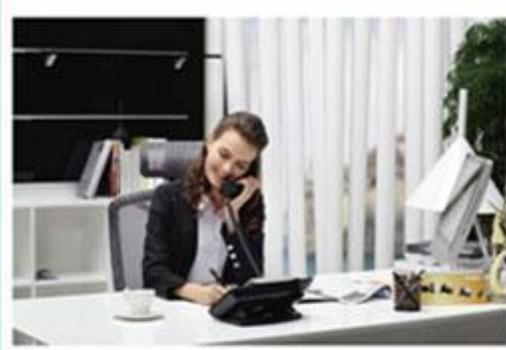


Yealink



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

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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?ProductsCatelD=1248&cateid=1248&BaseInfoCatelD=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.

Yealink Terminal Solution -----

Microsoft Skype for Business/ Lync

SIP-T48G

SIP-T46G

SIP-T42G

SIP-T41P

SIP-T40P

IP Phones for Skype for Business®

T4 Series of Ultra-elegant IP Phones		SIP - T48G	SIP - T46G	SIP - T42G	SIP - T41P	SIP - T40P
Feature	Model					
LCD		7" 800x480-pixel touch screen	4.3" 480x272-pixel color display	2.7" 192x64-pixel graphic display	2.7" 192x64-pixel graphic display	2.5" 132x64-pixels graphic LCD

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.

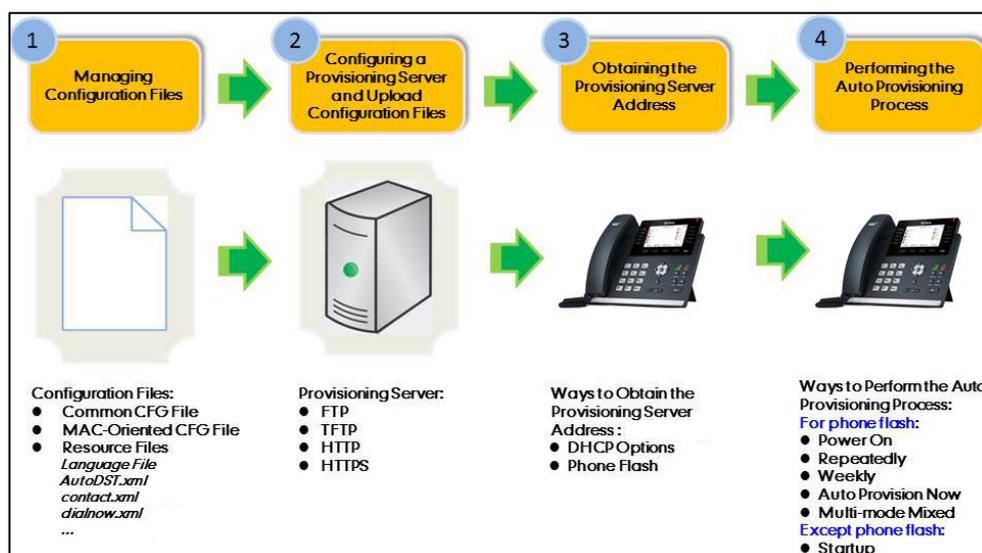
The following figure shows how the IP phone interoperates with the provisioning server:



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.

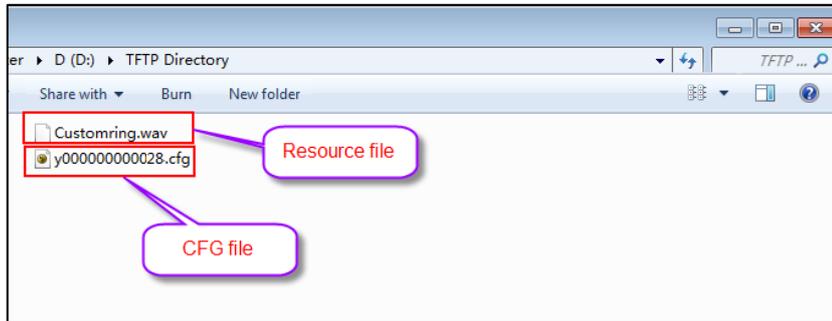
Add/Edit the desired configuration parameters in the CFG file (e.g., y000000000028.cfg) you want the IP phone to download. For more information on how to manage configuration files, refer to [Managing Configuration Files](#) on page 11.

```

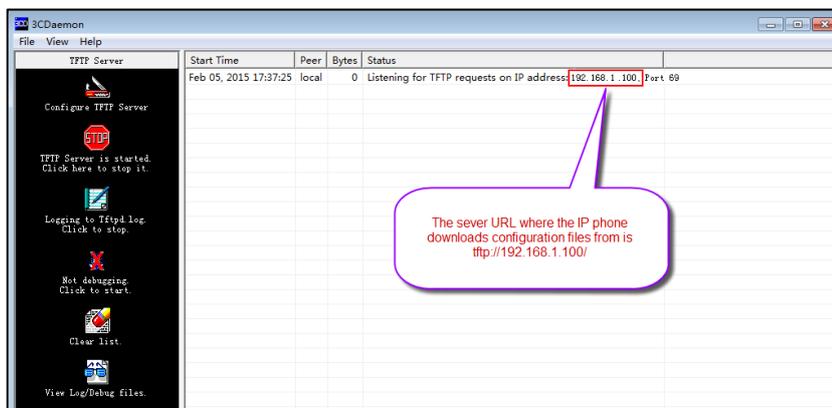
0 10 20 30 40 50 60
1 #!version:1.0.0.1
2 ringtone.url = tftp://192.168.1.100/Customring.wav
    
```

2. Configure the TFTP server.

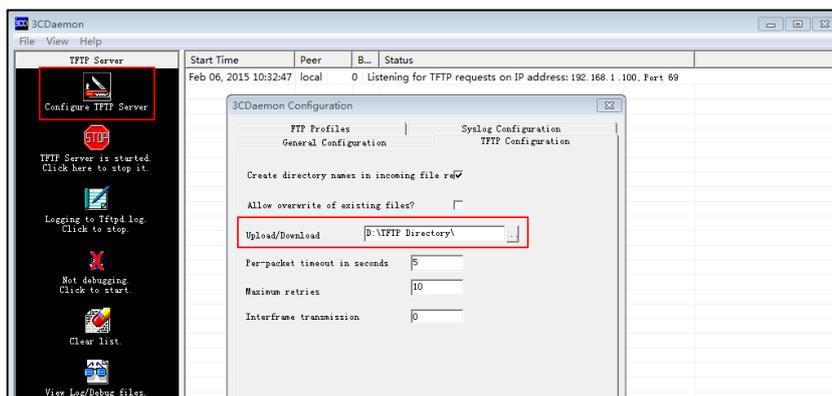
- 1) Place configuration files to TFTP root directory (e.g., D:\TFTP Directory).



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

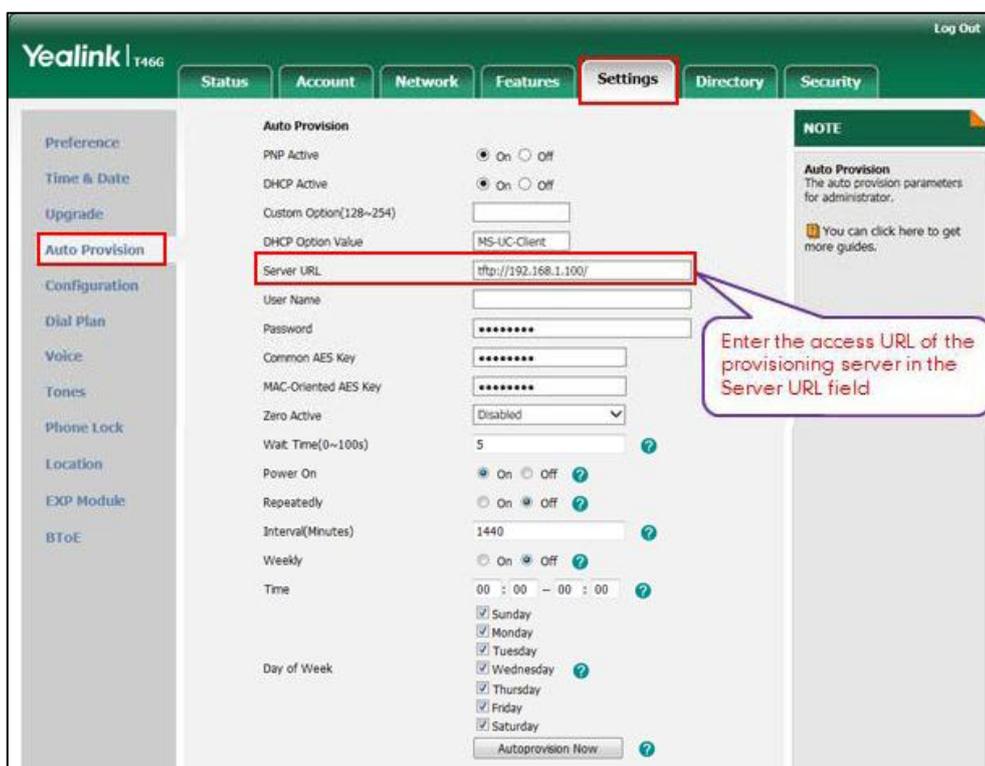


- 3) Select **Configure TFTP Server**. Click the **...** button to locate the TFTP root directory from your local system.



