Using Enhanced DSS Keys on Yealink IP Phones

This guide provides detailed information for system administrators on how to set up enhanced DSS keys (EDK) on Yealink IP phones.

The features introduced in this guide apply to the following Yealink IP phones:

- SIP-T54S, SIP-T52S, SIP-T48S, SIP-T48G, SIP-T46S, SIP-T46G, SIP-T42S, SIP-T42G, SIP-T41S, SIP-T41P, SIP-T40P/G, SIP-T29G, SIP-T27G, SIP-T23P/G, SIP-T21(P) E2 and SIP-T19(P) E2 IP phones running firmware version 81 or later.

- VP59/SIP-T58A IP phones running firmware version 83 or later.

- SIP-T54W, SIP-T53W, SIP-T53 IP phones running firmware version 84 or later.

Introduction

Enhanced DSS Keys (EDK) enables users to customize the functions of phone's DSS keys (line keys, programmable keys and ext keys) and assign functions to custom soft keys. You can use EDK to assign frequently-used function to DSS keys and custom soft keys, to create menu shortcuts for frequently-used phone settings as needed, or use EDK macro strings as the contact number. Using EDK macro strings as the contact number is not applicable to VP59/T58A/T48G/T46G/T42G/T41P/T29G IP phones.

The following shows the line keys and soft keys on SIP-T46G IP phones:

Note	The line keys are not applicable to SIP-T19(P) E2 IP phones. The ext keys are only applicable to SIP-T58A/T54W/T54S/T53W/T53/T52S/T48G/T48S/T46G/T46S/T29G/T27G IP phones. And to customize the functions for ext keys, you have to connect the expansion module to the IP phone in advance.

Application scenarios involve the following:

- Adding new DSS keys or soft keys to simplify the operation of common telephony tasks that may need more than one key press with the default configuration.

- Removing certain default DSS keys or soft keys for the functions that may be redundant or never used.

- One-touch connecting to the contact's extension number without entering DTMF digits manually. (not applicable to VP59/T58A/T48G/T46G/T42G/T41P/T29G IP phones)

EDK provides a method of creating interactive macro call sequences that can be executed by the phone.

The interactivity involves the following actions:

- Gather input data from the phone's user.

- Send SIP signaling requests to a call server (INVITE or REFER).

- Cause the phone to perform certain operations such as hang-up a call or place a call on hold.

- Emulate a key press on the phone.

Understanding Macro Action Strings

The DSS keys and custom soft keys can be defined by the following macro action strings:

1. Digits

2. $C<command>$

3. $T<type>$

4. $M<macro>$

5. $S<softkey ID>$

6. $K<key name>$

7. $I<menu item ID>$

8. $P<label>&T<title>&C<characters number allowed>&N&M$

9. $P<EDK user input prompt X>N<characters number allowed>$

10. $L<label>$

11. $LED<color and time>&L<label>$

Macro Action	Description
Digits	The digits to be sent. You can use only *, #, +, 0-9. The appearance of this parameter depends on the action string. Example: ***981135**.
$C<command>$	This is the command. It can appear anywhere in the action string. Supported commands (or shortcuts)

Macro Action	Description
	include: ● hang up (hu) ● hold (h) ● waitconnect (wc) ● pause <number of seconds> (p <num sec>) where the maximum value is 10 Example: **4411$Cwc$$Cp10$** defines dialing 4411>>waitconnect>>connected and lasts 10 seconds.
$T<type>$	The embedded action type. Multiple actions can be defined. Supported action types include: ● invite ● dtmf ● refer ● intercom Example: ***338$Tdtmf$** defines sending the *338 by the type of dtmf. **Note**: We recommend that you always define this field. If not, the supplied digits are dialed using INVITE.
$M<macro>$	The embedded macro. The <macro> string must begin with a letter. If the macro name is not defined, the execution of the action string will be ignored. Example: **MAA** means invoking the EDK macro AA.
$S<softkey ID>$	The functionality of performing this action is the same as that of pressing the desired soft key. Each soft key has a unique identifier on the IP phone, you can configure this parameter according to the system-defined softkey ID. If the softkey ID is not defined on the phone or there is no matched soft key on the current screen, the execution of the action string will be ignored. The softkey ID is case-insensitive. Example: **$Sanswer$** means pressing the **Answer** soft key. Yealink IP phones support customizing soft keys. When invoking a custom soft key, the prefix "#" must be added. Example: If the custom softkey label is IVR1, the custom softkey ID is custom_macro, then **$S#custom_macro$** means pressing the **IVR1** soft key.

