CHAPTER **2**

Configuring Lines

The Cisco SPA IP phones provide different numbers of lines depending on the phone model. Each line corresponds to a phone number (or extension) used for calls. Each line can support two calls. For example, a four-line phone can handle eight calls. One call can be active (in conversation) and seven can be on hold.

This chapter contains the following sections:

Configuring a Line Key

Each line key can be assigned multiple extensions, a short name, and share call appearance. The number of line keys depends on the model of the IP phone (does not apply to the Cisco WIP310). Generally you should reserve **Line Key 1** on the IP phone as the primary and private extension of the designated user.

To configure a phone line:

Step 1 Click **Admin Login** > **advanced** > **Voice** > **Phone**.

Step 2 Under each line key for the phone, configure the following:

- Extension—Assign an extension number to the line key. Defaults to 1.
- Short Name—Enter a short name or a number to display on the IP phone screen.
- Share Call Appearance—Select **shared** to share incoming call appearances with other phones. See Configuring Shared–Line Appearance. If you select **private**, the call appearance is not shared with any other phone. Defaults to private.
- Extended Function—See Assigning Busy Lamp Field, Call Pickup, or Speed Dial Functions to Unused Lines.

Step 3 Click **Submit All Changes**.

Configuring Shared–Line Appearance

You create a shared-line appearance by assigning the same directory number to different devices. A Cisco system considers a directory number to be a shared line if it appears on more than one device. In a shared-call appearance, for example, you can set up a shared line, so a directory number appears on line 1 of a manager phone and on line 2 of an assistant phone. Another example of a shared line involves a single incoming 800 number that is set up to appear as line 2 on every sales representative phone in an office.

Most devices with a shared-line appearance can make or receive new calls or resume held calls at the same time. Incoming calls display on all devices that share a line, and anyone can answer the call. Only one call remains active at a time on a device.

Call information (such as calling party or called party) displays on all devices that are sharing a line. If one of the devices turns on the Privacy feature, other devices that share the line will not see outbound calls that are made from the device that turned on privacy. All devices will still see inbound calls to the shared line.

Devices with shared-call appearances can initiate independent transfer or conference transactions.

When a call is made to the extension number for the shared-call, all sharing Cisco SPA IP phones ring. Any IP phone can answer the call. If the active phone places the shared call on hold, the call can be resumed from any of the sharing Cisco SPA IP phones by pressing the corresponding line key (except for the Cisco SPA502G) or the **Select** button when the **Resume** icon is displayed (Cisco WIP310).

The Cisco SPA300 Series, Cisco SPA500 Series, and Cisco SPA525G/G2 IP phones support the *private hold* feature for MetaSwitch and BroadSoft. Users who have a shared line can press **PrivHold**, and the call can only be resumed by the user who placed the call on hold.

Each IP phone can be configured independently. Although the account information is usually the same for all of the Cisco SPA IP phones, settings such as the dial plan or the preferred codec can vary between phones and continue to support shared-line appearance.

Note   The configurations for shared-line appearance are different for Sylantro, Broadsoft, and SPA9000/Phonebooth.

To configure the line:

Step 1   Click **Admin Login** > **advanced** > **Voice**.

Step 2   Click the **Ext_n** tab of the extension that is shared (do not use Ext 1).

Step 3   Under **General** in the Line Enable list, choose **yes**.

Step 4   Under **Share Line Appearance** in the Share Ext list, select **shared**. If you set this extension to **private** (not shared), the extension does not share calls, regardless of the **Share Call Appearance** setting on the **Phone** tab. If you set this extension to **shared**, calls follow the **Share Call Appearance** setting on the **Phone** tab. On the Cisco SPA500 Series phones that have line buttons, a hollow telephone icon is displayed next to the shared line button. For the Cisco SPA525G or Cisco SPA525G2, a telephone icon is displayed.

Step 5   In the Shared User ID field, enter the user ID (name) of the phone with the extension that is being shared.

