If this is your First-Time-Use of MAPS™ LTE eGTP (S11 interface) application, then we recommend you follow all the steps explained in MAPS-LTE-eGTP-Quick-Install-Guide to install MAPS™ LTE eGTP application before proceeding with the steps below.
To simulate LTE eGTP (S11) Signaling with Mobile Traffic you must install Mobile Traffic Core application (MobileIPCorex64.exe) and corresponding license (ETH101) after completing the installation process follow the below steps

Verification

Functional verification of MAPS-LTEeGTP application requires a system with 2 NIC cards for testing. MAPS-LTEeGTP is configured as **MME (Mobility Management Entity)** on one NIC and as **SGW (Serving Gateway)** on the other.

Note down the IP address of NIC1 and NIC2, in this example the IP addresses used and configured are:
- ➢ NIC1 IP address is 192.xx.xx.124, and configured as SGW
- ➢ NIC2 IP address is 192.xx.xx.122, and configured as MME

Note: In this test scenario, we have configured MAPS™ LTEeGTP as MME generating calls and SGW to receive calls.

First MAPS™ LTE eGTP (GUI) – (SGW)

- Right-click on the **MAPS-LTEeGTP** application using shortcut icon created on the desktop and select **'Run as Administrator'**. This instance of MAPS™ is configured for *Call Reception*

- While invoking the first **MAPS-LTEeGTP** instance, verify the following in the Protocol Selection window -
  - ➢ Protocol Standard is set to **LTE eGTP**
  - ➢ Protocol Version to **RELEASE 9**
  - ➢ Select Node as **Serving Gateway.** Click **Ok**

- By default, Testbed Setup window is displayed. Click 📁 and select **TestBedDefault_S11** and check for the parameter default values as listed below:
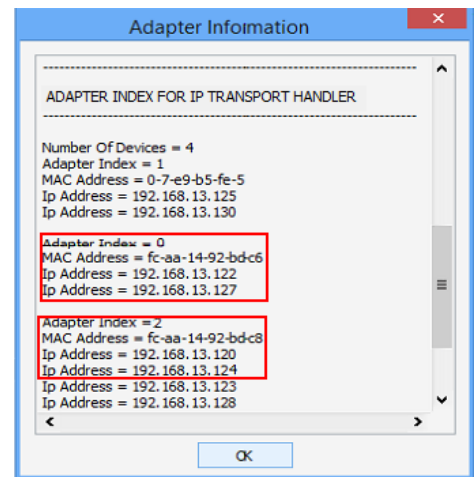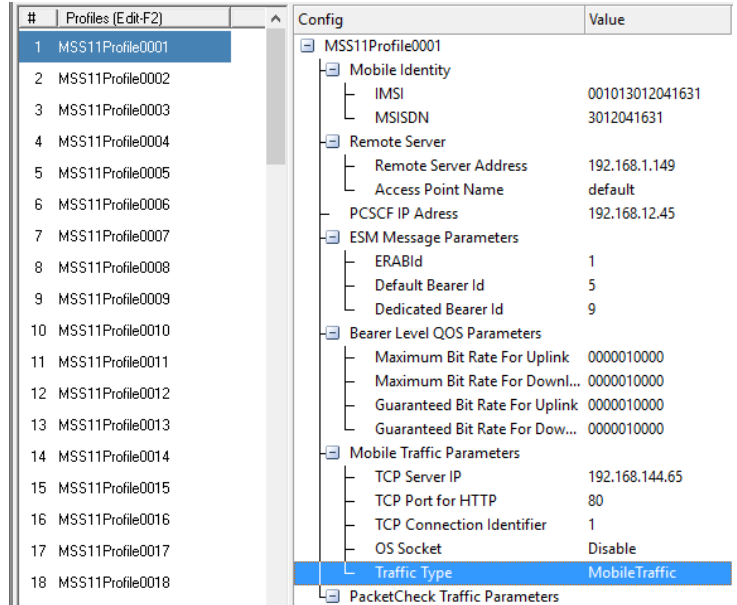
  - ➢ The **Display Adapter Info** option from the **Help** menu displays all the network adapters available in the system. Choose and set the **Traffic Adapter Index** value displayed against the IP address in use.