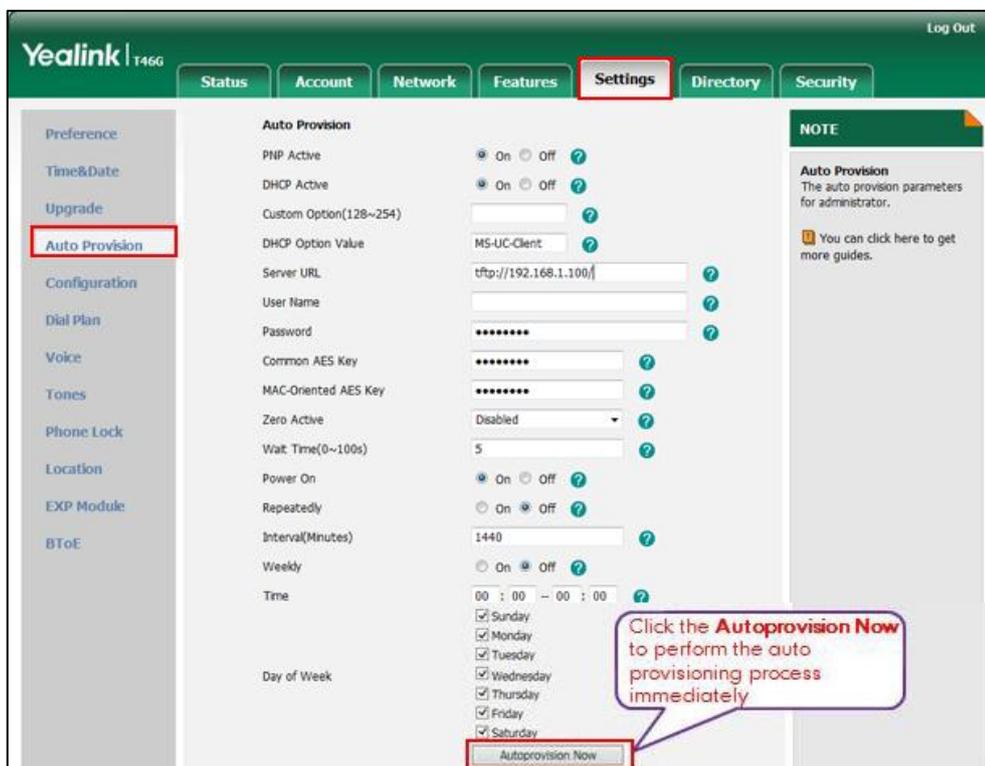
For more information on how to configure a provisioning server, refer to [Configuring a Provisioning Server](#) on page 17.

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



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.



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 "y0000000000XX.cfg" as the file name, where "XX" equals to the first two digits of the hardware version of the IP phone model.

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

Phone Model	Common CFG File
SIP-T48G	y000000000035.cfg
SIP-T46G	y000000000028.cfg
SIP-T42G	y000000000029.cfg
SIP-T41P	y000000000036.cfg
SIP-T40P	y000000000054.cfg

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##

#####
##                               Hostname                               ##
#####
network.dhcp_host_name =

#####
##                               PPPoE(Except T41P/T42G Models)          ##
#####
network.pppoe.user =
network.pppoe.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 =

##It configures the transmission mode and speed of the Internet (WAN) port.
##0-Auto Negotiate
##1-Full Duplex 10Mbps
##2-Full Duplex 100Mbps
##3-Half Duplex 10Mbps
##4-Half Duplex 100Mbps
##5-Full Duplex 100Mbps (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:

```
#!/version:1.0.0.1
#####
##                               Audio Codec                               ##
#####
account.1.codec.1.enable =
account.1.codec.1.payload_type =
account.1.codec.1.priority =
account.1.codec.1.rtpmap =

#####
##                               Advanced                               ##
#####
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:

1. 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.

- Copy configuration parameters from the template configuration files and set the valid values for them.

```

UltraEdit - [F:\Desktop\y000000000028]
1  #!version:1.0.0.1
2  features.temode = 1
3  sfb.search_delay_time = 9
4  features.location_info_indicator.enable = 0
5  call_waiting.enable = 1
6  call_waiting.tone = 0
7  sfb.phone_lock.enable = 1
8  sip.btoe.enable = 1
9  sip.btoe.as_audio_dev.enable = 1
    
