



Grandstream Networks, Inc.

GRP261X Carrier-Grade IP Phones

Eventlist BLF Configuration Guide



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INTRODUCTION

Although SIP protocol (RFC3261) was not provide the semantics to support the Busy Lamp Field (BLF) but there's a way around to make the Busy Lamp Field function works on our phone by using the proper instantiation and the appropriate extension of the SIP Specific Event Notification framework (RFC3265). RFC4235 - Dialog Event Package is the instantiation RFC3265 which defined the mechanism of how the endpoint can subscribes for the status of any dialog including another endpoint. Busy Lamp Field feature is useful but can create a lot of overhead when trying to subscribe for the status of a large number of the resources. Eventlist BLF or BLF resource list is the solution to solve the overhead problem by reducing the number of requests. Instead of generating an individual SUBSCRIBE request for each resource status, the concept of the Eventlist is combining all of those requests into a single request that query the resources status from the Eventlist. RFC4662 – Resource List defines an aggregating mechanism that allows for subscribing and notifying for a list of resources. This mechanism is useful when the device needs to subscribe to a large number of resources. The overhead of generating individual SUBSCRIBE requests and the overhead of processing individual NOTIFY requests can be reduce by aggregating resources using a resource list concept.

This document serves as an end user guide on how to configure Grandstream GRP26XX Carrier-Grade IP Phones for the UCM Eventlist BLF feature. How to configure BLF list on Grandstream UCM and apply them on the GRP2612/ GRP2612P/GRP2612W/GRP2613/GRP2614/GRP2615/GRP2616.



OVERVIEW

Grandstream GRP261X Carrier-Grade IP Phones support both Grandstream UCM Busy Lamp Field and EventList BLF features and allows end users, such as attendant, to monitor the call status of users in the list. GRP2612/ GRP2612P/ GRP2612W/GRP2613/GRP2614 support this feature by sending out the subscription request to the UCM and changing the indicator status of the Line keys, MPKs, or VPKs that associated with the monitored users. Additionally, the phone is also able to pick up the calls to the monitored extensions by using a pre-defined feature code called BLF- Call-pickup Prefix.

Available Programmable Keys on each Model

Table 1 : Available programmable keys on each model

Model/Key	Line Keys	VPKs	MPKs
GRP2612/GRP2612P/ GRP2612W	X	X	
GRP2613	X	X	
GRP2614	X	X	X
GRP2615	X	X	X
GRP2616	X	X	X



HOW EVENTLIST BLF WORKS

Subscribe

According to the RFC4662 – Resource List, UCM must allow no more than 20 endpoints to subscribe on the single resource list. However, in practical, only a single endpoint will subscribe on a particular EventList. In the first step, the endpoint will send a SUBSCRIBE request to the configured Eventlist URI as per RFC3265. The main goal of this subscription is to obtain the state information of all endpoints that are associated with the Eventlist.

In order to subscribe for the Eventlist, it is necessary that phone includes the “eventlist” tag in the supported header and in most cases, Authorization header also required.

```
Via: SIP/2.0/UDP 192.168.40.119:5060;branch=z9hG4bK341324999;rport
From: <sip:5000@192.168.40.170>;tag=1620181217
To: <sip:170BLF@192.168.40.170>
Call-ID: 1469406960-5060-2@BJC.BGI.EA.BBJ
CSeq: 20001 SUBSCRIBE
Contact: <sip:5000@192.168.40.119:5060>
Authorization: Digest username="5000", realm="Grandstream", nonce="509e9f25",
uri="sip:170BLF@192.168.40.170", response="47c40eb60804ffff79e3478e327145432",
algorithm=MD5
X-Grandstream-PBX: true
Max-Forwards: 70
User-Agent: Grandstream GRP2614 1.0.5.45
Expires: 3600
Supported: replaces, path, timer, eventlist
Event: dialog
Accept: application/dialog-info+xml,multipart/related,application/rlmi+xml
Allow: INVITE, ACK, OPTIONS, CANCEL, BYE, SUBSCRIBE, NOTIFY, INFO, REFER, UPDATE,
MESSAGE
Content-Length: 0
```

Notify

Upon the successful subscription, the UCM will reply back the Eventlist initial status information in form of the NOTIFY message that contains the state and other information of each endpoint on the Eventlist in the XML format. In normal cases, each NOTIFY will contains the information of 3 endpoints. Therefore, it is normal to have a set of NOTIFYs from the UCM even if the user only subscribes for a single Eventlist.



