ALE SIP DeskPhones

Auto Provisioning Guide

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Alcatel·Lucent
Enterprise

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1 Introduction

The *ALE SIP DeskPhone Auto Provisioning Guide* provides general guidance on setting up phone network, provisioning and managing phones.

This guide is not intended for end users, but for administrators with experience in networking who understand the basics of Open SIP networks and VoIP endpoint environments.

As an administrator, you can do the following with this guide:

- Set up a VoIP network and provisioning server.
- Provision the phones with features and settings.
- Troubleshoot, upgrade and maintain phones.

The supported models are H3G/H6/M3s/M5s/M7s/M7s Pro/M8 with R130 and above firmware version.

2 Glossary

ALE	Alcatel-Lucent Enterprise
DHCP	Dynamic Host Configuration Protocol
EDS	Easy Deployment Service
FQDN	Fully Qualified Domain Name
HTTP/HTTPS	Hypertext Transfer Protocol/Hypertext Transfer Protocol over Secure Socket Layer
LAN	Local Area Network
LDAP	Lightweight Directory Access Protocol
MMI	Man-Machine Interface
PoE	Power over Ethernet
RAM	Random Access Memory
SIP	Session Initiation Protocol
SSH	Secure Shell
TFTP	Trivial File Transfer Protocol
URL	Uniform Resource Locator
USB	Universal Serial Bus
VCI	Vendor Class Identifier
WBM	Web Based Management
WAN	Wide Area Network

3 Getting Started

This chapter describes where the phone fits in your network and provides basic initialization instructions for the auto provisioning of SIP phones. Before the auto provisioning process, the following steps are required:

1) Verifying Requirements
2) Obtaining Phone Information
3) Preparing Configuration Files
4) Implementing Auto Provisioning Process

3.1 Verifying Requirements

To perform auto provisioning of the phone as SIP endpoints in your network successfully, you need the following in deployments:

- The phone with compatible firmware that can be powered up normally.
- A working IP network.
- A text editor, such as Notepad++, to create and edit configuration files.

3.2 Obtaining Phone Information

The MAC address could be found from the back of the phone.

When the phone is on, you could also press OK key on navigator keypad to check the phone's status quickly. The phone's information, such as the valid IP address, MAC address, firmware version, and more, will be displayed on the screen.

3.3 Preparing Configuration Files

Before provisioning, you need to prepare the configuration files.

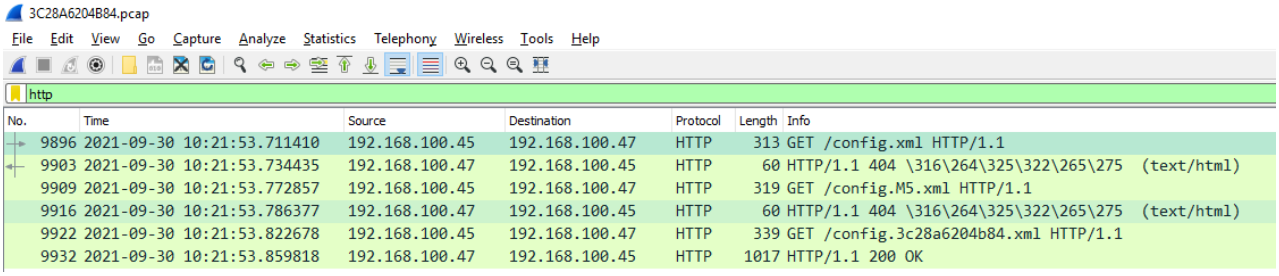
The configuration files contain the parameters that affect the corresponding features on the phone. They are used to deploy the phone automatically.

There are three configuration files including config.xml file (for global use), config.{model}.xml file (for common use with the specified model), and config.{mac-address}.xml file (for individual use).

During the provisioning process, there are 3 steps:

1) The phone will try to obtain config.xml file first
2) The phone will try to obtain config.{model}.xml, for which the *model* in between the brackets is the phone model
3) The phone will try to obtain config.{mac-address}.xml, for which *mac-address* in between the brackets is the phone's real MAC address

See screenshot from PCAP below:



