

# Using Statically Configured Busy Lamp Field with Polycom® SoundPoint® IP and V VX® Phones

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In this engineering advisory, you will learn what administrators and users need to know to use the statically configured busy lamp field (BLF) feature on SoundPoint IP and V VX series phones.

This engineering advisory applies to SoundPoint IP 450, 550, 560, 650, and 670 phones running SIP software version 3.2.0 or later, and V VX 500 phones running SIP software version 4.0.1 or later.

## Monitoring Remote Lines with BLF

For phones running SIP software versions 2.0 to 3.1.0, the BLF feature allows you to monitor the status (either Active or Idle) of remote lines if supported by your call server.

As of SIP 3.2.0, administrators can configure monitoring of resources and custom behavior to provide enhanced support for directed call pickup and parked call retrieval.

Each monitored user is a unique subscription. The monitored user's call information can appear on the user's phone. One-touch park and retrieve and one-touch directed call pickup are supported.

Monitored resources can be configured as a normal user or an 'automata'. This allows the default actions of key presses to change based on the type of resource you are monitoring. Normal users are called and have their inbound calls intercepted whereas 'automata' resources, such as park orbits, have calls transferred to them and pulled from the queue.

The statically configured BLF feature is supported on SoundPoint IP 450, 550, 560, 650, and 670 desktop phones running SIP 3.2.0 or later, and V VX 500 phones running SIP 4.0.1 or later.

The topics in this Engineering advisory include:

- BLF Terminology
- What Administrators Need to Know
  - Call Servers That Support Statically Configured Busy Lamp Field
  - Configuration Parameters Related to Statically Configured Busy Lamp Field
- What Users Need to Know
  - Selecting Attendant Ring Tones
  - Spontaneous Appearances of Call Information
  - Parking and Retrieving Calls From a Park Orbit

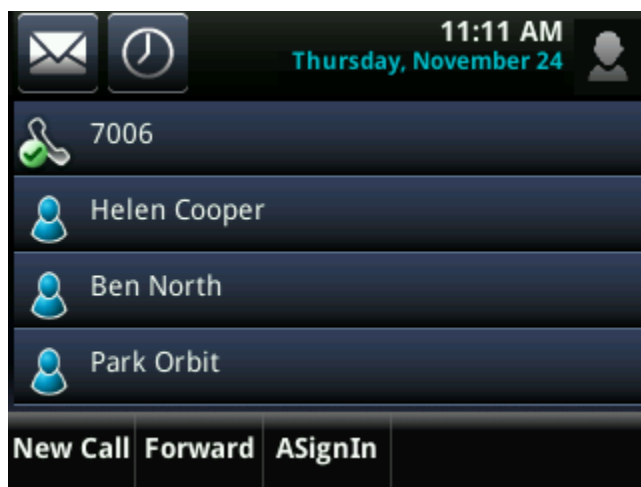
- Handling Remote Calls on Attendant Phones
- Sample Configuration Files

## BLF Terminology

Before you read this engineering advisory, it is important to understand the following phone-related terminology:

- **Attendant phone**—The phone you use to monitor a remote line. The phone has optional Expansion Modules and is set up to monitor one or more remote lines using the BLF feature.
- **Remote line**—The remote line the attendant phone monitors.
- **Idle state**—The phone is ‘on hook’ and there are no active, held, or incoming calls.
- **Active state**—There is an active call in progress.
- **Alerting state**—There is an incoming call (the phone is ringing, if configured with a ring tone).
- **Call waiting state**—There is an active call in progress and the phone is ringing. (There may be held calls also.)
- **Directed call pickup**—You can answer an incoming call on a remote line.
- **Park orbit**—You can park a call in a queue.
- **Parked call retrieval**—You can retrieve a call that is waiting in a calling queue or park orbit.
- **Normal resource type**—Intended for monitoring real users.
- **Automata resource type**—Intended for monitoring automated end points such as park orbits, interactive voice responders, and call queues.

The following figure shows the screen that appears when an attendant phone is set up to monitor two remote lines (Helen Cooper and Ben North) and a park orbit.



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## What Administrators Need to Know

Statically configured BLF is active if the feature is enabled and the phone is registered.