Step 6   In the Subscription Expires field, enter the number of seconds before the SIP subscription expires. Until the subscription expires, the phone gets NOTIFY messages from the SIP server on the status of the shared phone extension. The default is 60 seconds.

Step 7   In the **Restrict MWI** (message waiting indicator) field, choose **yes** to set the message waiting indicator to light only for messages on private lines (SIP). Choose **no** to set the message waiting indicator to light for all messages.

Step 8   Under **Proxy and Registration**, in the **Proxy** field, enter the IP address of the proxy server (for example, the IP address of the Cisco SPA9000).

Step 9   Under **Subscriber Information**, enter a **Display Name** and **User ID** (extension number) for the shared extension. These are shown on the IP phone screen.

Step 10   (Optional) In the **Phone** tab, under **Miscellaneous Line Key Settings**, configure **SCA Barge-In Enable**. Choose **yes** to allow users sharing call appearances to take over the call on a shared line. Choose **no** to prevent users from taking over the call on a shared line.

For example, Bob and Chris share the extension 401. Adam, calls extension 401. Bob answers the call. Adam and Bob are connected. If Chris has the SCA Barge-In Enable field on her phone set to **yes**, she can press the line button for extension 401. Chris and Adam are connected in a call and Bob is dropped from the call.

Note   When a shared call is put on hold privately, other shared phones cannot resume the call and cannot barge in.

Step 11   Click **Submit All Changes**.

Configuring Call Appearance Per Line

In the **Phone** tab, **Call Appearance Per Line** (under **Miscellaneous Line Key Settings**) lets you choose the number of calls per line button. The default value is **2**.

This option is not supported on the Cisco SPA501G and Cisco SPA301 phones. Also, this feature is only supported when the phones are operating in SIP mode.

When you increase the number of calls per line to a value greater than 2, you *must* set the following:

- **Line ID Mapping** (under **Miscellaneous Line Key Settings**) to **Horizontal First**.
- **Line Navigation** (under **Miscellaneous Line Key Settings**) to **Per Call**.
- **Programmable Softkey Enable** (under **Programmable Softkeys**) to **Yes**.

When the maximum numbers of calls per phone is reached, the phone does not allow you to make a new call and rejects incoming calls. Table 2-1 lists the maximum number of calls per phone for each model.

Table 2-1   Maximum Number of Allowed Calls Per Phone

Phone	Maximum Number of Calls
Cisco SPA303, SPA502G, SPA504G	10
Cisco_SPA508G	16
Cisco SPA509G	24
Cisco SPA512G and Cisco SPA514G	10
Cisco SPA525G or Cisco SPA525G2	10

Expand Call Appearance Per Line

To expand the call appearances per line:

Step 1 Click **Admin Login** > **advanced** > **Voice** > **Phone.**

Step 2 In the **Miscellaneous Line Key Settings** section in the Call Appearance Per Line field, choose how many calls per line to allow from the drop-down.

Configuring Call Appearance Mapping Style

In the **Phone tab**, **Miscellaneous Line Key Settings**, allows you to configure line mapping. Each LED (line/extension) can hold 2 calls (default).

You can assign an extension to both the line LEDs. The first call always causes the assigned LED to flash. Choose one of the following:

- **Vertical First**—The next LED on the phone flashes with the second incoming call.

- **Horizontal first**—The same LED flashes with the second incoming call.

Configuring Unused Line Keys to Access Services

On the Cisco SPA300 Series and Cisco SPA500 Series IP phones, unused or idle phone lines can also be configured to access services, such as:

- XML services

- MP3 player for Cisco SPA525G or Cisco SPA525G2

- Weather (RSS) for Cisco SPA525G or Cisco SPA525G2

- News (RSS) for Cisco SPA525G or Cisco SPA525G2

To configure line keys to access services:

Step 1 Click **Admin Login** > **advanced** > **Voice** > **Phone**

Step 2 In the Line Key to configure (line 4 in this example):

a. From the **Extension** drop down list, choose Disabled.

b. Enter the following string in the Extended Function field:

```
fnc=type
```

where:

- fnc: function

- type:

  – xml: pressing the line button accesses XML services. The XML service configured on the Phone tab under the launches the page identified in the XML Service field (see Configuring XML Services). You can specify a different XML service to connect to by using the syntax
    ```
    fnc=xml;URL=http://xxx.xx.xxx/entry.html
    ```
    where xxx.xx.xxx is the URL of the XML service.