Macro Action	Description
	Note: To view the softkey ID, you can configure the value of the parameters "edk.id_mode.enable" to 1 (Enabled) and then long press the Volume Up key when the phone is idle. For more information, refer to Configuring EDK ID Mode.
$K<key name>$	The functionality of performing this action is the same as that of pressing the desired hard key. Supported key names include: ● LineKeyX (for SIP-T48G/T48S, X=1-29; for VP59/SIP-T58A/T54W/T54S/T46G/T46S/T29G, X=1-27; for SIP-T42G/T42S/T41P/T41S, X=1-15; for SIP-T53W/T53/T52S/T27G, X=1-21; for SIP-T40P/T40G/T23P/T23G, X=1-3; for SIP-T21(P) E2, X=1-2). ● SoftKeyX (X ranges from 1 to 4) ● ArrowUp (not applicable to VP59/T58A) ● ArrowDown (not applicable to VP59/T58A) ● ArrowLeft (not applicable to VP59/T58A) ● ArrowRight (not applicable to VP59/T58A) ● VolDown ● VolUp ● Cancel (not applicable to VP59/T58A) ● OK (not applicable to VP59/T58A) ● DialPadX (X ranges from 0 to 9) ● DialPadPound ● DialPadStar ● Headset ● Mute ● Message ● Hold ● Redial ● Transfer ● Speaker ● Conference (not applicable to VP59/T58A) ● ExtX@Y (X stands for the serial number of expansion module key, Y stands for the serial number of expansion module; For SIP-T48S/T48G/T46S/T46G/T29G: X ranges from 1

Macro Action	Description
	to 40, Y ranges from 1 to 6; For SIP-T58A/T54W/T54S/T53W/T53/T52S: X ranges from 1 to 60, Y ranges from 1 to 3; @Y can be omitted if there is only one expansion module connected to the phone.) ● Menu (You can enter menu by executing this command at any interface except the non-executable situations. For example, entering menu is blocked during an active call.) ● Home (For SIP-T48G/T48S IP phones , execute this command on dialing screen to return Idle screen; For VP59/SIP-T58A IP phones , execute this command on any screen to return Home screen) Example: **$KDialPadPound$** means pressing the pound key. **Note**: If a key (e.g., Redial key) is not found but the function is available, the phone will perform the corresponding action. If a key is not found and the function is unavailable, the execution of the action string will be ignored.
$I<menu item ID>$	The action is to position and enter the desired menu item. Each menu item has a unique identifier on the IP phone, you can configure this parameter according to the system-defined menu item ID. If the menu item ID is not defined on the phone or there is no matched menu item on the current screen, the execution of the action string will be ignored. The menu item ID is case-insensitive. Example: **$Istatus_list&** means entering the **Status** menu. **Note**: To view the menu item ID, you can configure the value of the parameter "edk.id_mode.enable" to 1 (Enabled) and then long press the Volume Up key when the phone is idle. For more information, refer to Configuring EDK ID Mode.
$P<label>&T<title>&C<chara cters number allowed>&N&M$	The user input prompt string. "label" means the specified label for user input prompt. "title" means the specified title for user input prompt. "characters number allowed" defines the maximum number of input characters.

Macro Action	Description
	If &N is included, the character type is Number (default input method: 123). If &N is not included, the character type is Text (default input method: abc), you can manually change input method. (For VP59/T58A, if &N is included, the input mode is numeric&symbolic. If &N is not included, the onscreen keyboard is displayed, you can manually change input mode.)
	If &M is included, the inputs are masked by the asterisk characters "*" (dot for VP59/T58A).
	Example: **$PPassword&C3&N&M** means prompting an **Password** pop-up box, the maximum number of input characters is 3, the input type is Number, and the input is masked by the asterisk characters "*" (dot characters for VP59/T58A).
	Note: The &T<title> is an optional configuration. It is not applicable to T29G/T41P/T42G/T46G/T48G IP phones.
$P<EDK user input prompt X>N<characters number allowed>$	The user input prompt string.
	"EDK user input prompt X" means which EDK user input prompt is invoked. It indicates the X as defined by "edk.edkprompt.X.enable".
	"characters number allowed" defines the maximum number of input characters. You need to press the **Enter** soft key to complete data entry.
	Example: **$P2N5$** means invoking the EDK user input prompt 2 and inputting 5 characters at most.
	Note: For more information, refer to Defining an EDK Macro.
$L<label>$	This is the label for the entire operation. The value can be any string including the null string (in this case, no label displays).
	This label is used if no label is configured for a Custom Key or soft key, otherwise this one is ignored. Make this the first entry in the action string.
	Example: **$LEDK2$1234$Tinvite$** defines calling out the number 1234 and using the label "EDK2" for a Custom Key or soft key.
$LED<color and time>&L<label>$	The status of the BLF/BLF list key LED. Enable to specify the LED color for the BLF/BLF list key, and specify the duration time (in milliseconds) for the corresponding

Macro Action	Description
(not applicable to VP59/SIP-T19(P) E2/T58A IP phones)	status of the BLF/BLF list key. The valid value of the duration time ranges from 100 to 60000ms. Can be composed of multiple combination of "color" and "time". The status will be stuck in an infinite loop until triggered by other macros. Supported colors include (must be lowercase): • r (red) • ri (red; red with incoming mark for SIP-T48G/S) • ro (red; red with outgoing mark for SIP-T48G/S) • g (green) • gi (green; green with incoming mark for SIP-T48G/S) • go (green; green with outgoing mark for SIP-T48G/S) • o (off) &L\<label\> (Optional.): You have to put the "&L\<label\>" last in the command flow. Example: **$LEDg1000o100r300&Lidle$** means an infinite loop for BLF/BLF list key LED status: grow green for 1000ms, be in the off state for 100ms and then glow red for 300ms. At the same time, the label of the BLF/BLF list key is changed to "idle". **Note**: The last "color" can be configured without "time", and it means permanently displaying the last color until triggered by other macros. This macro can be only used for BLF/BLF list feature.

