



Yealink Microsoft[®] Skype for Business[™]Edition IP Phones Auto Provisioning Guide

Version 8.21 May. 2016

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Summary of Changes

This section describes the changes to this guide for each release and guide version.

Changes for Release 8, Guide Version 8.21

This version is updated to incorporate SIP-T46G, SIP-T42G, SIP-T41P and SIP-T40P IP phones. And SIP-T22/T22P IP phones are removed from version 8.

The following section is new:

• Provisioning Yealink IP Phones on page 5

Major update has occurred to the following sections:

- Editing Common CFG File on page 11
- Editing MAC-Oriented CFG File on page 12
- Customizing Resource Files on page 14

The following section is removed to

Yealink_Microsoft_Skype_for_Business_Edition_IP_Phones_Description_of_Configuration_ Parameters_in_CFG_Files

• Description of Configuration Parameters in CFG file

Introduction

Yealink IP phones with Skype for Business firmware enable a new era in unified communications. It is designed to work with Microsoft[®] Skype for Business 2015. Yealink IP phones with Skype for Business firmware are full-featured telephones that can be plugged directly into an IP network and can be used easily without manual configuration.

This guide provides instructions on how to provision Yealink IP phones with the minimum settings required. Yealink IP phones support FTP, TFTP, HTTP, and HTTPS protocols for auto provisioning and are configured by default to use the TFTP protocol.

The purpose of this guide is to serve as a basic guidance for provisioning Yealink IP phones, including:

- Yealink SIP-T48G
- Yealink SIP-T46G
- Yealink SIP-T42G
- Yealink SIP-T41P
- Yealink SIP-T40P

The auto provisioning process outlined in this guide applies to Yealink SIP-T48G/T46G/T42G/T41P/T40P IP phones running firmware version 8 or later. We recommend that IP phones running the latest firmware CANNOT be downgraded to an earlier firmware version. The new firmware is compatible with old configuration parameters, but not vice versa.

Getting Started

This section provides instructions on how to get ready for auto provisioning. To begin the auto provisioning process, the following steps are required:

- Obtaining Configuration Files
- Obtaining Phone Information

Obtaining Configuration Files

Before beginning provisioning, you need to obtain configuration files. There are two configuration files both of which are CFG-formatted. We call these two files Common CFG file and MAC-Oriented CFG file. The IP phone tries to download these CFG files from the server during auto provisioning.

You can ask the distributor or Yealink FAE for Common CFG and MAC-Oriented files. You can also obtain the Common CFG file and MAC-Oriented file online:

http://www.yealink.com/solution_info.aspx?ProductsCateID=1248&cateid=1248&BaseI nfoCateId=1328&Cate_Id=1248&parentcateid=1328.

To download Common CFG and MAC-Oriented files:

- 1. Go to Yealink Microsoft Skype for Business page.
- 2. Download and extract the combined configuration files to your local system.



3. Open the folder you extracted and identify the files you will edit.

Obtaining Phone Information

Before beginning provisioning, you also need the IP phone information. For example: MAC address and the hardware version of the IP phone.

MAC Address: The unique 12-digit serial number of the IP phone. You can obtain it from the bar code on the back of the IP phone.

Hardware version: The current hardware version of the IP phone. You can view it via phone user interface or web user interface.

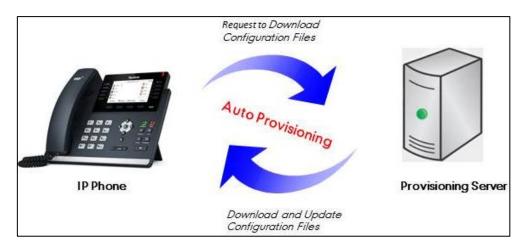
Provisioning Yealink IP Phones

This section provides instructions on how IP phones interoperate with provisioning server for auto provisioning, and shows you four major tasks to provision the phones. It will help users who are not familiar with auto provisioning to understand this process more easily and quickly.

Auto Provisioning Process

When IP phones are triggered to perform auto provisioning, it will request to download the configuration files from the provisioning server. During the auto provisioning process, the IP phone will download and update configuration files to the phone flash.

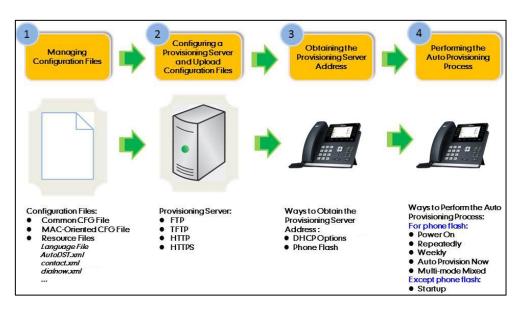
The following figure shows how the IP phone interoperates with the provisioning server:



Major Tasks for Auto Provisioning

You need to complete four major tasks to provision Yealink IP phones.

The following figure shows an overview of four major provisioning tasks:



For more information on how to manage configuration files, refer to Managing Configuration Files on page 11.

For more information on how to configure a provisioning server, refer to Configuring a Provisioning Server on page 17.

For more information on how to obtain the provisioning server address, refer to Obtaining the Provisioning Server Address on page 21.

For more information on how to perform the auto provisioning process, refer to Triggering the IP Phone to Perform the Auto Provisioning on page 25.

If you are not familiar with auto provisioning process on Yealink IP phones, you can refer to An Instance of Auto Provision Configuration on page 6.

An Instance of Auto Provision Configuration

This section shows an instance of auto provision configuration.

1. Manage configuration files.

Add/Edit the desired configuration parameters in the CFG file (e.g., y00000000028.cfg) you want the IP phone to download. For more information on how to manage configuration files, refer to Managing Configuration Files on page 11.

```
0,..., 10,..., 20,..., 30,..., 40,..., 50,..., 60,

1 #!version:1.0.0.1

2 ringtone.url = tftp://192.168.1.100/Customring.wav
```

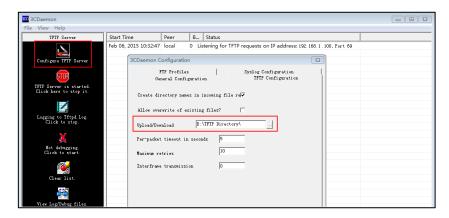
- 2. Configure the TFTP server.
 - 1) Place configuration files to TFTP root directory (e.g., D:\TFTP Directory).

er D (D:) TFTP Directory	• • • TFTP •
Share with ▼ Burn New folder	ii • 🔟 🔞
CFG file	

2) Start the TFTP sever. The IP address of the TFTP server is shown as below:

3CDaemon				
File View Help				
TFTP Server	Start Time	Peer	Bytes	Status
4	Feb 05, 2015 17:37:25	local	0	Listening for TFTP requests on IP address: 192.168.1.100, Port 69
Configure TFTP Server TFTP Server is started. Click here to stop it.				
Logging to Iftpd log. Click to stop.				The sever URL where the IP phone downloads configuration files from is tftp://192.168.1.100/
Not debugging. Click to start.				
Clear list.				
View Log/Debug files.				

3) Select Configure TFTP Server. Click the button to locate the TFTP root directory from your local system.



For more information on how to configure a provisioning server, refer to Configuring a Provisioning Server on page 17.

3. Configure the provisioning server address on the IP phone.

ealink 1746G	Status	Account	Network	Features	Setti	ngs	Directory	Security
A REAL PROPERTY.		Auto Provision						NOTE
Preference		PNP Active		● on ○ off				
Time & Date		DHCP Active		● on ○ off				Auto Provision The auto provision parameters for administrator.
Upgrade		Custom Option(128~)	254)					
Auto Provision		DHCP Option Value	VI34.04	MS-UC-Client				You can click here to get more guides.
Configuration		Server URL		tftp://192.168.1.100	r			
		User Name						
Dial Plan		Password					Entert	he access URL of the
Voice		Common AES Key						ioning server in the
Tones		MAC-Oriented AES Ke	v					URL field
Phone Lock		Zero Active		Disabled	~		_	
		Wait Time(0~100s)		5		0		
Location		Power On		🤋 On 🔿 Off 🧉)			
EXP Module		Repeatedly		🗢 On 🖲 Off 🧉)			
BTOE		Interval(Minutes)		1440		0		
		Weekly		🗢 On 🖲 Off 🧉				
		Time		00 : 00 - 00	: 00	0		
		Day of Week		V Sunday V Monday V Tuesday V Wednesday	•			
				Friday Saturday				
				Autoprovision N	owv.	0		

For more information on how to obtain the provisioning server address, refer to Obtaining the Provisioning Server Address on page 21.

