Instructions for Using Auto-Provisioning

Contents

1 How to Use Auto-Provisioning

1.1 Description

This document is written to provide instructions for using the auto-provisioning function, which can make SNR IP Phone automatically update with the latest firmware, configurations, customized ringtones and local contacts stored on a DHCP/PnP/TFTP/FTP/HTTP/HTTPS server.

That is to say, IP Phone uses DHCP/PnP/TFTP/FTP/HTTP/HTTPS network protocols to get URL, and then download firmware or configuration files from that server. These configuration files and firmware will be used to update related parameters on the IP Phone.

By default, auto-provision is used only when IP Phone is idle, because the update might trigger a software reboot, which may interrupt a call.

Automatic deployment has the following features:

- **General configuration provisioning**: In this scenario, a general configuration file is stored in the server and all IP Phones download the same configuration file to update their parameters.The General configuration provisioning file usually name as vp0000000000xx.cfg.

VP-72-P: vp000000000072.cfg

VP-76-CG-P: vp000000000076.cfg

VP-77-CG-P: vp000000000077.cfg

- **MAC based configuration provisioning**: In this scenario, each configuration file is for a specific IP Phone with the MAC address that matches the file name. The parameters in this configuration file are for that specific IP Phone only.

1.2 Working Principle

A complete automatic update process consists of the following:

Step 1. Administrator sets up the provisioning DHCP/PnP/TFTP/FTP/HTTP/HTTPS servers with the required information;

Step 2. IP Phone gets the URL of the configuration file server;

Step 3. IP Phone downloads the configuration file from the server with URL obtained in step 2.

Step 4. The configuration parameters in the configuration file are written to the appropriate configuration files of the IP Phone;

Step 5. If configuration file contains the content for upgrading the firmware, IP Phone will get the firmware and do a firmware update.

1.3 Ways to Obtain Server URL

When an IP Phone is powered on, it will try to obtain the upgrade server address in the following order: PNP Server → DHCP Custom Option → DHCP Option43 → DHCP Option66→User Specified Server. You can use any one of the above methods to set up the auto provisioning.

1.3.1 Enable PnP

PnP stands for Plug and Play. PNP provides a proprietary automatic upgrade, when PnP upgrade mode is enabled, the IP Phone will broadcast a "SIP SUBSCRIBE" in the network. A SIP server will reply with a "SIP NOTIFY" with the URL of the firmware and/or configuration file server.

The following procedure is for setting up PnP auto provisioning:

- First, you need to configure the SIP server to have PNP and set the update server URL in it.

- Click "**Upgrade -> PnP**" on the Web interface of IP Phone, and then enable PNP(Default is Enabled). The IP Phone will use PNP to get the correct auto provisioning URL and download the firmware and the configuration files;

- If Auto Provision mode is set(Default is Power On), the IP Phone will do the auto provisioning on the specified time frame as set in the automatic Auto Provision mode.