Defining an EDK Macro

Before using EDK, you must be familiar with macro language shown in this section. For more information, refer to Understanding Macro Action Strings.

Using the Enhanced DSS Keys (EDK) List parameters to define a macro is optional and is useful when defining more than one soft key or DSS key.

The Enhanced DSS Keys (EDK) Prompt parameters must be used if interactivity with user is implemented as part of any macro. If an EDK macro attempts to use a prompt that is disabled, the macro execution will be ignored. A prompt is not required for every macro.

To configure EDK macro using configuration files:

1. Add/Edit EDK macro parameters in the configuration file (e.g., features.cfg).

The following table lists the information of parameters:

Parameters	Permitted Values	Default
Enhanced DSS Keys (EDK) Parameter		
features.enhanced_dss_keys.enable	**0 or 1**	**0**
Description: It enables or disables the Enhanced DSS Keys (EDK) feature. **0-**Disabled **1-**Enabled		
Enhanced DSS Keys (EDK) List Parameters		
edk.edklist.X.enable (X ranges from 1 to 255)	**0 or 1**	**0**
Description: It enables or disables the Enhanced DSS Keys (EDK) macro X. **0-**Disabled **1-**Enabled **Note:** It works only if the value of the parameter "features.enhanced_dss_keys.enable" is set to 1 (Enabled).		
edk.edklist.X.mname (X ranges from 1 to 255)	**String**	**Blank**
Description: It configures the unique identifier used by the soft key or DSS key configuration to reference the enhanced DSS keys entry for macro X. It cannot start with a digit. This parameter must have a value, it cannot be left blank. **Note:** If there are two or more same macros, the soft key or DSS key will invoke the macro with the smallest value of X. It works only if the value of the parameter "features.enhanced_dss_keys.enable" is set to 1 (Enabled).		
edk.edklist.X.action (X ranges from 1 to 255)	**String**	**Blank**
Description: It configures the action string that contains a macro definition of the action that the softkey or DSS key performs. This parameter must have a value, it cannot be left blank. For a list of macro definitions		

Parameters	Permitted Values	Default
and example macro string, refer to Understanding Macro Action Strings. **Note:** It works only if the value of the parameter "features.enhanced_dss_keys.enable" is set to 1 (Enabled).		
Enhanced DSS Keys (EDK) User Input Prompt Parameters		
edk.edkprompt.X.enable (X ranges from 1 to 10)	**0 or 1**	**0**
Description: It enables or disables the user input prompt X. **0-**Disabled **1-**Enabled **Note:** If a macro attempts to use an EDK user input prompt that is disabled, the macro execution will fail. It works only if the value of the parameter "features.enhanced_dss_keys.enable" is set to 1 (Enabled).		
edk.edkprompt.X.label (X ranges from 1 to 10)	**String**	**Default**
Description: It configures the text string used as a label of the user input prompt X. If it is left blank, Default is displayed. **Note:** It works only if the values of the parameters "features.enhanced_dss_keys.enable" and "edk.edkprompt.X.enable" are set to 1 (Enabled).		
edk.edkprompt.X.type (X ranges from 1 to 10)	**text or numeric**	**text**
Description: It configures the type of characters entered by the user for user input prompt X. If it is set to numeric, the default input method is 123, and you can switch among abc/ABC/2aB input methods. If it is set to text, the default input method is abc, and you can switch among ABC/2aB/123 input methods. **Note:** It works only if the values of the parameters "features.enhanced_dss_keys.enable" and "edk.edkprompt.X.enable" are set to 1 (Enabled).		
edk.edkprompt.X.userfeedback	**visible or masked**	**visible**

Parameters	Permitted Values	Default
(X ranges from 1 to 10)		

Description:

It configures the user input feedback method for user input prompt X.

If it is set to visible, the entered text is visible.

If it is set to masked, the entered text is displayed as asterisk characters (*). It can be used to mask password fields.

Note: It works only if the values of the parameters "features.enhanced_dss_keys.enable" and "edk.edkprompt.X.enable" are set to 1 (Enabled).

Parameters	Permitted Values	Default
edk.edkprompt.X.title (X ranges from 1 to 10)	String	EDK Prompt

Description:

It configures the text string used as a title for the user input prompt X. The title appears at the top of the user input prompt screen.

If it is left blank, EDK Prompt is displayed.

Example:

edk.edkprompt.1.title = MyTitle

Note: It is not applicable to T29G/T41P/T42G/T46G/T48G/T48S IP phones. It works only if "features.enhanced_dss_keys.enable" and "edk.edkprompt.X.enable" are set to 1 (Enabled).

