

If this is your *First-Time-Use of MAPS™ LTE eGTP (S5S8 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 (S5S8) 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 **PDN GW** (Packet Data Network GateWay) on one NIC and as **SGW** (Serving Gateway) on the other.

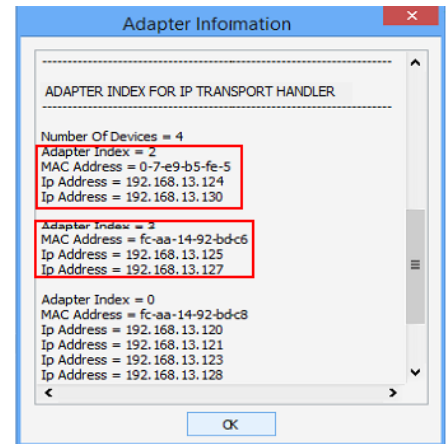
Note down the IP address of NIC1 and NIC2, in this example the IP addresses used and configured are:

- NIC1 IP address is 192.xx.xx.125, and configured as **PDN GW**
- NIC2 IP address is 192.xx.xx.124, and configured as **SGW**


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

First MAPS™ LTEeGTP (GUI) – (PGW)

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





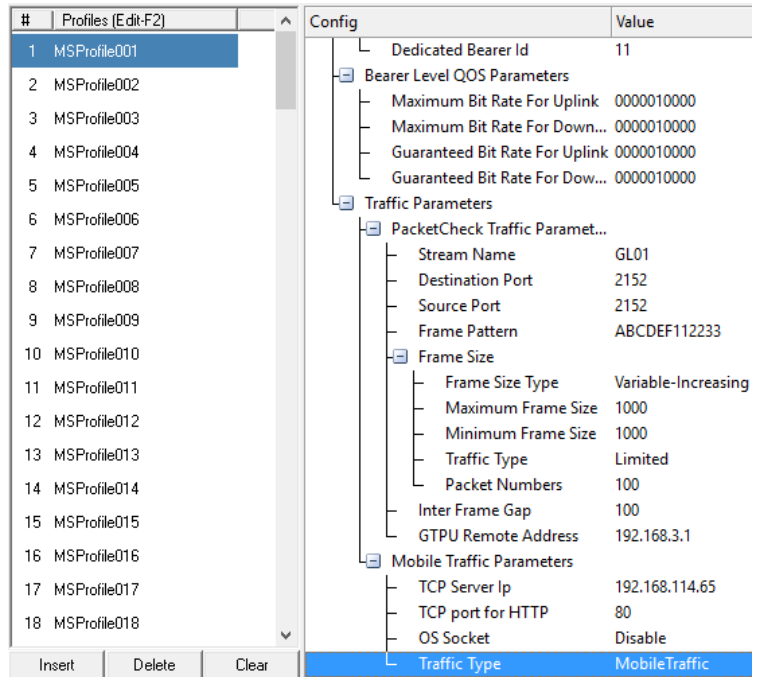
- The **Display Adapter Info** option from the **Help** menu displays all the network adapters available in the system. Choose and set the **Traffic Adapter Index** value displayed against the IP address in use.

- Set **PGW IP Address** to 192.xx.xx.125 (NIC1 IP address)
- Set **PGW Port** to 2124
- Set **SGW IP Address** to 192.xx.xx.124 (NIC2 IP address)
- Set **SGW Port** to 2124
- Set Traffic = Enable
- Click  **Save** button and save the changes to the same the **TestBedDefault** configuration file.

Config	Value
PG Configuration	
Traffic Adapter Index	3
PGW	1
PGW	
PGW IP Address	192.168.13.125
PGW Port	2124
PGW IP Address for Traffic	192.168.18.34
PGW Port for Traffic	2152
SGW Configuration	
SGW IP Address	192.168.13.124
SGW Port	2124
Traffic Parameters	
Traffic	Enable
PacketLoad Traffic Type	PCAP Traffic

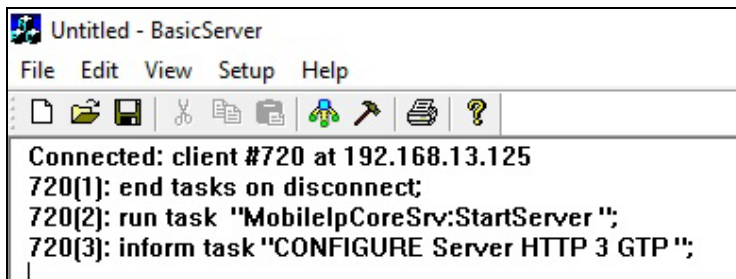
- From main window, select **Editor** → **Profile Editor**. This will invoke Profile Editor window.