  - ➢ Set **SGW IP Address** to 192.xx.xx.124 (NIC1 IP address)
  - ➢ Set **SGW Port** to 2123
  - ➢ Set **MME IP Address** to 192.xx.xx.122 (NIC2 IP address)
  - ➢ Set **MME Port** to 2123
  - ➢ **Traffic** = **Enable**

  - ➢ Click 💾 **Save** button and save the changes to the same the **TestBedDefault_S11** configuration file.

Adapter Information

```
--------------------------------------
ADAPTER INDEX FOR IP TRANSPORT HANDLER
--------------------------------------

Number Of Devices = 4
Adapter Index = 1
MAC Address = 0-7-e9-b5-fe-5
Ip Address = 192.168.13.125
Ip Address = 192.168.13.130

Adapter Index = 0
MAC Address = fc-aa-14-92-bd-c6
Ip Address = 192.168.13.122
Ip Address = 192.168.13.127

Adapter Index = 2
MAC Address = fc-aa-14-92-bd-c8
Ip Address = 192.168.13.120
Ip Address = 192.168.13.124
Ip Address = 192.168.13.123
Ip Address = 192.168.13.128
```

| Config	Value
⊟ SGW Configuration	
├─ Traffic Adapter Index	2
├⊟ SGW	1
└⊟ SGW 1	
├─ SGW IP Address	192.168.13.124
├─ SGW Port	2123
├─ SGW IP Address For Traffic	192.168.100.62
├─ GTP Port For Traffic	2152
└⊟ MME Configuration	
├─ MME IP Address	192.168.13.122
└─ MME Port	2123
⊟ Traffic Parameters	
├─ Traffic	Enable
├─ PacketLoad Traffic Type	PCAP Traffic
└─ PacketLoad Management IP Address	192.168.12.60

- From main window, select **Editor → Profile Editor**. This will invoke Profile Editor window.

- On the Profile Editor window, click on [folder icon] and select **MS_S11Profiles.** Click on OK.

- Select **MSS11Profile0001**, scroll-down to **Mobile Traffic Parameters**, and set the **Traffic Type** as **MobileTraffic**. Click on [save icon] to save the profile.
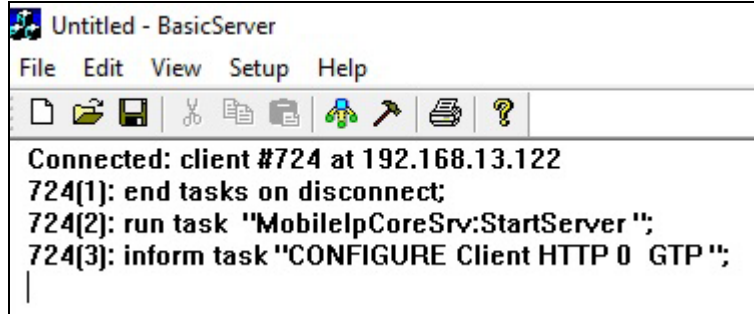
#	Profiles (Edit-F2)		Config	Value
1	MSS11Profile0001		⊟ MSS11Profile0001	
2	MSS11Profile0002		⊟ Mobile Identity	
3	MSS11Profile0003		├ IMSI	001013012041631
4	MSS11Profile0004		└ MSISDN	3012041631
5	MSS11Profile0005		⊟ Remote Server	
6	MSS11Profile0006		├ Remote Server Address	192.168.1.149
7	MSS11Profile0007		└ Access Point Name	default
8	MSS11Profile0008		├ PCSCF IP Adress	192.168.12.45
9	MSS11Profile0009		⊟ ESM Message Parameters	
10	MSS11Profile0010		├ ERABId	1
11	MSS11Profile0011		├ Default Bearer Id	5
12	MSS11Profile0012		└ Dedicated Bearer Id	9
13	MSS11Profile0013		⊟ Bearer Level QOS Parameters	
14	MSS11Profile0014		├ Maximum Bit Rate For Uplink	0000010000
15	MSS11Profile0015		├ Maximum Bit Rate For Downl...	0000010000
16	MSS11Profile0016		├ Guaranteed Bit Rate For Uplink	0000010000
17	MSS11Profile0017		└ Guaranteed Bit Rate For Dow...	0000010000
18	MSS11Profile0018		⊟ Mobile Traffic Parameters	
			├ TCP Server IP	192.168.144.65
			├ TCP Port for HTTP	80
			├ TCP Connection Identifier	1
			├ OS Socket	Disable
			└ Traffic Type	MobileTraffic
			⊟ PacketCheck Traffic Parameters	

