

# Set up Emergency Service(E911) calling requirements

On August 1, 2019 the FCC defined new requirements to help ensure that callers from a Multi-Line Telephone System(MLTS) have access to dialing 911, alert others that might be able to aid first responders, and provide proper location identifying data through means such as an appropriate Caller ID Number being used for the emergency call. This document will provide setup instructions to make sure your system is in compliance.

These new requirements are defined by the following, and must be met by February 16, 2020 for US based systems:

- Kari's Law
  - Requires multi-line telephone systems to enable users to dial 911 directly, without having to dial a prefix (such as a "9") to reach an outside line.
  - Requires multi-line telephone systems to provide notification, such as to a front desk or security office, when a 911 call is made in order to facilitate building entry by first responders.
- Ray Baum's Act(Section 506)
  - Ensure that "dispatchable location" information is available to the 911 operator, such as using a specific Caller ID Number that the provider has associated to the calling party's location.

For more information, see:

- <https://docs.fcc.gov/public/attachments/DOC-358835A1.pdf>
- <https://docs.fcc.gov/public/attachments/DOC-358435A1.pdf>

## Setting up FreePBX(13, 14, 15+)

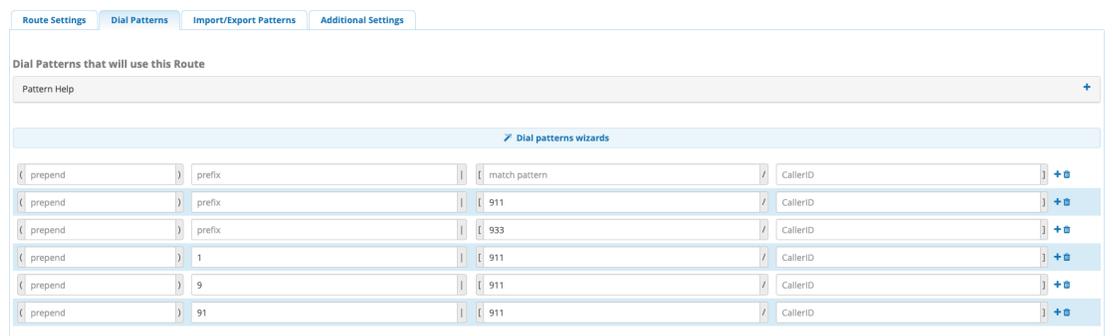
### Create an Outbound Route so extensions can directly dial 911 without any prefix(Kari's Law)

- In the top menu go to **Connectivity Outbound Routes**. Then add an Outbound Route

Name	Outbound CID	Attributes	Actions
+ E911-Leave-First	<9203831234>	   	 

- This emergency route should include the following:
  - Route CID - This is the default CID Number sent to emergency operators.
  - Route Type: Emergency - This will ensure the Route CID overrides other Caller ID rules when this route is dialed. The only time this gets overridden is when an Emergency CID is defined in an individual extension's settings.
  - Trunk Sequence for Matched Routes - Choose the appropriate trunk for this 911 route
  - Dial Pattern - set the Match Pattern to be 911. Extensions should be able to reach "911" without needing any preprends or prefixes.

Outbound Routes  
Add Route



The screenshot shows the 'Dial Patterns' tab in the FreePBX interface. It displays a table of dial patterns for the 'E911-Leave-First' route. The table has columns for 'prepend', 'prefix', 'match pattern', and 'CallerID'. The first entry is a 'match pattern' of '911' with no prepend or prefix. Subsequent entries show 'prepend' values of '1', '9', and '91' with 'match pattern' values of '911'.

prepend	prefix	match pattern	CallerID
		911	
		933	
1		911	
9		911	
91		911	

- In the screenshot above, the top entry with "911" as the match pattern, without a preprend or prefix will meet the compliance requirements. The extra entries are recommended for additional coverage and testing(933).
- Make sure this emergency route is prioritized among your other Outbound Routes correctly. In most cases, this should be listed above any other routes that have conflicting match patterns.
- Make sure the dial plans/digit maps on your devices are able to dial 911. Phones configured with EndPoint Module's default configurations should meet this requirement.