```

- 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 ~ 9, A ~ Z, a ~ z and the following special characters are also supported: # \$ % * + , - . : = ? @ [] ^ _ { } ~. 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:

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

Template 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.

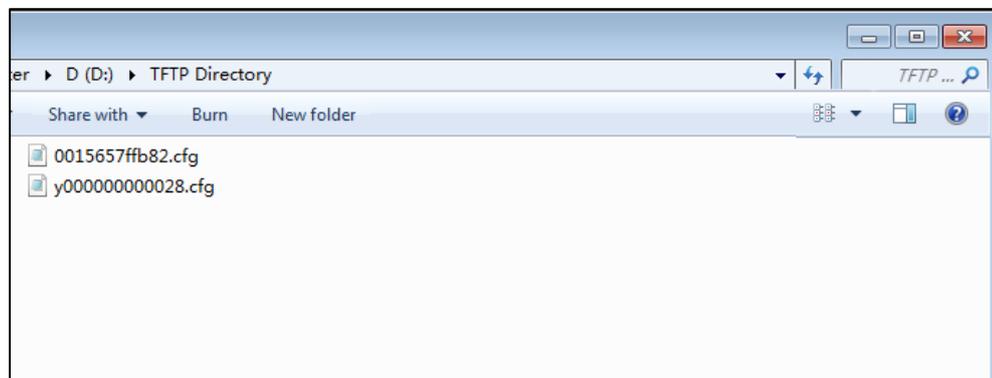
We recommend that you use 3CDaemon or TFTP32 as a TFTP server. 3CDaemon and TFTP32 are free applications for Windows. You can download 3CDaemon online: <http://www.oldversion.com/3Com-Daemon.html> and TFTP32 online: <http://tftpd32.jounin.net/>.

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

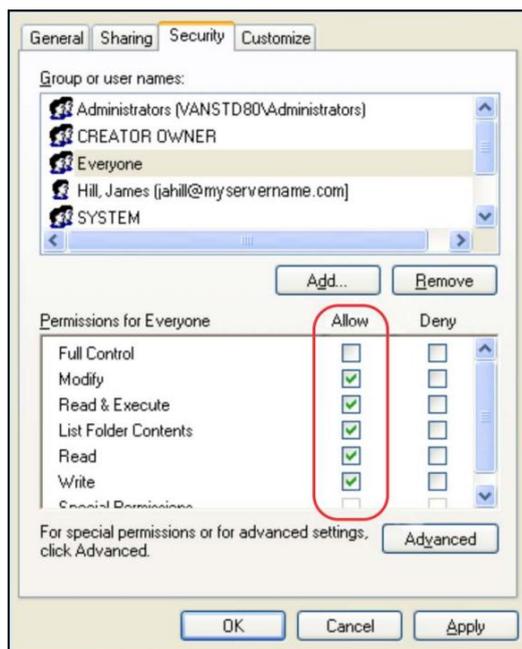
To prepare a root directory:

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



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.

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

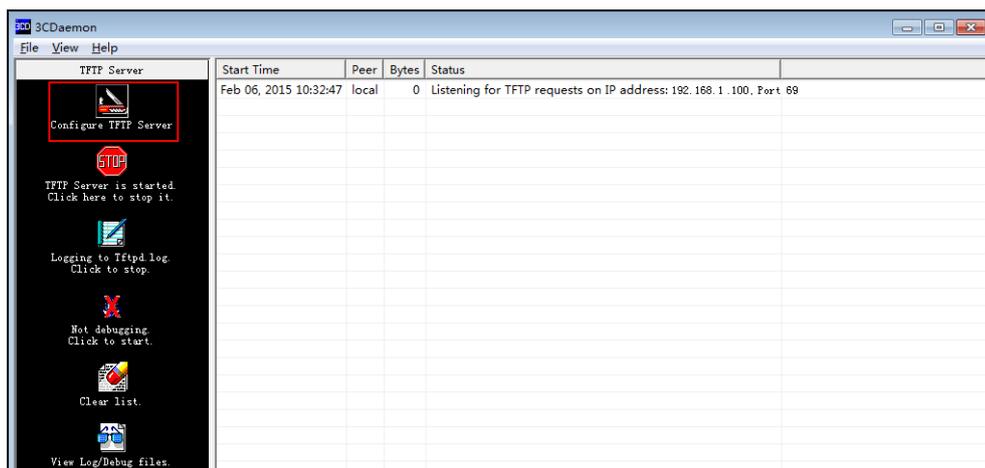


Configuring a TFTP Server

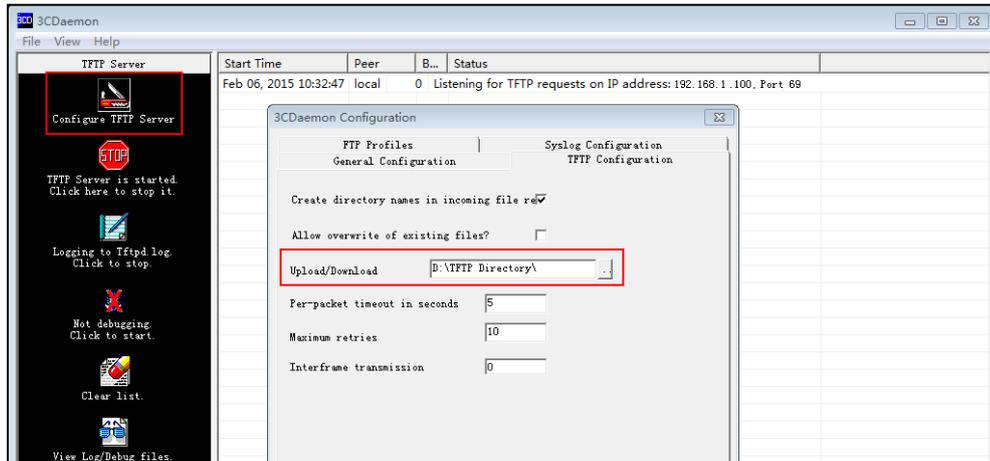
If you have a 3CDaemon application installed on your local system, use it directly. Otherwise, download and install it.

To configure a TFTP server:

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



2. Select **Configure TFTP Server**. Click the  button to locate the TFTP root directory from your local system:



3. 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 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.

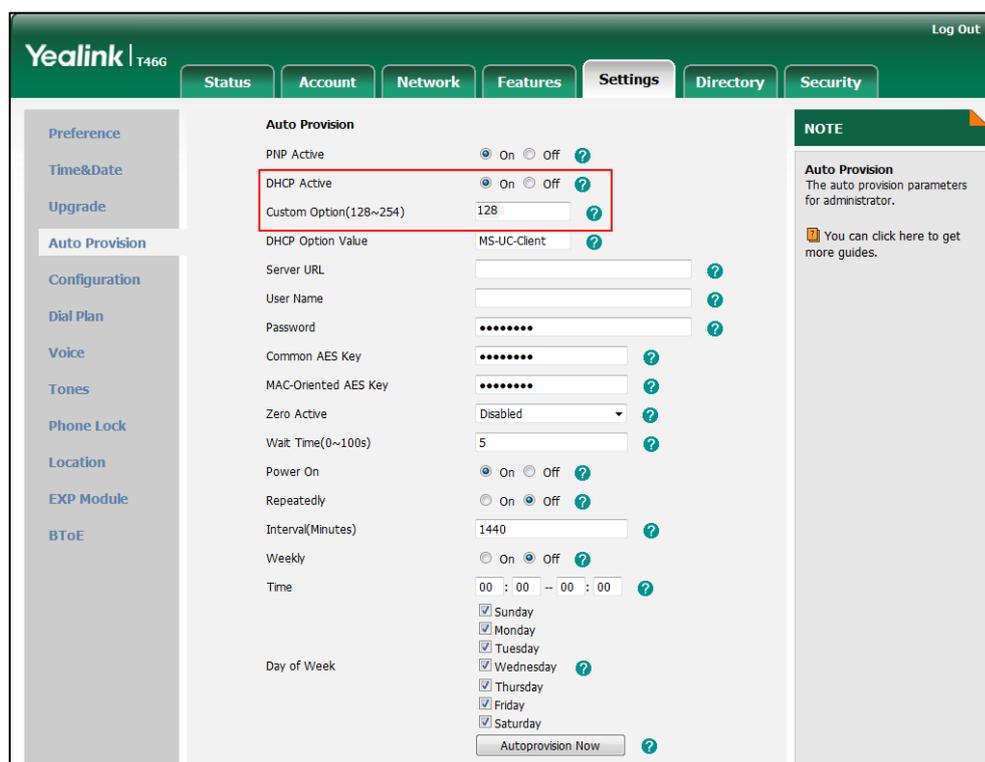
You can configure the phone to obtain the provisioning server address via a custom DHCP option. To obtain the provisioning server address via a custom DHCP option, make sure the DHCP option is properly configured on the phone. The custom DHCP option must be in accordance with the one defined in the DHCP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

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



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

