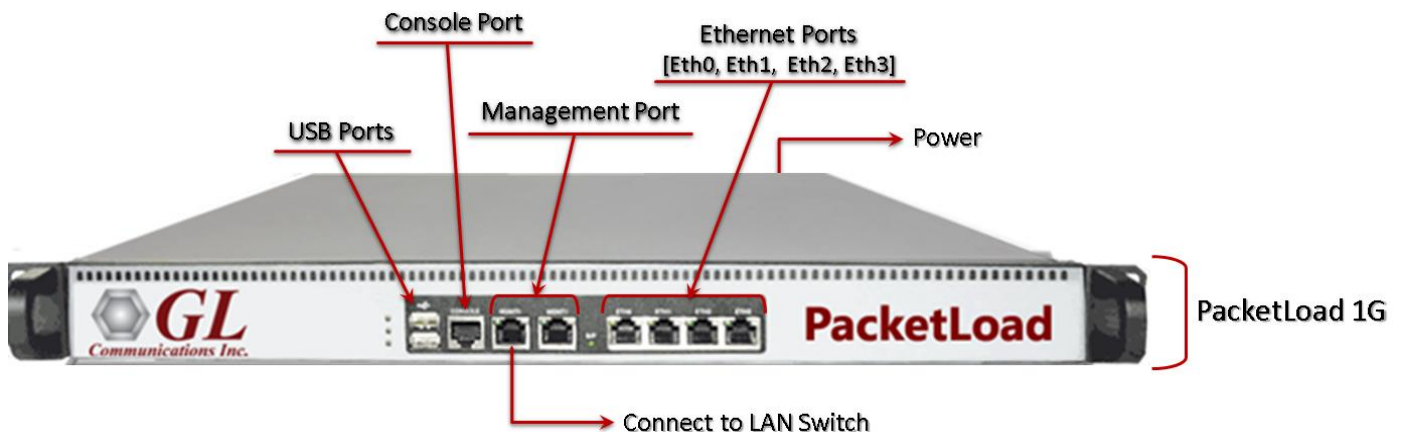


*If this is your First-Time-Use of MAPS™ GnGp application, then we recommend you follow all the steps explained in [MAPS-GnGp-Quick-Install-Guide](#) to install MAPS™ GnGp application before proceeding with the steps below. To simulate UMTS GnGp Signaling with High Density Mobile Traffic, we are using PacketLoad application (MAPS-PacketLoadx64.exe) and corresponding license (PKS172).*

### PacketLoad Web Configurations

PacketLoad is available in following platform variants -

- **PacketLoad™ 4 x 1Gbps (PKS172)** - Data Traffic Generator 1U Rack Appliance with 4 x 1Gbps NIC interfaces: total capacity of up to 4 Gbits/sec Stateful TCP/HTTP Traffic.



- **PacketLoad™ 4 x 10Gbps (PKS174)** - Data Traffic Generator 2U Rack Appliance with 4 x 10Gbps NIC interfaces: total capacity of up to 40 Gbits/sec Stateful TCP/HTTP Traffic