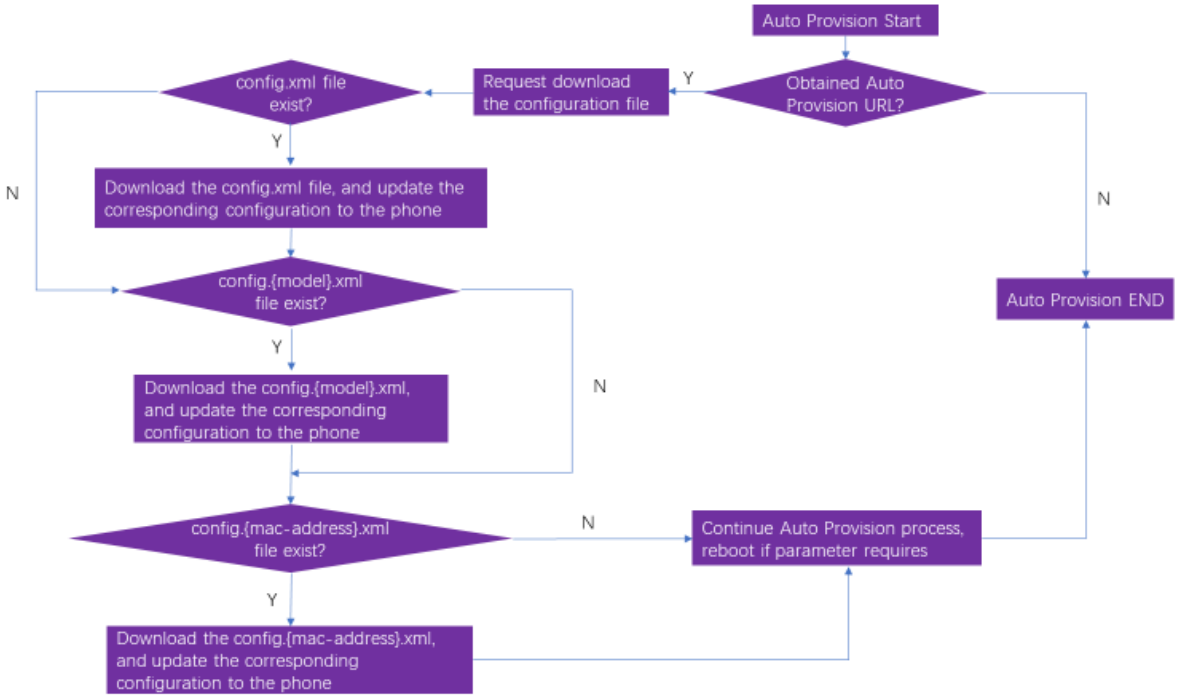
The format of the configuration file is as follows:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<settings>
    <setting id="Account1Enable" value="true"/>
    <setting id="Account1Label"  value="SIP-1"/>
    <setting id="Account1RegName" value="1122"/>
    <setting id="Account1DisplayName" value="1122"/>
    <setting id="Account1UserName" value="1122"/>
    <setting id="Account1Password" value="0000"/>
    <setting id="Account1Server1Address" value="10.1.1.10"/>
    <setting id="Account1Server1Port" value="5060"/>
</settings>
```

And more parameters could be found from ALE auto provisioning template, which could be obtained from an ALE distributor or ALE support team via support.alesip@al-enterprise.com.

3.4 Implementing Auto Provisioning Process

The auto provisioning flowchart below indicates the whole process:



4 Phone Provisioning Method Priority and Scenarios

4.1 Phone Provisioning Method Priority

For the auto provisioning process, the following approaches, which indicate different ways to obtain the provisioning URL, are listed in order of priority:

1) Obtaining auto provisioning URL via DHCP
2) Obtaining auto provisioning URL via PnP
3) Configuring auto provisioning URL via MMI or WBM
4) Obtaining auto provisioning URL/configuration parameters via EDS

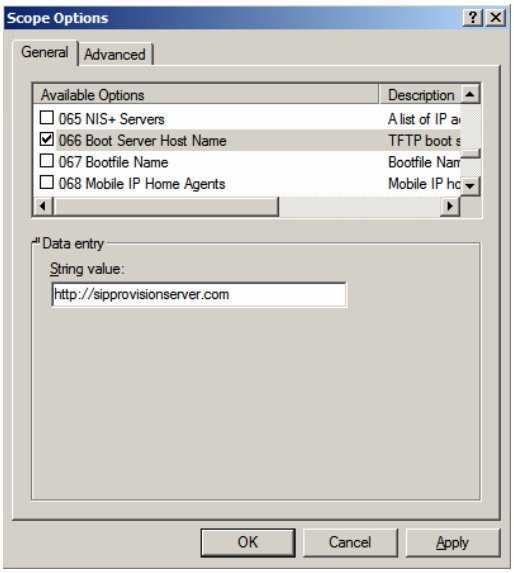
4.2 Phone Provisioning Scenarios

Scenario 1: Obtaining Auto Provisioning URL via DHCP

Scenario 1 describes how to provision the phone under standard IP settings by DHCP server and with configuration file which will be downloaded during initialization from a provisioning server. The provisioning server URL is provided by the DHCP server. This requires a specific configuration on the DHCP server. In this scenario, the phone starts without any manual operation via MMI or WBM.

