

# Yealink Auto Provisioning User Guide SIP-T2xP/SIP-T3xG/VP530 IP Phone Family

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# **Table of Contents**

Changes from Previous Versions	v
Changes from Version 1.2	v
Introduction	1
Getting Started	3
Obtaining Configuration Information	3
Obtaining Configuration Files	3
Obtaining Phone Information	4
Managing Configuration Files	4
Editing Common CFG File	4
Editing MAC-Oriented CFG File	
Customizing Resource Files	
Customizing a Ringtone	11
Customizing a LCD Language	
Customizing a LCD Logo	
Customizing a Wallpaper	13
Customizing a Screensaver	14
Customizing Local Contact File	15
Customizing Replace Rule File	17
Customizing Dial-now File	19
Updating Firmware	20
Configuring a TFTP Server	21
Preparing a Root Directory	21
Configuring a TFTP Server	22
Obtaining the Address of Provisioning Server	23
Zero Touch	23
Plug and Play (PNP) Server	25
DHCP Options	26
' Phone Flash	
Downloading and Verifying Configurations	29
Downloading Configuration Files	29

Verifying Configurations	
Troubleshooting	31
Glossary	33
Appendix	35
Configuring a FTP Server	
Preparing a Root Directory	
Configuring a FTP server	
Configuring a HTTP Server	
Preparing a Root Directory	
Configuring a HTTP Server	
Configuring a DHCP server	41
Customizing a Ringtone Using Cool Edit Pro	
Customizing a Logo File Using PictureExDemo	50

# **Changes from Previous Versions**

# **Changes from Version 1.2**

The following sections are new for this version:

- Customizing a Wallpaper on page 13
- Customizing a Screensaver on page 14
- Customizing Replace Rule File on page 17
- Customizing Dial-now File on page 19

Major updates have occurred to the following sections:

- Customizing Local Contact File on page 15
- Updating Firmware on page 20

# Introduction

Yealink IP phones are full-featured telephones that can be plugged directly into an IP network and can be used easily without manual configuration.

This guide shows you how to provision Yealink IP phones with the minimum settings required. Yealink IP phones support the FTP, TFTP, HTTP, and HTTPS protocols for file provisioning and are configured by default to use Trivial File Transfer Protocol (TFTP).

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

- Yealink VP530
- Yealink SIP-T38(G)
- Yealink SIP-T32(G)
- Yealink SIP-T28(P)
- Yealink SIP-T26(P)
- Yealink SIP-T22(P)
- Yealink SIP-T20(P)

The provisioning process outlined in this document applies to the firmware V70 or higher version of Yealink IP phones. If your phones are running a firmware version earlier than 70, please contact your system administrator for help.

# **Getting Started**

This section shows you how to get ready for the provisioning. The provisioning process discussed in this guide uses TFTP and a personal computer (PC) as the provisioning server.

To begin the provisioning process, the following are required:

- Obtaining Configuration Information
- Managing Configuration Files

## **Obtaining Configuration Information**

## **Obtaining Configuration Files**

Before beginning provisioning, you need to obtain the configuration files. There are 2 configuration files both of which are CFG formatted. We call these two files Common CFG file and MAC-Oriented CFG file. The phone will try to download these CFG files from the server during provisioning.

The MAC-Oriented CFG file is only effectual for the specific phone. It uses the 12-digit MAC address of the phone as the file name. For example, if the MAC address of the phone is 0015651130F9, then the MAC-Oriented CFG file name must be 0015651130F9.cfg. However, the Common CFG file is effectual for all the phones with the same model. It uses a fixed name "y000000000XX.cfg" as the file name, where "XX" equals to the hardware version of the phone model, except 0 for T28 which is special.

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

Phone Model	Common Configuration File
VP530	y00000000023.cfg
SIP-T38G	y00000000038.cfg
SIP-T32G	y00000000032.cfg
SIP-T28(P)	y00000000000.cfg
SIP-T26(P)	y00000000004.cfg
SIP-T22(P)	y00000000005.cfg
SIP-T20(P)	y00000000007.cfg

You can ask the distributor or the Yealink FAE for configuration files.

## **Obtaining Phone Information**

Before beginning the provisioning, you will also need the phone information. Such as, MAC address and the SIP account of the phone.

**MAC Address**: The unique 12-digit serial number of the phone. You can obtain it from the phone's bar code at the back of the phone.

**SIP Account**: This may include SIP credentials such as user name, password and the address of the phone's registration server. Ask your system administrator for SIP account information you need. Although SIP accounts may not be required to get the phone working, we strongly recommend using them.

## **Managing Configuration Files**

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

## **Editing Common CFG File**

Common CFG file contains configuration parameters which apply to all phones of the same phone model, such as the language displays on the phone LCD screen.

Common.cfg ×
1 #!version:1.0.0.1
3 ##File header "#!version:1.0.0.1" can not be edited or deleted.##
9 #Configure the WAN port type; 0-DHCP(default), 1-PPPoE, 2-Static IP Address; 10 #Require reboot;
11 network.internet_port.type =
13 #Configure the static IP address, submask, gateway and DNS server for the phone; 14 #Require Reboot;
15 network.internet_port.ip = 16 network.internet_port.mask =
17 network.internet_port.gateway = 18 network.primary_dns=
19 network.secondary_dhs = 20
21 #Configure the username and password for PPPOE connection; 22 #Require reboot;
23 network.pppoe.user = 24 network.pppoe.password =
26 #Configure the PC port type:0-Router,1-Bridge(default):
27 #Require rebot; 28 network.bridge mode =
20 Herwork, bridge_mode -

The line beginning with "#" is considered to be a comment.

The file header "#!version:1.0.0.1" is not a comment, it must not be edited or be deleted and must be placed in the first line.

4

The parameters commonly edited in the Common CFG file (T2xP as an example) are detailed as following:

#!version:1.0.0.1

##File header "#!version:1.0.0.1" cannot be edited or deleted and must be placed in the first line.##

#Configure the WAN port type; 0-DHCP(default), 1-PPPoE, 2-Static IP Address #Require reboot

network.internet\_port.type = 0

#Configure the static IP address, submask, gateway and DNS server for the phone #Require reboot

network.internet port.ip = 192.168.1.10

network.internet\_port.mask = 255.255.255.0

network.internet\_port.gateway = 192.168.1.1

network.primary\_dns= 202.101.103.55

network.secondary\_dns = 202.101.103.54

#Configure the duplex mode and the speed of the WAN port.

#0-Auto negotiate (default), 1-Full duplex 10Mbps, 2-Full duplex 100Mbps, 3-Half duplex 10Mbps, 4-Half duplex 100Mbps;

network.internet\_port.speed\_duplex =

#Configure the username and password for PPPOE connection. #Require reboot

network.pppoe.user =

network.pppoe.password =

#Configure the PC port type; 0-Router, 1-Bridge (default) #Require reboot

network.bridge\_mode = 1

#LAN port as Router settings #Require reboot

network.pc\_port.ip = 10.0.0.1

network.pc\_port.mask = 255.255.255.0

 $network.pc_port.speed_duplex = 0$ 

network.pc\_port.dhcp\_server = 1

network.dchp.start\_ip = 10.0.0.10

network.dchp.end\_ip = 10.0.0.100

#Enable or disable the Plug and Play feature; 0-Disabled, 1-Enabled (default)

auto\_provision.pnp\_enable = 1

#Configure the domain name of the PNP server.

auto\_provision.pnp\_domain\_name =

#Configure the value (manufacturer of the device) of the PNP subscribe message.

auto\_provision.pnp\_event\_vendor =

#Configure the auto provision mode;

#0-Disabled (default), 1-Power on, 4-Repeatedly, 5-Weekly, 6-Power on + Repeatedly, 7-Power on + Weekly;

auto\_provision.mode = 1

#Configure the interval (in minutes) for the phone to check new configuration files. It ranges from 1 to 43200, the default value is 1440.

#It is only applicable to "Repeatedly" and "Power on + Repeatedly" modes.

auto\_provision.schedule.periodic\_minute = 1440

#Configure the start time of the day for the phone to check new configuration files. The default value is 00:00.

#It is only applicable to "Weekly" and "Power on + Weekly" modes.

#If the desired start time of the day is seven forty-five a.m., the value format is 07:45.

auto\_provision.schedule.time\_from = 00:00

#Configure the end time of the day for the phone to check new configuration files. The default time is 00:00.

#It is only applicable to "Weekly" and "Power on + Weekly" modes.

#If the desired end time of the day is seven forty-five p.m., the value format is 19:45.

auto provision.schedule.time to = 00:00

#Configure the day of week for the phone to check new configuration files. The default vaule is 0123456.

#0-Sunday,1-Monday,2-Tuesday,3-Wednesday,4-Thursday,5-Friday,6-Saturday;

#It is only applicable to "Weekly" and "Power on + Weekly" modes.

#If the desired week is Monday, Tuesday and Wednesday, the value format is 012.

auto\_provision.schedule.dayofweek = 0123456

#Configure the URL of the auto provisioning server.

auto\_provision.server.url =

#Configure the username and password for downloading.

auto\_provision.server.username =

auto\_provision.server.password =

#Configure the name of the common file.

