

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

**MAPS™ CAP Application Verification**

For functional verification, 2 instances of MAPS™ CAP application is configured on a single PC as gsmSCF and gsmSSF nodes. The following steps explain MAPS™ CAP configuration on the same PC in loopback mode to simulate CAMEL procedures. On first instance, MAPS™ is configured as **gsmSCF**, and on the second instance, MAPS™ is configured as **gsmSSF** node generating supported procedure messages.

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

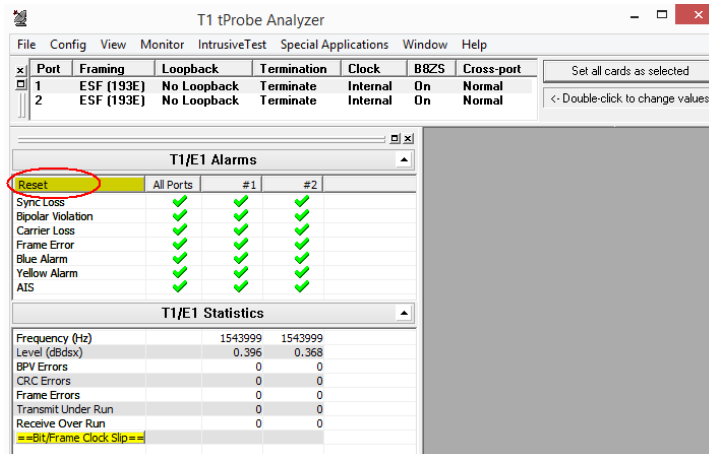


**RJ48c Loopback Cable**

- 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 = 17080 (for T1 systems); 17090 (for E1 systems)
  - Messaging = Binary
  - Version = 4
  - Click on **Start GL Server** button. Minimize the window.

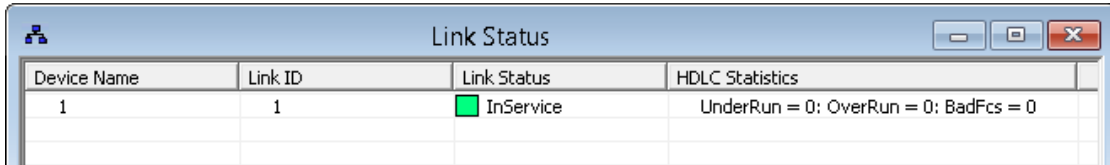
### **First MAPS™ CAP (GUI) – (gsmSCF)**

- From T1/E1 Analyzer main window, from **Special Applications** menu > select **Protocol Emulation** > **MAPS™ CAP Emulator**
- This instance of MAPS™ is configured for **Call Reception**
- While invoking the MAPS™ CAP instance, verify the following in the **Protocol Selection** window -
  - Protocol Standard = **CAMEL**
  - Protocol Version = **3GPP**
  - Node = **gsmSCF**. Click **Ok**
- By default, **Testbed Setup** window is displayed. Click  and select **gsmSCF** file and check for the following parameter default values:
  - T1/E1 Port Number = **1**
  - Signaling Timeslot = **31** (for E1); **23** (for T1)
  - SCF Point Code = **3.3.3**
  - SCF Subsystem Number = **CAP-146**
  - Node Type = **SSF**
  - Destination Point Code = **2.2.2**
  - Destination Subsystem Number = **CAP-146**
  - Adjacent Point Code = **2.2.2**
- From MAPS™ CAP main window, select **Configuration** > **Incoming Call Handler Configuration**. Verify that the **ApplyCharging\_SCF.gls** script is loaded against the **initialDP** message. Exit from the window