The following shows an example of EDK macro configuration in the configuration file:

features.enhanced_dss_keys.enable = 1

edk.edklist.1.enable = 1

edk.edklist.1.mname = IVR1

edk.edklist.1.action =
10086$Tinvite$$Cwaitconnect$$P5N4$$Tdtmf$$Cpause2$4$Tdtmf$$Cpause1$2$Tdtmf$

edk.edkprompt.5.enable = 1

edk.edkprompt.5.label = PIN Code

edk.edkprompt.5.type = numeric

edk.edkprompt.5.userfeedback = masked

edk.edkprompt.5.title = MyTitle

2. Reference the configuration file in the boot file (e.g., y000000000000.boot).

Example:

include:config "http://10.2.1.158/HTTP Directory/features.cfg"

3. Upload the boot file and configuration file to the root directory of the provisioning server.

4. Trigger IP phones to perform an auto provisioning for configuration update.

For more information on auto provisioning, refer to the latest Auto Provisioning Guide on Yealink Technical Support.

Then you can configure a soft key or DSS key to invoke the EDK macro (refer to Configuring Custom Soft Keys or Configuring DSS Keys). When the macro is triggered, the phone will prompt for the PIN code, input and save it; then dial out 10086 using the default account; send the PIN code (by the type of dtmf) after connected; wait 2 seconds, then send 4 (by the type of dtmf); wait 1 second, then send 1 (by the type of dtmf).

The following screenshot shows the EDK user input prompt:

Configuring EDK ID Mode

You can view the softkey ID or menu item ID when defining EDK macros by long pressing the Volume Up key.

To configure EDK macro using configuration files:

1. Add/Edit EDK macro parameters in the configuration file (e.g., features.cfg).

The following table lists the information of parameters:

Parameters	Permitted Values	Default
features.enhanced_dss_keys.enable	**0 or 1**	**0**
Description: It enables or disables the Enhanced DSS Keys (EDK) feature. **0**-Disabled **1**-Enabled		
edk.id_mode.enable	**0 or 1**	**0**
Description: It enables or disables to view the softkey ID or menu item ID by long pressing the		

Parameters	Permitted Values	Default
Volume Up key for three seconds on any screen. **0**-Disabled **1**-Enabled If it is set to 1 (Enabled), you can view the softkey ID (not for VP59/SIP-T58A IP phones) or menu item ID by long pressing the Volume Up key for three seconds at any interface. **Note**: The menu item ID is displayed on the status bar of the phone. Long pressing the Volume Up key for three seconds to exit. It works only if the value of the parameter "features.enhanced_dss_keys.enable" is set to 1 (Enabled).		

The following shows an example of EDK macro configuration in the configuration file:

features.enhanced_dss_keys.enable = 1

edk.id_mode.enable = 1

2. Reference the configuration file in the boot file (e.g., y000000000000.boot).

Example:

include:config "http://10.2.1.158/features.cfg"

3. Upload the boot file and configuration file to the root directory of the provisioning server.

4. Trigger IP phones to perform an auto provisioning for configuration update.

For more information on auto provisioning, refer to the latest Auto Provisioning Guide on Yealink Technical Support.

The following screenshots show examples for displaying the softkey ID and menu item ID on SIP-T46G IP phone when long pressing the Volume Up key:

Softkey ID:

Menu Item ID:
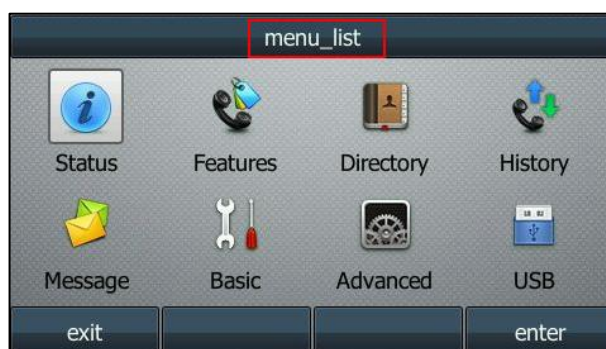
Configuring Custom Soft Keys

You can assign functions to custom soft keys using macros. For more information on macro action strings and how to define an EDK macro, refer to Understanding Macro Action Strings and Defining an EDK Macro. This feature is typically used to access frequently-used functions; or, if your phone does not have a particular hard key, you can create a soft key. For example, if the phone does not have an intercom hard key, you can create an intercom soft key.

If you have configured custom soft keys, the custom soft keys will display with the default soft keys and the original softkey layout may change.

Custom soft keys can be added in the following call states:

- **Idle** - There are no active calls on the phone.

- **Alerting (or ringing)** – There is an incoming call on the phone.

- **Connecting** – There is an outgoing call on the phone. And the call is connecting.

- **Transfer connecting** – There is a call being transferred to another phone. And the call is connecting.

- **Talk** – There is an active call on the phone.

- **Call failed** – The outgoing call encounters a failure.

- **Ring back** - There is an outgoing call on the phone. And the phone is in the ringback state.

- **Transfer ring back** - There is a call being transferred to another phone. And the phone is in the ringback state.

- **Hold** – The call is placed on hold on the phone.

- **Held** – The call is held.

- **Conference** – The phone sets up a conference call.

- **Dial tone** – You can hear a dial tone. But there are no numbers entered.

