Yealink

XML Browser Developer's Guide For Yealink IP Phones

SIP-T28P/SIP-T26P/SIP-T22P

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Contents

About This Guide

This Developers' Guide will show you how to use XML API to control the display of the Yealink IP phone as well as its configuration.

The XML application is a simple sip-phone-custom browser function based on xml. Yealink IP phones with the firmware version V61.0 or higher support XML Browser applications.

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 XML Browser feature to Yealink IP phones on the network. 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, and transport protocol.
- The experience of using the XML editor.
- The XML-based schema and syntax.

XML and the Yealink IP Phones

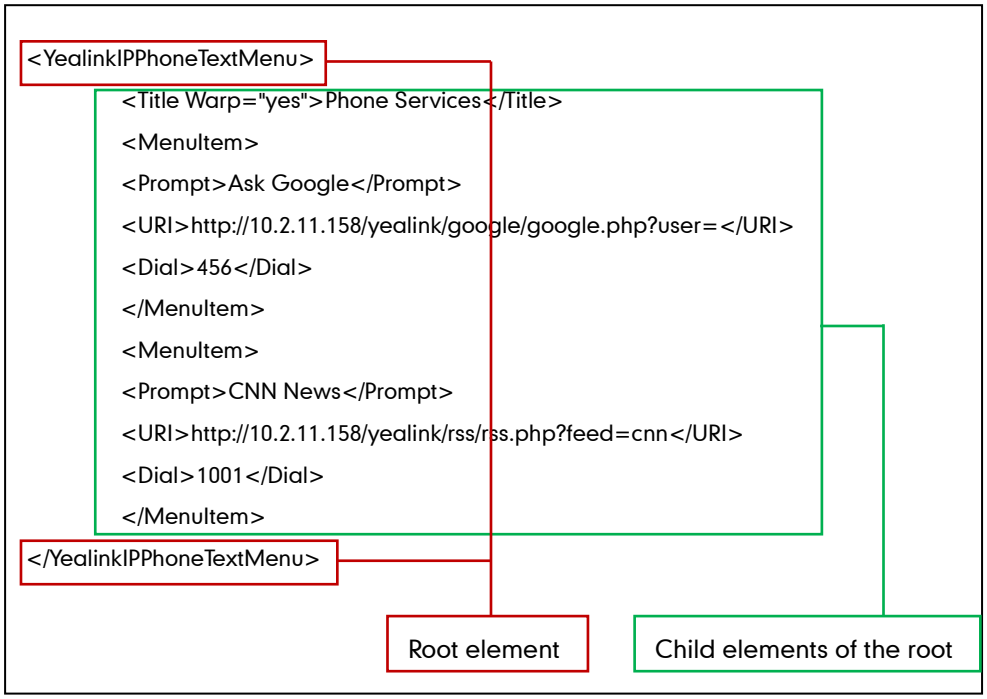
What is XML?

XML stands for eXtensible Markup Language. It is a markup language much like HTML. HTML was designed to display data and to focus on hoe data looks. XML was designed to describe data and to focus on what data is.

The following are characteristics of XML:

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

Sample of Basic XML document:



Functionality

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

There are 2 types of XML objects:

UI objects: XML objects used to control the display of the IP phone.

Non UI objects: XML objects which have no direct impact on the display of the IP phone.

The supported objects are:

- TextMenu object (UI)
- TextScreen object (UI)
- InputScreen object (UI)
- Directory object(UI)
- PhoneExecute object
- PhoneConfiguration object
- PhoneStatus object

Some of these objects also support customizable softkeys that are declared as an independent object.

How does it work?

Depending on the IP infrastructure, Yealink has developed the XML Browser capability on the phone using the HTTP transport protocol. The Yealink IP phones support two types of applications:

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

Phone initiated application

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

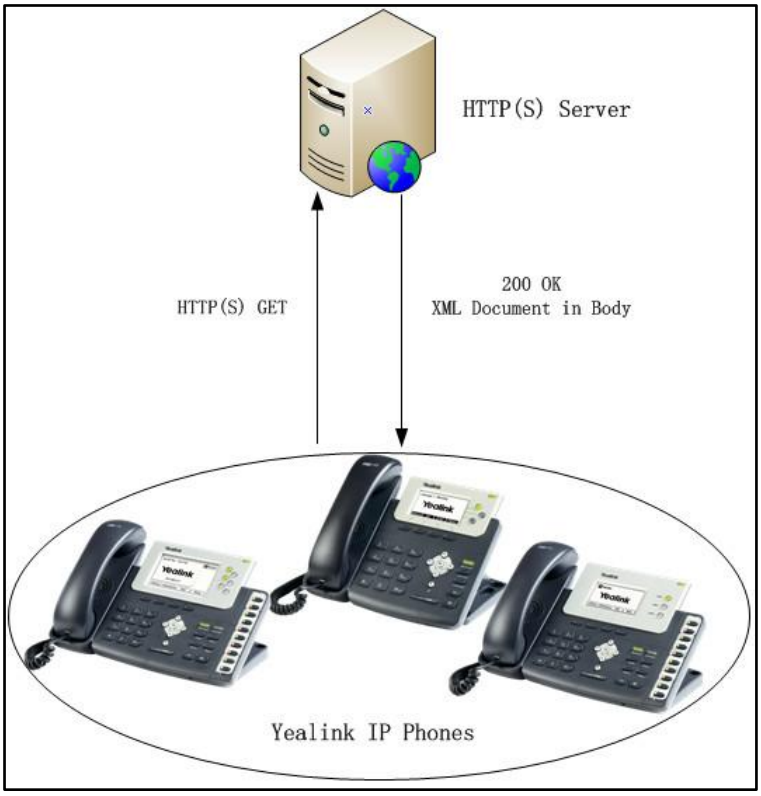


Figure1 Yealink IP phone acting as a client

Server initiated application

The other type of application would be more used on the network. The end users do not need to operate. The server alters the XML application by posting an HTTP(S) message to the phone. For more information on how to configure the Push XML Server, you can refer to Configuring the Push XML Server. In addition, Yealink IP phones support to accept SIP NOTIFY messages from SIP proxy server, and act as a limited web server. For more information on how to configure the XML SIP Notify, you can refer to Configuring the XML SIP Notify.

