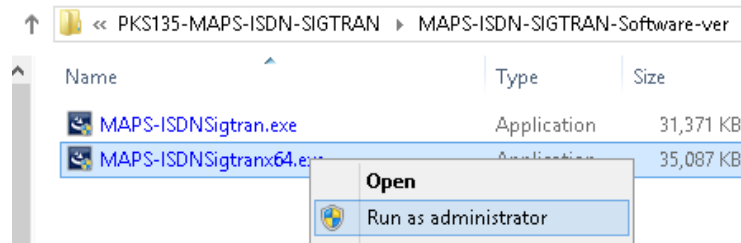


Software and License Installation

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 \PKS135-MAPS-ISDN-SIGTRAN\MAPS-ISDN-SIGTRAN-Software-verXX folder, right click **MAPS-ISDNSigtranx64.exe** (MAPS-ISDNSigtran.exe) and select **Run as Administrator**.




- Navigate back to root directory in USB installation stick (pen drive) to **GL-Dongle License Installer** folder, execute **GLDongleLicenseInstaller_x64.exe**
- 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 PKS135 (SIGTRAN Protocol Emulation-ISDN over IP) license is listed.


Verification

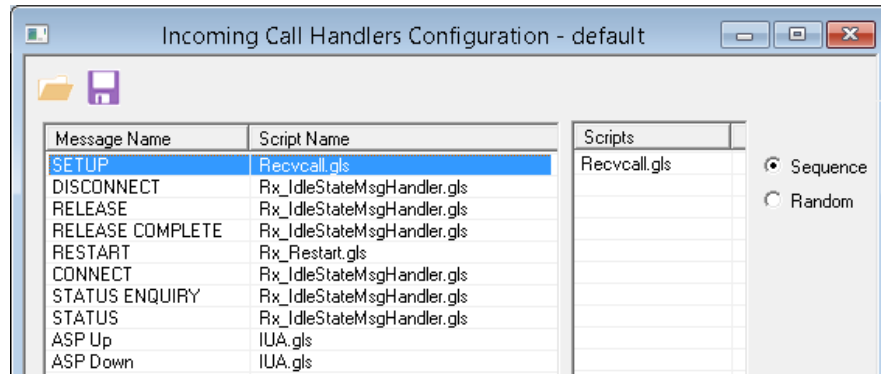
For functional verification, **MAPS™ ISDN Sigtran** application can be configured on a single PC.

On first instance, MAPS™ is configured as **Switch**, and on the second instance, MAPS™ is configured as **Subscriber** nodes to simulate **ISDN** Call Control Procedure over IP. The following explains **MAPS™ ISDN Sigtran** configuration on the same PC in loopback mode.



First MAPS™ ISDN SIGTRAN (Switch)

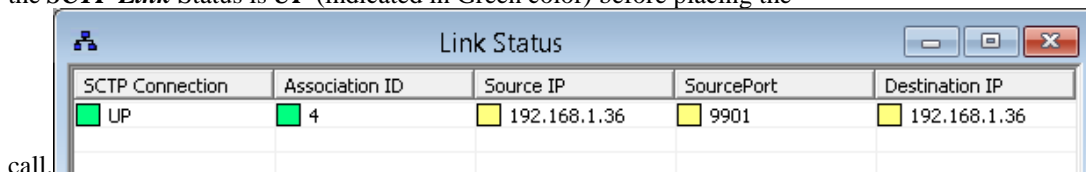
- Right-click on the **MAPS-ISDNSigtran** application using shortcut icon created on the desktop and select 'Run as Administrator'. This instance of MAPS™ is configured for **Call Reception**
- While invoking the first MAPS™ ISDN Sigtran instance, verify the following in the **Protocol Selection** window -
 - Protocol Standard = **ISDN-Sigtran**
 - Protocol Version = **ITU**
 - Node = **Switch**. Click **Ok**
- By default, **Testbed Setup** window is displayed. Click  and select **SelfTest_Server** file and check for the following parameter default values:
 - IUA Termination Type = **SGP**
 - Set the **SGW IP address** to PC IP address
 - Verify that the **SGW Port** is set to **9901**



- Set the **MGC IP Address** with the PC IP address.
 - Verify that the **MGC Port** is set to **9900**
 - Click  **Save** button.
- From MAPS™ ISDN Sigtran main window, select **Configuration > Incoming Call Handler Configuration**. Verify that the **Recvcall.gls** script is loaded against the **SETUP** message. Close the window.