- Start the SGW TestBed Setup, observe that the Basic Server window is automatically invoked and user can see on the task-bar, the configured MAPS™ SGW will connect to the MAPS™ Mobile IP Core server which will be logged into the core server.
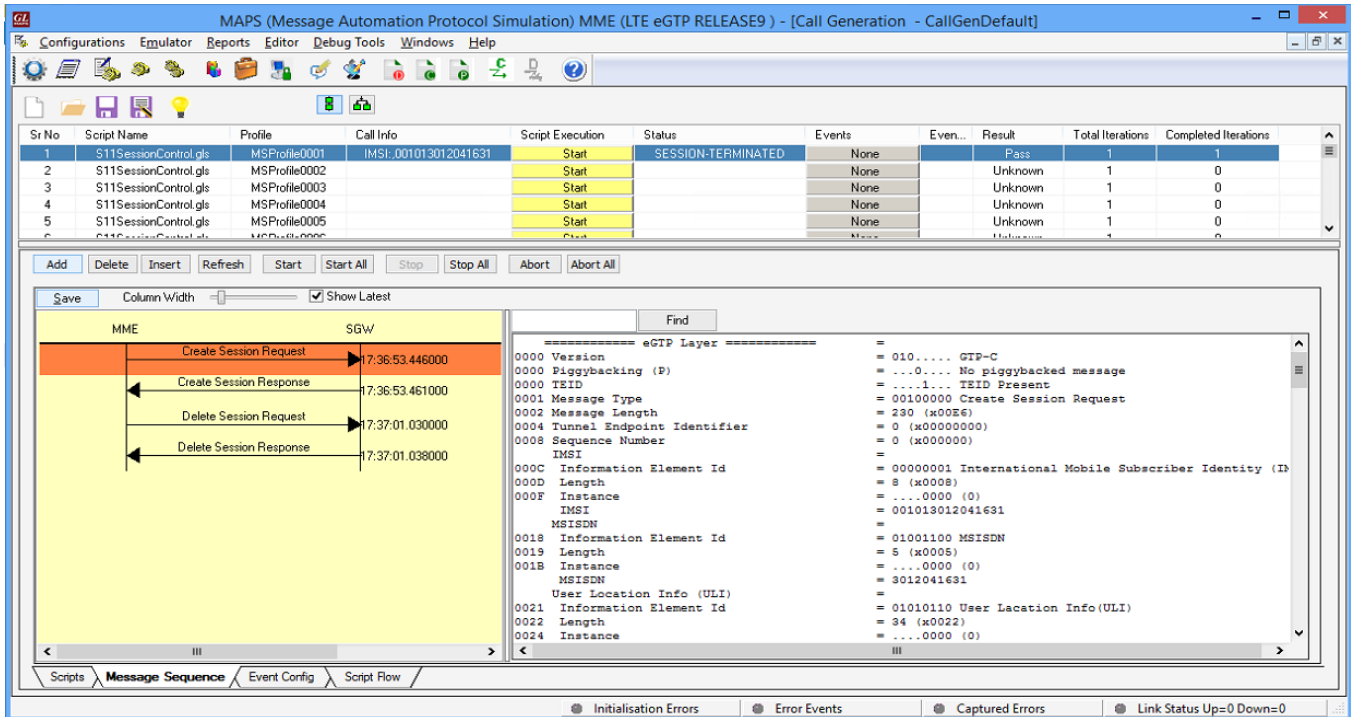
    Note: The user can maximize the Basic Server GUI from the taskbar.
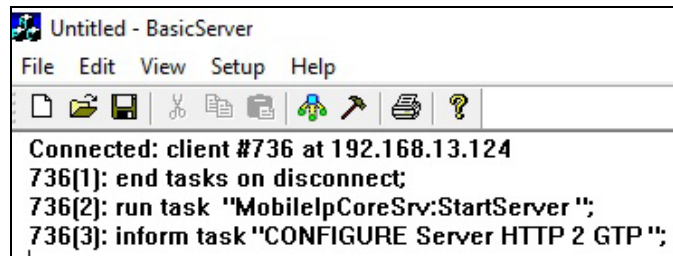
- On the same **MAPS-LTEeGTP** main window, from **Configuration** menu → select **Incoming Call Handler Configuration** and invoke the window. Verify that **S11SessionControl.gls** script is set against **Create Session Request** message. Exit from the window.
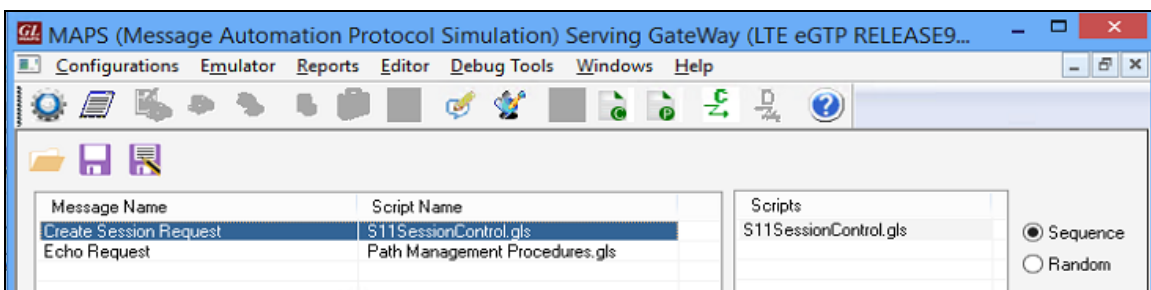
Second MAPS™ LTEeGTP (GUI) – (MME)