#T28P: y000000000000.cfg, T26P: y00000000004.cfg, T22P: y00000000005.cfg, #T20P: y00000000007.cfg-T20P;

auto\_provision.common\_file\_name =

#Enable or disable DHCP option mode; 0-Disabled, 1-Enabled (default);

auto\_provision.dhcp\_option.enable =

#Configure the value (manufacturer of the device) of DHCP option 60.

auto\_provision.dhcp\_option.option60\_value =

#Configure the custom DHCP option number. It ranges from 128 to 254.

auto\_provision.dhcp\_option.list\_user\_options =

#Set the AES key used for decrypting the Common CFG file

auto\_provision.aes\_key\_16.com =

#Set the AES key used for decrypting MAC-Oriented CFG file

auto\_provision.aes\_key\_16.mac =

#Set the language used on the Web page

#The available values are: English, Chinese\_S, Turkish, Portuguese, Spanish, Italian, #French, Russian, Deutsch and Czech

lang.wui =

#Set the language used on the phone LCD screen

#The available values are: English (default), Chinese\_S, Chinese\_T, German, French, #Turkish, Italiano, Polish, Spanish and Portuguese

lang.gui = English

#Set the web server access type (0-Disabled, 1-HTTP&HTTPS (default), 2-HTTP only, #3-HTTPS only) #Require reboot

network.web\_server\_type = 1

#Set the HTTP port (80 by default) #Require reboot

network.port.http = 80

#Set the HTTPS port (443 by default) #Require reboot network.port.https = 443

#Set the new password (admin123) for the administrator

security.user\_password = admin:admin123

#Set the new password (user123) for the user

security.user\_password = user:user123

## **Editing MAC-Oriented CFG File**

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

Common.cfg MAC-Oriented.cfg X		
1 #!version:1.0.0.1		
##File header "#!version:1.0.0.1" can not be edited or deleted.##		
5       ####################################		
<pre>8 9 #Enable or disable the account1, 0-Disabled(default), 1-Enabled; 10 account.1.enable =</pre>		
11 12 #Configure the label for account1, which will display on the LCD screen; 13 account.1.label =		
14 15 #Configure the display name of account1; 16 account.1.display_name = 17		
B #Configure the username and password for register authentication; D account.1. auth_name = 20 account.1.password =		
21 22 #Configure the register user name; 23 account.l.user_name = 24		
<pre>26 #Configure the SIP server address and port(5060 by default); 26 account.1.sip_server_host = 27 account.1.sip_server_port = 28</pre>		
<pre>29 #Enable or disable to use the outbound proxy server, 0-Disabled(default), 1-Enabled; 30 account.1.outbound_proxy_enable = 31</pre>		

The parameters commonly edited in the MAC-Oriented CFG file (Take T2xP IP phone as an example) are detailed as following:

###########	*######################################	<i><b>###</b></i>
##	MAC-Oriented CFG File	##
###########	*****	###
#!version:1.0.0.1		
#File header "#!v first line.##	version:1.0.0.1" cannot be edited or deleted and must be place	ed in the
#Line1 settings		
#Enable or disab	ble the account1, 0-Disabled (Default), 1-Enabled	
account.1.enable	2 =	
#Configure the lo	abel displayed on the LCD screen for account1	
account.1.label =	=	

#Configure the display name of account1

account.1.display\_name =

#Configure the user name and password for register authentication

account.1.auth\_name =

account.1.password =

#Configure the register user name

account.1.user\_name =

#Configure the SIP server address and port (5060 by default)

account.1.sip\_server\_host =

account.1.sip\_server\_port = 5060

#Line2 settings

#Enable or disable the account2, 0-Disabled (Default), 1-Enabled

account.2.enable =

#Configure the label displayed on the LCD screen for account2

account.2.label =

#Configure the display name of account2

account.2.display\_name =

#Configure the user name and password for register authentication

account.2.auth\_name =

account.2.password =

#Configure the register user name

account.2.user\_name =

#Configure the SIP server address and port (5060 by default)

account.2.sip\_server\_host =

account.2.sip\_server\_port = 5060

#Line3 settings (Except SIP-T20P IP phones)

#Enable or disable the account3, 0-Disabled (Default), 1-Enabled

account.3.enable =

#Configure the label displayed on the LCD screen for account3

account.3.label =

#Configure the display name of account3

account.3.display\_name =

#Configure the user name and password for register authentication

account.3.auth\_name =

account.3.password =

#Configure the register user name

account.3.user\_name =

#Configure the SIP server address and port (5060 by default)

account.3.sip\_server\_host =

account.3.sip\_server\_port = 5060

#Line4 settings (For SIP-T28P, SIP-T38G and VP530 IP phones only)

#Enable or disable the account4, 0-Disabled (Default), 1-Enabled

account.4.enable =

#Configure the label displayed on the LCD screen for account4

account.4.label =

#Configure the display name of account4

account.4.display\_name =

#Configure the user name and password for register authentication

account.4.auth\_name =

account.4.password =

#Configure the register user name

account.4.user\_name =

#Configure the SIP server address and port (5060 by default)

account.4.sip\_server\_host =

account.4.sip\_server\_port = 5060

#Line5 settings (For SIP-T28P and SIP-T38G IP phones only)

#Enable or disable the account5, 0-Disabled (Default) 1-Enabled

account.5.enable =

# Configure the label displayed on the LCD screen for account5

account.5.label =

#Configure the display name of account5

account.5.display\_name =

#Configure the user name and password for register authentication

account.5.auth\_name =

account.5.password =

#Configure the register user name

account.5.user\_name =

#Configure the SIP server address and port (5060 by default)

account.5.sip\_server\_host =

account.5.sip\_server\_port = 5060

#Line6 settings (For SIP- T28P and SIP-T38G IP phones only)

#Enable or disable the account6, 0-Disabled (Default), 1-Enabled

account.6.enable =
#Configure the label displayed on the LCD screen for account6
account.6.label =
#Configure the display name of account6
account.6.display\_name =
#Configure the user name and password for register authentication
account.6.auth\_name =
account.6.password =
#Configure the register user name
account.6.user\_name =
#Configure the SIP server address and port (5060 by default)
account.6.sip\_server\_host =
account.6.sip\_server\_port = 5060

## **Customizing Resource Files**

You can configure the phone features via the parameters in the configuration files. You can also customize your phone with a personalized ringtone, language or logo.

## **Customizing a Ringtone**

Yealink IP phones have built-in system ringtones and the default ring type is Ring1. You can change the ring type, or you can customize your personal ringtone and make it take effect via auto provisioning.

The ringtone file must be PCMU audio format, mono channel, 8K sample rate and 16 bit resolution.

The ringtone file format must be .wav.

All ringtone files uploaded must be within 100KB.

## Configure the access URL of the customizing ringtone

ringtone.url =

#ringtone.delete =http://localhost/all

#Delete all the custom ringtones uploaded through auto provisioning

ringtone.delete =

For example: enter "ftp://192.168.1.100/Ring9.wav" in the "ringtone.url =" field. During the auto provisioning process, the phone connects to the provisioning server "192.168.1.100", and downloads the ringtone file "Ring9.wav".

##

You'd better check that the ringtone file has been uploaded to the root directory of the server before provisioning.

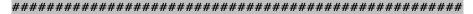
For more information about customizing a ringtone file, you can refer to Customizing a Ringtone Using Cool Edit Pro in this guide.

## **Customizing a LCD Language**

You can modify the translation of the languages of the IP phones, but you cannot add new language to the phone. To modify the existing language, you need to edit the language file and upload it to the root directory of the provisioning server, then specify the access URL in the configuration file.

The following figure shows a portion of the language file:

1 a	ng-English.txt ×		
_			
Q,			
]	lang ]		
"	Add to Blacklist"=" Add to Blacklist"		
"	Add to Contacts"=" Add to Contacts"		
"	Delete All"=" Delete All"		
"	Delete This"=" Delete This"		
"	Delete"=" Delete"		
	Detail"=" Detail"		
"	Line:"=" Account:" Mobile:"=" Mobile:"		
"	Move to Blacklist"=" Move to Blacklist"		
"	Move to Blacklist"-" Move to Blacklist" Move to Contacts"=" Move to Contacts"		
	Name:"=" Name:"		
"	Number%d:"=" Number%d:"		
"	Number:"=" Number:"		
	Office:"=" Office:"		
"	Other:"=" Other:"		
	Time:"=" Time:"		
"	%d. (Empty)"=" %d. (Empty)"		
	%d. DSS Key %d"=" %d. DSS Key %d"		
	%d. Line ID:"=" %d. Account ID:"		
"	%d. Line%d Number"=" %d. Account%d No."		
"	Conference to:"=" Conference to:"		
"	" Connecting"=" Connecting"		
"	HELD"=" Held"		
"	HOLD"=" Hold"		
"	Hang Up"=" Hang up"		
"	Input Keyword:"=" Search:"		



## Configure the access URL of the LCD language file

#### 

gui\_lang.url =

#gui\_lang.delete = =http://localhost/all

#### #Delete all custom languages downloaded through auto provision

#### gui\_lang.delete =

For example: enter "ftp://192.168.1.100/lang-English.txt" in the "gui\_lang.url = " field. During the auto provisioning process, the phone connects to the provisioning server "192.168.1.100", and downloads the language file "lang-English.txt".

Available languages may be different between different firmware versions. Ask the distributor for the language template file.

## **Customizing a LCD Logo**

Yealink SIP-T2xP IP phones allow you to customize the logo displayed on the phone LCD screen (The SIP-T20P IP phones only support displaying the text logo). Ask the distributor for the logo file, or you can customize a .dob logo file. Upload the logo file to the root directory of the provisioning server and then specify the access URL in the configuration file:

#################################	*###################################
## Configure the access URL	of the Logo File #:
#######################################	*######################################
#(SIP-T2xP except T20P IP phones)	
lcd_logo.url =	
#lcd_logo.delete = =http://localhost/all	
#Delete all custom logo files	
lcd_logo.delete =	
For example: enter "ftp://192.168.1.100/log auto provisioning process, the phone cor "192.168.1.100", and downloads the logo	1 5

The following table lists the logo file format and resolution for each phone model:

Phone Model	Logo File Format	Resolution
SIP-T28P	.dob	<=236*82 2 gray scale
SIP-T26P	.dob	<=132*64 2 gray scale
SIP-T22P	.dob	<=132*64 2 gray scale

Upload the logo file to the root directory of the provisioning server. After provisioning, the phone boots up, and you will then find that the customized logo displays on the phone LCD screen.