– mp3: pressing the line button starts the mp3 player.

– weather: pressing the line button accesses weather information.

– news: pressing the line button accesses news.

For example, to configure line 4 for the mp3 player:

```
fnc=mp3
```

Step 3   Click **Submit All Changes**. After the phone reboots, configured lines glow orange and display the following icons next to the extension label:

- xml: XML icon

- mp3: mp3 player icon (Cisco SPA525G or Cisco SPA525G2)

- news: RSS icon

- weather: thermometer icon

BroadSoft Advanced Call Park and Recall Support

You can configure the SPA phone to park a call from another phone and unpark the call from any other phone.

For detailed instructions on configuring the phones with the BroadSoft Call Park and Unpark feature, see Configuring Call Park with Broadsoft, available on the Cisco Support Community at https://supportforums.cisco.com/docs/DOC-15426.

BroadSoft Call Park and Recall improves the calling party's experience by:

- Allowing front-office personnel to distinguish between a reverted call and a new call.

- Provides additional routing and call handling options that improve front-office efficiency when the receptionist is unavailable or busy.

- A visual indication is provided to users when a call is parked against their extension.

For detailed signaling requirements, see the Broadsoft/Cisco Partner Configuration Guide.

Assigning, Picking, and Monitoring a Parked Call

Users can assign a dedicated call park button to park a call, pickup a parked call and monitor the parking lot status. The parking lot number has to be the configured SIP line on the phone.

To assign and pick up a parked call:

Step 1   Click **Admin Login > advanced > Voice > Phone**

Step 2   Choose Line Key to configure (line 5 in this example)

    a.   From the **Extension** drop down list, choose Disabled.

    b.   From the **Share Call Appearance** drop-down list, choose **Private**.

    c.   Enter the following string in the **Extended Function** field:

```
fnc=prk;sub=1388@$PROXY;vid=1
```

    where:

- fnc: function

- prk: call park
- sub: call park subscribe account
- orbit: parking lot number, or location where the call is parked.

Note   In a shared line, the subscriber UserID may be different from the shared account number. User can use keyword "orbit" to define the parking lot number (normally it is the shared number).

For example, if the shared UserID is 1391-user2 and the shared number is1391 then in the **Extended Function** field:

```
fnc=prk;sub=1391-user2@$PROXY;orbit=1391;vid=2
```

Step 3   Click **Attendant Console**

Note   Configure the proper access codes for Broadsoft call park (Attendant Console Call Park Code) and call pick up (Attendant Console Call unPark Code) function.

Step 4   Click **Submit All Changes**.

Assigning Busy Lamp Field, Call Pickup, or Speed Dial Functions to Unused Lines

You can configure unused or idle lines on a Cisco SPA300 Series or Cisco SPA500 Series IP phones to interact with another line in the system. For example, if you have two idle lines on an assistant's phone, you can configure those lines to show the status of a supervisor's phone (Busy Lamp Field [BLF]). You can also configure the idle lines so that they can be used to speed dial the supervisor's phone, or pick up calls that are ringing on the supervisor's phone.

A monitored extension can be private or shared. If using the Cisco SPA9000 for call control, an extension can only be monitored by one other extension.

For detailed instructions on configuring the phones with the BroadSoft Busy Lamp Field (BLF) feature, see *Configuring SPA303 and 5xxG IP Phones with Broadsoft's BLF*, available on the Cisco Support Community at
https://supportforums.cisco.com/docs/DOC-9977

Configuring Call Pickup and Busy Lamp Field

You must enable BLF to configure call pickup.

In this example, the assistant Bob (extension 200) has an idle line (line 4) on his Cisco SPA508G. He would like to be able to see if his supervisor Stephanie (extension 300) is on the phone, and pick up calls that are ringing at her extension.

