

If this is your First Time-Use of MAPS™ UMTS IuCS application, then we recommend you to follow all the steps explained in MAPS-UMTS-IuCS -Quick-Install-Guide to install MAPS™ UMTS IuCS application before proceeding with the steps below.

## Quick Check Out

Functional verification of MAPS-IuCS application requires a system with 2 NIC cards for testing. MAPS-IuCS is configured as **RNC (Radio Network Controller)** on one NIC and as **MSC (Mobile Switching Center)** on the other.

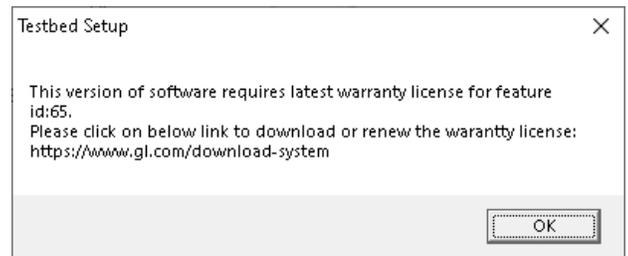
Note down the IP address of NIC1 and NIC2, in this example the IP addresses used and configured are:

- NIC1 IP address is 192.xx.xx.34, and configured as RNC
- NIC2 IP address is 192.xx.xx.28, and configured as MSC

**\*Note:** In this test scenario, we have configured MAPS™ IuCS as RNC generating calls and MSC to receive calls.

**Note:** Ensure that latest warranty license (GLSupportWarrantyLicenseInstaller.exe) is installed and also confirm that PKS160 (MAPS™ UMTS IuCS) is listed in **Warranty Application List**. Refer to [MAPS-UMTS-IuCS-Quick-Install-Guide](#)

**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 **Warrenty licenses** or the license has been expired.

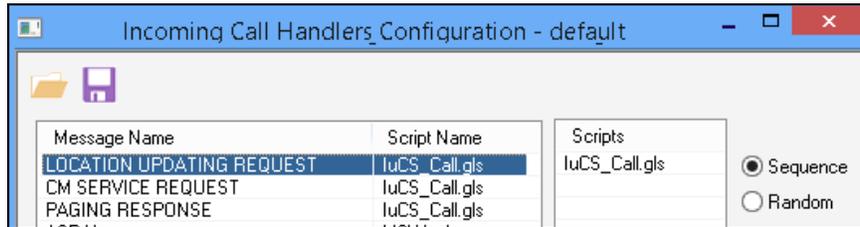


## MAPS™ IuCS (GUI) – (MSC)

- Right-click on **MAPS-IuCS** 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 MAPS-IuCS instance, verify the following in the Protocol Selection window -
  - **Protocol Standard** is set to **UMTS IUCS**
  - **Protocol Version** to **3GPP**
  - Select **Node** as **MSC**
  - **Transport** to **SCTP**. Click **Ok**
- By default, **Testbed Setup** window is displayed. Click  and select **TestBedDefault** and check for the parameter default values as listed below:
  - **M3UA Termination Type** is set to **IPSP**
  - Enable RTP Simulation = **Enable**
  - Set **RTP Hardware Interface Type** to **PC NIC**
  - Set **MSC IP Address** to 192.xx.xx.28 (NIC2 IP address)
  - Set **MGW IP Address** to 192.xx.xx.28 (NIC2 IP address)
  - Set **MSC Point Code** to **2.2.2**
  - Set **RNC IP address** to 192.xx.xx.34 (NIC1 IP address)
  - By default, **RNC Port** to **2905**
  - By default, **MSC Port** to **2905**
  - Set **RNC Point Code** to **1.1.2**
  - Click  **Save** button and overwrite the **TestBedDefault** file.