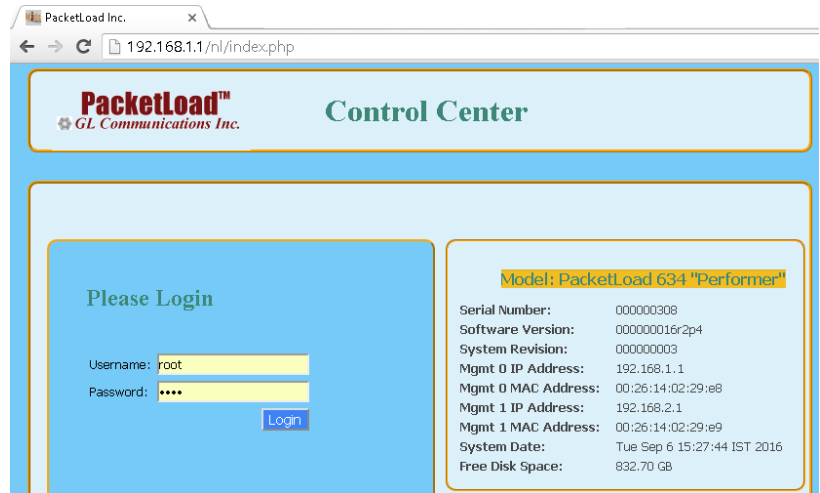


- Place the device on a sturdy surface or install into a 19" rack.
- Do not block any airflow vents for proper operation and cooling. The system uses side and back vents for cooling.
- On a single-4-port setup, the first 2 ports (non-Management) from left to right (Eth0 and Eth1) are Server ports, and the last 2 ports (Eth2 and Eth3) are Client ports. The ports are paired "Eth0-Eth2" and "Eth1 - Eth3". For multi-box configurations, all ports can be configured as Servers or Clients. The ports are used as Server—Client pairs for testing the DUT. Appropriate Ethernet cables should be used.
- Insert the power cable into device and then into the power outlet. The switch in the back of the system turns on the system. Insert the Ethernet cable into port MGMT0, and the other end into your Laptop or PC, or your network

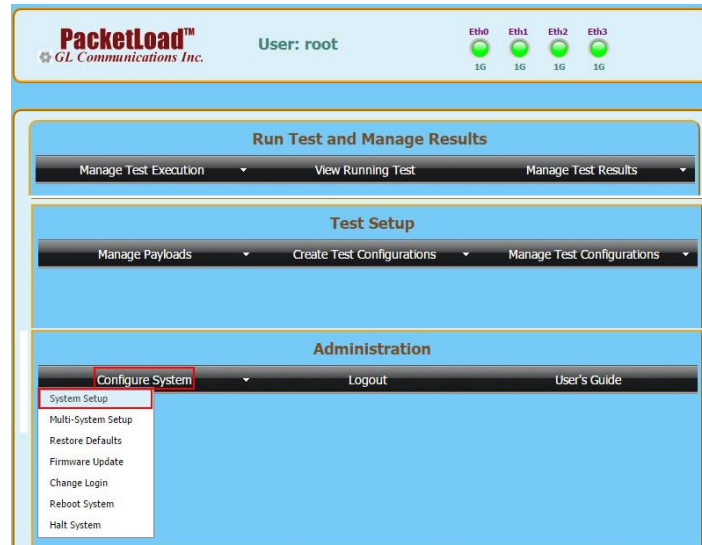
### Access the Configuration

- Assign an IP address to the PacketLoad device. Make sure that the PC and the PacketLoad device are in the same subnet.
- Access the device using the browser by entering the IP address assigned to the PacketLoad appliance, <http://192.168.1.1>

**Note:** The Login page also provides the PacketLoad appliance model details such as the Serial Number, Software Version, IP address, MAC Address, and other related information as seen in the figure



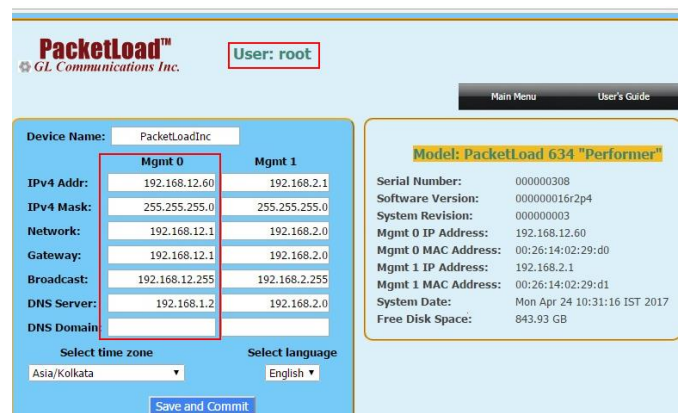
- Provide the following login credentials:
  - Username = root
  - Password = root
- Click "Login" button and login to the main menu as seen in the figure below.
- Under the **Administration** menu click on **Configure System** and select the **System Setup** from the drop down to configure the IP address for **Management Ports** (Mgmt 0, Mgmt 1)