For more information about customizing a Logo file, refer to Customizing a Logo File Using PictureExDemo in this guide.

## **Customizing a Wallpaper**

Yealink SIP-T3xG and VP530 IP phones allow you to customize the wallpaper displayed on the phone LCD screen. Upload the wallpaper image to the root directory of the provisioning server and then specify the access URL in the configuration file:

For example: enter "ftp://192.168.1.100/wallpaper.jpg" in the "wallpaper\_upload.url =" field. During the auto provisioning process, the phone connects to the provisioning server "192.168.1.100", and downloads the wallpaper image "wallpaper.jpg".

The following table lists the wallpaper image format and resolution for each phone model:

Phone Model	Wallpaper Image Format	Resolution
VP530	.jpg/.png/.bmp	<=1920*1200
SIP-T38G	.jpg/.png/.bmp	<=480*272
SIP-T32G	.jpg/.png/.bmp	<=480*272

## **Customizing a Screensaver**

Yealink SIP-T3xG IP phones allow you to customize the screensaver displayed on the phone LCD screen. The screensaver will automatically start each time your phone is idle a certain period of time. You can stop the screensaver at any time by pressing any key. Upload the screensaver image to the root directory of the provisioning server and then specify the access URL in the configuration file:

#######################################		
##	Configure the access URL of the screensaver	##
########	#######################################	########

#### #(SIP-T3xG IP phones only)

screen\_saver.pic.url =

For example: enter "ftp://192.168.1.100/screensaver.jpg" in the "screen\_saver.pic.url =" field. During the auto provisioning process, the phone connects to the provisioning server "192.168.1.100", and downloads the screensaver image "screensaver.jpg".

The following table lists the screensaver image format and resolution for each phone model:

Phone Model	Screensaver Image Format	Resolution
SIP-T38G	.jpg/.png/.bmp	<=480*272
SIP-T32G	.jpg/.png/.bmp	<=480*272

## **Customizing Local Contact File**

Yealink IP phones allow you to batch upload contact data by auto provisioning. You can create multiple contacts using the supplied template local contact file.

When editing the template local contact file, remember the following:

- <contactData> indicates the start of a contact file and </contactData> indicates the end of a contact file (Applicable to SIP-T2xP/T3xG IP phones).
- Add groups between <groupinfo> and </groupinfo> (applicable to SIP-T2xP/T3xG IP phones).
- Add groups between <root\_group> and </root\_group> (Applicable to VP530 IP phones).
- Add local contacts between <group> and </group> (Applicable to SIP-T2xP/T3xG IP phones).
- Add local contacts between <root\_contact> and </root\_contact> (Applicable to VP530 IP phones).
- Add contacts to the blacklist between <blacklist> and </blacklist> (Applicable to SIP-T2xP/T3xG IP phones).
- When specifying the desired line for the contact, the valid values are 0 and line ID, 0 stands for Auto.
- When specifying a ring tone for the contact or the group, the valid values are Auto, Resource:RingN.wav (for the default system ring tone) and Custom:Name.wav (For the customized ring tone).

#### To customize a local contact file:

- 1. Open the template file using an ASCII editor.
- 2. For each contact that you wish to add, add the following string to the file, each starting on a separate line:

<contact sDisplayName="" sOfficeNumber="" sMobilNumber="" sOtherNumber="" sLine="" sRing="" group=""/> #(For T2xP IP phones)

<contact sDisplayName="" sOfficeNumber="" sMobilNumber="" sOtherNumber="" sLine="" sRing="" group="" photoDefault="" photoSelect=""/> #(For T3xG IP phones)

<contact display\_name="" office\_number="" mobile\_number="" other\_number="" line="" ring="" group\_id\_name="" default\_photo="" selected\_photo=""/> #(For VP530 IP phones, entering "blacklist" in the "group\_id\_name ="""field to add the contacts to blacklist)

#### Where:

sDisplayName=""/display\_name="" specifies the name of the contact (This value cannot be blank or duplicated).

OfficeNumber=""/office\_number="" specifies the office number of the contact.

sMobilNumber=""/mobile\_number="" specifies the mobile number of the contact.

sOtherNumber=""/other\_number="" specifies the other number of the contact.

sLine=""/line="" specifies the line you want to add this contact to.

sRing=""/ring="" specifies the ring tone for this contact.

group=""/group\_id\_name=<sup>™</sup> specifies the existing group you want to add the contact to.

photoDefault=""/default\_photo="" specifies the customized photo for the contact. The value format is "Config:name.png".

photoSelect=""/selected photo="" specifies the system photo for the contact.

**3.** For each group that you want to add, add the following string to the file, each starting on a separate line:

<group name="" ring=""></group>	#(For T2xP IP phones)
<group name="" ring=""></group>	#(For T3xG IP phones)
<group display="" name="" ring=""></group>	#(For VP530 IP phones)

#### Where:

group name=""/group display name="" specifies the name of the group.

ring=""/Ring="" specifies the desired ring tone for this group.

4. For each contact that you want to add to the blacklist, add the following string to the file, each starting on a separate line: <contact sDisplayName="" sOfficeNumber="" sMobilNumber="" sOtherNumber=""</p>

#(For T2xP/T3xG IP phones)

- 5. Specify the values within double quotes.
- 6. Save the change.

sLine=""/>

After editing the template local contact file, upload the file to the root directory of the provisioning server and then specify the access URL in the configuration file.

The following shows an example of the contactData.xml file used for SIP-T2xP and SIP-T3xG IP phones:

```
<contactData>
 <group>
   <contact sDisplayName="Mary" sOfficeNumber="123" sMobilNumber="456"
   sOtherNumber="2201" sLine="0" sRing="Auto" group="Family"
  photoDefault="Config:family.png" photoSelect="0"/>
  <contact sDisplayName="Damy" sOfficeNumber="124" sMobilNumber="789"
   sOtherNumber="2202" sLine="1" sRing="Resource:Ring2.wav" group=""
  photoDefault="" photoSelect="3"/>
  <contact sDisplayName="Jack" sOfficeNumber="125" sMobilNumber="234"</pre>
  sOtherNumber="2203" sLine="2" sRing="Custom:lin.wav" group="Family"
  photoDefault="" photoSelect="2"/>
 </group>
 <blacklist>
 <contact sDisplayName="Ada" sOfficeNumber="8800" sMobilNumber="1234"
  sOtherNumber="0000" sLine="0"/>
 </blacklist>
</contactData>
```



For example: enter "ftp://192.168.1.100/ ContactData.xml" in the "local\_contact.data.url =" field. During the auto provisioning process, the phone connects to the provisioning server "192.168.1.100", and downloads the contact file "ContactData.xml".

Yealink IP phones support both the .xml and .csv formats.

## **Customizing Replace Rule File**

You can create replace rules directly in the configuration files, or create multiple replace rules using the supplied template replace rule file. When the IP phones download the replace rule file, the existing replace rules on the phone will be overwritten.

When editing the template replace rule file, remember the following:

 <DialRule> indicates the start of the template file and </DialRule> indicates the end of the template file (Applicable to SIP-T2xP/T3xG IP phones).

- <dialrule> indicates the start of the template file and </dialrule> indicates the end of the template file (Applicable to VP530 IP phones).
- Create replace rules between <DialRule> (<dialrule>) and </DialRule> (</dialrule>).
- When specifying the desired line(s) to apply the replace rule, the valid values are 0 and line IDs. The digit 0 stands for all lines, multiple line IDs are separated by comma.
- Do not modify the file name.
- Refer to the phone-specific user guide for the basic expression syntax of the replace rule.

#### To customize a replace rule file:

- 1. Open the template file using an ASCII editor.
- 2. For each replace rule you wish to add, add the following string to the file, each starting on a separate line:

```
<Data Prefix="" Replace="" LineID=""/> #(For T2xP/T3xG IP phones)
<data rule="" replace="" lines=""/> #(For VP530 IP phones)
```

#### Where:

Prefix=""/rule="" specifies the numbers to be replaced.

Replace=""/replace="" specifies the alternate string.

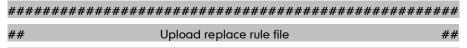
LineID=""/lines="" specifies the desired line(s) for this rule. When leaving it blank, this replace rule will apply to all lines.

- 3. Specify the values within double quotes.
- **4.** Save the change.

The following is an example of a replace rule file used for SIP-T2xP and SIP-T3xG IP phones:

#### <DialRule>

```
<Data Prefix="1" Replace="05928665234" LineID=""/>
<Data Prefix="2(xx)" Replace="002$1" LineID="0"/>
</DialRule>
```



\*\*\*\*\*

dialplan\_replace\_rule.url =

For example: enter "ftp://192.168.1.100/DialPlan.xml" in the "dialplan\_replace\_rule.url =" field. During the auto provisioning process, the phone connects to the provisioning server "192.168.1.100", and downloads the replace rule file "DialPlan.xml".

## **Customizing Dial-now File**

You can create multiple dial-now rules using the supplied template dial-now file. After creating the dial-now rules, save the dial-now file to the root directory of the provisioning server and specify the access URL in the configuration files.

When editing a dial-now file, remember the following:

- <DialNow> indicates the start of a template and </DialNow> indicates the end of a template (applicable to SIP-T2xP/T3xG IP phones).
- <dialnow> indicates the start of a template and </dialnow> indicates the end of a template (applicable to VP530 IP phones).
- Create dial-now rules between <DialNow> (<dialnow >) and </DialNow> (</dialnow>).
- When specifying the desired line(s) for the dial-now rule, the valid values are 0 and line ID. 0 stands for all lines, multiple line IDs are separated by comma.
- Do not modify the file name.
- Refer to the phone-specific user guide for the basic expression syntax of the dial-now rule.

