

Grandstream Networks, Inc.

GRP Series - Eventlist BLF Guide



Although SIP protocol (RFC3261) was not providing 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 subscribe 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 reduced 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 GRP26xx phones.

OVERVIEW

Grandstream GRP26XX 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. GRP26XX 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

Model/Key	Line Keys	VPKs	MPKs	Extension Board Keys	Virtual Extension
GRP2601 /GRP2601P/GRP2601W	✗	✗	✗	✗	✓
GRP2602 /GRP2602P/GRP2602W/GRP2602G	✓	✓	✗	✗	✓
GRP2603 /GRP2603P	✓	✓	✗	✗	✓

GRP2604 /GRP260 4P	✓	✓	✓	✗	✓
GRP2612 /GRP261 2P/GRP2 612W/G RP2612G	✓	✓	✗	✗	✗
GRP2613	✓	✓	✗	✗	✗
GRP2614	✓	✓	✓	✗	✗
GRP2615	✓	✓	✗	✓	✗
GRP2616	✓	✓	✓	✗	✗
GRP2624	✓	✓	✗	✓	✗
GRP2634	✓	✓	✓	✗	✗
GRP2636	✓	✓	✓	✗	✗
GRP2650	✓	✓	✗	✓	✗
GRP2670	✗	✓	✗	✓	✗

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="47c40eb60804fff79e3478e327145432", 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

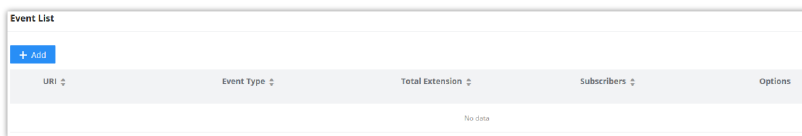
The subscription for that particular endpoint is failed or unreachable.

- 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.



Create new Eventlist

3. 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).

Eventlist URI

4. 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.

Eventlist Account selection

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


A screenshot of a configuration interface showing a text input field labeled "Special Extensions". The field is currently empty and has a light gray border.

Special Extensions

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



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

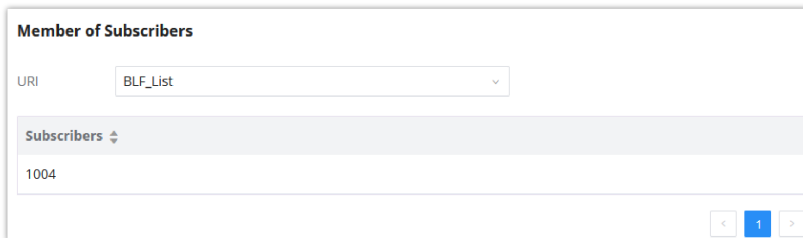
A screenshot of a table titled "Event List". The table has a header row with columns: "URI", "Event Type", "Total Extension", "Subscribers", and "Options". There is a blue "+ Add" button in the top left corner. The table contains one row with the following data: "BLF_List", "dialog", "6", "0", and a set of edit/delete icons.

URI	Event Type	Total Extension	Subscribers	Options
BLF_List	dialog	6	0	 

Eventlist Table

7. Apply Changes

- 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.

A screenshot of a configuration interface titled "Member of Subscribers". It features a "URI" dropdown menu with "BLF_List" selected. Below this is a "Subscribers" section with a list containing the number "1004". At the bottom right, there are navigation buttons: a left arrow, a blue button with "1", and a right arrow.

URI: BLF_List

Subscribers

1004

Member of Subscribers

PROVISION THE EVENTLIST BLF ON THE PHONE

Configuring the GRP26xx Carrier-Grade IP Phones to work with Grandstream UCM Eventlist BLF feature is straightforward.

1. First configure your SIP account settings.

General Settings SIP Settings Codec Settings Call Settings Advanced Settings Dial Plan Feature Codes

Account Register

Account Active

Account Name

SIP Server

Secondary SIP Server

Tertiary SIP Server

Outbound Proxy

Secondary Outbound Proxy

SIP User ID

SIP Authentication ID

SIP Authentication Password

Name

Tel URI

Save Save and Apply Reset

Configure the SIP Account Settings

- Choose the provisioning method under **Programmable Keys** → **Advanced Settings**: "Auto Provision List Starting Point".

Auto Provision List Starting Point

Auto Provision List Starting Point

- The default setting is "VPK".
- Fill in the **BLF URI** under **Account X** → **Advanced Settings** → **BLF (Busy Lamp Field)**.
 - 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.

BLF (Busy Lamp Field)

Presence Eventlist URI

Eventlist BLF URI

Auto Provision Eventlists

BLF Call-pickup

BLF Call-pickup Prefix

Call Pickup Barge-in Code

Call Park Feature Code

Call Park Retrieve Feature Code

PUBLISH for Presence

Eventlist BLF Settings

- In the case that Auto Provision Eventlist BLF was **disabled**:
 - Users can manually configure the **MPKs** to monitor the BLF extension. Under **Settings** → **Programmable Keys** → **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.

MPK Settings

- o To configure the Eventlist BLF on **VPKs**:
Go to **Settings** → **Programmable Keys** → **Virtual Multi-Purpose Keys**:
Select the “**Mode**”, the “**Account**” and enter the “**Value**”. Then “**Save**”.

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:

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 **System Settings**→**Preferences**→**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

BLF LED Pattern Explanation Form

DIRECTED CALL PICKUP

Directed call pickup feature allows the GRP26xx 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 GRP phones 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**.

BLF (Busy Lamp Field)

Presence Eventlist URI

Eventlist BLF URI

Auto Provision Eventlists

BLF Call-pickup

BLF Call-pickup Prefix

Call Pickup Barge-in Code

Call Park Feature Code

Call Park Retrieve Feature Code

PUBLISH for Presence

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.