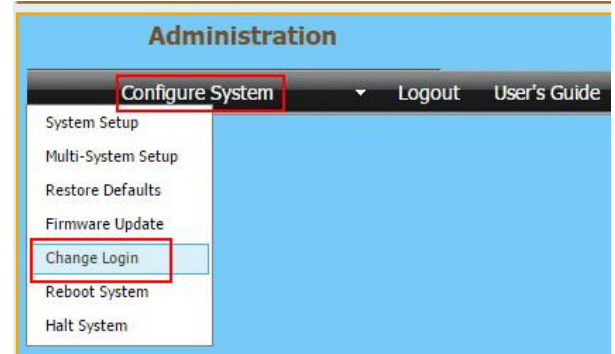
- Configure the system by defining all the new parameters
  - Assign new **IPv4** address (make sure that the PC and PacketLoad should be in the same subnet series)
  - Enter all the other network parameters and save the configuration
  - Click on **Save and Commit**, PacketLoad will save all the changes made into the configuration and restart the networking configuration.

**Note:** - Record these values for future reference if needed.

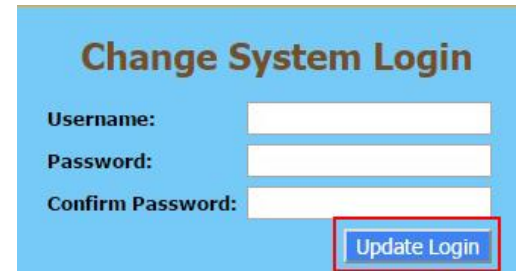
- PacketLoad now will be found at the new address as configured, to access the device go to web browser and enter the new address [http:// new\\_address](http://new_address)



- To change the login credentials, click on the **Configure System** under **Administration** and select **Change Login**.



- Enter the new Username, Password and click on the Update Login.



The screenshot shows the 'Change System Login' form. It has three input fields: 'Username:', 'Password:', and 'Confirm Password:'. Below these fields is a button labeled 'Update Login', which is highlighted with a red box.

## PacketLoad Software Installation

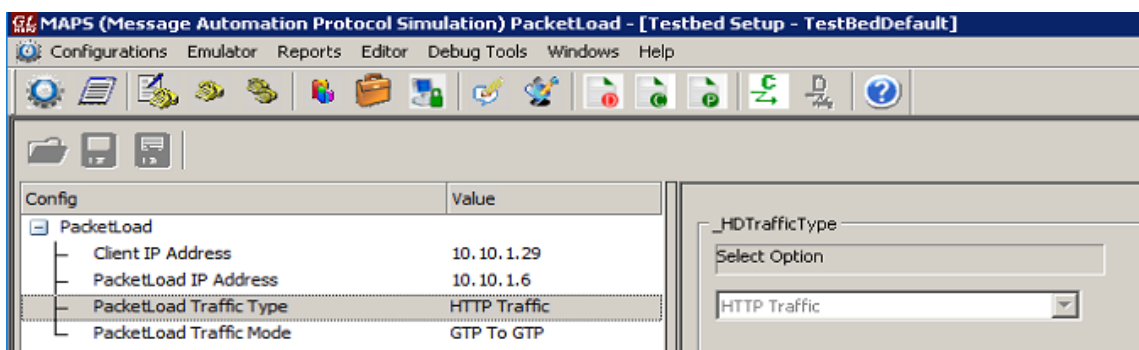
PacketLoad software installation is required to load different traffic (HTTP/PCAP) configurations on to the PacketLoad 1G/10G Hardware device.

**Note:** Ensure that latest warranty license is installed and confirm that PKS172 (1G) or PKS174 (10G) PacketLoad 1G/10G is listed in Warranty Application List. Refer to [MAPS-PacketLoad-Quick-Install-Guide](#) for details.


- Run the **MAPS-PacketLoadx64.exe** executable file from GL's installation USB stick. Follow the on-screen instruction to complete the installation procedure.