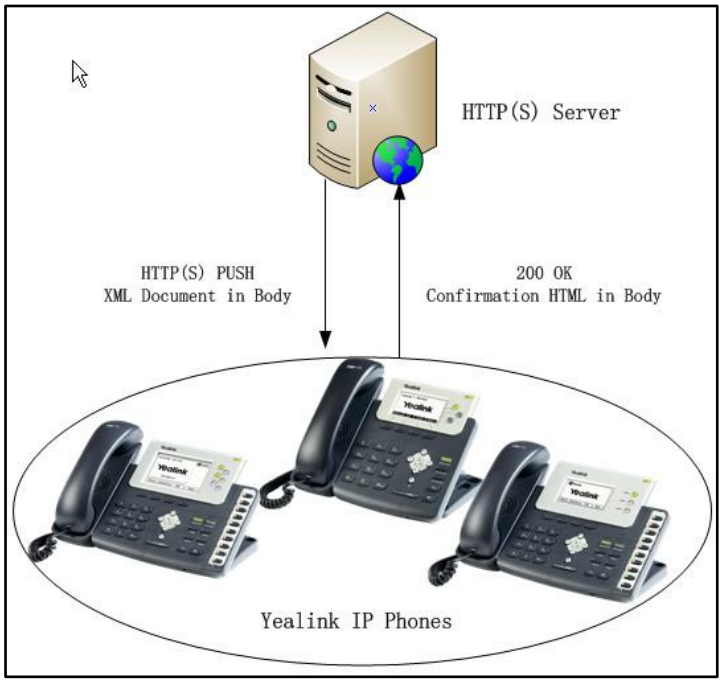


Figure2 Yealink IP phone acting as a server (HTTP(S) post)

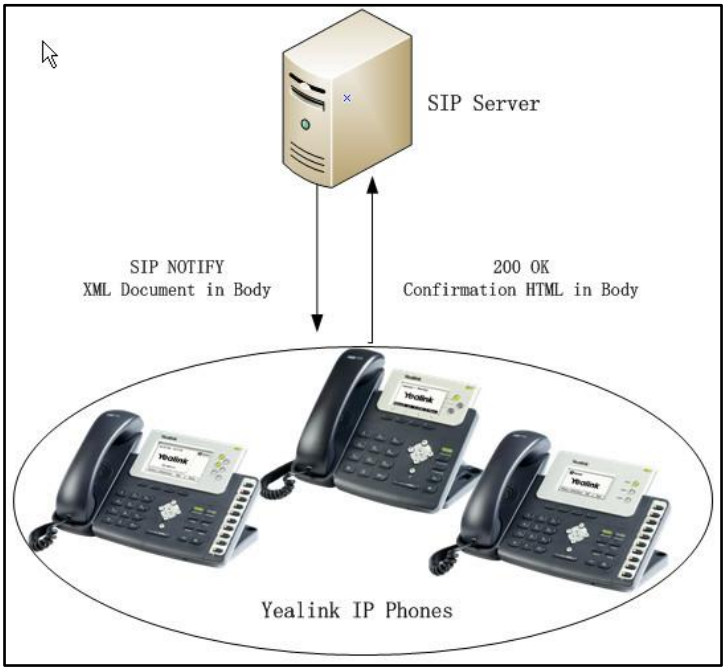


Figure3 Yealink IP phone acting as a server (SIP NOTIFY)

XML display control on Yealink IP phones

This chapter describes the available part of the display for Yealink SIP-T28P, Yealink SIP-T26P and Yealink SIP-T22P IP phones as well as the keys that are controlled by the XML objects.

The display and keys available for XML applications on a Yealink SIP-T28P IP phone are:

- 10 lines for the display
- 16 pixels for each line
- The left and right arrow navigation keys
- The up and down rocker navigation keys

The last line of the display 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, the **OK** key can also be interpreted as a confirm key.

The display and keys available for XML applications on a Yealink SIP-T26P IP phone are:

- 5 lines for the display
- 16 pixels for each line
- The left and right arrow navigation keys
- The up and down rocker navigation keys

The last line of the display 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, the **OK** key can also be interpreted as a confirm key.

The display and keys available for XML applications on a Yealink SIP-T22P IP phone are:

- 5 lines for the display
- 16 pixels for each line
- The left and right arrow navigation keys
- The up and down rocker navigation keys

The last line of the display 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, the **OK** key can also be interpreted as a confirm key.

Yealink IP Phone XML Objects

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

Note

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

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

TextMenu Object

TextMenu object allows users to display a list of menu items on 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 item by linking HTTP requests.

TextMenu XML example:

```
<****TextMenu
        defaultIndex = “some integer”
        style = “numbered/none/radio”
        Beep = “yes/no”
        Timeout = “some integer”
        LockIn = “yes/no”
        WrapList = “yes/no”
        >
        <Title wrap = “yes/no”>Menu Title</Title>
        <MenuItem>
            <Prompt>First Choice</Prompt>
            <URI>http://somepage.xml</URI>
            <Dial>Number to dial</ Dial >
            <Selection>Selection</ Selection >
        </MenuItem>

        <!-Additional Menu Items may be added (up to 30) - ->
        <!-Additional Softkey Items may be added (softkey phones) - ->
</****TextMenu>
```

Note

The “****” in “****TextMenu” can be any string or null

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

Parameter	Type	Value	Description
****TextMenu	mandatory	none	The root element of the TextMenu.
defaultIndex	optional	Integer	Position of the cursor to enter into the menu interface. If not specified, the cursor is positioned on the first menu item. Default value is 1.
style	optional	"numbered" "none" "radio"	**Menu Type:** **numbered** (default)**:** Use digital to indicate the menu order before the menu. **none:** No sign before the menu. **radio:** Use circle before the menu.
Beep	optional	"yes" "no"	Whether to play a tone when entering into the menu. Default value is "no".
wrapList	optional	"yes" "no"	Whether to display the title specified by the Prompt parameter in multi-lines, when the content of the title is longer than one line. Select "yes" to display in multi-lines, and "no" for one line. Default value is "no".
Timeout	optional	"integer" Unit: sec	If the user has no operation at a fixed interval, the phone will automatically exit the menu interface. Default value is 45s.
LockIn	optional	"yes" "no"	If set to be "yes", there is no responses to any operation except the soft key after entering into the menu. Default value is "no". I.e. The phone will not go to the dial-up interface by off hook.
Title	mandatory	string	The content of the menu item.
wrap	optional	"yes" "no"	Whether to display the title in multi-lines when the content of the title is longer than one line. Select "yes" to display in multi-lines, and "no" for one line. Default value is

Parameter	Type	Value	Description
			"no".
MenuItem	mandatory	none	The element of menu item.(Up to 30 instance, minimum is 1)
Prompt	mandatory	string	The label of menu item, its display is controlled by "wrapList".
URI	mandatory	URI	The operation of menu item.
Dial	optional	Phone number	The phone will dial out the number by an off-hook action with the cursor on this menu item.
Selection	optional	string	If the URI of soft key is the HTTP server address, it will send a request with the "selection= the parameter". (E.g. "http://10.1.0.105/menu1.xml? Selection =1".)
SoftKey	optional	XML object	Refer to Customizable Softkeys for more information.