4. Trigger the IP phone to perform the auto provisioning.

				Log O
ealink 1466	Status Account Network	k Features Setti	ngs Directory	Security
Preference	Auto Provision			NOTE
	PNP Active	🖲 On 💿 Off 🕜		an and a second
Time&Date	DHCP Active	🖲 On 🔘 Off 🕜		Auto Provision The auto provision parameters
Upgrade	Custom Option(128~254)	0		for administrator.
Auto Provision	DHCP Option Value	MS-UC-Client		U You can click here to get
Configuration	Server URL	tftp://192.168.1.100/	0	more guides.
	User Name		0	
Dial Plan	Password		0	
Voice	Common AES Key		0	
Tones	MAC-Oriented AES Key		0	
	Zero Active	Disabled +	0	
Phone Lock	Walt Time(0~100s)	5	0	
Location	Power On	@ On 🗇 Off 🕜		
EXP Module	Repeatedly	🔍 On 🖲 Off 🕜		
BTOE	Interval(Minutes)	1440	0	
0100	Weekdy	🔍 On 😐 Off 🕜		
	Time	Sunday	Click the Autor to perform the	
	Day of Week		provisioning pr immediately	ocess

For more information on how to trigger the phone to perform the auto provisioning, refer to Triggering the IP Phone to Perform the Auto Provisioning on page 25.

Managing Configuration Files

Auto provisioning enables Yealink IP phones to update themselves automatically via downloading Common CFG and MAC-Oriented CFG files. Before beginning provisioning, you may need to edit and customize your configuration files.

You can edit the template files directly or create a new CFG file as required. Open each configuration file with a text editor such as UltraEdit.

For more information on description of all configuration parameters in configuration files, refer to

Yealink_Microsoft_Skype_for_Business_Edition_IP_Phones_Description_of_Configuration_ Parameters_in_CFG_Files.

Editing Common CFG File

The Common CFG file is effectual for all phones of the same model. It uses a fixed name "y000000000XX.cfg" as the file name, where "XX" equals to the first two digits of the hardware version of the IP phone model.

Phone Model	Common CFG File
SIP-T48G	y0000000035.cfg
SIP-T46G	y0000000028.cfg
SIP-T42G	y0000000029.cfg
SIP-T41P	y0000000036.cfg
SIP-T40P	y0000000054.cfg

The names of the Common CFG file requirements for the phone model are:

Common CFG file contains configuration parameters which apply to phones with the same model, such as language and volume.

The following figure shows a portion of the common CFG file:

#!version:1.0.0.1
##File header "#!version:1.0.0.1" can not be edited or deleted, and must be placed in the first line.##
This template file is applicable to IP phones running firmware version 80 or later.##
##For more information on configuration parameters,refer to Description of Configuration Parameters in CFG Files.xslx##
ŧŧ Hostname ŧŧ ***********************************
network.dhcp host name =
network.dncp_nost_name -
PPPoE(Except T41P/T42G Models)

network.pppce.user =
network.pppce.password =

Network Advanced

##It enables or disables the PC port.0-Disabled,1-Auto Negotiation.
##The default value is 1.It takes effect after a reboot.
network.pc_port.enable =
\hat{f}
##0-Auto Negotiate
##1-Full Duplex 10Mbps
##2-Full Duplex 100Mbps
##3-Half Duplex 10Mbps
##4-Half Duplex 100Mbps
##5-Full Duplex 1000Mbps (only applicable to SIP-T42G, SIP-T46G and SIP-T48G IP phones)
##The default value is 0.It takes effect after a reboot.
network.internet_port.speed_duplex =
##It configures the transmission mode and speed of the PC (LAN) port.
##0-Auto Negotiate
##1-Full Duplex 10Mbps

When editing the Common CFG file, learn the following:

- The line beginning with "#" is considered to be a comment.
- The file header "#!version:1.0.0.1" is not a comment and must be placed in the first line. It cannot be edited or deleted.
- The file format must be *.cfg.
- The filename complies with the requirements that are listed in the above table.
- Each line must use the following format and adhere to the following rules:

Configuration Parameter=Valid Value

- Separate each configuration parameter and value with an equal sign.
- Set only one configuration parameter per line.
- Put the configuration parameter and value on the same line, and do not break the line.

Editing MAC-Oriented CFG File

The MAC-Oriented CFG files are only effectual for the specific phone. They use the 12-digit MAC address of the IP phone as the file name. For example, if the MAC address of the IP phone is 0015651130F9, the MAC-Oriented CFG file has to be named as 0015651130f9.cfg (case-sensitive) respectively.

MAC-Oriented CFG file contains configuration parameters which are expected to be updated per phone, such as the registration information.

The following figure shows a portion of the MAC-Oriented CFG file:

```
Audio Codec
                                         ±±
ŧ±
*****
                                  *************
account.1.codec.1.enable =
account.1.codec.1.payload type =
account.1.codec.1.priority
account.1.codec.1.rtpmap =
Advanced
ŧŧ
                                         ##
*******
account.1.auto answer =
account.1.missed_calllog =
Alert info
##
   ******
#####
                                        * # #
account.1.ringtone.ring type =
###
                Time
##It configures the time zone.
##The default value is +8.
local_time.time_zone =
##It configures the time zone name.
##The default time zone name is China(Beijing).
local time.time zone name =
```

When editing the MAC-Oriented CFG file, learn the following:

- The line beginning with "#" is considered to be a comment.
- The file header "#!version:1.0.0.1" is not a comment and must be placed in the first line. It cannot be edited or deleted.
- The file format must be *.cfg.
- The filename matches the MAC address of your phone.
- Each line must use the following format and adhere to the following rules:

Configuration Parameter=Valid Value

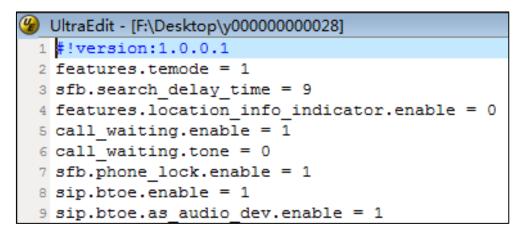
- Separate each configuration parameter and value with an equal sign.
- Set only one configuration parameter per line.
- Put the configuration parameter and value on the same line, and do not break the line.

Creating a New CFG File

If you want to create a new CFG file for your phone, follow these steps:

To create a new CFG file:

 Create a CFG file for your phone. Ensure the file complies with the guidelines that are listed in Editing Common CFG File on page 11 or Editing MAC-Oriented CFG File on page 12. 2. Copy configuration parameters from the template configuration files and set the valid values for them.



3. Save the changes and close the CFG file.

Encrypting Configuration Files

To protect against unauthorized access and tampering of sensitive information (e.g., login password, registration information), you can encrypt configuration files using Yealink Configuration Encryption Tool. AES keys must be 16 characters and the supported characters contain: $0 \sim 9$, $A \sim Z$, $a \sim z$ and the following special characters are also supported: # % * + , - . : = ? @ [] $\land _{-}$ {} \sim . For more information on how to encrypt configuration files, refer to Yealink Configuration Encryption Tool User Guide.

Customizing Resource Files

When configuring some particular features, you may need to upload resource files to IP phones, such as personalized ring tone file and language package file. Yealink supplies the following resource file templates:

Templo	ate File	File Name
	Common CFG file	Common.cfg
Configuration Files	MAC-Oriented CFG file	MAC.cfg
	AutoDST Template	AutoDST.xml
Resource Files	Language Packs	For example, 000.GUI.English.lang 1.English.js

Templo	ate File	File Name
	Keypad Input Method File	ime.txt
	Dial-now Template	dialnow.xml
	Contact File	contact.xml

Ask the distributor or Yealink FAE for resource file templates. For more information on an explanation of the configuration parameters that relate to these features, refer to Yealink_Microsoft_Skype_for_Business_Edition_IP_Phones_Administrator_Guide.

Configuring a Provisioning Server

Yealink IP phones support using FTP, TFTP, HTTP and HTTPS protocols to download configuration files. You can use one of these protocols for provisioning. The TFTP protocol is used by default. The following section provides instructions on how to configure a TFTP server.

We recommend that you use 3CDaemon or TFTPD32 as a TFTP server. 3CDaemo and TFTPD32 are free applications for Windows. You can download 3CDaemon online: http://www.oldversion.com/3Com-Daemon.html and TFTPD32 online: http://fftpd32.jounin.net/.

For more information on how to configure FTP and HTTP servers, refer to Configuring an FTP Server on page 39 and Configuring an HTTP Server on page 42.

Preparing a Root Directory

To prepare a root directory:

- 1. Create a TFTP root directory on the local system (e.g., D:\TFTP Directory).
- 2. Place configuration files to this root directory.

er 🕨 D (D:) 🔸 TFTP Directory	▼ 4 ₂	TFTP 🔎
Share with 🔻 Burn New folder		
 0015657ffb82.cfg y0000000028.cfg 		

3. (Optional.) Set security permissions for the TFTP directory folder.

You need to define a user or a group name, and set the permissions: read, write or modify. Security permissions vary by organizations.

Administrators (VANST	TD80\Admini	strators)		^
Everyone				
Hill, James (jahill@my	servername.	.com]		
SYSTEM				~
<			>	
	A	\dd	Remove	
Permissions for Everyone		Allow	Deny	
Full Control				^
Modify		~		
Read & Execute		~		
List Folder Contents		~		
Read		~		
Write				
Consist Dermissions		n,		~
For special permissions or fo	or advanced :	settings,	Advanced	ł

An example of configuration on the Windows platform is shown as below:

Configuring a TFTP Server

If you have a 3CDaemon application installed on your local system, use it directly. Otherwise, download and install it.