Content-Transfer-Encoding: binary
Content-ID: <5000@192.168.40.170>
Content-Type: application/dialog-info+xml;charset="UTF-8"

```
<?xml version="1.0" encoding="UTF-8"?>
<dialog-info xmlns="urn:ietf:params:xml:ns:dialog-info" version="2"
state="full" entity="sip:5000@192.168.40.170">
<dialog id="5000">
  <state>terminated</state>
  <local>
    <identity display="John Smith">sip:5000@192.168.40.170</identity>
  </local>
</dialog>
</dialog-info>
```

Content-Transfer-Encoding: binary
Content-ID: <5001@192.168.40.170>
Content-Type: application/dialog-info+xml;charset="UTF-8"

```
<?xml version="1.0" encoding="UTF-8"?>
<dialog-info xmlns="urn:ietf:params:xml:ns:dialog-info" version="2"
state="full" entity="sip:5001@192.168.40.170">
<dialog id="5001">
  <state>offline</state>
  <local>
    <identity display="David Jackson">sip:5001@192.168.40.170</identity>
  </local>
</dialog>
</dialog-info>
```

Content-Transfer-Encoding: binary
Content-ID: <5002@192.168.40.170>
Content-Type: application/dialog-info+xml;charset="UTF-8"

```
<?xml version="1.0" encoding="UTF-8"?>
<dialog-info xmlns="urn:ietf:params:xml:ns:dialog-info" version="3"
state="full" entity="sip:5002@192.168.40.170">
<dialog id="5002">
  <state>terminated</state>
  <local>
    <identity display="William Thompson">sip:5002@192.168.40.170</identity>
  </local>
```



```
</dialog>  
</dialog-info>
```

Endpoint States

➤ Terminated

When there is no active call for a specific endpoint or when a call to or from a subscribed endpoint is just being released, then the endpoint is considered idle/terminated.

- If applicable, the LED for the associated endpoint should be solid green or background should be solid green for the related VMPKs.

➤ Early

When an incoming call arrives for a subscribed endpoint, the endpoint is considered ringing/in the early state.

- If applicable, the LED for the associated endpoint should be blinking red or background should be solid red for the related VMPK.

➤ Confirmed

When a call is originated from a subscribed endpoint or a subscribed endpoint answered the call, then the resource is said to be in the “active” state.

- If applicable, the LED for the associated endpoint should be solid red or background should be solid red for the related VMPK.

➤ Offline

The subscription for that particular endpoint is failed or unreachable.

- If applicable, the LED for the associated endpoint should be off or background should be solid grey for the related VPK.



CREATING A BLF EVENTLIST ON GRANDSTREAM UCM

Grandstream UCM supports and allows creating an Eventlist for Busy Lamp Field (BLF) monitoring purpose. To create a list, login into the UCM and follow the below steps:

1. Go to **Call Features** → **Eventlist**.
2. Click **“Add Eventlist”** to start creating a new list.

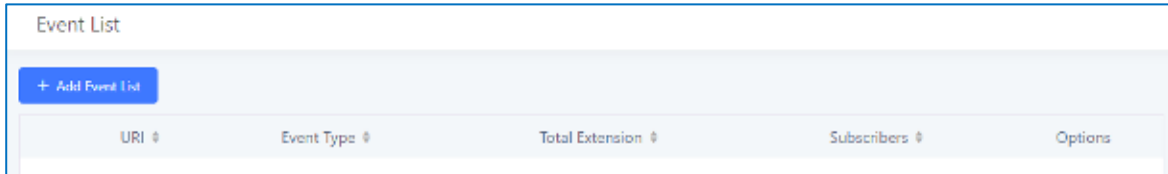


Figure 1 : Create new Eventlist

Enter the unique URI of the Eventlist in the URI field followed by choosing either “dialog” or “presence” eventlist (subscribers must carry the same value in Event header).

