Yealink

Yealink SIP-T2 Series/T19(P) E2/T4 Series IP Phones XML Browser Developer's Guide

Version 80.80

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About This Guide

XML browser simply means that the SIP phones' LCD screen display can be managed by external applications.

This guide shows you how to use XML API to control the LCD screen display of Yealink IP phones as well as its configuration. The XML API is intended to provide you with flexibility in developing applications on the phones while tightly integrating into the phone's telephony capabilities and functions.

This guide applies to SIP-T48G, SIP-T46G, SIP-T42G, SIP-T41P, SIP-T40P, SIP-T29G, SIP-T27P, SIP-T23P/G, SIP-T21(P) E2 and SIP-T19(P) E2 IP phones running firmware version 80 or later.

Who should use this guide?

This guide is designed specifically to provide development engineers, system administrators, or network engineers with information for developing and deploying customized client services to Yealink IP phones using the XML browser feature.

This guide is not intended for end users and does not provide user-level information on how to use any specific XML applications.

Before reading this guide, you should be familiar with the following:

- Basic text editors, or full IDE-like Eclipse or Microsoft Visual Studio for creating or writing code.
- General application and software development.
- Adequate planning, creating, and testing resources needed to produce a fully deployable web-based application.
- Yealink IP phones and provisioning methods.
- How to use an XML editor.
- The XML-based schema and syntax.

Summary of Changes

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

Changes for Release 80, Guide Version 80.80

Documentations of the newly released SIP-T40P IP phones have been added.

Major updates have occurred to the following sections:

- Execute Object on page 46

Changes for Release 80, Guide Version 80.60

Documentations of the newly released SIP-T19(P) E2 IP phones have been added.

The following section is new:

- Configuring the Default Input Method on page 96

Major updates have occurred to the following sections:

- XML display control and keys on Yealink IP phones on page 5
- Yealink IP Phone XML Objects on page 9
- TextMenu Object on page 10

Changes for Release 80, Guide Version 80.20

This version is updated to remove SIP-T28P, SIP-T26P, SIP-T22(P), SIP-T21(P), SIP-T20(P) and SIP-T19(P) IP phones. Documentations of the newly released SIP-T27P and SIP-T21(P) E2 IP phones have also been added.

Major updates have occurred to the following sections:

- XML display control and keys on Yealink IP phones on page 5
- Yealink IP Phone XML Objects on page 9
- Configuring an XML Browser Key on page 85

Changes for Release 80, Guide Version 80.6

Documentations of the newly released SIP-T29G IP phones have also been added.
Major updates have occurred to the following sections:

- XML display control and keys on Yealink IP phones on page 5
- Yealink IP Phone XML Objects on page 9
- Customizable Soft keys on page 70

- Configuring an XML Browser Key on page 85

Changes for Release 80, Guide Version 80.5

Documentations of the newly released SIP-T23P/G IP phones have also been added. Major updates have occurred to the following sections:

- XML display control and keys on Yealink IP phones on page 5
- Yealink IP Phone XML Objects on page 9
- Customizable Soft keys on page 70
- Configuring an XML Browser Key on page 85

Changes for Release 73, Guide Version 73.16

This version is updated to remove SIP-T3xG and VP530 IP phones. Major updates have occurred to the following section:

- Yealink IP Phone XML Objects on page 9

Changes for Release 72, Guide Version 72.60

Major updates have occurred to the following section:

- Yealink IP Phone XML Objects on page 9

Changes for Release 72, Guide Version 72.30

The following sections are new:

- XML Format on page 2
- Some Development Guidelines on page 75
- Troubleshooting on page 99
- Appendix on page 101

Major updates have occurred to the following section:

- Yealink IP Phone XML Objects on page 9

Changes for Release 72, Guide Version 72.2

This version is updated to incorporate SIP-T48G IP phones. Major updates have occurred to the following section:

- Yealink IP Phone XML Objects on page 9

Changes for Release 72, Guide Version 72.1

This version is updated to incorporate SIP-T46G, SIP-T42G and SIP-T41P IP phones. Major updates have occurred to the following section:

- Yealink IP Phone XML Objects on page 9

Changes for Release 71, Guide Version 71.165

Major updates have occurred to the following section:

- Yealink IP Phone XML Objects on page 9

Changes for Release 71, Guide Version 71.140

Major updates have occurred to the following sections:

- XML display control and keys on Yealink IP phones on page 5
- Yealink IP Phone XML Objects on page 9
- Customizable Soft keys on page 70
- XML Objects Pushed to the Phone on page 72

Changes for Release 71, Guide Version 71.111

Documentations of the newly released SIP-T19(P) and SIP-T21(P) IP phones have also been added.

Changes for Release 71, Guide Version 71.110

The following sections are new:

- Configuring the Push XML Server on page 79
- Configuring the Block XML in Calling on page 90

Major updates have occurred to the following section:

- Yealink IP Phone XML Objects on page 9

XML and Yealink IP Phones

What is XML?

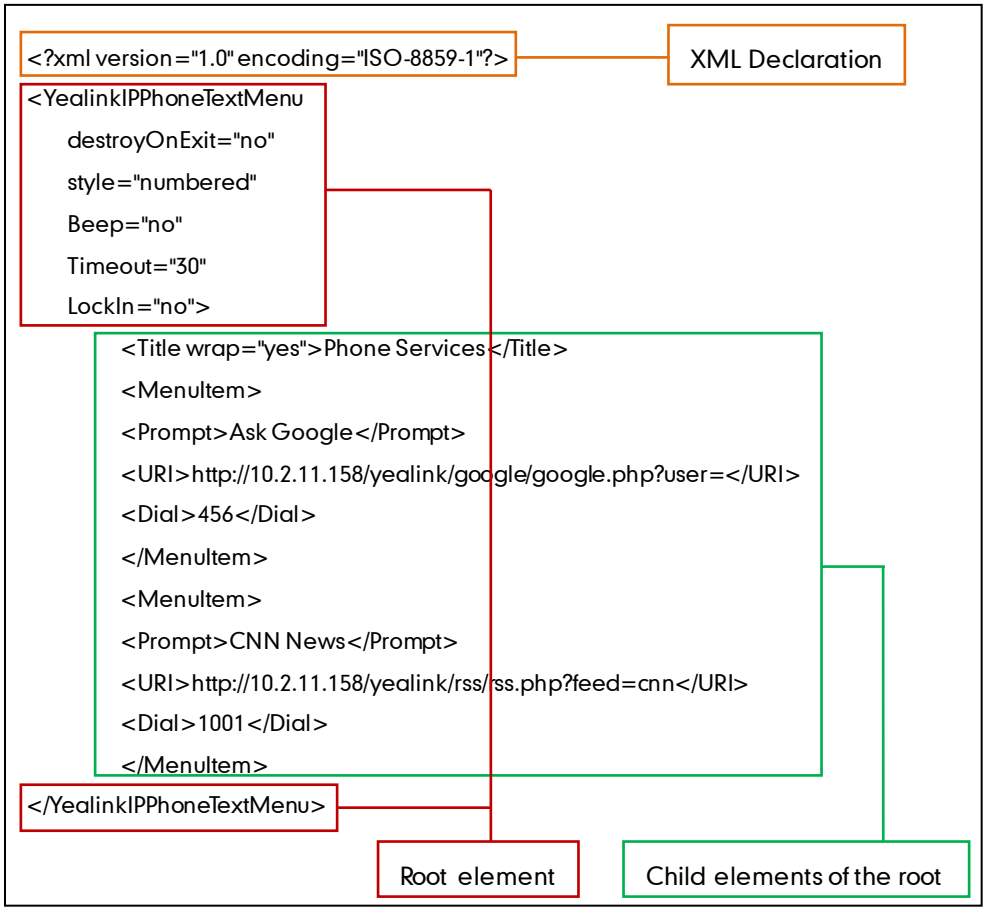
XML stands for extensible Markup Language. It is a markup language much like HTML. HTML is designed to display data and to focus on how data looks, while XML is designed to describe data and to focus on what data is.

XML enables SIP phones to serve as output devices for many exciting applications. The XML infrastructure allows the phones to interact with external applications in a flexible and programmable manner.

The following are characteristics of XML:

- XML tags are not predefined. You must define your own tags.
- XML uses an XML schema to describe the data.
- XML with an XML schema is designed to be self-descriptive.
- XML is a W3C Standard Recommendation.

Sample of Basic XML document:



XML Format

XML is written in the form of XML elements consisting of tags enclosed in angle brackets (e.g., <YealinkIPPhoneTextMenu>). XML contains 3 kinds of tags: the start tag, the end tag and the empty-element tag. The empty-element tag has two kinds of form: in pairs (e.g., <MenuItem></MenuItem>) and not in pairs (e.g., <MenuItem />). With the exception of the empty-element tag not in pairs, XML tags most commonly come in pairs like <YealinkIPPhoneTextMenu> and </YealinkIPPhoneTextMenu>. The first tag in a pair is the start tag (e.g., <YealinkIPPhoneTextMenu>), and the second tag is the end tag (e.g., </YealinkIPPhoneTextMenu>). XML mainly follows rules as below:

- XML must have root element.
- The end tag must have the character "/".
- XML tags are case-sensitive.
- Each attribute value should be within double quotations.
- The texts within <!-- --> are considered as comments.

XML provides escape facilities for including characters which are problematic to include directly. For example, the characters "<" and "&" are key syntax markers and may never appear in content. XML has five predefined entities.

XML conversion table is shown as below:

Character	Name	Escape Sequence
&	Ampersand	&
"	Quote	"
'	Apostrophe	'
<	Left angle bracket	<
>	Right angle bracket	>

To respect XML recommendations, the following header can be set at the beginning of the XML document,

```
<?xml version="1.0" encoding="ISO-8859-1"?>
```

Or

```
<?xml version="1.0" encoding="UTF-8"?>
```

Yealink provides XML object files beginning with the XML declaration "<?xml version="1.0" encoding="ISO-8859-1"?>".

For more information on XML, refer to http://www.xml.com/.

Functionality

The XML browser feature on Yealink IP phones allows users to develop and deploy custom services which meet user functional requirements on the server. Users can customize practical applications, such as weather report, stock information, Google search, news service, etc.

Phone service developers should take it into consideration that the phone is not a web browser so it cannot parse HTML. Although the content is delivered to the phone through HTTP messages using a web server, keep in mind that the content is not HTML. All content comes to the IP phone either as plain text or text packaged in XML objects.

Yealink IP phones support 10 proprietary XML objects, which allow the creation of powerful XML applications.

There are 2 types of XML objects:

UI objects: XML objects are used to control the LCD screen display of IP phones.

Non UI objects: XML objects have no direct impact on the current LCD screen display of IP phones.

The supported objects are:

- TextMenu object (UI)
- TextScreen object (UI)
- InputScreen object (UI)
- Directory object (UI)
- ImageScreen object (UI)
- ImageMenu object (UI)
- FormattedTextScreen object (UI)
- Status object (UI)
- Execute object (Non UI)
- Configuration object (Non UI)

How does it work?

Depending on the IP infrastructure, Yealink has supported developing the XML browser capability of the phones using HTTP. Yealink IP phones support two modes for XML browser applications:

- **Phone-initiated**
- **Server-initiated**

Phone initiated application

You can press the predefined XML Browser key to trigger the phone initiated application of XML browser. After you press the key, the IP phone issues an HTTP(s) GET request message to the server, waits for the answer, decodes and displays this response message like any web browser, such as Microsoft Internet Explorer or Firefox, and would do as a web client. For more information on how to configure an XML Browser key, refer to Configuring an XML Browser Key.

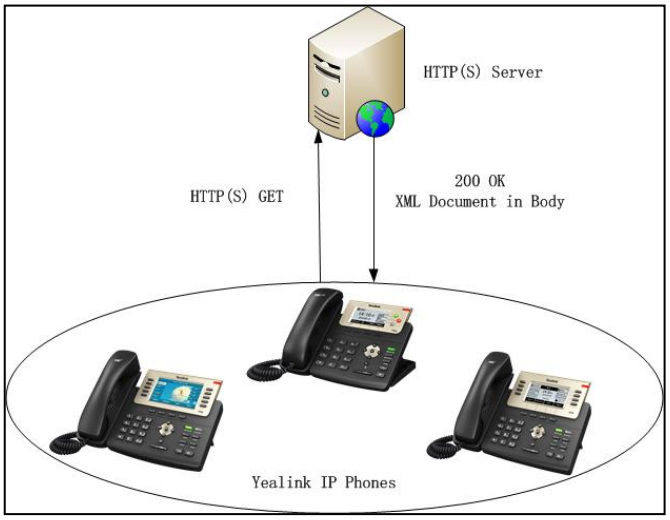


Figure1 Yealink IP phone acting as a client

Server initiated application

The server initiated application would be more frequently used on the network. In this mode, end users do not need to do any configuration and operation.

The server can push an XML object to the phone via an HTTP POST. For more information, refer to XML Objects Pushed to the Phone.

In addition, Yealink IP phones support accepting SIP NOTIFY messages from a SIP proxy server, and act as limited web servers. For more information on how to configure the XML SIP Notify, refer to Configuring the XML SIP Notify.

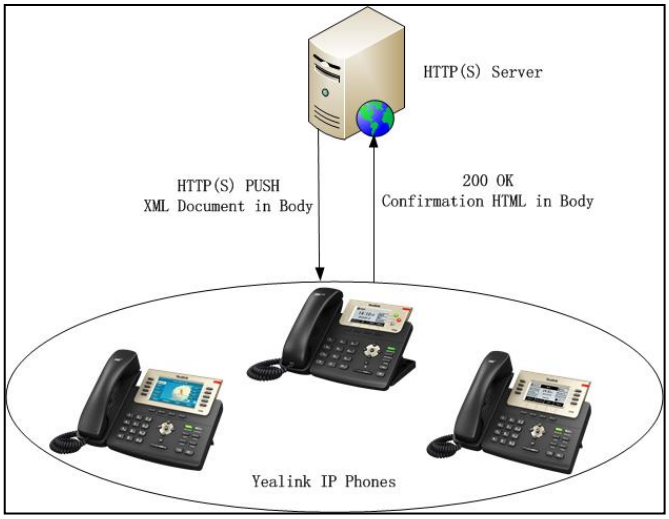


Figure2 Yealink IP phone acting as a server (HTTP(s) post)

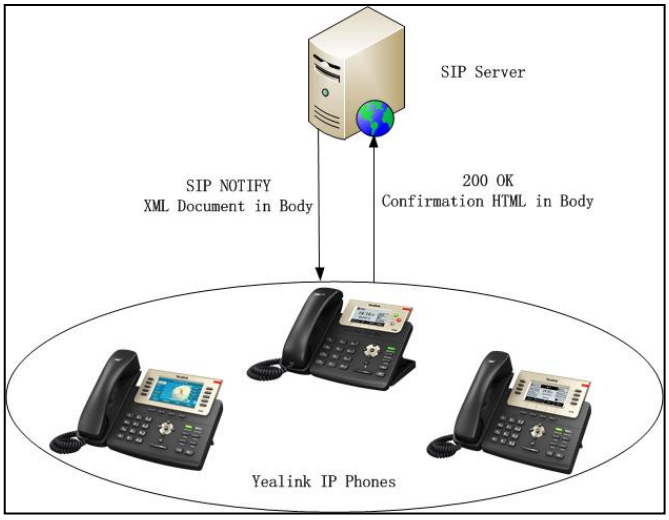


Figure3 Yealink IP phone acting as a server (SIP NOTIFY)

XML display control and keys on Yealink IP phones

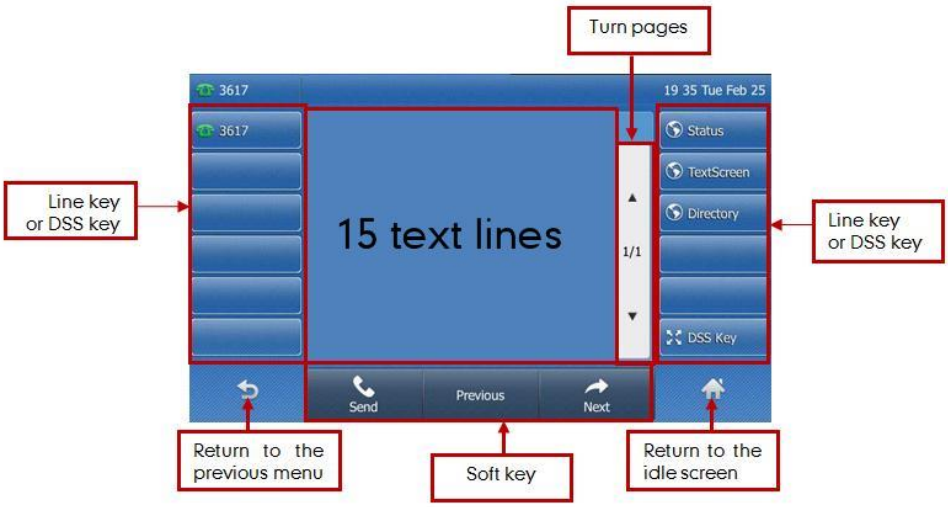
This chapter describes the available part of the LCD screen for each phone model of Yealink IP phones as well as the keys that are controlled by the XML objects.

The LCD screen and keys available for XML applications on a Yealink SIP-T48G IP phone are:

- 15 text lines and 1 soft key line for the LCD screen
- The left and right arrow navigation keys

- The up and down arrow navigation keys

The soft key line is a command line and will be used to display the labels of the available actions. Depending on the XML object displayed on the phone, the **X** key can also be interpreted as a "cancel" key, and the **OK** key as a "confirm" key.



The LCD screen and keys available for XML applications on a Yealink SIP-T46G/T29G IP phone are:

- 10 text lines and 1 soft key line for the LCD screen
- The left and right arrow navigation keys
- The up and down arrow navigation keys

The soft key line is a command line and will be used to display the labels of the available actions. Depending on the XML object displayed on the phone, the **X** key can also be interpreted as a "cancel" key, and the **OK** key as a "confirm" key.

The LCD screen and keys available for XML applications on a Yealink SIP-T42G/T41P IP phone are:

- 5 text lines and 1 soft key line for the LCD screen
- The left and right arrow navigation keys
- The up and down arrow navigation keys

The soft key line is a command line and will be used to display the labels of the available actions. Depending on the XML object displayed on the phone, the **X** key can also be interpreted as a "cancel" key, and the **OK** key as a "confirm" key.

The LCD screen and keys available for XML applications on a Yealink SIP-T27P IP phone are:

- 7 text lines and 1 soft key line for the LCD screen
- The left and right arrow navigation keys
- The up and down arrow navigation keys

The soft key line is a command line and will be used to display the labels of the available actions. Depending on the XML object displayed on the phone, the **X** key can also be interpreted as a "cancel" key, and the **OK** key as a "confirm" key.