- **Dialing** – The phone is on the dialing screen. That is, the entered numbers are not dialed out.

To configure the soft keys using configuration files:

1. Add/Edit soft key parameters in the configuration file (e.g., features.cfg).

   The following table lists the information of parameters:

Parameters	Permitted Values	Default
features.enhanced_dss_keys.enable	**0 or 1**	**0**
Description: It enables or disables the Enhanced DSS Keys (EDK) feature. **0-**Disabled **1-**Enabled		
softkey.X.enable (X ranges from 1 to 10)	**0 or 1**	**0**
Description: It enables or disables the custom soft key X. **0-**Disabled **1-**Enabled **Note:** It works only if the value of the parameter "features.enhanced_dss_keys.enable" is set to 1 (Enabled).		
softkey.X.label (X ranges from 1 to 10)	**String**	**Blank**
Description: It configures the text displayed on the soft key label. **Note:** It works only if the values of the parameters "features.enhanced_dss_keys.enable" and "softkey.X.enable" are set to 1 (Enabled).		
softkey.X.position (X ranges from 1 to 10)	**Integer from 0 to 10**	**0**
Description: It configures the location on the phone screen for soft key X. If it is set to 0, the soft key X is located in the first empty position from the left. If it is set to a value that is greater than the number of the soft keys, a **More** soft key appears and the soft key X is located in the desired position from the left. The original soft key moves to the next space, and so forth. **Note:** It works only if the values of the parameters "features.enhanced_dss_keys.enable" and "softkey.X.enable" are set to 1 (Enabled).		

Parameters	Permitted Values	Default
softkey.X.action (X ranges from 1 to 10)	**String**	**Blank**
Description: It configures the action or function for custom soft key X. This value uses the same macro action string syntax as an Enhanced DSS key. For a list of macro definitions and example macro string, refer to Understanding Macro Action. You can also invoke the EDK macro that was already defined. The macro name follows the character "!". e.g., softkey.1.action = !IVR1; IVR1 stands for the macro name. **Note:** It works only if the values of the parameters "features.enhanced_dss_keys.enable" and "softkey.X.enable" are set to 1 (Enabled).		
softkey.X.softkey_id (X ranges from 1 to 10)	**String**	**Blank**
Description: It configures the softkey ID for custom softkey X. **Note:** It works only if the values of the parameters "features.enhanced_dss_keys.enable" and "softkey.X.enable" are set to 1 (Enabled). It is not applicable to VP59/SIP-T58A IP phones.		
softkey.X.use.idle (X ranges from 1 to 10)	**0 or 1**	**0**
Description: It enables or disables the custom soft key X to be displayed in the idle state. **0-**Disabled **1-**Enabled **Note:** It works only if the values of the parameters "features.enhanced_dss_keys.enable" and "softkey.X.enable" are set to 1 (Enabled).		
softkey.X.use.incoming_call (X ranges from 1 to 10)	**0 or 1**	**0**
Description: It enables or disables the custom soft key X to be displayed in the alerting (ringing) state. **0-**Disabled **1-**Enabled **Note**: It works only if the values of the parameters		

Parameters	Permitted Values	Default
"features.enhanced_dss_keys.enable" and "softkey.X.enable" are set to 1 (Enabled).		
softkey.X.use.connecting (X ranges from 1 to 10)	**0 or 1**	**0**
Description: It enables or disables the custom soft key X to be displayed in the connecting state. **0-**Disabled **1-**Enabled **Note:** It works only if the values of the parameters "features.enhanced_dss_keys.enable" and "softkey.X.enable" are set to 1 (Enabled).		
softkey.X.use.transfer_connecting (X ranges from 1 to 10)	**0 or 1**	**0**
Description: It enables or disables the custom soft key X to be displayed in the transfer connecting state. **0-**Disabled **1-**Enabled **Note:** It works only if the values of the parameters "features.enhanced_dss_keys.enable" and "softkey.X.enable" are set to 1 (Enabled).		
softkey.X.use.on_talk (X ranges from 1 to 10)	**0 or 1**	**0**
Description: It enables or disables the custom soft key to be displayed in the talking state. **0-**Disabled **1-**Enabled **Note:** It works only if the values of the parameters "features.enhanced_dss_keys.enable" and "softkey.X.enable" are set to 1 (Enabled).		
softkey.X.use.call_failed (X ranges from 1 to 10)	**0 or 1**	**0**
Description: It enables or disables the custom soft key to be displayed in the call failed state. **0-**Disabled **1-**Enabled **Note:** It works only if the values of the parameters		

Parameters	Permitted Values	Default
"features.enhanced_dss_keys.enable" and "softkey.X.enable" are set to 1 (Enabled).		
softkey.X.use.ring_back (X ranges from 1 to 10)	**0 or 1**	**0**

Description:

It enables or disables the custom soft key X to be displayed in the ring back state.

0-Disabled

1-Enabled

Note: It works only if the values of the parameters

"features.enhanced_dss_keys.enable" and "softkey.X.enable" are set to 1 (Enabled).

softkey.X.use.transfer_ring_back (X ranges from 1 to 10)	**0 or 1**	**0**

Description:

It enables or disables the custom soft key X to be displayed in the transfer ring back state.