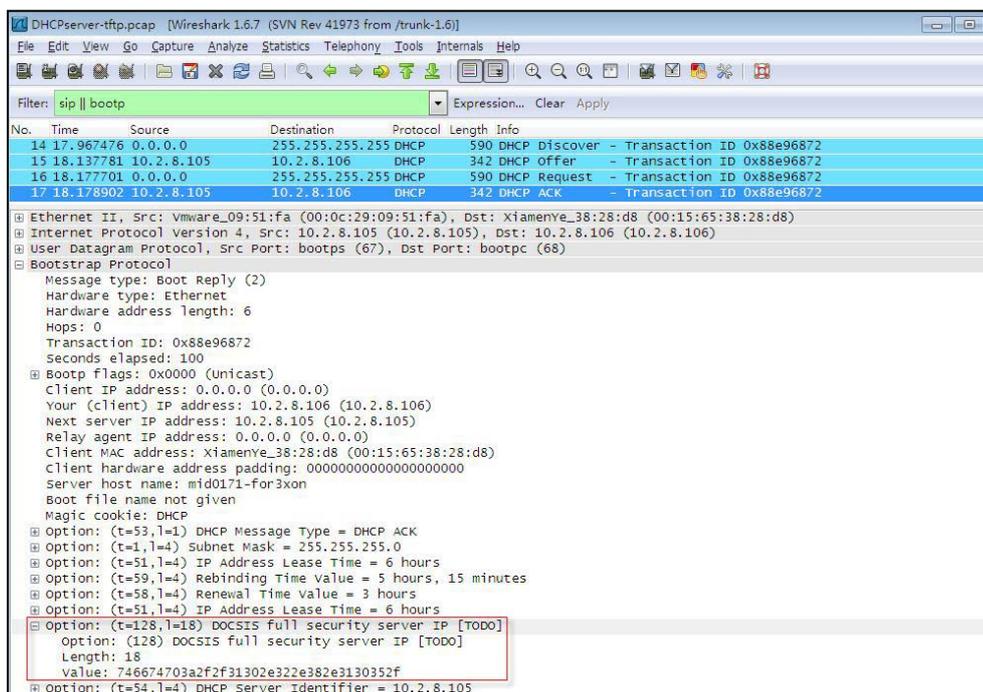
During startup, the phone will broadcast DHCP request with DHCP options for obtaining the provisioning server address. The provisioning server address will be found in the received DHCP response message.

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:



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/`.

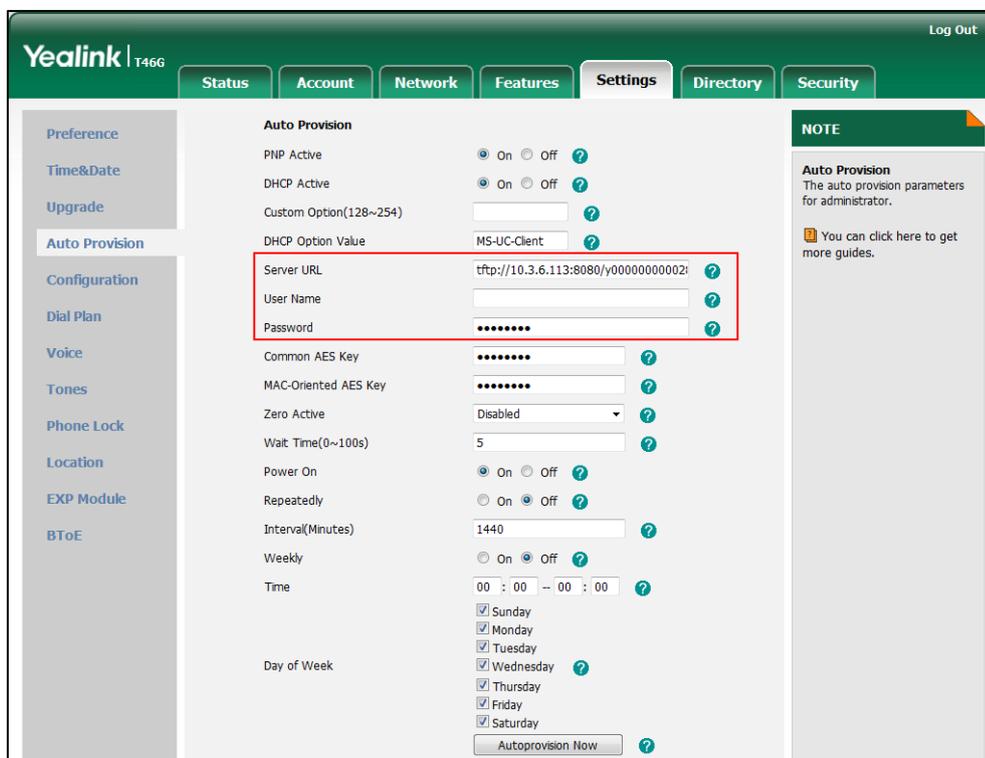
Phone Flash

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).



- 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.

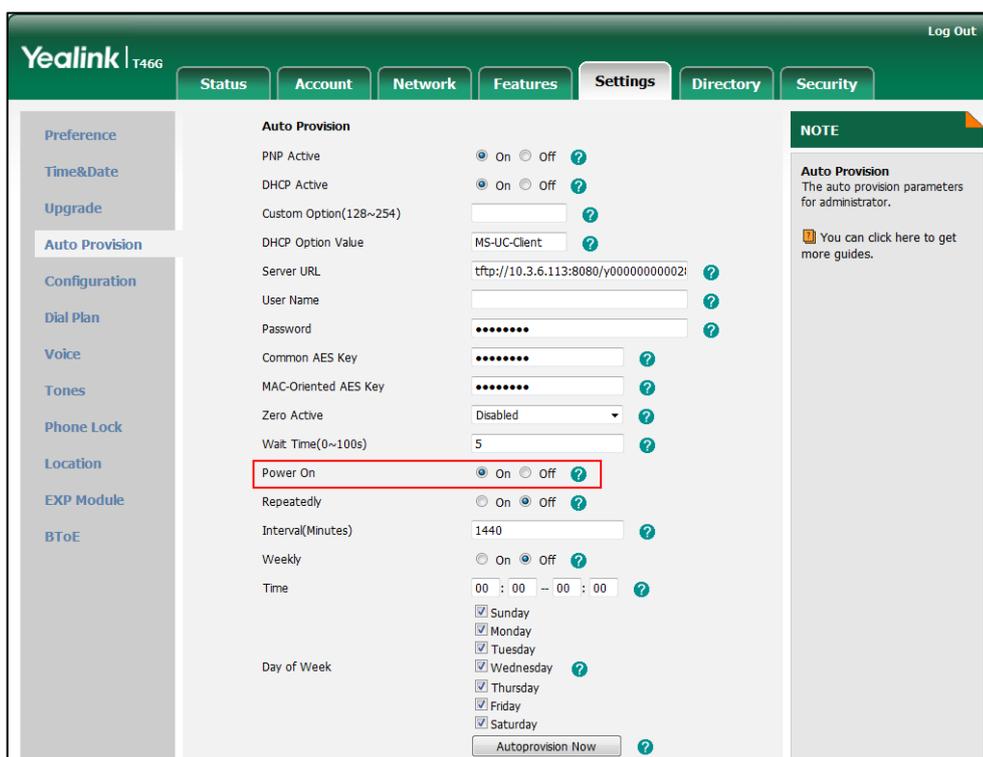
Power On

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**.

2. Mark the **On** radio box in the **Power On** field.



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.

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

The screenshot shows the Yealink T466 web interface with the 'Settings' tab selected. The 'Auto Provision' section is active, and the 'Interval(Minutes)' field is highlighted with a red box, showing a value of 1440. The 'Repeatedly' radio button is selected. The 'Weekly' section is also visible, with the 'Time' field set to 00:00 - 00:00 and the 'Day of Week' section checked for Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, and Saturday. A 'NOTE' box on the right side of the page states: 'Auto Provision The auto provision parameters for administrator. You can click here to get more guides.'

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

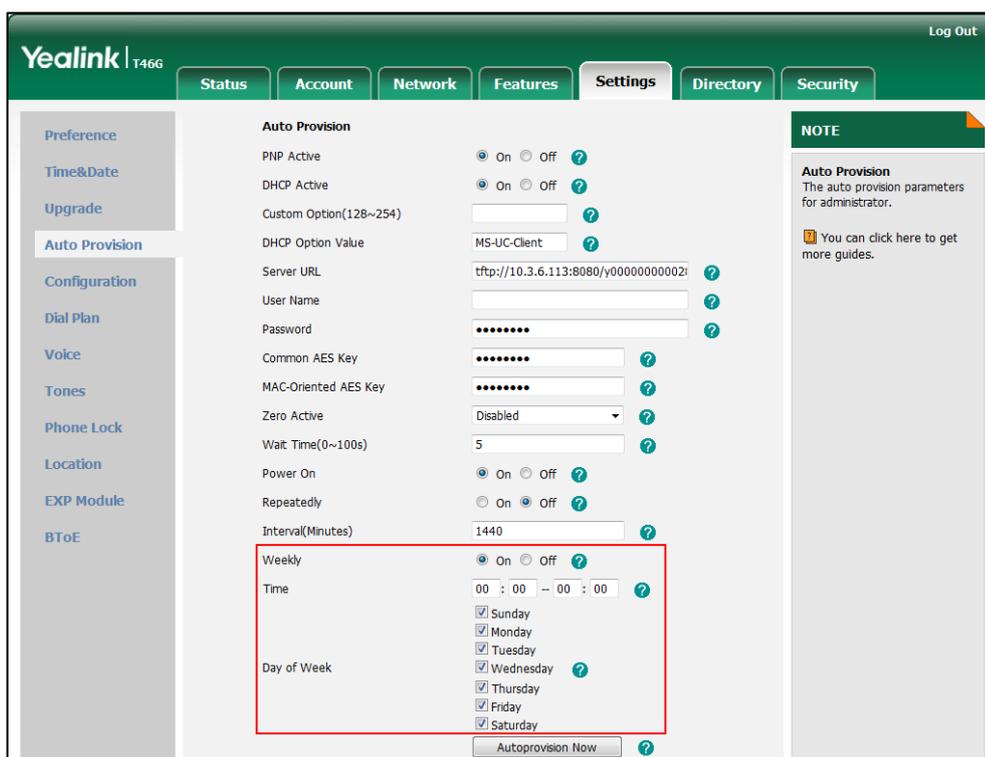
Weekly

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.



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

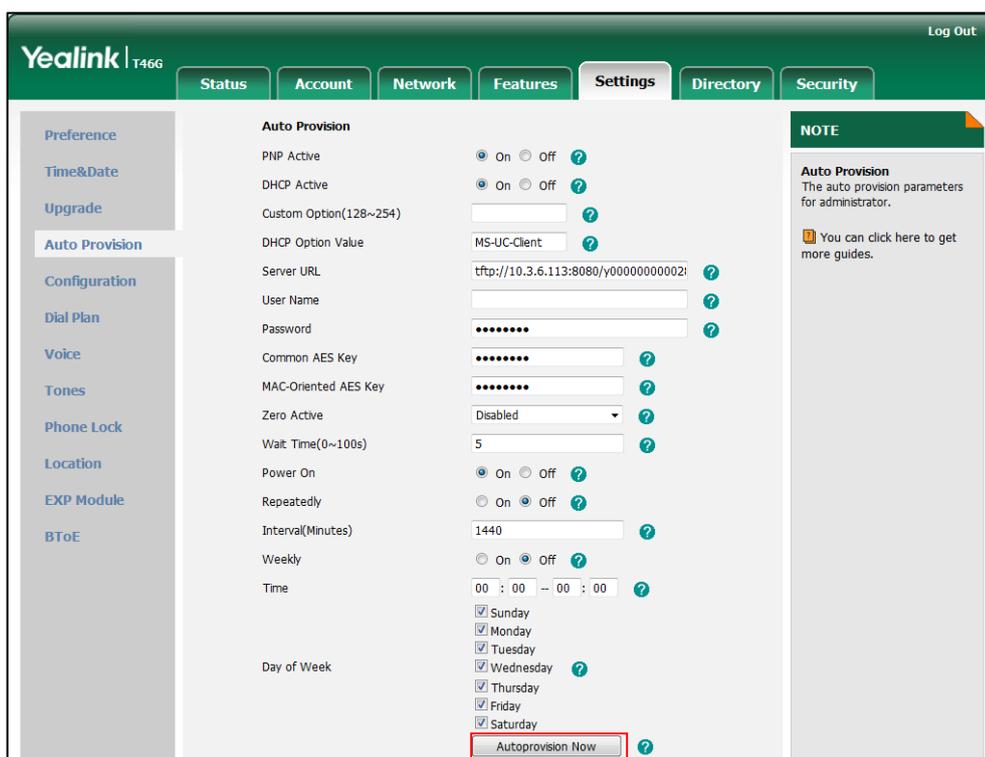
Auto Provision Now

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**.

- 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 [Yealink_Microsoft_Skype_for_Business_Edition_IP_Phones_Description_of_Configuration_Parameters_in_CFG_Files](#).

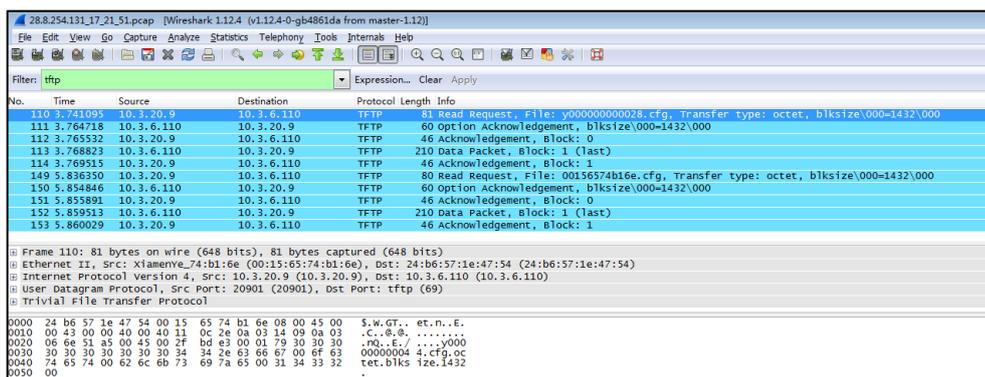
