

It is assumed that the T1/E1 Analyzer Hardware, Software and License installations are already performed referring to the purchased Hardware Installation Guide.

MAPS™ GSM Abis Application Verification

For functional verification, 2 instances of MAPS™ GSMAbis application can be invoked on a single PC configured as source and destination nodes. The following steps explain MAPS™ GSMABIS configuration on the same PC in loopback mode to simulate GSM protocol supporting procedures over Abis interface.

On first instance, MAPS™ is configured as **BSC** (Base Station Controller), and on the second instance, MAPS™ is configured as **BTS** (Base Transceiver Station) nodes generating supported procedure messages.

Cross-connect T1/E1 Port #1 and Port #2 of the Hardware unit back-to-back using RJ48c loopback cable.

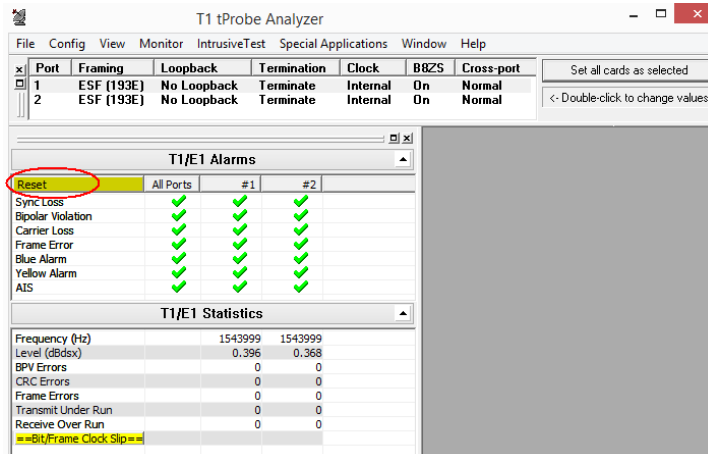


RJ48c Loopback Cable

- Click on the **T1/E1 Analyzer** icon created on the desktop (or) from the installation directory, click on **UsbNGT1.exe** and launch T1/E1 Analyzer application.

Note: The application may take some time to get started due to hardware and software initializations.




- Verify the following **Interface** settings in the T1/E1 main GUI
 - For **T1 Analyzer**, configure Port #1 and Port #2 with the following
Framing = ESF, Loopback = No Loopback, Termination = Terminate, Clock = Internal, Cross Port = Normal
 - For **E1 Analyzer**, configure Port #1 and Port #2 with the following
Framing = CCS, Loopback = No Loopback, Termination = Terminate, Clock = Internal, Cross Port = Normal
- Verify the **Sync and Alarm Status** between the ports are indicated in **Green** ✓ in **T1/E1 Alarms** pane. Click **Yellow Reset** button to reset the alarms.






- From T1/E1 Analyzer main window, invoke the **WCS Server: Special Applications > Windows Client Server (WCS) > WCS Server**.
- Configure WCS as follows -
 - Listen Port = 17090 (for E1 systems); 17080 (for T1 systems)
 - Messaging = Binary

- Version = 4
- Click on **Start GL Server** button.

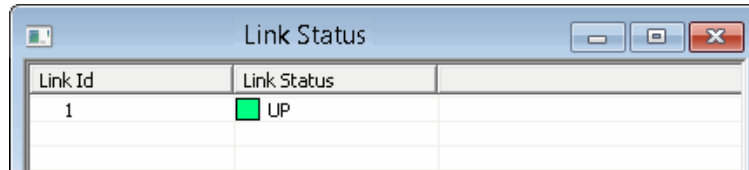
First MAPS™ GSMAbis (GUI) – (BSC)