Config	Value
MSC Configurations	
M3UA Termination Type	IPSP
Enable RTP Simulation	Enable
RTP Hardware Interface Type	PC NIC
MSC	
MSC 1	
MSC IP Address	192.168.13.28
MGW IP Address	192.168.13.28
PLMN Identifiers	
Mobile Country Code	001
Mobile Network Code	01
MTP Parameters	
MSC Point Code	2.2.2
Signaling Link Selection	1
Network Indicator	International
MSC Address Indicator	National
RNC Parameters	
Supported RNCs	1
Supported RNCs 1	
RNC IP Address	192.168.13.34
RNC Port	2905
MSC Port	2905
RNC Point Code	1.1.2
RNC Address Indicator	National
Location Area Identifier	1
Location Area Identifier...	
Location Area Code	0001
Service Area Code	0001
Routing Area Code	01
RNC ID	2
M3UA Parameters	
Routing Context Indic...	Absent
Routing Context	10
Network Appearance I...	Absent
Network Appearance	12
HD RTP Media Configuration	
RTP Cores	1
RTP Cores 1	
RTP Port Index On Local PC	
RTP Port Index On Remote PC	Port_0
Remote HD RTP Media IP Address	192.168.12.161
RTP Media IP Address	192.168.12.71
Default Gateway Configuration	
Subnet Mask	255.255.252.0
Gateway IP Address	192.168.12.1
End User Configurations	MS_Profiles.xml
CSV File Name for Key IMSI	MS_Profiles_IMSI.CSV
CSV File Name for Key Calling Number	MS_Profiles_CallingNum...
Enable SMS Ratio for CSV	False
Ratio of SMS Calls	50 %

- On the same MAPS-IuCS main window, from **Configuration** menu → select **Incoming Call Handler Configuration**. Verify that **IuCS\_Call.gls** script is set against LOCATION UPDATING REQUEST, CM SERVICE REQUEST, and PAGING RESPONSE messages. Exit from the window.



- From MAPS™ main window, select **Editor** → **Profile Editor**. Click  and select **MS\_Profiles** and from the left pane, choose **MSPProfile0001** profile. Verify the following settings:
  - Set Type of Call = Terminate MO Call, Service Type for MT Call = Speech Call,
  - Make sure that the LAC = 0001, SAC = 0001, and RNC ID = 2 parameter values are same as configured in the testbed setup window.
  - Scroll down and Set **Codec Options = AMR-OA-Mode7**
  - In Traffic Config list → set **Traffic Type = Auto Traffic File** and **Traffic Direction = TxOnly**.
  - By default, the **Traffic Profile Name** is set to **Profile0001**
  - Click  **Save** button and overwrite **MS\_Profiles** file. Exit from the Profile Editor window.

## MAPS™ IuCS (GUI) – (RNC)

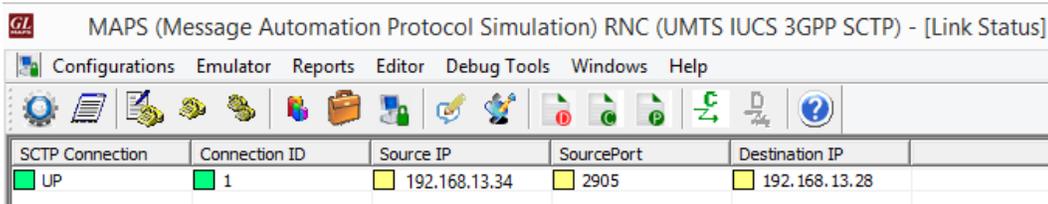
- Right-click on **MAPS-IuCS** application shortcut icon created on the desktop and select '**Run as Administrator**' to invoke the application. This instance of MAPS™ is configured for **Call Generation**.
- While invoking another MAPS-IuCS instance, verify the following in the Protocol Selection window-
  - **Protocol Standard** is set to **IuCS**
  - **Protocol Version** to **3GPP**
  - Select **Node** as **RNC**.
  - **Transport** to **SCTP**. Click **Ok**

- By default, **Testbed Setup** window is displayed. Click  and select **TestBedSetup** and check for the parameter default values as listed below:

- **M3UA Termination Type** is set to **IPSP**
- Enable RTP Simulation = **Enable**
- Set **RTP Hardware Interface Type** to **PC NIC**
- Set **RNC IP Address** to 192.xx.xx.34 (NIC1 IP Address)
- Set **MGW IP Address** to 192.xx.xx.34 (NIC1 IP Address)
- By default, **RNC Port** is set to **2905**
- Set **RNC Point Code** to **1.1.2**
- Set **MSC IP address** to 192.xx.xx.28 (NIC2 IP Address)
- By default, **MSC Port** to **2905**
- Set **MSC Point Code** to **2.2.2**
- Click  **Save** button and overwrite the **TestBedSetup** file.