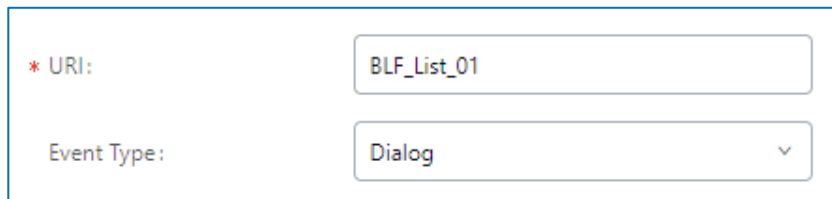
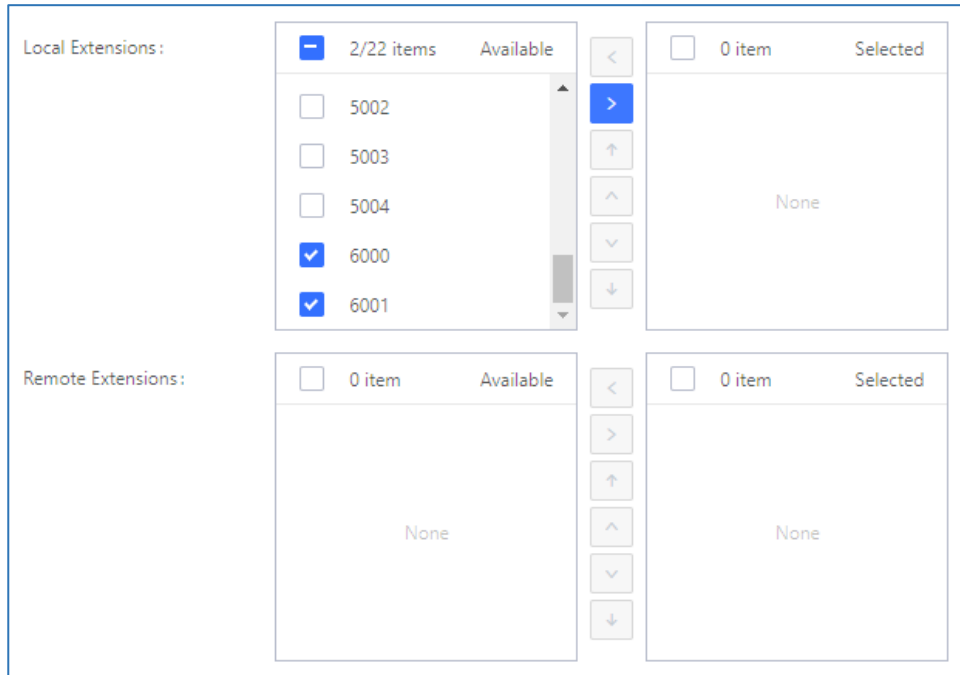


Figure 2 : Eventlist URI

3. Select the accounts (endpoint) to be monitored from the both available local and remote extensions. then click on the right arrow head to move them to the “selected” column.





The interface shows two sections: "Local Extensions" and "Remote Extensions".

Local Extensions:

- Available: 2/22 items
- Selected: 0 item
- Buttons: < (Add), > (Remove), ↑ (Up), ↓ (Down)
- Available list:
 - ☐ 5002
 - ☐ 5003
 - ☐ 5004
 - ☒ 6000
 - ☒ 6001
- Selected list: None

Remote Extensions:

- Available: 0 item
- Selected: 0 item
- Buttons: < (Add), > (Remove), ↑ (Up), ↓ (Down)
- Available list: None
- Selected list: None

Figure 3 : Eventlist Account selection

- You can add extensions which are not in the list under the "Special Extensions" field.



The "Special Extensions" field is a large, empty text area for entering extensions not in the standard list.

Figure 4 : Special Extensions

- Click **"Save"** to complete the Eventlist BLF creation.

If the new Eventlist is successfully created, it should be showing on the Eventlist table:



URI #	Event Type #	Total Extension #	Subscribers #	Options
SLF_List_01	dialog	2	0	 

Total: 1 | 1 | 10 / page | Go to 1

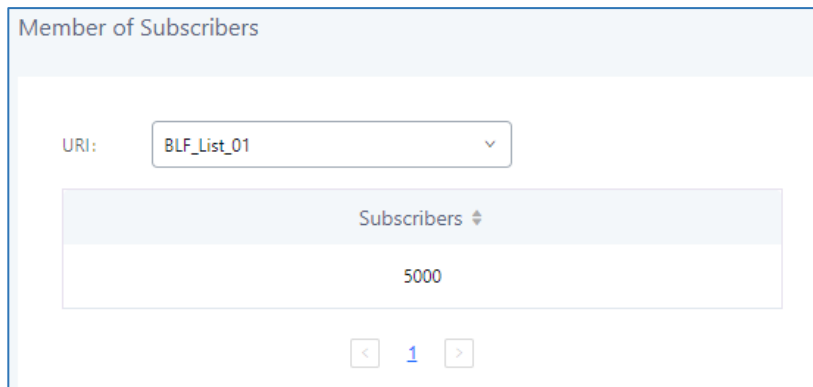
Figure 5 : Eventlist Table

- Apply Changes



Notes:

- Click on  to edit the Eventlist configuration.
- Click on  to delete the Eventlist.
- Once properly configuring the Eventlist on a GRP261X a new section will appear, labeled “Member of Subscribers”. Where users can select one Eventlist to show its subscribers.