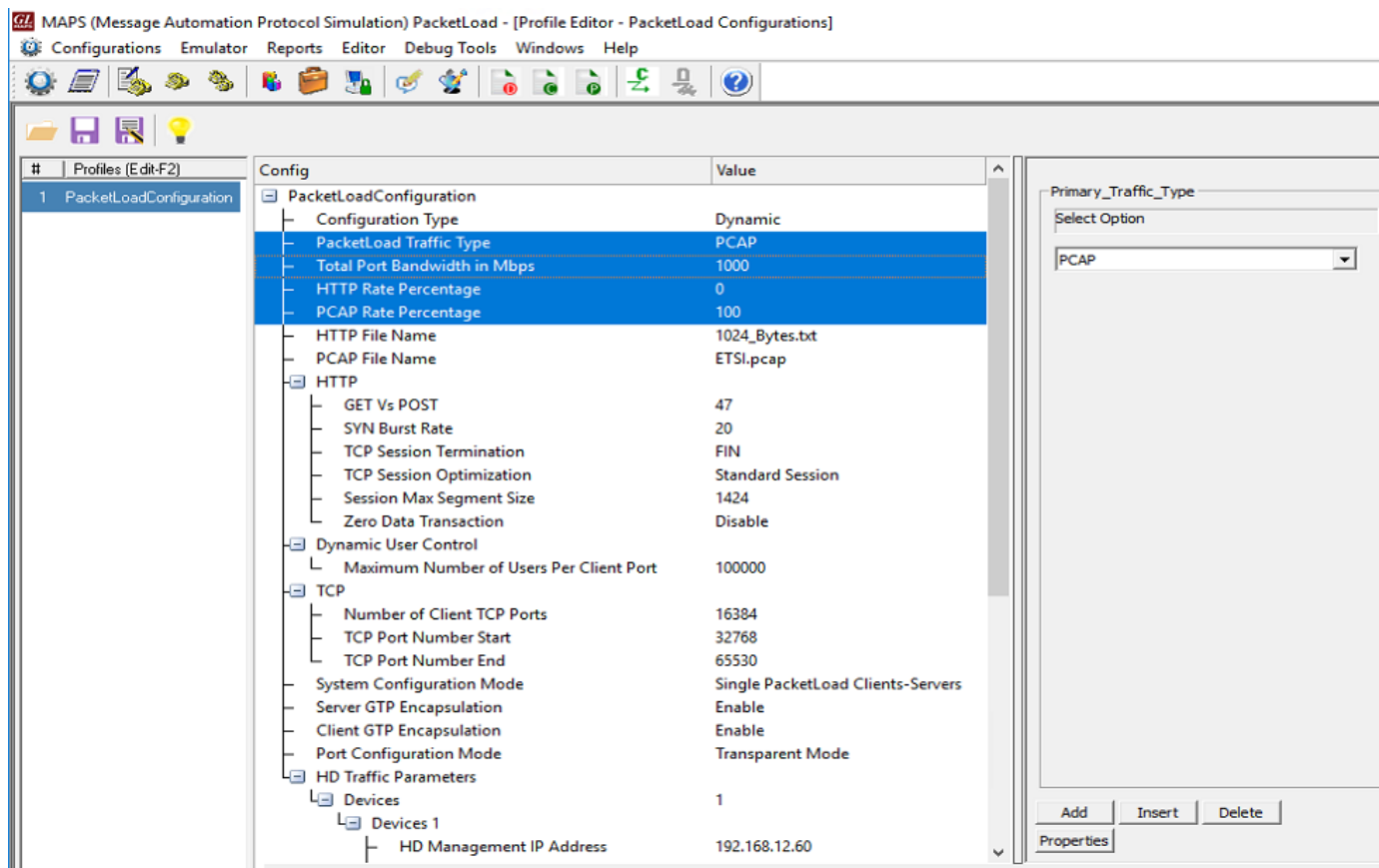


- Double-click on the **PacketLoad** shortcut icon created on the desktop to invoke MAPS™ Packet Load application.
- By default, Testbed Setup Configuration window is invoked. By default, 'TestBedDefault' configuration is loaded in the window. Verify and validate the highlighted parameter settings:
  - Client IP Address = [Local IP address]
  - PacketLoad IP Address = [Device Management Port IP address]
  - PacketLoad Traffic Type = HTTP/PCAP Traffic
  - PacketLoad Traffic Mode = GTP to GTP