To configure a TFTP server:

1. Double click 3CDaemon.exe to start the application. A configuration page is shown as below:

300 3CDaemon					
<u>F</u> ile <u>V</u> iew <u>H</u> elp					
TFTP Server	Start Time	Peer	Bytes	Status	
Configure TFTP Server	Feb 06, 2015 10:32:47	local	0	Listening for TFTP requests on IP address: 192, 168, 1 , 100, Port	69
IFTP Server is started. Click here to stop it.					
Logging to Tftpd log. Click to stop.					
Clear list.					
View Log/Debug files.					

2. Select Configure TFTP Server. Click the from your local system:

Select Configure TFTP Server. Click the ... button to locate the TFTP root directory

300 3CDaemon		X
File View Help		
TFTP Server	Start Time Peer B Status	
Configure TFTP Server	Feb 06, 2015 10:32:47 local 0 Listening for TFTP requests on IP address: 192.168.1.100, Port 69 3CDaemon Configuration 53	
STP	FTF Frofiles Syslog Configuration General Configuration TFTP Configuration	
TFTP Server is started. Click here to stop it.	Create directory names in incoming file rev	
Logging to Tftpd log.	Allow overwrite of existing files?	
Čličk to stop.	Upload/Download D:\TFTP Directory\	
Not debugging. Click to start.	Maximum retries 10	
	Interframe transmission 0	
Clear list.		

3. Click the **Confirm** button to finish configuring the TFTP server.

The server URL "fftp://IP/" (Here "IP" means the IP address of the provisioning server, for example, "fftp://192.168.1.100/") is where the IP phone downloads configuration files from.

Obtaining the Provisioning Server Address

Yealink IP phones support obtaining the provisioning server address in following ways:

- DHCP Options
- Phone Flash

The priority of obtaining the provisioning server address is as follows: DHCP Options (Custom option-->option 66-->option 43) -->Phone Flash.

The following sections detail the process of each way (take the SIP-T46G IP phone as an example).

DHCP Options

Yealink IP phones support obtaining the provisioning server address by detecting DHCP options during startup.

The phone will automatically detect the option 66 and option 43 for obtaining the provisioning server address. DHCP option 66 is used to identify the TFTP server. DHCP option 43 is a vendor-specific option, which is used to transfer the vendor-specific information.

You can configure the phone to obtain the provisioning server address via a custom DHCP option. To obtain the provisioning server address via a custom DHCP option, make sure the DHCP option is properly configured on the phone. The custom DHCP option must be in accordance with the one defined in the DHCP server.

For more information on how to configure a DHCP server, refer to Configuring a DHCP Server on page 46.

To configure the DHCP option via web user interface:

- 1. Click on Settings->Auto Provision.
- 2. Mark the On radio box in the DHCP Active field.

ealink 1466	Status Account Network	Features Settings	Directory	Security
Preference	Auto Provision			NOTE
Time&Date	PNP Active	● On ○ Off 🕜		Auto Provision
Upgrade	DHCP Active Custom Option(128~254)	On ◎ Off ⑦ 128 ⑦		The auto provision parameter for administrator.
Auto Provision	DHCP Option Value	MS-UC-Client		You can click here to ge
Configuration	Server URL		0	more guides.
	User Name		0	
Dial Plan	Password	•••••	0	
Voice	Common AES Key	•••••• 0	I	
Tones	MAC-Oriented AES Key	••••••	1	
Phone Lock	Zero Active	Disabled 🔹 🕜		
Location	Wait Time(0~100s)	5	l	
EXP Module	Power On Repeatedly	◎ On ◎ Off ?? ◎ On ◎ Off ??		
BTOE	Interval(Minutes)	1440	1	
BIOE	Weekly	⊙ On ම Off 🕜		
	Time	00:00-00:00 ?		
		 ✓ Sunday ✓ Monday ✓ Tuesday 		
	Day of Week	Vednesday 🕜 Thursday Friday		

3. Enter the desired value in the Custom Option(128~254) field.

4. Click **Confirm** to accept the change.

During startup, the phone will broadcast DHCP request with DHCP options for obtaining the provisioning server address. The provisioning server address will be found in the received DHCP response message.

After the IP phone obtains the provisioning server address from the DHCP server, it will connect to the provisioning server and perform the auto provisioning process during startup.

For more information on the DHCP options, refer to Yealink_Microsoft_Skype_for_Business_Edition_IP_Phones_Administrator_Guide. The following figure shows the example messages of obtaining the TFTP server address from a custom DHCP option:

DHCPserver-tftp.pcap [Wireshark 1.6		
<u>Elle Edit V</u> iew <u>Go C</u> apture <u>A</u> nalyze	e <u>S</u> tatistics Telephony <u>T</u> ools Internals <u>H</u> elp	
R R R R R R R R R R R R R R	길 告 ! 익, 누 ㅎ 수 주 🕹 : 🗐 🖃 🗨 익, 인, 인 : 📓 🗹 🥵 % : 🔯	
Filter: sip bootp	Expression Clear Apply	
lo. Time Source	Destination Protocol Length Info	
14 17.967476 0.0.0.0	255.255.255.255 DHCP 590 DHCP Discover - Transaction ID 0x88e96872	
15 18.137781 10.2.8.105	10.2.8.106 DHCP 342 DHCP Offer - Transaction ID 0x88e96872	
16 18.177701 0.0.0.0 17 18.178902 10.2.8.105	255.255.255.255 DHCP 590 DHCP Request - Transaction ID 0x88e96872 10.2.8.106 DHCP 342 DHCP ACK - Transaction ID 0x88e96872	
1/ 18.1/8902 10.2.8.105	10.2.8.106 DHCP 342 DHCP ACK - Transaction ID 0x88e96872	
	0:51:fa (00:0c:29:09:51:fa), Dst: XiamenYe_38:28:d8 (00:15:65:38:28:d8)	
	I, Src: 10.2.8.105 (10.2.8.105), Dst: 10.2.8.106 (10.2.8.106)	
	: Port: bootps (67), Dst Port: bootpc (68)	
Bootstrap Protocol		
Message type: Boot Reply ((2)	
Hardware type: Ethernet		
Hardware address length: 6	6	
Hops: 0		
Transaction ID: 0x88e96872	2	
Seconds elapsed: 100		
Bootp flags: 0x0000 (Unica Client IP address: 0.0.0.0		
Your (client) IP address: 0.0.0.0		
Next server IP address: 10		
Relay agent IP address: 0.		
	enye 38:28:d8 (00:15:65:38:28:d8)	
	badding: 000000000000000000	
Server host name: mid0171-		
Boot file name not given		
Magic cookie: DHCP		
Option: (t=53,1=1) DHCP Me	lessage Type - DHCP ACK	
■ Option: (t=1,]=4) Subnet M		
Option: (t=1, l=4) Subnet M Option: (t=51, l=4) IP Addr Ad		
⊕ Option: (t=51,1=4) IP Addr		
Option: (t=51,l=4) IP Addr Option: (t=59,l=4) Rebindi	dress Lease Time = 6 hours ding Time Value = 5 hours, 15 minutes	
⊕ Option: (t=51,1=4) IP Addr	fress Lease Time = 6 hours fing Time value = 5 hours, 15 minutes 11 Time value = 3 hours	
➡ option: (t=51,l=4) IP Addr ➡ option: (t=59,l=4) Rebindi ➡ option: (t=58,l=4) Renewal ➡ option: (t=51,l=4) IP Addr	fress Lease Time = 6 hours fing Time value = 5 hours, 15 minutes 11 Time value = 3 hours	
option: (t=51,l=4) IP Addr option: (t=59,l=4) Rebindi option: (t=58,l=4) Renewal option: (t=51,l=4) IP Addr option: (t=128,l=18) DOCS1 option: (t=128,l=18) DOCS1	iress Lease Time = 6 hours iing Time Value = 5 hours, 15 minutes il Time Value = 3 hours iress Lease Time = 6 hours	
 ⊕ Option: (t=51, 1=4) IP Addr ⊕ option: (t=59, 1=4) Rebindi ⊕ Option: (t=58, 1=4) Reneval ⊕ Option: (t=51, 1=4) IP Addr □ Option: (t=128, 1=18) DOC53 Option: (128) DOC515 ful Length: 18 	dress Lease Time = 6 hours dring Time Value = 3 hours, 15 minutes al Time Value = 3 hours dress Lease Time = 6 hours SIS full security server IP [TODO] all security server IP [TODO]	
 □ option: (t=51,1=4) IP Addr □ option: (t=59,1=4) Rebindi □ option: (t=58,1=4) Renewal □ option: (t=128,1=18) DOCSIS □ option: (128) DOCSIS full Length: 18 value: 746674703a2f2f313 	dress Lease Time = 6 hours dring Time Value = 3 hours, 15 minutes al Time Value = 3 hours dress Lease Time = 6 hours SIS full security server IP [TODO] all security server IP [TODO]	

Right click the root node of the custom option (e.g., option 128) shown on the above figure, and select **Copy->Bytes->Printable Text Only**. Paste the copied text in your favorite text editor to check the address, for example, tftp://192.168.1.100/.