If configuration files have been AES encrypted, the IP phone will use the Common AES key to decrypt the Common CFG file and the MAC-Oriented AES key to decrypt the <MAC>.cfg file after downloading the configuration files. For more information on how the IP phone decrypts configuration files, refer to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

Verifying Configurations

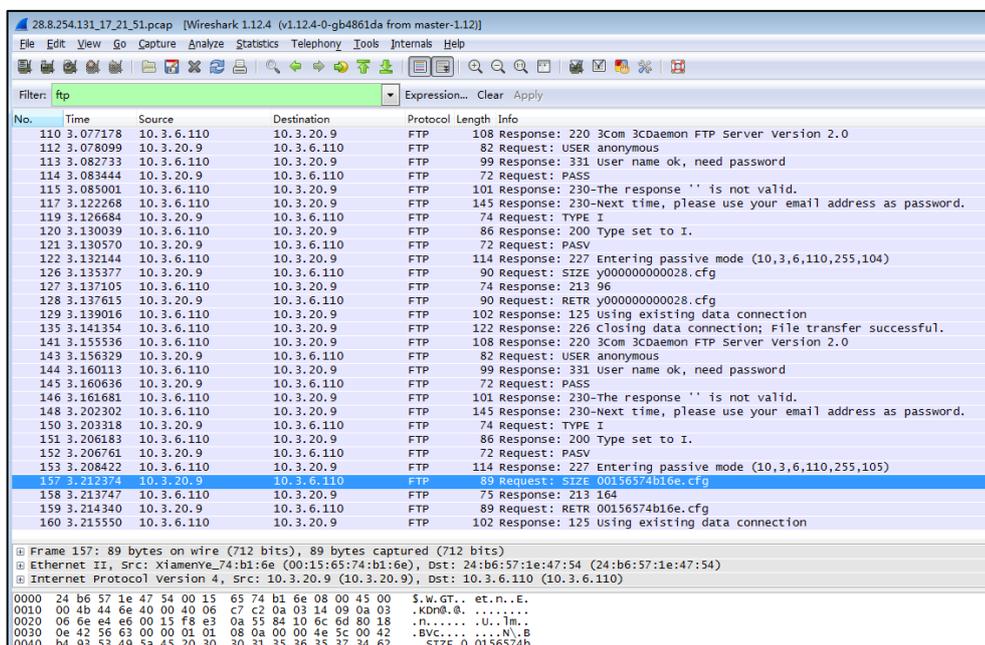
After auto provisioning, you can then verify the update via phone user interface or web user interface of the phone. For more information, refer to [Yealink phone-specific user guide](#).

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

Example 1: Yealink SIP-T46G IP phone downloads configuration files from the TFTP server.



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



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

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	10.3.20.9	10.3.6.110	HTTP	232	HTTP/1.1 302 Found
2	0.007935	10.3.6.110	10.3.20.9	HTTP	542	GET /servlet?p=settings-config&q=load HTTP/1.1
38	0.068955	10.3.20.9	10.3.6.110	HTTP	125	HTTP/1.1 200 OK
41	2.576460	10.3.6.110	10.3.20.9	HTTP	515	GET /servlet?p=settings-autop&q=load HTTP/1.1
77	2.643550	10.3.20.9	10.3.6.110	HTTP	982	HTTP/1.1 200 OK
87	10.797870	10.3.6.110	10.3.20.9	HTTP	86	POST /servlet?p=settings-autop&q=write&now=false HTTP/1.1 (application/x-www-form-urlencoded)
89	10.959182	10.3.20.9	10.3.6.110	HTTP	231	HTTP/1.1 302 Found
90	11.030754	10.3.6.110	10.3.20.9	HTTP	540	GET /servlet?p=settings-autop&q=load HTTP/1.1
126	11.098802	10.3.20.9	10.3.6.110	HTTP	991	HTTP/1.1 200 OK
134	13.523038	10.3.6.110	10.3.20.9	HTTP	84	POST /servlet?p=settings-autop&q=write&now=true HTTP/1.1 (application/x-www-form-urlencoded)
161	13.727710	10.3.20.9	10.3.6.110	HTTP	206	HTTP/1.1 200 OK
166	13.755655	10.3.20.9	10.3.6.110	HTTP	218	GET /y000000000028.cfg HTTP/1.1
169	13.796582	10.3.6.110	10.3.20.9	HTTP	205	HTTP/1.1 200 OK (application/octet-stream)
178	13.809749	10.3.20.9	10.3.6.110	HTTP	208	GET /ime.txt HTTP/1.1