### PacketLoad Profile Configuration

- From main window, select **Editor** → **Profile Editor**. This will invoke Profile Editor window.
- By default, in the Profile Editor window **PacketLoad Configurations** file is displayed.
- On the left-pane, select **PacketLoadConfiguration**, and set the **PacketLoad Traffic Type** as **PCAP/HTTP**.
- If **PacketLoad Traffic Type** is set to **PCAP**, the following are configured -
  - HTTP Rate Percentage = 0
  - PCAP Rate Percentage = 100
- If **PacketLoad Traffic Type** is set to **HTTP**, the following are configured -
  - HTTP Rate Percentage = 100
  - PCAP Rate Percentage = 0
- Depending on the PacketLoad device connected (1G/10G), configure the Total Port Bandwidth in Mbps
  - For 1G PacketLoad device, configure Total Port Bandwidth in Mbps = 1000
  - Similarly, for 10G PacketLoad device, configure Total Port Bandwidth in Mbps = 10000
- Click on  to save the profile. Exit from Profile Editor window.





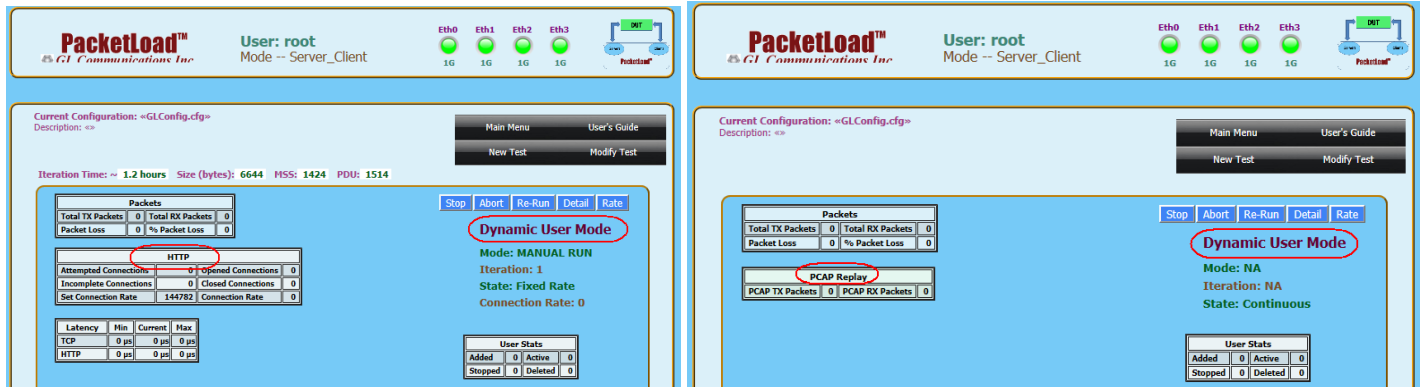
- Click on **Start** to start the Test Bed Setup.



### Note:

Ensure to start Packet Load before running UMTS GnGp application configured.

- The PCAP or HTTP traffic configuration can be verified in the PacketLoad web browser (<http://192.168.1.1>), refer to figure below.



## MAPS™ GnGp Verification

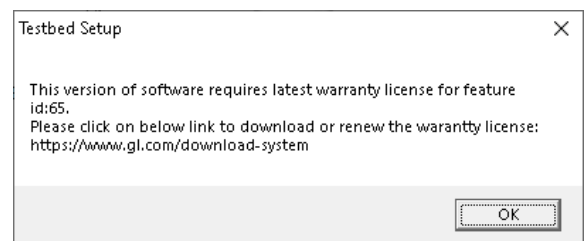
Functional verification of MAPS-GnGP application requires a system with 2 NIC cards for testing. MAPS-GnGP is configured as **GGSN** (Gateway GPRS Support Node) on one NIC and as **SGSN** (Serving GPRS Support Node) on the other.

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 **GGSN**
- NIC2 IP address is 192.xx.xx.124, and configured as **SGSN**

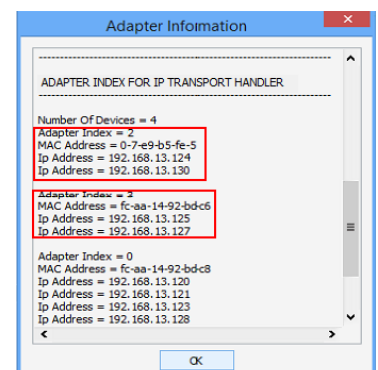
**\*Note:** In this test scenario, we have configured MAPS™ GnGP as SGSN generating calls and GGSN to receive calls.