Before processing:

- The phone set must initialize in dynamic mode (default mode).
- A DHCP server is operational on the LAN and configured to provide the URL of the provisioning server (auto provisioning URL). Please find below the screenshot from DHCP server tool.



- A provisioning server is operational (see HTTP server setup for details).
- The phone has connection access to the DHCP server and provisioning server.

Procedures:

1) Create and edit the configuration file
2) Deploy the SIP configuration file in the provisioning server related directory
3) Power on the phone
4) After startup, the phone begins the initialization process, and the phone will finish the provisioning process when it's completely boot up

Scenario 2: Obtaining Auto Provisioning URL via PnP

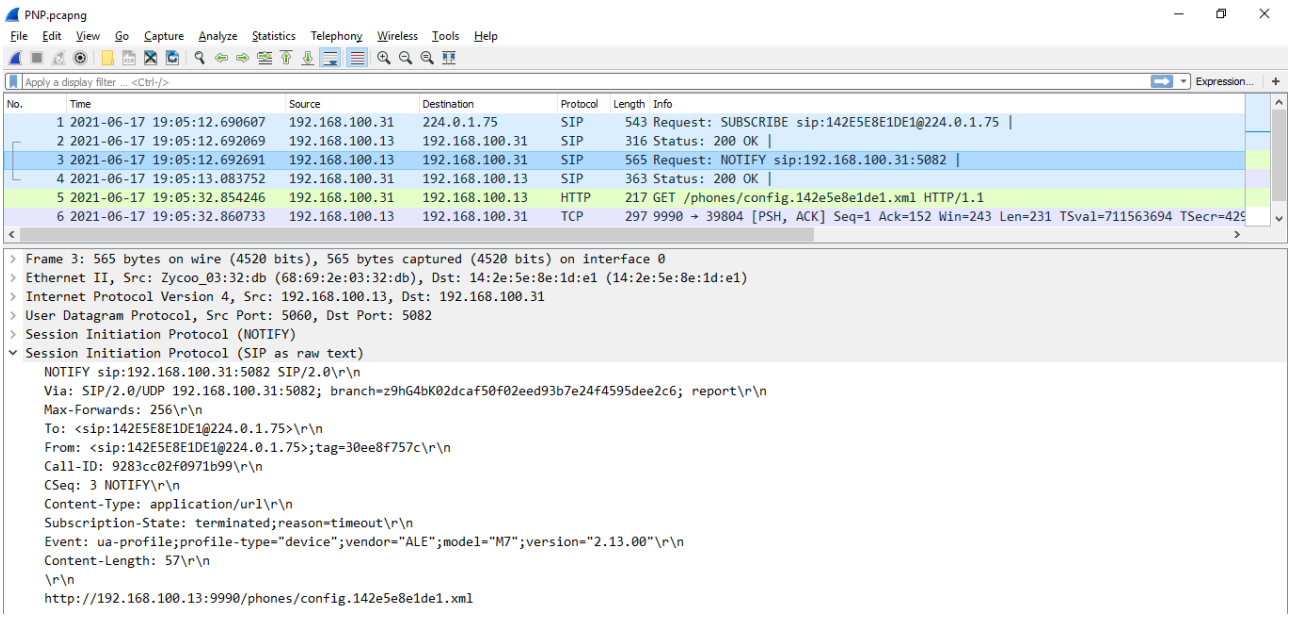
Scenario 2 describes how to provision the phone with configuration file which is downloaded during initialization from a provisioning server. The provisioning server URL is provided by PnP multicast message. This requires a specific configuration on the PnP server. In this scenario, the set starts without any manual operation via MMI or WBM.

Before processing:

- The phone set must initialize in dynamic mode (default mode).
- A provisioning server is operational (see HTTP server setup for details).
- A PnP server is embedded, generally, in SIP server.

Procedures:

1) Create and configure the configuration file.
2) Deploy the SIP configuration file in the provisioning server related directory
3) Power on the phone
4) After startup, the phone begins the initialization process, and the phone will finish the provisioning process when it's completely boot up



Scenario 3: Configuring Auto Provisioning URL via MMI/WBM