The LCD screen and keys available for XML applications on a Yealink SIP-T40P/T23P/T23G/T21(P) E2/T19(P) E2 IP phone are:

- 4 text lines and 1 soft key line for the LCD screen
- The left and right arrow navigation keys
- The up and down arrow navigation keys

The soft key line is a command line and will be used to display the labels of the available actions. Depending on the XML object displayed on the phone, the **X** key can be interpreted as a "cancel" key, and the **OK** key as a "confirm" key for SIP-T23P/T23G/T21(P) E2 IP phones; the ✓ key can be as a "confirm" key for SIP-T19(P) E2 IP phones.

Yealink IP Phone XML Objects

Creating interactive service applications is relatively easy when you understand the XML objects that are defined for Yealink IP phones and the behavior that each XML object generates.

Regardless of what causes the phone to load an XML page, the phone always behaves appropriately after it loads a page. Appropriate behavior depends only on the type of data delivered in the page.

This chapter details all the XML objects supported by Yealink IP phones.

In this chapter:

Yealink IP phones with soft keys are:

- Yealink SIP-T46G IP phones
- Yealink SIP-T42G IP phones
- Yealink SIP-T41P IP phones
- Yealink SIP-T40P IP phones
- Yealink SIP-T29G IP phones
- Yealink SIP-T27P IP phones
- Yealink SIP-T23P/G IP phones
- Yealink SIP-T21(P) E2 IP phones
- Yealink SIP-T19(P) E2 IP phones

Yealink IP phones with a color graphical touch screen are:

- Yealink SIP-T48G IP phones

XML Object Definitions

This section details each proprietary XML object supported by Yealink IP phones. You can ask the distributor or Yealink FAE for XML object files or obtain XML object files online:
http://support.yealink.com/documentFront/forwardToDocumentFrontDisplayPage.

Note

The size of an XML object cannot exceed 10000 bytes (10 kb).

Per XML specifications, only one XML object is supported in an XML document sent to the phone.

XML objects do not support Chinese characters.

TextMenu Object

The TextMenu object allows users to create a list of menu items on the IP phones. You can use the TextMenu object to customize some functions such as weather report, stock information, new services, etc. You can browse the menu items by linking HTTP requests.

XML description of the TextMenu object:

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<YealinkIPPhoneTextMenu
        destroyOnExit="yes/no"
        defaultIndex = "integer"
        style = "numbered/none"
        Beep = "yes/no"
        wrapList="yes/no"
        Timeout = "integer"
        cancelAction = "URI"
        LockIn = "yes/no"
       >
        <Title wrap = "yes/no">Menu Title</Title>
        <MenuItem>
            <Prompt>First menu item</Prompt>
            <URI>HTTP(s) URL</URI>
            <Dial>Number for dial</Dial >
            <Selection>Selection</Selection>
        </MenuItem>
        <!--Additional menu items may be added (up to 30) -->
        <!--Additional soft key items may be added -->
</YealinkIPPhoneTextMenu>
```

The parameters of the TextMenu object are listed in the following table:

Parameter	Position	Type	Value	Description
YealinkIPPhoneTextMenu	Root tag	mandatory	none	The root element of the TextMenu object.
destroyOnExit	Root tag	optional	"yes" "no"	Select "yes" to return to the previous XML object after exit. Select "no" to

Parameter	Position	Type	Value	Description
				return to the previous screen, and keep in the same XML object after exit. Default value is "no".
defaultIndex	Root tag	optional	Integer	Position of the cursor. If the value is not specified or exceeds the number of menu items, the cursor will be positioned on the first menu item. Default value is 1.
style	Root tag	optional	"numbered" "none"	**numbered** (default): Add a digit before each menu item for index. **none:** No sign before each menu item.
Beep	Root tag	optional	"yes" "no"	Whether to play a tone when the XML object is opened. Default value is "yes".
wrapList	Root tag	optional	"yes" "no"	Whether to display the title of the menu item specified by the Prompt parameter in multi-lines when the content of the title is more than one line. Select "yes" to display the title in multi-lines, and "no" for one line. Default value is "yes". (only for SIP-T48G/T46G/T29G IP phones) **Note:** It needs to add a space to indicate a new line.
Timeout	Root tag	optional	"integer"	If there is no operation at a fixed interval (in seconds) on the phone,

Parameter	Position	Type	Value	Description
				the phone will automatically exit from the TextMenu screen. If it is set to 0, the phone will not automatically exit from the TextMenu screen until pressing the "Exit" soft key or "**X**" key. Default value is 45. **Note**: Pressing the "X" key is not applicable to SIP-T19(P) E2 IP phones. **Note**: If "cancelAction" is not left blank, the function of "X" key is calling the URI defined by "cancelAction". If "cancelAction" is left blank, the function of "X" key is returning to the idle screen.
cancelAction	Root tag	optional	URI	Define the URI to be called when the user cancels the XML object.
LockIn	Root tag	optional	"yes" "no"	If it is set to "yes", the phone ignores specified function key events. Default value is "no". For more information, refer to the function keys and soft keys table shown next.
Title	Body	mandatory	string	The title of the text menu.
wrap	Title tag	optional	"yes" "no"	Whether to display the title of the menu in multi-lines when the content of the title is more than one line (up to 3 lines for SIP-T27 IP phones; up to 2 lines for

Parameter	Position	Type	Value	Description
				SIP-T42G/T41P/T40P/T23P/T23G/T21(P) E2/T19(P) E2 IP phones; not limit for SIP-T48G/T46G/T29G with space in title). Select "yes" to display in multi-lines, and "no" for one line. Default value is "yes".
MenuItem	Body	mandatory	none	The element of the menu item. (Up to 30 instances, minimum is 1)
Prompt	MenuItem body	mandatory	string	The label of the menu item.
URI	MenuItem body	mandatory	URI	URI to be used if the user presses the "Select" soft key or "OK/√" key with the cursor on this menu item.
Dial	MenuItem body	optional	Phone number	Define what number will be dialed when the user picks up the handset, or presses the speakerphone key or the line key.
Selection	MenuItem body	optional	string	If "URI" is set to an HTTP URL, the "?selection= xxx (defined by the Selection parameter)" will be appended to the URI when the user presses the "Select" soft key or the "OK/√" key. **Note**: If a "?" already exists in the URI, then a "&" is used to separate the URI and the Selection parameters. The parameter name

Parameter	Position	Type	Value	Description
				"selection" is automatic. If the Selection attribute is omitted, then nothing extra is appended to the URI. If the Selection parameter has more than one parameter, then these parameters are appended to the URI. (e.g., if "URI" is set to http://10.1.0.105/menu1.xml? and "Selection" is set to 0&menu_pos=1, the phone will send a request "http://10.1.0.105/menu1.xml?&selection=0&menu_pos=1" when the user presses the "Select" soft key.)
SoftKey	Body	optional	string	Refer to Customizable Soft keys for more information.

If there is no soft key defined in the TextMenu object, the LCD screen displays the following default soft keys:

For SIP-T46G/T42G/T41P/T40P/T29G/T27P/T23P/T23G/T21(P) E2/T19(P) E2 IP phones:

SoftKey Index	Label	URI
1	Exit	SoftKey:Exit
4	Select	SoftKey:Select

For SIP-T48G IP phones:

SoftKey Index	Label	URI
1	Select	SoftKey:Select

The function keys and soft keys are listed in the following table:

Key Name	Operation	Function
Up/Down	Pressing the	Browse the menu item up and down.

Key Name	Operation	Function
Key	up/down keys	
Left/Right Key	Pressing the left/right keys	Turn pages.
Digit Key	Pressing the digit keys 1~9	If the value of the LockIn is "no", the function of the digit key is highlighting a menu item. If the value of the LockIn is "yes", the phone will be no response. **Note:** IP phones support one-digit number only. If you press the digit that exceeds the maximum of the menu items, the phone will be no response.
Select	Pressing the Select soft key	Execute the content of the URI field assigned to the selected menu item.
Exit	Pressing the Exit soft key/Taping (only for SIP-T48G IP phones)	Exit from the current XML screen.
Off-hook/ Line Key/ Hands-free Key	Off hook Pressing the line key/Hands-free key	If the value of the LockIn is "no" and there is a number contained in the Dial tag, the phone will dial out the number. If the value of the LockIn is "no" and there is no number contained in the Dial tag: For pressing the line key, the phone will be no response. For off hook and pressing hands-free key, the phone will enter the pre-dialing screen. If the value of the LockIn is "yes" and there is a number contained in the Dial tag: For off hook and pressing the line key, the phone will dial out the number. For pressing hands-free key, the phone will be no response to any operation. If the value of the LockIn is "yes" and there is no number contained in the Dial tag, the phone will be no response to any operation. **Note**: Pressing the line key is not

Key Name	Operation	Function
		applicable to SIP-T19(P) E2 IP phones.
Cancel Key	Pressing the "X" key	If "cancelAction" is not left blank, the function of "X" key is calling the URI defined by "cancelAction". If "cancelAction" is left blank, the function of "X" key is returning to the idle screen. **Note**: Pressing the "X" key is not applicable to SIP-T19(P) E2 IP phones.
OK/√ Key	Pressing the "OK/√" key	The function of "OK/√" key is the same as that of "Select".

An example of the TextMenu object:

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<YealinkIPPhoneTextMenu
        style="numbered"
        Beep="no"
        Timeout="30"
        LockIn="no">
        <Title wrap="yes">Phone Services</Title>
        <MenuItem>
        <Prompt>Ask Google</Prompt>
        <URI>http://10.2.11.158/yealink/google/google.php?user=</URI>
        <Dial>456</Dial>
        <Selection>12345</Selection>
        </MenuItem>
        <MenuItem>
        <Prompt>CNN News</Prompt>
        <URI>http://10.2.11.158/yealink/rss/rss.php?feed=cnn</URI>
        <Dial>1001</Dial>
        <Selection>4567</Selection>
        </MenuItem>
</YealinkIPPhoneTextMenu>
```

In the example, with the first menu item selected and taking SIP-T23G IP phone for reference:

- Picking up handset, the phone will dial "456" using the first available account.
- Pressing the hands-free key, the phone will dial "456" using the first available

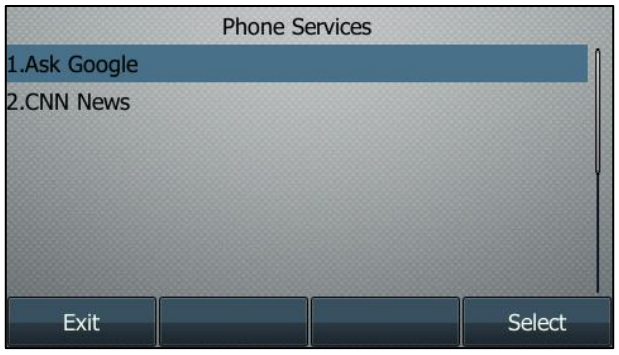
account.

- Pressing the first line key, the phone will dial "456" using the corresponding account.
- Pressing the **Select** soft key or **OK** key, the phone will call http://10.2.11.158/yealink/google/google.php?user=&selection=12345.

The screenshot of the SIP-T23G IP phone user interface for reference is shown as below:

The screenshot of the SIP-T48G IP phone user interface for reference is shown as below:

The screenshot of the SIP-T46G IP phone user interface for reference is shown as below:



TextScreen Object

The TextScreen object allows users to display some texts on the IP phones.

XML description of the TextScreen object:

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<YealinkIPPhoneTextScreen
        destroyOnExit="yes/no"
        Beep = "yes/no"
        doneAction = "URI"
        Timeout = "integer"
        cancelAction = "URI"
        LockIn = "yes/no">
        <Title wrap = "yes/no">Text Title</Title >
        <Text>The screen text goes here</Text>
        <!--Additional soft key items may be added -->
</YealinkIPPhoneTextScreen>
```

The parameters of the TextScreen object are listed in the following table:

Parameter	Position	Type	Value	Description
YealinkIPPhoneTextScreen	Root tag	mandatory	none	The root element of the TextScreen object.
destroyOnExit	Root tag	optional	"yes" "no"	Select "yes" to return to the previous XML object after exit. Select "no" to return to the previous screen, and keep in the same XML object after exit. Default value is "no".
Beep	Root tag	optional	"yes" "no"	Whether to play a tone when the XML object is opened. Default value is "yes".
doneAction	Root tag	optional	URI	Define the URI to be called when the user presses the "OK/√" key.
Timeout	Root tag	optional	"integer"	If there is no operation at a fixed interval (in seconds) on the phone, the phone will automatically exit from

Parameter	Position	Type	Value	Description
				the TextScreen screen. If it is set to 0, the phone will not exit from the TextScreen screen until pressing the "Exit" soft key or "X" key. Default value is 45. **Note**: Pressing the "X" key is not applicable to SIP-T19(P) E2 IP phones.
cancelAction	Root tag	optional	URI	Define the URI to be called when the user cancels the XML object.
LockIn	Root tag	optional	"yes" "no"	If it is set to "yes", the phone ignores specified function key events. Default value is "no". For more information, refer to the function keys and soft keys table shown next.
Title	Body	mandatory	string	The title of the screen text.
wrap	Title tag	optional	"yes" "no"	Whether to display the title in multi-lines when the content of the title is more than one line (up to 3 lines for SIP-T27 IP phones; up to 2 lines for SIP-T42G/T41P/T40P/T23P/T23G/T21(P) E2/T19(P) E2 IP phones; not limit for SIP-T48G/T46G/T29G with space in title). Select "yes" display in multi-lines, and "no" for one line. Default value is "yes".
Text	Body	mandatory	string	The content of the screen text.

Parameter	Position	Type	Value	Description
				(Text length must be within 2000 bytes.)
SoftKey	Body	optional	string	Refer to Customizable Soft keys for more information.

If there is no soft key defined in the TextScreen object, the LCD screen displays the following default soft key (the SIP-T48G IP phone does not display the soft key):

For SIP-T46G/T42G/T41P/T40P/T29G/T27P/T23P/T23G/T21(P) E2/T19(P) E2 IP phones:

SoftKey Index	Label	URI
1	Exit	SoftKey:Exit

The function keys and soft keys are listed in the following table:

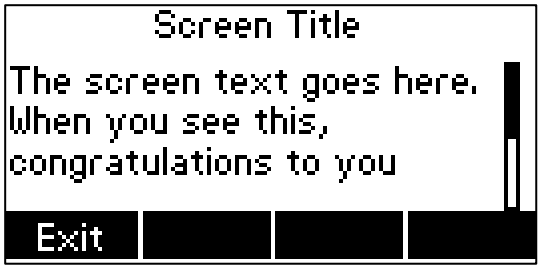
Key Name	Operation	Function
Up/Down Key	Pressing the up/down keys	**For SIP-T46G/T42G/T41P/T40P/T29G/T27P/T23P/T23G/T21(P) E2/T19(P) E2:** Browse texts line by line. **For SIP-T48G:** Turn pages.
Left/Right Key	Pressing the left/right keys	**For SIP-T48G, T46G and SIP-T29G:** Turn pages. (not applicable to SIP-T42G/T41P/T40P/T27P/T23P/T23G/T21(P) E2/T19(P) E2 IP phones)
Exit	Pressing the Exit soft key/Taping (only for SIP-T48G IP phones)	Exit from the current XML screen.
Off-hook/ Line Key/ Hands-free Key	Off hook Pressing the line key/ Hands-free key	If the value of the LockIn is "no", the phone will enter pre-dialing screen. If the value of the LockIn is "yes", the phone will be no response to any operation. **Note**: Pressing the line key is not applicable to SIP-T19(P) E2 IP phones.
Cancel Key	Pressing the "X" key	If "cancelAction" is not left blank, the function of "X" key is calling the URI defined by "cancelAction".

Key Name	Operation	Function
		If "cancelAction" is left blank, the function of "X" key is returning to the idle screen. **Note**: Pressing the "X" key is not applicable to SIP-T19(P) E2 IP phones.
OK/√ Key	Pressing the "OK/√" key	The function of "OK/√" key is calling the URI defined by "doneAction".

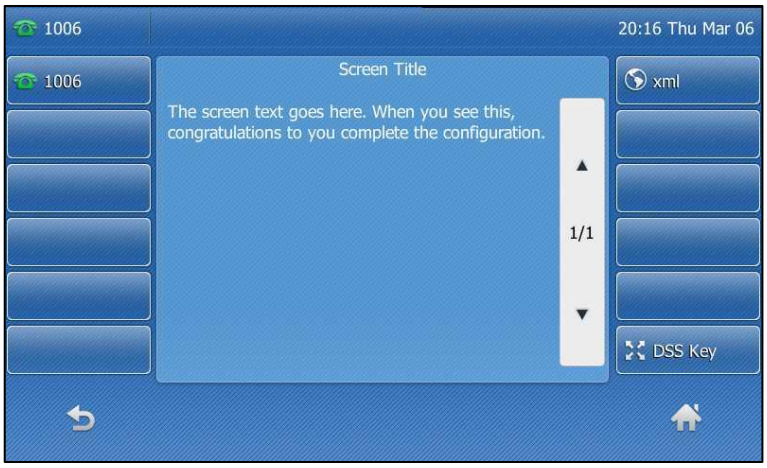
An example of the TextScreen object:

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<YealinkIPPhoneTextScreen
      doneAction="http://10.2.11.158/cancel.php"
       Timeout="15"
       LockIn="no"
       Beep="no">
      <Title wrap="yes">Screen Title </Title>
      <Text>The screen text goes here. When you see this, congratulations to you complete
       the configuration.</Text>
</YealinkIPPhoneTextScreen>
```

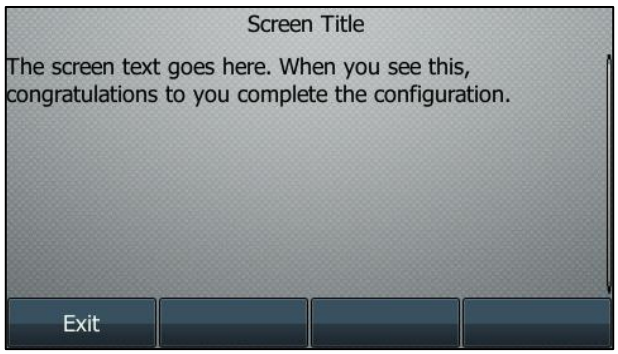
The screenshot of the SIP-T23G IP phone user interface for reference is shown as below:



The screenshot of the SIP-T48G IP phone user interface for reference is shown as below:



The screenshot of the SIP-T46G IP phone user interface for reference is shown as below:



InputScreen Object

The InputScreen object allows users to create a screen capable of gathering user input. It constructs and displays an input form, which prompts the users to input content, then sends the input content to the target URL. You can use InputScreen object for user login or saving some information to server. You can define the content and format of the input content.