- Note:** The "Warranty Error" as shown in the figure may be prompted, when the user tries to start the testbed, then you may not have installed the **Warranty licenses** or the license has been expired.
- Note:** Ensure that latest warranty license (GLSupportWarrantyLicenseInstaller.exe) is installed and confirm that PKS166 MAPS UMTS GnGp is listed in Warranty Application List. Refer to [MAPS-UMTS-GnGp-Quick-Install-Guide](#)

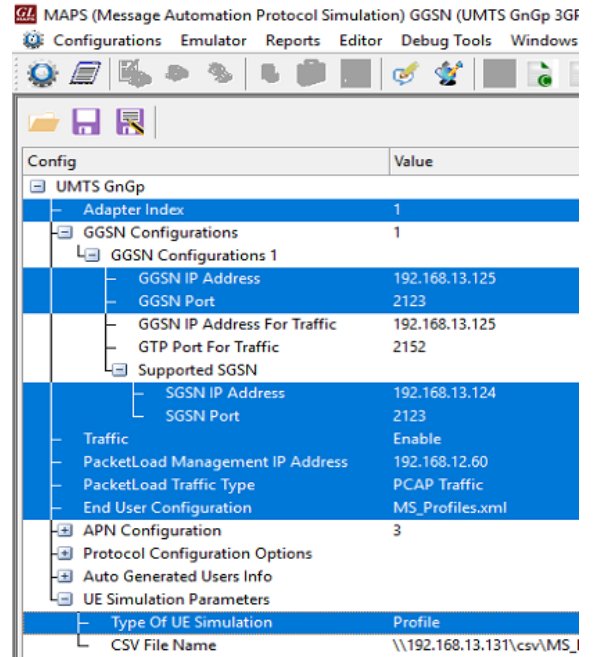




## First MAPS™ GnGp (GUI) configured as GGSN

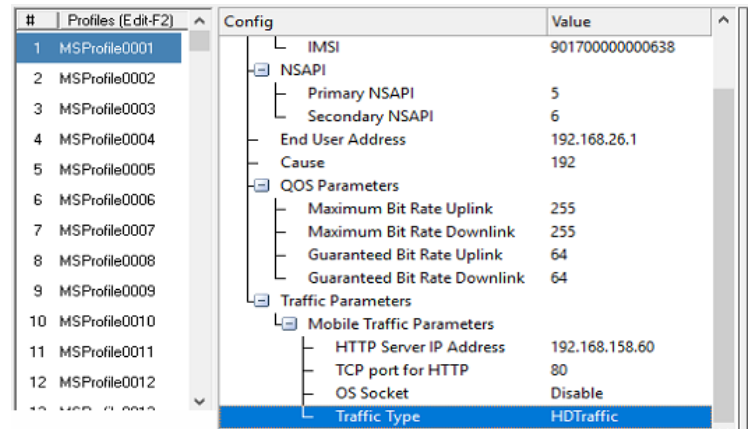
- Right-click on **MAPS-GnGp** application shortcut icon created on the desktop and select 'Run as Administrator' to invoke the application. The first instance of MAPS™ is configured for **Call Reception**.
- While invoking the second MAPS-GnGp instance, verify the following in the Protocol Selection window
  - Protocol Standard** is set to **UMTS GnGp**
  - Protocol Version** to **3GPP**
  - Select **Node** as **GGSN**
  - Click **Ok**



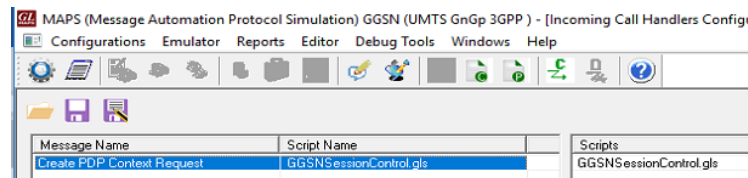
- By default, **Testbed Setup** window is displayed. Click  and select **TestBedDefault** and check for the parameter default values as listed below:
  - Set the **Adapter Index** obtained by executing the **Display Adaptor Info** from the Help menu
  - Set **GGSN IP Address** to **Source NIC1 IP** address
  - Set **GGSN Port** to **2123**
  - Set **GGSN IP Address for Traffic** to free IP address, any unassigned IP address available in a network.
  - By default, **GTP Port for Traffic** is set to **2152**
  - Set **SGSN IP Address** to **Destination NIC2 IP** address
  - Set **SGSN Port** to **2123**
  - Set **Traffic** = Enable
  - Set PacketLoad Traffic Type = PCAP/HTTP Traffic [Note: Make sure that the same PCAP/ HTTP traffic type is also configured in the PacketLoad Testbed Setup]
  - Set PacketLoad Management IP Address = PacketLoad Device IP Address
  - Click  **Save** button and overwrite the **TestBedDefault** configuration file.