Scenario 3 describes how to provision the phone under standard IP settings by DHCP server and with configuration file which will be downloaded during initialization from a provisioning server. The provisioning server URL is configured via MMI/WBM manually.

Before processing:

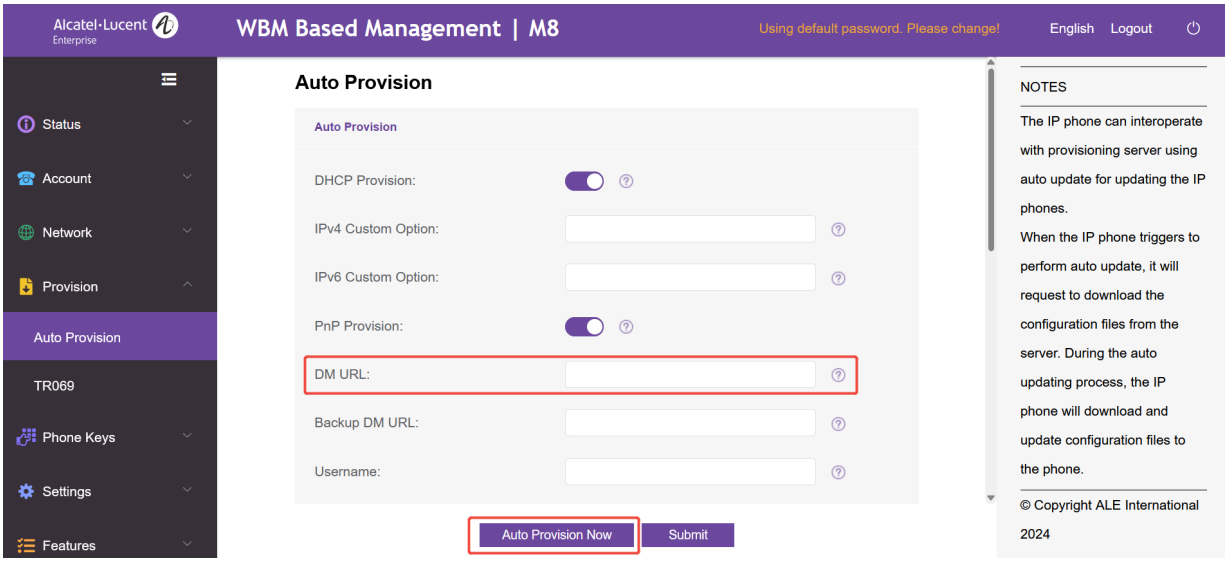
- The phone set must initialize in dynamic mode (default mode).
- A provisioning server is operational (See HTTP server setup for details).

Procedures via Phone MMI:

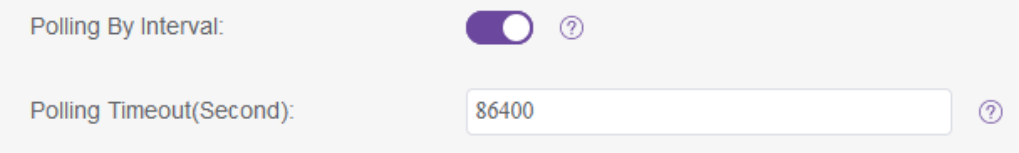
1) Create and configure the configuration file.
2) Deploy the SIP configuration file in the provisioning server related directory
3) Power on the phone
4) Configure auto provisioning URL via MMI by navigating through Menu → Advanced Setting (default password is 123456) → Auto Provision
5) The phone will finish the provisioning process with corresponding parameters

Procedures via Phone WBM:

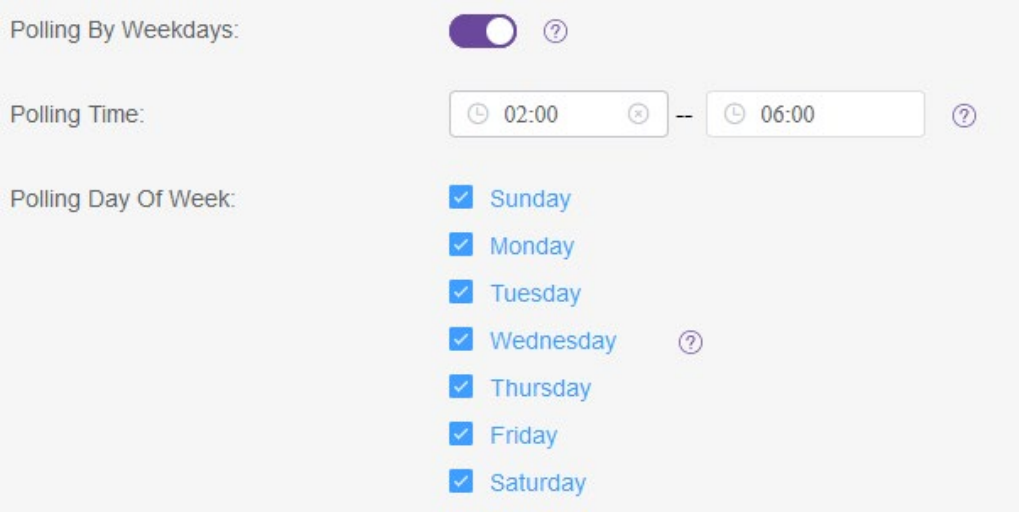
1) Create and configure the configuration file.
2) Deploy the SIP configuration file in the provisioning server related directory
3) Power on the phone
4) Obtain the IP address from the phone UI by pressing the “OK” button
5) Input https://ip address in web browser to access the phone WBM, and then login as “admin” (default password is 123456)
6) Configure auto provisioning URL via WBM by navigating through Provision → Auto Provision → DM URL
7) Click “Auto Provision Now”
8) The phone will finish the provisioning process with corresponding parameters



If Polling By Interval feature is enabled, and a specific value is configured for Polling Timeout, the phone will automatically execute second auto provisioning after the interval. The default value is 86400 seconds.



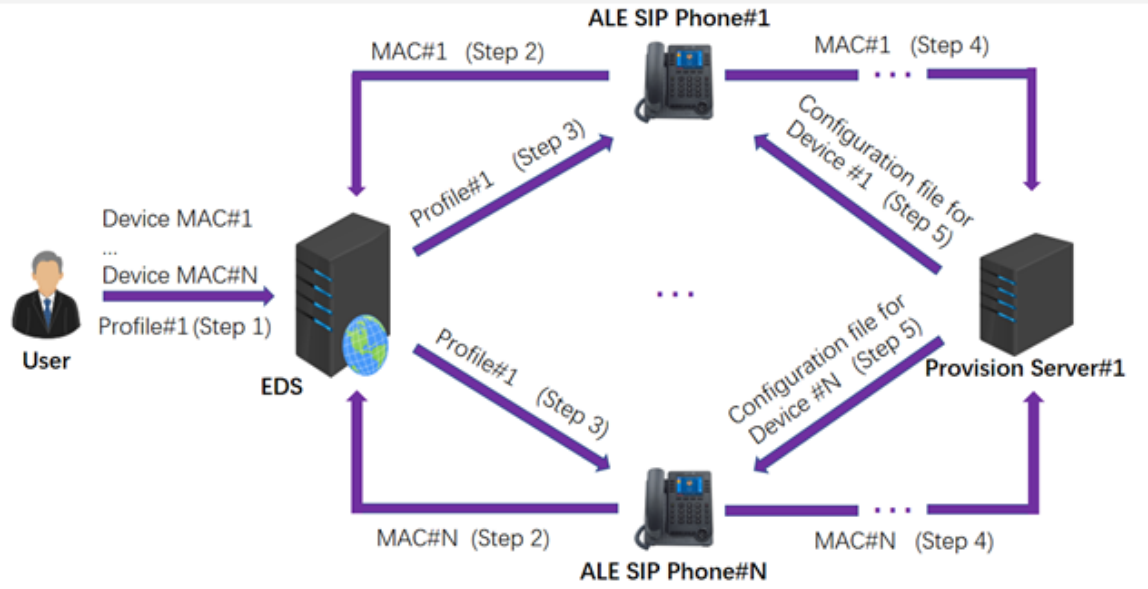
If Polling By Weekdays feature is enabled, and values are configured for Polling Time and Polling Day of Week, the phone will start auto provisioning during the specified weekdays and Polling Time period at random time.