### To customize a dial-now file:

- 1. Open the template file using an ASCII editor.
- **2.** For each dial-now rule you wish to add, add the following string to the file, each starting on a separate line:

<data dialnowrule="" lineid=""></data>	#(For T2xP/T3xG IP phones)
<data lines="" rule=""></data>	#(For VP530 IP phones)

#### Where:

DialNowRule=""/ rule="" specifies the dial-now rule.

LineID=""/ lines="" specifies the desired line(s) for this rule. When leaving it blank, this rule will apply to all lines.

- 3. Specify the values within double quotes.
- **4.** Save the change.

The following is an example of a dial-now file used for SIP-T2xP and SIP-T3xG IP phones:

```
<DialNow>

<Data DialNowRule="1234" LineID="1"/>

<Data DialNowRule="52[0-6]" LineID="1"/>

<Data DialNowRule="xxxxxx" LineID=""/>

</DialNow>
```

##########	#######################################	*############
##	Upload dial-now file	##
###########	#######################################	*###########

dialplan\_dialnow.url =

For example: enter "ftp://192.168.1.100/DialNow.xml" in the "dialplan\_dialnow.url =" field. During the auto provisioning process, the phone connects to the provisioning server "192.168.1.100", and downloads the dial-now file "DialNow.xml".

## **Updating Firmware**

Yealink IP Phones allow you to update the firmware manually via web user interface, or batch update the firmware via the auto provisioning. To batch update the phones' firmware via auto provisioning, ask the distributor for the firmware file, upload it to the root directory of the provisioning server, and then specify the access URL in the configuration files.

#######	******	########
##	Configure the access URL of the firmware file	##
#######	************	########

firmware.url =

For example: enter "ftp://admin:password@192.168.1.100/2.70.0.35.rom" in the "firmware.url =" field. During the auto provisioning process, the phone connects to the provisioning server "192.168.1.100" ("admin" as the authentication user name and "password" as the authentication password), and downloads the firmware file "2.70.0.35.rom".

Phone Model	Firmware Version
VP530	23.x.x.rom
SIP-T38G	38.x.x.rom
SIP-T32G	32.x.x.rom
SIP-T28(P)	2.x.x.rom
SIP-T26(P)	6.x.x.rom
SIP-T22(P)	7.x.x.rom
SIP-T20(P)	9.x.x.x.rom

The following table lists the firmware version for each phone mode:

# **Configuring a TFTP Server**

Yealink IP Phones support using the FTP, TFTP, HTTP and HTTPS protocols to download the configuration files. TFTP server is used by default. You can use any protocol for provisioning. The following section takes the TFTP server as an example.

We recommend that you can use 3CDaemon or TFTPD32 tool as a TFTP server. 3CDaemo and TFTPD32 are free applications for Windows. You can download the 3CDaemon software at: http://www.oldversion.com/3Com-Daemon.html and TFTPD32 at: http://tftpd32.jounin.net/.

We provide a simple instruction of configuring a FTP server using 3CDaemon tool in the Configuring a FTP server section.

# **Preparing a Root Directory**

#### To prepare a root directory:

- 1. Create a root TFTP directory on the local computer.
- 2. Place the configuration files to this root directory.
- 3. Set the security permissions for the TFTP directory folder.
- 4. You need to define a user or a group name, and set the permissions: read, write, and modify files. Security permissions vary by organization.

An example of using the Windows platform is shown as below:

Administrators (VANSTD80 CREATOR OWNER	Administra	ators)		^		
22 Everyone						
Hill, James (jahill@myserv)	ername.co	ml		-		
SYSTEM				~		
<			>			
	Add	± )	Remov	e		
Permissions for Everyone	(	Allow	Deny			
Full Control				^		
Modify						
Read & Execute		~				
List Folder Contents		~				
Read						
Write						
Consist Dormissions				~		
For special permissions or for adv click Advanced.	vanced sel	tings,	Advance	d		

# **Configuring a TFTP Server**

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

### To configure a TFTP server:

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

ew Help TFTP Server	Start Time	Peer	Bytes	Status	
figure IFTP Server	Feb 28, 2012 16:06:20 Feb 28, 2012 16:06:20 Feb 28, 2012 16:06:20	local	0	Listeming for TFTP requests on IP address: 192.168.133.1, Port 69 Listeming for TFTP requests on IP address: 192.168.106.1, Port 69 Listeming for TFTP requests on IP address: 10.2.11.128, Port 69	
Server is started ck here to stop it.					
ging to Tftpd log. Click to stop.					
Not debugging. Click to start.					
Clear list.					
200					

2. Select Configure TFTP Server. Click the button to locate the TFTP root directory on the computer:

TFTP Server	Start Time	Peer Bytes	Status	
nfigure TFTP Server	Feb 24, 2012 08:59:47 Feb 24, 2012 08:59:47 Feb 24, 2012 08:59:47 Feb 24, 2012 08:59:47	local C local C	Listening for TFTP requests on IP address: 192,188,133,1, Port 69 Listening for TFTP requests on IP address: 192,168,168,1, Port 69 Listening for TFTP requests on IP address: 10.2,11,128, Port 69	
F Server is started ick here to stop it.	3CDaemon Confi	ofiles	Syrlog Configuration	
rgging to Iftpd log. Click to stop.	-	of existing	ncoming file ref	
Not debugging. Click to start.	Upload/Download Per-packet timeo Maxinum retries	,	AutoplAuto Frovision Mado [] is 5 10	
Clear list.	Interframe trans	mission	0	

 Click the Confirm button to finish configuring the TFTP server. The server URL "tftp://IP/" (Here "IP" means the IP address of the provisioning server, for example, "tftp://192.168.1.100/") is capable of TFTP downloading.

# **Obtaining the Address of Provisioning Server**

Yealink IP phones support to obtain the provisioning server address during bootup process in the following ways:

- Zero Touch
- Plug and Play (PNP) Server
- DHCP Options
- Phone Flash

When the phone boots up, it will go by the above process to try to obtain the provisioning server address. The priority of obtaining the provisioning server address is as following: Zero Touch -->PNP server -->DHCP options (Custom option --> option 66 -->option 43) -->Phone Flash.

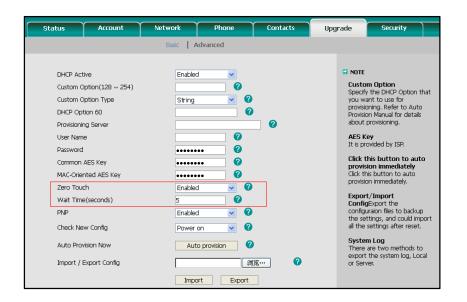
The following sections detail each process.

## **Zero Touch**

Zero Touch allows you to configure the network and provisioning server address via phone user interface during bootup. This feature is helpful when there is a system failure on the phone. To use Zero Touch, you need to make sure that this feature is enabled.

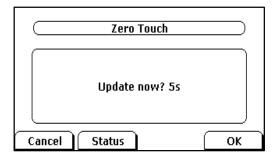
To configure the Zero Touch via web user interface:

- 1. Click on Upgrade ->Advanced.
- 2. Select Enabled from the pull-down list of Zero Touch.
- 3. Set the waiting time (in seconds) in the Wait Time (seconds) filed.



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

When the Zero Touch is enabled, there will be a configure wizard during the bootup:



Press the **OK** soft key. Then you can configure the network via phone user interface:

WAN Type:	DHCP	•
VLAN Status:	Disable	-
802.1x Mode	Disable	41
VPN Active:	Off	•

Press the **Next** soft key after finishing the network configuration.

Configure the provisioning server address, authentication username (optional) and password (optional) in the **Auto Provision** interface.

A sample screenshot is shown as below:

ete ) OK

# **Plug and Play (PNP) Server**

Yealink IP phones support obtaining the provisioning server address from the PNP server. The phone broadcast the PNP subscribe message to obtain a provisioning server address during bootup. To use Plug and play, make sure this feature is enabled.

To configure the PNP via web user interface:

- 1. Click on Upgrade ->Advanced.
- 2. Select Enabled from the pull-down list of PNP.

Status	Account	Network	Phone	Contacts	Upgrade	Security
		Basic A	dvanced			
Custom DHCP O Provisior User Nai Passwor Commor	Option(128 ~ 254) Option Type ption 60 iing Server me d 1 AES Key ented AES Key	Enablec String	· · · 0 · · · 0	0	Spi you Pro abo It i Chi Chi Chi	TTE stom Option safy the DHCP Option that i want to use for wisioning, Refer to Auto wisioning, and the details up provisioning. S Key provided by ISR. sk this button to auto wision immediately.
Wait Tin PNP	ne(seconds)	5 Enabled	0 0 V t		CO COT the	port/Import nfigExport the nfiguraion files to backup settings, and could import
	lew Config ovision Now	Power Auto	on 🔽 🕐 o provision 🛛 🦓		Sy Th	the settings after reset. <b>stem Log</b> ere are two methods to sort the system log, Local
Import (	' Export Config	Impo		×··· Ø		iort the system log, Local Server.
Export 9	iystem Log	Local	v 🕜			
Log Lev	el	З	*			
Make Tr	ace	Star	t Stop	Export	0	
	Confirm		Cancel			

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

Any PNP server activated in the network responses with a **SIP NOTIFY** message and an address of the provisioning server contained in the message body. The phone can then connect to the provisioning server and performs the provisioning process.