- On the Profile Editor window, click on  and select **MS_Profiles**. Click on OK.
- Select **MSPProfile0001**, scroll-down to **Mobile Traffic Parameters**, and set the **Traffic Type** as **MobileTraffic**. Click on  to save the profile.

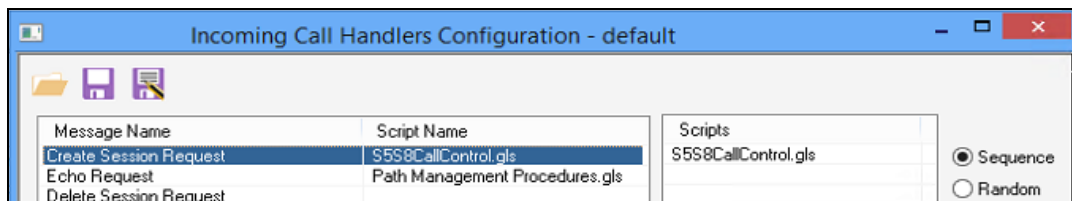


- Start the PGW TestBed Setup, observe that the Basic Server window is automatically invoked and user can see on the task-bar, the configured MAPS™ PGW will connect to the MAPS™ Mobile IP Core server which will be logged into the core server.



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

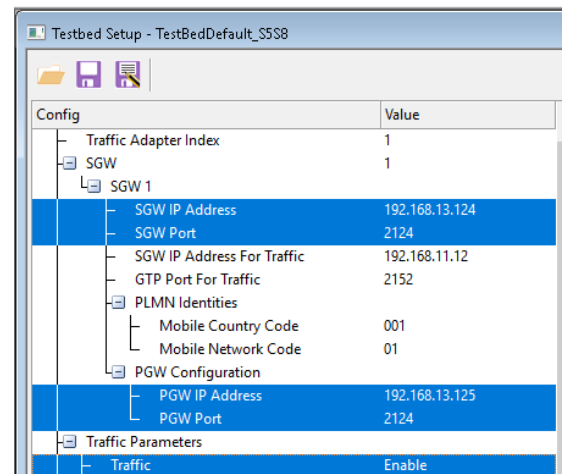
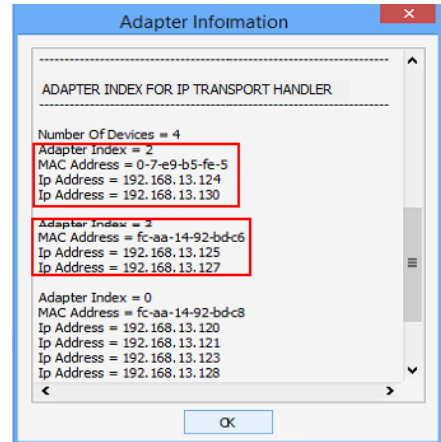




- On the same MAPS-LTEeGTP main window, from **Configuration** menu → select **Incoming Call Handler Configuration** and invoke the window. Verify that **S5S8CallControl.gls** script is set against **Create Session Request** message. Exit from the window.

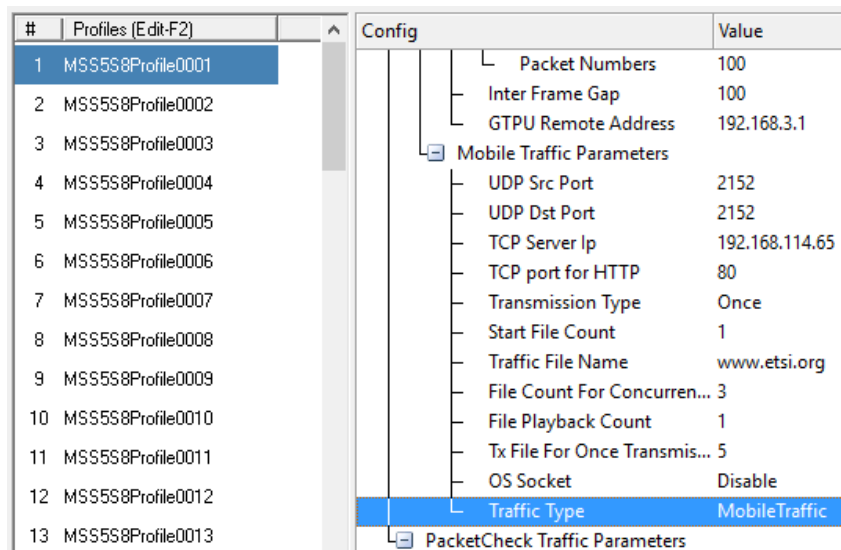


Second MAPS™ LTEeGTP (GUI) – (SGW)