### **Second MAPS™ CAP (GUI) – (gsmSSF)**

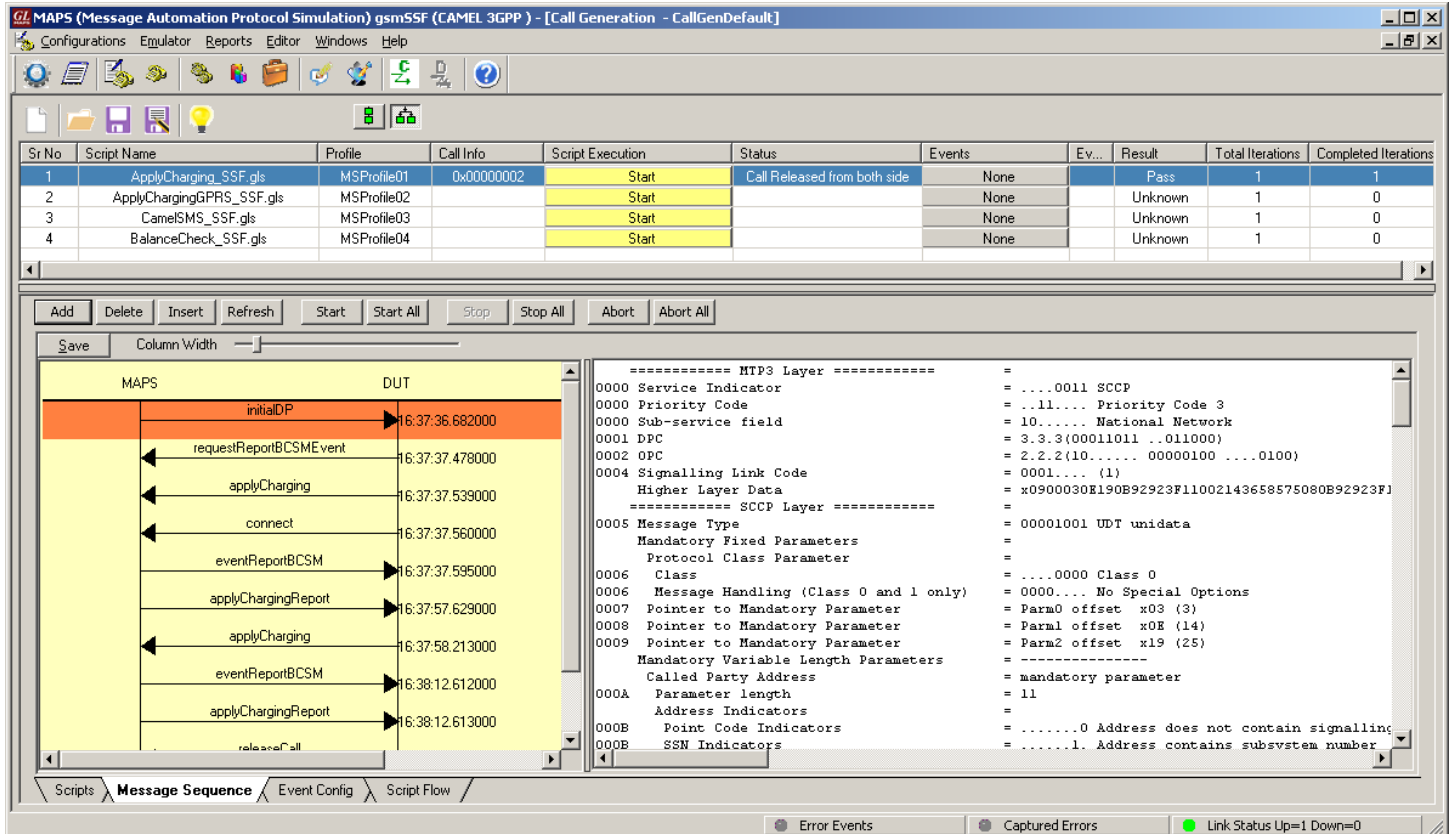
- From T1/E1 Analyzer main window, from **Special Applications** menu > select **Protocol Emulation** > **MAPS™ CAP Emulator**
- This instance of MAPS™ is configured for **Call Generation**
- While invoking the second MAPS™ CAP instance, verify the following in the **Protocol Selection** window -
  - Protocol Standard = **CAMEL**
  - Protocol Version = **3GPP**
  - Node = **gsmSSF**
  - Click **Ok**
- By default, **Testbed Setup** window is displayed. Click  and select **gsmSSF** file and check for the following parameter default values:
  - T1/E1 Port Number = **2**
  - Signaling Timeslot = **31** (for E1); **23** (for T1)
  - SCF Point Code = **2.2.2**
  - SCF Subsystem Number = **CAP-146**
  - Node Type = **SCF**
  - Destination Point Code = **3.3.3**
  - Destination Subsystem Number = **CAP-146**
  - Adjacent Point Code = **3.3.3**

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



Device Name	Link ID	Link Status	HDLC Statistics
1	1	InService	UnderRun = 0; OverRun = 0; BadFcs = 0

- On both the MAPS™ instances, click  icon and open Call Reception window, observe the SLTM script is activated.
- In MAPS™ CAP (gsmSSF) window, from **Emulator** menu > select **Call Generation** option.
- By default, you will observe multiple call instances loaded with scripts supporting the CAP procedures. Select the call instance loaded with the **ApplyCharging\_SSF.gls** script and **MSProfile01** profile.
- Click yellow **Start** button to initiate the call procedure.
- In MAPS™ CAP (gsmSCF) window, click  icon and open **Call Reception** window. Observe the calls being automatically received 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.



Sr No	Script Name	Profile	Call Info	Script Execution	Status	Events	Ev...	Result	Total Iterations	Completed Iterations
1	ApplyCharging_SSF.gls	MSProfile01	0x00000002	Start	Call Released from both side	None		Pass	1	1
2	ApplyChargingGPRS_SSF.gls	MSProfile02		Start		None		Unknown	1	0
3	CamelSMS_SSF.gls	MSProfile03		Start		None		Unknown	1	0
4	BalanceCheck_SSF.gls	MSProfile04		Start		None		Unknown	1	0

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===== MTP3 Layer =====
0000 Service Indicator      = ....0011 SCCP
0000 Priority Code         = ..11.... Priority Code 3
0000 Sub-service field    = 10..... National Network
0001 DPC                   = 3.3.3(00011011 ..011000)
0002 OPC                   = 2.2.2(10..... 00000100 ....0100)
0004 Signalling Link Code = 0001.... (1)
Higher Layer Data         = x0900030E190B92923F11002143658575080B92923FJ
===== SCCP Layer =====
0005 Message Type         = 00001001 UDT unidata
Mandatory Fixed Parameters
Protocol Class Parameter  =
Class                     = ....0000 Class 0
0006 Message Handling (Class 0 and 1 only) = 0000.... No Special Options
0007 Pointer to Mandatory Parameter = Param0 offset x03 (3)
0008 Pointer to Mandatory Parameter = Param offset x0E (14)
0009 Pointer to Mandatory Parameter = Param2 offset x19 (25)
Mandatory Variable Length Parameters
Called Party Address      = mandatory parameter
000A Parameter length    = 11
Address Indicators        =
000B Point Code Indicators = .....0 Address does not contain signalling
000E SSN Indicators      = .....1. Address contains subsystem number
    
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