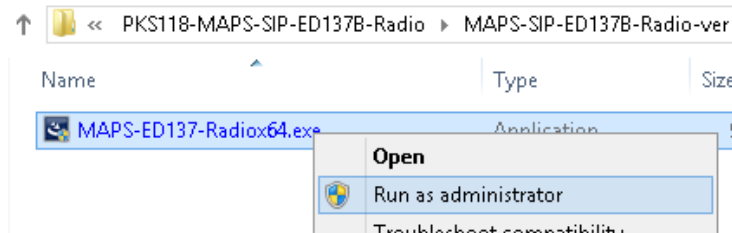


Software and License Installation

DO NOT CONNECT USB DONGLE TO THE PC FIRST. Perform Software installation first, followed by License installation and then plug-in the USB hardware dongle to the PC.

- PC Requirements
 - Windows® 7 and above Operating System (64 bit Only).
 - Core i3 to i7 (or equivalent), 4 GB Memory, NIC, and USB 2.0 Ports.
- Plug-in the **USB Installation Stick** (pen drive) to the PC. This is provided with the shipment package by GL Communications.
- Navigate to \PKS118-MAPS-SIP-ED137B-Radio\MAPS-SIP-ED137B-Radio-Software-verXX folder, right click on **MAPS-ED137-Radiox64.exe** and select **Run as Administrator**. Follow the onscreen instructions and complete the installation.



- Navigate back to root directory in USB installation stick (pen drive) to **GL-Dongle License Installer** folder, execute **GLDongleLicenseInstaller_x64.exe**. Follow the onscreen instructions and complete the installation.
- NOW PLUG-IN the USB Dongle to the PC to the USB 2.0 port of your computer. Windows® should install all required drivers automatically. A red light should appear on the dongle indicating that the device is functioning correctly and ready to use.
- It is recommended to reboot the system after the software installation. If you had problems with installation so far, refer to [Troubleshoot](#) section explained in this document.
- You can verify if the required licenses are installed. Navigate to **C:\Program Files\GL Communications Inc\GLDONGLE** directory, execute **appl_list.exe** and confirm that the following licenses are listed:
 - PKS118 (MAPS™ ED137 for Radio)
 - PKS102 (PacketGen RTP Soft Core) *
 - PKS107 (RTP EUROCAE ED137) *

***Note:** Additional licenses may be required for optional codec. Please verify that all licenses purchased are displayed using the **appl_list.exe** utility.

Verification



Functional verification of MAPS™ ED137 Radio application requires a system with 2 NIC cards for loopback testing. MAPS™ ED137 Radio is configured as CWP [Controller Working Position] on one NIC and as GRS [Ground Radio Station] on the other.

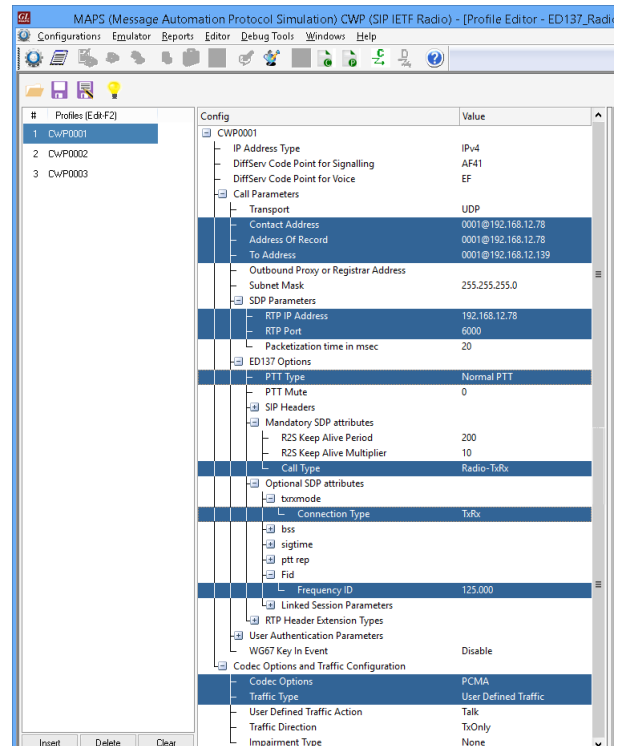
Invoke the **MAPS-ED137-Radio** application on NIC1 [IP Address 192.xx.xx.95] configured as CWP and on NIC2 [IP Address 192.xx.xx.36] configured as GRS.