Scenario 4: Obtaining auto provisioning URL/configuration parameters via EDS

The phone supports ALE EDS. The EDS server allows you to provision phones with the auto provisioning URL and certificates, enabling phones to initialize from the WAN without requiring a specific configuration of a DHCP server or a provisioning server.

When the set starts in dynamic mode and no provisioning server URL is configured via MMI/WBM or received from DHCP/PnP, it tries to connect to the ALE EDS server, whose address is hard-coded in its software. The detailed information could be found on ALE Device website.



Note: The URL of the provisioning server, provisioning authentication information, certificate, and configuration parameters could be stored into profile, but none of them is mandatory.

Scenario 4-1: Obtaining Auto Provisioning URL via EDS

Scenario 4-1 describes how to provision the phone under standard IP settings by DHCP server and with configuration file which will be downloaded during initialization from a provisioning server. The provisioning server URL is provided by the EDS server. This requires a specific configuration on the EDS server. In this scenario, the phone starts without any manual operation via MMI or WBM.

Before processing:

- The phone set can reach the WAN.
- The phone set must initialize in dynamic mode (default mode).
- A provisioning server is operational (See HTTP server setup for details).
- A profile associated with the phone MAC address has been created on the EDS server, and the auto provisioning URL is contained within this profile.

Procedures:

1) Create and configure the configuration file
2) Deploy the SIP configuration file in the provisioning server related directory
3) Power on the phone