Member of Subscribers

URI:

Subscribers
5000

< 1 >

Figure 6 : Member of Subscribers

PROVISION THE EVENTLIST BLF ON THE PHONE

Configuring the GRP261X Carrier-Grade IP Phones to work with Grandstream UCM Eventlist BLF feature is straightforward.

1. First configure your SIP account settings.

General Settings

Account Active	☐ No ☒ Yes
Account Name	5000
SIP Server	192.168.5.215
Secondary SIP Server	
Outbound Proxy	
Backup Outbound Proxy	
BLF Server	
SIP User ID	5000
Authenticate ID	5000
Authenticate Password	
Name	
Voice Mail Access Number	
Picture	Select
Account Display	☒ User Name ☐ User ID
Save Save and Apply Reset	

Figure 7 : Configure the SIP Account Settings



2. For GRP2614/GRP2615/GRP2616 Choose the provisioning method under **Settings → Call Features**: “Auto Provision List Starting Point”.

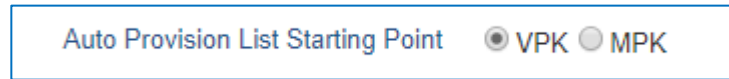


Figure 8 : Eventlist BLF provisioning method

- The default setting is “**VPK**”.
3. Fill in the **BLF URI** under **Account X → SIP Settings → Advanced Features**.
 - Enter the **URI** (name) of the Eventlist BLF that you just created on the Grandstream UCM.
 - Enable **Auto Provision Eventlists** by selecting “**BLF Eventlist**” to automatically assign the BLF extensions into the available MPKs/VMPKs slots.

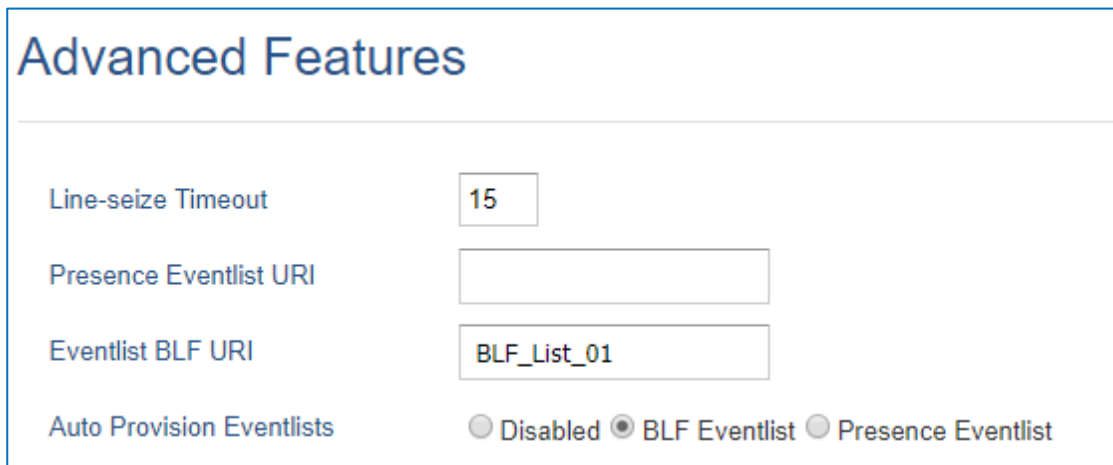


Figure 9: Eventlist BLF URI Settings

4. In the case that Auto Provision Eventlist BLF was **disabled**:
 - a. Users can manually configure the **MPKs** (GRP2614/GRP2615/GRP2616 only) to monitor the BLF extension. Under **Settings → Programmable Keys → Physical Multi-Purpose Keys**: For each MPK, the user needs to select “Eventlist BLF” as **Mode**, choose the specified **Account**, and enter the **Value** of each extension in the list. After saving and rebooting, the UCM extensions will be logged on the extension board, and the phone will start to monitor the extensions status.

Multi-Purpose Keys

Order	Mode	Account	Description	Value
1	Eventlist BLF	Account 1		6000
2	Eventlist BLF	Account 1		6001
3	None	Account 1		
4	None	Account 1		

Figure 9 : MPK Settings

- b. To configure the Eventlist BLF on **VPKs**:

Go to **Settings** → **Programmable Keys** → **Virtual Multi-Purpose Keys**: Click “**Add VPK**” or “**Edit VPK**” to Select the “**Mode**”, the “**Account**” and enter the “**Value**”. Then “**Save**”.