- From **Editor** → invoke **Profile Editor** window. Click  and select MS\_Profile.xml file,
  - Select **MSProfile001**, scroll-down to **Mobile Traffic Parameters**, and set the **Traffic Type** as **HDTraffic**
  - Click  **Save** and save the changes to the same MS\_Profile.xml file.







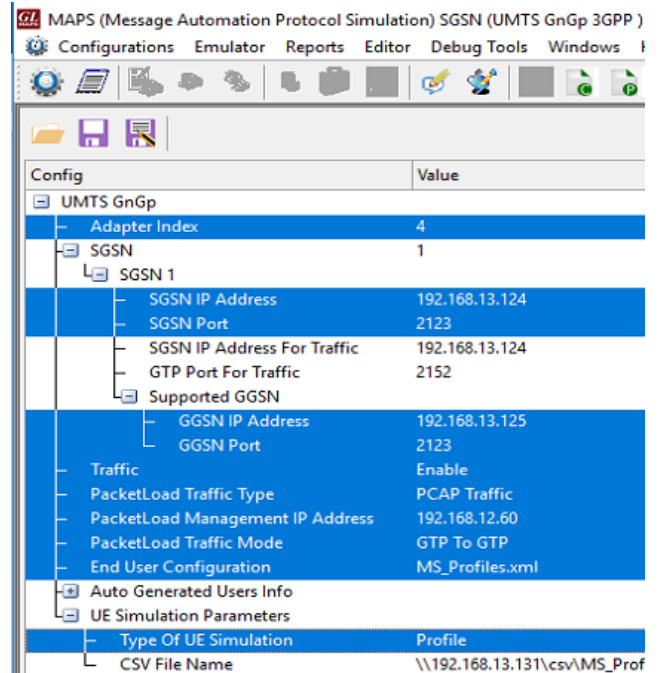
- On the same **MAPS-GnGP** main window, from **Configuration** menu → select **Incoming Call Handler Configuration** and invoke the window. Verify that **GGSNSessionControl.gls** script is set against **Create PDP Context Request** message. Exit from the window




- Start the GGSN TestBed Setup

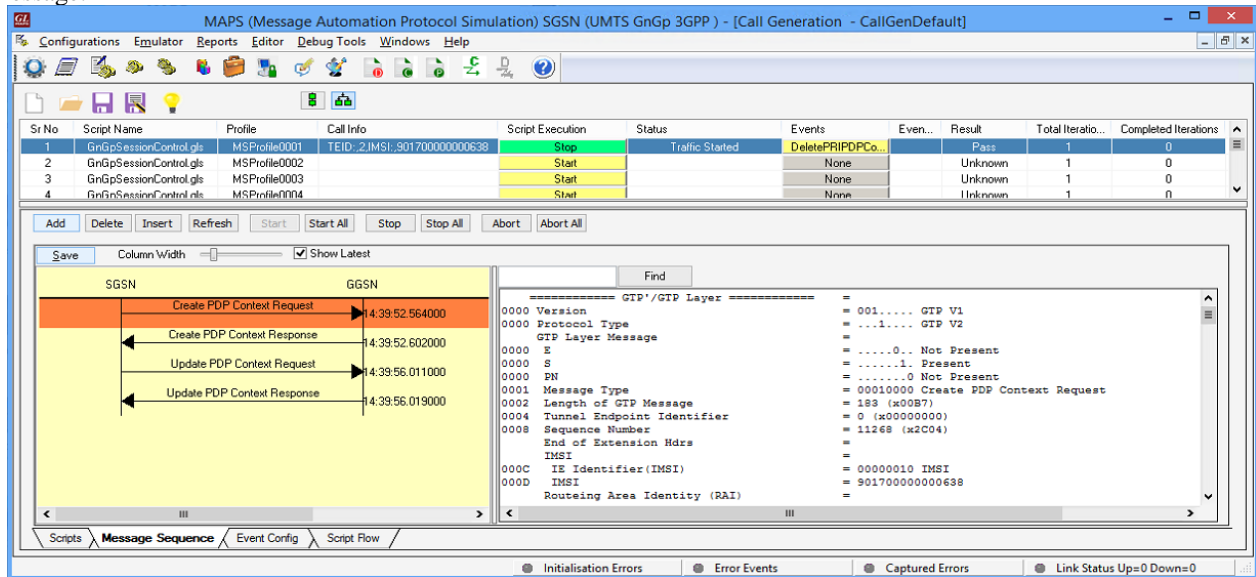
## Second MAPS™ GnGp (GUI) configured as SGSN