If there is no soft key defined in the TextMenu object, the default soft key labels show as the following table:

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

The function keys are listed in the following table:

Key Name	Statement	Description
Up/Down	Up and down key	To move the cursor up and down.
Digitkey	Digit 1~9	To move the cursor to the number keys of the index value menu item. The cursor moves to the last menu item except the index number.
Select	SoftKey, URI="SoftKey: Select"	Dial out the URI command in the menu item.
Exit	SoftKey, URI="SoftKey: Exit"	Redisplay the previous XML interface, otherwise return to the idle interface.
Offhook/	Off hook/Line Key/	If there is content in the Dial tag, the phone

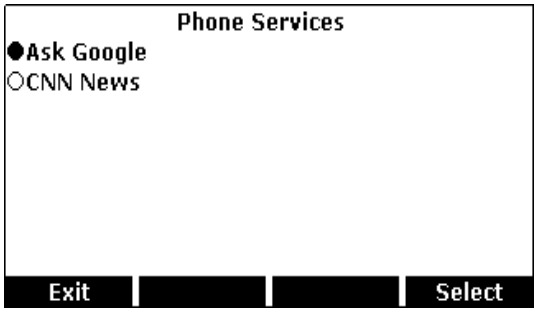
Key Name	Statement	Description
LineKey/ Handfree	Handfree Key	will dial out the number. If no content in the Dial tag and the value of the LockIn is "yes", there will be no responses to any operation. The phone will enter into dial-up interface when the value of the LockIn is "no".
Cancel	The "X" key of the phone	Return to the idle interface.
OK	The "OK" key of the phone	If the value of the LockIn is "no", the function of "OK" key is the same as "Select", if the value of the LockIn is "no", there will be no response.
DSS key except "Sip Truck"	DSS key(include the Expansion key)	If the value of the LockIn is "yes", there will be no response. If the value of the LockIn is "no", it will execute the operation of DSS key.

An example of the TextMenu object:

```
<YealinkIPPhoneTextMenu
    style="radio"
    Beep="no"
    WrapList="yes"
    Timeout="30"
    LockIn="yes">

    <Title Warp="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>
</YealinkIPPhoneTextMenu>
```

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



TextScreen Object

TextScreen object allows users to display the text on IP phones. You can use the TextScreen object to display the news of TextMenu object.

TextScreen XML example:

```
<****TextScreen
        doneAction = "some URI"
        Beep = "yes/no"
        Timeout = "some integer"
        LockIn = "yes/no"
        >
        <Title wrap = "yes/no">Screen Title</Title >
        <Text>The screen text goes here</Text>
        <!-Additional Softkey Items may be added (softkey phones) - ->
</****TextScreen >
```

Note The "****" in "****TextScreen" can be any string or null.

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

Parameter	Type	Value	Description
****TextScreen	mandatory	none	The root element of the TextScreen.
Beep	optional	"yes" "no"	Whether to play a tone when entering into the Text Screen. Default value is "no".
doneAction	optional	URI	To execute the URI when selecting "done" SoftKey.
Timeout	optional	"integer" Unit: sec	If the user has no operation at a fixed interval, the phone will automatically exit the menu interface. Default value is 45s.
LockIn	optional	"yes" "no"	If set to be "yes", there is no responses to any operation except the soft key after entering into the Text Screen. Default value is "no". I.e. The phone will not go to the dial-up interface by off hook.

Parameter	Type	Value	Description
Title	mandatory	string	The Label of the text.
wrap	optional	"yes" "no"	Whether to display the title in multi-lines when the content of the title is longer than one line. Select "yes" display in multi-lines, and "no" for one line. Default value is "no".
Text	mandatory	string	The content to be displayed. (Size ranges from 1~2000B)
SoftKey	optional	XML object	Refer to Customizable Softkeys for more information.

If there is no soft key defined in the TextScreen object, the default soft key label shows as the following table:

SoftKey Index	Label	URI
1	Exit	SoftKey: Exit

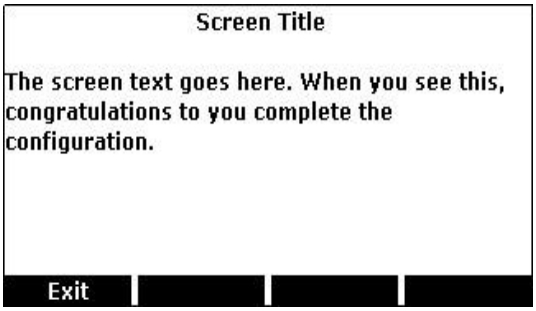
The function keys are listed in the following table:

Key Name	Statement	Description
Up/Down	Up and down key	To see the content of text tips by pressing up and down.
Digitkey	Digit 1~9	No response.
Exit	SoftKey,URI="Soft Key: Exit"	Redisplays the previous XML interface, otherwise return to the idle interface.
Offhook/ LineKey/ Handfree	Off hook/Line Key/ Handfree Key	If there is content in the Dial tag, the phone will dial out the number. If no content in the Dial tag and the value of the LockIn is "yes", there will be no responses to any operation. The phone will enter into dial-up interface when the value of the LockIn is "no".
Cancel	The "X" key of the phone	Return to the idle interface.
OK	The "OK" key of the phone	Dial out the "doneAction" command.

An example of the TextScreen object:

```
<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 phone user interface for reference is shown as below:



InputScreen Object

InputScreen object allows users to create a screen capable of gathering user input. It prompts user to input content, and sends the input content to the server. You can use InputSceen object for user login or saving something on server. You can define the content and format of input.

InputScreen XML example:

```
<****InputScreen
      type = "IP/string/number/timeUS/timeInt/dateUS/dateInt"
      password = "yes/no"
      editable = "yes/no"
      Beep = "yes/no"
      Timeout = "some integer"
      LockIn = "yes/no"
      defaultIndex = "some integer 1 to 6"
      displayMode = "normal/condensed"
      inputLanguage = "English/French/German/Italian/Spanish"
      >
      <Title wrap = "yes/no">Title string</Title>
      <Prompt>Guidance for the input</Prompt>
      <URL>Target receiving the input</URL>
      <Parameter>name of the parameter add to URL</Parameter>
      <Default>Default Value (1) </Default>
      <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>
      <Default>Default Value</Default>
      <Selection>Selection</Selection>
      <!-Additional Softkey Items may be added (softkey phones) - ->
      </InputField>