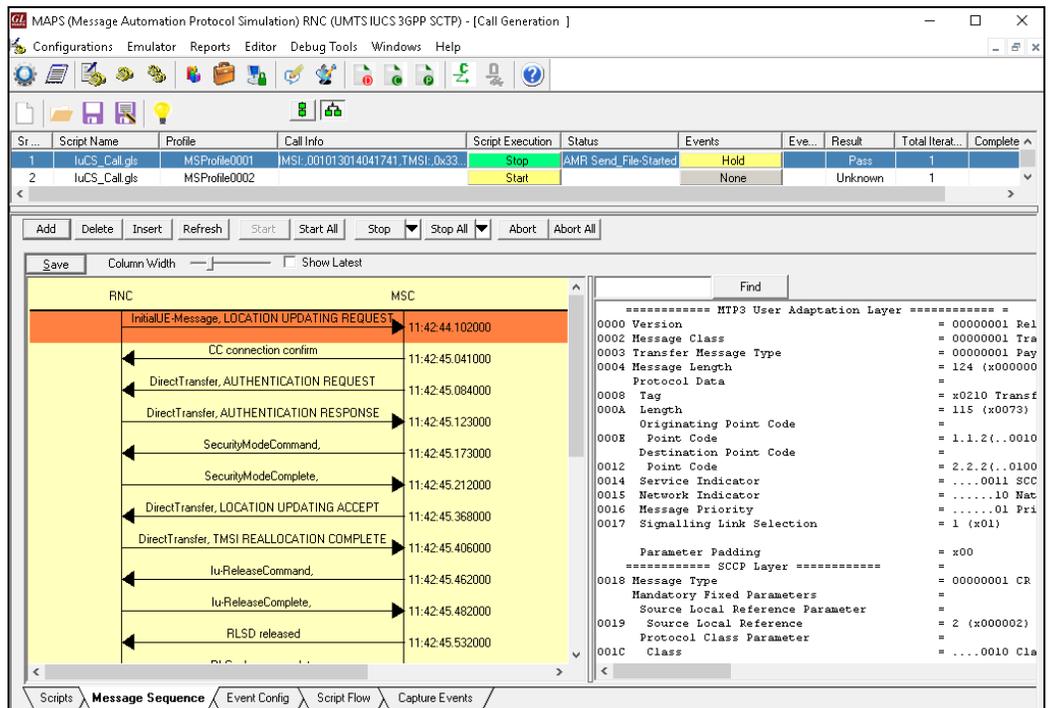
Config	Value
[-] RNC Configurations	
[-] M3UA Termination Type	IPSP
[-] Enable RTP Simulation	Enable
[-] RTP Hardware Interface Type	PC NIC
[-] RNC	1
[-] RNC 1	
[-] RNC IP Address	192.168.13.34
[-] MGW IP Address	192.168.13.34
[-] RNC Port	2905
[-] PLMN Identifiers	
[-] M3UA Parameters	
[-] RNC Point Code	1.1.2
[-] Signaling Link Selection	1
[-] Network Indicator	National
[-] RNC Address Indicator	National
[-] M3UA Routing Context Indicator	Absent
[-] M3UA Routing Context	1
[-] M3UA Network Appearance Indicator	Absent
[-] M3UA Network Appearance	12
[-] MSC Parameters	
[-] MSC IP Address	192.168.13.28
[-] MSC Port	2905
[-] MSC Point Code	2.2.2
[-] MSC Address Indicator	International
[-] HD RTP Media Configuration	
[-] End User Configurations	MS_Profiles.xml
[-] CSV File Name	MS_Profiles_IMSI.CSV
[-] Enable SMS Ratio For CSV	False
[-] Ratio of SMS Calls	30 %

- From MAPS™ main window, select **Editor → Profile Editor**. Click  and select **MS\_Profiles** and from the left pane, choose **MSPProfile0001** profile. Verify the following settings:
  - Set CM Service Type = Mobile Originating Call Establishment; Location Update Type = Normal location updating
  - Make sure that the Location Area Code = 0001, Service Area Code = 0001, and RNC ID = 2 parameter values are same as configured in the testbed setup window.
  - Scroll down and Set **Codec Options = AMR-OA-Mode7**
  - In Traffic Config list → set **Traffic Type = Auto Traffic File** and **Traffic Direction = TxOnly**.
  - By default, **Traffic Profile Name** is set to **Profile0001**
  - Click  **Save** button and overwrite **MS\_Profiles** file. Exit from the Profile Editor window.
- Start** the testbed on both the MAPS instances (RNC and MSC)
- 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	Connection ID	Source IP	SourcePort	Destination IP
UP	1	192.168.13.34	2905	192.168.13.28