## Set up a Paging call to notify others when an extension dials an emergency Outgoing Route(Kari's Law)

- Systems with [Page Pro](#) installed will already have this feature available. Systems without Paging Pro installed will see this feature after the standard Paging module is updated to the following versions or later:
  - 13.0.26.16
  - 14.0.16.2
  - 15.0.4.17
- You can set up **Notifications** on Outbound Routes by linking a page group to an outbound route. If a call is placed using that outbound route, the phones in the page group will be paged with an announcement of the extension number that made the call, and the number that was dialed. Assuming the page group's Duplex option is set to No, the phones in the page group will then be injected into the call in a listen-only mode.

For example, you could link a page group to an emergency route so that employees can listen to the call when someone in the company dials 911.

The first step is to create a page group in the Paging and Intercom module, containing the list of extensions you wish to be part of the outbound notification. Make sure the phones in this group are configured to properly auto-answer intercom calls.

### Page Group

**Paging Extension** ?

**Group Description** ?

**Device List** ? **Selected**

4100 - John Doe

4101 - Jane Doe

4102 - Susie Smith

4103 - Sam Smith

After you have created the page group, go to the Outbound Routes module.

- In the top menu go to **Connectivity**
- In the drop-down menu go to **Outbound Routes**

Create a new outbound route, or click the edit button  to edit an existing route.

*In our example, we are editing our emergency route.*

Name	Outbound CID	Attributes	Actions
+ E911-Leave-First	<9203831234>	   	 

Click on the **Additional Settings** tab.

### Outbound Routes

#### Edit Route

Route Settings

Dial Patterns

Import/Export Patterns

**Additional Settings**

Toward the bottom of the Additional Settings page, you should see a section called **Notifications**.

Notifications ? None

Select the desired page group from the **Notifications** drop-down menu.

*In our example we are selecting our "911 Notify" page group created earlier.*

Notifications ? 911 Notify

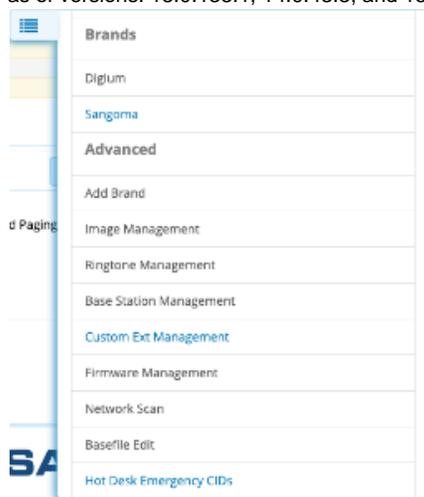
When finished, click the **Submit** button, then click the **Apply Config** button.

## Ensure the correct Caller ID Number is sent with the emergency call(Ray Baum's Act)

- As mentioned above, the Caller ID Number sent by default will be the Route CID defined in the emergency outgoing route.
- If you have remote users that should be sending a different Caller ID Number for emergency calls, the number should be defined in the individual extension's settings.
  - In the top menu go to **Applications Extensions**. Modify an extension. The **Emergency CID** field can be found in the **General** tab. Systems running an older version of the Core module can find **Emergency CID** field in the **Advanced** tab's **Extension Options** section.
  - Set the correct Caller ID Number that the extension should send out when making calls through emergency routes. This will override the Route CID that is set on any Outgoing Routes that have Type: Emergency enabled.
- It is advised that you contact your Provider to make sure you have the necessary Caller IDs available for the various locations an extension could be dialing from, and that they're registered with the correct location information to be used by emergency operators.

## Hot Desk Emergency Calling Setup through Endpoint Manager

- This is an optional feature to allow Hot Desking phones to place outbound calls through Emergency Outbound Routes, while in a Logged-Out state. This should be set up for systems where Kari's Law, and Ray Baum's Act compliance is required in locations where Hot Desking is used.
- For general information about setting up Hot Desking, please see [this guide](#).
- To set up a new **Emergency CID Mapping** for your Hot Desk phones, go to "Hot Desk Emergency CIDs", found in the Advanced section of the **Endpoint Manager** menu. This is a new feature that has been added to the Endpoint Manager module as of versions: 13.0.133.1, 14.0.43.3, and 15.0.27.3



- Click the option to create a “New Emergency CID Mapping”. Typically, you would create an entry for each Location where one or more Hot Desking phones are used.