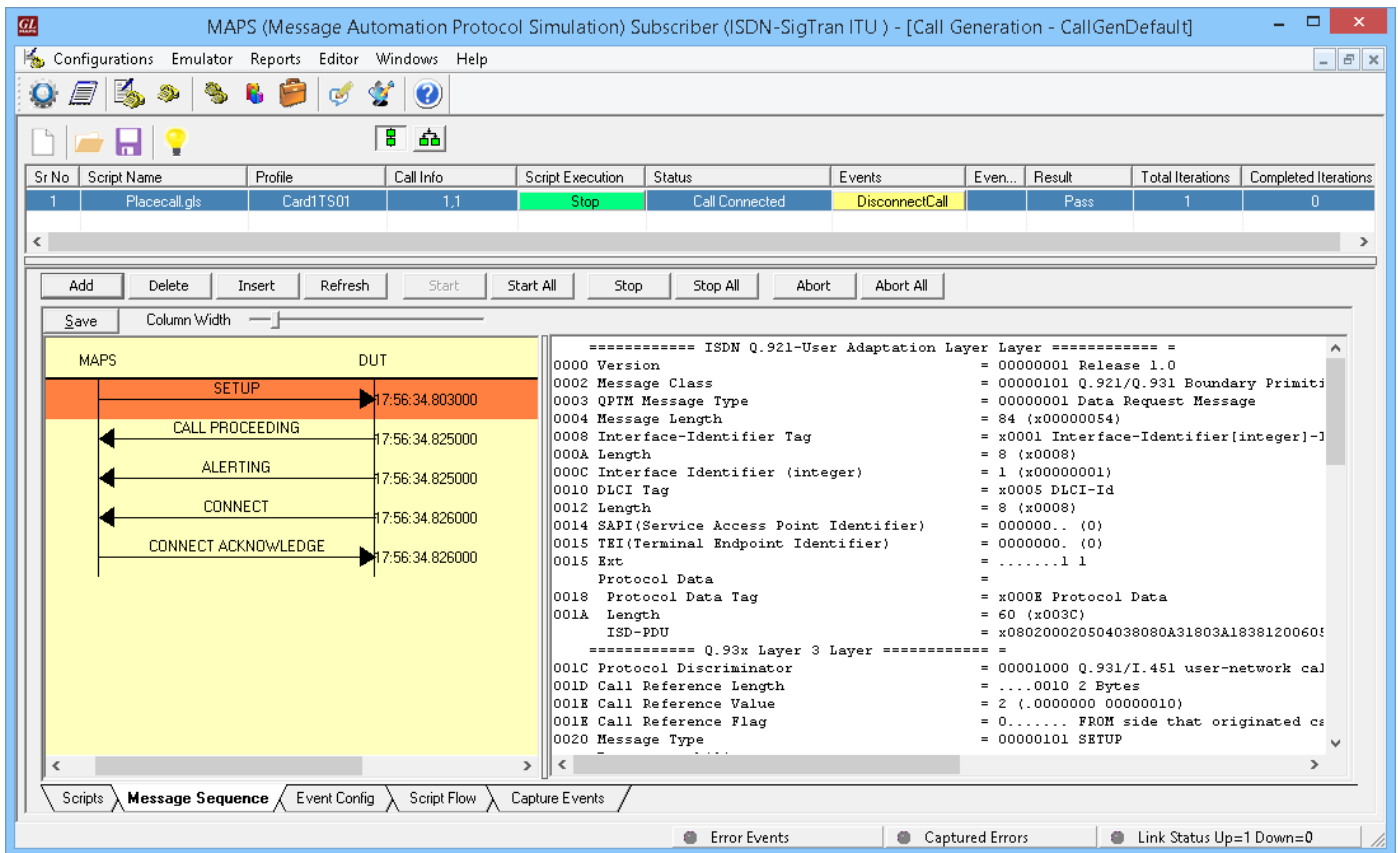


Second MAPS™ ISDN SIGTRAN (Subscriber)