0-Disabled

1-Enabled

Note: It works only if the values of the parameters

"features.enhanced_dss_keys.enable" and "softkey.X.enable" are set to 1 (Enabled).

softkey.X.use.hold (X ranges from 1 to 10)	**0 or 1**	**0**

Description:

It enables or disables the custom soft key X to be displayed in the hold state.

0-Disabled

1-Enabled

Note: It works only if the values of the parameters

"features.enhanced_dss_keys.enable" and "softkey.X.enable" are set to 1 (Enabled).

softkey.X.use.held (X ranges from 1 to 10)	**0 or 1**	**0**

Description:

It enables or disables the custom soft key X to be displayed in the held state.

0-Disabled

1-Enabled

Note: It works only if the values of the parameters

Parameters	Permitted Values	Default
"features.enhanced_dss_keys.enable" and "softkey.X.enable" are set to 1 (Enabled).		
softkey.X.use.conferenced (X ranges from 1 to 10)	**0 or 1**	**0**
Description: It enables or disables the custom soft key to be displayed in the conference state. **0-**Disabled **1-**Enabled **Note:** It works only if the values of the parameters "features.enhanced_dss_keys.enable" and "softkey.X.enable" are set to 1 (Enabled).		
softkey.X.use.dialtone (X ranges from 1 to 10)	**0 or 1**	**0**
Description: It enables or disables the custom soft key X to be displayed in the dial tone state. **0-**Disabled **1-**Enabled **Note:** It works only if the values of the parameters "features.enhanced_dss_keys.enable" and "softkey.X.enable" are set to 1 (Enabled). It is not applicable to VP59/SIP-T58A IP phones.		
softkey.X.use.dialing (X ranges from 1 to 10)	**0 or 1**	**0**
Description: It enables or disables the custom soft key X to be displayed in the dialing state. **0-**Disabled **1-**Enabled **Note:** It works only if the values of the parameters "features.enhanced_dss_keys.enable" and "softkey.X.enable" are set to 1 (Enabled). It is not applicable to VP59/SIP-T58A IP phones.		

The following shows an example of soft key configuration in the configuration file:

features.enhanced_dss_keys.enable = 1

softkey.1.enable = 1

softkey.1.label = LCR

softkey.1.position = 6

softkey.1.action = !IVR1

softkey.1.use.idle = 1

18

softkey.1.use.dialtone = 1

edk.edkprompt.1.enable = 1

edk.edkprompt.1.label = Intercom

edk.edkprompt.1.type = numeric

edk.edkprompt.1.userfeedback = visible

softkey.2.enable = 1

softkey.2.label = Intercom

softkey.2.position = 7

softkey.2.action = *64$P1N12$

softkey.2.use.idle = 1

softkey.2.use.dialtone = 1

2. Reference the configuration file in the boot file (e.g., y000000000000.boot).

   Example:

   include:config "http://10.2.1.158/features.cfg"

3. Upload the boot file and configuration file to the root directory of the provisioning server.

4. Trigger IP phones to perform an auto provisioning for configuration update.

   For more information on auto provisioning, refer to the latest Auto Provisioning Guide on Yealink Technical Support.

The following screenshots show the user interface for SIP-T46G IP phone in the different states when configured with example configuration file:

Idle State:

If you press the **More** soft key, the following screen appears:

Dial Tone Sate:

If you press the **More** soft key, the following screen appears:

Press the **LCR** soft key to perform the macro definition of the action IVR1
"10086$Tinvite$$Cwaitconnect$$P5N4$$Tdtmf$$Cpause2$4$Tdtmf$$Cpause1$2$Tdtmf$".

Press the **Intercom** soft key to perform the macro definition of the action "*64$P1N12$".

Configuring DSS Keys

You can assign functions to DSS keys using macros. For more information on macro action
strings and how to define an EDK macro, refer to Understanding Macro Action Strings and
Defining an EDK Macro.

To configure the DSS keys using configuration files:

1. Add/Edit DSS key parameters in the configuration file (e.g., features.cfg).

   The following table lists the information of parameters:

Parameters	Permitted Values	Default
features.enhanced_dss_keys.enable	**0 or 1**	**0**
Description: It enables or disables the Enhanced DSS Keys (EDK) feature. **0-**Disabled **1-**Enabled		
linekey.X.type/ **programablekey.X.type/** **expansion_module.X.key.Y.type**	**73**	**Refer to the following content**
Description: It configures a DSS key as a Custom Key on the IP phone. The digit **73** stands for the key type **Custom Key**.		