XML description of the InputScreen object:

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<YealinkIPPhoneInputScreen
        destroyOnExit="yes/no"
        type = "IP/string/number/timeUS/timeInt/dateUS/dateInt"
        Beep = "yes/no"
        Password = "yes/no"
        Timeout = "integer"
```

```
        LockIn = "yes/no"
        inputLanguage = "English"
        cancelAction= "URL"
        displayMode = "normal/condensed"
        defaultIndex = "integer">
        <Title wrap = "yes/no">Title string</Title>
        <URL>Target receiving the input</URL>
        <InputField
        type = "IP/string/number/timeUS/timeInt/dateUS/dateInt/empty"
        password = "yes/no"
        editable = "yes/no">
        <Prompt>Guidance for the input</Prompt>
        <URL>Target receiving the input</URL>
        <Parameter> parameter name add to URL</Parameter>
        <Selection>Selection</Selection>
        <Default>Default Value</Default>
        </InputField>
        <!--Additional input field Items may be added -->
        <!--Additional soft key items may be added -->
</YealinkIPPhoneInputScreen >
```

The parameters of the InputScreen object are listed in the following table:

Parameter	Position	Type	Value	Description
YealinkIPPhoneInputScreen	Root tag	mandatory	none	The root element of the InputScreen object.
destroyOnExit	Root tag	optional	"yes" "no"	Select "yes" to return to the previous XML object after exit. Select "no" to return to the previous screen, and keep in the same XML object after exit. Default value is "no".
type	Root tag	mandatory	"IP" "string" "number" "timeUS" "timeInt"	Specifies the type of input. Data input options: 1. IP 2. string(default) 3. number

Parameter	Position	Type	Value	Description
			"dateUS" "dateInt"	4. timeUS, 12hour format **Format:** HH:MM:SS AM/PM HH:1-12, MM:0-59, SS:0-59 AM/PM stand for the forenoon/afternoon. **Example:** 02:00:23 AM 12:59:00 PM 5. timeInt, 24 hour format **Format:** HH:MM:SS HH:0-23, MM:0-59, SS:0-59 **Example:** 23:25:00 6. dateUS **Format:** MM/DD/YYYY MM:1-12,DD:1-31,YYYY:0000-9999 **Example:** 12/31/2009 7. dateInt **Format:** DD/MM/YYYY DD:1-31,MM:1-12,YYYY:0000-9999 **Example:** 31/01/2010 **Note**: The value in the root tag takes effect only if that in the InputField tag is left blank.
Beep	Root tag	optional	"yes" "no"	Whether to play a tone when the XML object is opened. Default value is "yes".

Parameter	Position	Type	Value	Description
Password	Root tag	optional	"yes" "no"	Whether to mask the input by the "*" character. Default value is "no". **Note**: It applies to all input fields and takes effect only if that in the InputField tag is left blank.
Timeout	Root tag	optional	"integer"	If there is no operation at a fixed interval (in seconds) on the phone, the phone will automatically exit from the InputScreen screen. If it is set to 0, the phone will not exit from the InputScreen screen until pressing the "Exit" soft key or "X" key. Default value is 45. **Note**: If "cancelAction" is not left blank, the function of "X" key is calling the URI defined by "cancelAction". If "cancelAction" is left blank, the function of "X" key is returning to the idle screen. **Note**: Pressing the "X" key is not applicable to SIP-T19(P) E2 IP phones.
LockIn	Root tag	optional	"yes" "no"	If it is set to "yes", the phone ignores specified function key events. Default value is "no". For more information, refer to the function keys and soft keys table shown next.

Parameter	Position	Type	Value	Description
InputLanguage	Root tag	optional	"English"	The language of user input. Default value is English.
cancelAction	Root tag	optional	URI	Define the URI to be called when the user cancels the XML object.
displayMode	Root tag	optional	"normal" "condensed"	**normal** (default): Display the prompt and input box in two lines. (not applicable to SIP-T27P IP phones) **condensed:** Display the prompt and input box in one line. (not applicable to SIP-T42G/T41P/T40P/T23P/T23G/T21(P) E2/T19(P) E2 IP phones)
defaultIndex	Root tag	optional	integer	Position of the cursor. If the value is not specified or exceeds the number of input boxes, the cursor is positioned on the first input box. Default value is 1.
Title	Body	mandatory	string	The title of the screen text.
wrap	Title tag	optional	"yes" "no"	Whether to display the title in multi-lines when the content of the title is more than one line. (up to 3 lines for SIP-T27 IP phones; up to 2 lines for SIP-T42G/T41P/T40P/T23P/T23G/T21(P) E2/T19(P) E2 IP phones; not limit for SIP-T48G/T46G/T29G with space in title). Select "yes" display in multi-lines, and "no" for

Parameter	Position	Type	Value	Description
				one line. Default value is "yes".
URL	Body	mandatory	URL	Specify the target URL to receive the user input.
InputField	Body	optional	none	Set several input boxes.
type	InputField tag	optional	"IP" "string" "number" "timeUS" "timeInt" "dateUS" "dateInt"	Specifies the type of input. Data input options: 1. IP 2. string(default) 3. number 4. timeUS, 12hour format **Format:** HH:MM:SS AM/PM HH:1-12, MM:0-59, SS:0-59 AM/PM stand for the forenoon/afternoon. **Example:** 02:00:23 AM 12:59:00 PM 5. timeInt, 24 hour format **Format:** HH:MM:SS HH:0-23, MM:0-59, SS:0-59 **Example:** 23:25:00 6. dateUS **Format:** MM/DD/YYYY MM:1-12,DD:1-31,YYYY:0000-9999 **Example:** 12/31/2009 7. dateInt **Format:** DD/MM/YYYY DD:1-31,MM:1-12,YYYY:000

Parameter	Position	Type	Value	Description
				0-9999 **Example:** 31/01/2010 **Note**: The value in the InputField tag has a higher priority than that in the root tag.
password	InputField tag	optional	"yes" "no"	Whether to mask the input by the "*" character. Default value is "no". **Note**: The value in the Inputfield tag has a higher priority than that in the root tag.
editable	InputField tag	optional	"yes" "no"	Whether to allow users to input something. Default value is "yes". Users can not input anything if it is set to "no". Applicable scenario: only allow some users to login. **Note:** If the value of the LockIn is "yes", users can not input anything no matter what you set "editable" to.
Prompt	InputField body	optional	string	The prompt of user input.
Parameter	InputField body	mandatory	string	Name of parameter to be appended to the URL. The "?parameter name=the user input" will be appended to the URL when the user presses the "Select" soft key or the OK/√ key. **Note**: If a "?" already exists in the URL, then a

Parameter	Position	Type	Value	Description
				"&" is used to separate the parameters. If the "Parameter" is omitted, then nothing extra is appended to the URL.
Selection	InputField body	optional	string	The "selection= the value of the Selection parameter" will also be appended to the URL when the user presses the "Select" soft key or the OK/√ key. **Note**: The parameter name "selection" is automatic. If the Selection parameter is omitted, then nothing extra is appended.
Default	InputField body	optional	string	Default value to be displayed in input field. If "Default" is left blank, the input field will be automatically filled with corresponding data when the type is set to "timeUS", "timeInt", "dateUS" or "dateInt".
SoftKey	Body	optional	string	The soft keys displayed will change according to the attribute value of type. Refer to Customizable Soft keys for more information.

Note The InputField parameter in the XML file is optional. You can use this parameter to customize more input fields on the IP phone.

If there is no soft key defined in the InputScreen object, and the Type for input box is "IP", the LCD screen displays the following default soft keys:

For SIP-T46G/T42G/T41P/T40P/T29G/T27P/T23P/T23G/T21(P) E2/T19(P) E2 IP phones:

SoftKey Index	Label	URI
1	Submit	SoftKey:Submit
2	Dot (.)	SoftKey:Dot
3	BackSpace	SoftKey:BackSpace
4	Exit	SoftKey:Exit

For SIP-T48G IP phones:

SoftKey Index	Label	URI
1	Dot (.)	SoftKey:Dot
2	BackSpace	SoftKey:BackSpace
3	Submit	SoftKey:Submit

If there is no soft key defined in the InputScreen object, and the Type for input box is "timeUS", "timeInt", "dateUS" or "dateInt", the LCD screen displays the following default soft keys:

For SIP-T46G/T42G/T41P/T40P/T29G/T27P/T23P/T23G/T21(P) E2/T19(P) E2 IP phones:

SoftKey Index	Label	URI
1	Submit	SoftKey:Submit
2	2aB	SoftKey:ChangeMode
3	BackSpace	SoftKey:BackSpace
4	Exit	SoftKey:Exit

For SIP-T48G IP phones:

SoftKey Index	Label	URI
1	2aB	SoftKey:ChangeMode
2	BackSpace	SoftKey:BackSpace
3	Submit	SoftKey:Submit

If there is no soft key defined in the InputScreen object, and the Type for input box is "number", the LCD screen displays the following default soft keys:

For SIP-T46G/T42G/T41P/T40P/T29G/T27P/T23P/T23G/T21(P) E2/T19(P) E2 IP phones:

SoftKey Index	Label	URI
1	Submit	SoftKey:Submit

2	BackSpace	SoftKey:BackSpace
4	Exit	SoftKey:Exit

For SIP-T48G IP phones:

SoftKey Index	Label	URI
1	BackSpace	SoftKey:BackSpace
2	Submit	SoftKey:Submit

If there is no soft key defined in the InputScreen object, and the Type for input box is "string", the LCD screen displays the following default soft keys:

For SIP-T46G/T42G/T41P/T40P/T29G/T27P/T23P/T23G/T21(P) E2/T19(P) E2 IP phones:

SoftKey Index	Label	URI
1	Submit	SoftKey:Submit
2	2aB	SoftKey:ChangeMode
3	BackSpace	SoftKey:BackSpace
4	Dot (.)	SoftKey:Dot
5	NextSpace	SoftKey:NextSpace
6	Exit	SoftKey:Exit

For SIP-T48G IP phones:

SoftKey Index	Label	URI
1	2aB	SoftKey:ChangeMode
2	BackSpace	SoftKey:BackSpace
3	Dot (.)	SoftKey:Dot
4	NextSpace	SoftKey:NextSpace
5	Submit	SoftKey:Submit

The function keys and soft keys are listed in the following table:

Key Name	Operation	Function
Up/Down Key	Pressing the up/down keys	Browse the input box up and down.
Left/Right Key	Pressing the Left /right keys	Move the cursor left and right.
Keypad	Pressing the digit	If the value of the LockIn is "no" and the

Key Name	Operation	Function
	keys 1~9, * and # keys	value of the "editable" is "yes", then input character; otherwise no response.
BackSpace	Pressing the BackSpace soft key	Delete the character before the cursor in the input box.
Dot (.)	Pressing the Dot soft key	Input a "." in the input box at the cursor position.
Submit	Pressing the Submit soft key	Execute the command comprised of the URI and input content.
Exit	Pressing the Exit soft key/Taping (only for SIP-T48G IP phones)	Exit from the current XML screen.
2aB	Pressing the 2aB soft key	Input mode switch, e.g., switch the input mode among "2aB", "ABC", "abc" or "123".
NextSpace	Pressing the NextSpace soft key	Input a space in the input box at the cursor position.
Off-hook/ Line Key/ Hands-free Key	Off hook Pressing the line key/Hands-free key	If the value of the LockIn is "no", the phone will enter pre-dialing screen. If the value of the LockIn is "yes", the phone will be no response to any operation. **Note**: Pressing the line key is not applicable to SIP-T19(P) E2 IP phones.
Cancel Key	Pressing the "X" key	If "cancelAction" is not left blank, the function of "X" key is calling the URI defined by "cancelAction". If "cancelAction" is left blank, the function of "X" key is returning to the idle screen. **Note**: Pressing the "X" key is not applicable to SIP-T19(P) E2 IP phones.
OK/√ Key	Pressing the "OK/√" key	The function of "OK/√" key is the same as that of "Submit".

An example of the InputScreen object:

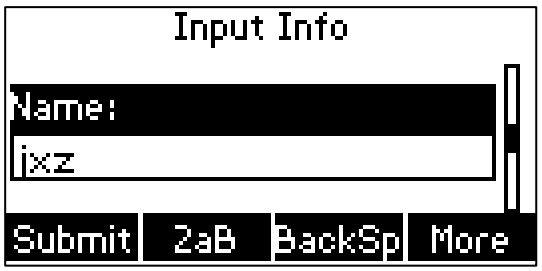
```
<?xml version="1.0" encoding="ISO-8859-1"?>
<YealinkIPPhoneInputScreen
        type="string"
        Beep="yes"
```

```
        Timeout="15"
        LockIn="no">
    <Title wrap="yes">Proxy Server</Title>
    <URL>http://10.3.5.5/</URL>
    <InputField>
      <Prompt>User Name:</Prompt>
      <Parameter>proxy</Parameter>
      <Default></Default>
      <Selection>1</Selection>
    </InputField>
    <InputField>
      <Prompt>Password:</Prompt>
      <Parameter>proxy</Parameter>
      <Default></Default>
      <Selection>2</Selection>
    </InputField>
</YealinkIPPhoneInputScreen>
```

In this example, when the user presses the **Submit** soft key or OK/√ key on the phone after entering "admin" for the User Name and "222" for the password, the phone will call the following URLs:

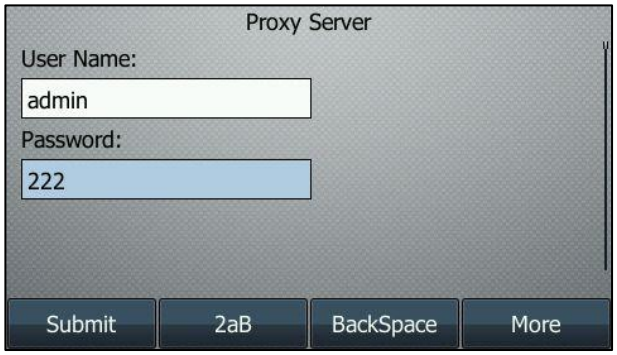
- http://10.3.5.5/?proxy=admin&proxy=222&selection=1, if the position of the cursor is located in the User Name input box.
- http://10.3.5.5/?proxy=admin&proxy=222&selection=2, if the position of the cursor is located in the Password input box.

The screenshot of the SIP-T23G IP phone user interface for reference is shown as below:



The screenshot of the SIP-T48G IP phone user interface for reference is shown as below:

The screenshot of the SIP-T46G IP phone user interface for reference is shown as below:



You can press the **More** soft key to find more soft keys.

Directory Object

The Directory object allows users to browse an online directory in real time. The Directory object is just like a remote phonebook. It displays an automatically numbered list of contacts. After selecting a contact with the cursor, the contact can be dialed directly by pressing the Send soft key, picking up the handset or pressing the line key or the speakerphone key.

XML description of the Directory object:

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<YealinkIPPhoneDirectory
        destroyOnExit="yes/no"
        defaultIndex = "integer"
        next = "URI"
        previous = "URI"
        Beep = "yes/no"
```

```
        cancelAction="URI"
        Timeout = "integer"
        LockIn = "yes/no">
        <Title wrap = "yes/no">Directory Title</Title>
        <MenuItem>
            <Prompt>Contact Name</Prompt>
            <URI>number</URI>
        </MenuItem>
        <!--Additional Menu Items may be added -->
        <!--Additional soft key items may be added -->
</YealinkIPPhoneDirectory>
```

The parameters of the Directory object are listed in the following table:

Parameter	Position	Type	Value	Description
YealinkIPPhoneDirectory	Root tag	mandatory	none	The root element of the Directory object.
destroyOnExit	Root tag	optional	"yes" "no"	Select "yes" to return to the previous XML object after exit. Select "no" to return to the previous screen, and keep in the same XML object after exit. Default value is "no".
defaultIndex	Root tag	optional	Integer	Position of the cursor. If the value is not specified or exceeds the number of menu items, the cursor will position on the first menu item. Default value is 1.
next	Root tag	optional	URI	Define the URI to be called when the user presses the "Next" soft key.
previous	Root tag	optional	URI	Define the URI to be executed when the user presses the "Previous" soft key.

Parameter	Position	Type	Value	Description
Beep	Root tag	optional	"yes" "no"	Whether to play a tone when the XML object is opened. Default value is "yes".
cancelAction	Root tag	optional	URI	Define the URI to be called when the user cancels the XML object.
Timeout	Root tag	optional	"integer"	If there is no operation at a fixed interval (in seconds) on the phone, the phone will automatically exit from the Directory screen. If it is set to 0, the phone will not exit from the Directory screen until pressing the "Exit" soft key or "X" key. Default value is 45. **Note**: If "cancelAction" is not left blank, the function of "X" key is calling the URI defined by "cancelAction". If "cancelAction" is left blank, the function of "X" key is returning to the idle screen. **Note**: Pressing the "X" key is not applicable to SIP-T19(P) E2 IP phones.
LockIn	Root tag	optional	"yes" "no"	If it is set to "yes", the phone ignores specified function key events. Default value is "no". For more information, refer to the function keys and soft keys table shown next.
Title	Body	mandatory	string	The title of the address

Parameter	Position	Type	Value	Description
				book.
wrap	Title tag	optional	"yes" "no"	Whether to display the title in multi-lines when the content of the title is more than one line. (up to 3 lines for SIP-T27 IP phones; up to 2 lines for SIP-T42G/T41P/T40P/T23P/T23G/T21(P) E2/T19(P) E2 IP phones; not limit for SIP-T48G/T46G/T29G with space in title) Select "yes" display in multi-lines, and "no" for one line. Default value is "yes".
MenuItem	Body	mandatory	none	Address item. (Value ranges from 1 to 30.)
Prompt	MenuItem body	mandatory	string	The prompt of address item.
URI	MenuItem body	mandatory	URI	The operation of address item, such as the telephone number.
SoftKey	Body	optional	string	Refer to Customizable Soft keys for more information.

If there is no soft key defined in the Directory object, the LCD screen displays the following default soft keys:

For SIP-T46G/T42G/T41P/T40P/T29G/T27P/T23P/T23G/T21(P) E2/T19(P) E2 IP phones:

SoftKey Index	Label	URI
1	Send	SoftKey:Dial
2	Previous	SoftKey:Previous Execute the URI defined by "Previous".
3	Next	SoftKey:Next

SoftKey Index	Label	URI
		Execute the URI defined by "Next".
4	Exit	SoftKey:Exit

For SIP-T48G IP phones:

SoftKey Index	Label	URI
1	Send	SoftKey:Dial
2	Previous	SoftKey:Previous Execute the URI defined by "Previous".
3	Next	SoftKey:Next Execute the URI defined by "Next".

The function keys and soft keys are listed in the following table:

Key Name	Operation	Function
Up/Down Key	Pressing the up/down keys	Browse a contact up and down.
Left/Right Key	Pressing the left/right keys	Turn pages.
Digit Key	Pressing the digit keys 1~9	If the value of the LockIn is "no", the function of the digit key is highlighting a contact. If the value of the LockIn is "yes", the phone will be no response. **Note:** IP phones support one-digit number only. If you press the digit that exceeds the maximum of the menu items, the phone will be no response.
Send	Pressing the Send soft key	Dial out the number of the highlighted contact.
Previous	Pressing the Previous soft key	Execute the URI defined by "Previous".
Next	Pressing the Next soft key	Execute the URI defined by "Next".
Exit	Pressing the Exit soft key/Taping (only for SIP-T48G IP phones)	Exit from the current XML screen.