To configure this feature for Bob:

Step 1   Click **Admin Login > advanced > Voice > Phone.**

Step 2   In the Line Key to configure (line 4 in this example):

    a.   From the **Extension** drop down list, choose Disabled.

    b.   Enter the following string in the Extended Function field:

```
fnc=blf+cp;sub=Stephanie@$PROXY;ext=300@$PROXY
```

    Using the following syntax:

```
fnc=type;sub=stationname@$PROXY;ext=extension#@$PROXY
```

    where:

     –   fnc: function

     –   blf: busy lamp field

     –   cp: call pickup

     –   sub: station name

     –   ext or usr: extension or user (the **usr** and **ext** keywords are interchangeable)

Step 3   Click **Submit All Changes**. After the phone reboots, the phone in this example displays the following color LEDs for the monitored lines:

- Green: Available

- Red: Busy

- Red Fast Blink: Ringing

If the phone LEDs display orange or slow blinking orange, there is a problem: Orange indicates that the phone failed to subscribe (received a 4xx response) and slow-blinking orange denotes an undefined problem (there might be no response to the subscribe request, or the BLF).

When the phone is successfully configured, Bob can monitor Stephanie's line. When a call is ringing at Stephanie's line, he can press line button 4 to pick it up.

If you configure BLF call pickup function on a programmable line key, the user can select any registering line key explicitly to pick up the call regardless of the "vid" setting.

Configuring Speed Dial

In this example, the assistant, Bob (extension 200), has another idle line (line 5) on his Cisco SPA508G. He wants to speed dial his supervisor Mark (extension 400) from that line.

To configure this feature for Bob:

Step 1   Click **Admin Login** > **advanced** > **Voice** > **Phone.**

Step 2   In the Line Key to configure (line 5 in this example):

    a.   From the **Extension** drop down list, choose Disabled.

    b.   From the Share Call Appearance drop-down list, choose private.

    c.   Enter the following string in the Extended Function field:

```
fnc=sd;ext=400@$PROXY
```

    Using the following syntax:

```
fnc=type;ext=extension#@$PROXY
```

where:

- – fnc: function
- – sd: speed dial
- – ext or usr: extension or user (the **usr** and **ext** keywords are interchangeable)

Step 3   Click **Submit All Changes**.

When the phone is successfully configured, Bob can press line button 5 to dial Mark's line.

Configuring DTMF Wait and Pause Parameters

Speed dial, directory, extended function, and other strings configured in the phone can include *wait* (**X**) and *pause* (**,**) parameters that allow manual and automatic DTMF (Dual-tone multi-frequency) signal transmission.

Syntax:

`{Dial_String}[ ][,|X][DTMF_string][,|X][DTMF_string]`

Where:

Dial_String—The number that the user is trying to reach. For example, 8537777 or 14088537777.

(space)—A dial termination that defines or delimits the end of the dial string. The space is mandatory. If the phone encounters an X or a comma (,) before the space, the characters are treated as part of dial string.

, (comma)—A 2-second pause that is inserted for each comma in the string.

X (wait)—Awaits user input and acknowledgement

- The "*Waiting for more digits input. When done, press OK to continue*" message displays.
- The user manually enters DTMF signals by using the dial pad.
- The user selects **OK**, acknowledging the transmission of the manual entry is complete.
- The phone sends any DTMF signals defined by *DTMF_string*.
- The phone executes the next parameter. If there are no more parameters in the dial string to execute, the phone exits to the main screen.

The wait does not timeout; the wait prompt window is not dismissed until user confirms the wait prompt or the call is ended either by the user or ended by the remote device.

DTMF_string—The DTMF signals that a user is sends to a remote device after the call is connected. The phone cannot send signals other than valid DTMF signals.

Example

`18887225555 ,,5552X2222`
A speed dial entry triggers the phone to dial 18887225555. The space indicates the end of the dial string. The phone waits 4 seconds (2 commas), and then sends the DTMF signals **5552**.

