILE.

(8)Outgoing Mob：The called number of the last outgoing call to MOBILE.

11.2 Mobile Setting





(3)LAN Dialtone Gain: DTMF Reciver is not good,you can adjust gain down.

(4)CODEC Tx Gain: as above

(5)CODEC Rx Gain: as above

(6)Caller ID: You may select to display the Caller ID from GSM incoming call, or fixed SIP user name.

(7)Presentation CLIR : If you need to block the Caller Id for call termination,please choose Suppression

(8)Mobile PIN Code:If you need to unlock pin code via MOBILE VOIP,you can click “On” and enter pin code.

(9)LAN Answer Mode:

Answered : when mobile answer,then connect the call

Alerted : when the mobile is ringing back tone,then connect the call

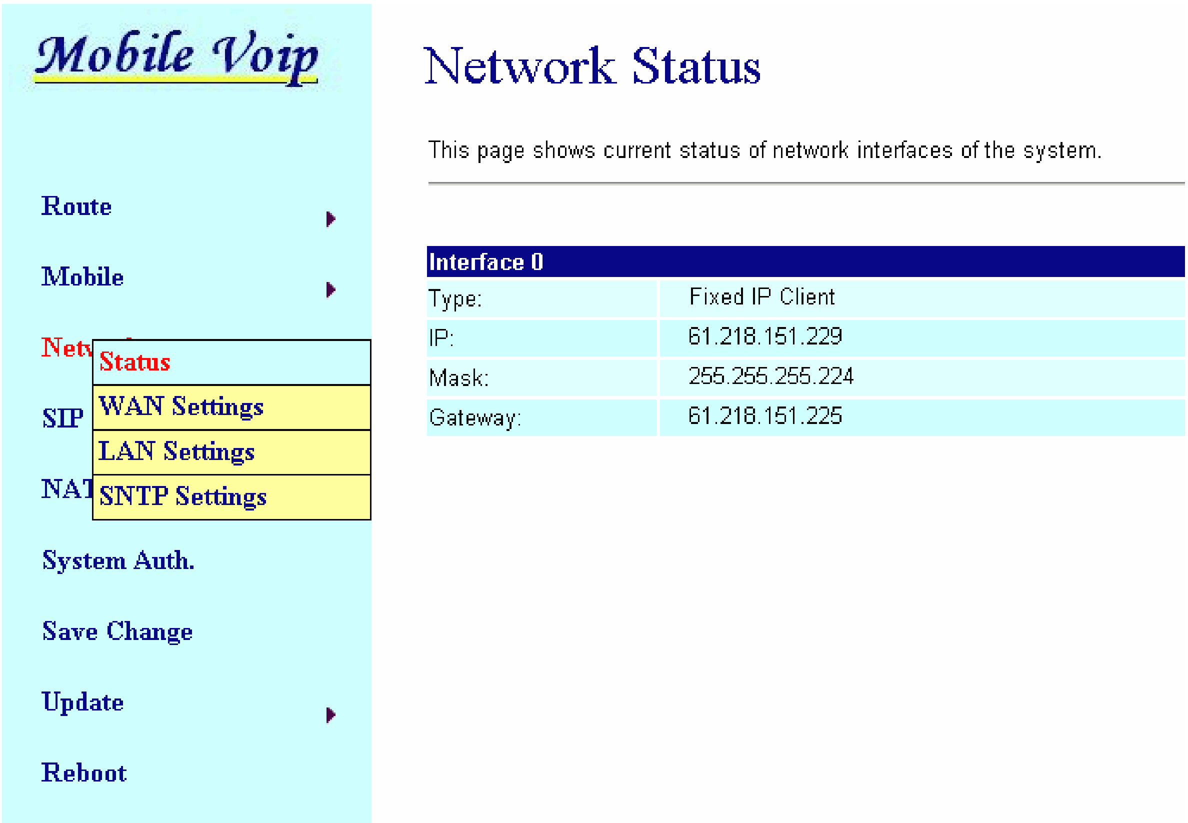
Income : when lan dial out,then connect soon

(10)Band Type:When you buy Quad band,you need to choose your GSM frequency

12.Network

In Network you can check the Network status, configure the WLAN Settings , LAN Setting and SNTP settings.

12.1 Network Status: You can check the current Network setting in this page.



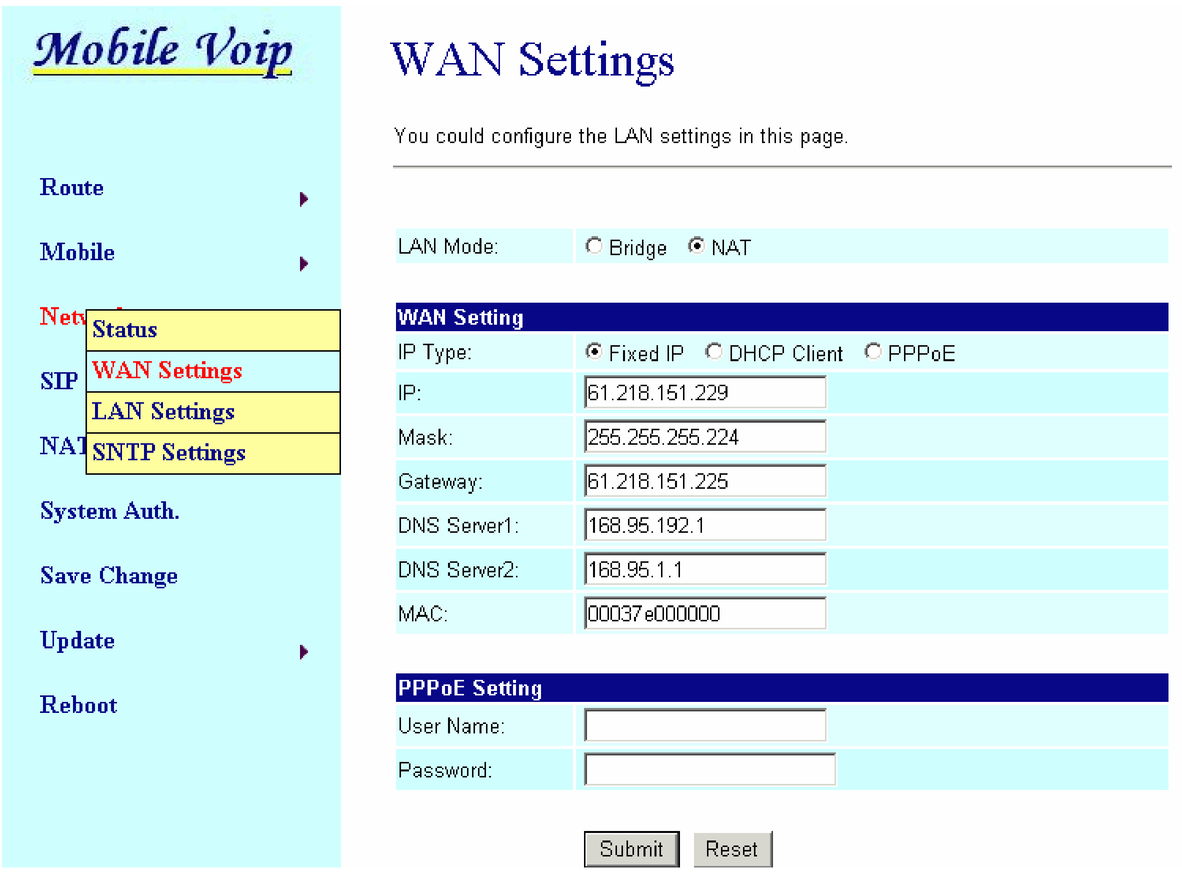
12.2 WAN Settings: You can check the current Network setting in this page.

(1) The TCP/IP Configuration item is to setup the WAN port's network environment. You may refer to your current network environment to configure the system properly.

(2) The PPPoE Configuration item is to setup the PPPoE Username and Password. If you have the PPPoE account from your Service Provider, please input the Username and the Password correctly.

(3) The Bridge Item is to setuo the system Bridge mode Enable/Disable. If you set the Bridge On, then the two Fast Ethernet ports will be transparent.