Key Name	Operation	Function
Off-hook/ Line Key/ Hands-free Key	Off hook Pressing the line key/Hands-free key	If the value of the LockIn is "no" and there is a number contained in the URI tag, the phone will dial out the number. If the value of the LockIn is "no" and there is no number contained in the URI tag: For pressing the line key, the phone will be no response. For off hook and pressing hands-free key, the phone will enter the pre-dialing screen. If the value of the LockIn is "yes" and there is a number contained in the URI tag: For off hook and pressing the line key, the phone will dial out the number. For pressing hands-free key, the phone will be no response to any operation. If the value of the LockIn is "yes" and there is no number contained in the URI tag, the phone will be no response to any operation. **Note**: Pressing the line key is not applicable to SIP-T19(P) E2 IP phones.
Cancel Key	Pressing the "X" key	If "cancelAction" is not left blank, the function of "X" key is calling the URI defined by "cancelAction". If "cancelAction" is left blank, the function of "X" key is returning to the idle screen. **Note**: Pressing the "X" key is not applicable to SIP-T19(P) E2 IP phones.
OK/√ Key	Pressing the "OK/√" key	The function of "OK/√" key is the same as that of "Send".

An example of the Directory object:

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<YealinkIPPhoneDirectory
    defaultIndex="1"
    next="http://10.3.5.198/ImageMenu.xml"
    previous="http://10.3.5.198/ImageScreen.xml"
    cancelAction="http://10.3.5.198/TextScreen.xml"
    Timeout="15"
```

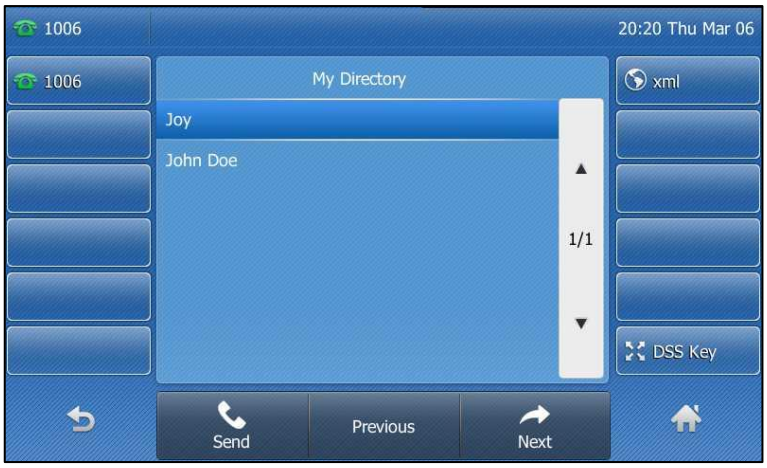
```
        LockIn="no">
<Title>My Directory</Title>
    <MenuItem>
    <Prompt>Joy</Prompt>
    <URI>10.2.11.163</URI>
    </MenuItem>
    <MenuItem>
    <Prompt>John Doe</Prompt>
    <URI>1003</URI>
    </MenuItem>
</YealinkIPPhoneDirectory>
```

In the example, with the first item selected and taking SIP-T23G IP phone for reference:

- Picking up handset, the phone will dial "10.2.11.163".
- Pressing the hands-free key, the phone will dial "10.2.11.163".
- Pressing the line key, the phone will dial "10.2.11.163".
- Pressing the **Previous** soft key, the phone will call http://10.3.5.198/ImageScreen.xml.
- Pressing the **Next** soft key, the phone will call http://10.3.5.198/ImageMenu.xml.
- Pressing the **X** key, the phone will call http://10.3.5.198/TextScreen.xml.

The screenshot of the SIP-T23G IP phone user interface for reference is shown as below:

The screenshot of the SIP-T48G IP phone user interface for reference is shown as below:



The screenshot of the SIP-T46G IP phone user interface for reference is shown as below:

Status Object

The Status object allows users to display a status message on a single designated line on the phone's idle screen when XML information is pushed from the servers. The Status object can remind users of received messages, missed calls, news, notify, etc.

XML description of the Status object:

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<YealinkIPPhoneStatus
      Beep = "yes/no"
      SessionID="String"
      Timeout = "timeout"
      >
        <Message
            Account = "user@server URI"
            Icon = "icon index"
```

```
            Size="normal/small/double/large"
            Align="center/left/right"
            Color="white/black/red/green/brown/blue/magenta/cyan/lightgray
            /darkgray/lightred/lightgreen/yellow/lightblue/lightmagenta/lightcyan">
            Message</Message>
        <!--Additional Message Items may be added -->
</YealinkIPPhoneStatus>
```

The parameters of the Status object are listed in the following table:

Parameter	Position	Type	Value	Description
YealinkIPPhoneStatus	Root tag	mandatory	none	The root element of the Status object.
Beep	Root tag	optional	"yes" "no"	Whether to play a tone when the XML object is opened. Default value is "yes".
SessionID	Root tag	optional	string	Session ID is used to mark different Status Objects. It allows message change and message reset. For more information, refer to remove status messages from the display using the same Session ID. **Note:** The Session ID must be unique to the application sending the XML object to the phone.
Timeout	Root tag	optional	"integer"	The time for status information display. The phone will automatically exit from the status screen at a fixed interval (in seconds) on the phone. Default value is 30. If it is set to 0, the phone will not exit from the status screen until the server sends a cancel

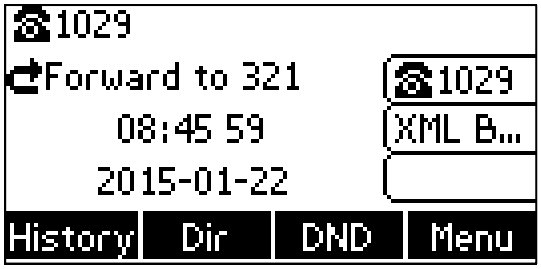
Parameter	Position	Type	Value	Description
				request or the phone reboots.
Message	Body	optional	string	Message to be displayed or empty to reset the message. (Up to 10 instances for SIP-T48G with small font size. Up to 5 instances for SIP-T46G and SIP-T29G with small font size. Only 1 instance for other phone models)
Account	Message tag	optional	string	Specify the registered account for the status. (To display the message, this account must be registered on the phone.)
Icon	Message tag	optional	Forward DND Message	Icon used to index status message.
Size	Message tag	optional	"normal" "small" "double" "large"	Font size of the text. "small": 12 pt "normal": 18 pt "double": 24 pt "large": 28 pt Default value is "normal". For SIP-T42G/T41P/T40P/T27P/T23P/T23G/T21(P) E2/T19(P) E2: This parameter will be ignored.
Align	Message tag	optional	"center" "left" "right"	Alignment of the message display. Default value is "left".
Color	Message tag	optional	"white" "black"	Color of the line. For

Parameter	Position	Type	Value	Description
			"red" "green" "brown" "blue" "magenta" "cyan" "lightgray" "darkgray" "lightred" "lightgreen" "yellow" "lightblue" "lightmagenta" "lightcyan"	SIP-T42G/T41P/T40P/T27P/T23P/T23G/T21(P) E2/T19(P) E2: This parameter will be ignored and the text displayed is always black. For SIP-T48G/T46G/T29G: Default value is "white".

An example of the Status object:

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<YealinkIPPhoneStatus
    Beep="yes"
    SessionID="125"
    Timeout="600">
    <Message Size="large" Align="left" Color="red" Account="" Icon="Forward">Forward to 321</Message>
    <Message Size="normal" Align="center" Color="black" Account="" Icon="DND">DND is enabled</Message>
    <Message Size="small" Align="right" Color="green" Account="" Icon="Message">1 New Message</Message>
</YealinkIPPhoneStatus>
```

The screenshot of the SIP-T23G IP phone user interface for reference is shown as below:



The screenshot of the SIP-T48G IP phone user interface for reference is shown as below:

The screenshot of the SIP-T46G IP phone user interface for reference is shown as below:

The status messages will be erased when the phone is restarted.

You can also remove status messages from the display using the same Session ID. This can be accomplished by setting an empty tag for the Message tag. For example, here is the XML object to remove the message in the first line.

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<YealinkIPPhoneStatus
        Beep="yes"
        SessionID="125"
        Timeout="600">
        <Message/>
        <Message Size="normal" Align="center" Color="black" Account="" Icon="DND">DND is enabled</Message>
        <Message Size="small" Align="right" Color="green" Account="" Icon="Message">1 New Message</Message>
</YealinkIPPhoneStatus>
```

Execute Object

The Execute object allows an external application to ask the phone to execute a sequence of local commands using URIs. The phone will execute each specified command in order.

XML description of the Execute object:

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<YealinkIPPhoneExecute
        Beep = "yes/no">
        <ExecuteItem URI = "URI"/>
        <!--Additional Execute Items may be added (up to 30)-->
</YealinkIPPhoneExecute>
```

The parameters of the Execute object are listed in the following table:

Parameter	Position	Type	Value	Description
YealinkIPPhoneExecute	Root tag	mandatory	none	The root element of the Execute object.
Beep	Root tag	optional	"yes" "no"	Whether to play a tone when beginning to execute the commands. Default value is "yes".
ExecuteItem URI	ExecuteItem tag	mandatory	URI	The operation of command item, such as call user, data download from server according to the URL, etc. Valid values are listed in the following tables.

Commonly used commands:

Name	URI Value	Function
Supported URI	http(s)://myserver.com/TextMenu.xml	Execute the object "TextMenu.xml" from the root directory on the server "myserver.com". **Note**: If more than one object is executed, we

Name	URI Value	Function
		recommend you separate the object which requires a reboot. Otherwise, other objects will not to be executed after a reboot.
	Dial:XXXXX	Dial out the number using the first available account. If you execute this command during an active call, the original call will be automatically placed on hold. (e.g., if you set URI="Dial:1234", IP phone will dial out 1234 using the first available account.)
	Led:XXXX=on/off/slowflash/fastflash	Control the LEDs according to the commands. See the following table for more information.
	Key:XXXX	Execute XXXX key operation. See the following table for more information.
	Wav.Play:[tftp|http://[username[:password]@]<host>[:port][/<Path>]/<file>	Play the WAV file. (e.g., if you set URI="Wav.Play:http://10.3.6.128:8080/song.wav", the phone will play the ring tone stored on the server 10.3.6.128.)
	Wav.Stop:[tftp|http://[username[:password]@]<host>[:port][/<Path>]/<file>	Stop playing the WAV file. (e.g., if you set URI="Wav.Stop:http://10.3.6.128:8080/song.wav", the phone will stop to

Name	URI Value	Function
		play the ring tone stored on the server 10.3.6.128.)
Phone Reset	Command: Reset	Reset to the factory when the phone is idle.
Phone Fast Reboot	Command: Reboot	Reboot the phone when the phone is idle.
Phone Lock	Command: Lock	Lock the phone key.
Phone Unlock	Command: Unlock **Note:** The LCD screen prompts for unlock pin if the XML Browser key is locked.	Unlock the phone key
Clear	Command: ClearCallersList	Clear local call history list.
	Command: ClearDirectory	Clear contact list.
	Command: ClearRedialList	Clear placed calls list.

Specification of "XXXX" in "Led:XXXX=on/off/slowflash/fastflash":

Setting Method	Indicator	Example
EXP-%d-%d2-%s	**%d**: the "%d"th expansion module, value range: 1~6; **%d2**: the "%d"th key of expansion module, value range: 1~40; **%s:** the light color, values: "RED", "GREEN" and "ORANGE". (for EXP20, EXP38, EXP39 and EXP40)	"Led:EXP-2-3-RED=on": Lighten the indicator of the third key of the second expansion module to be red.
LINE%d_%s	**%d**: It represents the serial number of corresponding line key, value range: 1~29 (for SIP-T48G), 1~27 (for SIP-T46G/T29G), 1~15 (For SIP-T42G/T41P), 1~21 (for SIP-T27P), 1~3 (For SIP-T40P/T23P/T23G) and 1~2 (For SIP-T21(P) E2) **%s**: The light color, values: "RED", "GREEN" and "ORANGE".	For SIP-T48G: "Led:LINE5_GREEN=on": Lighten the line key5 background to be green. For others: "Led:LINE5_GREEN=on": Lighten the line key5 LED to be green.

Setting Method	Indicator	Example
SMS	Message indicator LED (for SIP-T41P/T40P/T42G/T21(P) E2/T23P/T23G/T27P/T29G IP phones)	
HEADSET	Headset indicator LED (for SIP-T48G/T46G/T42G/T41P/T29G/T27P IP phones)	
HANDFREE	Hands-free indicator LED (for SIP-T48G/T46G/T42G/T41P IP phones only)	
POWER	Power indicator LED	

Specification of "XXXX" in "Key:XXXX":

Setting Method	Indicator	Example
OFF_HOOK	Off hook	Key: OFF_HOOK
ON_HOOK	On hook	
OK	OK/√ key	
CANCEL	X key (not applicable to SIP-T19(P) E2 IP phones)	
UP	Up key	
DOWN	Down key	
LEFT	Left key	
RIGHT	Right key	
INCREASE	Trigger to display the volume bar when you set the command once. Increase volume when you set the command again.	
DECREASE	Trigger to display the volume bar when you set the command once. Decrease volume when you set the command again.	
REDIAL	Redial key	
HOLD	Hold the line	

Setting Method	Indicator	Example
MUTE	Mute	
CONFERENCE	Conference	
TRANSFER	Transfer	
SMS	Message key	
HEADSET	Activate the headset mode	
HANDFREE	Hands-free key	
LINE%d	Line key, 1~29 (for SIP-T48G), 1~27 (for SIP-T46G/T29G), 1~15 (for SIP-T42G/T41P), 1~21 (for SIP-T27P), 1~3 (For SIP-T40P/T23P/T23G) and 1~2 (For SIP-T21(P) E2).	Key:LINE2
HOTKEY%d	Soft key, value 1~4	
KEY_%d	Digit key, value 0~9	
STAR	'*' key	
POUND	'#' key	

An example of the Execute object:

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<YealinkIPPhoneExecute Beep="yes">
<ExecuteItem URI="Key:OK"/>
</YealinkIPPhoneExecute>
```

The IP phone enters the phone status screen.

Configuration Object

The Configuration object allows an external application to modify configuration of the IP phones dynamically. The configuration parameters are ones that are used in configuration files (Common.cfg and MAC.cfg) detailed in *Yealink_SIP-T2_Series_T19(P)E2_T4_Series_CP860_IP_Phones_Auto_Provisioning_Guide*.

XML description of the Configuration object:

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<YealinkIPPhoneConfiguration
        Beep = "yes/no">
       <Item>parameter= value</Item>
```

```
        <!--Additional Configuration Items may be added (up to 1300)-->
</YealinkIPPhoneConfiguration>
```

The parameters of the Configuration object are listed in the following table:

Parameter	Position	Type	Value	Description
YealinkIPPhoneConfiguration	Root tag	mandatory	none	The root element of the Configuration object.
Beep	Root tag	optional	"yes" "no"	Whether to play a tone when applying the configuration. Default value is "yes".
Item	Body	mandatory	none	Configuration item.

An example of the Configuration object:

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<YealinkIPPhoneConfiguration
      Beep="yes" >
      <Item>account.2.enable = 1</Item>
      <Item>account.2.label = 7002</Item>
      <Item>account.2.display_name = 7002 </Item>
      <Item>account.2.user_name = 7002</Item>
      <Item>account.2.auth_name = 7002</Item>
      <Item>account.2.sip_server.1.address = 10.2.1.199</Item>
</YealinkIPPhoneConfiguration>
```

The IP phone registers account 7002 on line 2.

FormattedTextScreen Object

The FormattedTextScreen object allows IP phones to display formatted (alignment, size, color and scrolling) texts on the LCD screen.

This text is divided into the following 3 distinct blocks, any of which can be empty:

- The Header block is displayed at the top of the LCD screen and contains static text. This block can display 2-line texts at most.
- The Scroll block is displayed under the Header block. How many lines of text can be displayed on this block depends on the size of the LCD screen.
- The Footer block is displayed at the bottom of the LCD screen with static text. This block can display one line only.

XML description of the FormattedTextScreen object:

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<YealinkIPPhoneFormattedTextScreen
        destroyOnExit="yes/no"
        doneAction = "URI"
        Beep = "yes/no"
        Timeout = "integer"
        LockIn = "yes/no">
        <Line
            Size="normal/small/double/large"
            Align="center/left/right"
            Color="white/black/red/green/brown/blue/magenta/cyan/lightgray/darkgray
            /lightred/lightgreen/yellow/lightblue/lightmagenta/lightcyan"
            >Header Line</Line>
        <!-Additional Line may be added- ->
        <Scroll>
        <Line
             Size="normal/small/double/large"
             Align="center/left/right"
             Color="white/black/red/green/brown/blue/magenta/cyan/lightgray
             /darkgray/lightred/lightgreen/yellow/lightblue/lightmagenta/lightcyan"
             >Scroll Line</Line>
        <!-Additional Line may be added- ->
        </Scroll>
        <Line
             Size="normal/small/double/large"
             Align="center/left/right"
             Color="white/black/red/green/brown/blue/magenta/cyan/lightgray/darkgray
             /lightred/lightgreen/yellow/lightblue/lightmagenta/lightcyan"
             >Footer Line</Line>
        <!--Additional Line may be added-->
 <!--Additional Softkey Items may be added (softkey phones) -->
</YealinkIPPhoneFormattedTextScreen >
```

The parameters of the FormattedTextScreen object are listed in the following table:

Parameter	Position	Type	Value	Description
YealinkIPPhoneFormattedTextScreen	Root tag	mandatory	none	The root element of the FormattedTextScreen object.
destroyOnExit	Root tag	optional	"yes" "no"	Select "yes" to return to the previous XML object after exit. Select "no" to return to the previous screen, and keep in the same XML object after exit. Default value is "no".
doneAction	Root tag	optional	URI	Define the URI to be called when the user presses the "OK/√" key.
Beep	Root tag	optional	"yes" "no"	Whether to play a tone when entering into the FormattedTextScreen object. Default value is "yes".
Timeout	Root tag	optional	"integer"	If there is no operation at a fixed interval (in seconds) on the phone, the phone will automatically exit from the FormattedTextScreen screen. If it is set to 0, the phone will not exit from the FormattedTextScreen screen until pressing the "Exit" soft key or "X" key. Default value is 45. **Note**: Pressing the "X" key is not applicable to SIP-T19(P) E2 IP phones.
LockIn	Root tag	optional	"yes" "no"	If it is set to "yes", the phone ignores specified function key events. Default value is "no". For

Parameter	Position	Type	Value	Description
				more information, refer to the function keys and soft keys table shown next.
Line	Body	mandatory	string	Text to be displayed on the line. If the length of the text is too long to be displayed on the LCD screen, the line will be cropped to the last word.
Size	Line tag	optional	"normal" "small" "double" "large"	Font size of the text. "small": 12 pt "normal": 18 pt "double": 24 pt "large": 28 pt Default value is "normal". For SIP-T42G/T41P/T40P/T27P/T23P/T23G/T21(P) E2/T19(P) E2 IP phones: This parameter will be ignored.
Align	Line tag	optional	"center" "left" "right"	Alignment of the text. Default value is "left"
Color	Line tag	optional	"white" "black" "red" "green" "brown" "blue" "magenta" "cyan" "lightgray" "darkgray" "lightred"	Color of the text. For SIP-T42G/T41P/T40P/T27P/T23P/T23G/T21(P) E2/T19(P) E2 IP phones: This parameter will be ignored and the text displayed is always black. For SIP-T48G/T46G/T29G IP phones: Default value is "white".

Parameter	Position	Type	Value	Description
			"lightgreen" "yellow" "lightblue" "lightmagenta" "lightcyan"	
Scroll	Body	optional	none	Define the scrolling content for display. The Line above the Scroll is as Header, under the Scroll is as Footer.
Line	Scroll body	optional	string	Text to be displayed on the line in the scrolled zone. If the length of the text is too long to be displayed on the LCD screen, the line will be cropped to the last word.
Size	Line tag nested in scroll body	optional	"normal" "small" "double" "large"	Font size of the text. "small": 12 pt "normal": 18 pt "double": 24 pt "large": 28 pt Default value is "normal". For SIP-T42G/T41P/T40P/T27P/T23P/T23G/T21(P) E2/T19(P) E2 IP phones: This parameter will be ignored.
Align	Line tag nested in scroll body	optional	"center" "left" "right"	Alignment of the text. Default value is "left"
Color	Line tag nested in scroll body	optional	"white" "black" "red" "green"	Color of the text. For SIP-T42G/T41P/T40P/T27P/T23P/T23G/T21(P) E2/T19(P) E2 IP phones:

Parameter	Position	Type	Value	Description
			"brown" "blue" "magenta" "cyan" "lightgray" "darkgray" "lightred" "lightgreen" "yellow" "lightblue" "lightmagenta" "lightcyan"	This parameter will be ignored and the text displayed is always black. For SIP-T48G/T46G/T29G IP phones: Default value is "white".
SoftKey	Body	optional	string	Refer to Customizable Soft keys for more information.

If there is no soft key defined in the FormattedTextScreen object, the LCD screen displays the following default soft key (the SIP-T48G IP phone does not display the soft key):

SoftKey Index	Label	URI
1	Exit	SoftKey:Exit

The function keys and soft keys are listed in the following table:

Key Name	Operation	Function
Up/Down Key	Pressing the up/down keys	**For SIP-T46G/T42G/T41P/T40P/T29G/T27P/T23P/T23G/T21(P) E2/T19(P) E2:** Browse texts up and down line by line. **For SIP-T48G:** Turn pages.
Left/Right Key	Pressing the left/right keys	Turn pages.
Exit	Pressing the "Exit" soft key/Taping (only for SIP-T48G IP phones)	Exit from the current XML screen.
Off-hook/	Off hook	If the value of the LockIn is "no", the phone

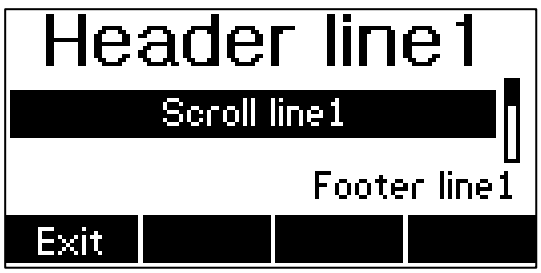
Key Name	Operation	Function
Line Key/ Hands-free Key	Pressing the line key/Hands-free key	will enter pre-dialing screen. If the value of the LockIn is "yes", the phone will be no response to any operation. **Note**: Pressing the line key is not applicable to SIP-T19(P) E2 IP phones.
Cancel Key	Pressing the "X" key	Return to the idle screen. **Note**: Pressing the "X" key is not applicable to SIP-T19(P) E2 IP phones.
OK/√ Key	Pressing the "OK/√" key	The function of "OK/√" key is calling the URI defined by "doneAction".

An example of the FormattedTextScreen object:

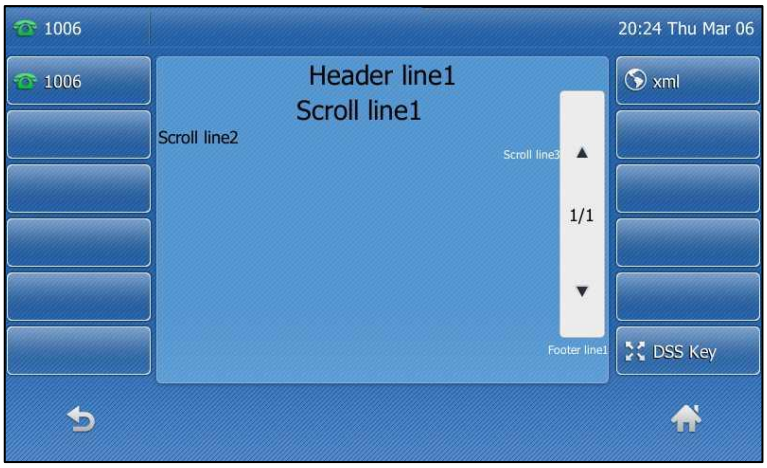
```
<?xml version="1.0" encoding="ISO-8859-1"?>
<YealinkIPPhoneFormattedTextScreen
    doneAction="http://10.1.0.105/menu.php"
    Beep="yes"
    Timeout="60"
    LockIn="no">
    <Line Size="large" Align="center">Header line1</Line>
    <Scroll>
        <Line Size="large" Align="center">Scroll line1</Line>
        <Line Align="left" Color="black">Scroll line2</Line>
        <Line Size="small" Align="right" Color="white">Scroll line3</Line>
    </Scroll>
    <Line Size="small" Align="right" Color="white">Footer line1</Line>
</YealinkIPPhoneFormattedTextScreen>
```

In this example, when you press the **OK/√** key, the phone will call http://10.1.0.105/menu.php.

The screenshot of the SIP-T23G IP phone user interface for reference is shown as below:



The screenshot of the SIP-T48G IP phone user interface for reference is shown as below:



The screenshot of the SIP-T46G IP phone user interface for reference is shown as below:

ImageScreen Object

The ImageScreen object allows users to display simple image on the IP phones. The user can specify where the image should be placed by setting horizontal and vertical alignment of the upper left hand corner, along with the height and width of the image.

Note

For SIP-T42G, SIP-T41P, SIP-T40P, SIP-T27P, SIP-T23P/G, SIP-T21(P) E2 and SIP-T19(P) E2 IP phones, the image is a "dob" file, which is specified as a series of hexadecimal characters. For more information on converting a "dob" file to hexadecimal string, refer to Customizing an Image File on page 101.

For SIP-T29G, SIP-T46G and SIP-T48G IP phones, the image is a "jpg", "bmp" or "png" file located on a server, which can be downloaded by the phone.

XML description of the ImageScreen object:

```
<YealinkIPPhoneImageScreen
        destroyOnExit="yes/no"
        doneAction = "URI"
        Beep = "yes/no"
        Timeout = "integer"
        LockIn = "yes/no"
        mode="regular/fullscreen">
    <Image
        horizontalAlign="right/middle/left"
        verticalAlign="top/middle/bottom"
        height="integer"
        width="integer"
        >Image as hexadecimal characters or URL</Image>
        <!--Additional Softkey Items may be added -->
</YealinkIPPhoneImageScreen>
```

The parameters of the ImageScreen object are listed in the following table:

Parameter	Position	Type	Value	Description
YealinkIPPhoneImageScreen	Root tag	mandatory	none	The root element of the ImageScreen object.
destroyOnExit	Root tag	optional	"yes" "no"	Select "yes" to return to the previous XML object after exit. Select "no" to return to the previous screen, and keep in the same XML object after exit. Default value is "no".
doneAction	Root tag	optional	URI	Define the URI to be called when the user presses the "OK/√" key.
Beep	Root tag	optional	"yes" "no"	Whether to play a tone when the XML object is opened. Default value is "yes".
Timeout	Root tag	optional	"integer"	If there is no operation at

Parameter	Position	Type	Value	Description
				a fixed interval (in seconds) on the phone, the phone will automatically exit from the ImageScreen screen. If it is set to 0, the phone will not exit from the ImageScreen screen until pressing the "Exit" soft key or "X" key. Default value is 45. **Note**: Pressing the "X" key is not applicable to SIP-T19(P) E2 IP phones.
LockIn	Root tag	optional	"yes" "no"	If it is set to "yes", the phone ignores specified function key events. Default value is "no". For more information, refer to the function keys and soft keys table shown next.
Mode	Root tag	optional	"regular" "fullscreen"	The display mode of the image. If not specified, the default value is "regular".
Image	Body	mandatory	string	Image as hexadecimal characters (for SIP-T42G/T41P/T40P/T27P/T23P/T23G/T21(P) E2/T19(P) E2) or URL (for SIP-T48G/T46G/T29G).
horizontal Align	Image tag	optional	"left" "middle" "right"	Vertical position of the image. Default value is "middle".
verticalAlign	Image tag	optional	"top" "middle" "bottom"	Horizontal position of the image. Default value is "middle".
height	Image tag	mandatory (For SIP-T27P/T23P/T	integer	Height in pixels. Must match the image height.

Parameter	Position	Type	Value	Description
		23G/T21(P) E2/T19(P) E2/T42G/T41P/T40P)		
width	Image tag	mandatory (For SIP-T27P/T23P/T23G/T21(P) E2/T19(P) E2/T42G/T41P/T40P)	integer	Width in pixels. Must match the image width.
SoftKey	Body	optional	string	Refer to Customizable Soft keys for more information.

If there is no softkey defined in the ImageScreen object, the LCD screen displays the following default soft key (the SIP-T48G IP phone does not display the soft key):

For SIP-T46G/T42G/T41P/T40P/T29G/T27P/T23P/T23G/T21(P) E2/T19(P) E2 IP phones:

SoftKey Index	Label	URI
1	Exit	SoftKey:Exit

The function keys and soft keys are listed in the following table:

Key Name	Operation	Function
Exit	Pressing the Exit soft key/Taping (only for SIP-T48G IP phones)	Exit from the current XML screen.
Off-hook/ Line Key/ Hands-free Key	Off hook Pressing the line key/Hands-free key	If the value of the LockIn is "no", the phone will enter pre-dialing screen. If the value of the LockIn is "yes", the phone will be no response to any operation. **Note**: Pressing the line key is not applicable to SIP-T19(P) E2 IP phones.
Cancel Key	Pressing the "X" key	Return to the idle screen. **Note**: Pressing the "X" key is not applicable to SIP-T19(P) E2 IP phones.
OK/√ Key	Pressing the "OK/√" key	The function of "OK/√" key is calling the URI

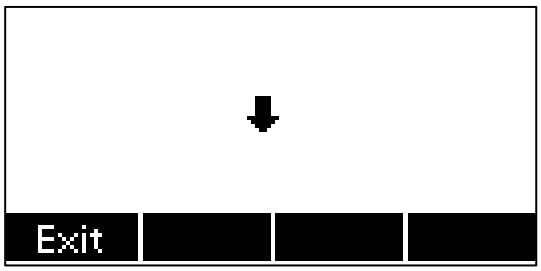
Key Name	Operation	Function
		defined by "doneAction".

An example of the ImageScreen object (for SIP-T42G/T41P/T40P/T27P/T23P/T23G/T21(P) E2/T19(P) E2):

```
<YealinkIPPhoneImageScreen
        doneAction="http://10.1.0.105/menu.php"
        Beep="yes"
        Timeout="120"
        LockIn="no"
        mode="regular">
    <Image
    verticalAlign="middle"
    horizontalAlign="middle"
    height="12"
    width="8">
    00555500005555000000000000aaaa0000aaaa0000ffff0000ffff0000ffff00ffffffff0ffff0f00fff0
    000f00f00</Image>
</YealinkIPPhoneImageScreen>
```

In this example, when you press the **OK/√** key, the phone will call http://10.1.0.105/menu.php.

The screenshot of the SIP-T23G IP phone user interface for reference is shown as below:



An example of the ImageScreen object (for SIP-T48G/T46G/T29G):

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<YealinkIPPhoneImageScreen
 doneAction="http://10.1.0.105/menu.php"
 Beep="yes"
 Timeout="60"
 LockIn="no"
 mode="regular">
 <Image
```

```
horizontalAlign="middle"
verticalAlign="middle"
>http://10.3.5.198/test.jpg</Image>
</YealinkIPPhoneImageScreen>
```

In this example, when you press the **OK/√** key, the phone will call http://10.1.0.105/menu.php.

The screenshot of the SIP-T48G IP phone user interface for reference is shown as below:

The screenshot of the SIP-T46G IP phone user interface for reference is shown as below:

ImageMenu Object

The ImageMenu object allows users to create an image list of menu items on the IP phones. The user can specify the image menu items to link HTTP requests.

Note

ImageMenu object is applicable to SIP-T48G, SIP-T46G, SIP-T42G, SIP-T41P, SIP-T40P, SIP-T29G, SIP-T27P, SIP-T23P/G, SIP-T21(P) E2 and SIP-T19(P) E2 IP phones running firmware version 80 or later.

For SIP-T42G, SIP-T41P, SIP-T40P, SIP-T27P, T23P/G, SIP-T21(P) E2 and SIP-T19(P) E2, the image is a "dob" file, which is specified as hexadecimal string. For more information on converting a "dob" file to hexadecimal string, refer to Customizing an Image File on page 101.

For SIP-T29G, SIP-T46G and SIP-T48G IP phones, the image is a "jpg", "bmp" or "png" file located on a server, which can be downloaded by the phone.

XML description of the ImageMenu object:

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<YealinkIPPhoneImageMenu
        destroyOnExit="yes/no"
        doneAction = "URI"
        Beep = "yes/no"
        Timeout = "integer"
        LockIn = "yes/no"
        mode="regular/fullscreen"
       >
       <Image
        horizontalAlign="right/middle/left"
        verticalAlign="top/middle/bottom"
        height="integer"
        width="integer"
       > Image as hexadecimal characters or URL </Image>
       <URIList base="URL">
          <URI key=" 0-9,* or #">URL</URI>
           <!--Additional URI entries may be added (0-9,* and #)-->
          </URIList>
       <!--Additional Softkey Items may be added -->
</YealinkIPPhoneImageMenu>
```

The parameters of the ImageMenu object are listed in the following table:

Parameter	Position	Type	Value	Description
YealinkIPPh	Root tag	mandatory	none	The root element of the

Parameter	Position	Type	Value	Description
oneImage Menu				ImageMenu object.
destroyOn Exit	Root tag	optional	"yes" "no"	Select "yes" to return to the previous XML object after exit. Select "no" to return to the previous screen, and keep in the same XML object after exit. Default value is "no".
doneAction	Root tag	optional	URI	Define the URI to be called when the user presses the "OK/√" key.
Beep	Root tag	optional	"yes" "no"	Whether to play a tone when the XML object is opened. Default value is "yes".
Timeout	Root tag	optional	"integer"	If there is no operation at a fixed interval (in seconds) on the phone, the phone will automatically exit from the ImageMenu screen. If it is set to 0, the phone will not exit from the ImageMenu screen until pressing the "Exit" soft key or "X" key. Default value is 45. **Note**: Pressing the "X" key is not applicable to SIP-T19(P) E2 IP phones.
LockIn	Root tag	optional	"yes" "no"	If it is set to "yes", the phone ignores specified function key events. Default value is "no". For more information, refer to the function keys and soft keys table shown next.

Parameter	Position	Type	Value	Description
mode	Root tag	optional	"regular" "fullscreen"	The display mode of the image. If it is not specified, the default value is "regular".
Image	Body	mandatory	string	Image as hexadecimal characters (for SIP-T42G/T41P/T40P/T27P/T23P/T23G/T21(P) E2/T19(P) E2) or URL (for SIP-T48G/T46G/T29G).
horizontalAlign	Image tag	optional	"left" "middle" "right"	Vertical position of the image. Default value is "middle".
verticalAlign	Image tag	optional	"top" "middle" "bottom"	Horizontal position of the image. Default value is "middle".
height	Image tag	mandatory (For SIP-T27P/T23P/T23G/T21(P) E2/T19(P) E2/T42G/T41P/T40P)	integer	Height in pixels. Must match the image height.
width	Image tag	mandatory (For SIP-T27P/T23P/T23G/T21(P) E2/T19(P) E2/T42G/T41P/T40P)	integer	Width in pixels. Must match the image width.
URIList	Body	mandatory	none	Master tag of the URI list linked to a keypad key (0-9, * and #).
Base	URIList tag	optional	string	The Base value is the parent directory of the URI value.
URI	URIList body	mandatory	string	URI to be used if the user presses the key defined in the "Key" tag.

Parameter	Position	Type	Value	Description
Key	URI tag	mandatory	0-9,* and #	Define the key to trigger the URI.
SoftKey	Body	optional	string	Refer to Customizable Soft keys for more information.

If there is no soft key defined in the ImageMenu object, the LCD screen displays the following default soft key (the SIP-T48G IP phone does not display the soft key):

SoftKey Index	Label	URI
1	Exit	SoftKey:Exit

The function keys and soft keys are listed in the following table:

Key Name	Operation	Function
Keypad	Pressing the digit keys 0~9 * and # keys.	If the value of the LockIn is "no", the function is triggering the pre-defined URI. If the value of the LockIn is "yes", the phone will be no response to any operation.
Exit	Pressing the Exit soft key/Taping (only for SIP-T48G IP phones)	Exit from the current XML screen.
Off-hook/ Line Key/ Hands-free Key	Off hook Pressing the line key/Hands-free key	If the value of the LockIn is "no", the phone will enter pre-dialing screen. If the value of the LockIn is "yes", the phone will be no response to any operation. **Note**: Pressing the line key is not applicable to SIP-T19(P) E2 IP phones.
Cancel Key	Pressing the "X" key	Return to the idle screen. **Note**: Pressing the "X" key is not applicable to SIP-T19(P) E2 IP phones.
OK/√ Key	Pressing the "OK/√" key	The function of "OK/√" key is calling the URI defined by "doneAction".

An example of the ImageMenu object (for SIP-T42G/T41P/T40P/T27P/T23P/T23G/T21(P) E2/T19(P) E2):

