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 Yealink SIP-T54S, SIP-T52S, SIP-T48G/S, SIP-T46G/S, SIP-T42G/S, SIP-T41P/S, SIP-T40P, SIP-T40G, SIP-T29G, SIP-T27P/G, SIP-T23P/G, SIP-T21(P) E2, SIP-T19(P) E2 and CP860 IP phones running firmware version 81 or later.

Introduction

Enhanced DSS Keys (EDK) enables users to customize the functions of a phone's DSS keys (line keys, programable 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 or to create menu shortcuts to frequently used phone settings to suit your needs.

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/CP860 IP phones. The ext keys are only applicable to SIP-T54S/T52S/T48G/T48S/T46G/T46S/T29G/T27P/T27G IP phones. And to customize the functions for ext keys, you have to connect the expansion module to the IP phone

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 functions that may be redundant or never used.

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

9. $P<prompt num>N<num digits>$

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) 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

Macro Action	Description
	defined. Supported action types include:
	● invite
	● dtmf
	● refer
	Example: ***338$Tdtmf$** defines sending the *338 by the type of dtmf.
	Note: We recommend that you always define this field. If it is not defined, 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.
	Note: To view the softkey 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 on page 10.
$K<key name>$	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/S, X=1-29; for SIP-T54S/T46G/T46S/T29G, X=1-27; for

Macro Action	Description
	SIP-T42G/T42S/T41P/T41S, X=1-15; for SIP-T52S/T27P/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
	• ArrowDown
	• ArrowLeft
	• ArrowRight
	• VolDown
	• VolUp
	• Cancel
	• OK
	• DialPadX (X ranges from 0 to 9)
	• DialPadPound
	• DialPadStar
	• Headset
	• Mute
	• Message
	• Hold
	• Redial
	• Transfer
	• Speaker
	• Conference
	• 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 to 40, Y ranges from 1 to 6; For SIP-T54S/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 (You can return back to idle screen by executing this command at dialing screen for

Macro Action	Description
	SIP-T48G/S IP phones)
	Example: **$KDialPadPound$** means pressing the pound key.
	Note: If a key (e.g., Redial key) is not found but the function is available, 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 to be performed for positioning and entering 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 on page 10.
$P<label>&C<characters number allowed>&N&M$	The user input prompt string. Enable to prompt the pop-up box, specify the label for the input box, specify the maximum input characters, specify the character type for the input box, and specify whether to mask the input by the "*".
	"label" means the specified label for pop-up box.
	"characters number allowed" defines the maximum number of input characters.
	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.
	If &M is included, the input are masked by the "*".
	Example: **$PEnter name&C3&N&M** means prompting an **Enter name** pop-up box, the maximum number of input characters is 3, the input type is Number, and the input is masked by the "*".

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Macro Action	Description
$P<prompt num>N<num digits>$	This is a macro substitution string. "prompt num" means which EDK prompt is invoked. It indicates the X as defined by "edk.edkprompt.X.enable". "num digits" defines the number of digits or letters that the user can enter. The user needs to press the **Enter** soft key to complete data entry. Example: **$P2N5$** means invoking the EDK prompt 2 and the maximum number of input characters is 5. **Note**: It works only if the EDK prompt has been configured in advance. For more information, refer to Defining an EDK Macro on page 7.
$L<label>$	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.
$LED<color and time>&L<label>$ (not applicable to SIP-T19(P) E2 IP phones)	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 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>"

Macro Action	Description
	last in the command flow.
	Example: **$LEDg1000o100r300&Lidle$** means an infinite loop for BLF/BLF list key LED status: illuminates solid green for 1000ms, goes out for 100ms and then illuminates solid 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 on page 2.

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**

Parameters	Permitted Values	Default
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 a 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.		
If EDK is enabled, this parameter must have a value. For a list of macro definitions and example macro string, refer to Understanding Macro Action Strings on page 2.		
Note: It works only if the value of the parameter "features.enhanced_dss_keys.enable" is set to 1 (Enabled).		
Enhanced DSS Keys (EDK) Prompt Parameters		
edk.edkprompt.X.enable (X ranges from 1 to 10)	**0 or 1**	**0**
Description:		
It enables or disables the Enhanced DSS Keys (EDK) prompt X.		
0-Disabled		
1-Enabled		
Note: If a macro attempts to use an EDK prompt that is disabled, the macro execution will fail. It works only if the value of the parameter		

Parameters	Permitted Values	Default
"features.enhanced_dss_keys.enable" is set to 1 (Enabled).		
edk.edkprompt.X.label (X ranges from 1 to 10)	**String**	**Blank**
Description: It configures the prompt text to be displayed on the Enhanced DSS Keys (EDK) prompt X screen. If it is left blank, no prompt displays. **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 Enhanced DSS Keys (EDK) prompt X. If it is set to numeric, the default input method is 123, and you can switch to abc/ABC/2aB input method. If it is set to text, the default input method is abc, you can switch to ABC/2aB/123 input method. **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 (X ranges from 1 to 10)	**visible or masked**	**visible**
Description: It configures the user input feedback method for Enhanced DSS Keys (EDK) prompt X. If it is set to visible, the entered text is visible. If it is set to masked, the entered text displays 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).		

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

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 *Yealink_SIP-T2_Series_T19(P) E2_T4_Series_T5_Series_W5_Series_CP860_IP_Phones_Auto_Provisioning_Guide_V81*.

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).

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**

Parameters	Permitted Values	Default
Description: It enables or disables to view the softkey id or menu item id by long pressing the Volume Up key. **0**-Disabled **1**-Enabled If it is set to 1 (Enabled), you can view the softkey id or menu item id by long pressing the Volume Up key for three seconds at any interface. **Note**: The menu item id displays 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 *Yealink_SIP-T2_Series_T19(P) E2_T4_Series_T5_Series_W5_Series_CP860_IP_Phones_Auto_Provisioning_Guide_V81*.