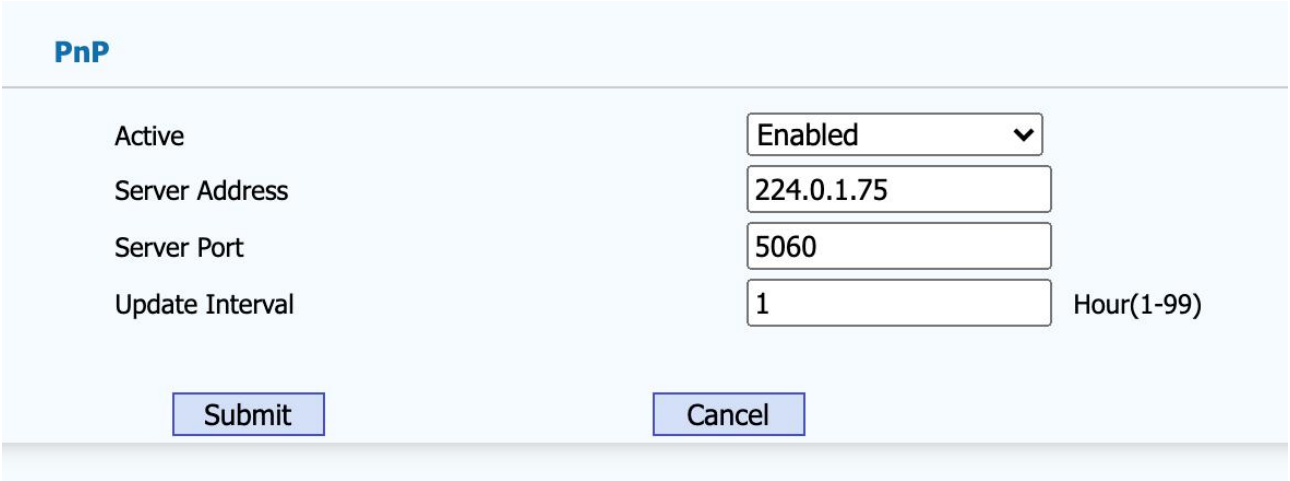


Figure 1-1 Enable PNP Auto Provisioning

1.3.2 **DHCP Custom Option**

If IP Phone is set to use DHCP Option to obtain the auto provisioning URL, it will send a request to a DHCP server for a specific DHCP option code. First, you need to configure a DHCP option code on the Web interface of the IP Phone.

You can use any custom DHCP option code from 128 to 254:

➢ Configure DHCP server to have a specific custom option code with the update server URL in it, for example, 230. And then the IP Phone will get the upgrade server URL from the DHCP server with the option code 230.

➢ If autop mode is set, the IP Phone will do the auto provisioning on the specified time frame as set in the autop mode.

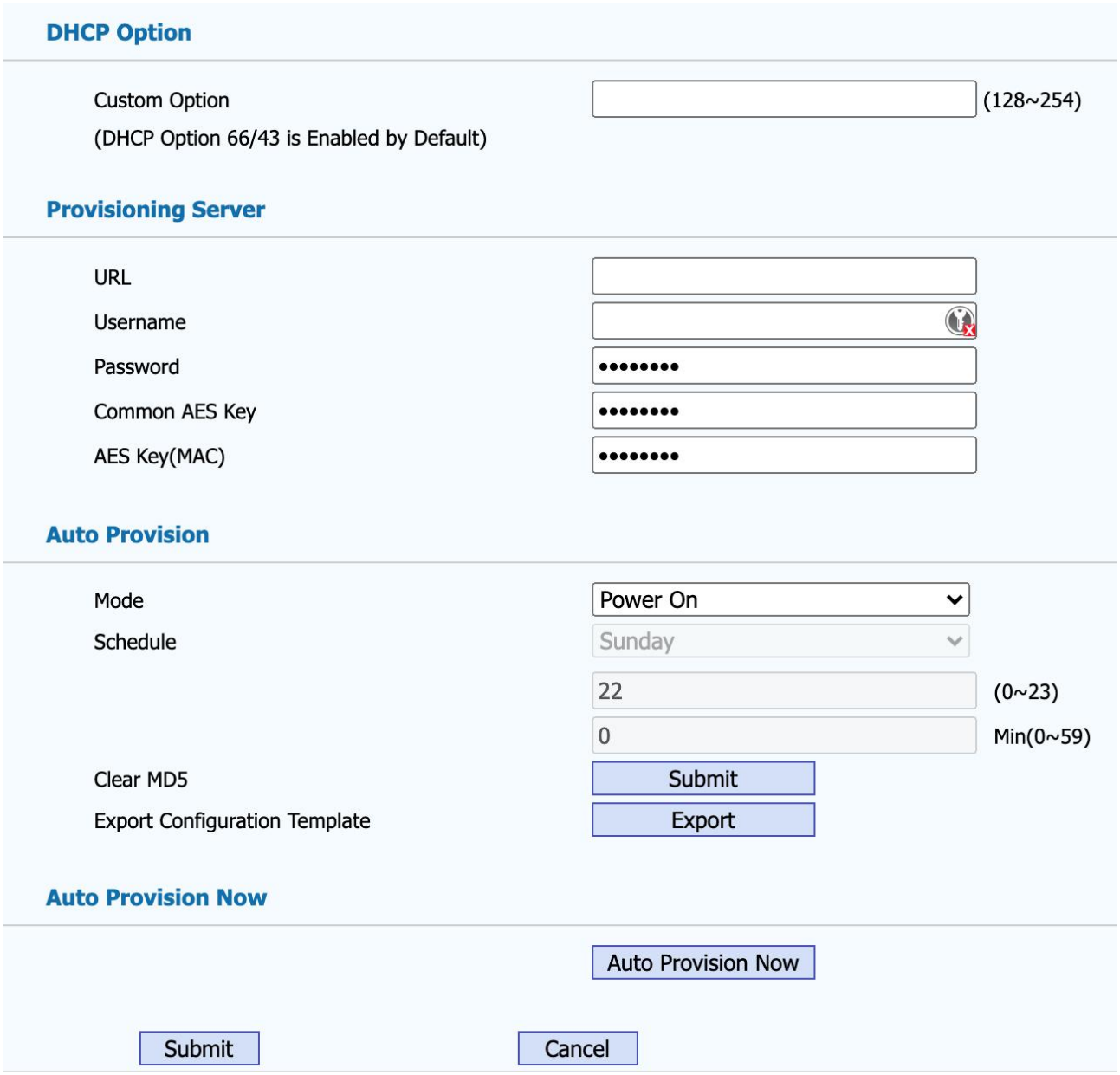


Figure 1-2 Configure DHCP Custom Option

1.3.3 **DHCP Option 66**

If none of the above is set, IP Phone will automatically use DHCP Option 66 for getting the upgrade server URL. This is done within the software and the user does not need to configure any parameters. DHCP Option 66 is enabled by default.