Edit VPK

Mode

Eventlist BLF

Accounts

Account 1

Description

Value

6000

Locked

☐

Save

Reset

Figure 10 : Edit VPK

Virtual Multi-Purpose Keys

Order	Mode	Account	Description	Value	Locked
1	Default	1			Edit VPK
2	Eventlist BLF	1		6000	Edit VPK
3	Eventlist BLF	1		6001	Edit VPK

Figure 11 : Configure Eventlist on VPKs



VISUAL INDICATORS

Grandstream GRP261x Carrier Grade IP Phones are able to notify the end user of the call status of the monitored extension by turning on the LEDs or changing the background colors.

For example, if the monitored extension is ringing, the BLF indicator status will be changed from solid green to blinking red; and if the monitored extension answers the call, the BLF indicator status will be changed from blinking red to solid red.

The following table shows the BLF indicator status in different scenarios:

Table 2 : The BLF Indicators Status in Different Scenarios

Monitored Extension Behavior	VPK Icon Background Status	VPK LED Indicator Status
Idle	Solid Green	Solid Green
Placing a call	Solid Red	Solid Red
Ringing	Solid Red	Blinking Red
During a call	Solid Red	Solid Red
Hold the call	Solid Red	Solid Red
Call Park	Solid Red	Solid Red
Monitored extension not registered/BLF subscription failed	Solid Grey	Off



While the following figure shows the BLF LED Pattern Explanation Form, which can be found through accessing the phone Web GUI and navigating to **Settings→Preferences→LED Control**.

BLF LED Pattern Explanation Form						
State	Default	Analog	Directional	Reserved (Red)	Reserved (Green)	Inverse
Offline	Off	Off	Off	Off (Extension Board Icon: Off)	Off (Extension Board Icon: Off)	Off
Terminated	Solid Green	Solid Green	Solid Green	Off (Extension Board Icon: Idle)	Off (Extension Board Icon: Idle)	Solid Red
Trying	Solid Red	Solid Red	Flashing Green	Solid Red	Solid Green	Solid Green
Early	Flashing Red	Flashing Red	Flashing Red	Flashing Red	Flashing Green	Flashing Green
Proceeding (Initiator)	Flashing Red	Solid Red	Flashing Green	Solid Red	Solid Green	Flashing Green
Proceeding (Receiver)	Flashing Red	Solid Red	Flashing Red	Solid Red	Solid Green	Flashing Green
Confirmed	Solid Red	Solid Red	Solid Red	Solid Red	Solid Green	Solid Green

Figure 12: BLF LED Pattern Explanation Form

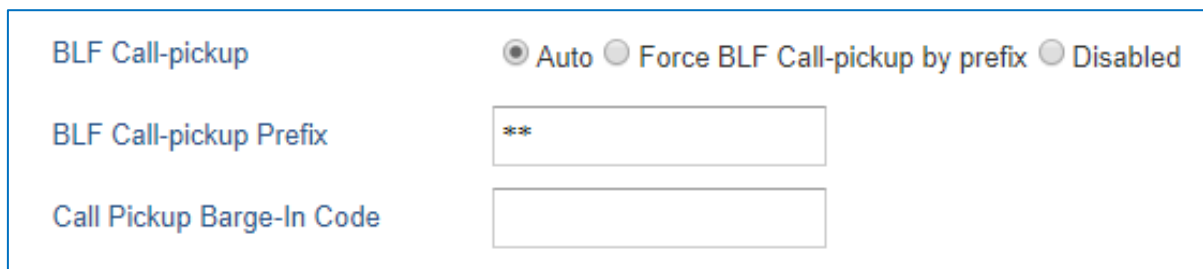
DIRECTED CALL PICKUP

Directed call pickup feature allows the GRP261X phone system to answer the calls to the monitored users.

This feature is very useful for the attendant to be able to answer calls if the callees are not available.

For the Grandstream UCM system, it requires to dial the specified prefix ahead of the monitored extension to direct pick up the call. Thus, the end user has to configure the **BLF Call-pickup Prefix** for GRP2612/2613/2614/2615/2616 in order to use this feature.

The following screenshot shows that (**) is configured as the prefix under the **Account X → SIP Settings → Advanced Features → BLF Call-pickup Prefix**.



The screenshot shows a configuration interface for BLF Call-pickup. It includes three radio buttons for 'BLF Call-pickup': 'Auto' (selected), 'Force BLF Call-pickup by prefix', and 'Disabled'. Below this, there is a text input field for 'BLF Call-pickup Prefix' containing '***', and another empty text input field for 'Call Pickup Barge-In Code'.

Figure 13 : Configure BLF Call Pickup Prefix

When the monitored user's indicator shows an incoming call signal, the GRP26xx phones user can press the BLF button to answer/pick up the call.

