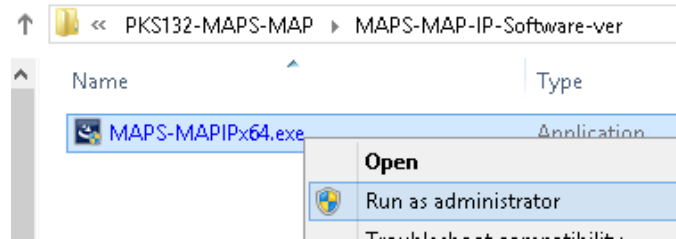


Software and License Installation

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 \PKS132-MAPS-MAP\MAPS-MAP-IP-Software-verXX folder, right click **MAPS-MAPIx64.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 PKS132 (MAPS-MAP) license is listed.


Verification

For functional verification, **MAPS™ MAP IP** application can be configured on a single PC in loopback mode.

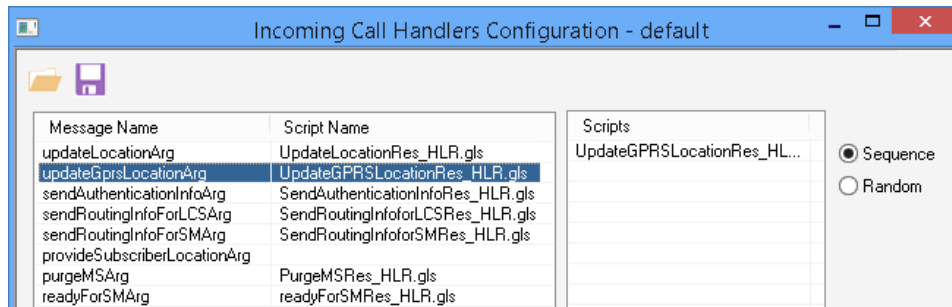
On first instance, MAPS™ is configured as **HLR** (Home Location Register), and on the second instance, MAPS™ is configured as **SGSN** (Serving GPRS Support Node) nodes to simulate **GPRS Location Update MAP** procedure. The following explains **MAPS™ MAP IP** configuration on the same PC in loopback mode.

First MAPS™ MAPIP configured as HLR



- Right-click on the **MAPS-MAPIP** 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-MAPIP instance, verify the following in the Protocol Selection window -
 - **Protocol Standard** is set to **MAPIP**
 - **Protocol Version** to **ITU**
 - Select **Node** as **HLR**
 - Select **Transport** as **M3UA**. Click **Ok**
- By default, Testbed Setup window is displayed. Click  and select **HLR_SGSN** configuration and check for the parameter default values as listed below:
 - By default, **M3UA Termination Type** is set to **SGP**, to maintain SCTP Server association
 - Set **HLR IP Address** to PC IP address
 - Set **HLR Port** to **2905**

- Set **HLR Point Code** to **0.0.1**
- Set **Node or Interface Type with SSN** to **SGSN-149**
- Set **Destination IP address** to PC IP address
- Set **Destination Port** to **2906**
- Set **Destination Point Code** to **0.0.2**
- Click on the **Save**  button and overwrite the **HLR_SGSN** configuration file.

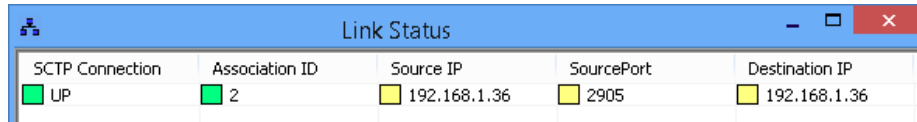
- From MAPS-MAPIP main window, select **Configuration > Incoming Call Handler Configuration**. Verify that the **UpdateGPRSLocationRes_HLR.gls** script is loaded **updateGprsLocationArg** message. Exit from the window.