1.3.4 **DHCP Option 43**

If the IP Phone does not get an URL from DHCP Option 66, it will automatically use DHCP Option 43. This is done within the software and the user does not need to configure any parameters. DHCP Option 43 is enabled by default.

1.3.5 **User-Specified Server:**

You can manually set a specific server URL for downloading the firmware and/or configuration file.

- Set update server URL (e.g., "tftp://172.21.02.03"), click [AutoP Immediately], the IP Phone will use the URL to download appropriate firmware and/or configuration files from the TFTP server and will upgrade with the downloaded files;
- If autop mode is set, the IP Phone will do the auto provisioning on the specified time frame as set in the autop mode.

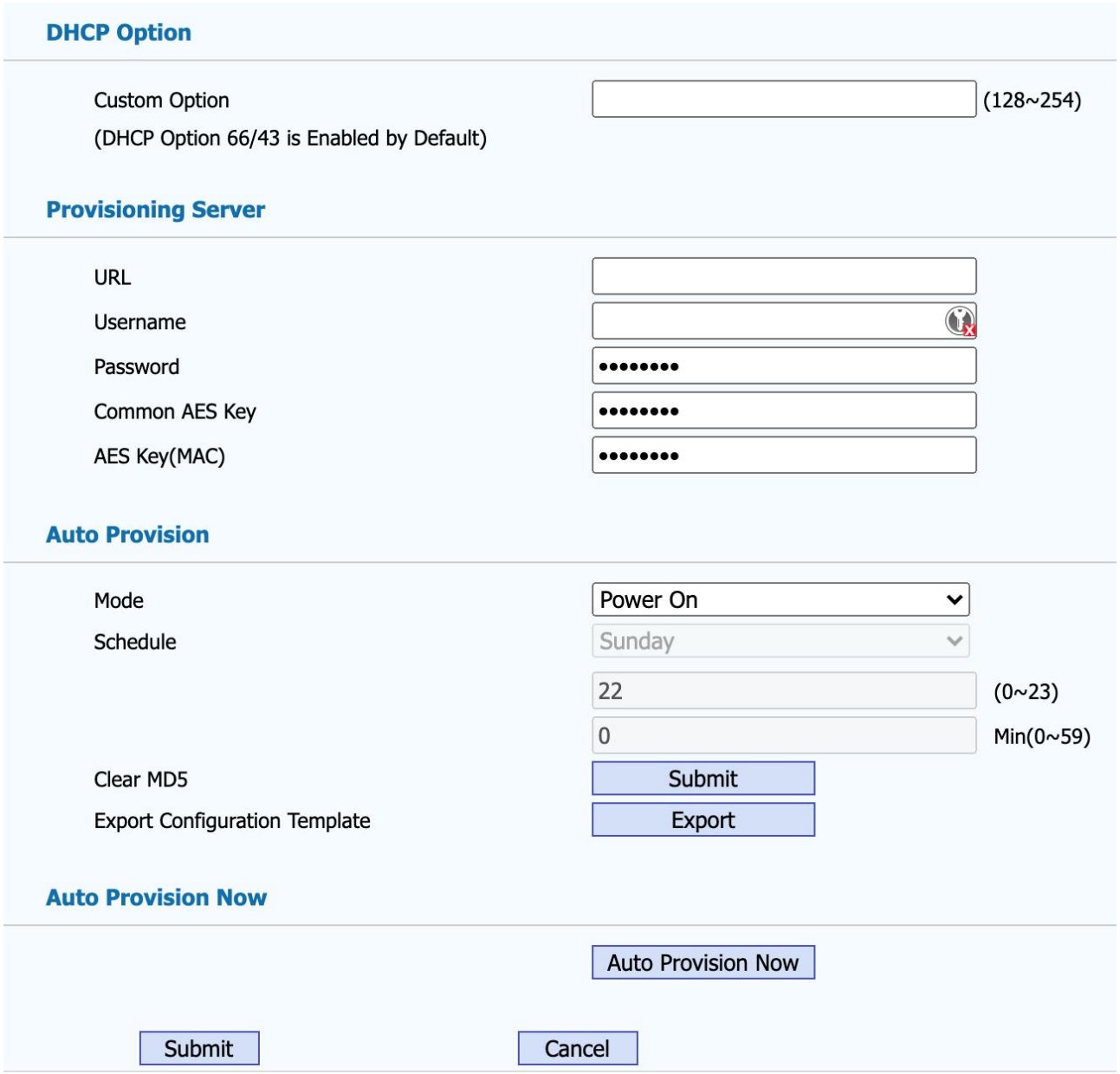


Figure 1-3 Configure Server URL Manually

You can also use FTP, HTTP, or HTTPS as the protocol for upgrading the firmware and/or configurations of the IP Phone. The format of them are as follows:

- TFTP Format:

tftp://172.21.02.03/

- FTP Format:

ftp://172.21.02.03/ (allows anonymous login)

ftp://username:password@172.21.02.03/ (requires a user name and password)

- HTTP Format:

http://172.21.02.03/(use the default port 80)

http://172.21.02.03:8080/(use other ports, such as 8080)

- HTTPS Format:

https://192.168.0.19/(use the default port 443)

1.3.6 **Auto Provision modes:**

IP Phone supports the following three modes:

- **Disable:** Disables auto provision. The IP Phone will not check for any updates and will not upgrade the IP Phone automatically;
- **Power on**: The IP Phone does the auto provisioning when the power is turned on;
- **Repeatedly**: The IP Phone does the auto provisioning at specified time frame periodically;
- **Power on + Repeatedly**: The IP Phone does the auto provisioning when the power is turned on, and meanwhile it will also does the auto provisioning at specified time frame periodically;
- **Hourly Repeat**: The IP Phone does the auto provisioning hourly.

1.4 **Downloading Configuration File**

There are two types of configuration files for download:

- **General configuration file:** This configuration file has common configuration parameters for all IP Phones.