- 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 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 **Serving GateWay**. Click **Ok**
- By default, **Testbed Setup** window is displayed. Click  and select **TestBedDefault_S5S8** 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 (NIC2 IP address)
 - Set **SGW Port** to 2124
 - Set **PGW IP Address** to 192.xx.xx.125 (NIC1 IP address)
 - Set **PGW Port** to 2124
 - Traffic = Enable
 - Click  **Save** button and save the changes to the same **TestBedDefault_S5S8** file.

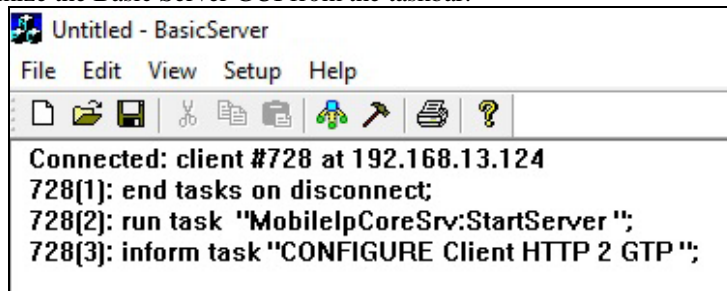



- From main window, select **Editor → Profile Editor**. This will invoke Profile Editor window.
- On the Profile Editor window, click on  and select **MS_S5S8Profiles**. Click on **OK**.
- Select **MSS5S8Profile0001**, scroll-down to **Mobile Traffic Parameters**, and set the **Traffic Type** as **MobileTraffic**. Click on  to save the profile.