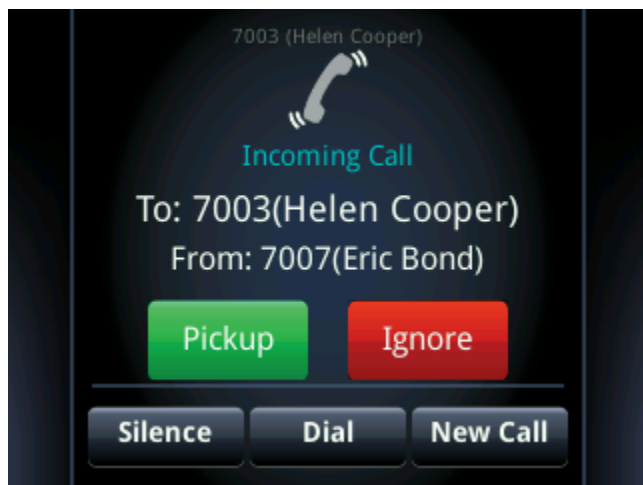
Each monitored user is a unique subscription.

To enable statically configured BLF, you must make the following changes in the configuration files to create the signaling for subscription setup:

- Set `attendant.uri` to Null.
- Set one or more of the `attendant.resourceList.1.address` to an appropriate value.

If `attendant.behaviors.display.remoteCallerID.normal` is disabled (set to 0), the incoming caller ID is displayed as **Unknown**.

If `attendant.behaviors.display.remoteCallerID.normal` is enabled (set to 1), the incoming caller ID is displayed (as shown below).



If `attendant.behaviors.display.spontaneousCallAppearances.normal` is disabled, no call appearance is displayed when a monitored user receives a call. Only the LED and line icon next to the monitored user's name will change and all attendant ringtones are disabled.

If `attendant.behaviors.display.spontaneousCallAppearances.normal` is enabled, a call appearance is displayed (as shown above).

## Call Servers That Support Statically Configured Busy Lamp Field

The following call servers are known to support this feature:

- **Back to Back User Agent (B2BUA) Architecture**
  - Metaswitch Metasphere Call Feature Server (CFS)
  - Asterisk® v1.6 or later

- **Proxy Architecture**

- Avaya® SipX Enterprise Communications Server (ECS)
- eZuce openUC™

These proxy architectures support the full range of statically configured BLF features. However, they do not provide configuration control through their web management console.

The following call servers may support this feature:

- **Proxy Architecture**

- OpenSIPS (formerly OpenSER)
- Reipro ReSIProcate

These proxy architectures or any other proxying server that allows the phone end-to-end communications with the monitored phone should be supported. However, these have not been specifically tested by Polycom nor does Polycom guarantee their full interoperability.

## Configuration Parameters Related to Statically Configured Busy Lamp Field

Configuration changes can be performed centrally at the provisioning server, as shown next in **Table 1: Configuration changes at the provisioning server**.

**Table 1: Configuration changes at the provisioning server**

<i>Central (provisioning server)</i>	Configuration template: <b>features.cfg</b>	Set up list of users to be monitored. • For more information, see <a href="#">&lt;attendant/&gt;</a> .
	Configuration template: <b>sip-interop.cfg</b>	Set the behavior for directed call pickup and parked call retrieval. • For more information, see <a href="#">&lt;call/&gt;</a> . Set the call server behavior. • For more information, see <a href="#">&lt;volpProt/&gt;</a> .
	Configuration template: <b>reg-advanced.cfg</b>	Set up line registrations. • For more information, see <a href="#">&lt;reg/&gt;</a> .



#### Note: Configuration File Management

Polycom recommends that you create configuration file(s) with your organization's modifications. Use the sample configuration templates—part of the UC Software 3.3.0 deliverables—as a guide.

For more information, see the [Polycom UC Software Provisioning Best Practices](#) white paper on the Polycom web site.

## <attendant/>

The existing configuration attribute is defined as shown next in **Table 2: Configuration Attributes for <attendant/>**.

**Table 2: Configuration Attributes for <attendant/>**

<i>Attribute (bold = change causes restart/reboot)</i>	<i>Permitted Values</i>	<i>Default</i>
<b>attendant.reg</b>	<b>positive</b>	<b>1</b>
For attendant console / BLF feature. This is the index of the registration which will be used to send a SUBSCRIBE to the list SIP URI specified in attendant.uri. For example, attendant.reg = 2 means the second registration will be used.		
<b>attendant.ringType</b>	<b>enumerated type</b> <b>See reg-advanced.cfg</b>	<b>Ringer1</b>
The ring tone to play when a BLF dialog is in the offering state.		
<b>attendant.uri</b>	<b>string</b>	<b>Null</b>
For attendant console / busy lamp field (BLF) feature. This specifies the list SIP URI on the server. If this is just a user part, the URI is constructed with the configured registrar's host name/IP.		
<b>Note:</b> <i>If attendant.uri is set, then the individually addressed users configured by attendant.resourceList and attendant.behaviors attributes are ignored.</i>		
attendant.resourceList.x.address	<b>string that constitutes a valid SIP URI (sip:6416@polycom.com) or contains the user part of a SIP URI (6416)</b>	<b>Null</b>

The user referenced by `attendant.reg=""` will subscribe to this URI for dialog. If a user part is present, the phone will subscribe to a sip URI constructed from user part and the domain of the user referenced by `attendant.reg`.