- **MAC based configuration file:** This configuration file is for use by a specific IP Phone with the specified MAC address. It is normally related to account information.

If you have both of these files on the server, IP Phone will first get the General configuration file first and then get the MAC-based configuration file using its MAC address as the ID.

1.5 **Configuration Parameter Description and Application**

1.5.1 **Update configuration parameters**

The parameters that will be updated should follow the following format in the configuration file, as shown in the following figure.

```
# Network Configuration

Config.Network.LAN.Type = 2
Config.Network.LAN.StaticIP = 172.18.2.134
Config.Network.LAN.SubnetMask = 255.255.0.0
Config.Network.LAN.DefaultGateway = 172.18.1.1
Config.Network.LAN.PrimaryDNS = 8.8.8.8
Config.Network.LAN.SecondaryDNS =
Config.Network.LAN.Enable = 1
Config.Network.LAN.UseStaticDNS = 0

Config.Network.PPPOE.User = Bob
Config.Network.PPPOE.Pwd = 123456

Config.Network.PC.Type = 1
Config.Network.PC.RouterIP = 10.0.0.1
Config.Network.PC.SubnetMask = 255.255.255.0
Config.Network.PC.EnableDHCP = 1
Config.Network.PC.StartIP = 10.0.0.10
Config.Network.PC.EndIP = 10.0.0.100

Config.Network.8021X.ModeOf8021X = 0
Config.Network.8021X.Identity =
Config.Network.8021X.PwdMd5 = iwjBD8MXFYJGhMOk8fBofC27kly7u8EzUPVGQjfIXBUy8UYPLMFAgojx9QMo

Config.Network.RTPPORT.Max = 12000
Config.Network.RTPPORT.Min = 11800

Config.Network.QOS.SignalTos = 40
Config.Network.QOS.RtpTos = 40

Config.Network.LLDP.LLDPEnable = 0
Config.Network.LLDP.Interval = 30

Config.Network.VLAN.LanVlanEnable = 0
Config.Network.VLAN.LanVid = 1
Config.Network.VLAN.LanPriority = 0
Config.Network.VLAN.PcVlanEnable = 0
Config.Network.VLAN.PcVid = 1
```

Figure 1-4 part of the configuration file content

The name of the parameters in the configuration file is fixed, and the user can not make any changes, the user can only fill in the value, otherwise the update will fail.

Example: To set the PPPOE username and password info, you use the following format:

```
Config.Network.PPPOE.User = Bob
Config.Network.PPPOE.Pwd = 123456
```

Once the configuration file is updated successfully with the configuration file shown above, the user will login to the pppoe server by username (Bob) and password (123456).