      <!-Additional Input fields Items may be added - ->
```

```
    <!-Additional Softkey Items may be added (softkey phones) - ->
</****InputScreen >
```

Note The "****" in "****InputScreen" can be any string or null.

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

Parameter	Type	Value	Description
****InputScreen	mandatory	none	The root element of the InputScreen.
Type	mandatory	"IP" "string" "number" "timeUS" "timeInt" "dateUS" "dateInt" "empty"	Data input options: 1. IP 2. String(default) 3. number 4. timeUS, 12hour format, AM/PM stand for the forenoon/afternoon 5. timeInt, 24 hour format 6. dateUS, format MM/DD/YYYY 7. dateInt, format DD/MM/YYYY 8. empty, null string, the line number is determined by "displayMode".
Beep	optional	"yes" "no"	Whether to play a tone when entering into the InputScreen. Default value is "no".
Password	optional	"yes" "no"	Whether to mask the input by "*" characters. Default value is "no".
Timeout	optional	"integer" Unit: sec	If the user has no operation at a fixed interval, the phone will automatically exit the menu interface. Default value is 45s.
LockIn	optional	"yes" "no"	If set to be "yes", there is no responses to any operation except the soft key after entering into the InputScreen. Default value is "no". I.e. The phone will not go to the

Parameter	Type	Value	Description
			dial-up interface by off hook.
InputLanguage	optional	"English" "French" "German" "Italian" "Spanish"	The language of user input. Default value is English (It just only supports the English now).
displayMode	optional	"normal" "condensed"	**normal** (default)**:** Display the prompt and input box in two lines. **condensed:** Display the prompt and input box in one line
defaultIndex	optional	integer	Position of the cursor to enter into the InpuScreen. If not specified, the cursor is positioned on the first input box. Default value is 1.
Title	mandatory	string	The title of input object.
Wrap	optional	"yes" "no"	Whether to display the title in multi-lines when the content of the title is longer than one line. Select "yes" display in multi-lines, and "no" for one line. Default value is "no".
Prompt	optional	string	The prompt of user input.
URL	mandatory	URL	Send the content to the URL after user completed his input.
Parameter	mandatory	string	Name of parameter is added after the URL. (E.g. http://10.1.0.105/menu1.xml ? parameter)
Default	optional	string	Default value to be displayed in input field.
InputField	optional	none	Set several input boxes. (Value ranges from 1-6.)
editable	optional	"yes" "no"	Whether to allow users input something. Default value is "yes". Users can not input

Parameter	Type	Value	Description
			something if it is "no". Applicable scenario: only allow some users to login.
Selection	optional	string	If the URI of soft key is the HTTP server address, it will send a request with the "selection= the parameter". (E.g. "http://10.1.0.105/menu1.xml? Selection =1".)
SoftKey	optional	XML object	When the cursor moves to the input box, the soft key will add the accordingly soft key. E.g. add the input mode. Refer to Customizable Softkeys for more information.

Note

1. The InputField element in the XML file is optional. You can use this element to customize more input fields on the IP phone.
2. The four formats of timeUS/timeInt/dateUS/dateInt are listed in the following table:

Type	Format	Example
timeUS	HH:MM:SS AM/PM HH:1-12, MM:0-59, SS:0-59	02:00:23 AM 12:59:00 PM
timeInt	HH:MM:SS HH:0-23, MM:0-59, SS:0-59	23:25:00
dateUS	MM/DD/YYYY MM:1-12,DD:1-31,YYYY:0000-9999	12/31/2009
dateInt	MM/DD/YYYY MM:1-12,DD:1-31,YYYY:0000-9999	31/01/2010

If there is no soft key defined in the InputScreen object, and the Type for input box is "IP", the default soft key labels show as the following table:

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

If there is no soft key defined in the InputScreen object, and the Type for input box is "timeUS", "timeInt", "dataUS" or "dataInt", the default soft key labels show as the following table:

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

The function keys are listed in the following table:

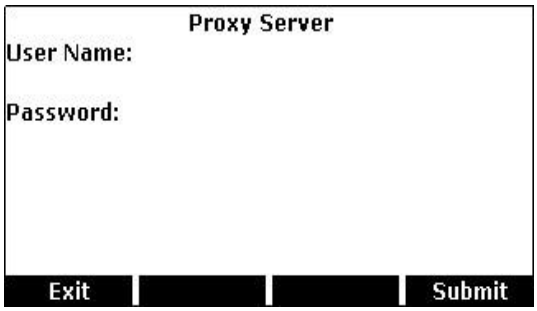
Key Name	Statement	Description
Up/Down	Up and down key	To move the cursor up and down.
Left/Right	Left and right key	To move the cursor left and right.
Digitkey	Digit 1~9	If "editable" of the cursor input item is "yes", then input character; otherwise no response.
Backspace	Softkey, URI= "SoftKey: Backspace"	Delete the character before the cursor in the input item.
Dot'.'	Softkey, URI= "SoftKey: Dot"	Add the character "." at the cursor in the input item.
Submit	Softkey, URI= "SoftKey: Submit"	Execute the command comprised of the URI and input content.
Exit	SoftKey, URI="SoftKey: Exit"	Return to the last XML interface, otherwise return to the idle interface.
2aB	SoftKey, URI= "SoftKey: ChangeMode"	Input mode switch, i.e. switch the input method among "2aB", "ABC", "abc" or "123".
NextSpace	SoftKey, URI= "SoftKey: NextSpace"	Add " " at the cursor in focus input item, i.e. <space>.
Offhook/ LineKey/ Handfree	Off hook/Line Key/ Handfree Key	If the value of the LockIn is "yes", there will be no responses to any operation. The phone will enter into dial-up interface when the value of the LockIn is "no".
Cancel	The "X" key of the phone	Return to the idle interface.
OK	The "OK" key of the phone	If the value of the LockIn is "no", the function of "OK" key is the same as "Select", if the value of the LockIn is "no", there will be no

Key Name	Statement	Description
		response.
DSS key except "Sip Truck"	DSS key(include the Expansion key)	If the value of the LockIn is "yes", there will be no response. If the value of the LockIn is "no", it will execute the operation of DSS key.

An example of the InputScreen object:

```
<YealinkIPPhoneInputScreen
    type="string"
    Timeout="15"
    Beep="yes"
    LockIn="yes">
    <Title wrap="yes">Proxy Server</Title>
    <Prompt>Server IP:</Prompt>
    <URL>http://10.1.0.105/menu.php</URL>
    <Parameter>proxy</Parameter>
    <Selection>1</Selection>
    <Default>10.1.0.105</Default>
    <InputField>
    <Prompt>User Name:</Prompt>
    <URL>http://10.2.11.158/ menu.php </URL>
    <Parameter>proxy</Parameter>
    <Default></Default>
    </InputField>
    <InputField>
    <Prompt>Password:</Prompt>
    <URL>http://10.2.11.158/XML/ menu.php </URL>
    <Parameter>proxy</Parameter>
    <Default></Default>
    </InputField>
</YealinkIPPhoneInputScreen>
```

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



Directory Object

Directory object allows user to browse an online directory in real time. Directory object likes the remote phonebook. It displays an automatically numbered list of contacts. By selecting a contact with the cursor, the contact can be dialed directly by pressing the "Dial" softkey, picking up the handset, or pressing line key.

Directory XML example:

```
<****Directory
        Next = "some URI"
        Previous = "some URI"
        Beep = "yes/no"
        Timeout = "some 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 Softkey Items may be added - ->
</****Directory>
```

Note The "****" in "****Directory" can be any string or null.

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

Parameter	Type	Value	Description
****Directory	mandatory	none	The root element of the Directory.
Next	optional	URI	The URI of "Next" SoftKey.
Previous	optional	URI	The URI of "Previous" SoftKey.
Beep	optional	"yes" "no"	Whether to play a tone when entering into the Directory. Default value is "no".
Timeout	optional	"integer" Unit: sec	If the user has no operation at a fixed interval, the phone will automatically exit the menu interface. Default value

Parameter	Type	Value	Description
			is 45s.
LockIn	optional	"yes" "no"	If set to be "yes", there is no responses to any operation except the soft key after entering into the Directory. Default value is "no". I.e. The phone will not go to the dial-up interface by off hook.
Title	mandatory	string	The content of the address book title.
wrap	optional	"yes" "no"	Whether to display the title in multi-lines when the content of the title is longer than one line. Select "yes" display in multi-lines, and "no" for one line. Default value is "no".
MenuItem	mandatory	none	Address item. Value ranges from 1-15.
Prompt	mandatory	string	The title of address item.
URI	mandatory	URI	The operation of address item, such as the telephone number.
SoftKey	optional	XML object	Refer to Customizable Softkeys for more information.

If there is no soft key defined in the Directory object, the default soft key labels show as the following table:

SoftKey Index	Label	URI
1	Exit	SoftKey: Exit
2	Previous	The URI specified by "Previous" of Directory Object, "SoftKey: Previous"
3	Next	The URI specified by "Next" of Directory Object, "SoftKey: Next"
4	Dial	SoftKey: Dial

The function keys are listed in the following table:

Key Name	Statement	Description
Up/Down	Up and down key	To move the cursor up and down.
Digitkey	Digit 1~9	To move the cursor to the number keys of the index value menu item. The cursor moves to the

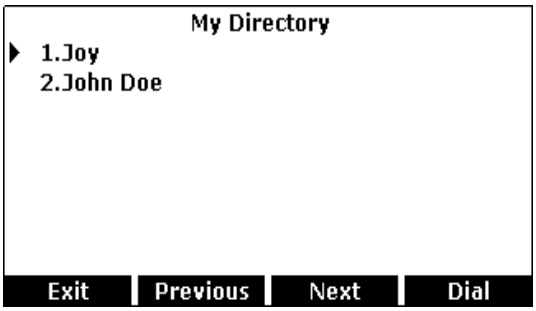
Key Name	Statement	Description
		last menu item except the index number.
Dial	SoftKey, URI="SoftKey: Dial"	Dial out the number of the focus address.
Previous	SoftKey, URI="SoftKey: Previous"	Dial out the URI of "Previous" command, such as "http".
Next	SoftKey, URI="SoftKey: Next"	Dial out the URI of "Next" command, such as "http".
Exit	SoftKey, URI="SoftKey: Exit"	Redisplay the previous XML interface, otherwise return to the idle interface.
Offhook/ LineKey/ Handfree	Off hook/Line Key/ Handfree Key	Dial out the number of the focus address.
Cancel	The "X" key of the phone	Return to the idle interface.
OK	The "OK" key of the phone	If the value of the LockIn is "no", the function "OK" key is the same as "Select", if the value of the LockIn is "no", there will be no response.
DSS key except "Sip Truck"	DSS key(include the Expansion key)	If the value of the LockIn is "yes", there will be no response. If the value of the LockIn is "no", it will execute the operation of DSS key.

An example of the Directory object:

```
<YealinkIPPhoneDirectory
    Next="http://myserver.com/more.php"
    Previous="http://myserver.com/back.xml"
    LockIn="yes"
    >
    <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>
```

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



PhoneStatus Object

PhoneStatus 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 prompt user about received messages, missed calls, news, notify, etc.

PhoneStatus XML example:

```
<****PhoneStatus
      Beep = "yes/no"
     >
      <Session>Session ID</Session>
      <Message
            Index = "index"
            Type = "alert"
            Timeout = "timeout"
      >Message</Message>
      <!-Additional Message Items may be added - ->
</****PhoneStatus>
```

Note The "****" in "****PhoneStatus" can be any string or null.

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

Parameter	Type	Value	Description
****Phone Status	mandatory	none	The root element of the PhoneStatus.
Beep	optional	"yes" "no"	Whether to play a tone when entering into the PhoneStatus. Default value is "no".
wrapList	optional	"yes" "no"	Whether to display the title in multi-lines when the content of the title is longer than one line. Select "yes" display in multi-lines, and "no" for one line. Default value is "no".
Timeout	optional	"integer" Unit: sec	The time for status information displaying. The phone will

Parameter	Type	Value	Description
			automatically exit the status interface at a fixed interval. Default value is 45s.
SessionID	optional	string	Session ID, it is used to mark different Status Object. (Minimum 0)
Message	optional	none	Display the message. (Value ranges from 0~10)
Index	optional	Integer	The status information index in the Session. Default value is 1.
Type	optional	"alert"	If no type specified, the status information will be displayed all time until there are some key operations or received messages out of interface; the messages will be displayed in turn. Default value is "alert".
Timeout	optional	"integer" Unit: sec	The time for message displaying. The cursor before the message will automatically move to the next message at a fixed interval. Default value is 3s.
SoftKey	optional	XML object	Refer to Customizable Softkeys for more information.

The function keys are listed in the following table:

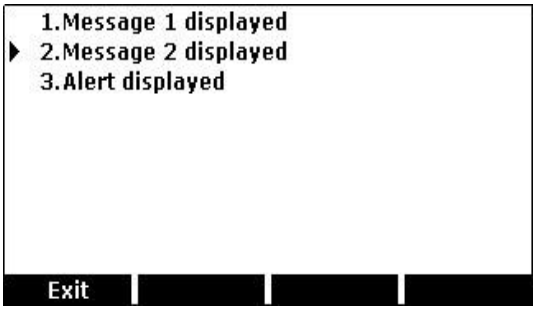
Key Name	Statement	Description
Up/Down	Up and down key	To see the content of message by pressing up and down.
Digitkey	Digit 1~9	To move the cursor to the number keys of the index value message item. The cursor moves to the last menu item except the index number.
Exit	SoftKey, URI="SoftKey: Exit"	Return to the last XML interface, otherwise return to the idle interface.
Offhook/ LineKey/ Handfree	Off hook/Line Key/ Handfree Key	There will be no responses if the value of the LockIn is "yes" and to execute the operation of DSS Key if the value of the LockIn is "no".

Cancel	The "X" key of the phone	Return to the idle interface.
OK	The "OK" key of the phone	Dial out the "doneAction" command.

An example of the PhoneStatus object:

```
<YealinkIPPhoneStatus
      Beep="yes">
    <Session>abc12345</Session>
    <Message Index="0">Message 1 displayed </Message>
    <Message Index="1">Message 2 displayed </Message>
    <Message
      Index="2"
      Type="alert"
      Timeout="5">Alert displayed</Message>
</YealinkIPPhoneStatus>
```

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



PhoneExecute Object

PhoneExecute 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.

PhoneExecute XML example:

```
<****PhoneExecute
        Beep = "yes/no">
        <ExecuteItem URI = "URI"/>
        <!-Additional Execute Items may be added - ->
</****PhoneExecute>
```

Note The "****" in "****PhoneExecute" can be any string or null.

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

Parameter	Type	Value	Description
****PhoneExecute	mandatory	none	The root element of the PhoneExecute.
Beep	optional	"yes" "no"	Whether to play a tone when beginning the execute command. Default value is "no".
ExecuteItem	mandatory	none	Command item. (Value ranges from 0~30)
URI	optional	URI	The operation of command item, such as call user, download the data from server according to the URL, etc.

Common use command:

Name	URI Value	Function
Any Supported URI	http(s)://myserver.com/myscript.pl	Dial out the URL
	Dial：XXXXX	Dial out the number
	Led：XXXX=on/off/slowflash/fastflash	To control the LEDs according to the commands
	Key：XXXX	Press XXXX

Name	URI Value	Function
		operation
	Wav.Play:[tftp|http://[username[:password]@]<host>[:port][/<Path>]/<file> Wav.Stop:	Play or close the wav file
Phone Reboot	Command: Reset	Reset to the factory
Phone Fast Reboot	Command: Reboot	Phone reboot
Phone Lock	Command: Lock	Lock the phone key
Phone Unlock	Command: Unlock	Unlock the phone
Clear	Command: ClearCallersList	Clear local call record list
	Command: ClearDirectory	Clear contact list
	Command: ClearRedialList	Clear redial list(call out record)
Do nothing	none	none

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

Setting Method	Indicator	Example
EXP38-%d-%d2-%s	**%d:** the "%d"th expansion module, value range 1~6; **%d2:** the "%d"th button of expansion module, value range 1~38; **%s:** the light color, value: "RED", "GREEN".	"Led：EXP38-2-3-RED=on": Lighten the indicator of the third button of the second expansion module to be red
LINE%d	**%d:** It represents the serial number of corresponding indicator, value 1~6.	"Led:LINE3=on": Lighten the corresponding indicator of Line3
MEMO%d_%s	**%d:** It represents the memory key's serial number, value 1~10 **%s:** The light color, value : "RED", "GREEN"	"Led: MEMO5_GREEN= on": Lighten the indicator of Memory5 to be green
SMS	Message indicator	

Setting Method	Indicator	Example
HEADSET	Headset switch indicator	
BACKLIGHT	Backlight indicator	
HANDFREE	Handfree indicator	
POWER	Power indicator	

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

Setting Method	Indicator	Example
EXP38-%d-%d	**%d:** the "%d"th expansion module, value range 1~6 **%d2:** the "%d"th button of expansion module, value range 1~38	"Key: EXP38-2-3": It means the third key of the second expansion module
OFF_HOOK	Off hook	
ON_HOOK	On hook	
OK	Ok key	
CANCEL	X key	
UP	Up key	
DOWN	Down key	
LEFT	Left key	
RIGHT	Right key	
INCREASE	Increase volume	
DECREASE	Decrease volume	
REDIAL	Redial key	
HOLD	Hold the line	
MUTE	Mute	
CONFERENCE	Conference	
TRANSFER	Transfer	
SMS	Message key	
FWD	Forward key	
PHONEBOOK	Remote phone book key	
SWITCH	Switch key	
HEADSET	Headset switch key	

Setting Method	Indicator	Example
HANDFREE	Handfree key	
LINE%d	Line key, value 1~6	
HOTKEY%d	Hot key, value 1~4	
MEMORY%d	Memory key, value 1~10	
KEY_%d	Number key, value 0~9	
STAR	'*' key	
POUND	'#' key	
GROUP_LISTEN	Group listening key	
HOLD_PUBLIC	Public hold for BLA	
HOLD_PRIVATE	Private hold for BLA	

An example of the PhoneExecute object:

```
<YealinkIPPhoneExecute Beep="yes">
    <ExecuteItem URI="Dial:1001" interrupetCall="no"/>
    <ExecuteItem URI="Key:HANDFREE" />
    <ExecuteItem URI="http://10.2.11.158/menu.xml"/>
    <ExecuteItem URI="LED: SMS=slowflash"/>
</YealinkIPPhoneExecute>
```

There is no prompt screenshot during the execute process.

PhoneConfiguration Object

PhoneConfiguration object allows an external application to modify configuration of the phone.

PhoneConfiguration XML example:

```
<****PhoneConfiguration
        Beep = "yes/no"
        setType = "config/boot"
        >
        <ConfigurationItem>
            <Path>path</Path>
            <Session>session</Session>
                <Parameter>parameter</Parameter>
            <Value>value</Value>
        </ConfigurationItem>
        <!-Additional Configuration Items may be added - ->
</****PhoneConfiguration>
```

Note The "****" in "****PhoneConfiguration" can be any string or null.

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

Parameter	Type	Value	Description
****PhoneConfiguration	mandatory	none	The root element of the PhoneConfiguration.
Beep	optional	"yes" "no"	Whether to play a tone when doing the configuration. Default value is "yes".
setType	optional	"config" "boot"	**config:** Configuration changes will be taken effect without reboot. **boot:** Configuration changes will be taken effect with reboot.
ConfigurationItem	mandatory	none	Configuration item.
Path	mandatory	string	The path for parameter storage. (Value ranges from 0~1000)
Session	mandatory	string	The name for parameter storage.

Parameter	Type	Value	Description
Parameter	mandatory	string	Parameter name.
Value	mandatory	string	Value

An example of the PhoneConfiguration object:

```
<YealinkIPPhoneConfiguration
      Beep="yes"
      setType="config"
      >
     <ConfigurationItem>
           <Path>/yealink/config/Setting/Setting.cfg</Path>
           <Session>PhoneSetting</Session>
           <Parameter>ProductName</Parameter>
           <Value>SIP-T26P</Value>
      </ConfigurationItem>
      <ConfigurationItem>
           <Path>/yealink/config/Setting/Setting.cfg</Path>
           <Session>PhoneSetting</Session>
           <Parameter>Lock</Parameter>
           <Value>0</Value>
      </ConfigurationItem>
</YealinkIPPhoneConfiguration>
```

Customizable Softkeys

Softkey object allows users to create a softkey with a customizable label, position and action. The customizable softkeys can override the default softkeys in each XML objects.

Customizable Softkeys example:

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

Note

Customizable softkeys are only available for the UI XML objects.

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

When the customizable softkeys are used with InputScreen Object, the SoftKey object should be place in the InputField element to take effect.

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

Parameter	Type	Value	Description
SoftKey	mandatory	none	The root element of the softkey.
Index	mandatory	Integer	Indicates the softkey number. (Value ranges from 1-6.)
Label	mandatory	String	The label of the softkey.
URI	mandatory	String	The action of softkey.

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

Name	Action	Function
TextMenu Object		
Select	SoftKey:Select	Dial out the URI command in the menu item.
Dial	SoftKey:Dial	Dial out the number of the focus address.
Exit	SoftKey:Exit	Redisplay the previous XML interface,

Name	Action	Function
		otherwise return to the idle interface.
Previous	SoftKey:Previous	Dial out the URI of "Previous" command, such as "http".
Next	SoftKey:Next	Dial out the URI of "Next" command, such as "http".
TextScreen Object		
Exit	SoftKey:Exit	Redisplay the previous XML interface, otherwise return to the idle interface.
Previous	SoftKey:Previous	Dial out the URI of "Previous" command, such as "http".
Next	SoftKey:Next	Dial out the URI of "Next" command, such as "http".
InputScreen Object		
BackSpace	SoftKey:BackSpace	Delete the character before the cursor in the input item.
Submit	SoftKey:Submit	Execute the command comprised of the URI and input content.
NextSpace	SoftKey:NextSpace	Add " " at the cursor in focus input item, i.e. <space>.
Dot'.'	SoftKey:Dot	Add the character "." at the cursor in the input item.
2aB	SoftKey:ChangeMode	Input mode switch, i.e. switch the input method among "2aB", "ABC", "abc" or "123".
Dial	SoftKey:Dial	Dial out the number of the focus address.
Exit	SoftKey:Exit	Redisplay the previous XML interface, otherwise return to the idle interface.
Previous	SoftKey:Previous	Dial out the URI of "Previous" command, such as "http".
Next	SoftKey:Next	Dial out the URI of "Next" command, such as "http".
Directory Object		
Dial	SoftKey:Dial	Dial out the number of the focus address.
Previous	SoftKey:Previous	Dial out the URI of "Previous" command,

Name	Action	Function
		such as “http”.
Next	SoftKey:Next	Dial out the URI of “Next” command, such as “http”.
Exit	SoftKey:Exit	Redisplay the previous XML interface, otherwise return to the idle interface.
PhoneStatus Object		
Exit	SoftKey:Exit	Redisplay the previous XML interface, otherwise return to the idle interface.
Previous	SoftKey:Previous	Dial out the URI of “Previous” command, such as “http”.
Next	SoftKey:Next	Dial out the URI of “Next” command, such as “http”.

An example of the customizable softkeys used with the TextMenu object:

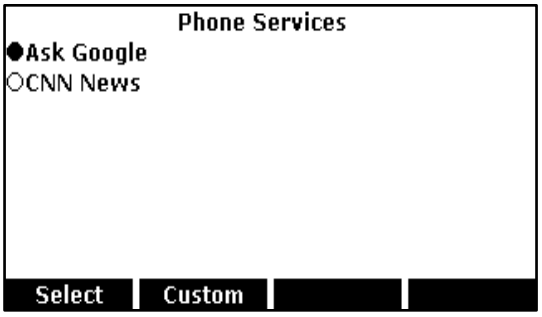
```
<YealinkIPPhoneTextMenu
    style="radio"
    Beep="no"
    WrapList="yes"
    Timeout="30"
    LockIn="yes">

    <Title Warp="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:



Yealink IP Phone XML Applications

Yealink IP phones only support to download using the HTTP (HTTPS) protocol. You can set up the HTTP(s) server, and place some Xml Browser files on the server for downloading. You also can contact your system administrator for more information.

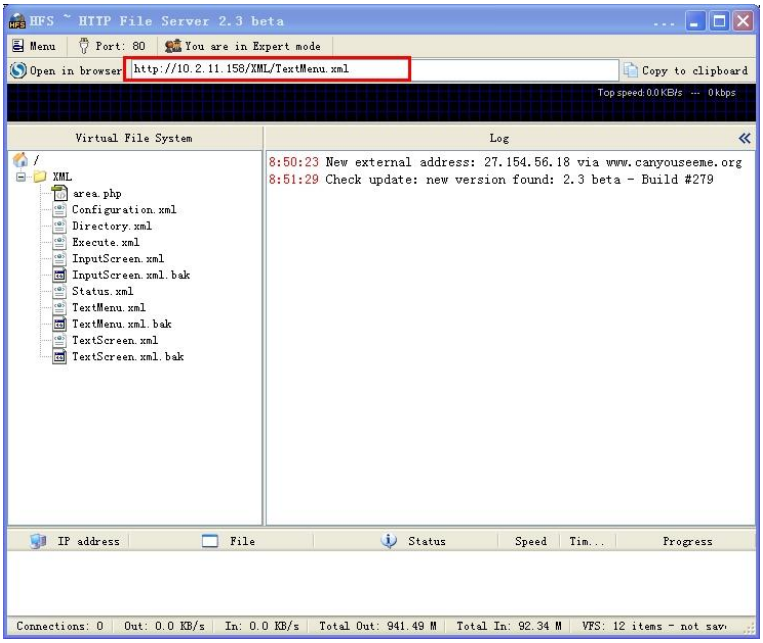
Configuring a HTTP Server

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 used 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 the computer system. Select the folder you want.
5. Select one of the XML files, then the access URL of XML file displays in the address bar.
6. Copy the access URL to fill in the **Value** field of the **DSS Key**.