```
<?xml version="1.0" encoding="ISO-8859-1"?>
```

```
<YealinkIPPhoneImageMenu
        doneAction="http://10.1.0.105/menu.php"
        Beep = "yes"
        Timeout = "120"
        LockIn = "no"
        mode="regular">
      <Image
       verticalAlign="middle"
       horizontalAlign="middle"
        height="81"
        width="59">
        00000000000000000000000000000000…50ff08b2fd2db301780000</Image>
        <!--Here just provide portion of hexadecimal string, use Yealink-supplied tool
        "Dob2Text.exe" to convert a "dob" file to the hexadecimal string-->
      <URIList base="http://10.3.6.129:8080/XML/new/">
        <URI key="#">TextMenu.xml</URI>
        <URI key="0">Directory.xml</URI>
        <URI key="1">InputScreen.xml</URI>
      </URIList>
</YealinkIPPhoneImageMenu>
```

In this example, you can do the followings:

- Press the pound key to enter the TextMenu screen.
- Press the digit key 0 to enter the Directory screen.
- Press the digit key 1 to enter the InputScreen screen.
- Press the **OK/√** key, the phone will call http://10.1.0.105/menu.php. If you use the SIP-T19(P) E2 IP phone, you should press **OK/√** key.

An example of the ImageMenu object (for SIP-T48G/T46G/T29G):

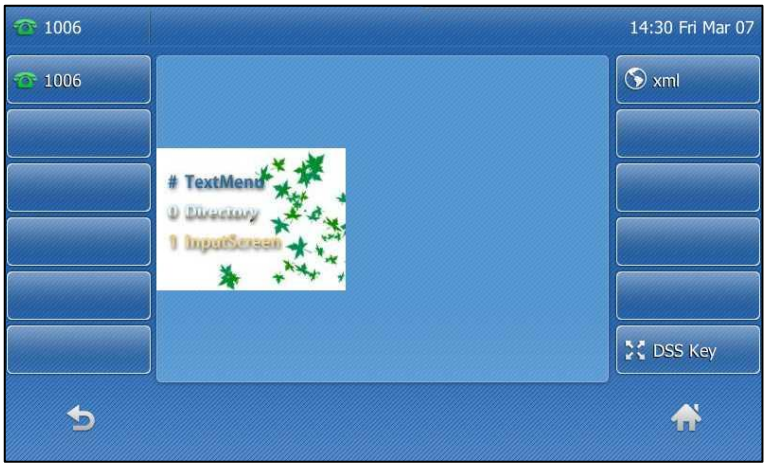
```
<?xml version="1.0" encoding="ISO-8859-1"?>
<YealinkIPPhoneImageMenu
        doneAction="http://10.1.0.105/menu.php"
        Beep = "yes"
        Timeout = "120"
        LockIn = "no"
        mode="regular">
      <Image
```

```
    verticalAlign="middle"
    horizontalAlign="left"
    >http://10.3.6.129:8080/XML/new/ImageMenu.jpg</Image>
  <URIList base="http://10.3.6.129:8080/XML/new/">
    <URI key="#">TextMenu.xml</URI>
    <URI key="0">Directory.xml</URI>
    <URI key="1">InputScreen.xml</URI>
  </URIList>
</YealinkIPPhoneImageMenu>
```

In this example, you can do the followings:

- Press the pound key to enter the TextMenu screen.
- Press the digit key 0 to enter the Directory screen.
- Press the digit key 1 to enter the InputScreen screen.
- Press the OK/√ key, the phone will call http://10.1.0.105/menu.php.

The screenshot of the SIP-T48G IP phone user interface for reference is shown as below:



The screenshot of the SIP-T46G IP phone user interface for reference is shown as below:

Customizable Soft keys

Yealink IP phones allow users to create soft keys with customizable labels, positions and actions to be taken when the soft keys are pressed. The customizable soft keys can override the default soft keys in each XML object.

XML descriptions of customizable soft keys:

```
<SoftKey index = "1-6">
    <Label>Text</Label>
    <URI>http://someserver/somepage/SoftKey: action/Key:action</URI>
</SoftKey>
```

Note

Customizable soft keys are only available for the UI XML objects.

If you use the customizable soft keys, the default soft keys of the XML object will not be displayed anymore. This means they have to be recreated as customizable soft keys.

The URI of the custom soft key is case sensitive.

For more information on available values of "Key:action", refer to Execute Object on page 46.

The parameters of the soft key are listed in the following table:

Parameter	Type	Value	Description
SoftKey	mandatory	none	The soft key.
Index	mandatory	Integer	Indicate the soft key number. (Value ranges from 1~6.)
Label	mandatory	String	The label of the soft key.
URI	mandatory	String	The action of the soft key.

The supported actions for each UI XML object are described in the following table:

Label	URI	Function
TextMenu Object		
Select	SoftKey:Select	Execute the URI defined by "Selection".
Exit	SoftKey:Exit	Exit from the current XML screen.
Send	SoftKey:Dial	Dial out the number of the highlighted menu item.
TextScreen Object		

Label	URI	Function
Exit	SoftKey:Exit	Exit from the current XML screen.
InputScreen Object (soft keys cannot be customized on SIP-T48G IP phones)		
BackSpace	SoftKey:BackSpace	Delete the character before the cursor in the input box.
Submit	SoftKey:Submit	Execute the command comprised of the URI and input content.
NextSpace	SoftKey:NextSpace	Insert a space in the input box at the cursor position.
Dot (.)	SoftKey:Dot	Input a "." in the input box at the cursor position.
2aB	SoftKey:ChangeMode	Input mode switch, e.g., switch the input mode among "2aB", "ABC", "abc" or "123".
Exit	SoftKey:Exit	Exit from the current XML screen.
Directory Object		
Send	SoftKey:Dial	Dial out the number of the highlighted contact.
Previous	SoftKey:Previous	Execute the URI defined by "Previous".
Next	SoftKey:Next	Execute the URI defined by "Next".
Exit	SoftKey:Exit	Exit from the current XML screen.
FormattedTextScreen Object		
Exit	SoftKey:Exit	Exit from the current XML screen.
ImageScreen Object		
Exit	SoftKey:Exit	Exit from the current XML screen.
ImageMenu Object		
Exit	SoftKey:Exit	Exit from the current XML screen.

An example of the customizable soft keys used with the TextMenu object:

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<YealinkIPPhoneTextMenu
    style="none"
    Beep="no"
    Timeout="30"
```

```
        LockIn="no">
        <Title wrap="yes">Phone Services</Title>
        <MenuItem>
        <Prompt>Ask Google</Prompt>
        <URI>http://10.2.11.158/yealink/google/google.php?user=</URI>
        <Dial>456</Dial>
        </MenuItem>
        <MenuItem>
        <Prompt>CNN News</Prompt>
        <URI>http://10.2.11.158/yealink/rss/rss.php?feed=cnn</URI>
        <Dial>1001</Dial>
        </MenuItem>
        <SoftKey index="1">
        <Label>Select</Label>
        <URI>SoftKey:Submit</URI>
        </SoftKey>
        <SoftKey index="2">
        <Label>Custom </Label>
        <URI>http://10.1.0.105/8.8.8.54.rom</URI>
        </SoftKey>
</YealinkIPPhoneTextMenu>
```

The screenshot of the IP phone user interface for reference is shown as below:

XML Objects Pushed to the Phone

The phone can request an XML object via HTTP GET, or an object can be pushed to the phone via a POST. The phone parses this object immediately upon receipt and displays the information on the screen. You can ask the distributor or Yealink FAE for php source code or obtain php source code online: http://support.yealink.com/documentFront/forwardToDocumentFrontDisplayPage.

The HTTP POST packet must contain an "xml=" line in the message body. XML data is

located after the equals sign in the message. HTML forms that post objects to the phone must use a field named "xml" to send data. The applications that construct HTTP packets must also specify this line.

To accept a pushed message, the "PushXML_ServerIP" parameter on the phone must be configured as the IP address of the push XML server. For more information, refer to Configuring the Push XML Server Address.

Description of the object oriented php class (the red contents are needed to modify):

```
<?php
#
function push2phone($server,$phone,$data)
{
$xml = "xml=".$data;
$post = "POST / HTTP/1.1\r\n";
$post .= "Host: $phone\r\n";
$post .= "Referer: $server\r\n";
$post .= "Connection: Keep-Alive\r\n";
$post .= "Content-Type: text/xml\r\n";
$post .= "Content-Length: ".strlen($xml)."\r\n\r\n";
$fp = @fsockopen ( $phone, 80, $errno, $errstr, 5);
if($fp)
{
fputs($fp, $post.$xml);
flush();
fclose($fp);
}
}
##############################
# The above codes are fixed, please just edit the following codes according to requirement.

$xml = "the beginning of the root element in the XML object\n";
$xml . = "the child elements in the XML object\n";
$xml . = "the end of the root element in the XML object\n ";
<!--Additional XML Items may be added -->
<!--All XML Items added here construct an XML object -->

push2phone("Server IP Address, Phone IP Address ",$xml);
# replace IP address of the push XML server with "Server IP Address"
```

```
# replace IP address of the phone with "Phone IP Address"
?>
```

Sample php source code:

In this example, the IP address of the push XML server is 192.168.0.112, and the server is defined to send a XML message to the IP phone with IP address 192.168.0.150.

```
<?php
#
function push2phone($server,$phone,$data)
{
$xml = "xml=".$data;
$post = "POST / HTTP/1.1\r\n";
$post .= "Host: $phone\r\n";
$post .= "Referer: $server\r\n";
$post .= "Connection: Keep-Alive\r\n";
$post .= "Content-Type: text/xml\r\n";
$post .= "Content-Length: ".strlen($xml)."\r\n\r\n";
$fp = @fsockopen ( $phone, 80, $errno, $errstr, 5);
if($fp)
{
fputs($fp, $post.$xml);
flush();
fclose($fp);
}
}
##############################


$xml = "<YealinkIPPhoneTextScreen Beep=\"yes\">\n";
$xml .= "<Title>Push test</Title>\n";
$xml .= "<Text>This is a test for pushing text to a phone.</Text>\n";
$xml .= "</YealinkIPPhoneTextScreen>\n";
#The above 4 lines prefixed with "$xml =" constructs a TextScreen object to be pushed to the
#phone.
#You can construct your own XML object using the same method.


push2phone("192.168.0.112","192.168.0.150",$xml);
?>
```

Some Development Guidelines

There are some simple rules that you had better follow when you develop XML applications for Yealink IP phones.

- Do not forget the "Exit" soft key when you customize soft keys.
- Place custom soft keys as they are for the standard objects, also it is better to use the same labels.
- If you want to access data from the internet, it is preferable to use a RSS feed or a SOAP interface than Web scraping as Web sites frequently change their layout interface.

Configuring the HTTP Server

Yealink IP phones support downloading by using the HTTP (HTTPS) protocol. You can set up the HTTP(s) server, and place some XML files on the server for downloading.

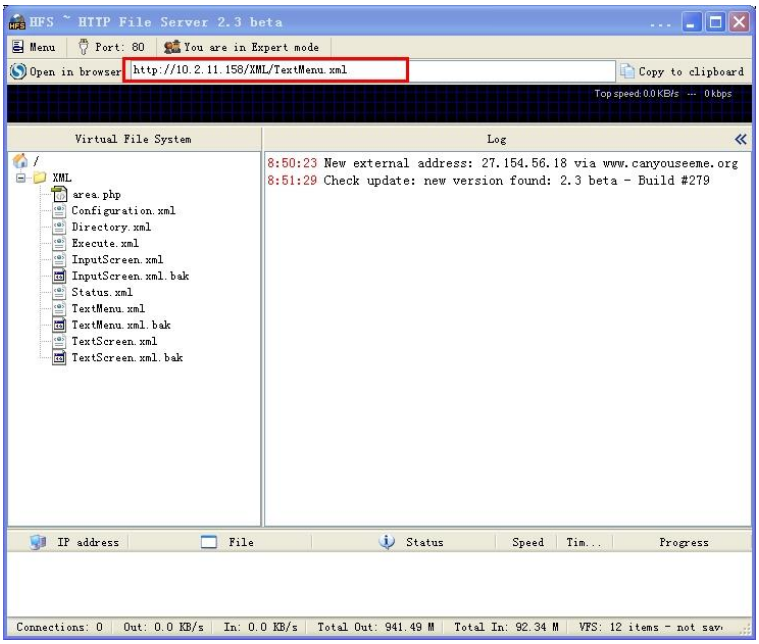
This section provides you with some instructions on how to configure the HTTP server and obtain the access URL of the XML files downloaded by the IP phones.

To configure the HTTP server using HFS application:

1. Double click the HFS.exe.
2. Click **Menu** in the main page and select the IP address of the PC from **IP address**.

   The default HTTP port is 80. You can also reset the HTTP port (make sure the port isn't in use before reset).
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 computer. Select your desired folder.
5. Select one of the XML files, then the access URL of the selected XML file displays in the address bar.

The screenshot for reference is shown as below:



Configuring the Push XML Server

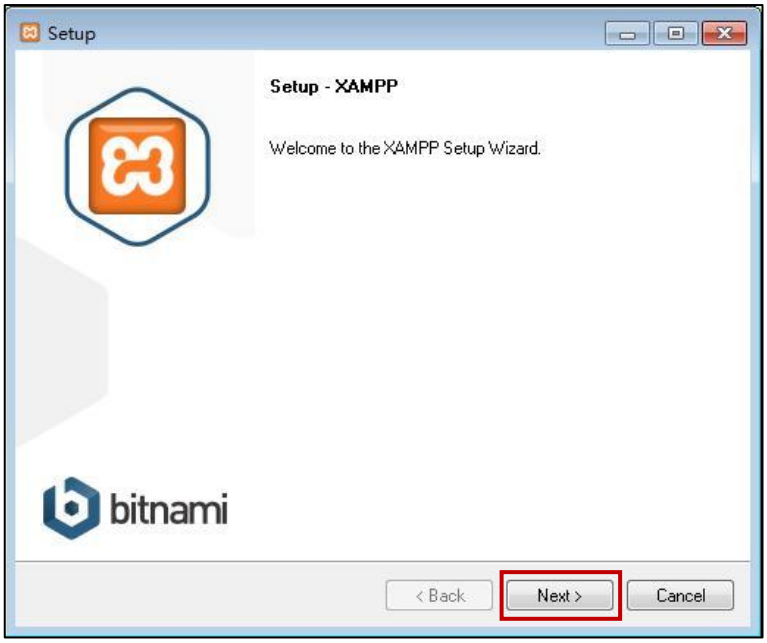
XAMPP is a free, cross-platform, easy-to-use web server capable of serving dynamic pages. XAMPP consists mainly of the Apache HTTP Server, MySQL database and interpreters for scripts written in the PHP and Perl programming languages. XAMPP is an acronym for X (any of the four operating systems Windows, Linux, Sun Solaris and Mac OS X), Apache, MySQL, PHP and Perl.

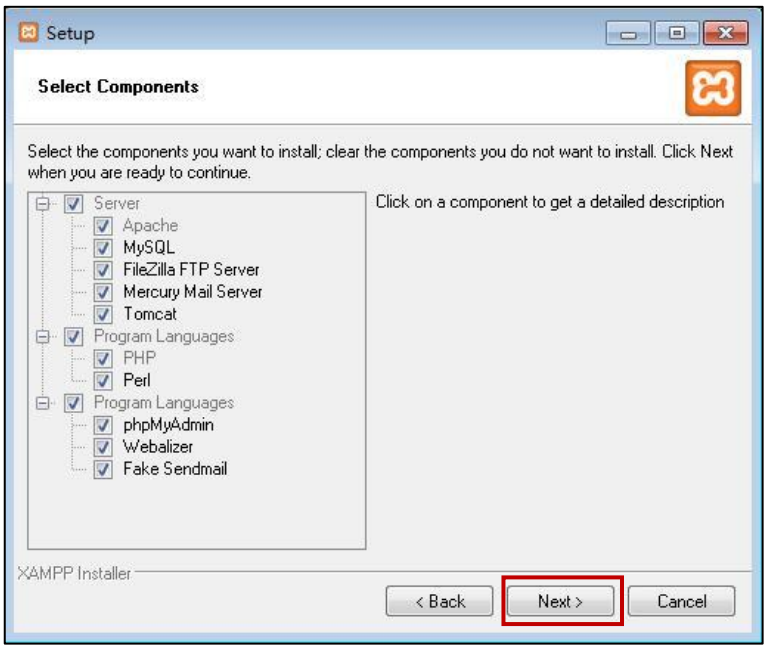
This section shows you how to install XAMPP on Microsoft Windows system. The XAMPP software is available for free. You can download it from http://www.apachefriends.org/index.html. We recommend that you configure the XAMPP as the push XML server, and then follow the instructions to push an XML object to the phone.

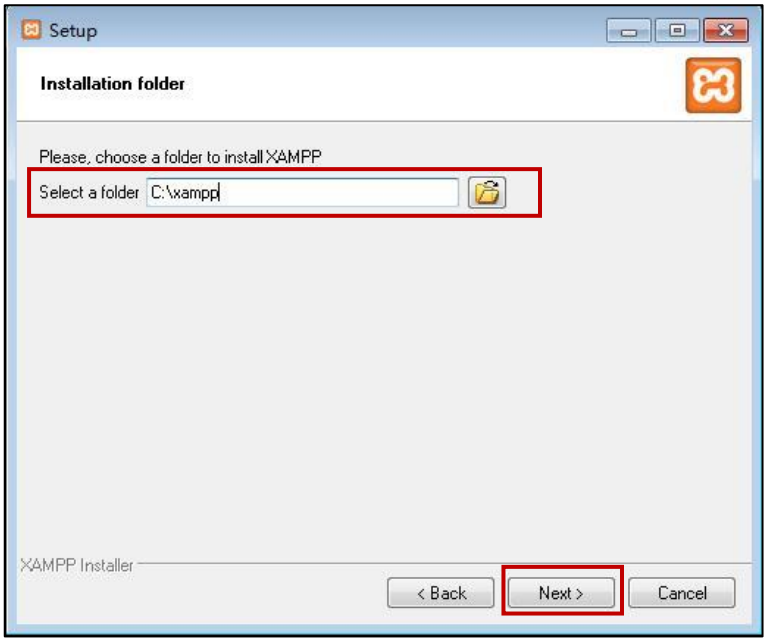
To install the XAMPP:

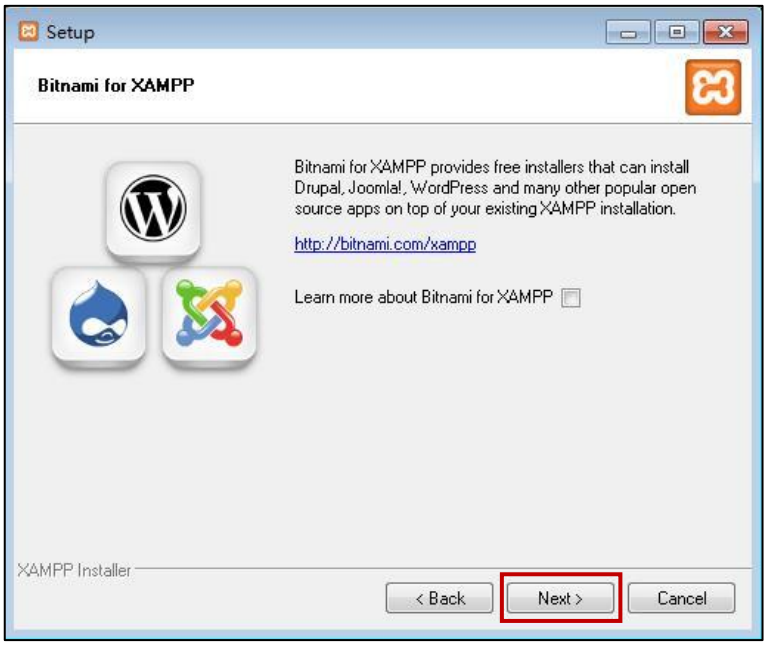
1. Double click xampp-win32-1.8.3-3-VC11-installer.exe to run the application.
2. Follow the setup wizard shown as below:

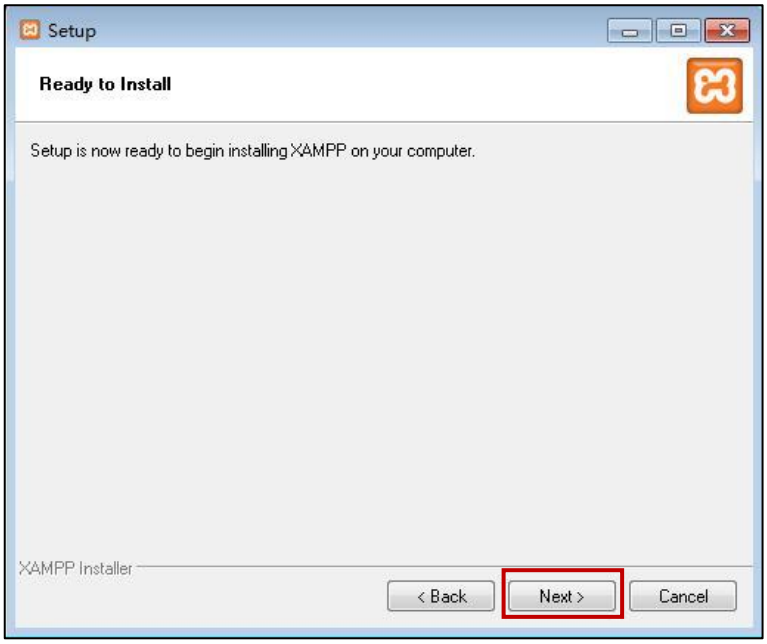
   Remember the installation path of the XAMPP. In this example, the installation path is C:\xampp.