- Note: Fails to start SCTP Services and associated SCTP Link status is Down**, then **Turn OFF Windows Firewall** (navigate to Control Panel → Systems & Security → Windows Firewall, click Turn Off Windows Firewall for all networks).
- In the MAPS-IuCS RNC instance, click the **Call Generation**  icon on main window, and invoke the **Call Generation** window.
- In the first row of the “**Call Generation**” table, double-click the “**Scripts**” cell and select **IuCS\_Call.gls**. Similarly, double-click the “**Profile**” cell and select **MSPProfile0001** and click **Start** button to initiate 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.

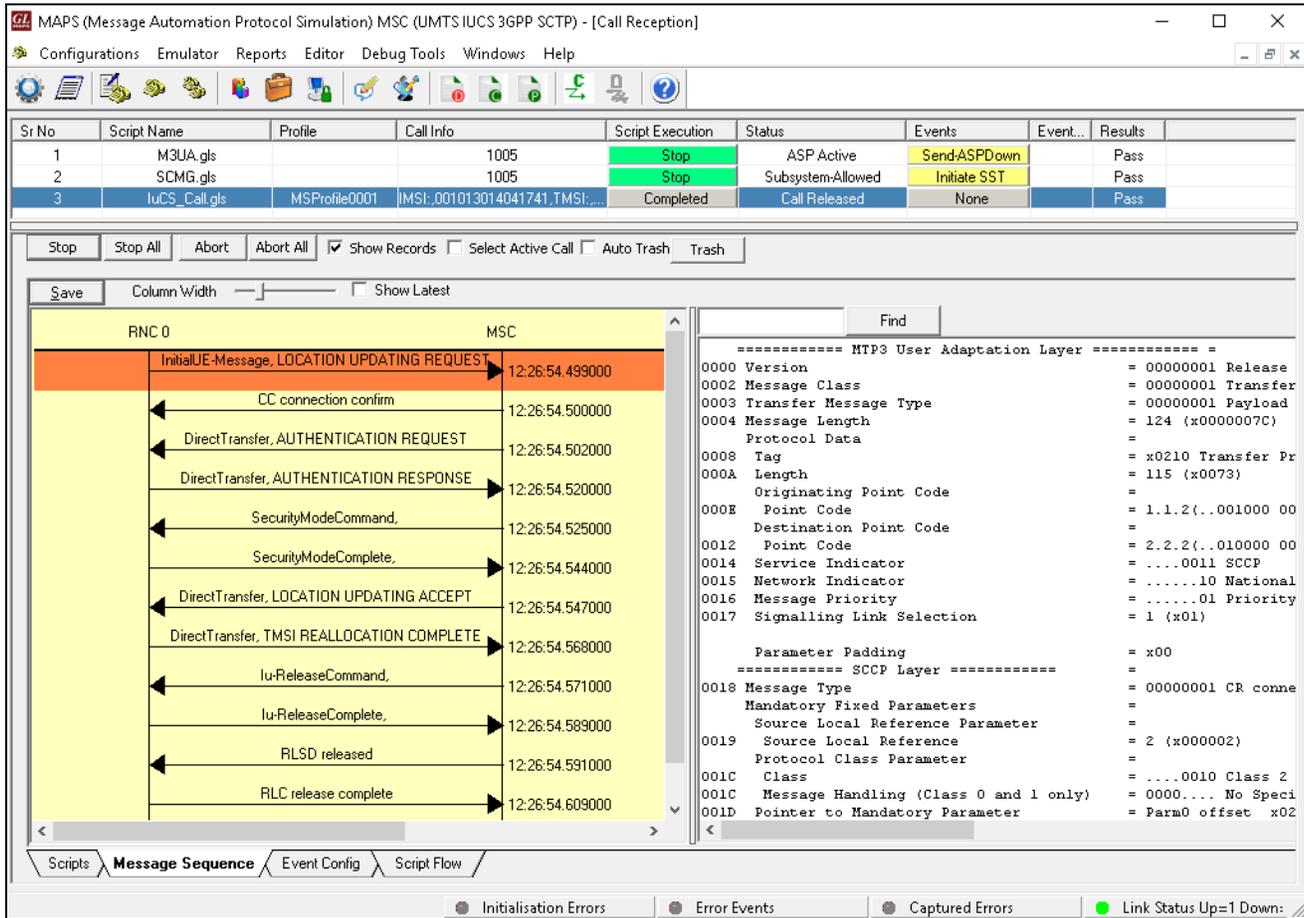


Sr...	Script Name	Profile	Call Info	Script Execution	Status	Events	Eve...	Result	Total Iterat...	Complete ^
1	IuCS_Call.gls	MSPProfile0001	MSI_001013014041741_TMSI_Dx33	Stop	AMR_Send_File-Started	Hold	Pass	1		
2	IuCS_Call.gls	MSPProfile0002		Start		None	Unknown	1		