<i>Attribute (bold = change causes restart/reboot)</i>	<i>Permitted Values</i>	<i>Default</i>
<code>attendant.resourceList.x.label</code>	<b>UTF-8 encoded string</b>	<b>Null</b>

Text label to appear on the display adjacent to the associated line key. If set to Null, the label will be derived from the user part of `attendant.resourceList.x.address`.

<code>attendant.resourceList.x.type</code>	<b>"normal" or "automata"</b>	<b>"normal"</b>
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Type of resource being monitored.

If set to **normal**, the default action when pressing the line key adjacent to this monitored user is to initiate a call if the user is idle or busy and to perform a directed call pickup if the user is ringing. Any active calls are first placed on hold.

If set to **automata**, the default action when pressing the line key adjacent to this monitored user is to perform a park/blind transfer of any currently active call. If there is no active call and the monitored user is ringing/busy, an attempt to perform a directed call pickup/park retrieval is made.

<b><code>attendant.behaviors.display.spontaneousCallAppearances.normal</code></b>	<b>0 or 1</b>	<b>1</b>
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A flag to determine whether or not a call appearance is spontaneously presented to the attendant when calls are alerting on a monitored resource. The information displayed after a press-and-hold of a resource's line key is unchanged by this parameter. If set to 1, the display is enabled.

<b><code>attendant.behaviors.display.spontaneousCallAppearances.automata</code></b>	<b>0 or 1</b>	<b>0</b>
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A flag to determine whether or not a call appearance is spontaneously presented to the attendant when calls are alerting on a monitored resource. The information displayed after a press-and-hold of a resource's line key is unchanged by this parameter. If set to 1, the display is enabled.

<b><code>attendant.behaviors.display.remoteCallerID.normal</code></b>	<b>0 or 1</b>	<b>1</b>
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A flag to determine whether or not remote party caller ID information is presented to the attendant. If set to 0 (disabled), the string "unknown" would be substituted for both name and number information.

<b><code>attendant.behaviors.display.remoteCallerID.automata</code></b>	<b>0 or 1</b>	<b>1</b>
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A flag to determine whether or not remote party caller ID information is presented to the attendant. If set to 0 (disabled), the string "unknown" would be substituted for both name and number information.

**<call/>**

The existing configuration attribute is defined as shown next in **Table 3: Configuration Attributes for <call/>**.

**Table 3: Configuration Attributes for <call/>**

<i>Attribute (bold = change causes restart/reboot)</i>	<i>Permitted Values</i>	<i>Default</i>
<b>call.directedCallPickupMethod</b>	<b>“native” or “legacy”</b>	<b>legacy</b>
The method the phone will use to perform a directed call pick-up of a BLF resource's inbound ringing call. “native” indicates the phone will use a native protocol method (in this case SIP INVITE with the Replaces header [4]). “legacy” indicates the phone will use the method specified in <code>call.directedCallPickupString</code> .		
<b>call.parkedCallRetrieveMethod</b>	<b>“native” or “legacy”</b>	<b>legacy</b>
The method the phone will use to retrieve a BLF resource's call which has dialog state confirmed. “native” indicates the phone will use a native protocol method (in this case SIP INVITE with the Replaces header [4]). “legacy” indicates the phone will use the method specified in <code>call.parkedCallRetrieveString</code> .		

**<reg/>**

The existing configuration attribute is defined as shown next in **Table 4: Configuration Attributes for <reg/>**.