4) After startup, the phone begins the initialization process, and the phone will finish the provisioning process when it’s completely boot up

Scenario 4-2: Obtaining Configuration Parameters via EDS

Scenario 4-2 describes how to provision the phone under standard IP settings by DHCP server and with configuration parameters stored into a profile, which will be downloaded during initialization from EDS directly. In this scenario, the phone starts without any manual operation via MMI or WBM.

Before processing:

- The phone set can reach the WAN.
- The phone set must initialize in dynamic mode (default mode).
- A profile associated with the phone MAC address has been created on the EDS server, and the configuration parameters for auto provisioning are stored into this profile, but without auto provisioning URL defined.

Procedures:

1) Power on the phone
2) After startup, the phone begins the initialization process, and the phone will finish the provisioning process when it’s completely boot up

5 Setting Up a Provisioning Server

5.1 Provisioning Server Setup Overview

As can be seen from the above-mentioned auto provisioning scenarios, provisioning server is necessary except Scenario 4-2 where EDS is playing a role as a special provisioning server.

The phone supports HTTP/HTTPS transport protocols for provisioning. The HTTP/HTTPS provisioning server can be set up on the local LAN.

It is recommended to use the following procedures for your first provisioning server setup.

1) Install an HTTP/HTTPS server application or locate a suitable existing server
2) Create home directory for this server application
3) Set security permissions for the account if required

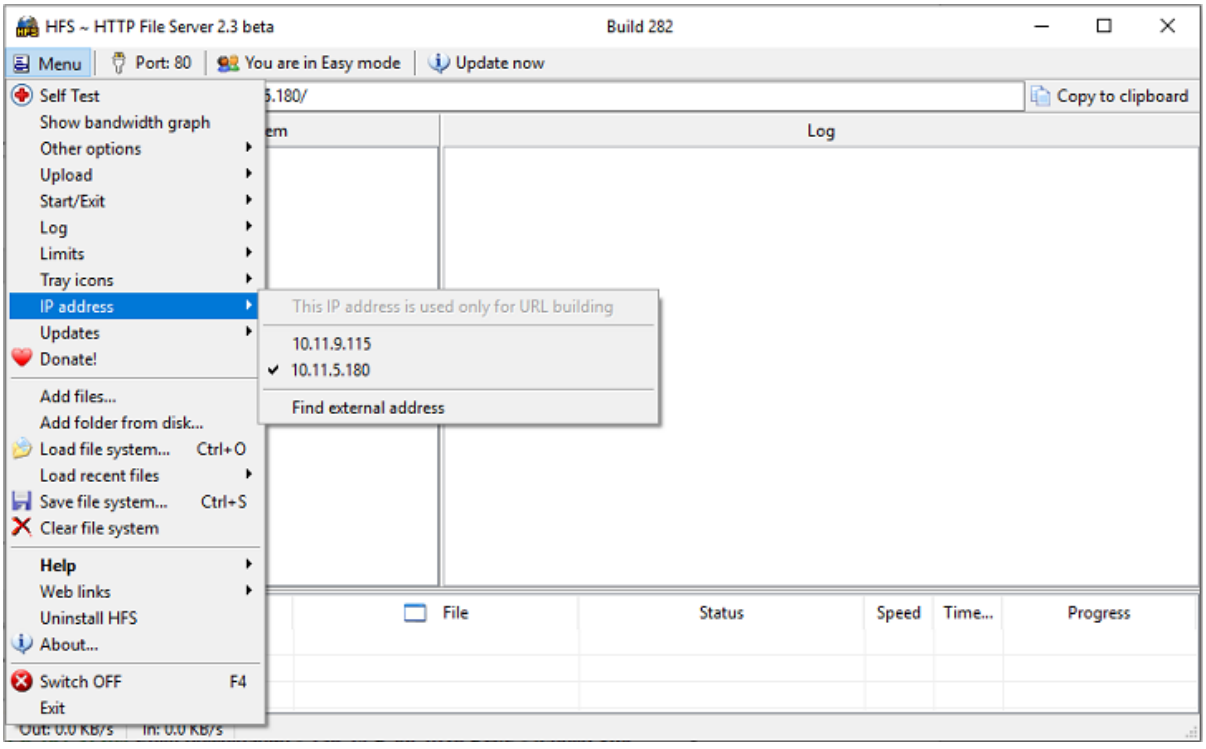
Once the setup has been completed, create the configuration files required for phone provisioning and store them in the HTTP/HTTPS provisioning server related directory.

5.2 HTTP Server Setup