***Note:** ED137 call generator can be any real CWP device supporting ED137 signaling and traffic. In this test scenario, we have configured MAPS™ ED137 Radio as CWP and GRS to generate and receive calls.

First MAPS-ED137-Radio instance as CWP

- Click on **MAPSED137Radio** shortcut icon created on the desktop and invoke the application. This instance of MAPS™ is configured for **Call Generation**.
- While invoking the first MAPSED137Radio instance, verify the following in the **Protocol Selection** window -
 - Protocol Standard as **EUROCAE WG67**
 - Protocol Version as **ED-137B Volume 1 Radio**


- Select Node Emulation as **CWP**
 - Session Type as **Radio**. Click **OK**
- By default, **Testbed Setup** window is displayed loaded with **TestBedDefault** configuration. Check for the following default parameter values:
 - **ED137_Radio_CWP_Profiles.xml** profile is loaded as the end-user configuration
 - The RTP Core IP Address automatically displays the IP Address for the available NIC. User can select the required IP Address for the NIC in use from the drop-down list.
 - Click  **Save** button.
 - From **MAPSED137Radio** (CWP) main window, select **Editor > Profile Editor**. By default, **ED137_Radio_CWP_Profiles** is loaded in the window. Select CWP0001 profile from left pane and edit the following parameters as per the test requirement:
 - Edit **Contact Address** → 0001@192.168.12.78 (Enter the NIC1 IP address as SIP URI here)
 - Edit **Address of Record** → 0001@192.168.12.78 (Enter the NIC1 IP address as SIP URI here)
 - Edit **To Address** → 0001@192.168.12.139 (Enter the NIC2 IP address as SIP URI here)
 - Edit **RTP IP Address** → 192.168.12.78 (Enter the NIC1 IP address here)
 - Set **RTP Port** → **6000**
 - Set **PTT Type** → **Normal PTT**
 - Set **Call Type** → **Radio-TxRx**
 - Set **Connection Type** → **TxRx**
 - Set **Frequency ID** → **125.000** (FID at CWP should match with FID of GRS to which it intends to place call)
 - Scroll down to **Codec Options and Traffic Configurations**, and set **Codec Options** as **PCMA** from the Codec list;
 - Set **Traffic Type** to **User Defined Traffic** type, and **User Defined Traffic Action** to **Talk**.
 - Click  **Save** button. Exit from the Profile Editor window.



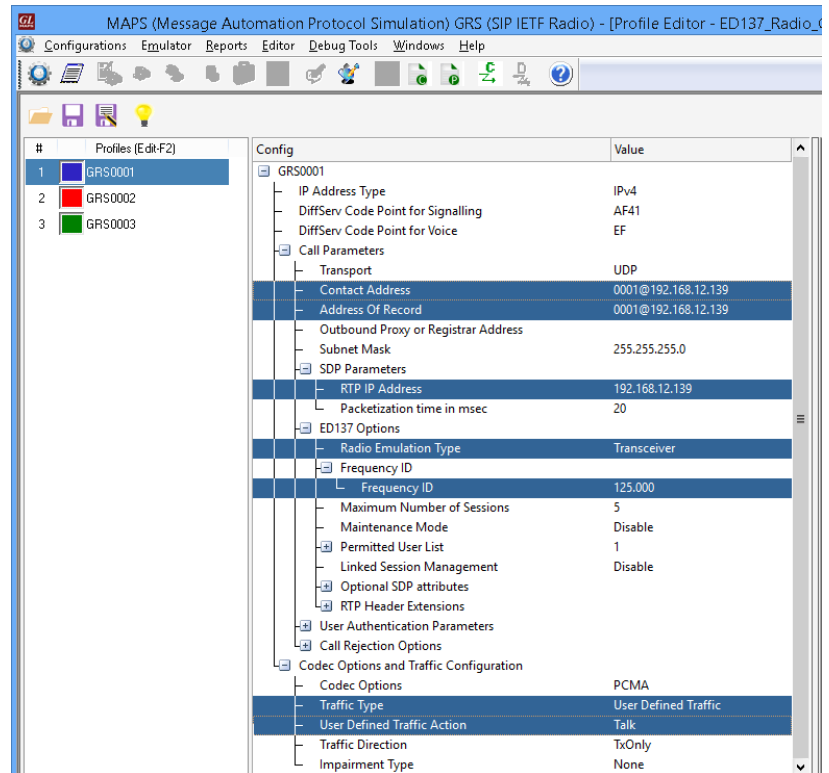
Refer to [MAPS™ ED137-Radio Reference User's Manual](#) for step-by-step procedure to configure multiple CWPs.