Time	Direction	Message
11:42:44.102000	RNC → MSC	InitialUE-Message, LOCATION UPDATING REQUEST
11:42:45.041000	MSC → RNC	CC connection confirm
11:42:45.084000	RNC → MSC	DirectTransfer, AUTHENTICATION REQUEST
11:42:45.123000	MSC → RNC	DirectTransfer, AUTHENTICATION RESPONSE
11:42:45.173000	RNC → MSC	SecurityModeCommand,
11:42:45.212000	MSC → RNC	SecurityModeComplete,
11:42:45.368000	RNC → MSC	DirectTransfer, LOCATION UPDATING ACCEPT
11:42:45.406000	MSC → RNC	DirectTransfer, TMSI REALLOCATION COMPLETE
11:42:45.462000	RNC → MSC	Iu-ReleaseCommand,
11:42:45.482000	MSC → RNC	Iu-ReleaseComplete,
11:42:45.532000	RNC → MSC	RLSD released

- Return to the MAPS-IuCS (MSC) instance, click on  icon and invoke **Call Reception** window, observe that the calls are automatically received running the Rx script.



Sr No	Script Name	Profile	Call Info	Script Execution	Status	Events	Event...	Results
1	M3UA.gls		1005	Stop	ASP Active	Send-ASPDown		Pass
2	SCMG.gls		1005	Stop	Subsystem-Allowed	Initiate SST		Pass
3	IuCS_Call.gls	MSPProfile0001	IuCSI..001013014041741.TMSI:....	Completed	Call Released	None		Pass

Time	Message	Direction	Time
12:26:54.499000	InitialUE-Message, LOCATION UPDATING REQUEST	→	12:26:54.499000
12:26:54.500000	CC connection confirm	←	12:26:54.500000
12:26:54.502000	DirectTransfer, AUTHENTICATION REQUEST	→	12:26:54.502000
12:26:54.520000	DirectTransfer, AUTHENTICATION RESPONSE	←	12:26:54.520000
12:26:54.525000	SecurityModeCommand,	→	12:26:54.525000
12:26:54.544000	SecurityModeComplete,	←	12:26:54.544000
12:26:54.547000	DirectTransfer, LOCATION UPDATING ACCEPT	→	12:26:54.547000
12:26:54.568000	DirectTransfer, TMSI REALLOCATION COMPLETE	←	12:26:54.568000
12:26:54.571000	Iu-ReleaseCommand,	→	12:26:54.571000
12:26:54.589000	Iu-ReleaseComplete,	←	12:26:54.589000
12:26:54.591000	RLSD released	→	12:26:54.591000
12:26:54.609000	RLC release complete	←	12:26:54.609000

```

===== MTP3 User Adaptation Layer =====
0000 Version = 00000001 Release
0002 Message Class = 00000001 Transfer
0003 Transfer Message Type = 00000001 Payload
0004 Message Length = 124 (x0000007C)
      Protocol Data
0008 Tag = x0210 Transfer Pr
000A Length = 115 (x0073)
      Originating Point Code =
000E Point Code = 1.1.2(..001000 00)
      Destination Point Code =
0012 Point Code = 2.2.2(..010000 00)
0014 Service Indicator = ....0011 SCCP
0015 Network Indicator = .....10 National
0016 Message Priority = .....01 Priority
0017 Signalling Link Selection = 1 (x01)

      Parameter Padding = x00
===== SCCP Layer =====
0018 Message Type = 00000001 CR come
      Mandatory Fixed Parameters
0019 Source Local Reference Parameter = 2 (x0000002)
      Protocol Class Parameter
001C Class = ....0010 Class 2
001C Message Handling (Class 0 and 1 only) = 0000.... No Speci
001D Pointer to Mandatory Parameter = Parm0 offset x02
  
```