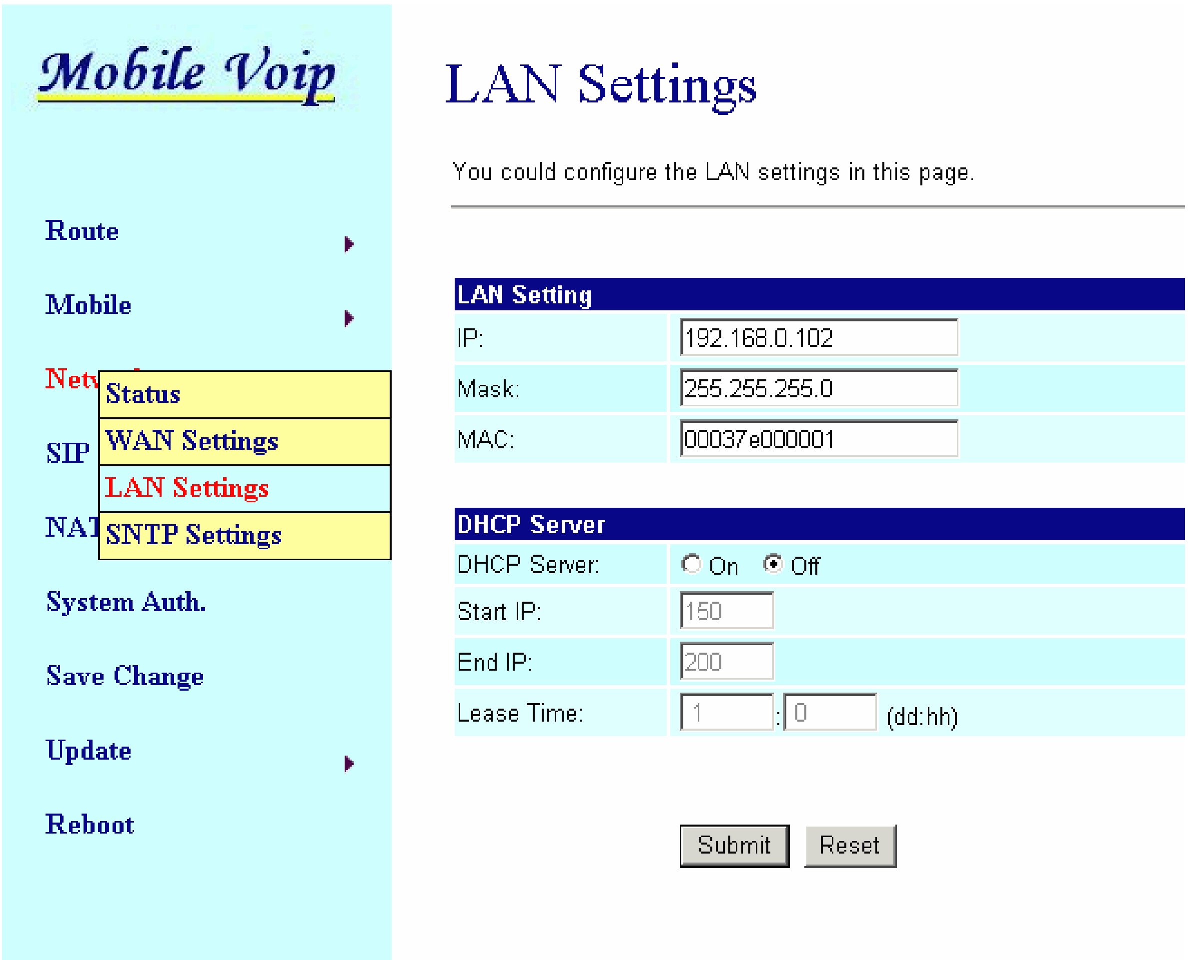
(4) When you finished the setting, please click the Submit button.



12.3 LAN Settings: You can check the current Network setting in this page.

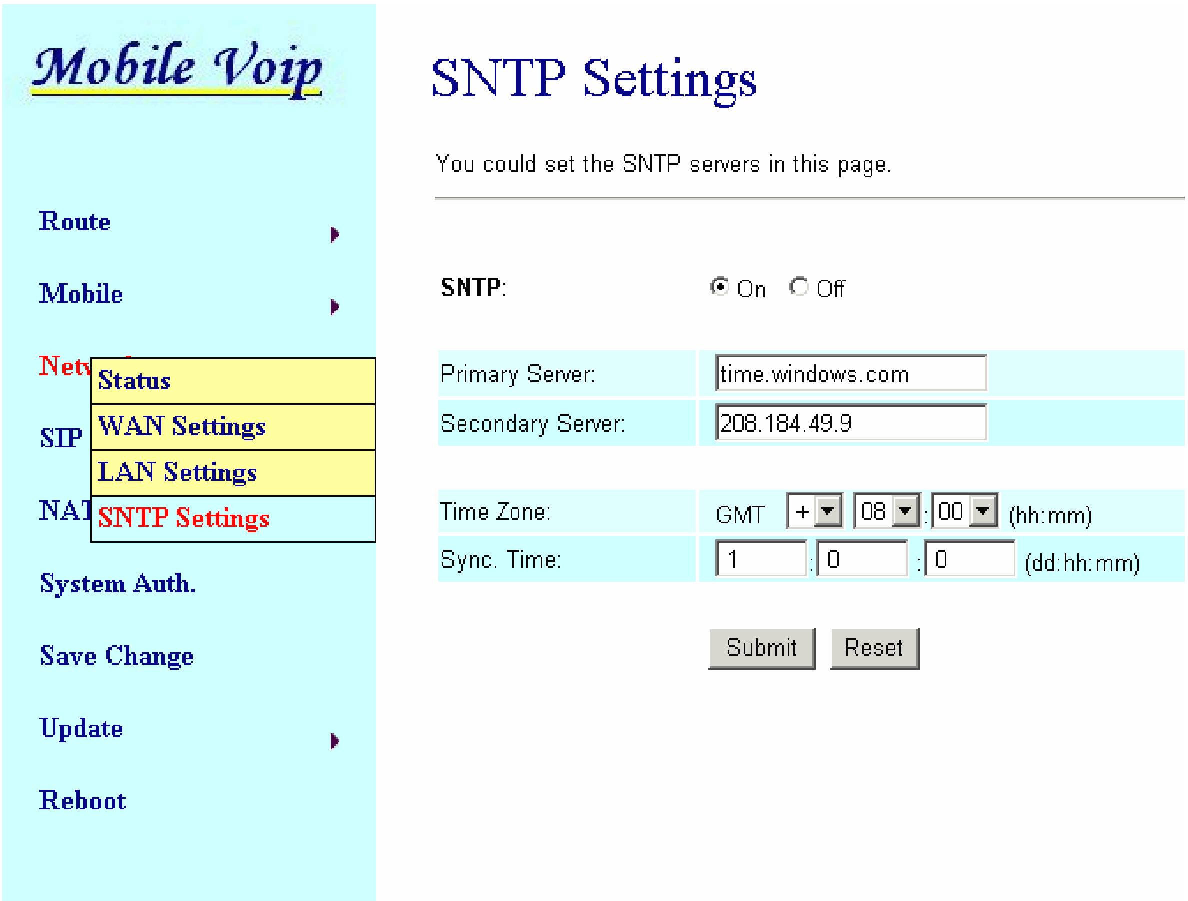
(1) The TCP/IP Configuration item is to setup the WAN port's network environment. You may refer to your current network environment to configure the system properly.

(2)DHCP Server: You may refer to your current network environment to configure the system properly



12.4 SNTP Settings:

SNTP Setting function: you can setup the primary and second SNTP Server IP Address, to get the date/time information. Also you can base on your location to set the Time Zone, and how long need to synchronize again. When you finished the setting, please click the Submit button.



13.SIP Setting

In SIP Setting you can setup the Service Domain,Port Settings,Codec Settings,RTP setting,RPort Setting and Other SettingS. If the VoIP service is provided by ISP,you need to setup the related informations correctly then you can register to SIP Proxy Server correctly.

13.1 In Servcie Domain Function you need to input the account and the related informations in this page,please refer to your ISP Provider. You can register three SIP accounts . You can dial the VoIP phone to your friends via first enable SIP account and receive the phone from the tree SIP account.

First you need to click Active to enable the Service Domain,then you can input the following items.

(1)No.,: choose Mobile 1 or Mobile 2

(2) Display name: you can input the name you want to display.

(3) User name: you need to input the User Name get from your ISP.

(4) Register Name: you need to input the Register Name get from your ISP.

(5) Register Password: you need to input the Register Password get from ISP.

(6) Domain Server:you need to input the Domain Server get from your ISP.

(7) Proxy Server:you need to input the Proxy Server get from your ISP.

(8) Outbound Proxy: you need to input the Outbound Proxy get from your ISP. If your ISP does not provide the information,then you can skip this item.