Second MAPS-ED137-Radio as GRS

- Click on **MAPSED137Radio** shortcut icon created on the desktop and invoke the application. This instance of MAPS™ is configured for **Call Reception**.
- While invoking the first MAPSED137Radio instance, verify the following in the **Protocol Selection** window -
 - Protocol Standard as **EUROCAE WG67**
 - Protocol Version as **ED-137B Volume 1 Radio**
 - Select Node Emulation as **GRS**
 - Session Type as **Radio**
 - Click **OK**

- By default, **Testbed Setup** window is displayed, loaded with **TestBedDefault** configuration. Check for the default parameter values:
 - **ED137_Radio_CWP_Profiles.xml** profile is loaded as the end-user configuration
 - The RTP Core IP Address automatically displays the IP Address for the available NIC. User can select the required IP Address for the NIC in use from the drop-down list.
 - Click  **Save** button.
- From **MAPSED137Radio** (GRS) main window, select **Editor > Profile Editor**. By default, **ED137_Radio_GRS_Profiles** is loaded in the window. Select **GRS0001** profile from left pane and edit the following parameters as per the test requirement:

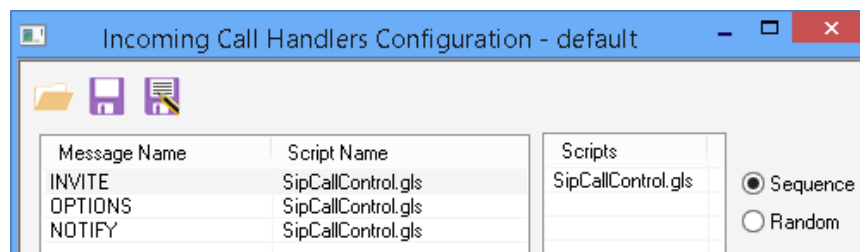
- Edit **Contact Address** → 0001@192.168.12.139 (Unique IP Address set for GRS0001 profile. Based on this setting, Virtual IP Addresses are automatically created on the system NIC interface)
- Edit **Address of Record** → 0001@192.168.12.139
- Edit **RTP IP Address** → **192.168.12.139** (IP Address same as Contact IP Address)
- Select the **Radio Emulation Type** → **Transceiver**
- By default, **Frequency ID** → **125.000** (unique to each profile and the value following the decimal can be varied to configure multiple profiles)
- Scroll down to **Codec Options and Traffic Configurations**, and set **Codec Options** as **PCMA** from the Codec list;
- Set **Traffic Type** to **User Defined Traffic** type, and **User Defined Traffic Action** to **Talk**.
- Color coding for each profile on the left pane can be changed. This is used for grouping all calls associated to individual radio in Call Reception window display.