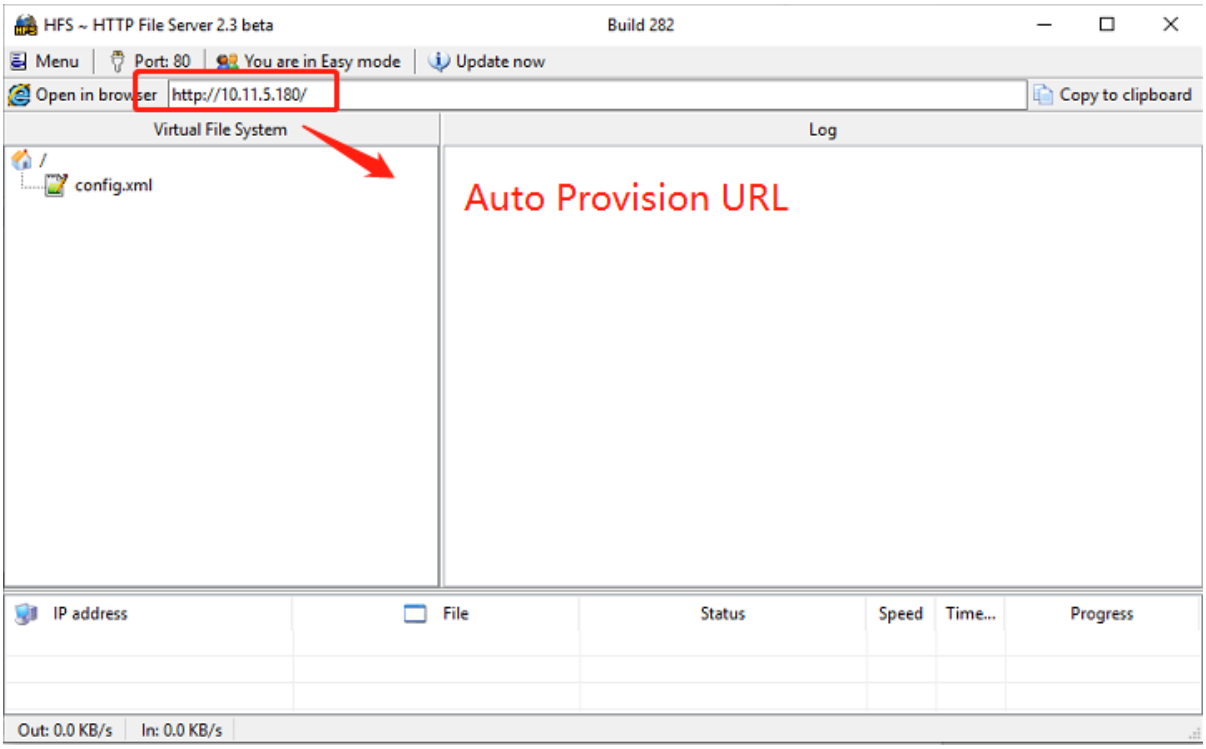
To set up an Apache HTTP server, go to www.apache.org and download the latest version of Apache HTTP server. Generally, we strongly recommend setting up one HTTP server with some software tool like HFS or MobaXterm when provisioning with a simple environment.

Here we take HFS as an example to show how to set up one HTTP server.

1) Prepare the configuration file (one config.xml or one config.{mac-address}.xml, or both)
2) Install the HFS tool on your PC
3) Open the tool and select IP address and port



4) Put the configuration file on the Virtual File System to get the URL for provisioning.


HFS ~ HTTP File Server 2.3 beta
Build 282
Menu
Port: 80
You are in Easy mode
Update now
Open in browser
http://10.11.5.180/
Copy to clipboard
Virtual File System
Log
/
config.xml
Auto Provision URL
IP address
File
Status
Speed
Time...
Progress
Out: 0.0 KB/s
In: 0.0 KB/s

6 Upgrading the Firmware

This chapter describes how to perform firmware upgrade of the phone via auto provisioning. You can have the binary files by accessing ALE Device website.

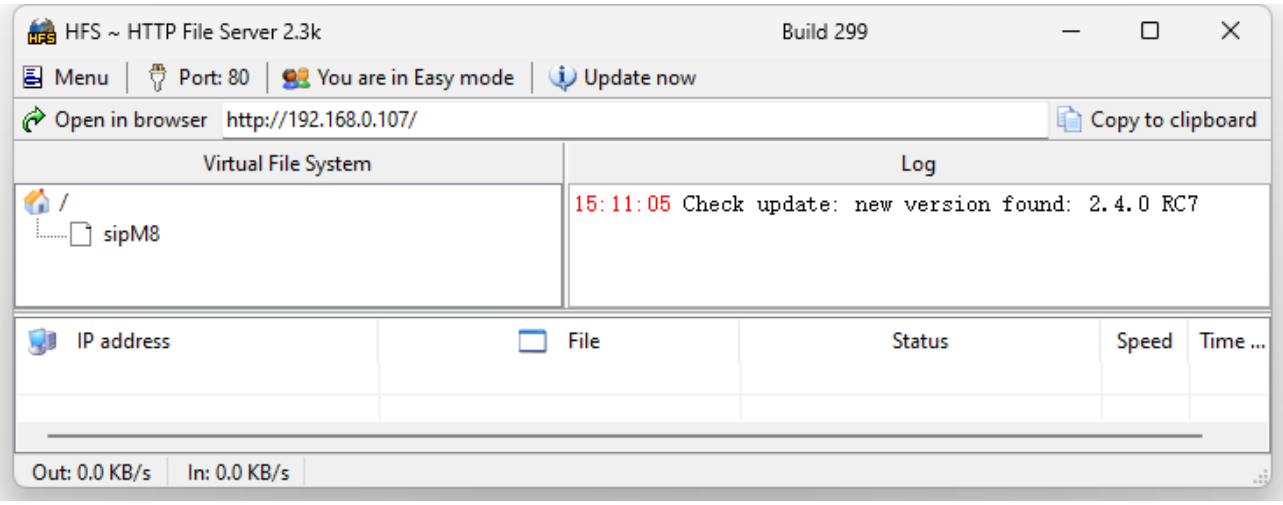
The phone can be upgraded by downloading firmware binary files from a provisioning server whose URL must be defined in the SIP configuration file.

Parameter for upgrading:

<setting id="DeviceFirmwareUpgradeUrl" value="upgrade URL"/>

Procedures:

1) Set up the upgrading URL
2) Put the firmware binary files in the directory of provisioning server, for example the URL could be http://192.168.0.107/



3) Prepare the configuration file which should include the following parameter:
<setting id="DeviceFirmwareUpgradeUrl" value="http://192.168.0.107/"/>

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<settings>
    <setting id="DeviceFirmwareUpgradeUrl" value="http://192.168.0.107/"/>
</settings>
```