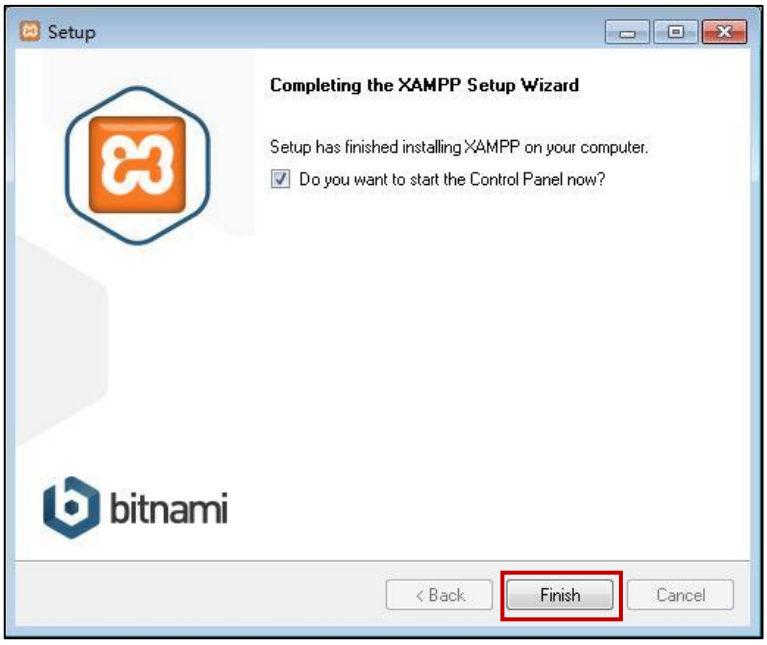



Setup
Select Components
Select the components you want to install; clear the components you do not want to install. Click Next when you are ready to continue.
Server
Apache
MySQL
FileZilla FTP Server
Mercury Mail Server
Tomcat
Program Languages
PHP
Perl
Program Languages
phpMyAdmin
Webalizer
Fake Sendmail
Click on a component to get a detailed description
XAMPP Installer
< Back
Next >
Cancel


Setup
Installation folder
Please, choose a folder to install XAMPP
Select a folder
C:\xampp
XAMPP Installer
< Back
Next >
Cancel


Setup
Bitnami for XAMPP
Bitnami for XAMPP provides free installers that can install Drupal, Joomla!, WordPress and many other popular open source apps on top of your existing XAMPP installation.
http://bitnami.com/xampp
Learn more about Bitnami for XAMPP
XAMPP Installer
< Back
Next >
Cancel

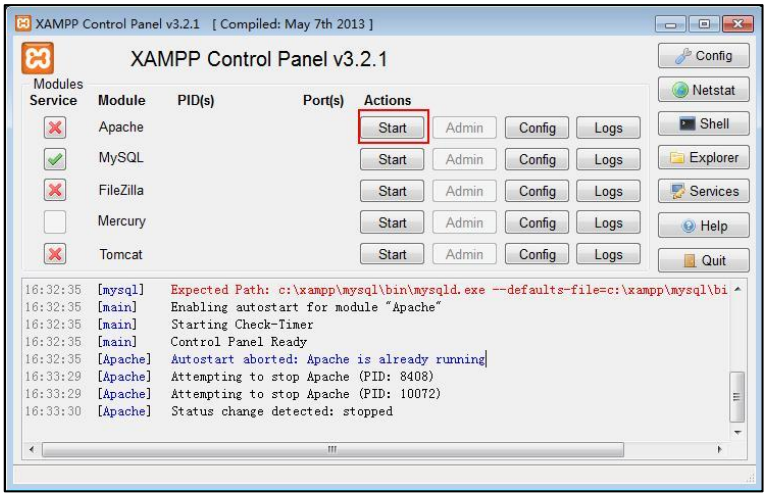

Setup
Ready to Install
Setup is now ready to begin installing XAMPP on your computer.
XAMPP Installer
< Back
Next >
Cancel



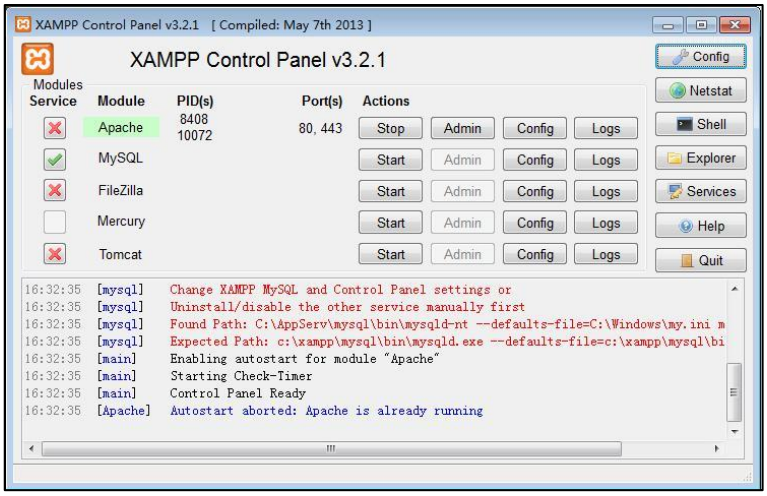
3. Click **Finish** to finish the installation.

To start the XAMPP:

1. Double click xampp-control.exe in the installation path of the XAMPP.
2. Click **Start** next to the Apache module.



Apache is running as shown below:



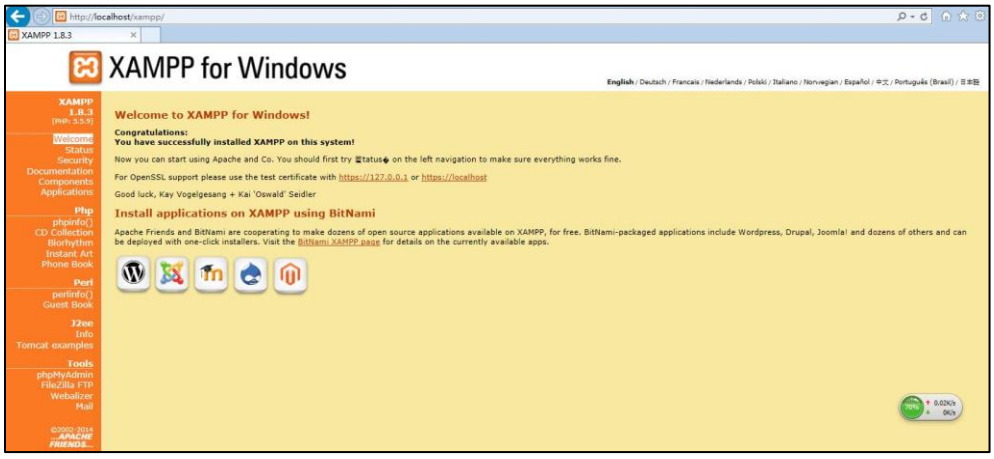
You can also click **Stop** to stop Apache.

Note Ensure ports 80 and 443 are not being used when starting the Apache server.

To test the installation of the XAMPP:

1. Enter "http://localhost/xampp/" in the address bar of the web browser and press the **Enter** key.

   The web page should be shown as below:



To push an XML object to the phone:

After the XAMPP server is installed in your local system and Apache is already started, you can find the htdocs directory in the installation path (For example, C:\xampp.) of the XAMPP.

1. Place the php file used to send an XML object to the phone (For example, TextScreen.php) in the htdocs directory.
2. Enter the access URL (For example, http://localhost/TextScreen.php. Replace "TextScreen.php" with the name of the XML object to be pushed.) of the php file in

the address bar of the web browser, and press the **Enter** key to push an XML object to the phone.

Yealink IP Phone XML Configurations

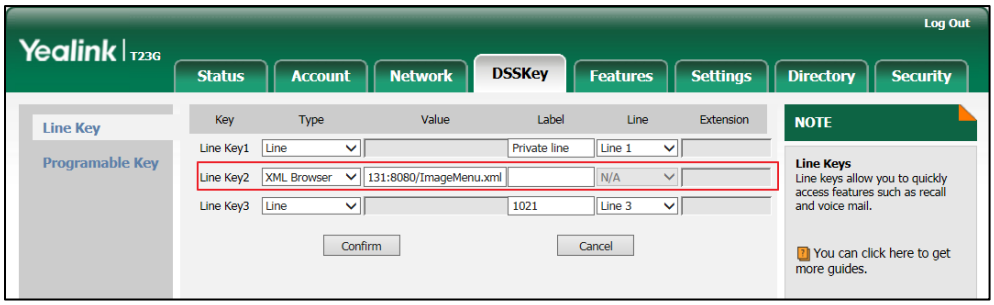
The followings take configurations of a SIP-T23G IP phone running firmware version 80 as examples.

Configuring an XML Browser Key

To use the XML browser feature, you must configure an XML key in advance. You can configure an XML Browser key via web user interface, phone user interface or configuration files.

To configure an XML Browser key via web user interface:

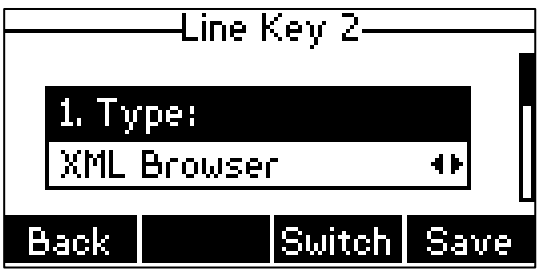
1. Access the web user interface of the phone.
2. Click on **DSSKey**->**Line Key** (or **Programable Key**).
3. In the desired DSS key field, select **XML Browser** from the pull-down list of **Type**.
4. Enter the available access URL in the **Value** field.
5. (Optional.) Enter the string that will appear on the LCD screen in the **Label** field.



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

To configure an XML Browser key via phone user interface:

1. Press **Menu**->**Features**->**DSS Keys**.
2. Select the desired DSS Key.
3. Press ◄ or ► , or the **Switch** soft key to select **XML Browser** from the **Type** field.



4. (Optional.) Enter the string that will appear on the LCD screen in the **Label** field.
5. Enter the available access URL in the **Value** field.
6. Press the **Save** soft key to accept the change.

To configure an XML Browser key using configuration files:

1. Add/Edit XML Browser key parameters in configuration files.

   The following table shows the information of parameters:

Parameters	Permitted Values	Default
linekey.X.type/ programablekey.X.type	27	Refer to the following content
Description: Configures a DSS key X as an XML Browser key on the IP phone. The digit **27** stands for the key type **XML Browser**. For line keys: X ranges from 1 to 29 (for SIP-T48G). X ranges from 1 to 27 (for SIP-T46G/T29G). X ranges from 1 to 15 (for SIP-T42G/T41P). X ranges from 1 to 21 (for SIP-T27P). X ranges from 1 to 3 (for SIP-T40P/T23P/T23G). X ranges from 1 to 2 (for SIP-T21(P) E2). For programable keys: X=1-10, 12-14 (for SIP-T48G/T46G) X=1-10, 13 (for SIP-T42G/T41P/T40P) X=1-14 (for SIP-T29G/T27P) X=1-10, 14 (for SIP-T23P/T23G/T21(P) E2) X=1-9, 13, 14 (for SIP-T19(P) E2) **Example:** linekey.1.type = 27 **Default:** For line keys: **For SIP-T48G IP phones:** The default value of the line key 1-16 is 15, and the default value of the line key 17-29 is 0. **For SIP-T46G/T29G IP phones:** The default value of the line key 1-16 is 15, and the default value of the line key 17-27 is 0.		

Parameters	Permitted Values	Default
For SIP-T42G IP phones: The default value of the line key 1-12 is 15, and the default value of the line key 13-15 is 0. **For SIP-T41P IP phones:** The default value of the line key 1-6 is 15, and the default value of the line key 7-15 is 0. **For SIP-T27P IP phones**: The default value of the line key 1-6 is 15, and the default value of the line key 7-21 is 0. **For SIP-T40P/T23P/T23G/T21(P) E2 IP phones:** The default value is 15. For programable keys: **For SIP-T48G/T46G IP phones:** When X=1, the default value is 28 (History). When X=2, the default value is 61 (Directory). When X=3, the default value is 5 (DND). When X=4, the default value is 30 (Menu). When X=5, the default value is 28 (History). When X=6, the default value is 61 (Directory). When X=7, the default value is 51 (Switch Account Up). When X=8, the default value is 52 (Switch Account Down). When X=9, the default value is 33 (Status). When X=10, the default value is 0 (NA). When X=12, the default value is 0 (NA). When X=13, the default value is 0 (NA). When X=14, the default value is 2 (Forward). **For SIP-T42G/T41P/T40P IP phones:** When X=1, the default value is 28 (History). When X=2, the default value is 61 (Directory). When X=3, the default value is 5 (DND). When X=4, the default value is 30 (Menu). When X=5, the default value is 28 (History). When X=6, the default value is 61 (Directory). When X=7, the default value is 51 (Switch Account Up). When X=8, the default value is 52 (Switch Account Down).		

Parameters	Permitted Values	Default
When X=9, the default value is 33 (Status). When X=10, the default value is 0 (NA). When X=13, the default value is 0 (NA). **For SIP-T29G/T27P IP phones**: When X=1, the default value is 28 (History). When X=2, the default value is 61 (Directory). When X=3, the default value is 5 (DND). When X=4, the default value is 30 (Menu). When X=5, the default value is 28 (History). When X=6, the default value is 61 (Directory). When X=7, the default value is 51 (Switch Account Up). When X=8, the default value is 52 (Switch Account Down). When X=9, the default value is 33 (Status). When X=10, the default value is 0 (NA). When X=11, the default value is 0 (NA). When X=12, the default value is 0 (NA). When X=13, the default value is 0 (NA). When X=14, the default value is 2 (Forward). **For SIP-T23P/T23G/T21(P) E2 IP phones:** When X=1, the default value is 28 (History). When X=2, the default value is 61 (Directory). When X=3, the default value is 5 (DND). When X=4, the default value is 30 (Menu). When X=5, the default value is 28 (History). When X=6, the default value is 61 (Directory). When X=7, the default value is 51 (Switch Account Up). When X=8, the default value is 52 (Switch Account Down). When X=9, the default value is 33 (Status). When X=10, the default value is 0 (NA). When X=14, the default value is 2 (Forward). **For SIP-T19(P) E2 IP phones:** When X=1, the default value is 28 (History). When X=2, the default value is 61 (Directory). When X=3, the default value is 5 (DND). When X=4, the default value is 30 (Menu).		

Parameters	Permitted Values	Default
When X=5, the default value is 28 (History). When X=6, the default value is 61 (Directory). When X=7, the default value is 0 (NA). When X=8, the default value is 0 (NA). When X=9, the default value is 33 (Status). When X=13, the default value is 0 (NA). When X=14, the default value is 2 (Forward). **Web User Interface:** DSSKey->Line Key/Programable Key->Type **Phone User Interface:** Menu->Features->DSS Keys->Line Key X->Type		
linekey.X.value/ programablekey.X.value	**String within 99 characters**	**Blank**
Description: Configures the available access URL to browser the XML object. For line keys: X ranges from 1 to 29 (for SIP-T48G). X ranges from 1 to 27 (for SIP-T46G/T29G). X ranges from 1 to 15 (for SIP-T42G/T41P). X ranges from 1 to 21 (for SIP-T27P). X ranges from 1 to 3 (for SIP-T40P/T23P/T23G). X ranges from 1 to 2 (for SIP-T21(P) E2). For programable keys: X=1-10, 12-14 (for SIP-T48G/T46G) X=1-10, 13 (for SIP-T42G/T41P/T40P) X=1-14 (for SIP-T29G/T27P) X=1-10, 14 (for SIP-T23P/T23G/T21(P) E2) X=1-9, 13, 14 (for SIP-T19(P) E2) **Example:** linekey.1.value = http://10.2.1.158/TextMenu.xml **Web User Interface:** DSSKey->Line Key/ Programable Key->Value **Phone User Interface:** Menu->Features->DSS Keys->Line Key X->Value		

Parameters	Permitted Values	Default
linekey.X.label/ programablekey.X.label	String within 99 characters	Blank
(Optional.) Configures the label displaying on the LCD screen for each line key and each soft key. **For line keys**: X ranges from 1 to 29 (for SIP-T48G). X ranges from 1 to 27 (for SIP-T46G/T29G). X ranges from 1 to 15 (for SIP-T42G/T41P). X ranges from 1 to 21 (for SIP-T27P). X ranges from 1 to 3 (for SIP-T40P/T23P/T23G) X ranges from 1 to 2 (for SIP-T21(P) E2). **For programable keys**: X ranges from 1 to 4. **Example:** linekey.1.label = XML Browser **Web User Interface:** DSSKey->Line Key/Programable Key->label **Phone User Interface:** Menu->Features->DSS Keys->Line Key X->label		

The following shows an example of configuring an XML Browser key using configuration files:

linekey.1.type = 27

linekey.1.value = http://10.2.1.158/TextMenu.xml

linekey.1.label = XML Browser

2. Upload configuration files to the root directory of the provisioning server and trigger IP phones to perform an auto provisioning for configuration update.