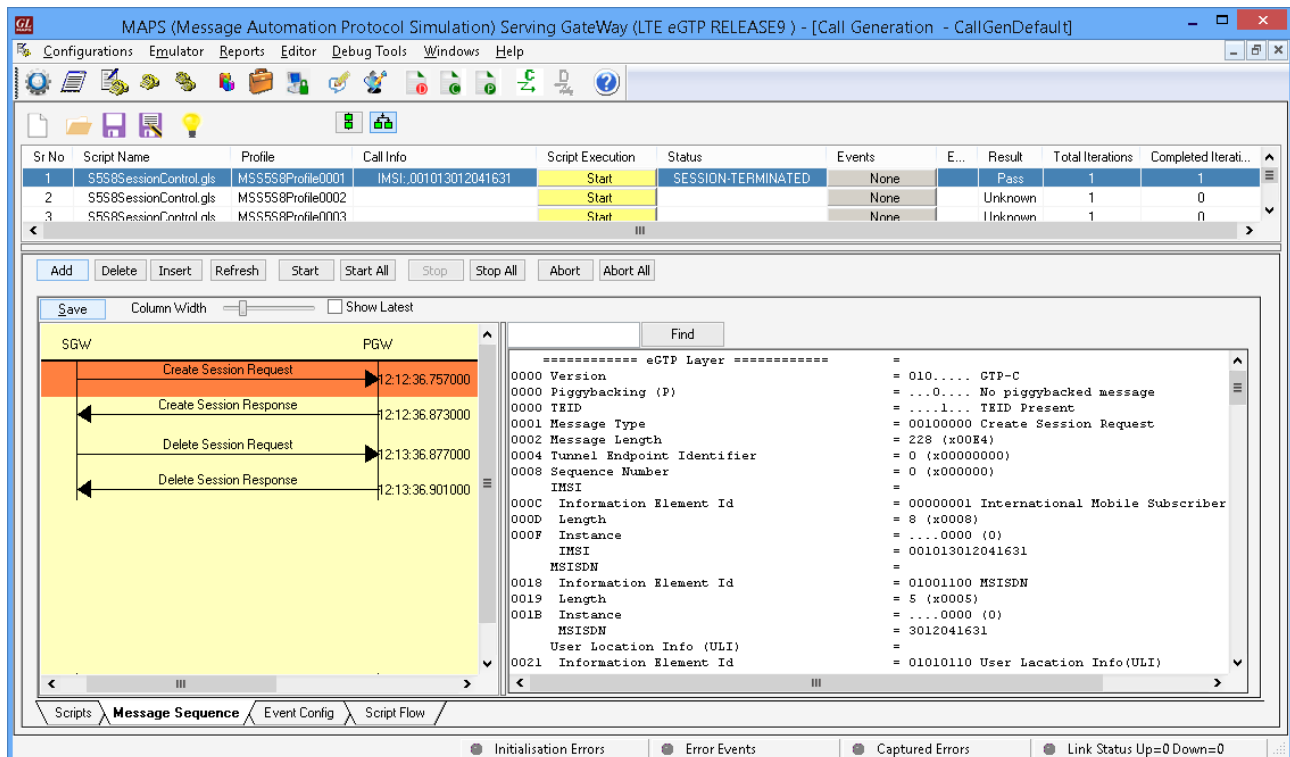



- Start the SGW TestBed Setup, observe that the Basic Server window is automatically invoked and user can see on the task-bar, the configured MAPS™ SGW will connect to the MAPS™ Mobile IP Core Client which will be logged into the core client.

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



- In the second MAPS-LTEeGTP (SGW) 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 **S5S8SessionControl.gls** scripts and **MSS5S8Profile00**** profiles. **Note:** If the profile is not loaded, click on the call instance in the Profile column and select the configured **MSS5S8Profile0001** profile and set it for the call instance.
 - Select the call instance loaded with **S5S8SessionControl.gls** script and **MSS5S8Profile0001** 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 (PGW)**, click  icon and invoke the **Call Reception** window. Observe that the calls are automatically received running the Rx script.
- Observe the traffic log in the client log window.

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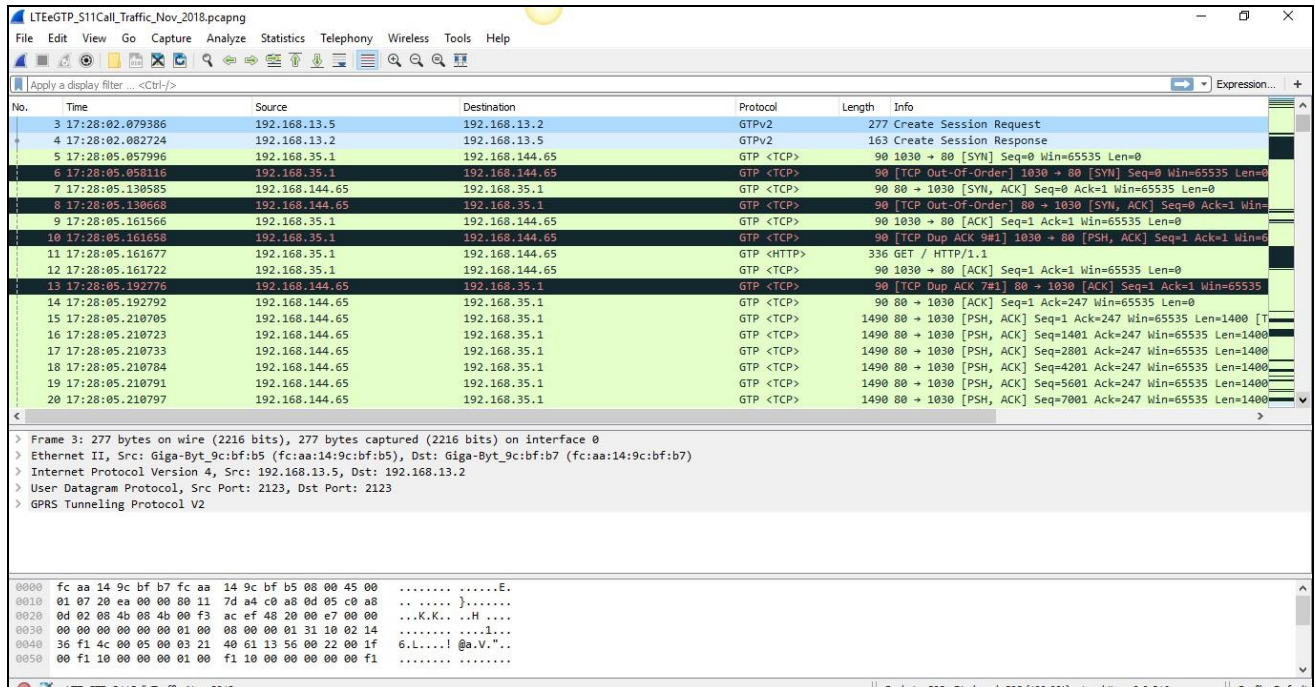
Untitled - BasicServer
File Edit View Setup Help
Connected: client #720 at 192.168.13.124
720(1): end tasks on disconnect;
720(2): run task "MobileIpCoreSrv:StartServer ";
720(3): inform task "CONFIGURE Client HTTP 2 GTP ";
720(4): inform task "ADDGTPSTREAM 192.168.25.1 3 101 192.168.11.12 2152 192.168.16.125 2152 ";
720(5): inform task "ADDCONNECTION 3 1 192.168.14.65 80 192.168.25.1 www.etsi.org ITERATION_COUNT 1 ";
720(6): inform task "DELETEDGTPSTREAM 192.168.25.1 3 ";
    