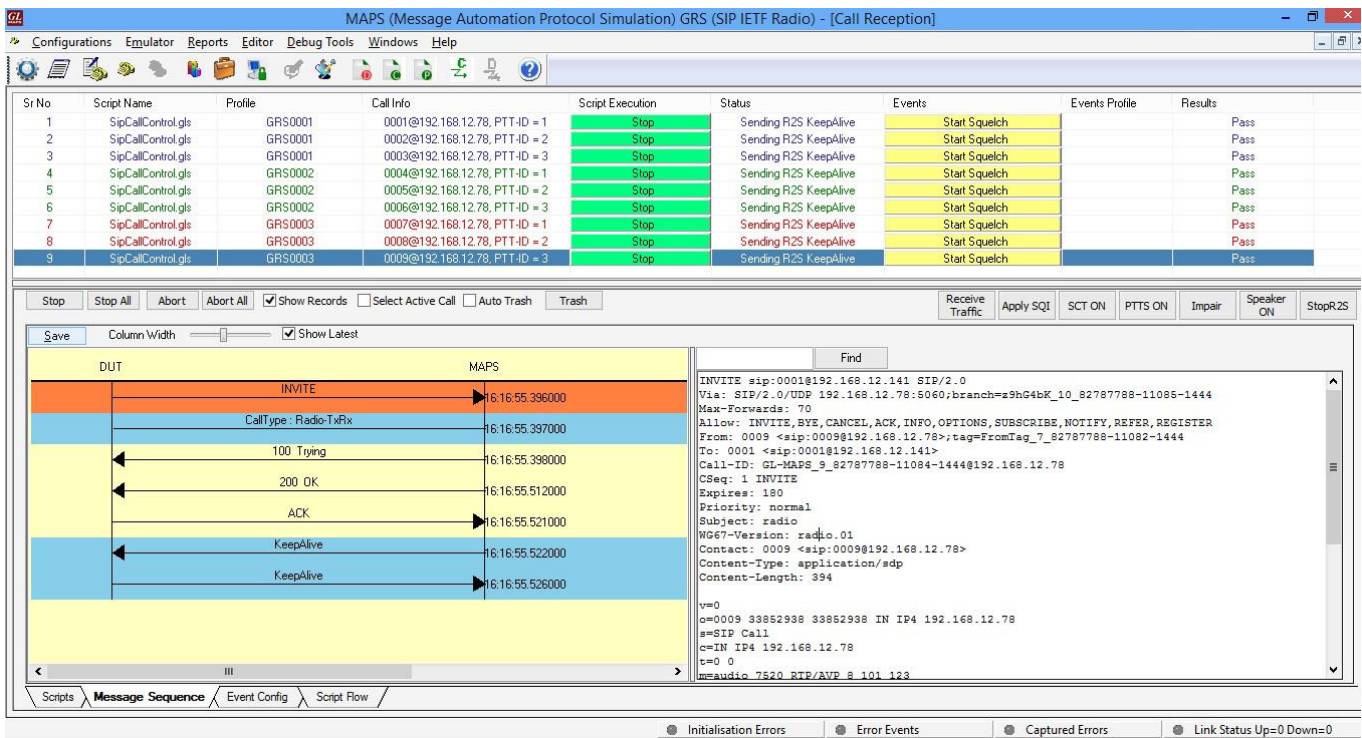
- Click  **Save** button. Exit from the Profile Editor window.

Refer to [MAPS™ ED137-Radio Reference User's Manual](#) for step-by-step procedure to configure multiple GRSs.

- On the **MAPSED137Radio** (GRS) main window, from **Configuration >** invoke **Incoming Call Handler Configuration** window. Verify that **SipCallControl.gls** script is loaded against the **INVITE** message. Close the window.



- Start both the MAPS™ Testbed setup and wait for RTP-Core console window to appear. If the SIP/RTP Core console does not invoke with the MAPS™ TestBed start-up, refer to [Troubleshoot](#) section explained in this document.
- On **MAPSED137Radio** [CWP] main window, click the **Call Generation**  icon, and invoke the **Call Generation** window.
- By default, you will observe multiple call instances loaded with **SipCallControl.gls** script and **CWP00**** profiles. (Note: Profiles configured in the Profile Editor can be loaded in the Call Generation window). Click on **Start All** button option available in the mid-tool bar to initiate all the loaded scripts in the window.
- Return to **MAPSED137Radio** [GRS] main window, click **Call Reception**  icon and observe that the calls are automatically received running the Rx script.
- Observe that the calls associated to a particular GRS is sorted and grouped indicated in the colour configured in Profile Editor.
- Select any message in the ladder diagram and observe the respective decode message on the right pane for the respective message.