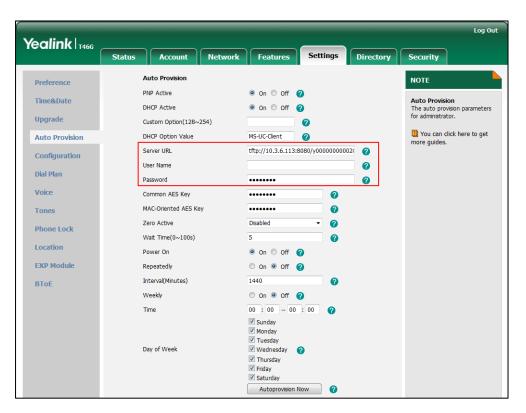
Phone Flash

Yealink IP phones support obtaining the provisioning server address from the IP phone flash. To obtain the provisioning server address by reading the IP phone flash, make sure the configuration is set properly.

To configure the IP phone flash via web user interface:

1. Click on Settings->Auto Provision.

 Enter the URL, user name and password of the provisioning server in the Server URL, User Name and Password fields respectively (the user name and password are optional).



3. Click **Confirm** to accept the change.

After the above configuration is completed, the IP phone will connect to the configured provisioning server and perform the auto provisioning process by one of the following methods: Power On, Repeatedly, Weekly, Auto Provision Now and Multi-mode Mixed. For more information on these methods, refer to Triggering the IP Phone to Perform the Auto Provisioning on Page 25.

Triggering the IP Phone to Perform the Auto Provisioning

This chapter introduces the following methods to trigger the IP phone to perform the auto provisioning process:

- Power On
- Repeatedly
- Weekly
- Auto Provision Now
- Multi-mode Mixed

When there is an active call on the IP phone during auto provisioning, the auto provisioning process will detect the call status every 30 seconds. If the call is released within 2 hours, the auto provisioning process will be performed normally. Otherwise, the process will end, due to timeout.

Power On

The IP phone performs the auto provisioning process when the IP phone is powered on.

To activate the power on mode via a web user interface:

1. Click on Settings->Auto Provision.

	Status Account Netwo	ork Features Sett	tings Directory	Security
Preference	Auto Provision			NOTE
Fime&Date	PNP Active DHCP Active	● On ○ Off 🕜 ● On ○ Off 🕜		Auto Provision The auto provision parameter
Jpgrade	Custom Option(128~254)	0		for administrator.
Auto Provision	DHCP Option Value	MS-UC-Client		You can click here to ge more guides.
Configuration	Server URL	tftp://10.3.6.113:8080/y00	0000000021 🕜	····· · · · · · · · · · · · · · · · ·
Dial Plan	User Name Password	•••••	0	
/oice	Common AES Key	•••••	0	
Fones	MAC-Oriented AES Key	•••••	0	
Phone Lock	Zero Active	Disabled 🗸	0	
ocation	Wait Time(0~100s)	5	0	
	Power On	🖲 On 🔘 Off 🕜		
EXP Module	Repeatedly	🔘 On 🖲 Off 🕜		
ВТОЕ	Interval(Minutes)	1440	0	
	Weekly	🔘 On 🖲 Off 🕜		
	Time	00 : 00 - 00 : 00	0	
	Pro fille l	 ✓ Sunday ✓ Monday ✓ Tuesday 		
	Day of Week	 ✓ Wednesday ✓ Thursday ✓ Friday 		

3. Click **Confirm** to accept the change.

Repeatedly

The IP phone performs the auto provisioning process at regular intervals. You can configure the interval for the repeatedly mode. The default interval is 1440 minutes.

To activate the repeatedly mode via web user interface:

- 1. Click on Settings->Auto Provision.
- 2. Mark the **On** radio box in the **Repeatedly** field.

	Status	Account	Network	Features	Settings	Directory	Security
Preference		Auto Provision					NOTE
Time&Date	1	PNP Active		🖲 On 🔘 Off	0		Auto Provision
	l. I	DHCP Active		🖲 On 🔘 Off	0		The auto provision parameter for administrator.
Upgrade		Custom Option(128^	254)		0		for administrator.
Auto Provision	DHCP Option Value			MS-UC-Client	0		You can click here to get more guides.
Configuration	:	Server URL		tftp://10.3.6.113	:8080/y000000000	21 🕜	
		User Name				0	
Dial Plan	1	Password		•••••		0	
Voice		Common AES Key		•••••	0		
Tones	1	MAC-Oriented AES Key		•••••	0		
Phone Lock	:	Zero Active		Disabled	• 🕜		
		Wait Time(0~100s)		5	0		
Location	I	Power On		🖲 On 🔘 Off	0		
EXP Module		Repeatedly		🖲 On 🔘 Off	0		
ВТоЕ	i	Interval(Minutes)		1440	0		
		Weekly		🛇 On 🖲 Off	0		
		Time		00 : 00 - 00	: 00 🕜		
				 ✓ Sunday ✓ Monday ✓ Tuesday 			
	I	Day of Week		 Wednesday Thursday Friday Saturday 	0		

3. Enter the desired interval time (in minutes) in the Interval(Minutes) field.

4. Click **Confirm** to accept the change.

Weekly

The IP phone performs the auto provisioning process at the fixed time every week. You can configure what time of the day and which day of the week to trigger the IP phone to perform the auto provisioning process. For example, you can configure the IP phone to check and update new configuration between 2 to 3 o'clock every Friday and Sunday.

To activate the weekly mode via web user interface:

- 1. Click on Settings->Auto Provision.
- 2. Mark the **On** radio box in the **Weekly** field.
- 3. Enter the desired time in the Time field.

4. Check one or more checkboxes in the Day of Week field.

	Status	ccount No	etwork Feat	ures	Settings	Directory	Security
Preference	Auto Pr	rovision					NOTE
Time&Date	PNP Acti		On	Off 🕜			Auto Provision The auto provision parameter
Upgrade		Option(128~254))		for administrator.
Auto Provision	DHCP Op	otion Value	MS-UC-Cli	ent 🕜	•		You can click here to ge more guides.
Configuration	Server U	IRL	tftp://10.	3.6.113:8080)/y0000000000	21 🕜	more guides.
Dial Plan	User Nan	ne				0	
Dial Piali	Password	d	•••••	•		0	
Voice	Common	AES Key	•••••	•	0		
Tones	MAC-Orie	ented AES Key	•••••	•	0		
Phone Lock	Zero Act	tive	Disabled		• 🕜		
	Wait Tim	ne(0~100s)	5		0		
Location	Power O	n	On (Off 🕜			
EXP Module	Repeate	dly	🔘 On 🧕	🖲 Off 🕜			
BTOE	Interval(Minutes)	1440		0		
	Weekly		On (🖻 Off 🕜			
	Time		00 : 00	- 00 : 0	00 00		
			 ✓ Sunday ✓ Monda ✓ Tuesda 	У ау			
	Day of W	veeк	✓ Wedne ✓ Thursd ✓ Friday ✓ Saturd	lay			

5. Click **Confirm** to accept the change.

Auto Provision Now

You can use auto provision now mode to manually trigger the IP phone to perform the auto provisioning process immediately.

To use the auto provision now mode via web user interface:

1. Click on Settings->Auto Provision.

	Status Account Network	Features Settin	gs Directory	Security
Preference	Auto Provision			NOTE
Fime&Date	PNP Active DHCP Active	● On ○ Off 🕜 ● On ○ Off 🕜		Auto Provision The auto provision parameter
Upgrade	Custom Option(128~254)	0		for administrator.
Auto Provision	DHCP Option Value	MS-UC-Client		You can click here to ge more guides.
Configuration	Server URL	tftp://10.3.6.113:8080/y0000	0000021 🕜	more galaco.
Dial Plan	User Name Password	•••••	0	
Voice	Common AES Key	•••••	0	
Tones	MAC-Oriented AES Key	•••••	0	
Phone Lock	Zero Active	Disabled 👻	0	
	Wait Time(0~100s)	5	0	
Location	Power On	🖲 On 🔘 Off 🕜		
EXP Module	Repeatedly	🛇 On 🔍 Off 🅜		
ВТОЕ	Interval(Minutes)	1440	0	
	Weekly	🛇 On 🖲 Off 🕜		
	Time	00 : 00 - 00 : 00	2	
	Day of Week	 ✓ Sunday ✓ Monday ✓ Tuesday ✓ Wednesday ✓ Thursday ✓ Thursday ✓ Friday ✓ Saturday 		

2. Click Autoprovision Now.

The IP phone will perform the auto provisioning process immediately.