4) Reboot the phone for the phone to upgrade automatically

7 Restoring Default Values

This chapter describes an easy way to restore the parameters to default values for the phone via auto provisioning. You can just modify the parameters in the configuration file as follows:

Original:

<setting id="FeatureDndEnable" value="true"/>

Change to:

<setting id="FeatureDndEnable" define="default"/>

After the phone downloads the configuration file, the parameter FeatureDndEnable will be changed to its default value.

8 Troubleshooting

This chapter describes the general troubleshooting information regarding auto provisioning.

Issue scenario 1: The phone failed to download configuration files

Troubleshooting steps:

1) Make sure the network environment of phone is stable
2) Make sure the provisioning server is reachable
3) Make sure the port of provisioning server is not blocked or occupied
4) Make sure the authentication credentials (username/password, certificate etc.) are provided if required by provisioning server
5) Make sure the configuration files exist on the provisioning server

Issue scenario 2: The phone failed to obtain the IP address from the DHCP server

Troubleshooting steps:

1) Make sure the configuration on the DHCP server is set correctly
2) Make sure the DHCP Mode on the phone is set to Dynamic

Issue scenario 3: After a request is sent from the phone, the provisioning server sends back HTTP 404

Troubleshooting steps:

1) Make sure the provisioning server has been correctly configured to be accessible
2) Make sure the configuration files are stored on the provisioning server

If the issue is still not resolved, please feel free to contact ALE support team at support.alesip@al-enterprise.com.