185	13.836439	10.3.6.110	10.3.20.9	HTTP	1032	HTTP/1.1 200 OK (text/plain)
194	13.846276	10.3.20.9	10.3.6.110	HTTP	216	GET /Russian_ime.txt HTTP/1.1
201	13.883670	10.3.6.110	10.3.20.9	HTTP	1272	HTTP/1.1 200 OK (text/plain)
210	13.894060	10.3.20.9	10.3.6.110	HTTP	223	GET /00156574b1ee-local.cfg HTTP/1.1
219	13.898442	10.3.6.110	10.3.20.9	HTTP	66	HTTP/1.1 404 Not Found (text/html)
224	18.779475	10.3.6.110	10.3.20.9	HTTP	493	GET /servlet?p=settings-autop&q=result&random=0.04913059249520302 HTTP/1.1
228	18.988420	10.3.20.9	10.3.6.110	HTTP	59	HTTP/1.1 200 OK [Malformed Packet]
231	19.996891	10.3.6.110	10.3.20.9	HTTP	524	GET /servlet?p=settings-autop&q=load HTTP/1.1
267	20.063444	10.3.20.9	10.3.6.110	HTTP	991	HTTP/1.1 200 OK
270	23.138206	10.3.6.110	10.3.20.9	HTTP	516	GET /servlet?p=settings-upgrade&q=load HTTP/1.1
300	23.195348	10.3.20.9	10.3.6.110	HTTP	853	HTTP/1.1 200 OK
302	23.278964	10.3.6.110	10.3.20.9	HTTP	522	GET /servlet?p=common-page&q=iframe-upload HTTP/1.1
305	23.298530	10.3.20.9	10.3.6.110	HTTP	1490	HTTP/1.1 200 OK
308	24.965106	10.3.6.110	10.3.20.9	HTTP	517	GET /servlet?p=settings-config&q=load HTTP/1.1
343	25.023340	10.3.20.9	10.3.6.110	HTTP	125	HTTP/1.1 200 OK
346	26.271142	10.3.6.110	10.3.20.9	HTTP	644	POST /servlet?p=settings-config&q=stopcapture 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.

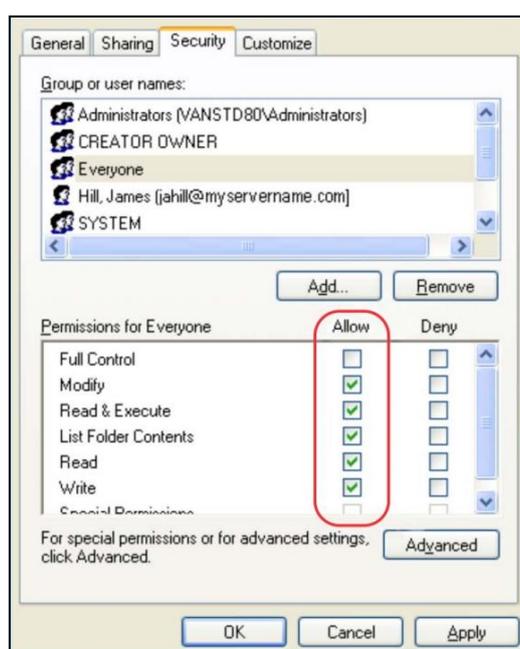
Preparing a Root Directory

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:

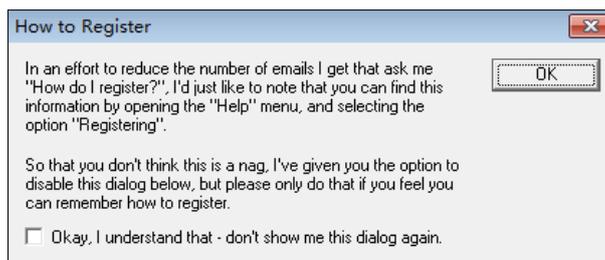


Configuring an FTP Server

To configure a wftpd server:

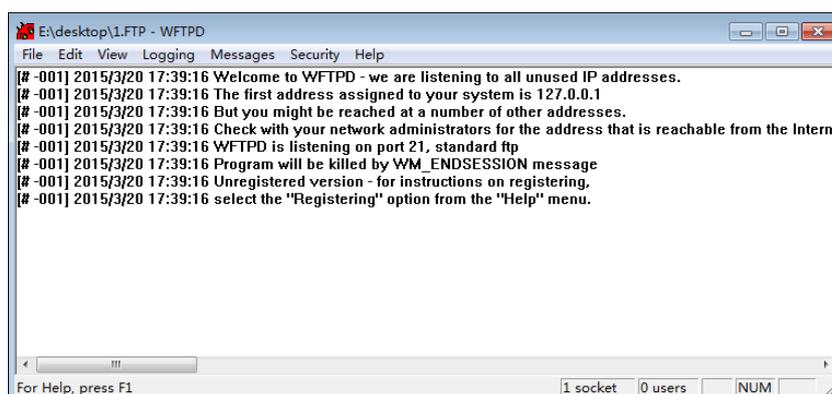
1. Download the compressed file of the wftpd application to your local directory and extract it.
2. Double click the WFTPD.EXE.

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

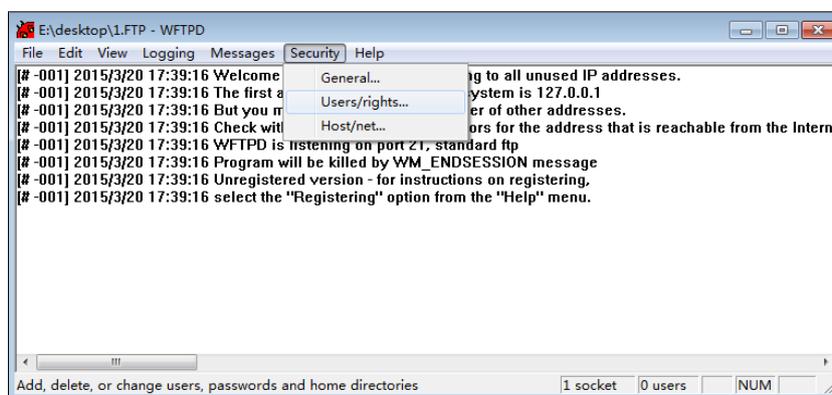


3. Check the check box and click **OK** in the pop-up dialogue box.

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