Parameters	Permitted Values	Default
For line keys: X ranges from 1 to 29 (for SIP-T48G/S) X ranges from 1 to 27 (for VP59/SIP-T58A/T54W/T54S/T46G/T46S/T29G) X ranges from 1 to 15 (for SIP-T42G/T42S/T41P/T41S) X ranges from 1 to 21 (for SIP-T53W/T53/T52S/T27G) X ranges from 1 to 3 (for SIP-T40P/T40G/T23P/T23G) X ranges from 1 to 2 (for SIP-T21(P) E2) For programmable keys: X=1-4, 12-14, 17 (for VP59) X=1-4, 12-14 (for SIP-T58A) X=1-10, 12-14, 17-18 (for SIP-T54W/T54S/T48G/T48S/T46G/T46S) X=1-10, 13, 17-18 (for SIP-T53W/T53/T52S/T42G/T42S/T41P/T41S/T40P/T40G) X=1-14, 17-18 (for SIP-T29G/T27G) X=1-10, 14, 17-18 (for SIP-T23P/T23G/T21(P) E2) X=1-9, 13, 14, 17-18 (for SIP-T19(P) E2) For ext keys: **For SIP-T58A/T54W/T54S/T53W/T53/T52S**: X ranges from 1 to 3, Y ranges from 1 to 60. **For SIP-T48G/T48S/T46G/T46S**: X ranges from 1 to 6, Y ranges from 1 to 40. **For SIP-T29G/T27G**: X ranges from 1 to 6, Y ranges from 1 to 20, 22 to 40 (Ext key 21 cannot be configured). **Default:** For line keys: **For SIP-T48G/S 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 VP59/SIP-T58A/T54W/T54S/T46G/T46S/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. **For SIP-T53W/T53/T52S IP phones:** The default value of the line key 1-12 is 15, and the default value of the line key 13-21 is 0. **For SIP-T42G/S IP phones:** The default value of the line key 1-12 is 15, and the default value of the line key 13-15		

Parameters	Permitted Values	Default

is 0.

For SIP-T41P/S 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-T27G 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/T40G/T23P/T23G/T21(P) E2 IP phones:

The default value is 15.

For programmable keys:

For VP59 IP phones:

When X=1, the default value is 0 (NA).

When X=2, the default value is 0 (NA).

When X=3, the default value is 0 (NA).

When X=4, 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).

When X=17, the default value is 0 (NA).

For SIP-T58A IP phones:

When X=1, the default value is 0 (NA).

When X=2, the default value is 0 (NA).

When X=3, the default value is 0 (NA).

When X=4, 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-T54W/T54S/T48G/T48S/T46G/T46S 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).

Parameters	Permitted Values	Default

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).

When X=17/18, the default value is 0 (NA).

For SIP-T53W/T53/T52S/T42G/T42S/T41P/T41S/T40P/T40G 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=10/13/17/18, the default value is 0 (NA).

For SIP-T29G/T27G 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).

When X=17/18, the default value is 0 (NA).

For SIP-T23P/T23G/T21(P) E2 IP phones:

Parameters	Permitted Values	Default
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).		
When X=17/18, the default value is 0 (NA).		
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).		
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).		
When X=17/18, the default value is 0 (NA).		
For ext keys:		
For SIP-T58A/T54W/T54S/T53W/T53/T52S IP phones:		
When Y=1-60, the default value is 0 (NA).		
For SIP-T48G/T48S/T46G/T46S IP phones:		
When Y= 1 to 40, the default value is 0 (NA).		
For SIP-T29G/T27G IP phones:		
When Y= 1, 21, the default value is 37 (Switch).		
When Y = 2 to 20, 22 to 40, the default value is 0 (NA).		
Note: To configure a Custom Key, make sure the value of the parameter "features.enhanced_dss_keys.enable" is set to 1 (Enabled) in advance.		

Parameters	Permitted Values	Default
linekey.X.value/ programablekey.X.value/ expansion_module.X.key.Y.value	**String within 99 characters**	**Blank**

Description:

It configures the action or function for the DSS key.

This value uses the same macro action string syntax as an Enhanced DSS Key. For a list of actions, refer to Understanding Macro Action.

You can also invoke the EDK macro. The macro name follows the character "!". e.g., linekey.1.value = !IVR1; IVR1 stands for the macro name. For more information, refer to Defining an EDK Macro.

For line keys:

X ranges from 1 to 29 (for SIP-T48G/S)

X ranges from 1 to 27 (for VP59/SIP-T58A/T54W/T54S/T46G/T46S/T29G)

X ranges from 1 to 15 (for SIP-T42G/T42S/T41P/T41S)

X ranges from 1 to 21 (for SIP-T53W/T53/T52S/T27G)

X ranges from 1 to 3 (for SIP-T40P/T40G/T23P/T23G)

X ranges from 1 to 2 (for SIP-T21(P) E2)

For programmable keys:

X=1-4, 12-14, 17 (for VP59)

X=1-4, 12-14 (for SIP-T58A)

X=1-10, 12-14, 17-18 (for SIP-T54W/T54S/T48G/T48S/T46G/T46S)

X=1-10, 13, 17-18 (for SIP-T53W/T53/T52S/T42G/T42S/T41P/T41S/T40P/T40G)

X=1-14, 17-18 (for SIP-T29G/T27G)

X=1-10, 14, 17-18 (for SIP-T23P/T23G/T21(P) E2)

X=1-9, 13, 14, 17-18 (for SIP-T19(P) E2)

For ext keys:

For SIP-T58A/T54W/T54S/T53W/T53/T52S IP phones:

X ranges from 1 to 3, Y ranges from 1 to 60.