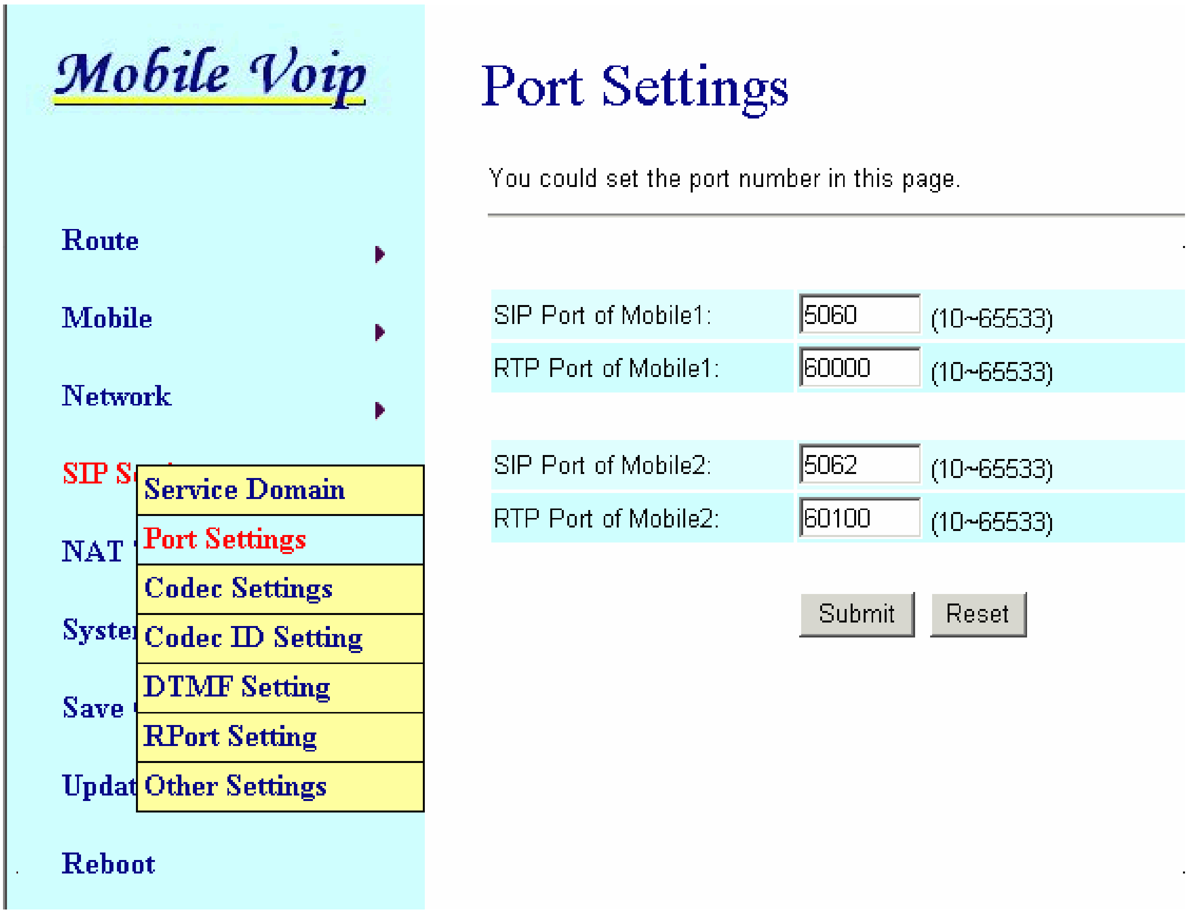
(9) You can see the Register Status in the Status item.

(10) When you finished the setting,please click the Submit button. Remember to click “Save Charge”

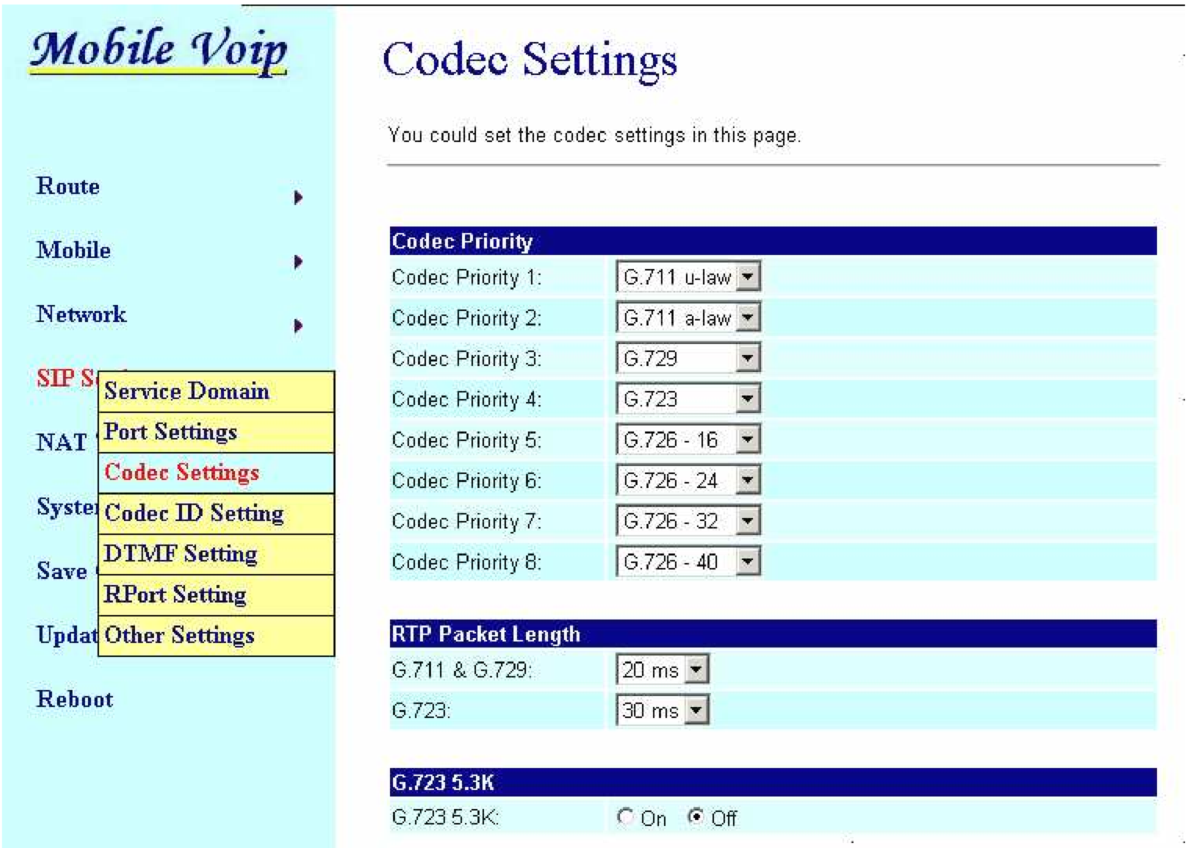

Mobile Voip
Route
Mobile
Network
SIP Settings
NAT Trans.
System Auth.
Save Change
Update
Reboot
Service Domain Settings
You could set information of service domains in this page.
No.:
Mobile 1
Realm 1 (Default)
Active:
On
Off
Display Name:
3001
User Name:
3001
Register Name:
3001
Register Password:
****
Domain Server:
Proxy Server:
61.218.151.230
Outbound Proxy:
Status:
Registered

13.2 Port Setting

You can setup the SIP and RTP port number in this page. Each ISP provider will have different SIP/RTPport setting, please refer to the ISP to setup the port number correctly. When you finished the setting, please click the Submit button.

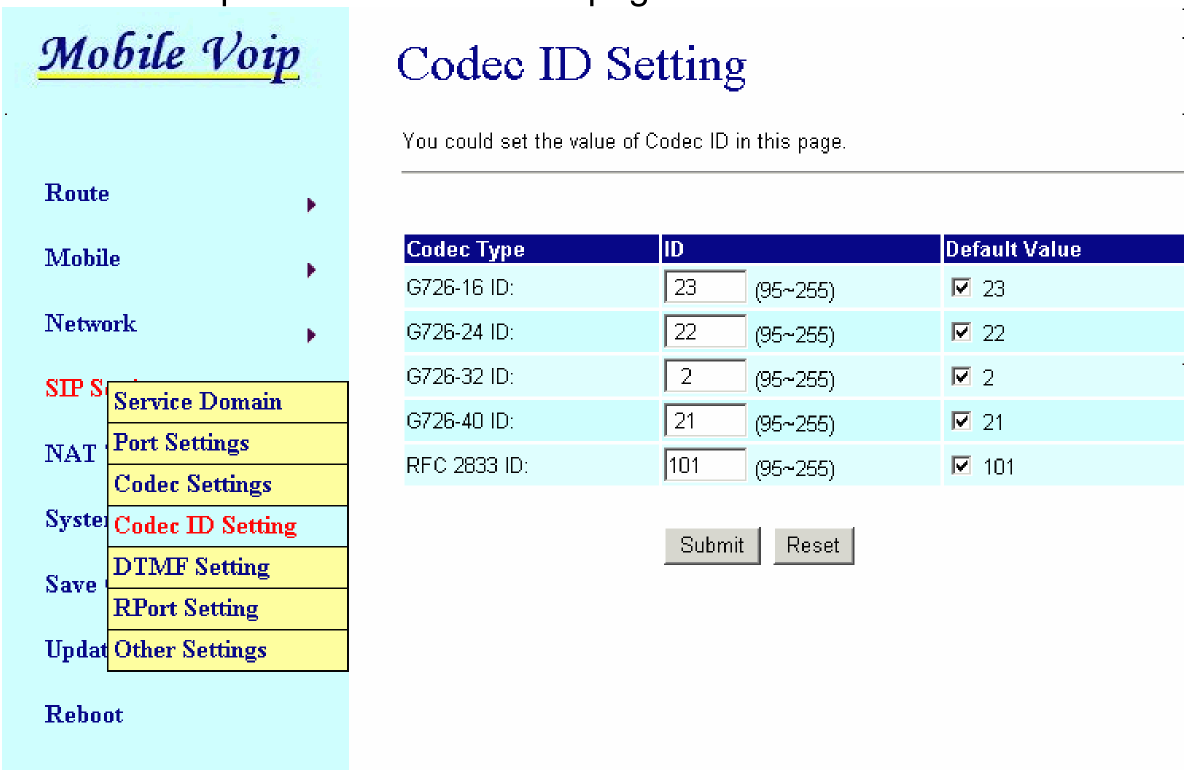


13.3 Codec Settings:
You can setup the Codec priority, RTP packet length in this page. You need to follow the ISP suggestion to setup these items. When you finished the setting, please click the Submit button.