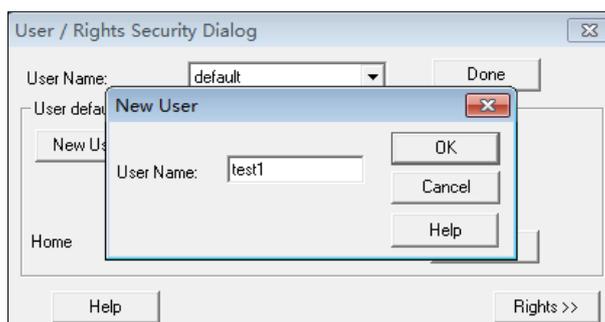
4. Click **Security->Users/rights**.



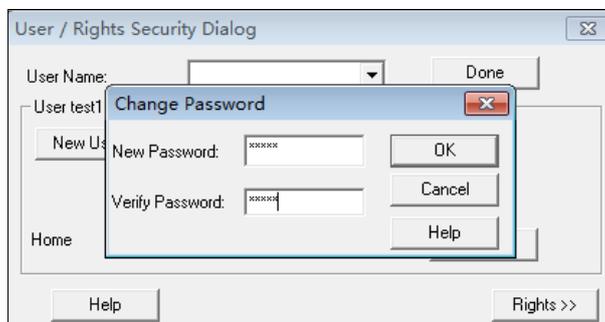
5. Click **New User**.



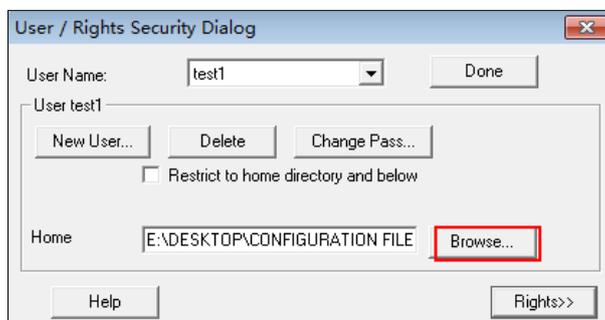
6. Enter a user name (e.g., test1) in the **User Name** field and then click **OK**.



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**.

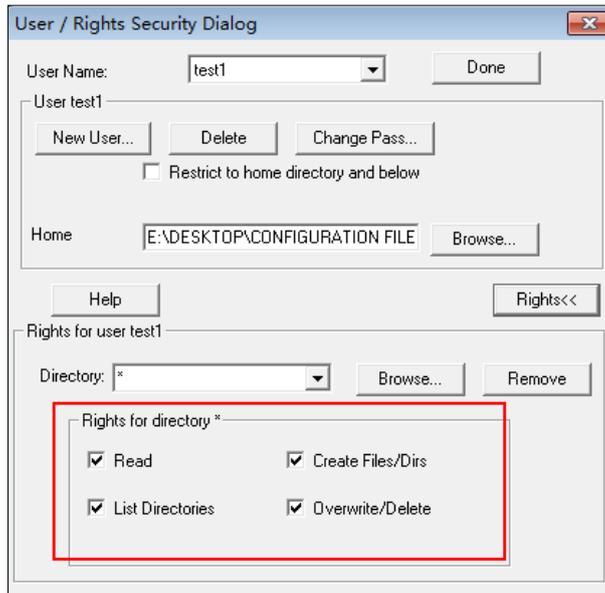


8. Click **Browse** to locate the FTP root directory from your local system.



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

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>.

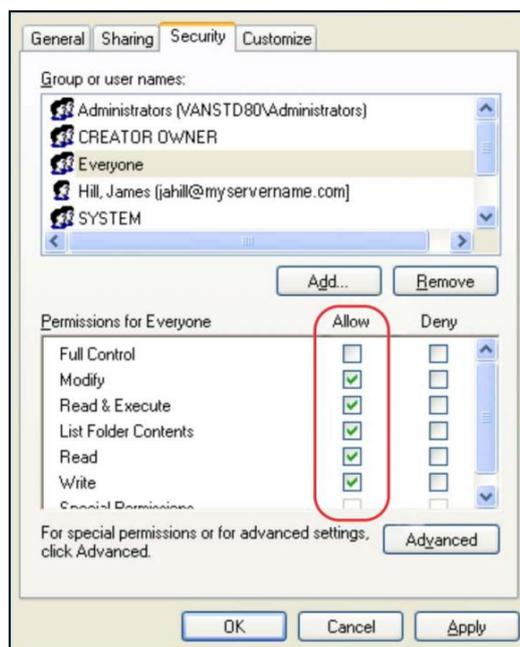
Preparing a Root Directory

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.

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



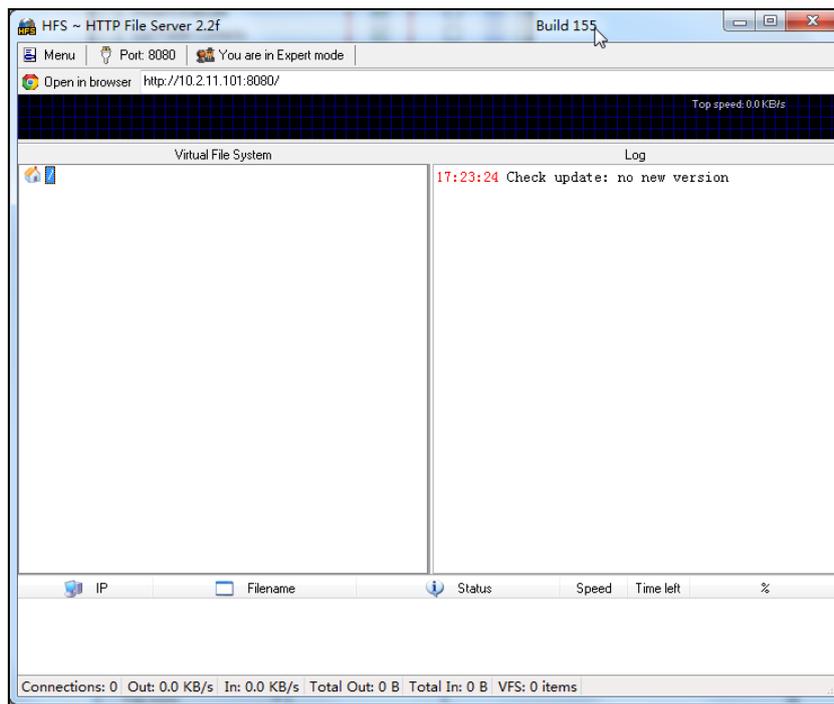
Configuring an HTTP Server

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

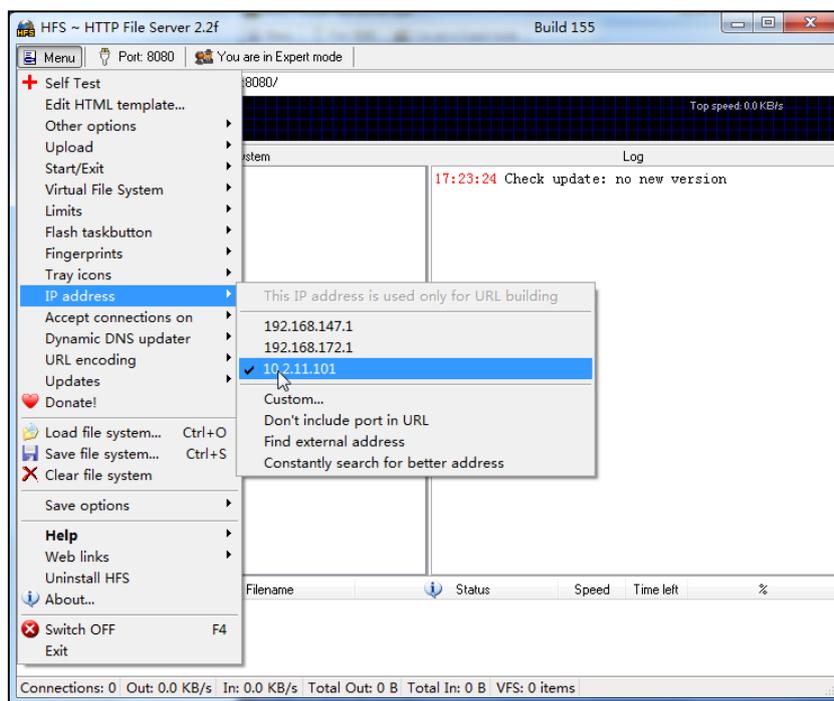
To configure an HTTP server:

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

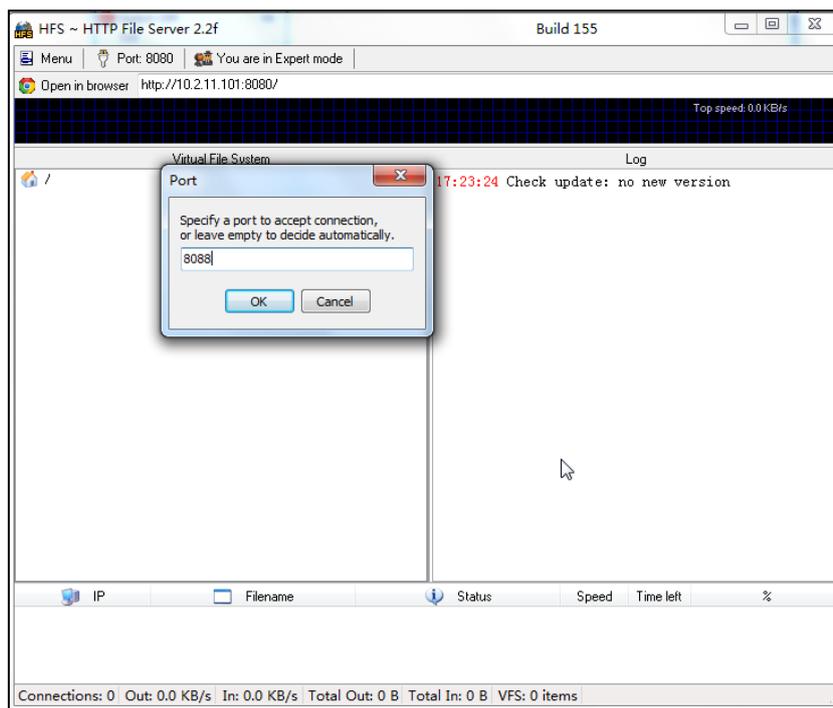
The main configuration page is shown as below:



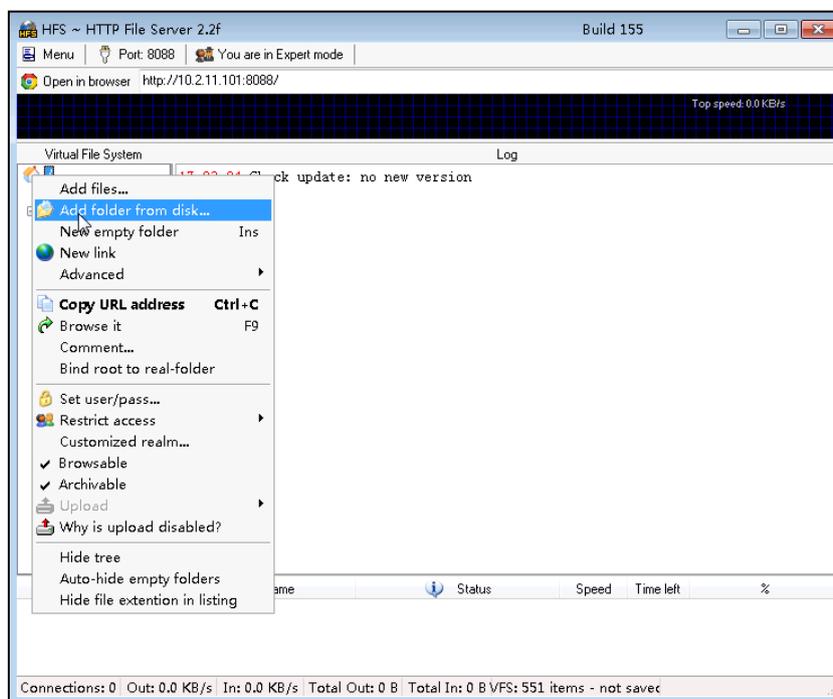
2. Click **Menu** in the main page and select the IP address of the PC from **IP address**.



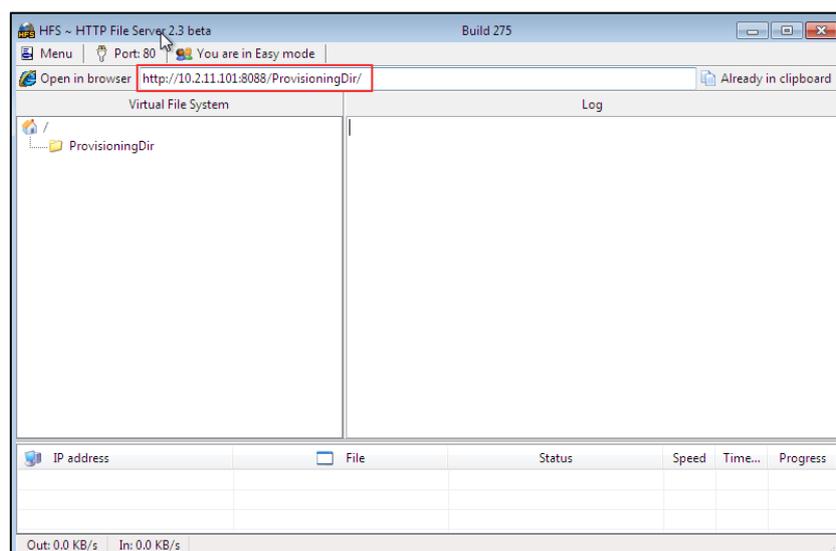
The default HTTP port is 8080. You can also reset the HTTP port (make sure there is no port conflict).



3. Right click the  icon on the left of the main page, select **Add folder from disk** to add the HTTP Server root directory.



4. Locate the root directory from your local system.



5. 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.

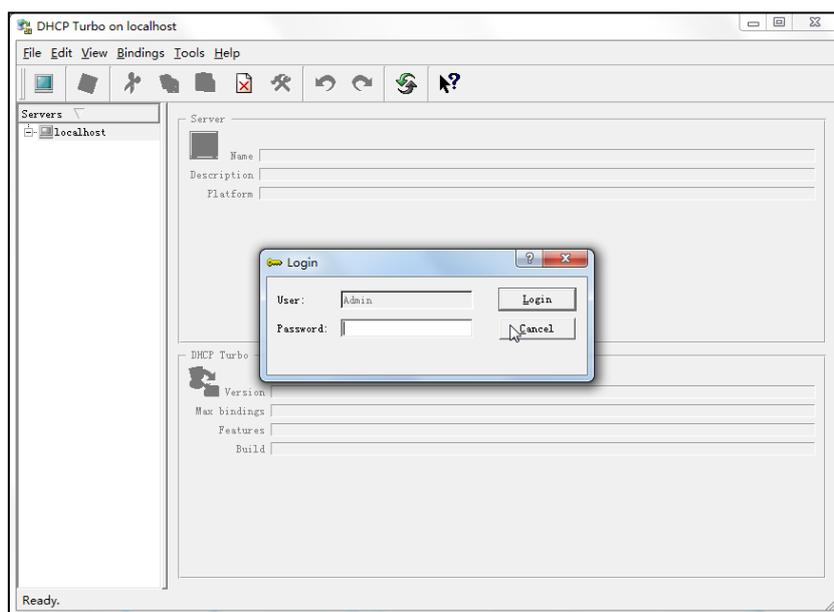
Before configuring the DHCP Turbo, make sure:

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

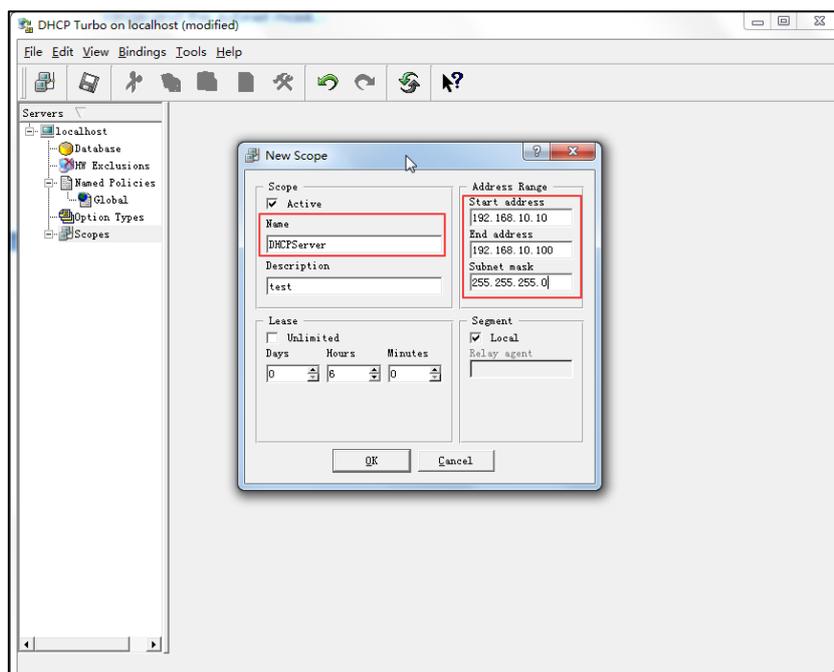
To configure the DHCP Turbo:

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

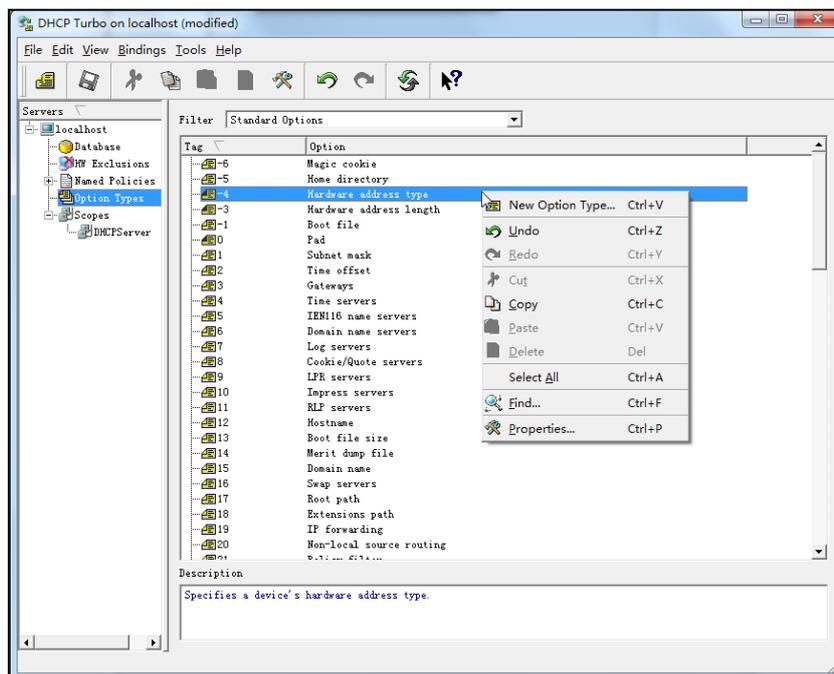
- Click the **Login** button (the login password is blank) to log in.