#### Hot Desk Emergency CID

<b>Location Name</b> ?	New York Office
<b>Emergency CID</b> ?	8085550000
<b>Mac Addresses (1 per line)</b> ?	005001AABBCC 005001112233

- For the example above, the two phones listed(005001AABBCC, 005001112233) will be able to place calls to Emergency Outbound Routes while no extension is logged in. The calls will be placed with the Emergency CID specified. The MAC address of a phone can only be included in one Location at time. While logged out, the hot desk phones will now display a line registration in addition to the Login/out softkey when an Emergency CID mapping exists for the device. These special line registrations will have the following attributes:
  - Only outbound calls through Outgoing Call Routes that have Type: Emergency are permitted
  - Inbound calls will not be receivable.
  - These special extensions will not count against any license limitations.
  - The Location Name value will show as the incoming Caller ID name on the paging calls received by those in the Outbound Route Notifications page group. This is to help notification receivers determine where the call is coming from within the company. For example, if you have a building with hot desking phones in multiple offices, but a single Emergency CID, you'll still want to create separate mappings for each of those offices so that notification receivers will be able to see which office is placing the emergency call.
  - It is up to the System Admin to ensure that the Emergency CID is valid, and its location information is properly registered with the provider.
- Each existing mapping will have an option to modify its Extension Settings that will be used for the special line registration. These options may need to be altered if extensions for that location typically need these set to something other than the typical defaults. Usually, these should match the options you have set for an Extension(Advanced section) that regularly logs in to a Hot Desking phone at this location/network environment.

<b>DTMF Signaling</b> ?	RFC 2833
<b>Qualify Frequency</b> ?	60
<b>RTP Symmetric</b> ?	<input checked="" type="radio"/> Yes <input type="radio"/> No
<b>Rewrite Contact</b> ?	<input checked="" type="radio"/> Yes <input type="radio"/> No
Allow Contact header to be rewritten with the source IP address-port	
<b>Force rport</b> ?	<input checked="" type="radio"/> Yes <input type="radio"/> No

This Hot Desk Emergency CID feature only applies while the Hot Desking phone is in a Logged Out state. If an extension is logged in at this Hot Desking phone, the extension's existing Emergency CID, and dialing options will override anything in this section.

#### Known Issues:

- When a paging call is received by the group members set for Outbound Route Notifications, the system will play back an announcement that includes the caller's extension and the number dialed. If a logged out Hot Desking phone is placing the emergency call, there is no value given as the extension during this announcement. At this time, Notification paging call receivers will see the Hot Desk Emergency CID Mapping's Location value as the incoming Caller ID Name to see who's making the call, but this information is not included in the announcement that is heard at the start of the call. We are planning to improve this announcement to give users a better understanding of the call that is being made, and to also include location information if the call is from a logged-out hot desking phone.

#### Notes:

- Roaming extensions(used from altering locations) such as some softphone setups need to be aware that the Caller ID sent to 911 operators might not be accurate based on the caller's current location.
- Systems using an FXO line through a telephony card, or gateway to call 911 will not be able to alter Caller IDs based on Outgoing Routes. In this case the user needs to work with their carrier to make sure that the Caller ID is correct for all extensions.

- Do not create Extensions/Feature Codes with extension number "911", as it can cause dialing conflicts to outbound 911 emergency calls.

If you set up an emergency route and/or outbound notification, of course **you should NOT dial 911 to test it!** This would generate an actual emergency call!

Instead, include "933" as a dialpattern in your emergency route, and then dial 933. This will reach an automated address verification service that plays back your e911 address information. Not all service providers offer 933 as a test service. If 911 must be called for testing, make sure it is clearly stated to the operator that the call is a test.