**Table 4: Configuration Attributes for <reg/>**

<i>Attribute (bold = change causes restart/reboot)</i>	<i>Permitted Values</i>	<i>Default</i>
<b>reg.x.address</b>	<b>string in the format userPart from userPart@domain</b>	<b>Null</b>
The user part or the user and the host part of the phone's SIP URI or the H.323 ID/extension. For example (SIP): <code>reg.x.address="1002" from 1002@polycom.com</code> or <code>reg.x.address="1002@polycom.com"</code> . For example (H.323): <code>reg.x.address="23456"</code>		
<b>reg.x.auth.password</b>	<b>string</b>	<b>Null</b>
Password to be used for authentication challenges for this registration. If non-Null, will override the “Reg Password x” parameter entered into the Authentication submenu off of the Settings menu on the phone.		
<b>reg.x.auth.userId</b>	<b>string</b>	<b>Null</b>
User ID to be used for authentication challenges for this registration. If non-Null, will override the “Reg User x” parameter entered into the Authentication submenu off of the Settings menu on the phone.		
<b>reg.x.displayName</b>	<b>UTF-8 encoded string</b>	<b>Null</b>
Display name used in SIP signaling as the default caller ID. Display name used in SIP signaling and/or H.323 alias as the default caller ID.		

<i>Attribute (bold = change causes restart/reboot)</i>	<i>Permitted Values</i>	<i>Default</i>
reg.x.label	<b>UTF-8 encoded string</b>	<b>Null</b>
Text label to appear on the display adjacent to the associated line key. If omitted, the label will be derived from the user part of reg.x.address.		
reg.x.server.y.address	<b>dotted-decimal IP address or host name</b>	<b>Null</b>
Optional IP address of a SIP server that accepts registrations. Multiple servers can be listed starting with y=1 to 4 for fault tolerance.		
reg.x.type	<b>private OR shared</b>	<b>private</b>
If set to private, use standard call signaling. If set to shared, augment call signaling with call state subscriptions and notifications and use access control for outgoing calls.		
reg.x.useCompleteUriForRetrieve	<b>0 or 1</b>	<b>1</b>
This parameters overrides voipPort.SIP.useCompleteUriForRetrieve .		

## <volpProt/>

The existing configuration attribute is defined as shown next in [Table 5: Configuration Attributes for <volpProt/>](#) .

**Table 5: Configuration Attributes for <volpProt/>**

<i>Attribute (bold = change causes restart/reboot)</i>	<i>Permitted Values</i>	<i>Default</i>
<b>voipPort.SIP.useCompleteUriForRetrieve</b>	<b>0 or 1</b>	<b>1</b>
If set to 1, the target URI in BLF signaling will use the complete address as provided in the xml dialog document. If set to 0, only the user portion of the xml dialog document is used and we append our current registrar's domain to create the full target URI.		
<b>Note:</b> This parameter should be set to 1 if you are using a proxying server architecture.		
<b>volpProt.SIP.strictReplacesHeader</b>	<b>0 or 1</b>	<b>1</b>
This parameter applies only to directed call pick-up attempts initiated against monitored BLF resources.		
If set to 1, the phone requires call-id, to-tag, and from-tag to perform a directed call-pickup when call.directedCallPickupMethod is configured as "native".		
If set to 0, all that is required to perform the directed call pick-up is a call-id.		

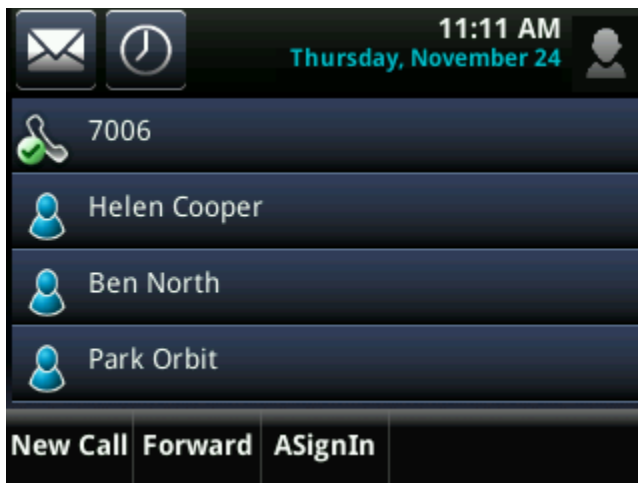


## What Users Need to Know

If statically configured BLF is configured on your phone, you will be able to:




- View the monitored users
- Change the attendant ring tones
- Answer calls on remote lines

An idle screen similar to the one shown below appears.



The following table shows the possible line icons associated with lines you are monitoring.

**Table 6: Line Icons**

<i>State</i>	<i>Line Icon</i>
Line monitoring is active	
Monitored line is busy	
Monitored line is ringing	

## Selecting Attendant Ring Tones

You can select the ring tone that plays when a remote line 'rings'. The same ring tone plays for all remote lines. The default ring tone is a silent ring.