🔣 PNP.pcap - Wireshark					
Zile Zdit Yiex Go Capture &n	alyze Statistics Telephony Ic	sols Help			
N M N N N N   🖻 🔀 X	28	1	🖭   🎆 🕅	S 36   🛱	
Filter:		· Repression Clear /	uoly		
-					
No Time 1 0.000000	Source 10.2.9.106	Destination 224.0.1.75	Fretocal	Request: SUBSCRIBE s1p:MAC0015652a3d1a@intern.IPPhone.com	
2 0.663070	10.2.9.46	10.2.9.106	SIP	status: 202 Accepted subscription	
3 0.666935	10.2.9.46	10.2.9.106	SIP	Request: NOTIFY sip:MAC0015652a3d1a610.2.9.106:5059	
4 0.671499	10.2.9.106	10.2.9.46	SIP	Status: 200 ok	
5 1.807473	10.2.9.106	10.2.1.199	SIP	Request: REGISTER s1p:10.2.1.199 Status: 200 OK (1 bindings)	
6 1.810835 Frame 3 (729 bytes on with	10.2.1.199	10.2.9.106	SIP	Status: 200 OK (1 bindings)	
[Resent Packet:Fals] Message Meader Wis: SIP/2.e/Uon 10.; # rom: csjp:McC01505 # rom: csjp:McC01505 # rom: csjp:McC01552 # Sequence wueber: 2 Methods NOTIFY @ Contact: csjp:McC01 Contact: csjp:McC01 B Contact: csjp:McC01 B Contact: csjp:McC01 Contact: csjp:McC01 B Contact: csjp:McC01	10.2.9.46 (26.2.9.46), br (2000) 1002311.600, br (2000) 1002311.600, br (2000) 1002311.600, c (2000) 1002311.6	11:10.2.8.006 (10.2.9. 10:10:10:10:10:10:10:10:10:10:10:10:10:1	106)	15:05/Jaridik) 18., Refer, Purlin, upare, Mesade	Totilis Briest

# **DHCP Options**

Yealink IP phones support obtaining the provisioning server address from DHCP options. You can configure the phone to obtain a provisioning server address from a custom DHCP option, or the phone will automatically detect the Option 66 or Option 43. The Option 66 is used to identify the TFTP server.

To obtain a provisioning server by a custom DHCP option, make sure that the DHCP option is set properly.

#### To configure the DHCP option via web user interface:

- 1. Click on Upgrade ->Advanced.
- 2. Select Enabled from the pull-down list of DHCP Active.
- 3. Enter the value in the Custom Option (128~254) field.
- 4. Select the desired type from the pull-down list of **Custom Option Type**.

Stat	us	Account	Network	Phone	Contacts	Upgra	Upgrade Security						
			Basic A	dvanced									
	Custom O DHCP Opt Provisionin User Nami Password Common . MAC-Orier Zero Touc Wait Time PNP Check Ner Auto Prov	htton(128 ~ 254) ption Type ion 60 g Server e AES Key thed AES Key thed AES Key the (seconds) w Config	Enabled 130 String Enabled 5 Enabled Power of Auto		. • •		Specify you wa provisic about J AES Ki It is pro Click t provisic Click t provisic Click t provisic Click t provisic Click t sport Config config the set al the Syster There	brided by ISP. his button to auto ion immediately is button to auto on immediately. t/Import Beport the raion files to backup trings, and could import settings after reset. n Log are two methods to the system log, Local					
	Export Sy Log Level Make Trac	-	Impor Local 3 Start	xport	Export (	0							

5. Click Confirm to accept the change.

A valid Custom Option is from 128 to 254. The Custom Option Type must be in accordance with the one defined in the DHCP server.

# **Phone Flash**

Yealink IP phones support obtaining a provisioning server address from the phone flash. To obtain a provisioning server address by reading the phone flash, make sure the configuration is set properly. To configure the Phone Flash via web user interface:

- 1. Click on Upgrade ->Advanced.
- Enter the URL, username and password of the provisioning server in the Provisioning Server, User Name and Password fields (the authentication username and password is optional).
- 3. Select Power on from the pull-down list of Check New Config.

Status Account	Network	Phone	Contacts	Upgr	ade	Security
	Basic Ad	lvanced				
DHCP Active Custom Option(128 ~ 254) Custom Option Type DHCP Option 60 Provisioning Server User Name Password Common AES Key Common AES Key Zero Touch Wait Time(seconds) PNP Check New Config Auto Provision Now	admin 	· 0 · 0 · 0 · 0 · 0 · 0	0		Specify you wa provisio about : AES Ke It is pro Click th provisio Export Config configu the set all the s	vided by ISP. his button to auto on immediately button to auto in immediately. /Import Export the raion files to backup tings, and could import ettings after reset.
Import / Export Config	Impor	t Export	<b>0</b>		export or Servi	the system log, Local er.
Export System Log	Local	v 🕐				
Log Level	3	~				
Make Trace	Start	Stop	Export	0		
Confirm	[	Cancel				

4. Click Confirm to accept the change.

If the configuration files have been AES encrypted, the AES Keys will be needed. The Common AES Key is for decrypting the Common CFG file. The MAC-Oriented AES Key is for decrypting the MAC-Oriented CFG file. The keys must be 16 bytes and the supported characters are:  $0 \sim 9$ ,  $A \sim Z$ ,  $a \sim z$  and the following special characters are also supported: # \$ % \* +, - . : = ? @ [] ^ \_ { } { }.

Reboot the phone after the above configurations. During bootup, the phone will connect to the provisioning server, using the authentication user name and password filled in the **User Name** and **Password** fields. If the phone fails to get any information from the phone flash, the current round of auto provisioning process will stop.

# **Downloading and Verifying Configurations**

# **Downloading Configuration Files**

Once obtained a provisioning server address from one of the ways introduced above, the phone will connect to the provisioning server and download the configuration files. During the provisioning process, the phone will try to download the Common CFG file firstly, and then try to download the MAC-Oriented CFG file from the root directory of the provisioning server. If resource files need to be updated and the access URL has been specified in the configuration files. The phone will then try to download and update the resource files.

# **Verifying Configurations**

After auto provisioning, the phone boots up. You can then verify the update via phone user interface, or you can verify it via web user interface of the phone. For more information, refer to the user guide of the Yealink IP phones.

During the auto provisioning process, you can monitor the downloading request and response message by a WinPcap tool.

If the MD5 value of the CFG file is different from that of the last one, the phone updates the configuration and then reboots. Otherwise, the phone gives up update and doesn't reboot.

Realtek 10/100/1000 Ethe			's Packet	Scheduler) : Capturing - Wireshark	
Eile Edit Yiew Go Capture &s	walyze Statistics Telephony Icols	Melp			
💐 🕷 🚳 😫 🗎 🔚 🖾 🛪	: 😂 📇   🔍 🔶 🧼 🥥 🐺 🖞		i 🖉 🕅	🥵 🐝   💢	
Filter: bootp  tftp  ftp		• Eggression Clear Apply			
No. Time .	Source	Destination	Protocol	Info	
194 46.954819	10.2.11.119	10.2.11.126	TFTP	Read Request, File: y00000000000.cfg\000, Transfer type: octer	t\000
199 46.971859 200 46.981090	10.2.11.126 10.2.11.119	10.2.11.119 10.2.11.126	TETP	Data Packet, Block: 1 Acknowledgement, Block: 1	
200 46.981090 201 46.982020	10.2.11.119	10.2.11.126	TETP	Data Packet, Block: 2	
202 46.983900	10.2.11.120	10.2.11.126	TETP	Acknowledgement, Block: 2	
203 46.984250	10.2.11.126	10.2.11.119	TETP	Data Packet, Block: 3	
204 46.986221	10.2.11.119	10.2.11.126	TETP	Acknowledgement, Block: 3 Data Packet, Block: 4	
205 46,986388	10.2.11.126	10.2.11.119	TETP	Data Packet, Block: 4	
206 46.989806	10.2.11.119	10.2.11.126	TFTP	Acknowledgement, Block: 4 Data Packet, Block: 5	
207 46.990045	10.2.11.126	10.2.11.119	TFTP	Data Packet, Block: 5	
208 46.991977	10.2.11.119	10.2.11.126	TFTP	Acknowledgement, Block: 5	
209 46.992153	10.2.11.126	10.2.11.119	TFTP	Data Packet, Block: 6	
210 46.993832	10.2.11.119	10.2.11.126	TFTP	Acknowledgement, Block: 6	
211 46.994354 212 46.996015	10.2.11.126 10.2.11.119	10.2.11.119 10.2.11.126	TETP	Data Packet, Block: 7 Acknowledgement, Block: 7	
212 46.996015 213 46.996245	10.2.11.119	10.2.11.126	TETP	Data Packet, Block: 8	
213 46.996245 214 47.000510	10.2.11.126	10.2.11.119	TETP	Acknowledgement, Block: 8	
215 47.000704	10.2.11.126	10.2.11.119	TETP	Data Packet, Block: 9	
216 47,003985	10.2.11.119	10.2.11.126	TETP	Acknowledgement, Block: 9	
217 47,004139	10.2.11.126	10.2.11.119	TETP	Data Packet, Block: 10 (last)	
218 47,005570	10.2.11.119	10.2.11.126	TETP	Acknowledgement, Block: 10	
244 54.444367	10.2.11.119	10.2.11.126	TFTP	Read Request, File: 00156511185c.cfg\000, Transfer type: octet)	\000
245 54.462711	10.2.11.126	10.2.11.119	TFTP	Error Code, Code: Access violation, Message: Could not open re	quested file for reading\(
<ul> <li>Internet Protocol, Src: : User Datagram Protocol, Bootstrap Protocol</li> </ul>	4d:40:da:4d (6c:50:4d:40:da 10.2.11.254 (10.2.11.254), Src Port: bootps (67), Dst 1v (2)	Dst: 10.2.11.244 (10.2.1		15:65:11:18:5c)	
Next server IP address Relay agent IP address Client MAC address: Xi	t h: 6 0503 micast) .0.0 (0.0.0) s: 10.0.2.11.244 (10.2.11.24 : 0.0.0.0 (0.0.0.0) : 0.0.0.0 (0.0.0.0) : 0.0.0.0 (0.0.0.0) merret_11.18:5: (00115:65:1	1:18:5c)			
Hardwäre type: Etherne Hardwäre address lengt Hops: 0 Transaction ID: Oxboct Seconds elapsed: 0 © lie bootp flags: 0x0000 (U Client IP address: 0.0 Your (client) IP address Relay agent IP address Client Mac address: xi	t h: 6 of (cast) co. (0.0.0.0) ss: 10.2.11.244 (10.2.11.24 : 0.0.0.0 (0.0.0.0) : 0.0.0.0 (0.0.0.0) : 0.0.0.0 (0.0.0.0) s padfng: 0000000000000000 fven	1:18:5c)			