```

- Observe the traffic log in the server log window.

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Untitled - BasicServer
File Edit View Setup Help
Connected: client #720 at 192.168.13.125
720(1): end tasks on disconnect;
720(2): run task "MobileIpCoreSrv:StartServer ";
720(3): inform task "CONFIGURE Server HTTP 3 GTP ";
720(4): inform task "CREATESERVER 192.168.14.65 80 ";
720(5): inform task "ADDGTPSTREAM 192.168.25.1 101 3 192.168.16.125 2152 192.168.11.12 2152 ";
720(6): inform task "DELETEDGTPSTREAM 192.168.25.1 101 ";
    
```

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



No.	Time	Source	Destination	Protocol	Length	Info
3	17:28:02.079386	192.168.13.5	192.168.13.2	GTPv2	277	Create Session Request
4	17:28:02.082724	192.168.13.2	192.168.13.5	GTPv2	163	Create Session Response
5	17:28:05.057996	192.168.35.1	192.168.144.65	GTP <TCP>	90	1030 → 80 [SVN] Seq=0 Win=65535 Len=0
6	17:28:05.058116	192.168.35.1	192.168.144.65	GTP <TCP>	90	[TCP Out-Of-Order] 1030 → 80 [SVN] Seq=0 Win=65535 Len=0
7	17:28:05.138585	192.168.144.65	192.168.35.1	GTP <TCP>	90	80 → 1030 [SVN, ACK] Seq=0 Ack=1 Win=65535 Len=0
8	17:28:05.138668	192.168.144.65	192.168.35.1	GTP <TCP>	90	[TCP Out-Of-Order] 80 → 1030 [SVN, ACK] Seq=0 Ack=1 Win=65535 Len=0
9	17:28:05.161566	192.168.35.1	192.168.144.65	GTP <TCP>	90	1030 → 80 [ACK] Seq=1 Ack=1 Win=65535 Len=0
10	17:28:05.161658	192.168.35.1	192.168.144.65	GTP <TCP>	90	[TCP Dup ACK 9#1] 1030 → 80 [PSH, ACK] Seq=1 Ack=1 Win=65535 Len=0
11	17:28:05.161677	192.168.35.1	192.168.144.65	GTP <HTTP>	336	GET / HTTP/1.1
12	17:28:05.161722	192.168.35.1	192.168.144.65	GTP <TCP>	90	1030 → 80 [ACK] Seq=1 Ack=1 Win=65535 Len=0
13	17:28:05.192776	192.168.144.65	192.168.35.1	GTP <TCP>	90	[TCP Dup ACK 7#1] 80 → 1030 [ACK] Seq=1 Ack=1 Win=65535 Len=0
14	17:28:05.192792	192.168.144.65	192.168.35.1	GTP <TCP>	90	80 → 1030 [ACK] Seq=1 Ack=247 Win=65535 Len=0
15	17:28:05.210705	192.168.144.65	192.168.35.1	GTP <TCP>	1490	80 → 1030 [PSH, ACK] Seq=1 Ack=247 Win=65535 Len=1400 [
16	17:28:05.210723	192.168.144.65	192.168.35.1	GTP <TCP>	1490	80 → 1030 [PSH, ACK] Seq=1401 Ack=247 Win=65535 Len=1400 [
17	17:28:05.210733	192.168.144.65	192.168.35.1	GTP <TCP>	1490	80 → 1030 [PSH, ACK] Seq=2801 Ack=247 Win=65535 Len=1400 [
18	17:28:05.210784	192.168.144.65	192.168.35.1	GTP <TCP>	1490	80 → 1030 [PSH, ACK] Seq=4201 Ack=247 Win=65535 Len=1400 [
19	17:28:05.210791	192.168.144.65	192.168.35.1	GTP <TCP>	1490	80 → 1030 [PSH, ACK] Seq=5601 Ack=247 Win=65535 Len=1400 [
20	17:28:05.210797	192.168.144.65	192.168.35.1	GTP <TCP>	1490	80 → 1030 [PSH, ACK] Seq=7001 Ack=247 Win=65535 Len=1400 [