Second MAPS™ MAPIP configured as SGSN

- Right-click on the **MAPS-MAPIP** 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-MAPIP instance, verify the following in the **Protocol Selection** window -
 - **Protocol Standard** is set to **MAPIP**
 - **Protocol Version** to **ITU**
 - Select **Node** as **SGSN**
 - Select **Transport** as **M3UA**. Click **Ok**
- By default, **Testbed Setup** window is displayed. Click  and select **SGSN_HLR** configuration and check for the parameter default values as listed below:
 - By default, **M3UA Termination Type** is set to **ASP**, to maintain client association
 - Set **SGSN IP Address** to PC IP address
 - Set **SGSN Port** to **2906**
 - Set **SGSN Point Code** to **0.0.2**
 - Set **Node or Interface Type with SSN** to **HLR-6**
 - Set **Destination IP address** to PC IP address
 - Set **Destination Port** to **2905**
 - Set **Destination Point Code** to **0.0.1**
 - Click on the **Save**  button and overwrite the **SGSN_HLR** configuration file.
- **Start** the testbed on both the MAPS (HLR and SGSN) instances.

- On both the MAPS instances main window, from **Reports** menu > select **Link Status** option to verify the link status. Verify that the **SCTP Link Status** is **UP** (indicated in Green color) before placing the call.