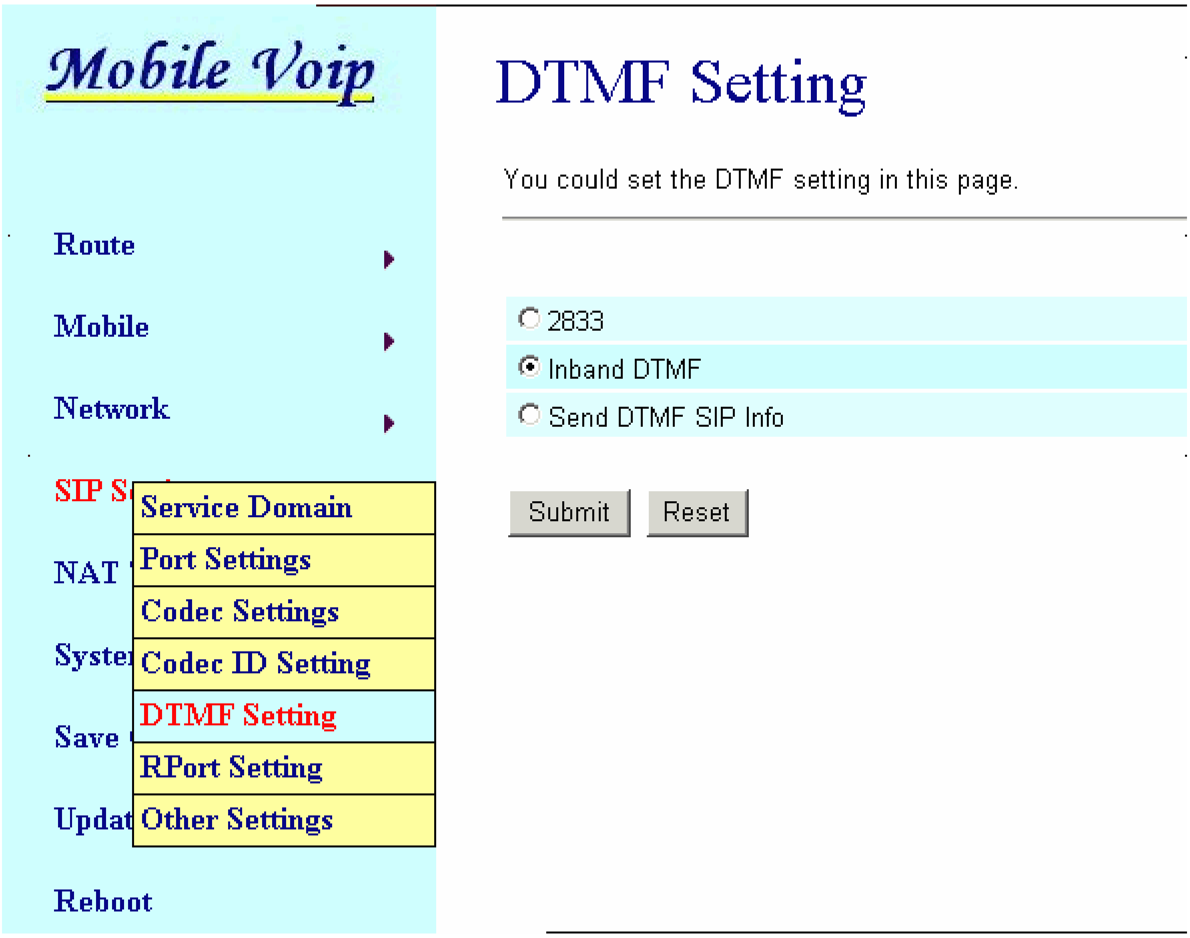


13.4 Codec ID Setting

You can setup the Codec ID in this page.