1.5.2 **Firmware and/or Configuration File Update**

The followings are some of the common file updates.

➢Firmware Update

To update firmware, you define the following lines in the configuration file:

Config.Firmware.Url = protocol name://address/path/filename

Example:

Config.Firmware.Url = tftp://172.21.02.03/1.0.0.135.rom

Note: there is no filename in the above Ulrl. If no filename is in the firmware URL configuration, SNR IP Phone will search the default filename in the defined URL address.

➢Customized Ringtones

To set customized ringtones, you can define the following lines in the configuration file:

Config.Ringtone.Url = protocol name://address/path/filename

Example:

Config.Ringtone.Url = tftp://172.21.02.03/Ring1.wav

Note: Ring1.wav is a ringtone wav file. Total custom ringtone file size cannot be more than 100KB.

➢Update Local Contacts

To update local contacts, you define the following lines in the configuration file:

Config.Contact.Url = protocol name://address/path/filename

Example:

Config.Contact.Url = tftp://172.21.02.03/Contact.xml

Note: Contact.xml is the file name for the address book.

➢Update client certificate

To update client certificate, you can define the following lines in the configuration file:

Config.Certificate.01.Url=protocol name://address/path/filename

Config.Certificate.02.Url=protocol name://address/path/filename

Config.Certificate.03.Url=protocol name://address/path/filename

Config.Certificate.04.Url=protocol name://address/path/filename

Config.Certificate.05.Url=protocol name://address/path/filename

Config.Certificate.06.Url=protocol name://address/path/filename

Config.Certificate.07.Url=protocol name://address/path/filename

Config.Certificate.08.Url=protocol name://address/path/filename

Config.Certificate.09.Url=protocol name://address/path/filename

Config.Certificate.10.Url=protocol name://address/path/filename

Example:

Config.Certificate.01.Url=tftp://172.21.02.03/Cert1

➢Update Auto Provision Settings

To update auto provision settings, you define the following lines in the configuration file:

Config.Autoprovision.GENERAL.Url = url

Config.Autoprovision.GENERAL.UserName = username

Config.Autoprovision.GENERAL.Pwd = password

Config.Autoprovision.CFG.Version = 1.3

Example:

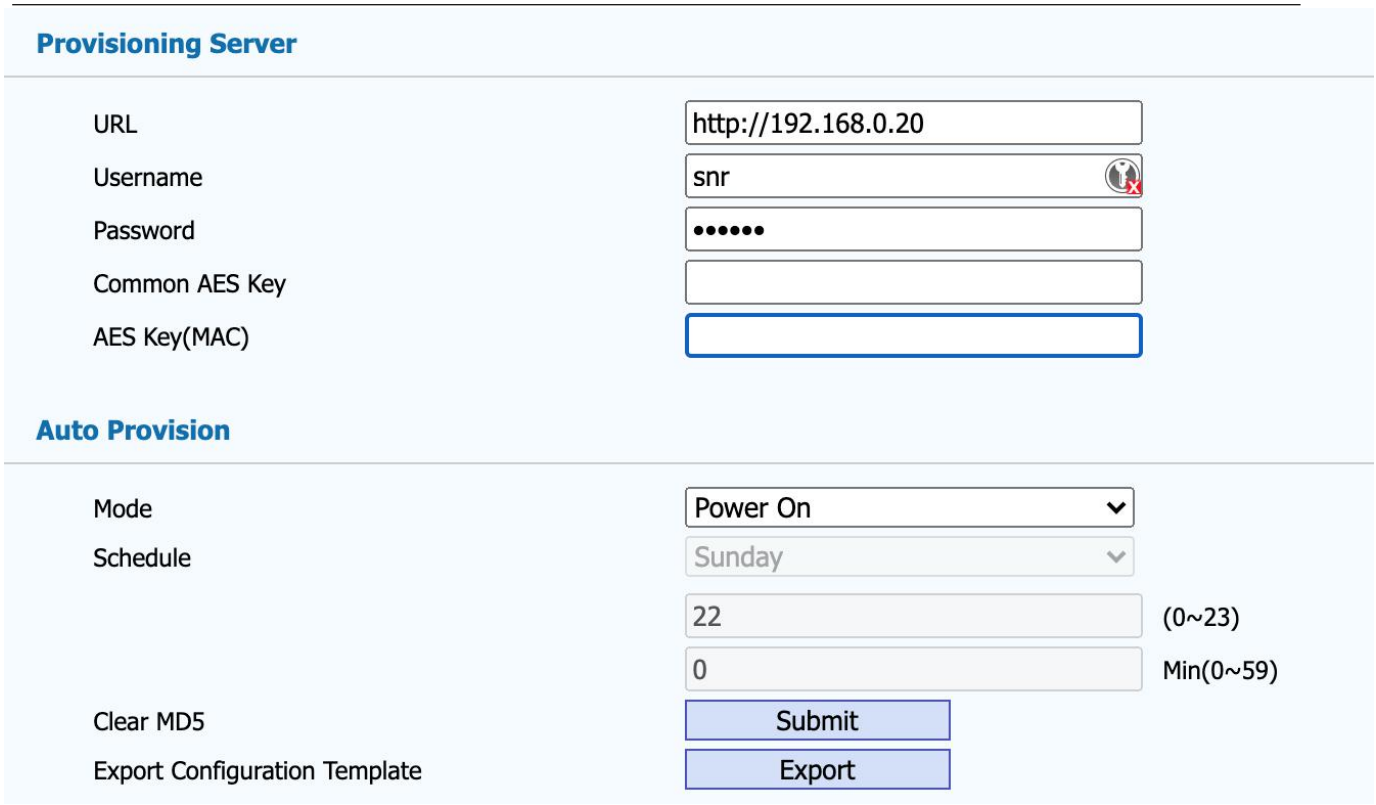
Autoprovision Configuration

Config.Autoprovision.GENERAL.Url = http://192.168.0.20

Config.Autoprovision.GENERAL.UserName = snr

Config.Autoprovision.GENERAL.Pwd = admin

Config.Autoprovision.CFG.Version = 1.3



➢Update SIP Account

To set sip account, you can define the following lines in the configuration file:

Config.Account1.GENERAL.Enable = 1

Config.Account1.GENERAL.Label = label_dispaly_on_phone

Config.Account1.GENERAL.DisplayName = display_name

Config.Account1.GENERAL.UserName = sip_account

Config.Account1.GENERAL.AuthName = sip_account_for_authentication

Config.Account1.GENERAL.Pwd = password

Config.Account1.SIP.Server = sip_server_addr

Config.Account1.SIP.Port = sip_server_port

Example:

Config.Account1.GENERAL.Enable = 1

Config.Account1.GENERAL.Label = test

Config.Account1.GENERAL.DisplayName = test

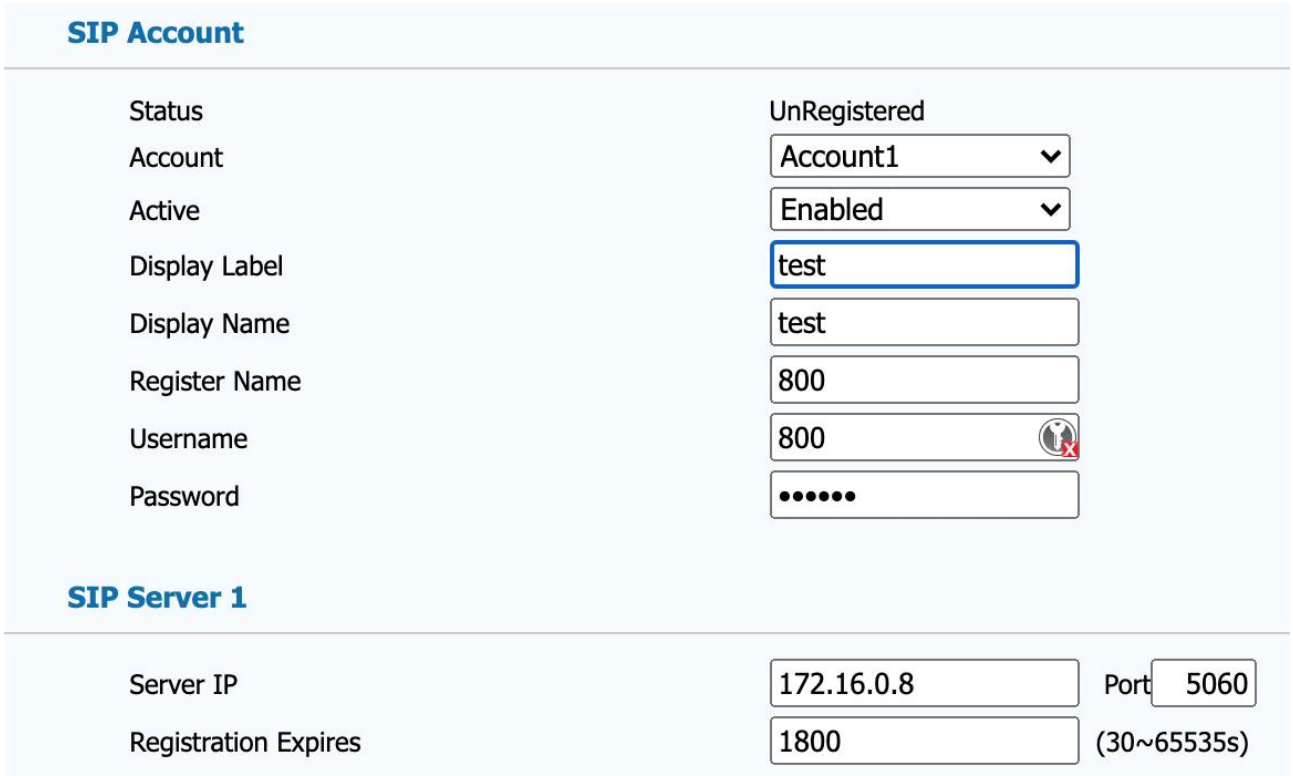
Config.Account1.GENERAL.UserName = 800

Config.Account1.GENERAL.AuthName = 800

Config.Account1.GENERAL.Pwd = 800

Config.Account1.SIP.Server = 172.16.0.8

Config.Account1.SIP.Port = 5060



To update other sip account, you can replace Account1 to Account2 or Account3, etc...

➢Update Language

To update Language, you define the following lines in the configuration file:

Config.Settings.LANGUAGE.Type = language_id

Config.Settings.LANGUAGE.WebLang=language_id

Example:

Config.Settings.LANGUAGE.Type = 2

Config.Settings.LANGUAGE.WebLang = 2

The language id is ranged from 0 to 15.

0:ENGLISH

2:CHINESE SIMPLIFIED

3:CHINESE_TRADITIONAL

5:PORTUGUESE

6:SPANISH

7:ITALIAN

8:DUTCH

9:FRENCH

10:GERMAN

13:POLISH

14:TURKISH

15:RUSSIAN

➢Update Key

Update Line Key

To update Line Key, you define the following lines in the configuration file:

Config.Programable.LINEKEYx.Type = linekey_type

Config.Programable.LINEKEYx.Label = label_dispaly_on_phone

Config.Programable.LINEKEYx.Param1 = value

Config.Programable.LINEKEYx.Param2 = account

Config.Programable.LINEKEYx.Param3 = extra

Note: x for the number of line key , is ranged from 1 to 10.

The following tables list valid value of account for each phone model.

Note: If account is set to 0, it means automatic.

	VP-72	**VP-76**	**VP-77**
account	1-2	1-6	1-7

linekey_type	Functional Description	Param1	Param2	Param3
0	N/A	-	-	-
1	DND	-	-	-
2	Menu	-	-	-
3	SMS	-	-	-
4	Status	-	-	-
5	Book	0 - all 10 - local 11 - allcontacts 22 - remote 30 - broadsoft 40 - ldap	-	-
6	Forward	-	-	-
7	PickUp	pickup code	account	-
8	Group PickUp	group pickup code	account	-
9	Intercom	extension	account	-
10	Speed Dial	speed dial number	account	-
11	History	-	-	-

12	Favorites	-	-	-
13	Redial	-	-	-
14	Account	-	account	-
15	ACD	-	account	-
16	BLF/NewCall	extension	account	pickup code
17	BLF/BXFER (blind transfer)	extension	account	pickup code
18	BLF/AXFER (answer transfer)	extension	account	pickup code
19	BLFList	-	account	-
20	CallReturn	-	-	-
21	HotDesking	-	-	-
22	Record	-	-	-
23	XML Browser	xml url	-	-
24	DTMF	dtmf key	-	-
25	N/A	-	-	-
26	Multicast Paging	paging group	-	-
27	N/A	-	-	-
28	Voice Message	-	-	-
29	Transfer	-	-	-
30	Call Park	call park code	account	-
31	XML History	-	-	-
32	XML PhoneBook	-	-	-

Example:

Config.Programable.LINEKEY1.Type = 16 # Configure line key 1 as BLF/NewCall

Config.Programable.LINEKEY1.Label = blf2000 # Display on the phone as blf2000

Config.Programable.LINEKEY1.Param1 = 2000 #Press line key 1 will dial 2000

Config.Programable.LINEKEY1.Param2 = 1 #Use account 1 when dialing

Config.Programable.LINEKEY1.Param3 = *072000 #Use *072000 to direct pickup

Update Soft Key

To update Soft Key, you define the following lines in the configuration file:

Config.Programable.SOFTKEY0x.Type = softkey_type

Config.Programable.SOFTKEY0x.Label = label_dispaly_on_phone

Config.Programable.SOFTKEY0x.Param1 = value

Config.Programable.SOFTKEY0x.Param2 = account

Note: x for the number of soft key , is ranged from 1 to 4.