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

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Iter         Fugerstim.         Citege Apgly           h.         Test         Former         Prison         Test           151         14.5006         10.7.11.126         FT         Response: 220 Scom Schammon FTP Server Version 2.0           153         14.5005         10.7.11.125         FT         Response: 220 Scom Schammon FTP Server Version 2.0           153         14.5005         10.7.11.126         10.7.11.126         FTP         Response: 220 Scom Schammon FTP Server Version 2.0           153         14.5005         10.7.11.126         10.7.11.126         FTP         Response: 220 Scom Schammon FTP Server Version 2.0           153         14.5142         10.7.11.126         10.7.11.126         FTP         Response: 230 User Togonged in 1.1111           154         14.52405         10.7.11.126         10.7.11.126         FTP         Response: 730 User Togonged in 1.1111           154         14.52405         10.7.11.126         10.7.11.126         FTP         Response: 730 User Togonged in 1.1111           154         14.52405         10.7.11.126         10.7.11.126         FTP         Response: 730 User Togonged in 1.1111	
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155         HA, 131482         10.2.11.115         10.2.11.126         FTP         Request: PASS_ILLILL           155         HA, 13544         10.2.11.126         10.2.11.125         PTP         Request: 230 User logged in           157         HA, 132305         10.2.11.115         10.2.11.126         FTP         Request: PVPE I         Image: 100 PVPE Set Variable           158         HA, 242405         10.2.11.115         FTP         Request: PVPE I         Image: 100 PVPE Set Variable	
156         34.515044         10.2.11.126         10.2.11.126         FTP         Response: 230 User Togged in           157         24.523305         10.2.11.115         10.2.11.126         FTP         Request: TYPE I           158         24.524405         10.2.11.126         10.2.11.126         FTP         Response: 200 Type set to I.	
156         34.515044         10.2.11.126         10.2.11.126         FTP         Response: 230 User Togged in           157         24.523305         10.2.11.115         10.2.11.126         FTP         Request: TYPE I           158         24.524405         10.2.11.126         10.2.11.126         FTP         Response: 200 Type set to I.	
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160 34, 532697 10, 2, 11, 126 10, 2, 11, 115 FTP Response: 227 Entering passive mode (10, 2, 11, 126, 5, 189	0
164 34,541081 10,2,11,115 10,2,11,126 FTP Request: SIZE v00000000000,cfg	
165 34.543289 10.2.11.126 10.2.11.115 FTP Response: 213 3986	
166 34.552631 10.2.11.115 10.2.11.126 FTP Request: RETR v0000000000.cfg	
167 34.554557 10.2.11.126 10.2.11.115 FTP Response: 125 Using existing data connection	
177 34.593926 10.2.11.126 10.2.11.115 FTP Response: 226 Closing data connection; File transfer s	auccessful.
188 36.338570 10.2.11.115 10.2.11.126 FTP Request: QUIT	
189 36.340311 10.2.11.126 10.2.11.115 FTP Response: 221 Service closing control connection	
195 37. 025137 10.2.11.126 10.2.11.115 FTP [TCP Retransmission] Response: 221 Service closing cor	trol connection
216 42.191295 10.2.11.126 10.2.11.115 FTP Response: 220 3Com 3CDaemon FTP Server version 2.0	
218 42.199981 10.2.11.115 10.2.11.126 FTP Request: USER ]ff	
219 42.200926 10.2.11.126 10.2.11.115 FTP Response: 331 user name ok, need password	
220 42.205441 10.2.11.115 10.2.11.126 FTP Request: PASS 11111	
221 42.206670 10.2.11.126 10.2.11.115 FTP Response: 230 user logged in	
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223 42.211775 10.2.11.126 10.2.11.115 FTP Response: 200 Type set to I.	
224 42.222780 10.2.11.115 10.2.11.126 FTP Request: PASV	
225 42.226037 10.2.11.126 10.2.11.115 FTP Response: 227 Entering passive mode (10,2,11,126,5,193	0
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230 42.234476 10.2.11.126 10.2.11.115 FTP Response: 213 Error accessing file	
231 42.240170 10.2.11.115 10.2.11.126 FTP Request: RETR 00156511185c.cfg	
232 42.241397 10.2.11.126 10.2.11.115 FTP Response: 550 File unavailable	
245 42.728589 10.2.11.126 10.2.11.115 FTP Response: 220 3Com 3CDaemon FTP Server Version 2.0	
247 42.736866 10.2.11.115 10.2.11.126 FTP Request: USER 1ff	
248 42.737875 10.2.11.126 10.2.11.115 FTP Response: 331 User name ok, need password	
249 42,742202 10.2.11.115 10.2.11.126 FTP Request: PASS 11111	
250 42.743675 10.2.11.126 10.2.11.115 FTP Response: 230 User Togged in	
251 42.757760 10.2.11.115 10.2.11.126 FTP Request: TYPE I	
252 42.759005 10.2.11.126 10.2.11.115 FTP Response: 200 Type set to I.	
253 42.753681 10.2.11.115 10.2.11.126 FTP Request: DASY	
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258 42.781389 10.2.11.115 10.2.11.126 FTP Request: SIZE 0015611185.cfg	
259 42.763327 10.2.11.126 10.2.11.115 FTP Response 213 Error accessing file	
250 42.757552 10.2.11.115 10.2.11.126 FTP Request RETR 00155581185G.ctm	
261 42,788746 10,2,11,126 10,2,11,115 FTP Response: 550 F11e unavailable	

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

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

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# Troubleshooting

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

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

#### Why does the phone fail to download the configuration file?

- Ensure that the Auto Provisioning feature is enabled.
- Check that the provisioning server or the network is reachable.
- Check that authentication credentials configured on the phone are correct.
- Ensure that the configuration file exists on the provisioning server.

#### Why does the provisioning server return a HTTP 404?

- Check that the provisioning server is properly set up.
- Revisit the path configuration (URL rewriting, port).
- Ensure that the requested file exists on the provisioning server.

### Why does the phone display "Network Unavailable"?

- Ensure that the Ethernet cable is plugged into the Internet port on the phone and the ethernet cable is not loose.
- Ensure that the switch or hub in your network is operational.
- Check the configuration of network is properly set in the configuration files.
- Contact your system administrator for more information.

#### Why does the permission denied when uploading files to a FTP server?

- Ensure that the root directory of the FTP server contains the full directory path.
- On the provisioning server, check the file permissions, if necessary, change the file permission.
- Contact your system administrator for more information.

#### Why does not the phone obtain the IP address from DHCP server?

- Ensure that your settings are right on the DHCP Server.
- Ensure your phone is configured to obtain the IP address via DHCP server.
- Contact your system administrator for more information.

#### Why does not the phone download the ringtone?

- Make sure that the ringtone file's type is .wav format.
- Make sure that the size of the ringtone file is no larger than the phone support.
- Check the ringtone's properties are all right for the phone.
- Ensure the network is available and the root directory is right for downloading.
- Ensure that the ringtone file exists on the provisioning server.

### Why does not the phone apply the configurations?

- Ensure the configuration files are different from the last ones.
- Ensure the phone have downloaded the configuration files.
- Ensure the parameters are correctly set in the configuration files.
- Contact your system administrator for more information.

# 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 a FTP Server**

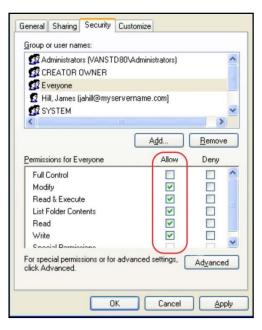
This chapter shows you how to configure a FTP server using 3CDaemon and how to configure a HTTP server using HFS tool. You can download the 3CDaemon software at: http://www.oldversion.com/3Com-Daemon.html and HFS at: http://www.snapfiles.com/get/hfs.html

### **Preparing a Root Directory**

### To prepare a root directory:

- 1. Create a root FTP directory on the local computer.
- 2. Place the configuration files to this root directory.
- 3. Set the security permissions for the FTP directory folder.
- **4.** You need to define a user or group name, and set the permissions: read, write, and modify files. Security permissions vary by organization.

An example of using the Windows platform is shown as below:



## **Configuring a FTP server**

If you have a 3CDaemon application installed on your computer, open it now, or otherwise, download and install it.

### To configure a FTP server:

- 1. Double click the 3CDaemon.exe to start the application.
- 2. Click the FTP Server button on the left of the main page.

A screenshot is shown as below:

fiew Help						
TFTP Server	Start Time	Peer	Bytes	Status		_
FTP Server	Mar 13, 2012 14:26:34		0	Listening for FTP requests on IP address: 192.168.147.1, Port 21		_
	Mar 13, 2012 14:26:34	local	0	Listening for FTP requests on IP address: 192.168.172.1, Port 21		
<u>~</u>	Mar 13, 2012 14:26:34	local	0	Listening for FTP requests on IP address: 10.2.11.101, Port 21		
Configure FTP Server						
_						
(STOP)						
FTP Server is started.						
FTP Server is started. Click here to stop it.						
1						
2						
Logging to Ftpd log. Click to stop.						
CIICK to stop.						
×						
· · · · ·						
Not debugging. Click to start.						
					6	
12						
Clear list.						
Clear 11st.						
4						
View Log/Debug files.						
Syslog Server						
TFTP Client						

### 3. Select Configure FTP Server.

4. Click the 🚺 button to locate the FTP root directory on the computer:

3CDaemon		
<u>File View H</u> elp		
TFTP Server		
	Start Time         Peer         Bytes Status           Bur 01, 6018 10.84.01 10.84.01 10.84.01 10.1         0         Listening for FTF requests on IF address 102.166 103.1, Perf 21           Bur 01, 6018 10.84.01 10.84.01 0         1         Listening for FTF requests on IF address 102.166 103.1, Perf 21           Bur 01, 5012 10.24.01 10.84.01 0         1         Listening for FTF requests on IF address 102.116.103.1, Perf 21           ScDareanot Configuration         0         Listening for FTF requests on IF address 10.2.11.203, Perf 21           ScDareanot Configuration         TTTT Configuration           FTF Profile         Systeg Configuration           Fto Frofile         StutChange user's payment           Veer         If           User         Stute reas           Breach         Direction	
Chew list Chew list View Log/Dabug files	Severrite files Back Bield and Severrite files Fo add a prefile Richter the new information into the free the prefile Richter the new information into the free the prefile Richter the prefile and prefile. Richter the prefile and prefile Richter the prefile and prefile	
Syzlog Server TFIF Client For Help, press Fi		NUM

- 5. Enter the new authentication username in the Profile filed.
- 6. Click the Set/Change user's password button to set the password in the pop-up

dialogue box.