- Right-click on the **MAPS-ISDN Sigtran** 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™ ISDN Sigtran instance, verify the following in the **Protocol Selection** window -
 - Protocol Standard = **ISDN-Sigtran**
 - Protocol Version = **ITU**
 - Node = **Subscriber**. Click **Ok**
- By default, **Testbed Setup** window is displayed. Click  and select **SelfTest_Client** file and check for the following parameter default values:
 - IUA Termination Type = **ASP**
 - Set the **SGW IP address** to PC IP address
 - Verify that the **SGW Port** is set to **9900**
 - Set the **MGC IP Address** with the PC IP address.
 - Verify that the **MGC Port** is set to **9901**
 - Click  **Save** button.
- **Start** the testbed on both the MAPS™ (Subscriber and Switch) 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



- On both the MAPS™ instances main window, click  icon and open **Call Reception** window. Observe the **Check_SCTP_Status** and **IUA.gls** procedure scripts running indicating active IUA interface and SCTP link status.
- In the second MAPS-ISDN Sigtran (Subscriber) instance, click the **Call Generation**  icon on main window, and invoke the **Call Generation** window.
 - By default, you will observe a single call instance loaded with **Placecall.gls** script and **Card1TS01** profile displayed in the window.
 - Select the call instance in the Call Generation window, and click **Start** button to initiate the call generation.
- Return to first instance of MAPS-ISDN Sigtran (**Switch**), 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	Even...	Result	Total Iterations	Completed Iterations
1	Placecall.gls	Card1TS01	1,1	Stop	Call Connected	DisconnectCall		Pass	1	0

MAPS	DUT	Time
→	→	17:56:34.803000
←	←	17:56:34.825000
←	←	17:56:34.825000
←	←	17:56:34.826000
←	←	17:56:34.826000

```

===== ISDN Q.921-User Adaptation Layer Layer =====
0000 Version = 00000001 Release 1.0
0002 Message Class = 00000101 Q.921/Q.931 Boundary Primiti
0003 QPTM Message Type = 00000001 Data Request Message
0004 Message Length = 84 (x00000054)
0008 Interface-Identifier Tag = x0001 Interface-Identifier[integer]-I
000A Length = 8 (x0008)
000C Interface Identifier (integer) = 1 (x00000001)
0010 DLCI Tag = x0005 DLCI-Id
0012 Length = 8 (x0008)
0014 SAPI(Service Access Point Identifier) = 000000.. (0)
0015 TEI(Terminal Endpoint Identifier) = 00000000.. (0)
0015 Ext = ..... 1
Protocol Data =
0018 Protocol Data Tag = x000E Protocol Data
001A Length = 60 (x003C)
ISD-PDU = x080200020504038080A31803A1838120060
===== Q.93x Layer 3 Layer =====
001C Protocol Discriminator = 00001000 Q.931/I.451 user-network cal
001D Call Reference Length = ....0010 2 Bytes
001E Call Reference Value = 2 (.00000000 00000010)
001E Call Reference Flag = 0..... FROM side that originated ca
0020 Message Type = 00000101 SETUP
  
```

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™ ISDN SIGTRAN 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
 - To use MAPS™ 32-bit version – use *GLDongleLicenseInstaller_x86.exe* utility to install licenses
 - Navigate to *C:\Program Files\GL Communications Inc\GLDONGLE* (or *C:\Program Files(x86)\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 **PKS135 SIGTRAN Protocol Emulation-ISDN over IP** 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™ ISDN Sigtran 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.