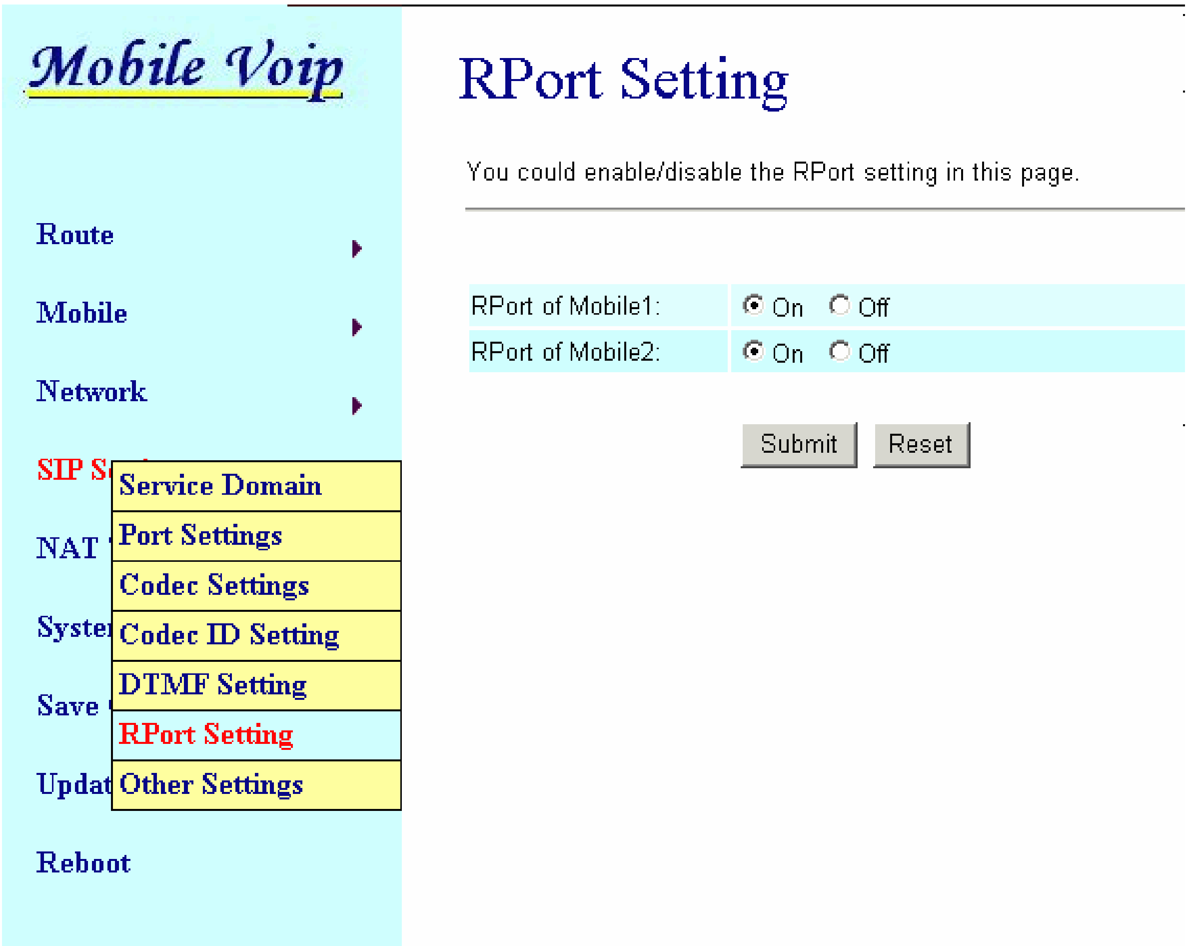


13.5 DTMF Setting
You can setup the DTMF Setting in this page.



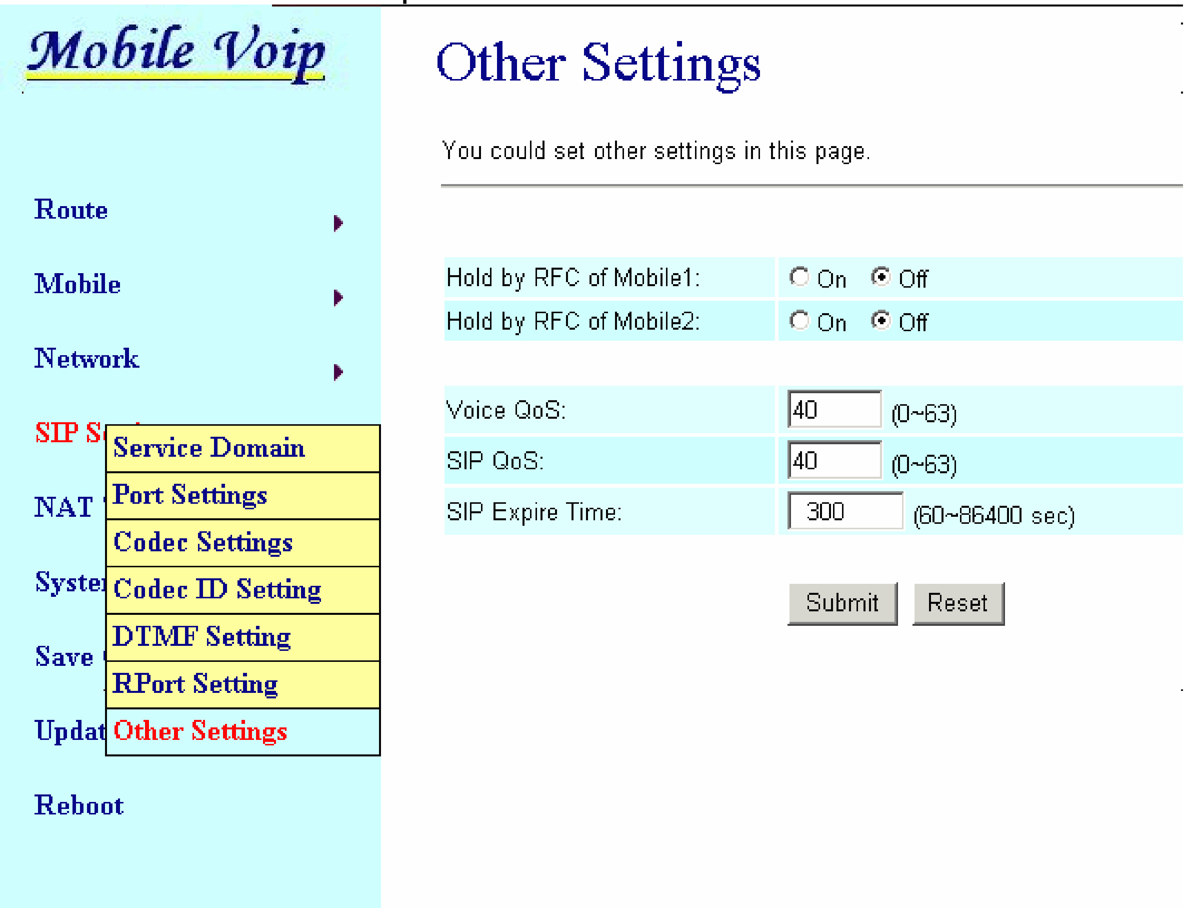
13.6 RPort Function:

You can setup the RPort Enable/Disable in this page. To change this setting, please following your ISP information. When you finished the setting, please click the Submit button.



13.7 Other Settings

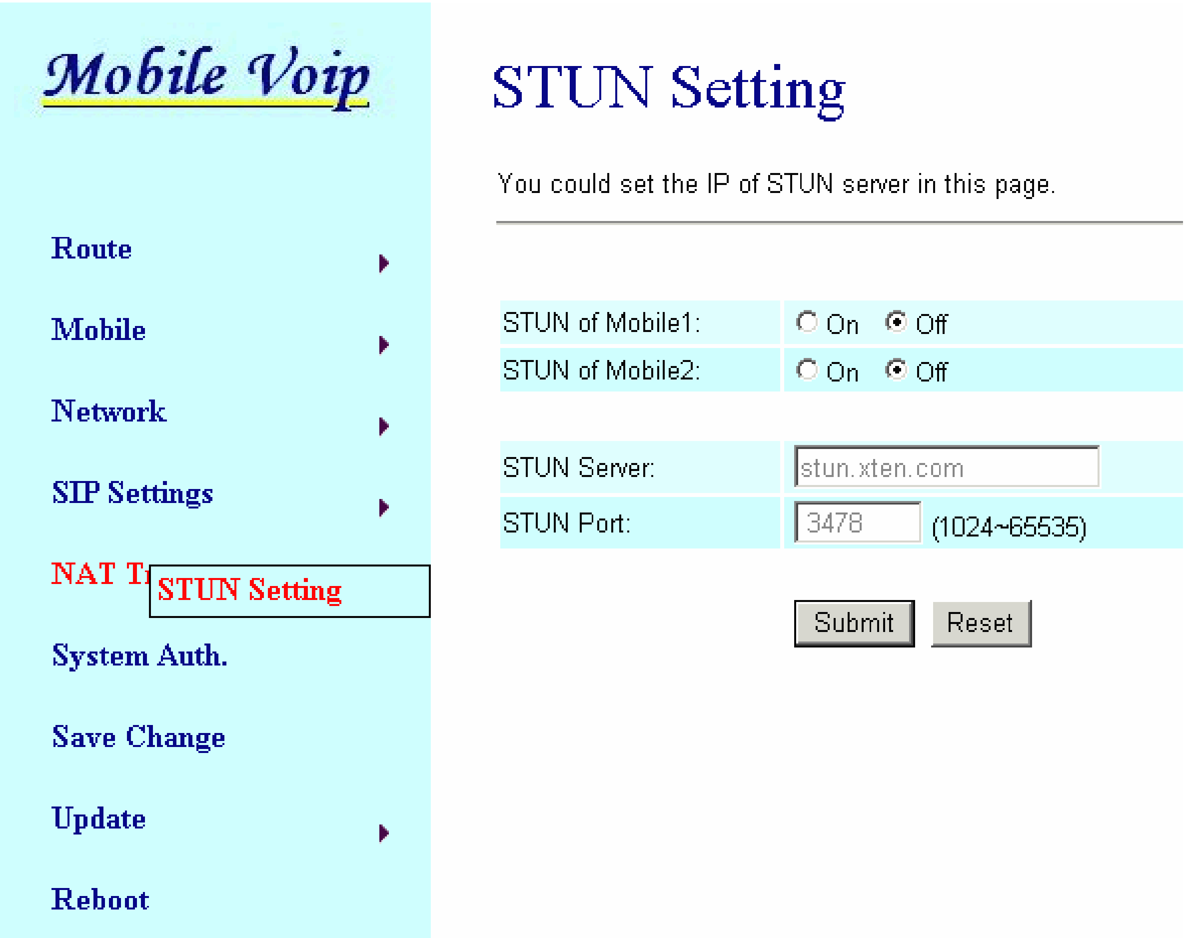
Other Settings: you can setup the Hold by RFC and QoS in this page. To change these settings. please following your ISP information. When you finished the setting, please click the Submit button. The QoS setting is to set the voice packets' priority. If you set the value higher than 0, then the voice packets will get the higher priority to the Internet. But the QoS function still need to cooperate with the others Internet devices.



14. NAT Trans

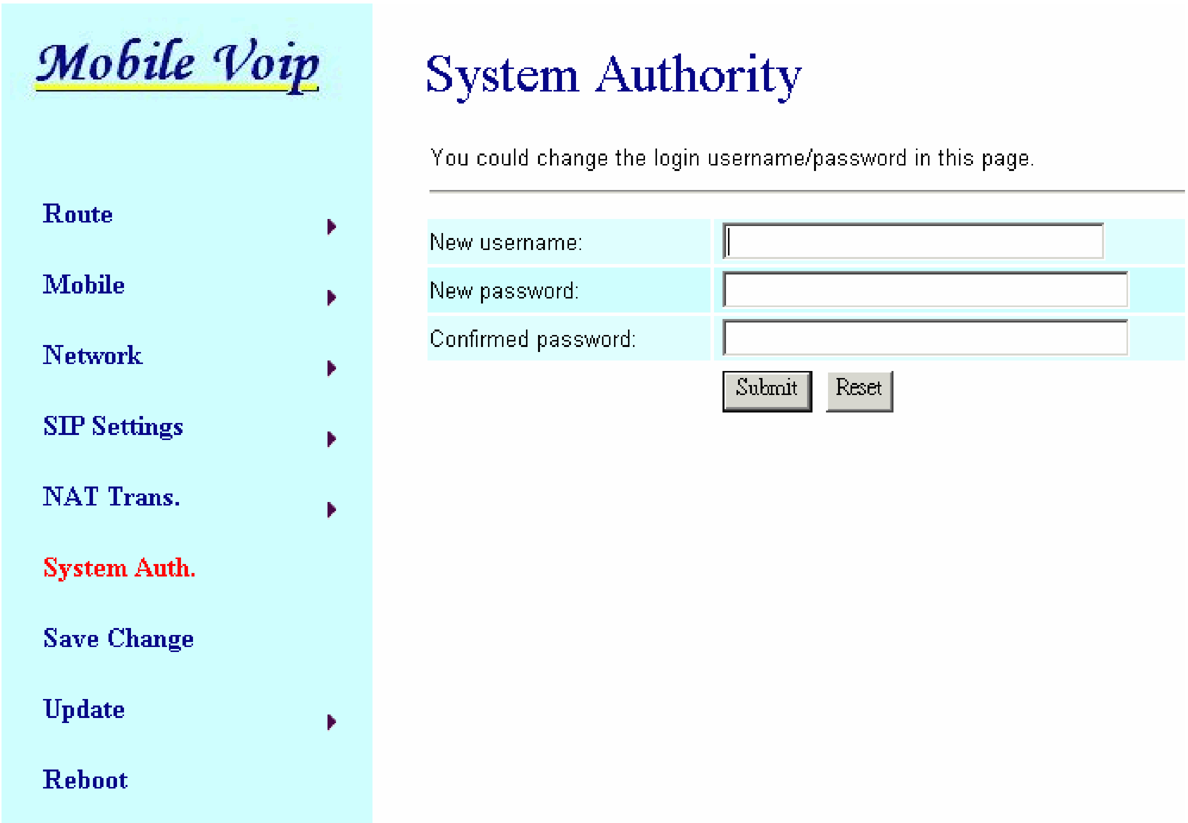
In NAT Trans. you can setup STUN and uPnP function. These functions can help your VoIP device working properly behind NAT.