- 7. Click the OK button to save.
- 8. Mark the check boxes of Login, Download and Upload to make sure the FTP user has the login, download and upload permission.

TFTP Server Start Tin	-   0	eer Bytes	Chature	
	012 14:26:34 lo		Listening for FTP requests on IP address: 192.168.147.1, Port 21	
Mar 13, 2012 1- Mar 13, 2012 1-			Listening for FTP requests on IP address: 192.108.147.1, Port 21 Listening for FTP requests on IP address: 192.168.172.1, Port 21	
	012 14:26:34 lo		Listening for FTP requests on IP address: 192.106.172.1, Port 21 Listening for FTP requests on IP address: 10.2.11.101, Port 21	
	012 14.20.34 10	ical V	Estening for the requests on the address. To.2.11.101, Port 21	
Configure FTF Server				
STOP		_	ation 8	
	3CDaem	on Configu	ation	
IP Server is started. lick here to stop it.		Comment of	onfiguration   IFTP Configuration	
		FIP Pro		
			User Info	
	621022	22/0101	Profile	
logging to Ftpd.log. Click to stop.				
			Set/Change user's password Set/Change	ge User Password
<u>X</u>			User C:\Users\y10088\AppBata\Lo	
Not debugging			This user can:	
Not debugging Click to start.			VLogin Repeat t	*****
4376			V Devaload	
			Vpload E	OK Cancel
Clear list.			Save Profile	
			Uverwrite files	
			Bename files - ete Highlighted Prof	
iev Log/Debug files.				R
			: Enter the new information into the form then press	
	I a	dit a profi	e: Highlight the profile, make your changes, then press	
	3CDae	mon	確定 取消 应用 (A)	
Syslog Server				
TFTP Client				

9. Click the Save Profile button to save the settings and finish the configurations.

🖾 3CDaemon 📃 🗖 🔀
Eile View Help
TFTP Server Start Time Peer Bytes Status
HP 01, 2012 10:24:01 local     0 Listening for FTP requests on IP address: 192.181.133.1, Port 21       Mr 01, 2012 10:24:01 local     0 Listening for FTP requests on IP address: 192.181.135.1, Port 21       Mr 01, 2012 10:24:01 local     0 Listening for FTP requests on IP address: 192.181.135.1, Port 21       Gonfigure FTP Surver     30D memory Configuration
General Configuration         TFTP Configuration           FTT Streer is sturted.         FTT Frofiles         Synlog Configuration           Click have to step it.         Exercise Synlog Configuration         FTT Frofile           Fty         Frofile         Ftp
Image: Set/Change user's password       Lickits to stop.       User       E: Matop Matter Provision Wa
kt diegenie Click is start. 20 Wilson Die Files
Clear list.
Save Freila View Log/Debug files I edit a grofile: Highlight the profile, make your changes, then press
3CDaemon 動度 取満 区用(4)
Syrlog Server
TFTP Client
For Help, press Fi

10. Click the **Confirm** button to finish configuring the FTP server.

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://admin:123456@192.168.1.100/") is capable of FTP download.

# **Configuring a HTTP Server**

### **Preparing a Root Directory**

#### To prepare a root directory:

- 1. Create a root HTTP directory on the local computer.
- 2. Place the configuration files to this root directory.
- 3. Set the security permissions for the HTTP directory folder.
- 4. You need to define a user or group name and set the permissions: read, write, and modify files. Security permissions vary by organization.

An example of using the Windows platform is shown as below:

Administrators (VANSTD80V     CREATOR OWNER	Adminis	strators)		^
🚮 Everyone				
😰 Hill, James (jahill@myserver	name.	com]		
SYSTEM				~
<			)))	
	A	. <u>d</u> d	<u>R</u> emov	'e
Permissions for Everyone	-	Allow	Deny	
Full Control				^
Modify		<b>v</b>		
Read & Execute		<b>~</b>		
List Folder Contents		~		
Read		<b>~</b>		
Write				
Consist Dormissions				~
For special permissions or for adva click Advanced.	nced s	settings,	Advance	ed

### **Configuring a HTTP Server**

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

### To configure a HTTP server:

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

The main configuration page is shown as below:

🚔 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 KB/s
Virtual File System	Log
	17:23:24 Check update: no new version
🧊 IP 🗖 Filename 🤇	D 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

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

🔒 HFS ~ HTTP File Server 2.2f	and the second	Build 155		
🛓 Menu   🐬 Port: 8080   🕵 You	are in Expert mode			
✤ Self Test Edit HTML template	8080/		Top speed	: 0.0 KB/s
Other options				
Start/Exit	vstem		Log	
Virtual File System		17:23:24 Check update	e: no new version	
Limits •				
Flash taskbutton				
Fingerprints  Tray icons				
IP address	This IP address is used o	nly for URL building		
Accept connections on Dynamic DNS updater	192.168.147.1 192.168.172.1			
URL encoding  Updates	✓ 10,2.11.101			
V Donate!	Custom			
嬣 Load file system Ctrl+O	Don't include port in URL Find external address			
Save file system Ctrl+S Clear file system	Constantly search for bet	ter address		
Save options				
Help				
Web links				
Uninstall HFS	Filename	1) Status Spe	ed Time left	%
About	i licitane	🔷 oradus — Spe		~
Switch OFF F4				
Connections: 0 Out: 0.0 KB/s In:	0.0 KB/s Total Out: 0 B Tot	al In: 0 B VFS: 0 items		

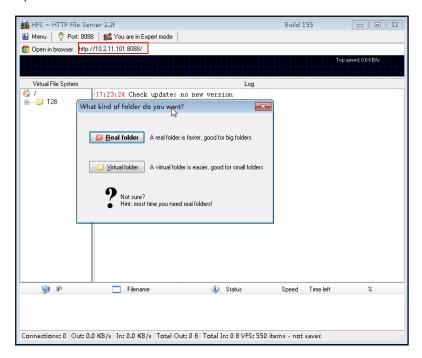
The default HTTP port is 8080. You can also reset the HTTP port (make sure the port isn't used before you reset).

🚔 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 KB/s
Vitual Fie Sustem Port Specify a port to accept connection, or leave empty to decide automatically. soss OK Cance	Log 7:23:24 Check update: no new version
IP     Filename     Connections: 0 Out: 0.0 KB/s In: 0.0 KB/s Total Out: 0 B Total	

**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 \mid Ϋ Port: 8088 🛛 🎎 You are in Expe	mode		
© Open in browser http://10.2.11.101:8088/			
			Top speed: 0.0 KB/s
Virtual File System	Log	)	
Add files C Add folder from disk New empty folder Ins	date: no new version		
New link Advanced			
Copy URL address Ctrl+C     Crl+C     Comment      Bind root to real-folder			
Set user/pass         Set Restrict access         Customized realm         ✓ Browsable         ▲ Archivable         ▲ Upload         ▲ Why is upload disabled?			
Hide tree Auto-hide empty folders Hide file extention in listing	i) Status	Speed Time left	%
Connections: 0 Out: 0.0 KB/s   In: 0.0 KB/s	Fotal Out: 0 B   Total In: 0 B VFS	: 551 items - not savec	ħ

4. Locate the root directory from the computer system. Select the kind of folder which you want.



5. Check the server URL "http:// IP:Port/" in the "Open in browser" address bar (For example, the server URL "http:// 10.2.11.101:8088/" is showed on the screenshot). We recommend that you can fill the server URL in the address bar of the web browser and then press <Enter> key to check the HTTP server before provisioning.

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 about installing and configuring an Apache HTTPS Server, refer to the network resource.

## **Configuring a DHCP server**

This section shows you how to configure a DHCP server for windows using DHCP Turbo. You can down this software from website at: http://www.tucows.com/preview/265297 and install it following the setup wizard.

Before configuring the DHCP Turbo, make sure that:

- 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 the localhost.

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

DHCP Turbo on local ile <u>E</u> dit <u>V</u> iew <u>B</u> indin		lelp			
			00	<b>%</b>	<b>k</b> ?
ervers	Descri Plu DHCP : Max 1	Name iption atform use Pas			Legia Cancel
eady.	1				

 You can then edit the existed DHCP server, or you can right click the localhost and select "New Server" to add a new DHCP server.

Servers Server Mane [ID088 Description Patters NT 6.1 New Server Rese [Pelink OK Cancel DEF Turbo Nersion 3.0 Nex bindings 50 Features [Baic Edition Build [1307	BHCP Turbo on localhos				
Scopes     Scopes		🖬 🖻 🛠 🕨	<u>ک</u> ہ د	<b>k</b> ?	
	Database MW Exclusions Nemed Policies Option Types	Name (TLD088)       Description       Flatform Windows MT       Wave Server       Name       [Fellink       DEC7 Turbe       Wersion [3:0]       Max binding: [50]       Features: [Basic Ed]			

- 4. Right click the Scopes and select New Scope.
- 5. Configure the DHCP server name, the DHCP IP range and the subnet mask.