- Right-click on the **MAPS-LTEeGTP** application using shortcut icon created on the desktop and select **'Run as Administrator'**. This instance of MAPS™ is configured for *Call Generation.*

- While invoking the second **MAPS-LTEeGTP** instance, verify the following in the Protocol Selection window -
  - ➢ **Protocol Standard** is set to **LTE eGTP**
  - ➢ **Protocol Version** to **RELEASE 9**
  - ➢ Select **Node** as **MME.** Click **Ok**

- By default, Testbed Setup window is displayed loaded with **TestBedDefault** configuration. Verify and validate the following parameter settings:

  - ➢ The **Display Adapter Info** option from the **Help** menu displays all the network adapters available in the system. Choose and set the **Traffic Adapter Index** value displayed against the IP address in use.
  - ➢ Set **MME IP Address** to 192.xx.xx.122 (NIC2 IP address)
  - ➢ Set **MME Port** to 2123
  - ➢ Set **SGW IP Address** to 192.xx.xx.124 (NIC1 IP address)
  - ➢ Set **SGW Port** to 2123
  - ➢ **Traffic** = **Enable**
  - ➢ Click 💾 **Save** button and save the changes to the same the **TestBedDefault** file.

- From main window, select **Editor → Profile Editor**. This will invoke Profile Editor window.

- On the Profile Editor window, click on 📂 and select **MS_Profiles.** Click on OK.

- Select **MSProfile0001**, scroll-down to **Mobile Traffic Parameters**, and set the **Traffic Type** as **MobileTraffic**. Click on 💾 to save the profile.

- Start the MME TestBed Setup, observe that the Basic Server window is automatically invoked and user can see on the task-bar, the configured MAPS™ MME will connect to the MAPS™ Mobile IP Core server which will be logged into the client.

  Note: The user can maximize the Basic Server GUI from the taskbar.