14.1 STUN Setting: you can setup the STUN Enable/Disable and STUN Server IP address in this page. This function can help your VoIP device working properly behind NAT. To change these settings please following your ISP information. When you finished the setting, please click the Submit button.



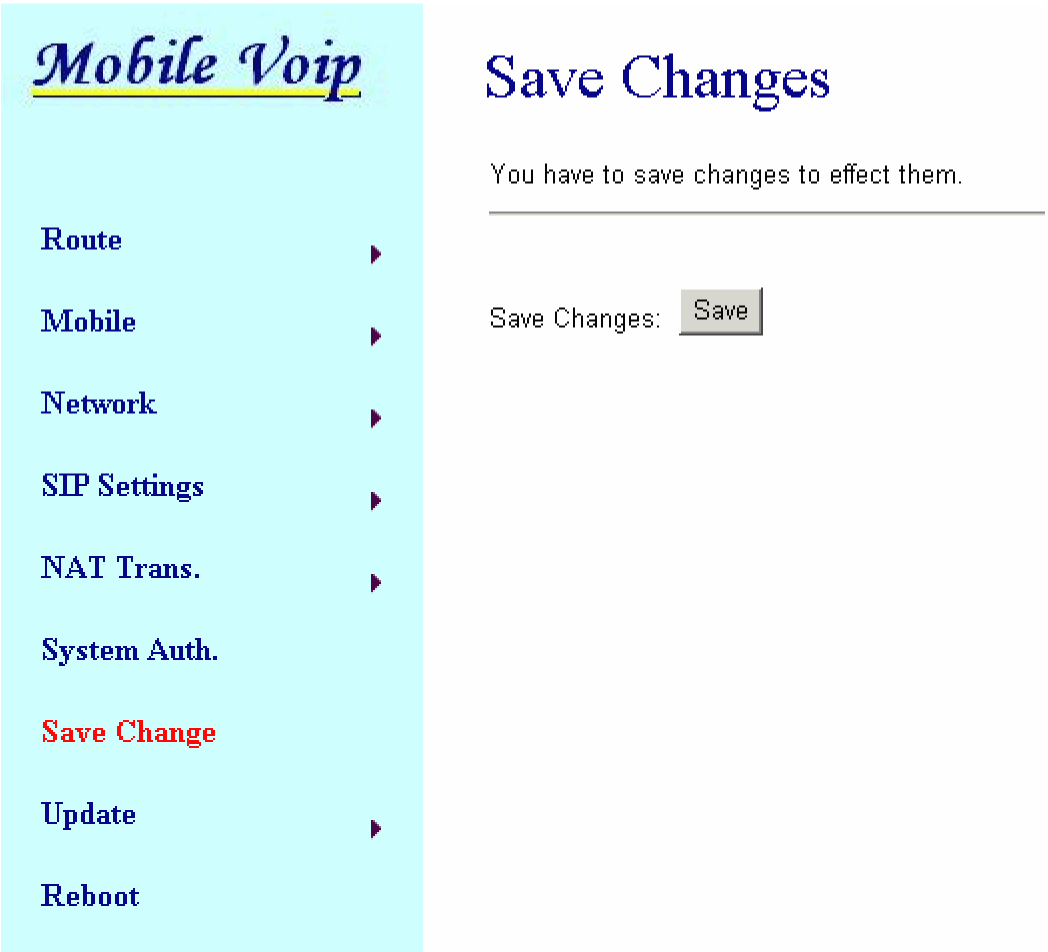
15.System Auth.

In System Authority you can change your login name and password.



16.Save Change

In Save Change you can save the changes you have done. If you want to use new setting in the VoIP system, You have to click the Save button. After you click the Save button, the system will automatically restart and the new setting will effect.



17.Update

In Update you can update the system's firmware to the new one or do the factory reset to let the system back to default setting.

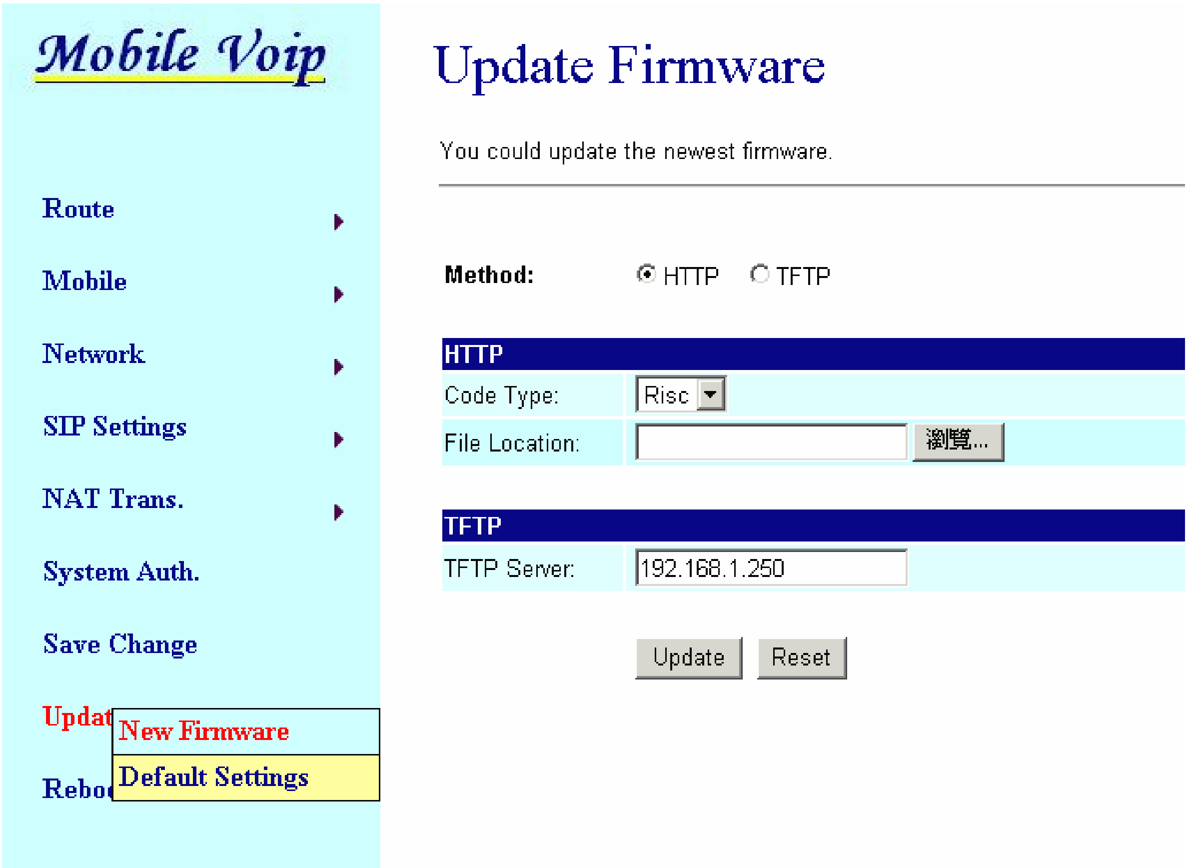
17.1 Update firmware

(1) In New Firmware function you can update new firmware via HTTP in this page. You can upgrade the firmware by the following steps:

(2)Select the firmware code type, Risc code.

