SP-R5x Auto-Provisioning Manual

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Contents

1. Overview

This document is written specifically for administrative staff responsible for the remote provisioning of SP-R5x IP Phones.

SP-R5x IP Phones use DHCP/PNP/TFTP/FTP/HTTP/HTTPS network protocols to get URL, and then download firmware and/or its corresponding configuration files from that server. These configuration files and firmware will be used to update firmware and the corresponding parameters on the phone.

SP-R5x IP Phones can be configured to resynchronize its internal configuration state to match a remote profile periodically and on power up by contacting a normal provisioning server (NPS) or an access control server (ACS). In this document, we assume that the administrator knows how to set up the NPS and ACS (DHCP, PNP, TFTP, FTP, HTTP, and HTTPS servers).

By default, a profile resync is only attempted when SP R5x IP Phones are idle, because the upgrade might trigger a software reboot interrupting 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.
➢ **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. This is normally for the account related parameters.

2. Working Principle and Functions

 A complete automatic upgrade process consists of the following:

1. Administrator sets up the NPS and ACS servers with the required information.
2. IP phone gets the URL of the configuration file server
3. IP phone download the configuration file from the configuration server with URL obtained in step 2.
4. The configuration parameters in the configuration file are written to the appropriate configuration files in the IP phone
5. If configuration file contains the content for upgrading the firmware, IP phone will get the firmware and do a firmware update.

2.1. Obtaining the update server URL

When a SP R5x IP Phone power 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 setup the auto provisioning.

To set up the auto provisioning, use the web interface on the IP Phone. The following is a detailed description of the process. The auto provisioning setup is under "Upgrade -> Advanced" on the IP Phone web page (Figure 1):

Figure 1 AUTOP configuration page

PNP:

PNP stands for Plug and Play (Plug and Play). PNP provides a proprietary automatic upgrade, when PNP upgrade mode is enabled, the 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.

➤ As shown in Figure 2, set PNP Config to Enable and click the [AutoProvision] button. The phone will use PNP to get the correct auto provisioning URL and download the firmware and the configuration files;

➤ If autop mode is set, the phone will do the auto provisioning on the specified time frame as set in the autop mode.

Figure 2 AUTOP configuration page

DHCP Custom Option:

If the phone is set to use DHCP Option to obtain the auto provisioning URL, the phone will send a request to a DHCP server for a specific DHCP option code. To use DHCP Custom Option (user-defined, the range of option code is from 128 to 255), you must first configure the DHCP Custom Option on the web page, as shown in Fig. 3.

DHCP Option Configuration (Example uses 230 as the custom DHCP option code. You can use any custom DHCP option code from 128 to 255):
➢ First, you need to configure DHCP server to have a specific custom option code 230 with the update server URL in it.
➢ Set Custom Option to 230. Click [AutoProvision], the phone will get the upgrade server URL from the DHCP server with the option code 230.
➢ If autop mode is set, the phone will do the auto provisioning on the specified time frame as set in the autop mode.

Figure 3 DHCP-AUTOP mode configuration

DHCP Option 66

If none of the above is set, the 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 specify this. For this to work, you need to configure the DHCP server for the option 66 with the update server URL in it.

DHCP Option 43

If the 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 specify this. For this to work, you need to configure the DHCP server for the option 43 with the update server URL in it.

User-Specified Server:

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

The procedure for this is shown in Fig. 4 using the following TFTP example:

➤ Set Manual Update Server URL to TFTP Server (e.g., "tftp://192.168.10.135"), click [AutoProvision], the phone will use the URL to download the appropriate firmware and/or configuration file from the TFTP server and upgrade the phone using the downloaded file;

➤ If autop mode is set, the phone will do the auto provisioning on the specified time frame as set in the autop mode.

Figure 4 Manual Update Server-AUTOP mode configuration

We can also use FTP, HTTP, or HTTPS as the protocol for upgrading the phone firmware and/or configuration. The format of them are as follows:

➢ TFTP Format:

tftp://192.168.0.19/

➢ FTP Format:

ftp://192.168.0.19/   (allows anonymous login)

ftp://username:password@192.168.0.19/ (requires a user name and password)

➢ HTTP Format:

http://192.168.0.19/   (use the default port 80)

http://192.168.0.19:8080/   (use other ports, such as 8080)

➢ HTTPS Format:

(use the default port 443)

2.2. AUTOP modes:

The phone supports the following three modes:
➢ **Disable:** Disables autop. The phone will not check for any updates and will not upgrade the phone automatically;
➢ **Power on**: The phone does the autop when the IP phone power is turned on;
➢ **Repeatedly**: The phone does the autop at specified time frame periodically;

2.3. 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.

2.4. Configuration Parameter Description and Application

2.4.1. Update configuration parameters

The parameters that will be updated should follow the following format in the configuration file, as shown in Fig. 5.

```
38 ##############################################################################################
39 ####                               Network Configuation                                  ####
40 ##############################################################################################
41
42 #Configure the LAN port type; 0:DHCP(default); 1:PPPoE; 2:Static IP;
43 Config.Network.Lan.Type = 0
44
45 #Configure the Static IP address,mask,gateway and DNS server;
46 Config.Network.Lan.Ip =
47 Config.Network.Lan.Mask =
48 Config.Network.Lan.Gateway =
49 Config.Network.Lan.PrimaryDNS =
50 Config.Network.Lan.SecondaryDNS =
51
52 #Configure the username and password for PPPOE connection;
53 Config.Network.Pppoe.Username =
54 Config.Network.Pppoe.Password =
55
56 #Enable or disable the LAN port VLAN; 0:Disabled(default); 1:Enabled;
57 Config.Network.Vlan.LanVlanEnable = 0
58
59 #Configure the LAN port VLAN ID, ranges from 0 to 4094, (0 by default);
60 Config.Network.Vlan.LanVid = 0
61
62 #Configure the LAN port VLAN priority, ranges from 0 to 7,(0 by default);
63 Config.Network.Vlan.LanPriority = 0
64
65 #Enable or disable the SNMP feature; 0:Disabled(default); 1:Enabled
66 Config.Network.Snmp.Enable = 0
67
68 #Configure the SNMP port
69 Config.Network.Snmp.Port =
70
71 #Configure the IP address of the SNMP server
72 Config.Network.Snmp.TrustedIP =
73
```

Figure 5 part of the configuration file contents

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:

```
#Configure the username and password for PPPOE connection;
Config.Network.Pppoe.Username = james
Config.Network.Pppoe.Password = 123456
```

Note: Each line in the configuration file beginning with # is a comment statement does not affect the update.

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

2.4.2. 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://192.168.10.19/1.0.0.135.rom

Note: if no filename is in the firmware URL configuration, Akuvox IP Phone will search the default filename SP-R5XP.rom in the defined URL address.

➢ **Personalized Ringtones**
   To set personalized ringtones, you define the following lines in the configuration file:

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

Example:
Config.Ringtone.Url = tftp://192.168.10.19/Ring1.wav

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

To update two custom ringtones, you define the following lines in the configuration file:

Config.Ringtone.Url = tftp://192.168.10.19/Ring1.wav
Config.Ringtone.Url = tftp://192.168.10.19/Ring2.wav

➢ **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://192.168.10.19/Contact.xml

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