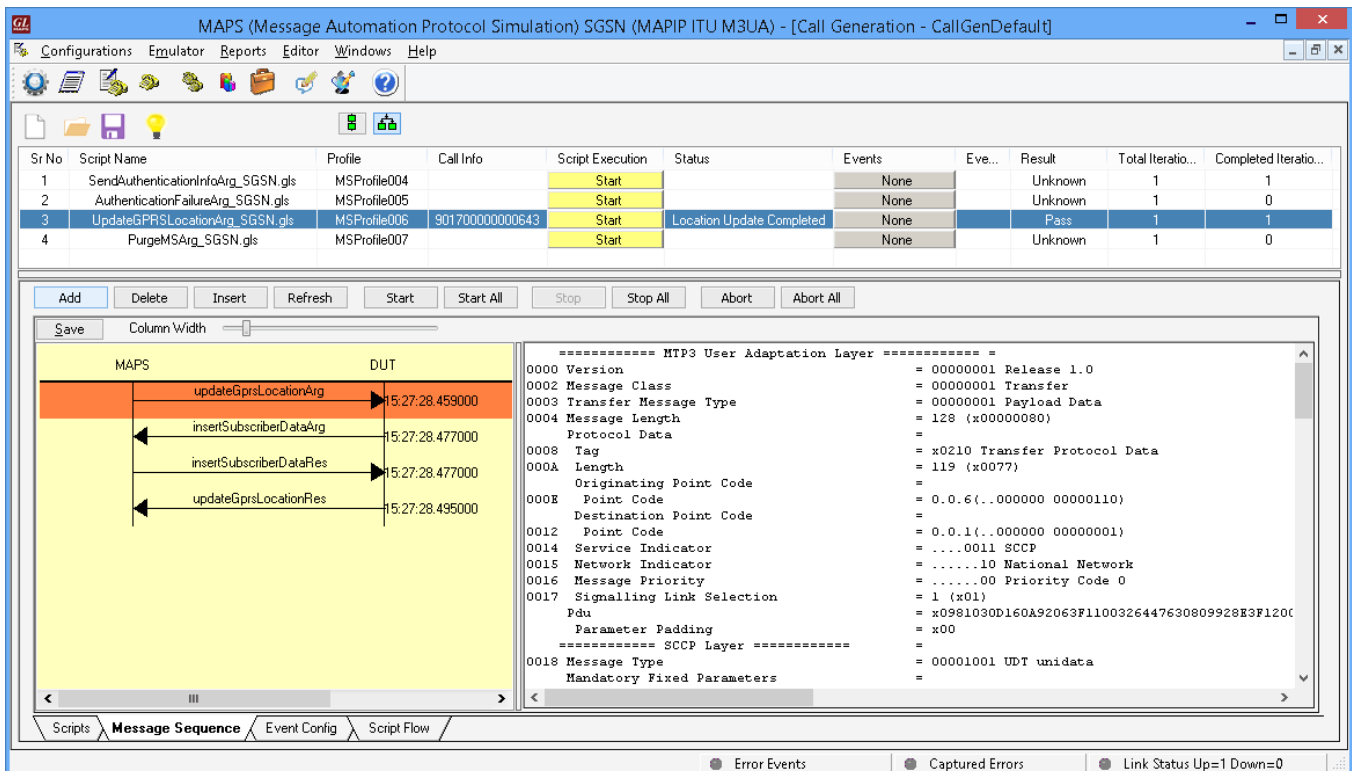


SCTP Connection	Association ID	Source IP	SourcePort	Destination IP
UP	2	192.168.1.36	2905	192.168.1.36

- On both instances of MAPS-MAPIP (HLR and SGSN) main window, click **Call Reception**  icon and observe that the **Check_SCTP_Status.gls** script is activated.
- In the second MAPS-MAPIP (SGSN) instance, click the **Call Generation**  icon on main window, and invoke the **Call Generation** window.
- By default, you will observe multiple call instance loaded with supported procedure scripts and **MSPProfile00*** profiles.
- Select the call instance loaded with **UpdateGPRSLocationArg_SGSN.gls** script and **MSPProfile006** profile in the Call Generation window, and click **Start** button to initiate the call generation.

Note: If appropriate profile (i.e. MSPProfile006) is not loaded against the test script, double click the area in the Profile column and select the MSPProfile006 profile from the drop-down list.

- Return to first instance of MAPS-MAPIP (**HLR**), in the **Call Reception** window, observe that the calls are automatically received running the Rx script.
- 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.



Sr No	Script Name	Profile	Call Info	Script Execution	Status	Events	Eve...	Result	Total Iteratio...	Completed Iteratio...
1	SendAuthenticationInfoArg_SGSN.gls	MSPProfile004		Start		None		Unknown	1	1
2	AuthenticationFailureArg_SGSN.gls	MSPProfile005		Start		None		Unknown	1	0
3	UpdateGPRSLocationArg_SGSN.gls	MSPProfile006	901700000000643	Start	Location Update Completed	None		Pass	1	1
4	PurgeMSArg_SGSN.gls	MSPProfile007		Start		None		Unknown	1	0


```

===== MTP3 User Adaptation Layer =====
0000 Version = 00000001 Release 1.0
0002 Message Class = 00000001 Transfer
0003 Transfer Message Type = 00000001 Payload Data
0004 Message Length = 128 (x00000080)
      Protocol Data
0008 Tag = x0210 Transfer Protocol Data
000A Length = 119 (x0077)
      Originating Point Code
000E Point Code = 0.0.6(..000000 00000110)
      Destination Point Code
0012 Point Code = 0.0.1(..000000 00000001)
0014 Service Indicator = ...0011 SCCP
0015 Network Indicator = .....10 National Network
0016 Message Priority = .....00 Priority Code 0
0017 Signalling Link Selection = 1 (x01)
      Pdu
      Parameter Padding
      ===== SCCP Layer =====
0018 Message Type = 00001001 UDT unidata
      Mandatory Fixed Parameters
  
```

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 MAPS™ MAPIP 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
 - To use MAPS™ 64-bit version – use *GLDongleLicenseInstaller_x64.exe* utility to install licenses
 - 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 **PKS132 MAPS-MAP** 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.
- **Fails to start SCTP Services and associated SCTP Link status is Down,** follow the steps below -
 - Run MAPS™ MAPIP **application as administrator** – right-click select Run as Administrator option.
 - **Turn OFF Windows Firewall** - navigate to Control Panel > Systems & Security > Windows Firewall, click Turn Off Windows Firewall for all networks.
- If you cannot resolve the issues, please contact GL Communications at info@gl.com for technical support.