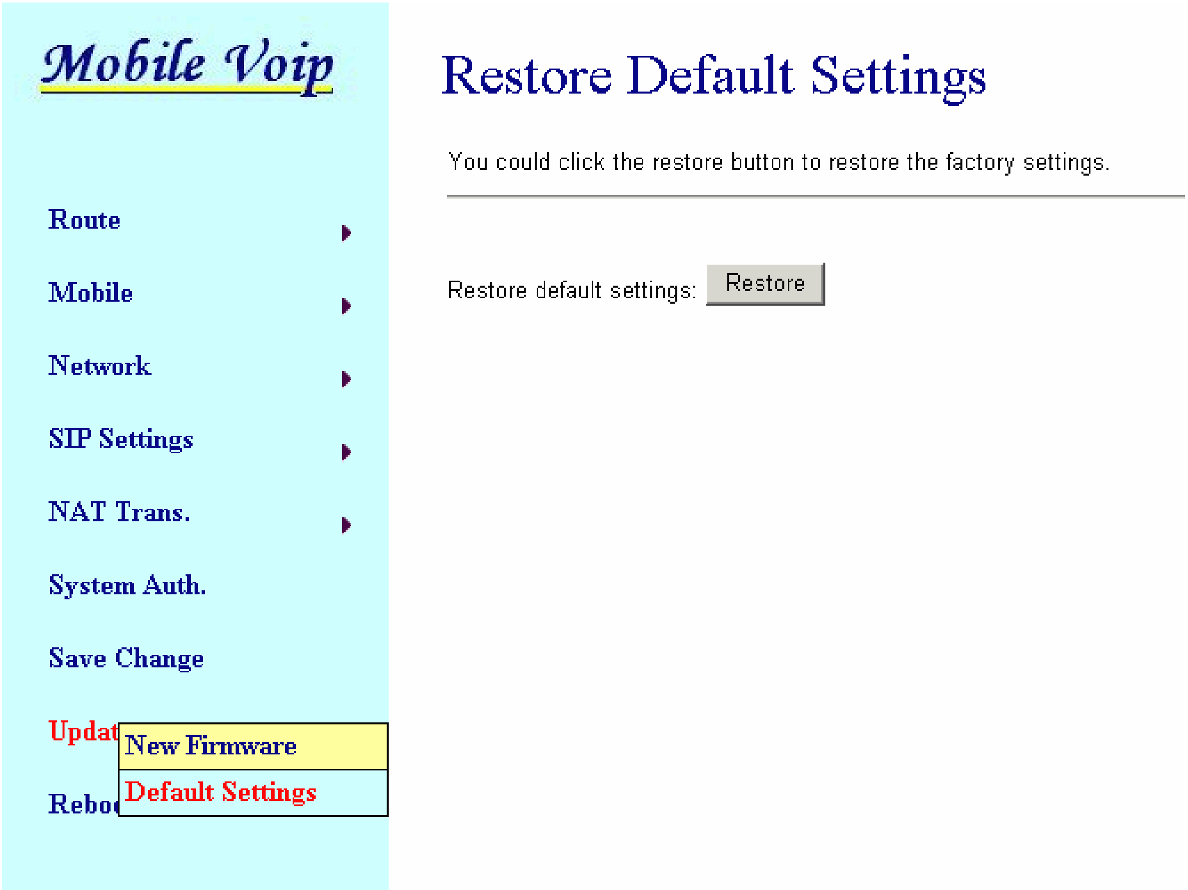
(3)Click the "Browse" button in the right side of the File Location or you can type the correct path and the filename in File Location blank.

(4)Select the correct file you want to download to the system then click the Update button.



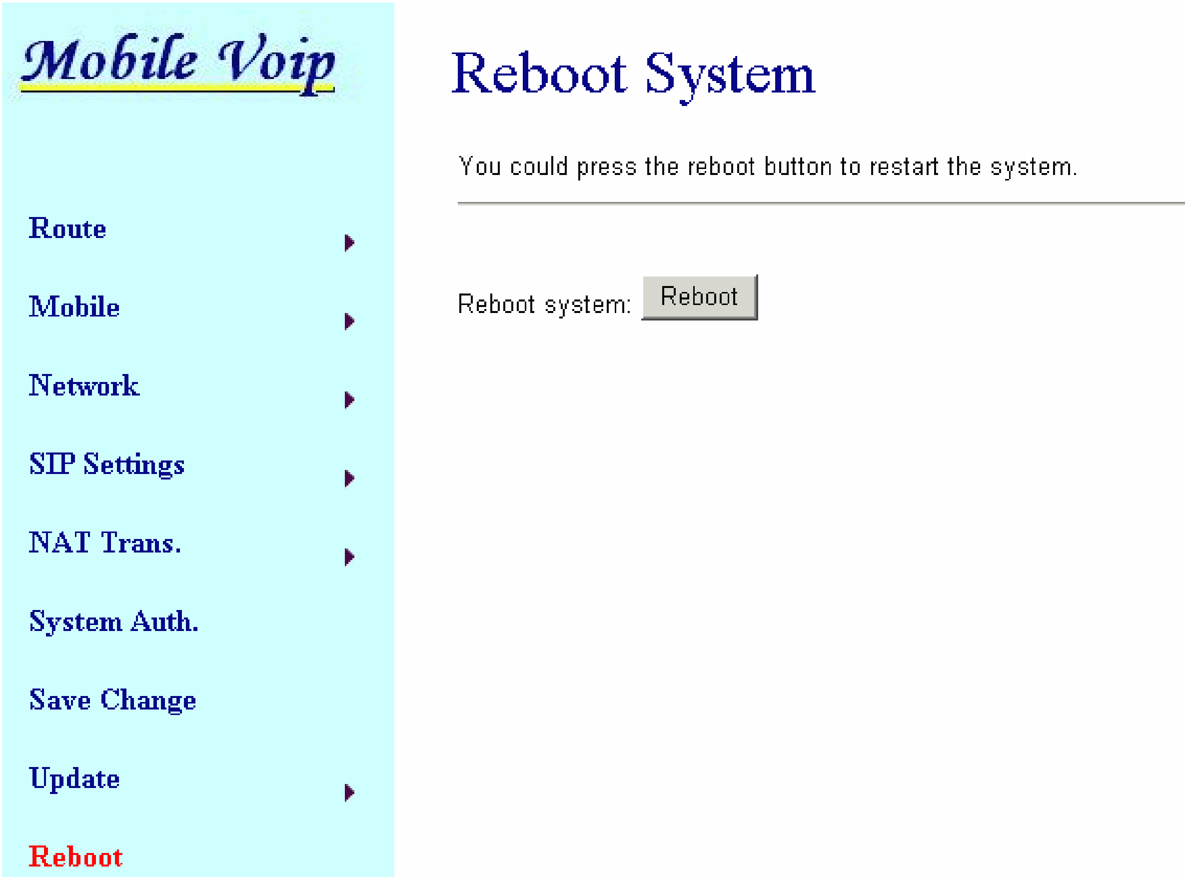
17.2 Restore Default Settings

Default Setting you can restore the system to factory default in this page. You can just click the Restore button, then the system will restore to default and automatically restart again.



18.Reboot

Reboot function you can restart the system. If you want to restart the system, you can just click the Reboor button, then the system will automatically.



19.Specification

19.1 Protocols

SIP (RFC2543,RFC3261)

19.2 TCP/IP

IP/TCP/UDP/RTP/RTCP/

CMP/ARP/RARP/SNTP

DHCP/DNS Client

IEEE802.1P/Q

ToS/DiffServ

NAT Traversal

STUN

uPnP

IP Assignment

Static IP

DHCP

PPPoE

19.3 Codec

G.711 u-Law

G.711 a-Law

G.723.1 (5.3k)

G.723.1 (6.3k)

G.729A

G.729A/B

19.4 Voice Quality

VAD

CNG

AEC, LEC

Packet loss

19.5 GSM (MOBILE VOIP)

Dual BAND: 900/1800 MHZ

Tri BAND: 900/1800/1900 MHZ

Quad BAND: 900/1800/1900/850 MHZ

20.Setup Mobile VoIP-2 with Asterisk

20.1 Usage

A typical usage of such a gateway is to be able to give a call with your normal mobile to any destination at voip cost :
Your mobile <----*gsm network*----> Mobile VoIP-2 <--*lan*--> Asterisk <--*internet*--> VOIP provider <--*whatever*--> landline

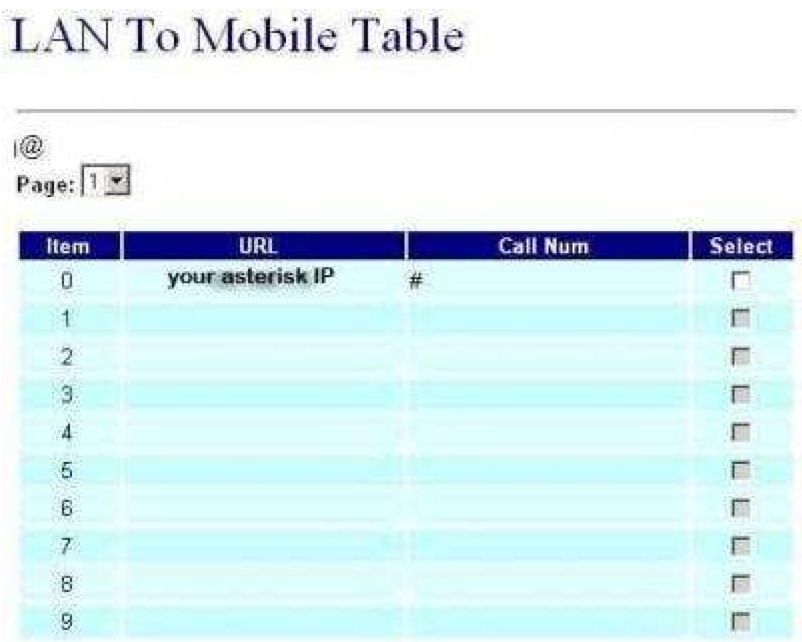
To do such a call, you just call your Mobile VoIP-2 number (it has its own simcard), then you get an invitation tone, then you dial the number which is handled by Asterisk.
If you have some special deals with your mobile operator, like free special number, you can call your Mobile VoIP-2 for free.
You can then call all around the world from your mobile at voip cost :-)

20.2 Mobile VoIP-2 Configuration

Once you've configured everything in the box, one good advice is to unplug the power and to restart it. By this way you sould have all the parameters taken into account.