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:
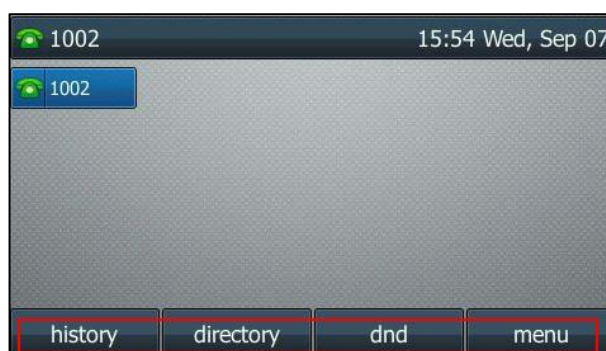
Menu Item ID:
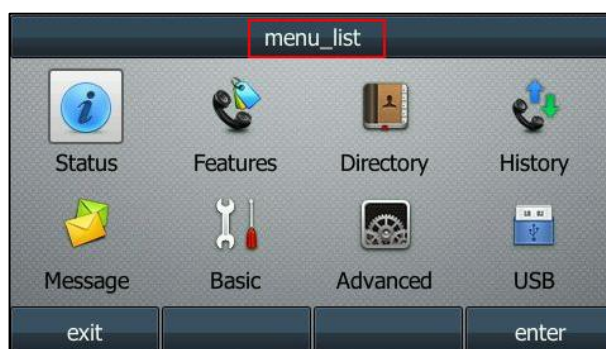
Configuring Custom Soft Keys

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 on page 2 and Defining an EDK Macro on page 7. 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 position on the LCD screen for soft key X. If it is set to 0, the soft key X is positioned 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 positioned 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 on page 2. 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). To distinguish the custom softkey id and system-defined softkey id, the custom softkey id displayed on the LCD screen will add a "#" prefix (e.g., #custom_macro1).		
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		

Parameters	Permitted Values	Default
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.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 on talk 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		

Parameters	Permitted Values	Default
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.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		

Parameters	Permitted Values	Default
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.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).		
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).		

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

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 *Yealink_SIP-T2_Series_T19(P) E2_T4_Series_T5_Series_W5_Series_CP860_IP_Phones_Auto_Provisioning_Guide_V81*.

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 on page 2 and Defining an EDK Macro on page 7.

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 SIP-T54S/T46G/T46S/T29G) X ranges from 1 to 15 (for SIP-T42G/T42S/T41P/T41S) X ranges from 1 to 21 (for SIP-T52S/T27P/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 programable keys: X=1-10, 12-14 (for SIP-T54S/T48G/T48S/T46G/T46S) X=1-10, 13 (for SIP-T52S/T42G/T42S/T41P/T41S/T40P/T40G) X=1-14 (for SIP-T29G/T27P/T27G) X=1-10, 14 (for SIP-T23P/T23G/T21(P) E2) X=1-9, 13, 14 (for SIP-T19(P) E2) X=1-6, 9, 13 (for CP860) For ext keys: **For SIP-T54S/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/T27P/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 SIP-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-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 is 0.		

Parameters	Permitted Values	Default
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-T27P/G 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 programable keys: **For SIP-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). 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-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, the default value is 0 (NA). When X=13, the default value is 0 (NA).		

Parameters	Permitted Values	Default
For SIP-T29G/T27P/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).		
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).		
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).		

Parameters	Permitted Values	Default
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). **For CP860 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 85 (Local Favorite). When X=9, the default value is 33 (Status). When X=13, the default value is 0 (NA). For ext keys: **For SIP-T54S/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/T27P/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 is set to "features.enhanced_dss_keys.enable" in advance.		
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 on page 2. 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 on page 7. For line keys: X ranges from 1 to 29 (for SIP-T48G/S)		

Parameters	Permitted Values	Default
X ranges from 1 to 27 (for SIP-T54S/T46G/T46S/T29G)		
X ranges from 1 to 15 (for SIP-T42G/T42S/T41P/T41S)		
X ranges from 1 to 21 (for SIP-T52S/T27P/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 programable keys:		
X=1-10, 12-14 (for SIP-T54S/T48G/T48S/T46G/T46S)		
X=1-10, 13 (for SIP-T52S/T42G/T42S/T41P/T41S/T40P/T40G)		
X=1-14 (for SIP-T29G/T27P/T27G)		
X=1-10, 14 (for SIP-T23P/T23G/T21(P) E2)		
X=1-9, 13, 14 (for SIP-T19(P) E2)		
X=1-6, 9, 13 (for CP860)		
For ext keys:		
For SIP-T54S/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/T27P/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 is set to "features.enhanced_dss_keys.enable" in advance.		
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 LCD 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 SIP-T54S/T46G/T46S/T29G) X ranges from 1 to 15 (for SIP-T42G/T42S/T41P/T41S) X ranges from 1 to 21 (for SIP-T52S/T27P/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 programable keys:		

Parameters	Permitted Values	Default
X ranges from 1 to 4. For ext keys: **For SIP-T54S/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/T27P/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 is set to "features.enhanced_dss_keys.enable" 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. **Web User Interface:** Dsskey->Line Key->Short **Phone User Interface:** Menu->Features->DSS Keys->Line Key X->Short Label		

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 *Yealink_SIP-T2_Series_T19(P) E2_T4_Series_T5_Series_W5_Series_CP860_IP_Phones_Auto_Provisioning_Guide_V81*.

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$).