For SIP-T48G/T48S/T46G/T46S:

X ranges from 1 to 6, Y ranges from 1 to 40.

For SIP-T29G/T27G:

X ranges from 1 to 6, Y ranges from 1 to 20, 22 to 40 (Ext key 21 cannot be configured).

Note: To configure a Custom Key, make sure the value of the parameter "features.enhanced_dss_keys.enable" is set to 1 (Enabled) in advance.

Parameters	Permitted Values	Default
linekey.X.label/ **programablekey.X.label/** **expansion_module.X.key.Y.label**	**String within 99 characters**	**Blank**

Description:

It configures the label displayed on the phone screen for each DSS key.

For line keys:

X ranges from 1 to 29 (for SIP-T48G/S)

X ranges from 1 to 27 (for VP59/SIP-T58A/T54W/T54S/T46G/T46S/T29G)

X ranges from 1 to 15 (for SIP-T42G/T42S/T41P/T41S)

X ranges from 1 to 21 (for SIP-T53W/T53/T52S/T27G)

X ranges from 1 to 3 (for SIP-T40P/T40G/T23P/T23G)

X ranges from 1 to 2 (for SIP-T21(P) E2)

For programmable keys:

X ranges from 1 to 4.

For ext keys:

For SIP-T58A/T54W/T54S/T53W/T53/T52S IP phones:

X ranges from 1 to 3, Y ranges from 1 to 60.

For SIP-T48G/T48S/T46G/T46S:

X ranges from 1 to 6, Y ranges from 1 to 40.

For SIP-T29G/T27G:

X ranges from 1 to 6, Y ranges from 1 to 20, 22 to 40 (Ext key 21 cannot be configured).

Note: To configure a Custom Key, make sure the value of the parameter "features.enhanced_dss_keys.enable" is set to 1 (Enabled) in advance.

linekey.X.shortlabel (X ranges from 1 to 21)	**String within 99 characters**	**Blank**

Description:

It configures the short label displayed on the LCD screen for line key.

Note: It is only applicable to SIP-T52S IP phones.

The following shows an example of line key configuration in the configuration file:

features.enhanced_dss_keys.enable = 1

linekey.2.type = 73

linekey.2.value = !IVR1

linekey.2.label = IVR1

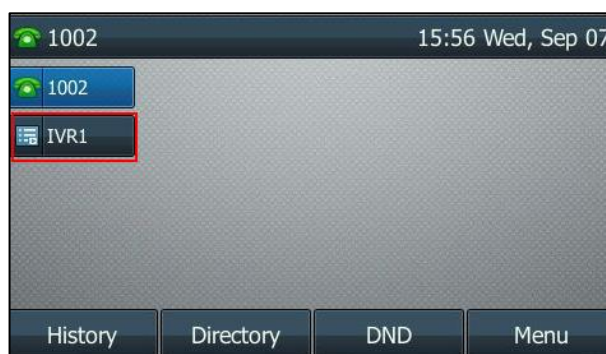**2.** Reference the configuration file in the boot file (e.g., y000000000000.boot).

Example:

include:config "http://10.2.1.158/features.cfg"

3. Upload the boot file and configuration file to the root directory of the provisioning server.

4. Trigger IP phones to perform an auto provisioning for configuration update.

For more information on auto provisioning, refer to the latest Auto Provisioning Guide on Yealink Technical Support.

The following screenshot shows the user interface for SIP-T46G IP phone when configured with example configuration file:

Press the line key (IVR1) to perform the macro definition of the action IVR1 (10086$Tinvite$$Cwaitconnect$$P5N4$$Tdtmf$$Cpause2$4$Tdtmf$$Cpause1$2$Tdtmf$).

Using Macro Action Strings When Adding a Contact

You can use EDK macro action strings as the contact number. For more information on macro action strings and how to define an EDK macro, refer to Understanding Macro Action Strings and Defining an EDK Macro.

Yealink IP phone supports the following two formats when using EDK macro strings as the contact number:

● Add an exclamation mark "!" before the EDK macro name, and then enclose them in parenthesis "( )".

● Enclose the EDK macro strings in parenthesis "( )".

Example:

1. Add/Edit DSS key parameters in the configuration file (e.g., contact.cfg).

features.enhanced_dss_keys.enable = 1

edk.edklist.1.enable = 1

edk.edklist.1.mname = macro

edk.edklist.1.action = 8001234567$Cwc$$Cp2$103$Tdtmf$

2. Reference the configuration file in the boot file (e.g., y000000000000.boot).

   include:config "http://10.2.1.158/contact.cfg"

3. Upload the boot file and configuration file to the root directory of the provisioning server.

4. Trigger IP phones to perform an auto provisioning for configuration update.

5. When adding a contact, assign (!macro) or (8001234567$Cwc$$Cp2$103$Tdtmf$) to be the contact number.

   As shown in the following screenshots:

When you place a call to the contact 8001234567 from Directory, the phone will invoke the macro "macro" or execute the action "8001234567$Cwc$$Cp2$103$Tdtmf$" directly. The phone dials number 8001234567 first, and then sends DTMF sequence 103 automatically after the call is connected and lasts for 2 seconds.