	<u>I</u> ools <u>H</u> elp	-			
		×	<b>\$</b>	€ ا	₩?
vers localost Database MW Exclusions MM Exclusions Division Types Scopes		New Sc Scope Mattin Differse Descrip test Lease Days 0	ive ver tion	Hinute 2 0 QK	Adress Eans       Start adress       192.168 10.10       1948 ess       1952.55.255.0       Segent       V Local       2anel

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

ile <u>E</u> dit <u>V</u> iew <u>B</u> indings <u>1</u>	[ools <u>H</u> elp	r			r				
🖪 🕢 ⊁ 🐚	1 🖬 🗎 🗄	* 🔊	Ċ.	S	<b>N</b> ?				
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∃- <b>⊡</b> localhost	,	operons							
🧿 Database	Tag $ abla$	Optio							
			cookie						
🖲 Maned Policies			lirector						
🔁 Option Types				ess type		-	New Option Type	Ctrl+V	
🖻 避 Scopes		Hardwa Boot i		ess leng	cn -	_			
		Pad Pad			b	9	<u>U</u> ndo	Ctrl+Z	
		Subnet	mask		0	ĊI.	Redo	Ctrl+Y	
		Time			-				
		Gatewa	ay s			ł.	Cut	Ctrl+X	
	🚈 4		servers			D)	Copy	Ctrl+C	
			name s			ē.	Paste	Ctrl+V	
			n name s	ervers			-	Ctri+v	
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	-459	LPR se		zerver z			Select <u>A</u> ll	Ctrl+A	
			s serve				Select All	Ctri+A	
		RLP se			9	2	Eind	Ctrl+F	
	2 12	Hostna	ane		-	a b	Properties	Ctrl+P	
		Boot i	Eile siz	e	1	~	Properties	Ctri+P	1
	🚝 14		dump fi	le					
		Domain							
			servers						
		Root 1							
			sions pa warding						
				rce rout					
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	Description								
	Specifies a devi	na's hardwo	ra addu.			-			
	opecifies a devi	cc s narawa	ic audro	us type					

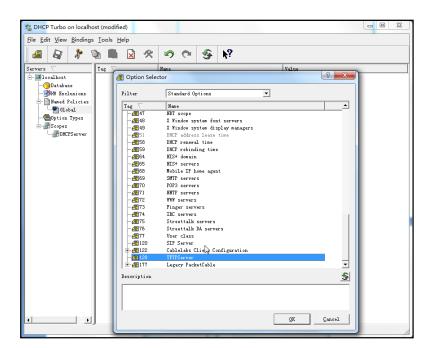
Set the custom DHCP option (custom DHCP option tag number ranges from 128 to 254) and select the option type (Yealink support the String and IP Address option type only). Click the OK button to finish setting the option properties. Click are to save the change.

BHCP Turbo on localhost (modified)
<u>Eile Edit View Bindings Tools H</u> elp
Servers V Filter Standard Options
Cocalhost
→ Database Tag ∇ Option ▲
B Named Policies
- 🖅 Type 8hit
16bit
bool bool
- #10 Introve _ suberss
213 QK Cancel
-2515 Swap servers
-Æ18 Extensions path
-20 IP forwarding -20 Non-local source routing
1 moi 1.1 m cili
Description
Specifies a device's hardware address type.

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

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vers 🗸	Tag $\nabla$	1	Nane		Value
localhost					
😕 Database 🕅 Exclusions					
🕂 🔛 Named Policies			Ň		
	4	🔊 Undo	3	Ctrl+Z	1
		🕅 <u>R</u> edo		Ctrl+Y	
- DHCPServer		,∯ Cu <u>t</u>		Ctrl+X	
				Ctrl+C	
	1	Paste		Ctrl+V	
	1	Delet		Del	
	1	Selec		Ctrl+A	-
	1	Seide		Ctrl+F	-
					-
		🛠 Prop	erties	Ctrl+P	

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

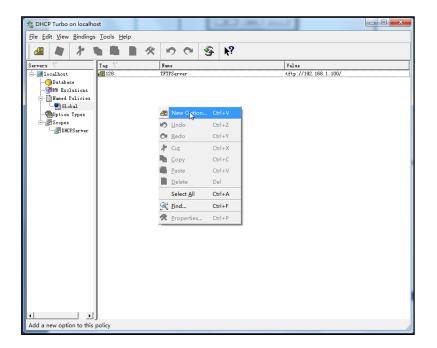


- 10. Fill the provisioning server address in the input field.
- 11. Click the OK button to finish setting a custom option.
- 12. Click 🔄 to save the change.

DHCP Turbo on localhos				- <b>-</b> X
		* • • •	₩?	
Servers	Tag T	None	Yelve	

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

1. Click Named Policies-->Global, right click and select New Option on the left of the main page.



- 2. Select the TFTP Options in the Filter field.
- 3. Scroll down and double click the MS option 66.

CHCP Turbo on localhost					
<u>File Edit View Bindings Too</u>	ols <u>H</u> elp				
4 * *		500	<b>₩</b> ?		
Servers 🗸 Tag		Name		Value	
⊡-≡localhost Æ1 ⊡Olatabase	28 🕂 Option Sele	ector		? ×	
	Filter	TFTP Options	•		
	Tag 🗸	Nane			
	-20-20-26-16	Server name MS option 67			
DHCPServer		MS option 66 Next server			
	E-1	Boot file			
	Description			5	
	The host nam	ne of a TFTP server th	e device should use dumin	g the second stage of	
			your device requires this ion -20 (as host name) to		
	1				
				<u>QK</u> <u>Cancel</u>	
	L				

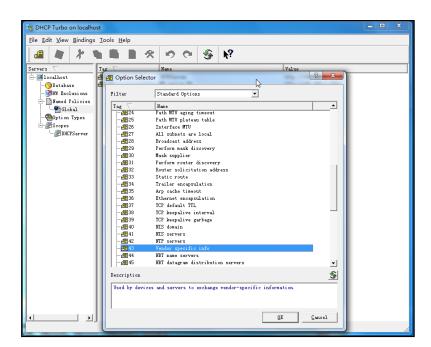
4. Fill the provisioning server address in the input field.

A DHCP Turbo on localho <u>File Edit V</u> iew <u>B</u> indings		lp			- <b>D</b> X
4 🖌 🖌	<b>h H</b>		<u>e</u> e e	<b>₩</b> ?	
Severs	<u>lat</u> ε <u>~</u> #128	MS option	PServer h 66 82. 188. 1. 100/	Puild .	Yelue tftp://192.168.1.100/
<b>▲</b> ►	J				

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

You also can add the option 44. The following figures show the detailed processes.

- Click Named Policies-->Global, right click and select New Option on the left of the main page.
- 2. Select the Standard Options in the Filter field.
- 3. Scroll down and double click the option 43.



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

DHCP Turbo on localhe           File         Edit         View         Bindings		an an Arita is			
🛛 🖉 🔭 🕈	<b>1</b>	* • •	Sin N?		
Servers	Tag 128 128 128 128	Name TFTFServer MS option 66		Value tftp://192.188.1.100/ tftp://192.188.1.100/	
L_∰DMCFServer		Image: State Stat	38. 1. 100/	×	
۲					

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

# **Customizing a Ringtone Using Cool Edit Pro**

If you have installed the Cool Edit application, double click to open it. Otherwise, you can download the installation package from the website: http://www.toggle.com/lv/group/view/kl36218/Cool\_Edit\_Pro.htm and install it.

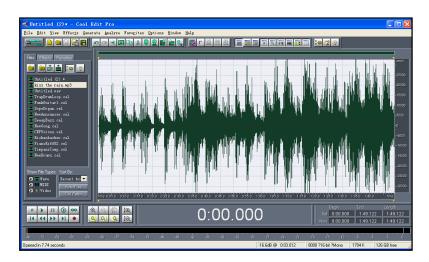
### To customize a ringtone using Coo Edit Pro:

- 1. Open the Cool Edit Pro application.
- 2. Click File to open an audio file.
- 3. Locate the ringtone file, click **Open**, the file is uploaded as follows.

A sample audio file loaded is shown as below:

🛫 kiss the rain.mp3 - Cool Edit Pro
Eile Edit Yiew Effects Generate Analyze Favoyites Options Mindow Help
Image: Second
Base         End         Construction           1         0
Opened in 7.74 seconds L: -2248 @ 0.13.680 44100 ?16.bit ?Stereo 44.92 MB 126 GB free

- 4. Select and copy the audio waveform.
- Select File->New to create a new file, set the audio format as PCMU, the channels as Mono, the sample rate as 8000 and the resolution as 16-bit.
- 6. Paste the audio waveform to the new file.



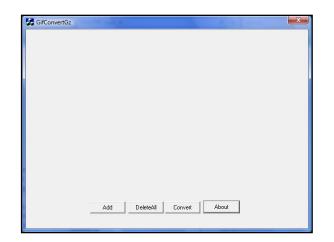
7. Select File->Save as to save the new audio file. On the Save waveform page,

select the file format as A/mu-law wave.

## Customizing a Logo File Using PictureExDemo

The original picture format must be .bmp or .gif. We recommend placing all files and the PictureExDemo application to the root directory of the PC.

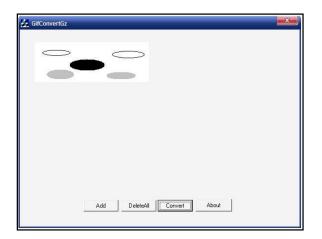
1. Double click the PictureExDemo.exe.



2. Click Add button to open a .bmp or .gif file.

You can repeat the second step to add multiple original picture files.

3. Click the **Convert** button.



Then you can find the .dob logo files in the adv directory.