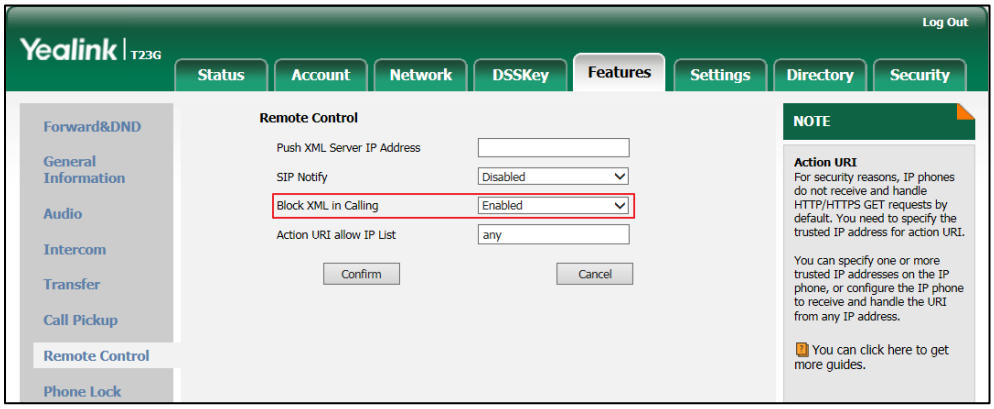
   For more information on auto provisioning, refer to *Yealink_SIP-T2_Series_T19(P)E2_T4_Series_CP860_IP_Phones_Auto_Provisioning_Guide*.

Configuring the Block XML in Calling

You can configure the Block XML in Calling via web user interface. It enables or disables the phone to block XML applications during a call. For example, if it is enabled, press a XML browser key when there is an active call on the phone, the XML application will be blocked.

To configure the Block XML in Calling via web user interface:

1. Access the web user interface of the phone.
2. Click on **Features->Remote Control**.
3. Select the desired value from the pull-down list of **Block XML in Calling** field.



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

To configure the Block XML in Calling using configuration files:

1. Add/Edit Block XML in Calling parameters in configuration files.

   The following table shows the information of parameters:

Parameter	Permitted Values	Default
push_xml.block_in_calling	0 or 1	0
Description: Enables or disables the phone to block XML applications during a call. **0**-Disabled **1**-Enabled **Web User Interface:** Features->Remote Control->Block XML in Calling **Phone User Interface:** None		

   The following shows an example of configuring Block XML in Calling using configuration files:

   push_xml.block_in_calling = 1

2. Upload configuration files to the root directory of the provisioning server and trigger IP phones to perform an auto provisioning for configuration update. For more information on auto provisioning, refer to *Yealink_SIP-T2_Series_T19(P)*

E2_T4_Series_CP860_IP_Phones_Auto_Provisioning_Guide.

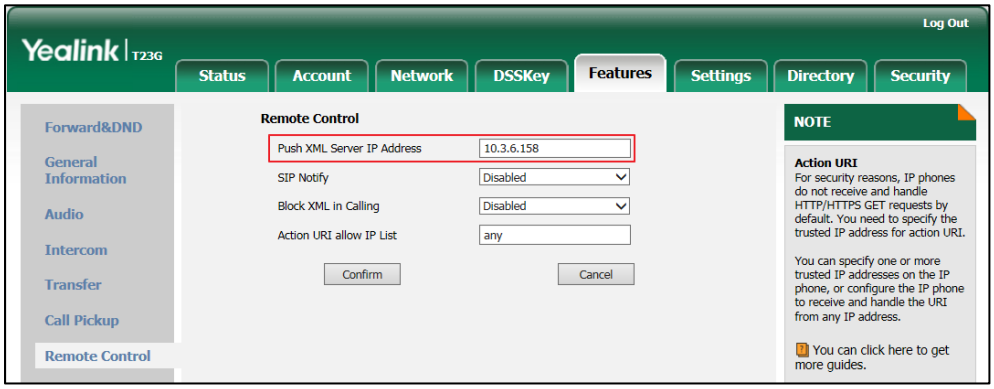
Configuring the Push XML Server Address

The IP address or domain name of the push XML server is specified in the **Push XML Server IP Address** field. After configuration, the IP phone will be able to accept the HTTP(s) POST from the server.

To configure the Push XML Server via web user interface:

1. Access the web user interface of the phone.
2. Click on **Features->Remote Control**.
3. Enter IP addresses or domain names in the **Push XML Server IP Address** field.

   The valid values must be within 512 characters. Each IP address or domain name is separated by a comma. If this field is left blank or the value is set as "any", the phone will reject HTTP POST messages from any server.



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

To configure the Push XML Server using configuration files:

1. Add/Edit the Push XML Server parameters in configuration files.

   The following table shows the information of parameters:

Parameter	Permitted Values	Default
push_xml.server	IP address	Blank

Parameter	Permitted Values	Default
Description: Configures the IP address of the push XML server. **Note:** Each IP address or domain name is separated by a comma. If this field is left blank or the value is set as "any", the phone will reject HTTP POST messages from any server. **Web User Interface:** Features->Remote Control->Push XML Server IP Address **Phone User Interface:** None		

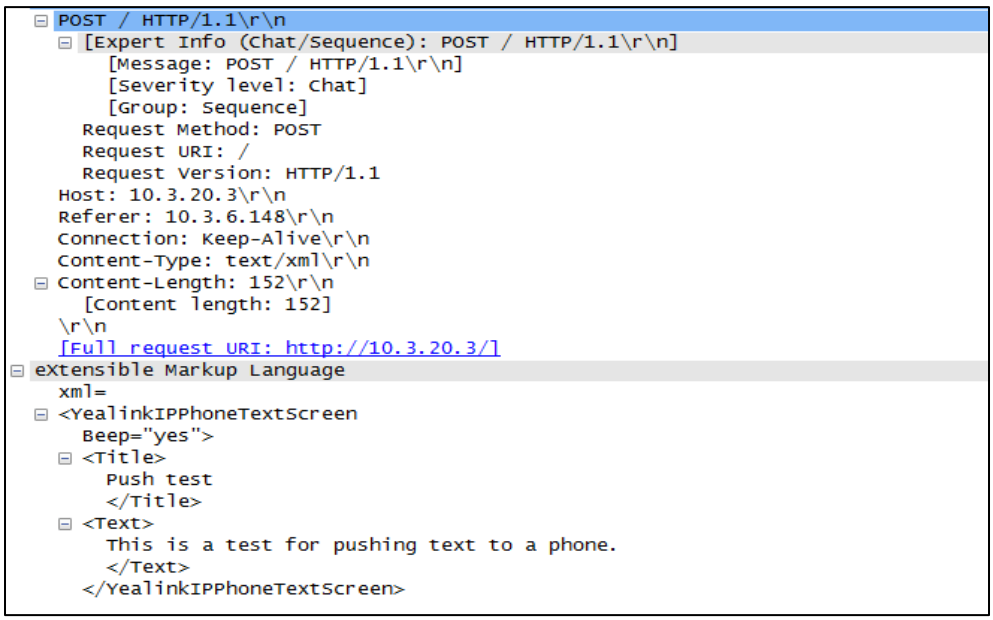
The following shows an example of configuring push XML server using configuration files:

push_xml.server = 10.3.6.158

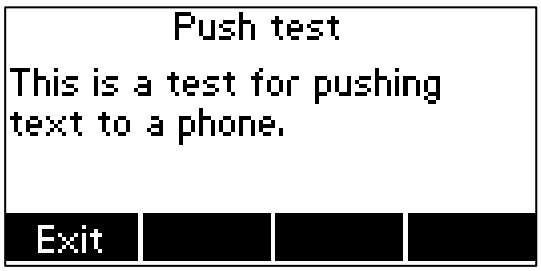
2. Upload configuration files to the root directory of the provisioning server and trigger IP phones to perform an auto provisioning for configuration update. For more information on auto provisioning, refer to *Yealink_SIP-T2_Series_T19(P)_E2_T4_Series_CP860_IP_Phones_Auto_Provisioning_Guide*.

Upon receiving the POST message, the phone will display the information or execute the command contained in the POST message.

Example of a POST message with the XML content:



In this example, the phone will play a tone and display the information shown as below:

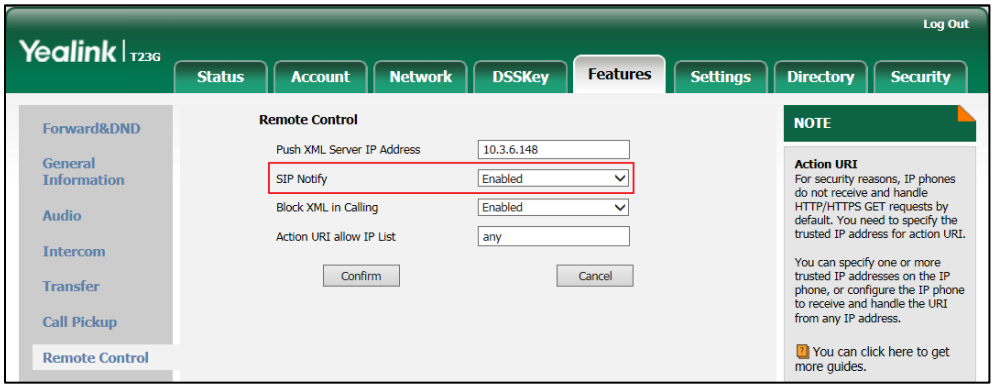


Configuring the XML SIP Notify

You can configure the XML SIP Notify via web user interface. It will enable or disable SIP NOTIFY messages to be processed by the phone.

To configure the XML SIP Notify via web user interface:

1. Access the web user interface of the phone.
2. Click on **Features->Remote Control**.
3. Select **Enabled** from the pull-down list of **SIP Notify** field.



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

To configure the XML SIP Notify using configuration files:

1. Add/Edit the XML SIP Notify parameters in configuration files.

   The following table shows the information of parameters:

Parameter	Permitted Values	Default
push_xml.sip_notify	0 or 1	0

Parameter	Permitted Values	Default
Description: Enables or disables the phone to process the push XML via SIP NOTIFY message. **0**-Disabled **1**-Enabled **Web User Interface:** Features->Remote Control->SIP Notify **Phone User Interface:** None		

The following shows an example of configuring Block XML In Calling using configuration files:

push_xml.sip_notify = 1

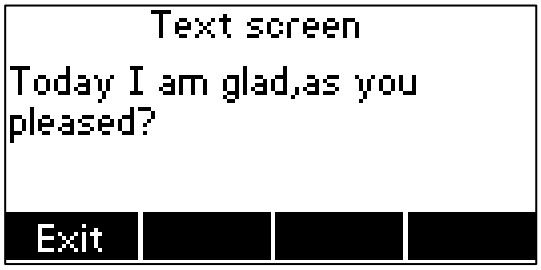
2. Upload configuration files to the root directory of the provisioning server and trigger IP phones to perform an auto provisioning for configuration update. For more information on auto provisioning, refer to *Yealink_SIP-T2_Series_T19(P)E2_T4_Series_CP860_IP_Phones_Auto_Provisioning_Guide*.

Upon receiving the XML SIP NOTIFY message, the phone will display the information or execute the command contained in the NOTIFY message.

Example of a SIP Notify with the XML content:

```
NOTIFY sip:303@192.168.168.75:5063 SIP/2.0
From: "303"<sip:303@192.168.168.200>;tag=41e83658-c0a8a8c8-13c4-50022-1a1b1-17e4bacd-1a1b1
To: "303"<sip:303@192.168.168.200>;tag=593303487
Call-ID: 332200269@192.168.168.75
CSeq: 2 NOTIFY
Via: SIP/2.0/UDP 192.168.168.200:5060;rport;branch=z9hG4bK-1a22f-6618b71-5c4a8ac7
Subscription-State: active
Event: Yealink-xml
Max-Forwards: 70
Supported: replaces,timer
Contact: <sip:303@192.168.168.200>
Content-Type: application/xml
Content-Length: 1353

<?xml version="1.0" encoding="ISO-8859-1"?>
<YealinkIPPhoneTextScreen
    Beep="yes"
    defaultIndex="2"
    cancelAction="http://10.1.0.105/cancel.php"
    doneAction="http://10.1.0.105/menu.php"
    Timeout="10"
    LockIn="no">

<Title wrap="yes">TextScreen</Title>

<Text>Today I am very glad, as you pleased?</Text>

<SoftKey index="1">
<Label>Select</Label>
<URI>SoftKey:Select</URI>
</SoftKey>

<SoftKey index="2">
<Label>Custom</Label>
<URI>http://10.1.0.105/menu1.xml</URI>
</SoftKey>
</YealinkIPPhoneTextScreen>
```

In this example, the phone will play a tone and display the information shown as below:



Configuring the Default Input Method

You can specify the default input method when the type of input is "string" in the InputScreen object. For more information on InputScreen, refer to InputScreen Object on page 22.

To configure the default input method using configuration files:

1. Add/Edit default input method parameter in configuration files.

The following table shows the information of parameter:

Parameter	Permitted Values	Default
default_input_method.xml_browser_input_screen	Abc, 2aB, 123, abc or ABC	2aB
Description: Configures the default input method when the type for input box is set to "string" in the InputScreen object. **Example:** default_input_method.xml_browser_input_screen = 2aB **Web User Interface:** None **Phone User Interface:** None		

The following shows an example of configuring default input method using configuration files:

default_input_method.xml_browser_input_screen = 2aB

2. Upload configuration files to the root directory of the provisioning server and trigger IP phones to perform an auto provisioning for configuration update. For more information on auto provisioning, refer to *Yealink_SIP-T2_Series_T19(P)E2_T4_Series_CP860_IP_Phones_Auto_Provisioning_Guide*.

Troubleshooting

This chapter provides general troubleshooting information to help to solve the problems you might encounter when developing XML applications for Yealink IP phones. Besides, it also provides related troubleshooting tools and parsing error debug example for you to trace errors. If you require additional information or assistance, contact your system administrator.

Why does the phone display "Loading error!" when executing the XML object?

- Ensure that the network is reachable.
- Ensure that the server is running properly.
- Ensure that the HTTP server application is running properly.
- Ensure that the URI is resolved.
- Ensure that the XML object file exists on the server.
- Ensure that the URI is parsed.

Why does the phone display "File layout error!" when executing the XML object?

- Check whether the XML object files' syntax is right. For example, XML tags are in pairs.

Troubleshooting Tools

The following tools will help you troubleshoot problems with the XML services.

- Standard web browser (Microsoft Internet Explorer 6.0 or a later version)
  - Verify the connectivity.
  - Verify the validity of the URI called by the phone.
- Network packet analyzer such as Wireshark
  - Verify what is exchanged between the phone and the server.
- HTTP Server log
  - Verify if the HTTP GET is reached the server.
  - Verify the parameters of the HTTP GET.
- Phone log (syslog)
  - Verify how the phone processes a XML request.

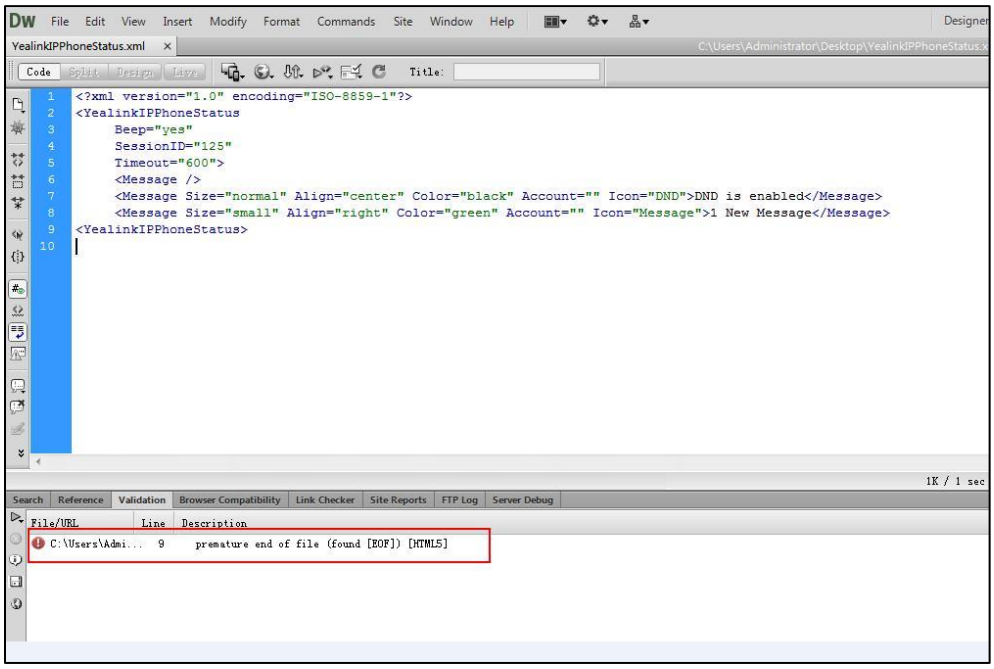
Parsing Error Debug Example

Some of the XML editors (such as UltraEdit and Dreamweaver) can also verify the XML syntax and detail the related error in the output window. The following takes the Dreamweaver tool as an example for reference.

After you execute the XML object, the LCD screen will prompt" File layout error !".

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<YealinkIPPhoneStatus
    Beep="yes"
    SessionID="125"
    Timeout="600">
    <Message />
    <Message Size="normal" Align="center" Color="black" Account="" Icon="DND">DND is enabled</Message>
    <Message Size="small" Align="right" Color="green" Account="" Icon="Message">1 New Message</Message>
<YealinkIPPhoneStatus>
```

The Dreamweaver tool tells us where the problem is. The error is on the last line, it should be </YealinkIPPhoneStatus>.



Appendix

Customizing an Image File

Yealink provides a tool called "PictureExDemo" to convert a "jpg"/"bmp"/"png" file to a "dob" file, and also provides a tool called "Dob2Text.exe" to convert a "dob" file to the hexadecimal string to be used for the ImageScreen and ImageMenu objects. Ask Yealink reseller or FAE for these two tools. For more information on how to convert a "bmp" file to a "dob" file, refer to *Yealink_SIP-T2_Series_T19(P) E2_T4_Series_CP860_IP_Phones_Auto_Provisioning_Guide*.

To convert a "dob" file to the hexadecimal string:

1. Place the tool "Dob2Text.exe" and the "dob" file to be converted in the same directory of your local system.
2. Double click "Dob2Text.exe" to launch the application.
3. Enter the name of the "dob" file (e.g. Yealink.dob), and press the **Enter** key.

   If the conversion is successful, a file will be generated in the same directory, whose content is the hexadecimal string to be used to specify the image in the ImageScreen object and ImageMenu Object. In addition, you can obtain the width and height of the image from the name of the generated file, for example, yealink.dob_206_80.out, where 206 represents the width of the image and 80 represents the height of the image. As well, specify the width and height of the image in the object with these two values obtained from the name of the generated file (e.g. 206 and 80), otherwise the image will not be displayed correctly.

Customer Feedback

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