Multi-mode Mixed

You can activate more than one method for auto provisioning. For example, you can activate the "Power On" and "Repeatedly" modes simultaneously. The IP phone will perform the auto provisioning process when it is powered on and at a specified interval.

Downloading and Verifying Configurations

Downloading Configuration Files

After obtaining the provisioning server address in one of the ways introduced above, the phone will request to download the configuration files from the provisioning server when it is triggered to perform auto provisioning. During the auto provisioning process, the IP phone will try to download the Common CFG file firstly, and then try to download the MAC-Oriented CFG file from the provisioning server. If the access URLs of the resource files have been specified in the configuration files, the phone will try to download the resource files.

Resolving and Updating Configurations

After downloading, the phone resolves the configuration files and resource files (if specified in the configuration files), and then updates the configurations and resource files to the phone flash. Generally, updated configurations will automatically take effect after the auto provisioning process is completed. For update of some specific configurations which require a reboot before taking effect, for example, network configurations, the IP phone will reboot to make the configurations effective after the auto provisioning process is completed.

The IP phone calculates the MD5 values of the downloaded files before updating them. If the MD5 values of the Common and MAC-Oriented configuration files are the same as those of the last downloaded configuration files, this means these two configuration files on the provisioning server are not changed. The IP phone will complete the auto provisioning without repeated update. This is used to avoid unnecessary restart and impact of phone use. On the contrary, the IP phone will update configurations.

The latest values to be applied to the IP phone are the values that take effect.

The phone only reboots when there is at least a specific configuration requiring a reboot after auto provisioning.

For more information on the specific configurations which require a reboot during auto provisioning, refer to

If configuration files have been AES encrypted, the IP phone will uses the Common AES key to decrypt the Common CFG file and the MAC-Oriented AES key to decrypt the <MAC>.cfg file after downloading the configuration files. For more information on how the IP phone decrypts configuration files, refer to Yealink Configuration Encryption Tool User Guide.

Yealink_Microsoft_Skype_for_Business_Edition_IP_Phones_Description_of_Configuration_P arameters_in_CFG_Files.

Verifying Configurations

After auto provisioning, you can then verify the update via phone user interface or web user interface of the phone. For more information, refer to Yealink phone-specific user guide.

During the auto provisioning process, you can monitor the downloading requests and response messages by a WinPcap tool. The following shows some examples.

Example1: Yealink SIP-T46G IP phone downloads configuration files from the TFTP server.

_							
	28.8.254	1.131_17_2	1_51.pcap [Wiresh	ark 1.12.4 (v1.12.4-0-gb4861da	from master-1.12)]		
E	e <u>E</u> dit	View Go	o <u>C</u> apture <u>A</u> nalyze	<u>Statistics</u> Telephony <u>T</u> ools	Internals <u>H</u> elp		
8		e e	🖻 🛃 🗶 😂	占 🔍 🗢 🔹 🐴 💈	L 🗐 🗐 Q, Q, Q, 🔟 👪 🗹 🥵 % 🕱		
Filte	er: tftp				Expression Clear Apply		
No.	Tir	me	Source	Destination	Protocol Length Info		
	111 3.	764718	10.3.20.9 10.3.6.110	10.3.6.110 10.3.20.9	TFTP 81 Read Request, File: y00000000028.cfg, Transfer type: octet, blksize\000=1432\000 TFTP 60 Option Acknowledgement, blksize\000=1432\000		
	113 3.	768823	10.3.20.9 10.3.6.110	10.3.6.110 10.3.20.9	TFTP 46 Acknowledgement, Block: 0 TFTP 210 Data Packet, Block: 1 (last)		
	149 5.	836350	10.3.20.9 10.3.20.9	10.3.6.110 10.3.6.110	TFTP 46 Acknowledgement, Block: 1 TFTP 80 Read Request, File: 00156574b16e.cfg, Transfer type: octet, blksize\000=1432\000		
			10.3.6.110 10.3.20.9	10.3.20.9 10.3.6.110	TFTP 60 Option Acknowledgement, blksize\000=1432\000 TFTP 46 Acknowledgement, Block: 0		
			10.3.6.110 10.3.20.9	10.3.20.9 10.3.6.110	TFTP 210 Data Packet, Block: 1 (last) TFTP 46 Acknowledgement, Block: 1		
• E • I • U	# rame 10: 51 bytes on wire (648 bits), 61 bytes captured (648 bits) # Ethernet II, src: Xiamenye_74bilice (00:15:65:7:4:bit69), 0st: 24:b6:57:1e:47:54 (24:b6:57:1e:47:54) # Internet Protocol Version 4, src: 10:3.20:9, (00:3:20:9), 0st: 10:3.6:110 (10:3.6:110) # User Total and Fortacol, src Port: 20001 (20001), 0st Port: tftp (69) # Irivial File Transfer Protocol						
000 001 002 003 004 005	0 00 0 06 0 30	43 00 00 6e 51 a5 30 30 30	0 40 00 40 11 5 00 45 00 2f 0 30 30 30 34	65 74 b1 6e 08 00 45 00 0c 2e 0a 03 14 09 0a 0 bd e3 00 01 79 30 30 30 34 2e 63 66 67 00 6f 6 69 7a 65 00 31 34 33 3	3 .C@.@ .rqE./		

Example 2: Yealink SIP-T46G IP phone downloads configuration files from the FTP server.

_			< 1.12.4 (v1.12.4-0-gb4861da f		
<u>F</u> ile <u>E</u> d	it <u>V</u> iew <u>G</u> o	<u>Capture</u> <u>Analyze</u>	Statistics Telephony Tools	Internals <u>H</u> elp	
1 in		🖹 🔚 🔏 🗶 🖓	🗄 🔍 🗢 🔶 🐴 🛂		오. 오. 맨, 🖭 👪 🗹 🍢 🎉
Filter: f	itp			Expression.	Clear Apply
lo.	Time	Source	Destination	Protocol L	ength Info
110	3.077178	10.3.6.110	10.3.20.9	FTP	108 Response: 220 3Com 3CDaemon FTP Server Version 2.0
	3.078099		10.3.6.110	FTP	82 Request: USER anonymous
		10.3.6.110	10.3.20.9	FTP	99 Response: 331 User name ok, need password
		10.3.20.9	10.3.6.110	FTP	72 Request: PASS
		10.3.6.110	10.3.20.9	FTP	101 Response: 230-The response '' is not valid.
		10.3.6.110	10.3.20.9	FTP	145 Response: 230-Next time, please use your email address as password.
		10.3.20.9	10.3.6.110	FTP	74 Request: TYPE I
		10.3.6.110	10.3.20.9	FTP	86 Response: 200 Type set to I.
		10.3.20.9	10.3.6.110	FTP	72 Request: PASV
		10.3.6.110	10.3.20.9	FTP	114 Response: 227 Entering passive mode (10,3,6,110,255,104)
126	5 3.135377	10.3.20.9	10.3.6.110	FTP	90 Request: SIZE y00000000028.cfg
127	3.137105	10.3.6.110	10.3.20.9	FTP	74 Response: 213 96
128	3.137615	10.3.20.9	10.3.6.110	FTP	90 Request: RETR y00000000028.cfg
129	3.139016	10.3.6.110	10.3.20.9	FTP	102 Response: 125 Using existing data connection
135	3.141354	10.3.6.110	10.3.20.9	FTP	122 Response: 226 Closing data connection; File transfer successful.
141	3.155536	10.3.6.110	10.3.20.9	FTP	108 Response: 220 3Com 3CDaemon FTP Server Version 2.0
143	3.156329	10.3.20.9	10.3.6.110	FTP	82 Request: USER anonymous
144	3.160113	10.3.6.110	10.3.20.9	FTP	99 Response: 331 User name ok, need password
145	3.160636	10.3.20.9	10.3.6.110	FTP	72 Request: PASS
146	3.161681	10.3.6.110	10.3.20.9	FTP	101 Response: 230-The response '' is not valid.
148	3.202302	10.3.6.110	10.3.20.9	FTP	145 Response: 230-Next time, please use your email address as password.
150	3.203318	10.3.20.9	10.3.6.110	FTP	74 Request: TYPE I
151	3.206183	10.3.6.110	10.3.20.9	FTP	86 Response: 200 Type set to I.
152	3,206761	10.3.20.9	10.3.6.110	FTP	72 Request: PASV
153	3,208422	10.3.6.110	10.3.20.9	FTP	114 Response: 227 Entering passive mode (10,3,6,110,255,105)
		10.3.20.9	10.3.6.110	FTP	89 Request: SIZE 00156574b16e.cfg
		10.3.6.110	10.3.20.9	FTP	75 Response: 213 164
		10.3.20.9	10.3.6.110	FTP	89 Request: RETR 00156574b16e.cfg
		10.3.6.110	10.3.20.9	FTP	102 Response: 125 Using existing data connection
Fram	e 157: 89 k	ovtes on wire (712 bits), 89 bytes car	tured (712	(hits)
					24:b6:57:1e:47:54 (24:b6:57:1e:47:54)
					10.3.6.110 (10.3.6.110)
000	24 b6 57 1e	47 54 00 15 6	5 74 b1 6e 08 00 45 00	S W GT	. et.nE.
010 (00 4b 44 6e	40 00 40 06 0	7 c2 0a 03 14 09 0a 03	. KDn@.@	
020 (06 6e e4 e6	00 15 f8 e3 0	a 55 84 10 6c 6d 80 18	. n	u1m
			8 0a 00 00 4e 5c 00 42		N\.B
040 I	04 93 53 49	i 5a 45 20 30 B	0 31 35 36 35 37 34 62	SIZE	0 0156574b

Example 3: Yealink SIP-T46G IP phone downloads configuration files from the HTTP server.