**To select the attendant ring tone:**

- 1 Press the Menu key, then select **Settings > Basic > Ring Type > Attendant Calls**.

The Ring Type screen appears.



- 2 Using the arrow keys, scroll to the ring tone you want.  
To hear the selected ring tone, press the **Play** soft key.
- 3 Press the **Select** soft key.
- 4 Press the **Menu** key to return to the idle display.

## Spontaneous Appearances of Call Information

By default, the line icons associated with the remote lines and the line LEDs change automatically as the remote calls are placed, answered, and ended. The call appearance of monitored calls shows the caller ID of both parties.

## Parking and Retrieving Calls From a Park Orbit

When monitoring a park orbit, the resource type will be configured as an automata, which changes the default behavior of pressing the line key associated with that monitored resource. When a call is active, pressing the line key of a park orbit will transfer the active call to that orbit thereby parking it.



While parked, the call will appear as if it is in the ringing state. A list of calls parked on that orbit can be viewed by holding down the associated line key and, depending on the park orbit type and/or call server, you may select a particular call and press pickup to remove that call from the orbit.

A short press of the park orbit line key will pickup a call from the call server (which call is selected is dependent on the call server and the order the calls were parked).



## Handling Remote Calls on Attendant Phones

You handle incoming calls on remote lines differently depending on the state of your phone—if it is in an idle, active, or alerting state.

## Handling Remote Calls When Your Phone is Idle

If your phone is idle, you handle remote calls differently depending on the state of the remote phone. The following instructions describe how to handle remote calls if the remote line is in one of the following states:

- Alerting state
- Alerting state and with one or more active or held calls
- Alerting state with more than one incoming call ‘



### Note: Line Key Acts as Speed Dial Key

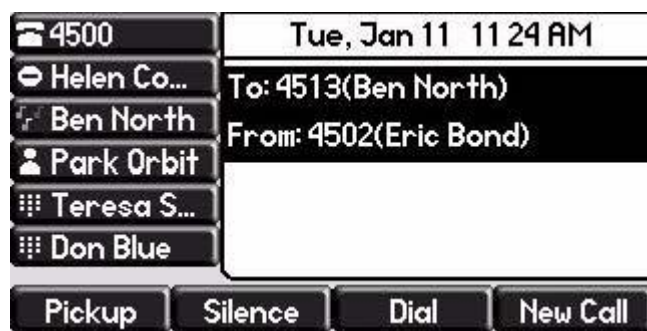
If the remote line is idle, pressing the line key (adjacent to the remote line) on your phone places a call to the remote party. In this case, the line key works like a speed dial key.

## Remote Line is in Alerting State

When a remote line rings, the following occurs on your phone:

- You hear the “Attendant Calls” ring tone (if you set one up). (To set up a ring tone, see [Selecting Attendant Ring Tones](#).)
- The LED adjacent to the remote line flashes.
- The caller ID of the calling party appears on the screen.

In the following figure, the screen shows an incoming call on a remote line. Helen Cooper’s line shows the busy icon, while Ben North’s shows the ringing icon.



### Note: Privacy Rules

Due to privacy rules, the caller ID information may not appear in all instances.

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You can answer the call on the remote line, by using the handset, speakerphone, or headset.

**To answer the call on the remote line with the handset:**

Lift the handset, and then quickly press (for less than two seconds) the line key adjacent to the remote line that is ringing.

**To answer the call on the remote line with the speakerphone, do one of the following:**

- Quickly press (for less than two seconds) the line key adjacent to the remote line that is ringing.
- Press the **Pickup** soft key.

**To answer the call on the remote line with the headset, do one of the following:**

- Press the **Headset** key, and then quickly press (for less than two seconds) the line key adjacent to the remote ringing line.
- Configure the phone to enable Headset Memory (see the appropriate *User Guide*). In this case, either pressing the **Pickup** soft key or a quick press on the line key adjacent to the remote ringing line will answer the call using the headset as the audio connection.

The call connects. The caller ID of the party that initiated the call appears on the screen.



**To ignore the call on the remote line:**

- Press the **Silence** soft key. Your phone stops ringing, but the remote phone continues to ring.

**To obtain more information about the call on the remote line:**

- Press and hold (for more than two seconds) the line key adjacent to the remote line that is ringing.

**To place a call to the remote party:**

- Press the **Dial** soft key.

**To place a new call on your own line:**

- Press the line key adjacent to a line on your phone or press the **New Call** soft key.