- Right-click on **MAPS-GnGp** application shortcut icon created on the desktop and select 'Run as Administrator' to invoke the application. The first instance of MAPS™ is configured for **Call Generation**.
- While invoking the first MAPS-GnGp instance, verify the following in the Protocol Selection window -
  - Protocol Standard is set to **UMTS GnGp**
  - Protocol Version to **3GPP**
  - Select **Node** as **SGSN**. Click **Ok**
- By default, **Testbed Setup** window is displayed. Click  and select **TestBedDefault** and check for the parameter default values as listed below:
  - Set the **Adapter Index** obtained by executing the **Display Adaptor Info** from the Help menu
  - Set **SGSN IP Address** to **Source NIC2 IP** address
  - Set **SGSN Port** to 2123
  - Set **SGSN IP Address for Traffic** to free IP address, any unassigned IP address available in a network
  - By default, **GTP Port for Traffic** is set to 2152
  - Set **GGSN IP Address** to Destination NIC1 IP address
  - Set **GGSN Port** to 2123
  - Set **Traffic** = Enable
  - Set PacketLoad Traffic Type = PCAP/HTTP Traffic [Note: Make sure that the same PCAP/ HTTP traffic type is also configured in the PacketLoad Testbed Setup]
  - Set PacketLoad Management IP Address = PacketLoad Device IP Address
  - Click  **Save** button and overwrite the **TestBedDefault** configuration file.
- From **Editor** → invoke **Profile Editor** window. Click  and select **MS\_Profile.xml** file,
  - Select **MSPProfile0001**, scroll-down to **Mobile Traffic Parameters**, and set the **Traffic Type** as **HDTraffic**.
  - Click  **Save** and save the changes to the same **MS\_Profile.xml** file



#	Profiles (Edit-F2)	Config	Value
1	MSPProfile0001	Udp Src Port	2152
2	MSPProfile0002	Udp Dst Port	2152
3	MSPProfile0003	HTTP Server IP Address	192.168.158.60
4	MSPProfile0004	TCP port for HTTP	80
5	MSPProfile0005	Transmission Type	Once
6	MSPProfile0006	Start File Count	1
7	MSPProfile0007	Traffic File Name	www.etsi.org
8	MSPProfile0008	File Count For Concurrent Or Sequential	3
9	MSPProfile0009	TxFile For Once Transmission From List	1
		File Play Back Count	1
		OS Socket	Disable
		Traffic Type	HDTraffic

- In the second **MAPS-GnGp** (SGSN) 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 **GnGpSessionControl.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 **GnGpSessionControl.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-GnGp** (GGSN), click  icon and invoke the **Call Reception** window. Observe that the calls are automatically received running the Rx script.
- On MAPS™ SGSN (or GGSN) main menu, from **Report** menu → select **User Defined Statistics** to invoke Statistics window.
- Similarly, from MAPS™ SGSN (or GGSN) main menu, from **Report** menu → select **User Defined Graphs** to invoke Graphs window as shown below. All the four graphs Bandwidth on each port, HTTP and TCP Traffic Graph, and number of Added and Stopped Users ratio Graph are displayed as shown in the figure below.