	28.8.254.1	31_17_21_	51.pcap	[Wireshar	k 1.12.4 (v	v1.12.4-0-gb4	1861da fro	m master-1	.12)]												
E	le <u>E</u> dit <u>V</u>	liew <u>G</u> o	Capture	Analyze	Statistics	Telephony	Tools Int	ernals <u>H</u> el)												
			6	×2	8 Q	\$	T L		€ €				🗹 🐔 :	% 1	0						
Fi	lter: http						•	Expression	Clea	r Ap	ply										
No	. Tim	ne	Source		De	estination		Protocol L	ength	Info											
			10.3.20		10	0.3.6.110		HTTP					Found								
			10.3.6.			0.3.20.9		HTTP						ngs-co	nfig&q=lo	ad HTTP/	1.1				
			10.3.20			0.3.6.110		HTTP			/1.1										
			10.3.6.			0.3.20.9		HTTP						ngs-au	top&q=loa	d HTTP/1	.1				
			10.3.20			0.3.6.110		HTTP			/1.1										
		.797870				0.3.20.9		HTTP						ings-a	utop&q=wr	ite&now=	false HT	TTP/1.1	(ap	plicatio	n/x-1
		. 959182				0.3.6.110		HTTP					Found								
		.030754				0.3.20.9		HTTP						ngs-au	top&q=loa	d HTTP/1	.1				
		. 098802				0.3.6.110		HTTP			/1.1										
		. 523038				0.3.20.9		HTTP						ings-a	utop&q=wr	ite&now=	true HTT	FP/1.1	(app	lication	i/x-w
		.727710				0.3.6.110		HTTP			/1.1										
		.755635				0.3.6.110		нттр					000028.c								
		.796582				0.3.20.9		HTTP							ion/octet	-stream)					
		. 809749				0.3.6.110		HTTP					HTTP/1.								
		. 836439				0.3.20.9		HTTP					OK (te:								
		. 846276				0.3.6.110		HTTP					ime.txt								
		. 883670				0.3.20.9		HTTP					OK (te:								
		. 894060				0.3.6.110		HTTP							g HTTP/1.						
		. 898442				0.3.20.9		нттр							ext/html)						
		.779475				0.3.20.9		HTTP							top&q=res	ult&rand	om=0.049	9130592	49520	302 HTTP	/1.1
		.988420				0.3.6.110		HTTP							Packet]						
		. 996891				0.3.20.9		HTTP						ngs-au	top&q=loa	d HTTP/1	.1				
		.063444				0.3.6.110		HTTP			/1.1										
		.138206				0.3.20.9		HTTP						ngs-up	grade&q=1	oad HTTP	/1.1				
		.195348				0.3.6.110		HTTP			/1.1										
		. 278964				0.3.20.9		нттр						n-page	&q=iframe	-upload	HTTP/1.1				
		. 298530				0.3.6.110		HTTP	1490												
		.965106				0.3.20.9		нттр						ngs-co	nfig&q=lo	ad HTTP/	1.1				
		.023340				0.3.6.110		HTTP			/1.1										
	346 26	. 271142	10.3.6.	.110	10	0.3.20.9		HTTP	644	POST	/ser	let	?p=sett	ings-c	onfig&q=s	topcaptu	re HTTP/	/1.1			

Troubleshooting

This chapter provides general troubleshooting information to help you solve problems you might encounter when deploying phones.

If you require additional information or assistance with the deployment, contact your system administrator.

Why does the IP phone fail to download configuration files?

- Ensure that auto provisioning feature is configured properly.
- Ensure that the provisioning server and network are reachable.
- Ensure that authentication credentials configured on the IP phone are correct.
- Ensure that configuration files exist on the provisioning server.

Why does the IP phone fail to authenticate the provisioning server during auto provisioning?

- Ensure that the certificate for the provisioning server has been uploaded to the phone's trusted certificates list. If not, do one of the following:
 - Import the certificate for the provisioning server to the phone's trusted certificates list (at phone's web path Security->Trusted Certificates->Import Trusted Certificates).
 - Disable the IP phone to only trust the server certificates in the trusted certificates list (at phone's web path Security->Trusted Certificates->Only Accept Trusted Certificates).

Why does the provisioning server return HTTP 404?

- Ensure that the provisioning server is properly set up.
- Ensure that the access URL is correct.
- Ensure that the requested files exist on the provisioning server.

Why does the IP phone display "Network unavailable"?

- Ensure that the Ethernet cable is plugged into the Internet port on the IP phone and the Ethernet cable is not loose.
- Ensure that the switch or hub in your network is operational.
- Ensure that the configurations of network are properly set in the configuration files.

Why is the permission denied when uploading files to the root directory of the FTP server?

- Ensure that the complete path to the root directory of the FTP server is authorized.
- Check security permissions on the root directory of the FTP server, if necessary, change the permissions.

Why can't the IP phone obtain an IP address from the DHCP server?

- Ensure that settings are correct on the DHCP server.
- Ensure that the IP phone is configured to obtain the IP address from the DHCP server.

Why can't the IP phone download the ring tone?

- Ensure that the file format of the ring tone is *.wav.
- Ensure that the size of the ring tone file is no larger than that the IP phone supports.
- Ensure that the properties of the ring tone for the IP phone are correct.
- Ensure that the network is available and the root directory is right for downloading.
- Ensure that the ring tone file exists on the provisioning server.

Why can't the IP phone update configurations?

- Ensure that the configuration files are different from the last ones.
- Ensure that the IP phone has downloaded the configuration files.
- Ensure that the parameters are correctly set in the configuration files.

Glossary

MAC Address: A Media Access Control address (MAC address) is a unique identifier assigned to network interfaces for communications on the physical network segment.

MD5: The MD5 Message-Digest Algorithm is a widely used cryptographic hash function that produces a 128-bit (16-byte) hash value.

DHCP: Dynamic Host Configuration Protocol (DHCP) is a network configuration protocol for hosts on Internet Protocol (IP) networks. Computers that are connected to IP networks must be configured before they can communicate with other hosts.

FTP: File Transfer Protocol (FTP) is a standard network protocol used to transfer files from one host to another host over a TCP-based network, such as the Internet. It is often used to upload web pages and other documents from a private development machine to a public web-hosting server.

HTTP: The Hypertext Transfer Protocol (HTTP) is an application protocol for distributed, collaborative, hypermedia information systems. HTTP is the foundation of data communication for the World Wide Web.

HTTPS: Hypertext Transfer Protocol Secure (HTTPS) is a combination of Hypertext Transfer Protocol (HTTP) with SSL/TLS protocol. It provides encrypted communication and secure identification of a network web server.

TFTP: Trivial File Transfer Protocol (TFTP) is a simple protocol to transfer files. It has been implemented on top of the User Datagram Protocol (UDP) using port number 69.

AES: Advanced Encryption Standard (AES) is a specification for the encryption of electronic data.

URL: A uniform resource locator or universal resource locator (URL) is a specific character string that constitutes a reference to an Internet resource.

XML: Extensible Markup Language (XML) is a markup language that defines a set of rules for encoding documents in a format that is both human-readable and machine-readable.

Appendix

Configuring an FTP Server

Wftpd and FileZilla are free FTP application software for Windows. This section mainly provides instructions on how to configure an FTP server using wftpd for Windows. You can download wftpd online: http://www.wftpd.com/products/products.html or FileZilla online: https://filezilla-project.org.

We recommend that you use vsftpd as an FTP server for Linux platform if required.

Preparing a Root Directory

To prepare a root directory:

- 1. Create an FTP root directory on the local system (e.g., D:\FTP Directory)...
- 2. Place the configuration files to this root directory.
- 3. Set the security permissions for the FTP directory folder.

You need to define a user or group name, and set the permissions: read, write, and modify. Security permissions vary by organizations.

An example of configuration on the Windows platform is shown as below:

General Sharing Security Customize		
Group or user names:		
Administrators (VANSTD80\Admin	istrators)	~
5 CREATOR OWNER		
🕵 Everyone		
🖸 🖸 Hill, James (jahill@myservername	.com]	
🕵 SYSTEM		~
<		>
	Add	Remove
Permissions for Everyone	Allow	Deny
Full Control		
Modify	~	
Read & Execute	~	
List Folder Contents	~	
Read	v	
Write	~	
Consist Dormissions		
For special permissions or for advanced click Advanced.	settings,	Advanced
OK (Cancel	

Configuring an FTP Server

To configure a wftpd server:

- 1. Download the compressed file of the wftpd application to your local directory and extract it.
- 2. Double click the WFTPD.EXE.