You do not answer the call on the remote line.

If you have more than one remote line that is ringing, the caller ID for the line that rang first appears. Both Helen Cooper and Ben North's lines show the ringing icon.



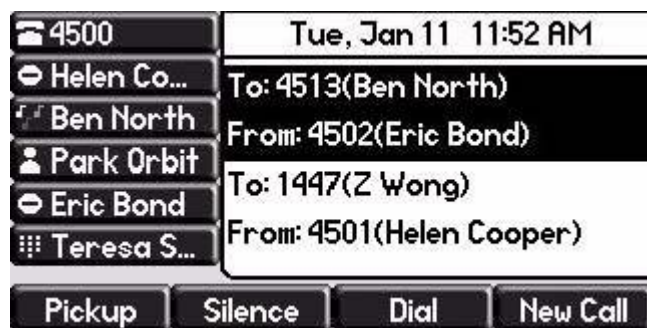
To obtain information or answer a call on a different remote line to the one displayed, do the following:

- To answer a call, quickly press the line key adjacent to any remote line that is ringing (Directed Call Pickup).
- To obtain more information about the call(s) on the remote line, press and hold the line key adjacent to the remote line that is ringing.

### Remote Line is Ringing and Has One or More Active or Held Calls

If there is more than one call present on the remote line (for example, there may be an active call and several calls on hold), you can scroll through the calls and view the caller ID for each call.

In the following figure, both Helen Cooper and Eric Bond's lines show the busy icon, while Ben North's line shows the ringing icon.

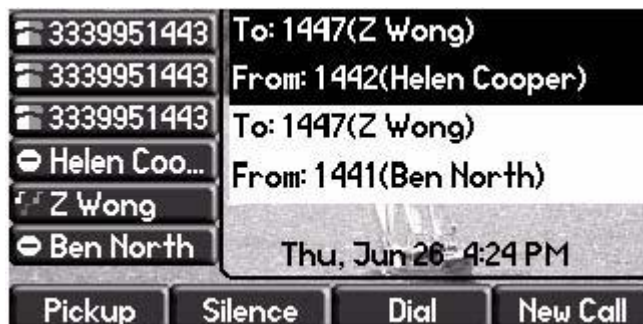


The LED adjacent to the remote line that is ringing flashes green and red if there are one or more active or held calls and one or more incoming calls on the remote line.

Initially, the phone shows the caller ID for the first incoming call. If you press and hold the line key, a list of all active (including held calls) and incoming calls appears. The information and soft keys that appear on the screen will differ depending on whether an incoming or active call is highlighted.

## Remote Line is Ringing With More Than One Incoming Call

If two incoming calls are ringing on a remote line, caller information for both call appears. The first call that was placed is highlighted.



## Handling Remote Calls When Your Phone is Active

You answer remote calls when your phone is in an active state in the same way as you answer remote calls when your phone is in an idle state. However, the following exceptions apply:

- The Attendant Calls ring tone does not play.
- The LED adjacent to the remote line that is ringing flashes green and the line icon indicates a ringing call.
  - To answer the call, quickly press the line key.
  - To obtain information about the caller, press and hold the line key. (This information will disappear from your phone after a few seconds.)

## Handling Remote Calls When Your Phone Has an Incoming Call

You answer remote calls when your phone is in an alerting state in the same way as you answer remote calls when your phone is in an idle state. However, the following exceptions apply:

- The Attendant Calls ring tone does not play.
- The caller ID of the incoming call to your phone appears on the screen. The caller ID of incoming call to the remote line does not appear.
- To view the caller ID of the remote line that is ringing (without answering it), press and hold the line key.
- To answer the remote call, quickly press the line key.

The remote line caller ID appears highlighted on the screen along with the incoming call on your phone.

## Sample Configuration Files

The attached configuration files (**BLF\_monitor.cfg**, **BLF\_phone1.cfg**, and **BLF\_phone2.cfg**) are provided to assist you with the configuration of the SoundPoint IP phones. These files are required for phones running SIP 3.2.x or earlier.

The similar files named **UCS33\_\*.cfg** are required for SoundPoint IP phones running UC Software 3.3.0 or later, and VVX phones running UC Software 4.0.1 or later.



### Note: Viewing the Attached Configuration Template

Polycom recommends that you use the latest version of Adobe Reader to view this engineering advisory and the attached configuration template. Click on the paperclip icon on the left-hand side at the bottom of this engineering advisory to locate the attachment.

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