- From T1/E1 Analyzer main window, from **Special Applications** menu > select **Protocol Emulation > MAPS™ GSM Abis Interface Emulator**
- While invoking the MAPS™ GSMAbis instance, verify the following in the **Protocol Selection** window -
 - **Protocol Standard = GsmAbis**
 - **Protocol Version = GSM900**
 - **Node = BSC**
 - Click **Ok**
- This instance of MAPS™ is configured for **Call Reception**
- By default, Testbed Setup window is displayed. Click  and select **TestBedDefault** and check for the following parameter default values:
 - **Physical T1 (or E1) Signaling Port Number = 2**
 - **Physical Signaling Timeslot = 1**
 - **Physical Trau Timeslot = 2**
- From MAPS GsmAbis main window, select **Configuration > Incoming Call Handler Configuration**. Verify that the **GSMAbis_Call.gls** script is loaded against the **CHANnelReQuireD** message. Close the window.
- In the same MAPS GsmAbis main window, select “**Editor**” menu -> invoke **Profile Editor** window.
 - Click  and select “**MS_Profiles**” file. From the left pane, select **MSPProfile001** profile. Set **Call Type = Mobile Terminated Speech Call and Enable Traffic = Auto Traffic** parameter values. Click  **Save** button. Exit from the window.

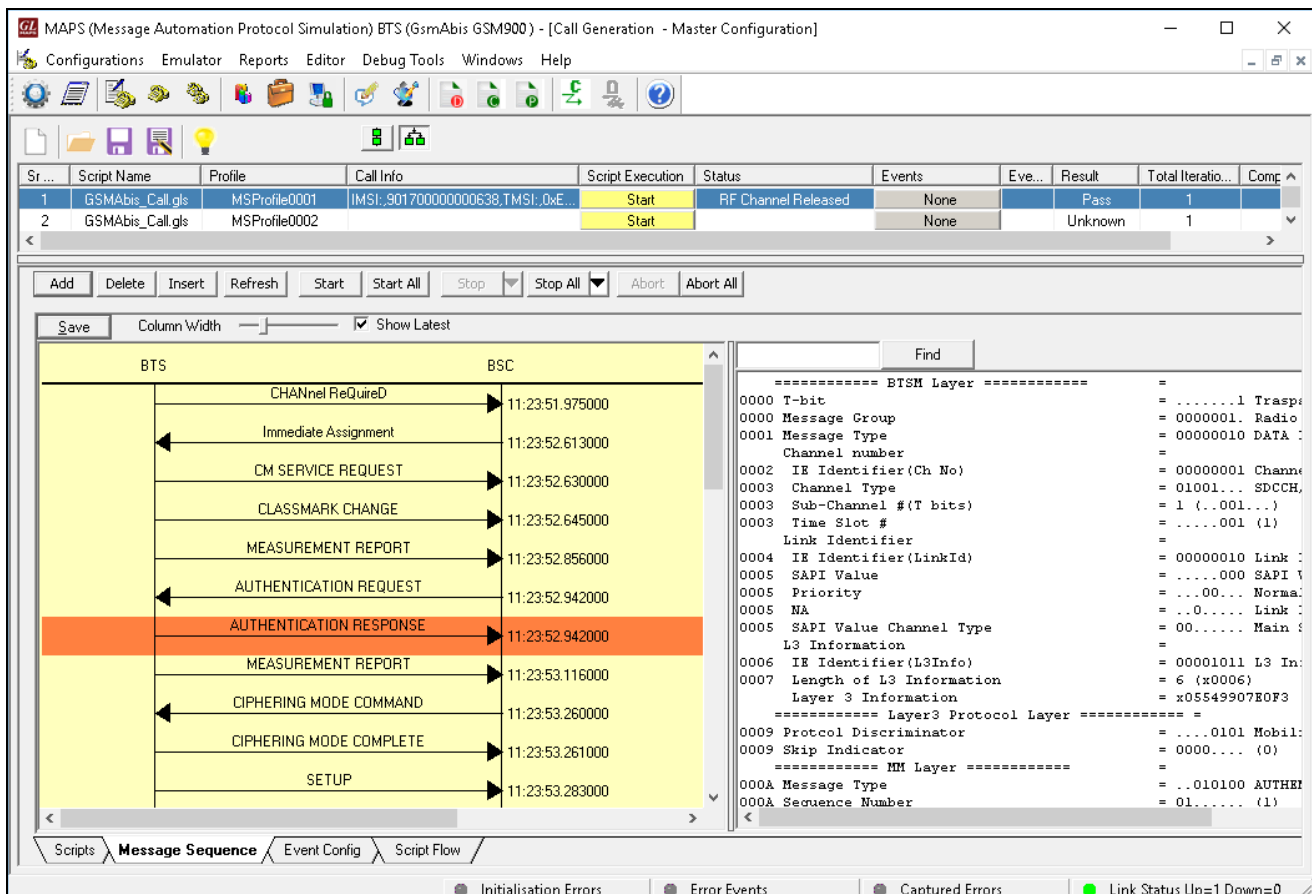
Second MAPS™ GSMAbis (GUI) – (BTS)