Sr No	Script Name	Profile	Call Info	Script Execution	Status	Events	Events Profile	Results
1	SipCallControl.gls	GRS0001	0001@192.168.12.78, PTT-ID = 1	Stop	Sending R2S KeepAlive	Start Squelch		Pass
2	SipCallControl.gls	GRS0001	0002@192.168.12.78, PTT-ID = 2	Stop	Sending R2S KeepAlive	Start Squelch		Pass
3	SipCallControl.gls	GRS0001	0003@192.168.12.78, PTT-ID = 3	Stop	Sending R2S KeepAlive	Start Squelch		Pass
4	SipCallControl.gls	GRS0002	0004@192.168.12.78, PTT-ID = 1	Stop	Sending R2S KeepAlive	Start Squelch		Pass
5	SipCallControl.gls	GRS0002	0005@192.168.12.78, PTT-ID = 2	Stop	Sending R2S KeepAlive	Start Squelch		Pass
6	SipCallControl.gls	GRS0002	0006@192.168.12.78, PTT-ID = 3	Stop	Sending R2S KeepAlive	Start Squelch		Pass
7	SipCallControl.gls	GRS0003	0007@192.168.12.78, PTT-ID = 1	Stop	Sending R2S KeepAlive	Start Squelch		Pass
8	SipCallControl.gls	GRS0003	0008@192.168.12.78, PTT-ID = 2	Stop	Sending R2S KeepAlive	Start Squelch		Pass
9	SipCallControl.gls	GRS0003	0009@192.168.12.78, PTT-ID = 3	Stop	Sending R2S KeepAlive	Start Squelch		Pass

Time	Direction	Message
16:16:55.396000	→	INVITE sip:0001@192.168.12.141 SIP/2.0
16:16:55.397000	←	Call type : Radio-TxRx
16:16:55.398000	←	100 Trying
16:16:55.512000	←	200 OK
16:16:55.521000	→	ACK
16:16:55.522000	←	KeepAlive
16:16:55.526000	→	KeepAlive

```

INVITE sip:0001@192.168.12.141 SIP/2.0
Via: SIP/2.0/UDP 192.168.12.78:5060;branch=zshG4bK_10_82787788-11085-1444
Max-Forwards: 70
Allow: INVITE, BYE, CANCEL, ACK, INFO, OPTIONS, SUBSCRIBE, NOTIFY, REFER, REGISTER
From: 0009 <sip:0009@192.168.12.78>;tag=FromTag_7_82787788-11082-1444
To: 0001 <sip:0001@192.168.12.141>
Call-ID: GL-MAPS_8_82787788-11084-1444@192.168.12.78
CSeq: 1 INVITE
Expires: 180
Priority: normal
Subject: radio
WG67-Version: radio.01
Contact: 0009 <sip:0009@192.168.12.78>
Content-Type: application/sdp
Content-Length: 394

v=0
o=0009 33852938 33852938 IN IP4 192.168.12.78
s=SIP Call
c=IN IP4 192.168.12.78
t=0 0
m=audio 7520 RTP/AVP 8 101 123
    
```

Troubleshoot

- **“Unknown device” error while installing USB Dongle.** If you see this error, ensure you have installed the GL Dongle License Installer software first and then plugged the USB Dongle to the PC. The USB Dongle will then be recognized as “SafeNetInc. USB Key” and appropriate drivers will get installed automatically. If problem still persists, plug the USB Dongle to a different USB2.0 port and try again.
- **“Security Error: Application is not licensed”**, if you see this error when you run application it indicates a problem with either your dongle or license file.
 - First verify that the dongle is plugged in and the red light is ON
 - Navigate to *C:\Program Files\GL Communications Inc\GLDONGLE*
 - Run *haspinfohl.exe*. Verify that Status is **OK** and make a note of the Serial #.
 - Run *appl_list.exe*. Verify that there is a line in the table reading **PKS118 MAPS SIP for ED137 Radio** with the serial number you noted above.
 - If the dongle does not appear in *haspinfohl.exe*, verify that it appears as a USB device in the Windows Device Manager. If it does not appear even in the device manager, remove the dongle and plug it into a different USB port, preferably one directly on the motherboard.
- If the SIP/RTP Core console does not invoke upon invoking the application, check for the following:
 - RTP Soft Core licenses may not be installed for the dongle used. Run *appl_list.exe* available in the *C:\Program Files\GL Communications Inc\GLDONGLE* directory. Verify that **PKS102 PacketGen RTP Soft Core** is listed.
 - Verify that the SIP IP Address and RTP IP Address in the testbed configuration is configured with the proper system IP address.
- If you cannot resolve the issues, please contact GL Communications at info@gl.com for technical support.