To have the Mobile VoIP-2 to work with Asterisk, you need first to configure the box.
Here are some screen shots showing all the important parameters.
You have to note that in all the configuration process, the Mobile VoIP-2

is considered as extension '103' of the IPBX.
In **Bold** are the parameters depending on your installation



Here the '#' is important to avoid the two stage dialing when you give a call from Asterisk to GSM.

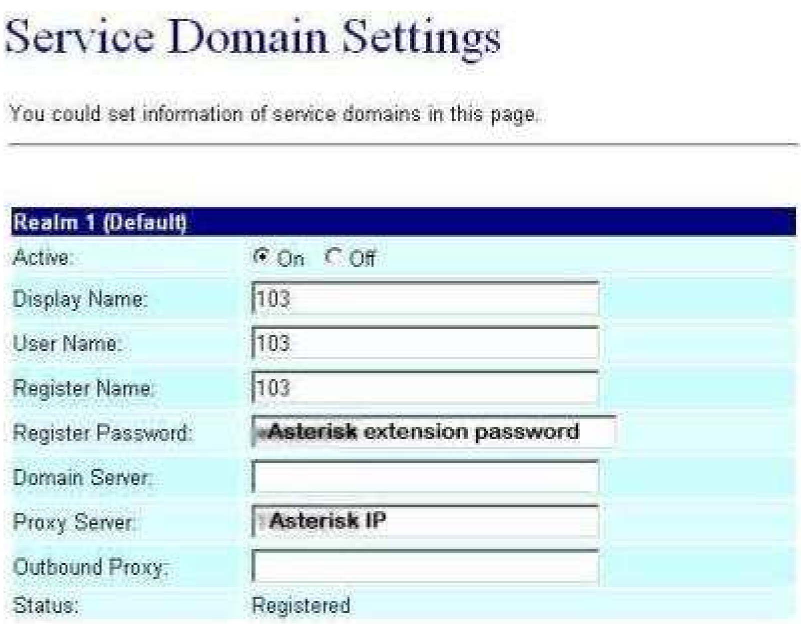
Mobile To LAN Table

@

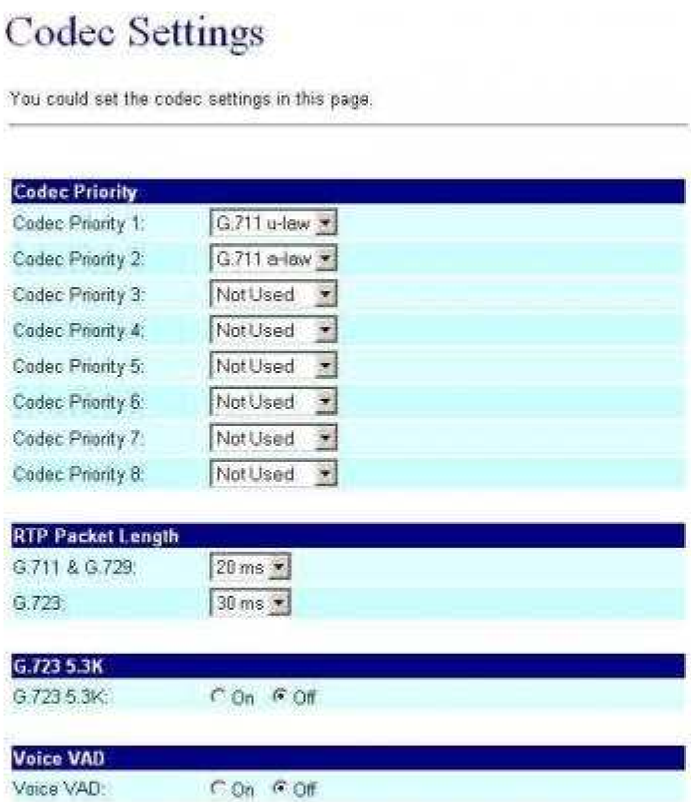
Page: 1

Item	CID	URL	Select
0	authorised mobile n°	103	☐
1	another authorised n°	103	☐
2			☐
3			☐
4			☐
5			☐
6			☐
7			☐
8			☐
9			☐

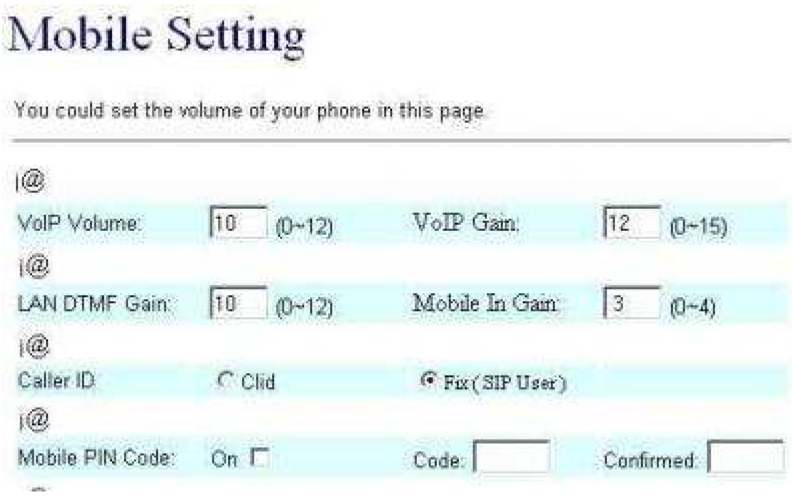
The mobile number you give in that page are the authorised mobile which can call GSM to Asterisk.
These mobile number must be defined as your GSM provider displays the number.
If you don't know how it is displayed, just give a call to the box and check the number given in the 'Incoming Mob' field of the 'Mobile Status' page.
Any number which is not in that list won't have acces to the LAN side, so to Asterisk.
If you want to allow any number, just set '*' in that field ... but beware of the bill ;-)



Once Asterisk configuration is made, you should get 'Registered' on the Realm1.



It is very important to use only ulaw or alaw as all DTMF is inband.
So if you want to be able to do some DISA when you call from GSM to Asterisk, it has to be one of these 2 codecs.



These settings seem to be ok, just adjust ...

20.3 Antenna position

Another important thing is to properly place the provided antenna.
If your gsm reception is good, you should get around 18 or 19 as Signal Quality in the "Mobile Status" page.
With that level of signal quality, your audio quality will be very good.
On the other end, I've experienced that with a signal quality down to 11, audio becomes very jerky.
So, maximum signal quality = maximum audio quality.

20.4 Asterisk configuration

Once the Mobile VoIP-2 is set, you have to configure Asterisk.
On that side, you have to setup files as follow :

20.5 sip.conf
; GSM VOIP Gateway Mobile VoIP-2
[103]

```
type=friend
username=103
fromuser=103
regexten=103 ; When they register, create extension 401
secret=xxxxxxx ; Asterisk extension password
context=gateway ; Incoming calls context
dtmfmode=inband ; Very important for DISA to work
call-limit=1 ; Limit to 1 call max
callerid=GSM Gateway <103>
host=dynamic
nat=no ; Gateway is not behind a NAT router
canreinvite=no ; Typically set to NO if behind NAT
insecure=very
qualify=yes
disallow=all
allow=ulaw ; prefered codec for DTMF detection
allow=alaw
```

20.6 extensions.conf

```
; ******* GSM Gateway incoming calls **********
[gateway]
exten => _103,1,Answer()
exten => _103,2,DigitTimeout(3) ; give enough time to do second stage
dialing
exten => _103,3,ResponseTimeout(5)
exten => _103,4,DISA(no-password|outgoing) ; here 'outgoing' is the
normal context to deal with the dial plan

[outgoing]
...
; example of LAN to GSM call
; call the Mobile VoIP-2 sim card mail box thru GSM
exten => _888,1,SetCallerID("xxxxxxxxxx")
exten => _888,2,Dial(SIP/${EXTEN}@103,60,r)
exten => _888,3,Hangup()
```