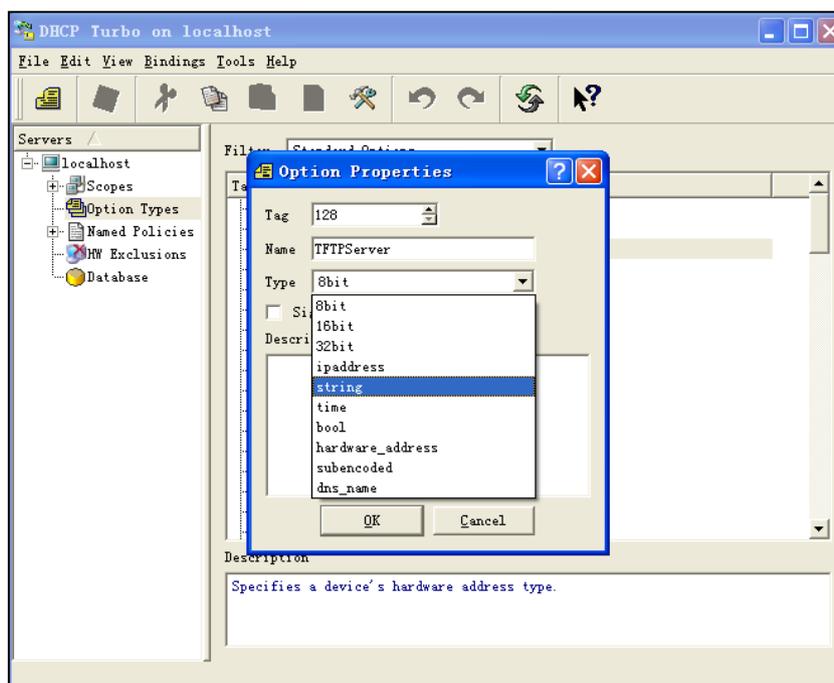
- Right click **Scopes** and select **New Scope**.
- Configure the DHCP server name, the DHCP IP range and the subnet mask.
- Click **OK** to accept the change.



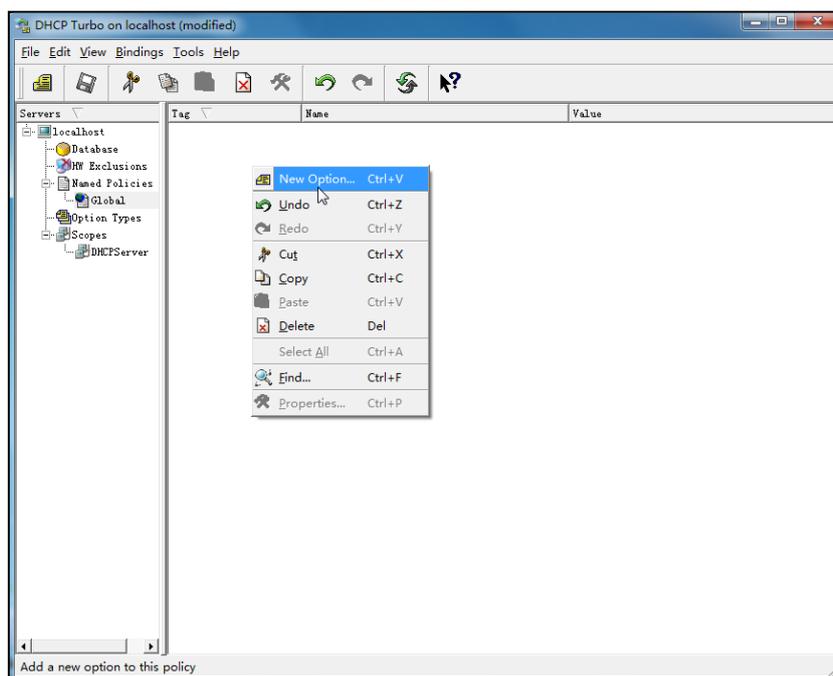
- You can add a custom option via DHCP Turbo. Select **Option Types**, right click one of the options on the right of the main page, and then select **New Option Type**.



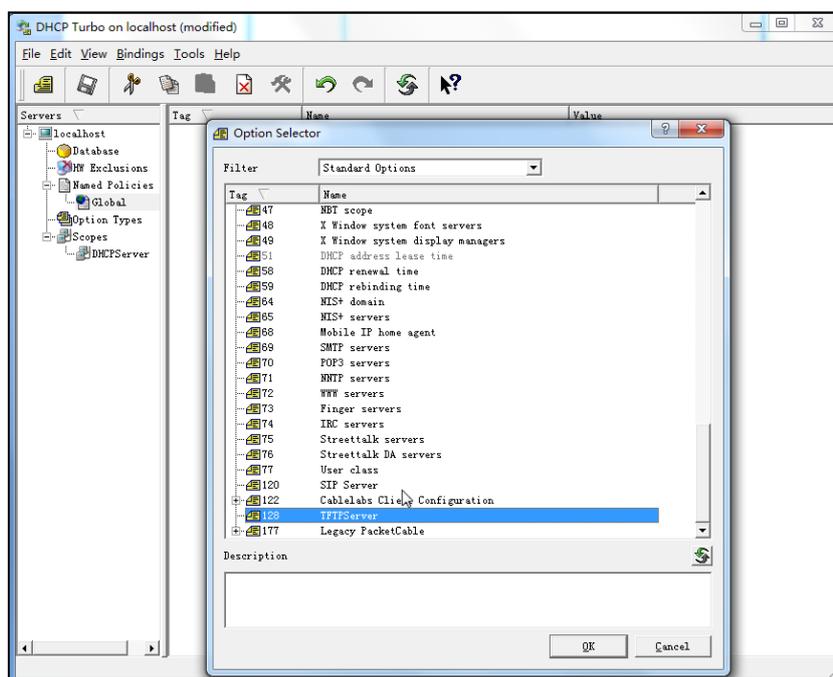
- Set the custom DHCP option (custom DHCP option tag number ranges from 128 to 254) and select the option type (Yealink supports **String** and **IP Address** option types only). Click the **OK** button to finish setting the option properties. Click  to save the change.



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

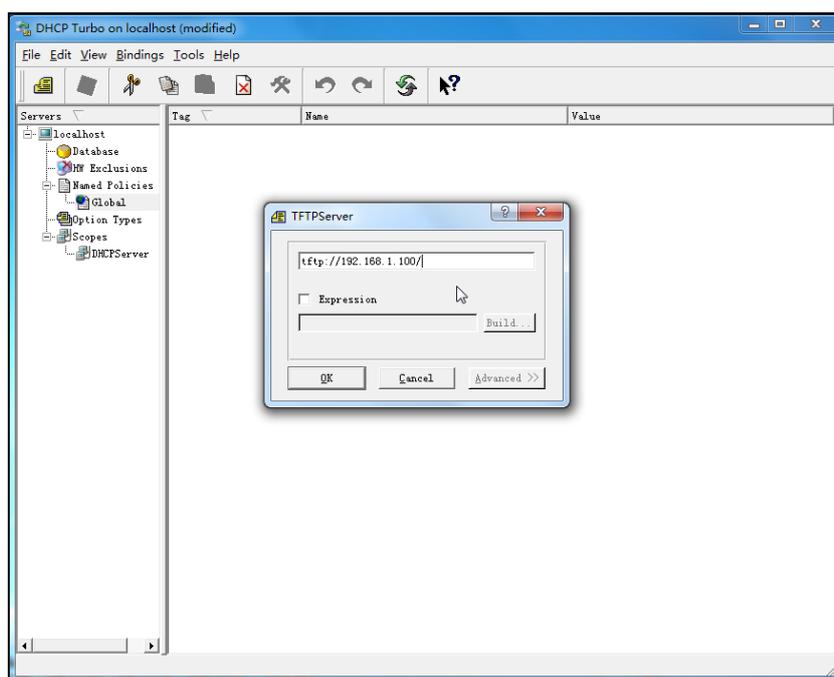


- Scroll down and double click the custom option 128.



- Fill the provisioning server address in the input field.

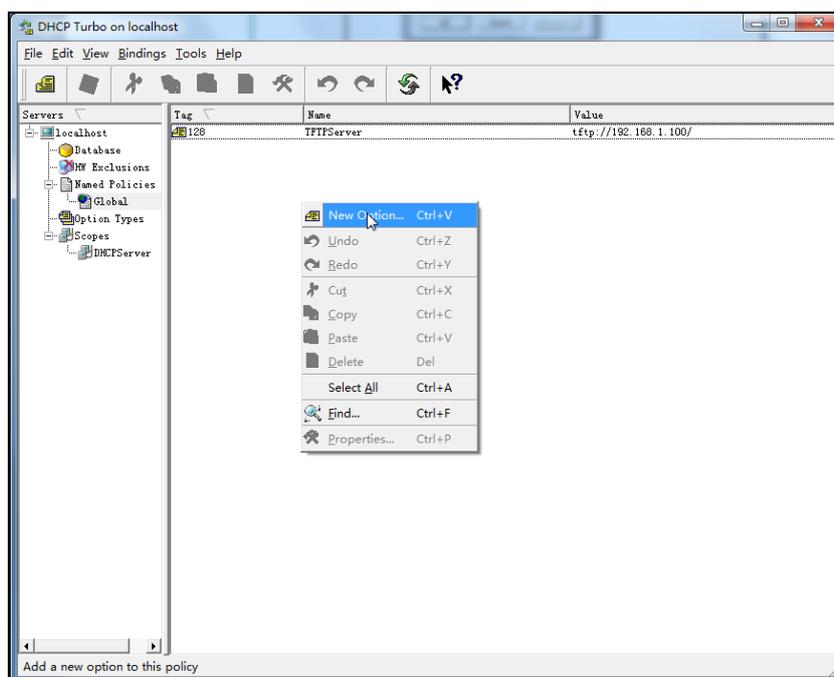
- Click the **OK** button to finish setting a custom option.



- Click  to save the change.

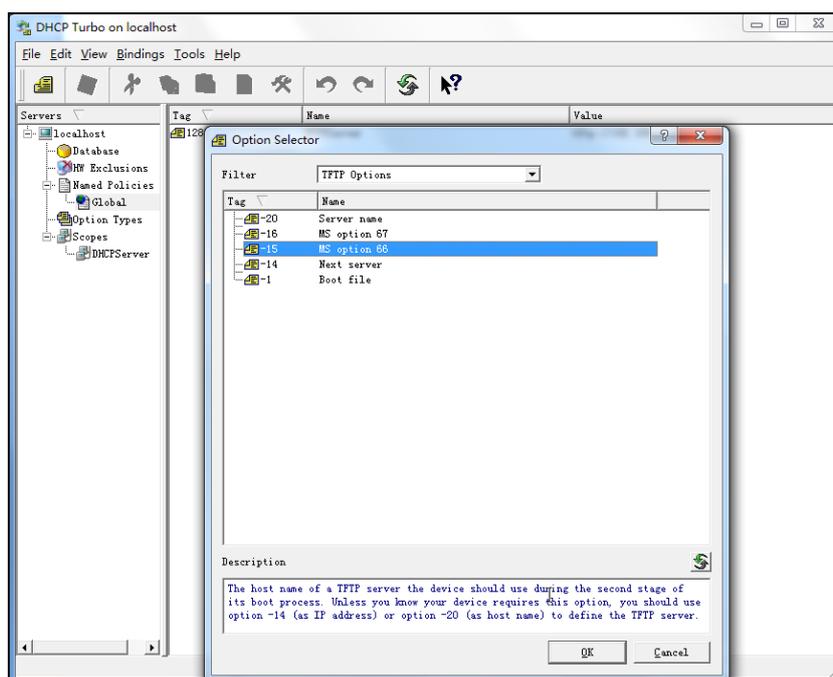
You can add the option 66 via DHCP Turbo. The following shows the detailed processes.

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

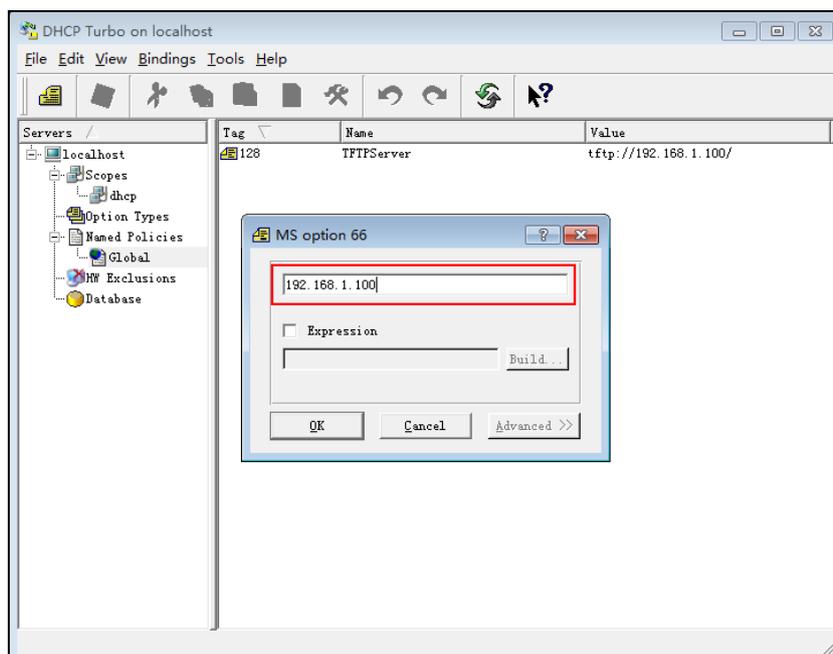


- Select **TFTP Options** from the pull-down list of **Filter**.

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



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

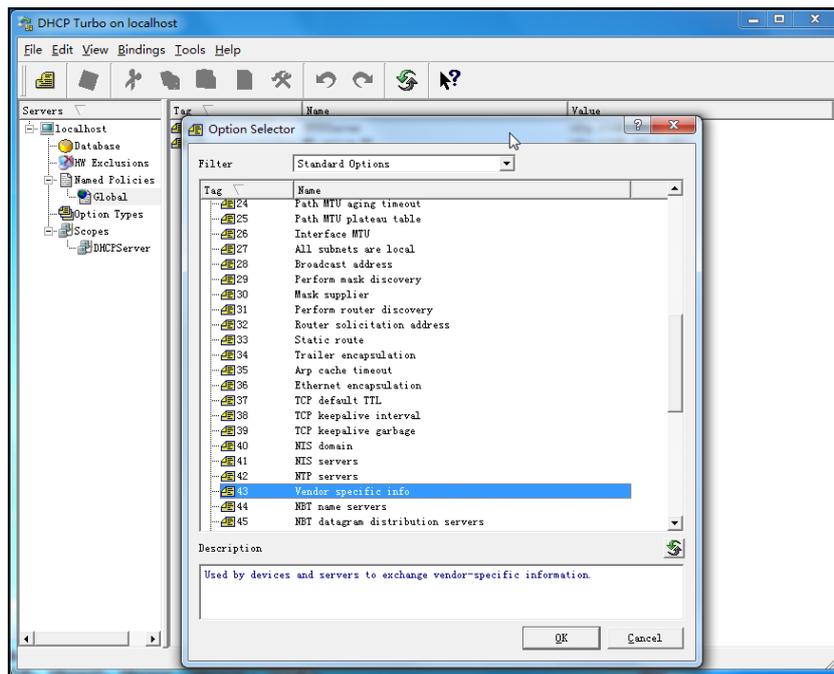


5. Click the **OK** button to finish setting a custom option.
6. Click  to save the change.

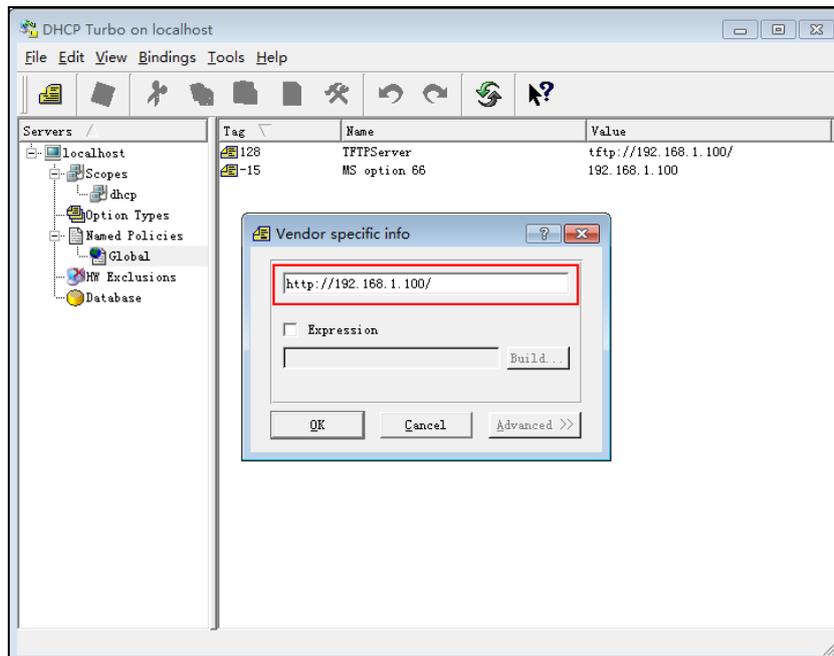
You can also add the option 43. The following shows the detailed processes.

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**.



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



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

Customer Feedback

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