The screenshot for reference is shown as below:



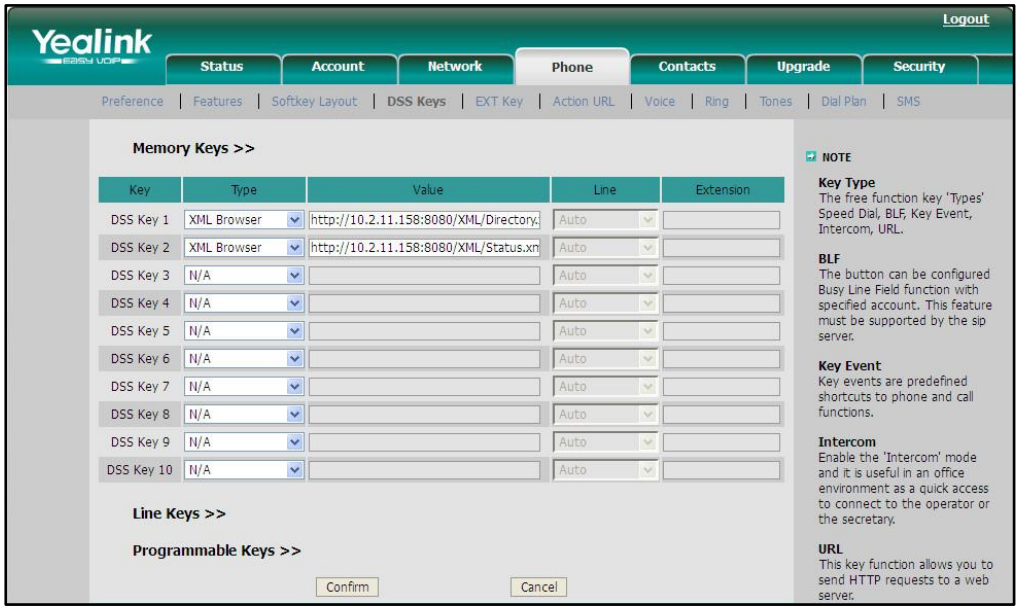
Configuring a DSS key

Web Configuration

To configure an XML Browser key via web user interface:

1. Access the web interface of the phone.
2. Click on **Phone**->**DSS Keys** ->**Memory Keys>>** (**Line Keys>>**).
3. Select **XML Browser** from the pull-down list of **Type**.
4. Fill in the available access URL in the **Value** field.
5. Click **Confirm** to accept the change.

The screenshot of the web interface for reference is shown as below:

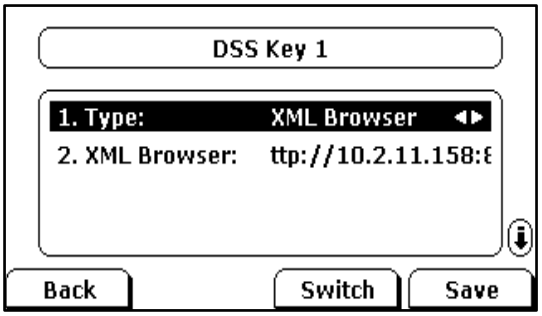


Phone Configuration

To configure an XML Browser key via phone user interface:

1. Press **Menu** ->**Features** ->**DSS Keys-> Memory Keys** (**Line Keys**).
2. Select the desired DSS Key.
3. Press ◄ or ► , or the **Switch** soft key to select **XML Browser** from the **Type** field.
4. Enter the available access URL in the **XML Browser** field.
5. Press the **Save** soft key to accept the change.

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



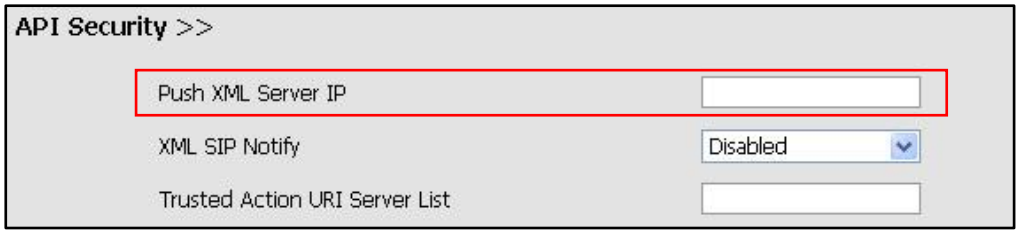
Configuring the Push XML Server

The IP phone will accept the HTTP(s) POST from the IP addresses set in the Push XML Server IP.

To configure the Push XML Server via web user interface:

1. Access the web interface of the phone.
2. Click on **Phone->Features->API Security>>**.
3. Enter IP addresses or domain names in the **Push XML Server IP** field.

   The maximum of the input in the Push XML Server IP field are 512 characters, each IP address or domain name is separated by a comma.



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

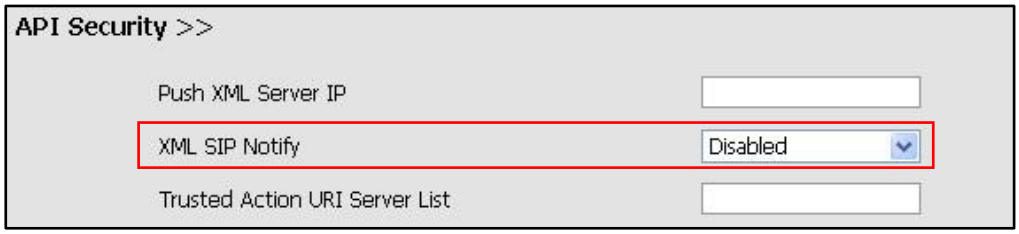
Configuring the XML SIP Notify

You can configure the XML SIP Notify from the Web user interface. It will enable or disable SIP NOTIFY message processed by the phone.

To configure the XML SIP Notify via web user interface:

1. Access the web interface of the phone.
2. Click on **Phone->Features->API Security>>**.

3. Select **Enabled** from the pull-down list of **XML SIP Notify** field.



When the phone receives the XML SIP NOTIFY message, the phone will display the information or execute the command in the NOTIFY message.

Example of a SIP Notify with XML content:

```
Session Initiation Protocol
  Request-Line: NOTIFY sip:202@10.2.11.185:5062 SIP/2.0
  Message Header
    Via: SIP/2.0/UDP 10.2.6.183:5060;branch=z9hG4bK7fdb2f49;rport
    Max-Forwards: 70
    From: <sip:201@10.2.1.100>;tag=as312b4b13
    To: "202" <sip:202@10.2.1.100>;tag=274335798
    Contact: <sip:201@10.2.1.100>
    Call-ID: 2146521383@10.2.11.185
    CSeq: 102 NOTIFY
    User-Agent: Asterisk PBX 1.6.2.13
    Event: yealink-xml
    Content-Type: application/xml
    Subscription-State: active
    Content-Length: 140
  Message Body
    eXtensible Markup Language
      <?xml
          version="1.0"
          encoding="ISO-8859-1"
          ?>
      <YealinkIPPhoneExecute>
          Beep="yes"
        <ExecuteItem/>
            URI=" Key:OK"
          </YealinkIPPhoneExecute>
```