The dialogue box of how to register is shown as below:

How to Register	— ×-
In an effort to reduce the number of emails I get that ask me "How do I register?", I'd just like to note that you can find this information by opening the "Help" menu, and selecting the option "Registering".	ОК
So that you don't think this is a nag, I've given you the option to disable this dialog below, but please only do that if you feel you can remember how to register.	
🔲 Okay, I understand that - don't show me this dialog again.	

3. Check the check box and click **OK** in the pop-up dialogue box.

The log file of the wftpd application is shown as below:

E:\desktop\1.FTP - WFTPD		
File Edit View Logging Messages Security	y Help	
[# -001] 2015/3/20 17:39:16 The first address [# -001] 2015/3/20 17:39:16 But you might be	reached at a number of other addresses. network administrators for the address that is rea ng on port 21, standard ftp illed by WM_ENDSESSION message	
(# -001) 2015/3/20 17:39:16 select the "Regis"	tering" option from the "Help" menu.	
{# -001] 2015/3/20 17:39:16 select the "Regist	tering" option from the "Help" menu.	,

4. Click Security->Users/rights.

E:\desktop\1.FTP - WFTPD	
File Edit View Logging Messages Se	Security Help
[#-001] 2015/3/20 17:39:16 Welcome [#-001] 2015/3/20 17:39:16 The first a [#-001] 2015/3/20 17:39:16 Buty ou m [#-001] 2015/3/20 17:39:16 Check with [#-001] 2015/3/20 17:39:16 Program will #-001] 2015/3/20 17:39:16 Program will	General g to all unused IP addresses. Users/rights ystem is 127.0.0.1 er of other addresses. ors for the addresses. Host/net ors for the address that is reachable from the Internistening on port 21, standard ftp Ib be killed by WM ENDSESSION message
[# -001] 2015/3/20 17:39:16 Unregistered	ed version - for instructions on registering, Registering" option from the "Help" menu.
[# -001] 2015/3/20 17:39:16 Unregistered	

5. Click New User.

User / Rights Se	curity Dialog		×
User Name: User default	default	•	Done
New User	Delete Restrict to home	Change Pass directory and below]
Home [Browse
Help			Rights >>

6. Enter a user name (e.g., test1) in the User Name field and then click OK.

User / Rigł	nts Security	Dialog			23
User Name ⊢User defau	New User	default	•	Done	
New Us				OK Cancel Help	
He	elp				Rights >>

7. Enter the password of the user (e.g., test1) created above in the **New Password** and **Verify Password** fields respectively, and then click **OK**.

User / Rigł	nts Security	Dialo	og					8
User Name ⊢User test1	Change P	asswo	ord	-	•]	Done		
	New Passw		*****			ОК		
	Verify Passv	vord:	****		(Cancel		
Home						Help		
He	elp						Rights	:>>

8. Click Browse to locate the FTP root directory from your local system.

User / Rights Se	ecurity Dialog			×
User Name: User test1	test1	•	Done	
New User	Delete Restrict to home d	Change Pass lirectory and below		
Home	E:\DESKTOP\CONF	IGURATION FILE	Browse	
Help			Rights	>>

- 9. Click **Rights>>** and assign the desired permission for the user (e.g., test1) created above.
- 10. Check the check boxes of Read, Create Files/Dirs, List Directories and

User / Rights Security Dialog
User Name: test1 User test1
New User Delete Change Pass Restrict to home directory and below
Home E:\DESKTOP\CONFIGURATION FILE Browse
Help Rights< Rights for user test1
Directory: * Browse Remove
Rights for directory * ✓ Read ✓ Create Files/Dirs
✓ List Directories ✓ Overwrite/Delete

Overwrite/Delete to make sure the FTP user has the read and write permission.

11. Click **Done** to save the settings and finish the configurations.

The server URL "ftp://username:password@IP/" (Here "IP" means the IP address of the provisioning server, "username" and "password" are the authentication for FTP download. For example, "ftp://test1:123456@10.3.6.234/") is where the IP phone downloads configuration files from.

Before configuring a wftpd server, ensure that no other FTP servers exist in your local system.

Configuring an HTTP Server

This section provides instructions on how to configure an HTTP server using HFS tool. You can download the HFS software online: http://www.snapfiles.com/get/hfs.html.

Preparing a Root Directory

To prepare a root directory:

- 1. Create an HTTP root directory on the local system (e.g., D:\HTTP Directory)...
- 2. Place configuration files to this root directory.
- 3. Set the security permissions for the HTTP directory folder.

You need to define a user or group name and set the permissions: read, write, and modify. Security permissions vary by organizations.

Administrators (VANSTD80\Administrators) CREATOR OWNER								
Everyone								
I Hill, James (jahill@m SYSTEM	•	.com]	~					
<		Add	Remove					
Permissions for Everyone		Allow	Deny					
Full Control								
Modify								
Read & Execute		v						
List Folder Contents								
Read								
Write		~						
Consist Dormissions								
For special permissions or click Advanced.	for advanced	settings,	Advanced					

An example of configuration on the Windows platform is shown as below:

Configuring an HTTP Server

HFS tool is an executable application, so you don't need to install it.

To configure an HTTP server:

1. Download the application file to your local directory, double click the hfs.exe.

The main configuration page is shown as below:

📾 HFS ~ HTTP File Server 2.2f	Build 155	- 0 X
🛓 Menu 🖑 Port: 8080 🎎 You are in Expert mode	12	
Open in browser http://10.2.11.101:8080/		
	Top sp	eed: 0.0 KB/s
Virtual File System	Log	
	17:23:24 Check update: no new version	L
😏 IP 🛄 Filename	Status Speed Time left	%
Connections: 0 Out: 0.0 KB/s In: 0.0 KB/s Total Out: 0 B Tot	al In: 0 B VFS: 0 items	.4

2. Click Menu in the main page and select the IP address of the PC from IP address.

HFS ~ HTTP File Server 2.2f	Build 155
🔄 Menu 🖗 Port: 8080 🕵 Yo	u are in Expert mode
 + Self Test Edit HTML template Other options Upload 	8080/ Top speed 00 KB/s
Start/Exit Virtual File System I Limits Files hashbutton Filesh taskbutton Tray icons	17:23:24 Check update: no new version
IP address Accept connections on Dynamic DNS updater URL encoding Updates Vipdates Opdate! Vipdates	This IP address is used only for URL building 192.168.147.1 192.168.172.1 ✓ 10_2.11.101 Custom
 j> Load file system Ctrl+O j Save file system Ctrl+S X Clear file system 	Don't include port in URL Find external address Constantly search for better address
Save options	
Help Web links Uninstall HFS W About	Filename 🤃 Status Speed Time left %
Switch OFF F4 Exit	
Connections: 0 Out: 0.0 KB/s In	: 0.0 KB/s Total Out: 0 B Total In: 0 B VFS: 0 items

The default HTTP port is 8080. You can also reset the HTTP port (make sure there is no port conflict).

HFS ~ HTTP File Server 2.2f	Build 155 🗖 🔲 🕱
🛓 Menu 🖑 Port: 8080 🎎 You are in Expert mode	
Open in browser http://10.2.11.101:8080/	
	Top speed: 0.0 KE/s
Virtual File System	Log
Port Specify a port to accept connection, or leave empty to decide automatically. S088 OK Cancel	17:23:24 Check update: no new version
	L3
	Status Speed Time left %
Connections: 0 Out: 0.0 KB/s In: 0.0 KB/s Total Out: 0 B Tot	tal In: 0 B VFS: 0 items

3. Right click the $\stackrel{<}{\curvearrowleft}$ icon on the left of the main page, select **Add folder from disk** to add the HTTP Server root directory.

📸 HFS ~ HTTP File Server 2.2f	Build 155	
🛃 Menu 🛛 📅 Port: 8088 🛛 🥵 You are in Expert mode		
© Open in browser http://10.2.11.101:8088/		
		op speed: 0.0 KB/s
Virtual File System Log		
Add files		
E 🔗 Add folder from disk		
New empty folder Ins		
🔮 New link		
Advanced		
Copy URL address Ctrl+C		
🔗 Browse it F9		
Comment		
Bind root to real-folder		
😚 Set user/pass		
Sestrict access		
Customized realm		
✓ Browsable ✓ Archivable		
▲ Why is upload disabled?		
Hide tree		
Auto-hide empty folders	Speed Time left	%
Hide file extention in listing	Speed Time leit	10
Connections: 0 Out: 0.0 KB/s In: 0.0 KB/s Total Out: 0 B Total In: 0 B VFS: 55	51 items - not saver	
Connectional e Cost ele Roya int ele Roya i fotal out e o i fotal int e o el si ac	21 10113 - HOL 30000	.11

4. Locate the root directory from your local system.

🚔 HFS ~ HTTP File Server 2.3 beta		Build 275			• •
🛓 Menu 🖑 Port: 80 🗟 😫 You are		1			
Open in browser http://10.2.11.101	L:8088/ProvisioningDir/			Already i	n clipboard
Virtual File System		Log			
✓ /					
谢 IP address	🗖 File	Status	Speed	Time	Progress
Out: 0.0 KB/s In: 0.0 KB/s					.d

 Check the server URL (e.g., http:// 10.2.11.101:8088/ProvisioningDir) by clicking "Open in browser".