About account , see above.

softkey_type	Functional Description	Param1	Param2
0	N/A	-	-
1	DND	-	-
2	Menu	-	-
3	SMS	-	-
4	Status	-	-
5	Book	0 - all 10 - local 11 - allcontacts 22 - remote 30 - broadsoft 40 - ldap	-

6	Forward	-	-
7	PickUp	pickup code	account
8	Group PickUp	group pickup code	account
9	Intercom	extension	account
10	Speed Dial	speed dial number	account
11	History	-	-
12	Favorites	-	-
13	Redial	-	-
14	N/A	-	-
15	ACD	-	account
16 - 19	N/A	-	-
20	CallReturn	-	-
21	HotDesking	-	-
22	N/A	-	-
23	XML Browser	xml url	-
24 - 26	N/A	-	-
27	Simple Menu	-	-
28	Voice Message	-	-
29	N/A	-	-
30	N/A	-	-
31	XML History	-	-
32	XML PhoneBook	-	-

Example:

Config.Programable.SOFTKEY02.Type = 10

Config.Programable.SOFTKEY02.Label = call2000

Config.Programable.SOFTKEY02.Param1 = 2000

Config.Programable.SOFTKEY02.Param2 = 1

Configure soft key 02 as speed dial , press soft key 02 will call 2000 with account 1.

Update Function Key

To update OK Key, you define the following lines in the configuration file:

Config.Programable.OK.Type = functionkey_type

Config.Programable.OK.Param1 = value

Config.Programable.OK.Param2 = account

To update CANCEL Key, you define the following lines in the configuration file:

Config.Programable.CANCEL.Type = functionkey_type

Config.Programable.CANCEL.Param1 = value

Config.Programable.CANCEL.Param2 = account

To update BOOK Key, you define the following lines in the configuration file:

Config.Programable.BOOK.Type = functionkey_type

Config.Programable.BOOK.Param1 = value

Config.Programable.BOOK.Param2 = account

To update MUTE Key, you define the following lines in the configuration file:

Config.Programable.MUTE.Type = functionkey_type

Config.Programable.MUTE.Param1 = value

Config.Programable.MUTE.Param2 = account

To update REDIAL Key, you define the following lines in the configuration file:

Config.Programable.REDIAL.Type = functionkey_type

Config.Programable.REDIAL.Param1 = value

Config.Programable.REDIAL.Param2 = account

To update VOICEMESSAGE Key, you define the following lines in the configuration file:

Config.Programable.VOICEMESSAGE.Type = functionkey_type

Config.Programable.VOICEMESSAGE.Param1 = value

Config.Programable.VOICEMESSAGE.Param2 = account

To update FORWARD Key, you define the following lines in the configuration file:

Config.Programable.FORWARD.Type = functionkey_type

Config.Programable.FORWARD.Param1 = value

Config.Programable.FORWARD.Param2 = account

About account , see above.

functionkey_type	Functional Description	Param1	Param2
0	N/A	-	-
1	DND	-	-
2	Menu	-	-
3	SMS	-	-
4	Status	-	-
5	Book	0 - all 10 - local 11 - allcontacts 22 - remote 30 - broadsoft 40 - ldap	-

6	Forward	-	-
7	PickUp	pickup code	account
8	Group PickUp	group pickup code	account
9	Intercom	extension	account
10	Speed Dial	speed dial number	account
11	History	-	-
12	Favorites	-	-
13	Redial	-	-
14 - 19	N/A	-	-
20	CallReturn	-	-
21	HotDesking	-	-
22	N/A	-	-
23	XML Browser	xml url	-
24 - 27	N/A	-	-
28	Voice Message	-	-
29	Transfer	-	-
30	N/A	-	-
31	XML History	-	-
32	XML PhoneBook	-	-

Example:

Config.Programable.OK.Type = 10

Config.Programable.OK.Label = call2000

Config.Programable.OK.Param1 = 2000

Config.Programable.OK.Param2 = 1

Configure OK key as speed dial , press OK key will call 2000 with account 1.

Supported Programmable Keys

The following tables list programmable keys for each phone model.

	VP-72	VP-76	VP-77
SOFTKEY01-04	√	√	√
LINEKEY1-2	√	√	√
LINEKEY3-6	x	√	√
LINEKEY7-8	x	x	√
LINEKEY9-10	x	x	√
OK	√	√	√
CANCEL	√	√	√
BOOK	x	√	√
MUTE	√	√	√
REDIAL	x	√	√
VOICEMESSAGE	x	√	√
FORWARD	x	√	√