- In the second **MAPS-LTEeGTP** (MME) instance, click the **Call Generation** icon on main window, and invoke the **Call Generation** window.
  - ➢ By default, you will observe multiple call instances loaded with **S11SessionControl.gls** scripts and **MSProfile00**** profiles. **Note:** If the profile is not loaded, click on the call instance in the Profile column and select the configured **MSProfile0001** profile and set it for the call instance.
  - ➢ Select the call instance loaded with **S11SessionControl.gls** script and **MSProfile0001** profile in the Call Generation window and click **Start** button to initiate the call generation.
- Wait for the calls to terminate and verify the call flow under the **Message Sequence** tab at both generation and reception end.
- Select any message in the ladder diagram and observe the respective decode message on the right pane for the respective message.

- Return to first instance of **MAPS-LTEeGTP** (SGW), click icon and invoke **Call Reception** window, observe that the calls are automatically received running the Rx script**.**

- Observe the traffic log in the client log window.
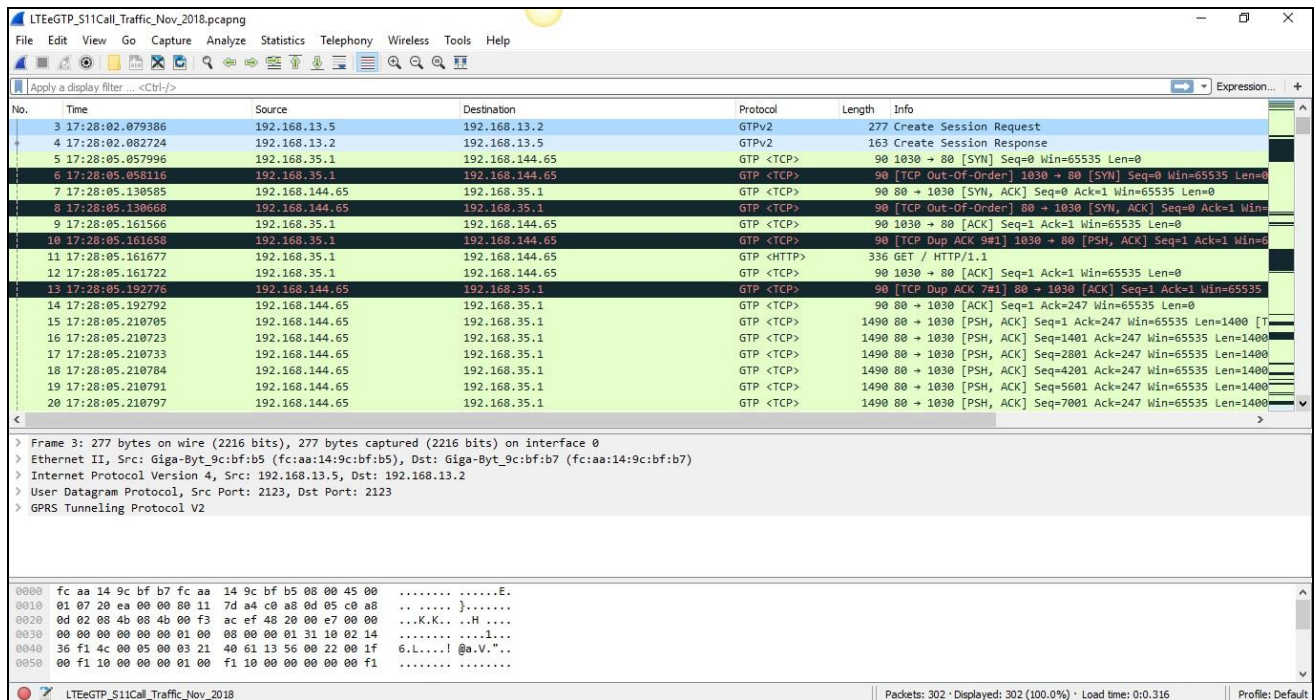
- Observe the traffic log in the server log window.

- User can also observe the traffic using Wireshark application as shown below.