A message is displayed, prompting the user to manually dial DTMF signals. When the user has finished dialing the DTMF signals, the user selects **OK** to confirm the manual DTMF signal transmission is complete. The phone sends the DTMF signals **2222**.

Usage Guidelines

A user can transmit DTMF signals anytime, as long as the call is connected.

The length of the string, including the Xs or commas (,), that can be supported is limited to the length of a speed-dial entry, dial screen entry, directory entry, and so forth.

If the screen displayed is not a call appearance screen and a wait is initiated, the phone displays the home screen and prompts the user to input more DTMF signals. If this occurs while the user is editing an entry, the edits might be lost.

If only the first part of a dial string matches a dial plan, when the call is dialed, the portion of the dial string that does not match the dial string is ignored. For example:

```
85377776666 ,,1,23
```
If **8537777** matches a dial plan, the characters **6666** are ignored. The phone waits 4 seconds before sending DTMF 1. It then wait 2 seconds and sends DTMF 23.

When logging the call, the phone only logs the dial string; the DTMF strings are not logged.

Valid DTMF signals are 0-9, *, or #. All other characters are ignored.

Limitations

When the call is connected and immediately transferred, the phone might not be able to process the DTMF signals, depending on the duration the call is connected before it is transferred, for example, any internal call through a Cisco UC320. As soon as the call is connected, it is transferred and the DTMF signals are ignored in the Cisco UC320.

Because the Cisco SPA301 and Cisco SPA501G do not have IP phone screens, the wait (**X**) is not supported.

This feature is not supported in when the phone is in SPCP mode.

Configuring Audio Indication for Call Pickup Event

You can configure the phone to play the Call Pickup tone when there are incoming calls to any of the lines that the user is monitoring with the Call Pickup function.

To configure Audio Indication:

Step 1   Click **Admin Login > advanced > Voice > Att(endant) Console**.

Step 2   In the **General** section under Call Pickup Audio Notification, select **Yes**,

To configure this parameter by using the configuration file, configure the following line to the profile:

```
<Call_Pickup_Audio_Notification ua="na">Yes
</Call_Pickup_Audio_Notification>
```

Step 3   Click the **Regional** tab.

Step 4   In the **Call Progress Tones** section under the **Call Pickup Tone** parameter.

The default value is `440@-10;30(.3/9.7/1)`, same as the call waiting tone.

To configure this parameter by using the configuration file, configure the following line the profile:

```
<Call_Pickup_Tone ua="na">440@-10;30(.3/9.7/1)</Call_Pickup_Tone>
```

Step 5   Click **Submit All Changes**.

Configuring Basic or Advanced Call Park Function to a Line Key

Unused line keys can be enabled to allow call park (for the MetaSwitch soft switch) on the Cisco SPA300 and SPA500 series phones. Users can press this line button to park a call or retrieve a parked call.

Note Not available for WIP310, SPA501, SPA502, and SPA301 phones.

- BroadSoft Advanced Call Park and Recall Support, page 2-5
- MetaSwitch Call Park Function Support

For example to configure unused line keys for call park and retrieval on Cisco SPA 525G/SPA525G2 (MetaSwitch):

Step 1 Click **Admin Login > advanced > Voice > Att(endant) Console**.

Step 2 In the **General** section under Server Type, choose **RFC3265_4236**.

Step 3 Click the **Phone** tab.

Step 4 Choose the line key to configure (line 5 in this example):

a. From the **Extension** drop down list, choose Disabled.

b. From the **Share Call Appearance** drop-down list, choose private.

c. Enter the following string in the Extended Function field:

```
fnc=prk;sub=05@domain.com
```

where:

- fnc: function
- prk: call park
- sub: call park orbit, or location where the call is parked. Valid value range is from **01** through **10**. In this example, *5* is used.
- domain.com: phone domain, usually the same as the *proxy* value in the Ext 1 tab. You can also use fnc=prk;sub=05@$PROXY to set this value.

Step 5 Click **Submit All Changes**.