Yealink IP phones also support the Hypertext Transfer Protocol with SSL/TLS (HTTPS) protocol for auto provisioning. HTTPS protocol provides the encrypted communication and secure identification. For more information on installing and configuring an Apache HTTPS Server, refer to the network resource.

Configuring a DHCP Server

This section provides instructions on how to configure a DHCP server for Windows using DHCP Turbo. You can download this software online:

http://www.tucows.com/preview/265297 and install it following the setup wizard.

Before configuring the DHCP Turbo, make sure:

- The firewall on the PC is disabled.
- There is no DHCP server in your local system.

To configure the DHCP Turbo:

1. To start the DHCP Turbo application, double click localhost.

2. Click the Login button (the login password is blank) to log in.

Note that the second se	
<u>File Edit View Bindings Iools H</u> elp	
■ オ 動 ■ 図 矢 ゆ で 多 №	
Servers Same Server Same Description Platform Server Serve	

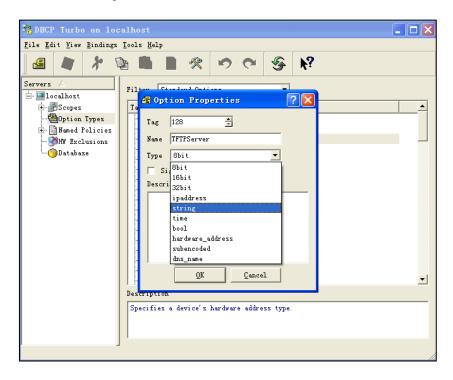
- 3. Right click **Scopes** and select **New Scope**.
- 4. Configure the DHCP server name, the DHCP IP range and the subnet mask.
- 5. Click **OK** to accept the change.

<u>File Edit View Bindings Tools H</u>		
DHCP Turbo on localhost (modified field of the servers se		
۲	QK _ Cancel	

6. You can add a custom option via DHCP Turbo. Select **Option Types**, right click one of the options on the right of the main page, and then select **New Option Type**.

Charles and the state of the st		- 0 - X
<u>File Edit View Bindings Tools H</u> elp		
	🔊 🝽 🚱 N?	
Servers V		
Servers Filter Standard Op	tions	
- Database Tag V	Option	_
	Magic cookie	
🕀 🔡 Named Policies 🚽 📲 -5	Home directory	
	Hardware address type Hardware address langth View Option Type Ctrl+V	
	But Gla	
DHCPServer	Pad Doot file	
	Subnet mask 🔿 <u>R</u> edo Ctrl+Y	
	Time offset	
	Gateways //	
	Time servers Ctrl+C	
	Domain name servers 💭 Paste Ctrl+V	
	Log servers Delete Del	
	Cookie/Quote servers LPR servers Select All Ctrl+A	
	RLP servers 🥂 Eind Ctrl+F	
	Kostname 🛞 Properties Ctrl+P	
	Boot file size	
	merit dump file Domain name	
	Swap servers	
	Root path	
	Extensions path	
	IP forwarding Non-local source routing	
	Non-local source routing D.1: £174	•
Description		
Specifies a device'	s hardware address type.	

Set the custom DHCP option (custom DHCP option tag number ranges from 128 to 254) and select the option type (Yealink supports String and IP Address option types only). Click the OK button to finish setting the option properties. Click is ave the change.



8. Click Named Policies-->Global, right click the blank area on the right of the main page and then select New Option.

DHCP Turbo on localho						
<u>File Edit View Bindings</u>	<u>1</u> 00is <u>H</u> e	» 🔀 🛠	5	Ċ.		₩?
Servers Detabase Database Database Database Database Database Database Database Database Scopes Database	Tag T		Nume w Option do do t py ste etete	n Ctr Ctr Ctr Ctr Ctr Ctr Ctr Ctr Ctr	rl+V rl+Z rl+Y rl+X rl+C rl+V	Yalue
 ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲	J policy					

9. Scroll down and double click the custom option 128.

BHCP Turbo on localhost (modi							- O X
		0	- Second Second	k ?			
Servers Tag	Æ Option Select Filter Tag ▽	Name tor Standard 0 Name		·	Value	2 ×	
Global — Option Types → Bocpes — DHETServer	- 21 47 - 21 46 - 21 49 - 21 51 - 21 55 - 21 5	NBT scope I Window sy DHCF addre: DHCF renewi UHCF rebin HIS* domain HIS* domain HIS* server Mobile IP } SMTF server NNTF server WWW servers Finger serv IRC server; Streettalk Streettalk User class SIP Server	vstem dis ss lease al time ding time s some agen rs s servers s servers DA serve Clieby Co	play managers time t			
	Description					<u></u>	
4 Þ]					QK	Cancel	

10. Fill the provisioning server address in the input field.

11. Click the **OK** button to finish setting a custom option.

12. Click 🔄 to save the change.

You can add the option 66 via DHCP Turbo. The following shows the detailed processes.

 Click Named Policies-->Global, right click the blank area on the right of the main page and then select New Option.

BHCP Turbo on localho			- U.S.	i anni i	
		* • • •	€ k ?		
Servers Detabase Database Diff Exclusions Global Seption Types Seption Types DEFServer	Tag Tag 128	Name TFTFServer	Ctrl+Z	Value tftp://192.168.1.100/	
		Cut Cut Copy Paste Delete Select <u>A</u> ll	Ctrl+Y Ctrl+X Ctrl+C Ctrl+V Del Ctrl+A		
		🔆 Eind 🛠 Properties	Ctrl+F Ctrl+P		
4					
Add a new option to this	J policy				//

2. Select TFTP Options from the pull-down list of Filter.

3. Scroll down and double click **MS option 66**.

San DHCP Turbo on localho	ost				
<u>File Edit View Bindings</u>	<u>File Edit View B</u> indings <u>I</u> ools <u>H</u> elp				
🖪 💐 X 🕈	b B B 🛠	10 C 🔗	h ?		
Servers 🗸	Tag 🗸	Name	Valu	e	
🖮 🛄 localhost 🦳 🌀 Database	🖅 128 🖅 Option Sele	ctor	100	? ×	
	Filter	TFTP Options	•		
🛃 Global	Tag $ abla$	Name			
- Doption Types	- <u>4</u> E-20 - <u>4</u> E-16	Server name MS option 67			
DHCPServer	-42-15	MS option 66			
_		Next server Boot file			
	Description			<u></u>	
	its boot pro	cess. Unless you know y	device should use during the : our device requires this option n -20 (as host name) to define	on, you should use	
• •	J'		ŪK	Cancel	
					1

4. Fill the provisioning server IP address in the input field.

Su DHCP Turbo on localhos	t in the second s	
<u>File Edit View Bindings</u>	<u>I</u> ools <u>H</u> elp	
4 🖌 🖌	• ■ ● १ ♥ ♥ ♥ ■ ■	
Servers 🛆	Tag 🗸 Name Value	
Coolhost Coolh	TFTFServer tftp://192.16 If MS option 66 Expression Build. QK Cancel Advanced >>	9.1.100/
		li.

- 5. Click the **OK** button to finish setting a custom option.
- 6. Click 🔄 to save the change.

You can also add the option 43. The following shows the detailed processes.

- 1. Click Named Policies-->Global, right click the blank area on the right of the main page and then select New Option.
- 2. Select the Standard Options from the pull-down list of Filter.

3. Scroll down and double click 43.

📲 DHCP Turbo on localhost	 x
Eile Edit View Bindings Iools Help	
<u> </u>	
Servers Tag Name Value	
-ODatabase d	
- WHW Exclusions Filter Standard Options 💌	
in Baned Policies Tag ∨ Name	
Global	
Dption Types	
E- Scopes	
- DHCPServer	
-Æ33 Static route	
eff 35 Arp cache timeout	
MIS domain	
- 2 41 NIS servers	
- 23 43 Vendor specific info	
→ → → → → → → → → → → → → → → → → → →	
Description	
Used by devices and servers to exchange vendor-specific information.	
QK Cancel	

4. Fill the provisioning server address in the input field.

DHCP Turbo on localhos		
<u>File Edit View Bindings</u>	Iools <u>H</u> elp ■ ■ ※ ♡ ♥ ※ №?	
Servers localhost Scopes dhcp Global Maned Policies Global Mff Exclusions Database	Tag 🗸 Name Value	92.168.1.100/ 1.100

- 5. Click the **OK** button to finish setting a custom option.
- 6. Click \overleftarrow{a} to save the change.

Customer Feedback

We are striving to improve our documentation quality and we appreciate your feedback. Email your opinions and comments to DocsFeedback@yealink.com.