- From T1/E1 Analyzer main window, from **Special Applications** menu > select **Protocol Emulation > MAPS™ GSM Abis Interface Emulator**.
- While invoking the second MAPS™ GSMAbis instance, verify the following in the **Protocol Selection** window -
 - Protocol Standard = **GsmAbis**
 - Protocol Version = **GSM900**
 - Node = **BTS**
 - Click **Ok**
- This instance of MAPS™ is configured for **Call Generation**
- By default, Testbed Setup window is displayed. Click  and select **TestBedDefault** and check for the following parameter default values:
 - Physical T1 (or E1) Signaling Port Number = 1
 - Physical Signaling Timeslot = 1
 - Physical Trau Timeslot = 2
- From MAPS GsmAbis main window, select “**Editor**” menu -> invoke **Profile Editor** window:
 - Click  and select “**MS_Profiles**” file. From the left pane, select **MSSProfile001** profile. Set **Call Type = Mobile Originated Speech Call, and Enable Traffic = Auto Traffic** parameter values. Click  **Save** button. Exit from the window.

- **Start** the testbed on both the MAPS™ instances.
- **Note:** Once the test bed setup is started on both the instances of MAPS™ GSMAbis (BTS and BSC), from the main window, select **Reports** menu > invoke **Link Status** window. Verify that the **Link Status** is **UP** (indicated in Green color) before placing the call.



- In MAPS™ GSMAbis (BTS) main window, select **Emulator > Call Generation** option.
- By default, you will observe a call instance loaded with **GSMAbis_Call.gls** script and **MSPProfile001** profile in the window.
- Click on the yellow **Start** button and initiate the MOC procedure.
- In the MAPS™ GSMAbis (BSC) main window, select **Emulator > Call Reception** option. Observe that the call is automatically received in the **Call Reception** window running the Rx script.
- Wait for the call to terminate and verify the **Message Sequence** flow 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.



The screenshot displays the MAPS (Message Automation Protocol Simulation) interface. The top window shows the 'Call Generation - Master Configuration' with two call instances. The main window shows a message sequence diagram between a BTS and a BSC. The 'AUTHENTICATION RESPONSE' message is highlighted in orange. The right pane shows the decode of this message, including details for the BTSM Layer, Layer 3 Protocol Layer, and MM Layer.

Sr...	Script Name	Profile	Call Info	Script Execution	Status	Events	Event...	Result	Total Iteratio...	Comp...
1	GSMAbis_Call.gls	MSPProfile0001	IMSI: 901700000000638, TMSI: 0xE...	Start	RF Channel Released	None		Pass	1	
2	GSMAbis_Call.gls	MSPProfile0002		Start		None		Unknown	1	

```

===== BTSM Layer =====
0000 T-bit = .....1 Trasp
0000 Message Group = 0000001. Radio
0001 Message Type = 00000010 DATA
      Channel number =
0002 IE Identifier (Ch No) = 00000001 Channe
0003 Channel Type = 01001... SDCCH
0003 Sub-Channel #(T bits) = 1 (...001...)
0003 Time Slot # = .....001 (1)
      Link Identifier =
0004 IE Identifier (LinkId) = 00000010 Link
0005 SAPI Value = .....000 SAPI V
0005 Priority = .....00... Norma
0005 NA = .....0... Link
0005 SAPI Value Channel Type = 00..... Main
      L3 Information =
0006 IE Identifier (L3Info) = 00001011 L3 In
0007 Length of L3 Information = 6 (x0006)
      Layer 3 Information = x05549907E0F3
===== Layer3 Protocol Layer =====
0009 Protocol Discriminator = ....0101 Mobil
0009 Skip Indicator = 0000.... (0)
===== MM Layer =====
000A Message Type = ..010100 AUTH
000A Sequence Number = 01..... (1)
  
```