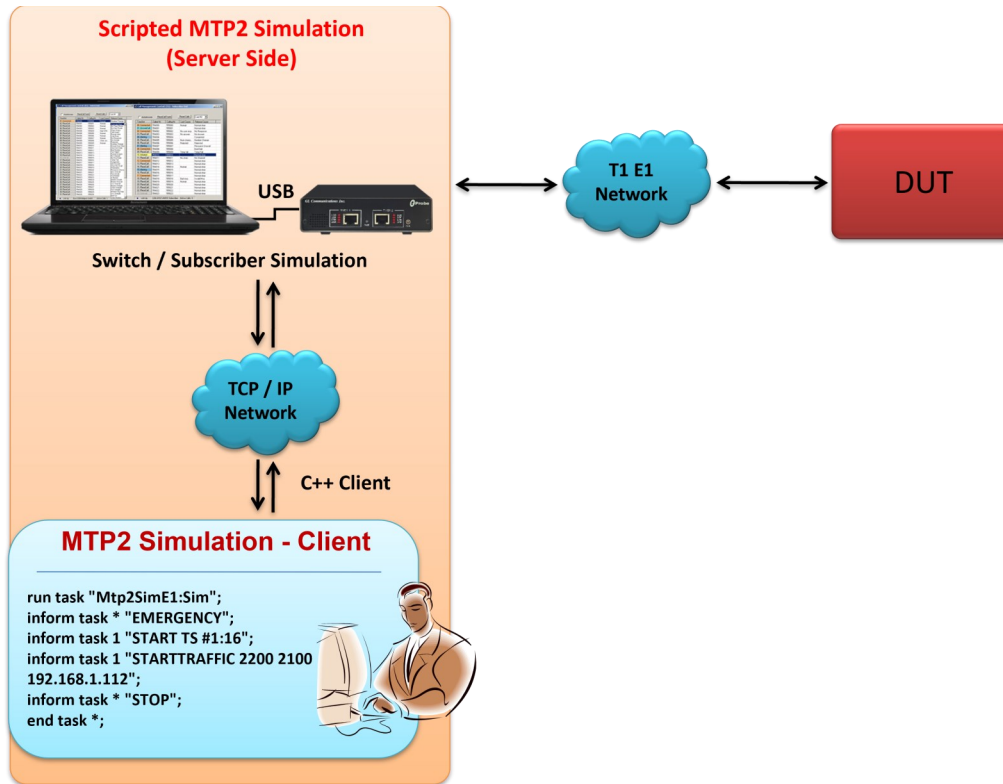


Windows Client Server MTP2 Simulator

(Scripted MTP2 Simulation)



Overview

MTP2 (Message Transfer Part Level 2) protocol operates on layer 2 of OSI. In SS7 network, it is responsible for the reliable transmission of higher layer signal messages over an individual Signaling Link.

GL's **MTP2 Simulator** reads higher layer signal messages such as ISUP, and transmits over T1 E1 line. It can be used to simulate MTP2 of the SS7 stack. MTP2 is in compliance according to ANSI, ETSI, and ITU standards.

The Windows Client-Server application of T1 E1 Analyzer includes MTP2 simulator module (Mtp2Sim.dll). It can act as a peer end to test an SS7 stack.

For more information, refer to [WCS MTP2 Simulator](#) webpage.

Main Features

- Simulate MTP2 Data Link layer
- Displays MTP2 link status events
- Normal and Emergency time alignment is supported
- Sends LSSUs, FISU and MSU signal units.
- MTP2 commands can be sent from a remote client
- Point codes can be configured manually
- Supports synchronous or asynchronous transmission of user defined data as ISUP information
- ITU / ANSI / ETSI standards are supported.
- Supported Hardware platforms—Dual T1 E1 Express (PCIe) Boards , Octal/Quad T1 E1 Boards, tProbe™ T1 E1 Analyzer
- Supports Windows® 8.1 or higher operating systems



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GL Server and Client Functions

The **Windows Client-Server** application of T1 E1 Analyzer includes MTP2 simulator module (Mtp2Sim.dll). It can act as a peer end to test an SS7 stack. WCS Client applications use simple commands to invoke MTP2 simulator module on server. Once the MTP2 simulator module is initialized, a task number will be assigned and the client can use further commands to perform additional tasks.

"Actions" are performed immediately in response to the "commands" from the clients. The Server informs the Client on tasks: started, status, complete. Typical tasks include traffic/protocol frames playback and recording, and more.

Client programs communicate with the GL Server via TCP/IP-encapsulated commands and responses. Clients are compatible with any OS, including UNIX, Linux and Windows. Other environments commonly used for client development include Perl, MatLab, Visual Basic, and LabView.

WCS Module XX643 - Transmit & Receive MTP2 Frames

The script transmits and receives MTP2 frames on E1 signaling timeslot over a specified UDP port and IP address.

Sample script for Transmit/ Receive traffic:

```
run task "Mtp2SimE1:Sim"; //defines task for MTP2 simulation
inform task * "EMERGENCY"; //defines alignment mode as emergency
inform task 1 "START TS #1:16"; //defines signaling timeslot
inform task 1 "STARTTRAFFIC 2200 2100 192.168.1.112";
//defines UDP ports and IP address for transmitting and receiving MTP2 frames
inform task * "STOP"; //command to stop the task
end task *; //terminates the task
```

The screenshot displays two windows. The left window, titled "mtp2.gls - GLClient", shows a script with the following content:

```
Task 2: Mtp2LinkStatus: OutOfService
Task 2: Mtp2LinkStatus: InitialAlignment
Task 1: Mtp2LinkStatus: AlignedReady
Task 2: Mtp2LinkStatus: AlignedReady
Task 2: Mtp2LinkStatus: InService
Task 1: Mtp2LinkStatus: InService
inform task 1 "STARTTRAFFIC 2200 2100 127.0.0.1";
OK
inform task 2 "STARTTRAFFIC 2100 2200 127.0.0.1";
OK
inform task 1 "SEND ABCDEFGHIJKLMNOPQRSTUVWXYZ";
OK
inform task 1 "SENDMULTIPLE SYNC 5 ABCDEFGHIJKLMNOPQRSTUVWXYZ";
OK
Task 1: Wait till 5 packets are transmitted and you receive the report
Task 1: Packets have been transmitted

run task "Mtp2SimE1:Sim";
inform task 1 "EMERGENCY";
inform task 1 "START TS #1:30";
inform task 1 "STARTTRAFFIC 2200 2100 127.0.0.1";

inform task 1 "SEND ABCDEFGHIJKLMNOPQRSTUVWXYZ";
inform task 1 "SENDMULTIPLE SYNC 5 ABCDEFGHIJKLMNOPQRSTUVWXYZ";

run task "Mtp2SimE1:Sim";
inform task 2 "EMERGENCY";
inform task 2 "START TS #2:30";
inform task 2 "STARTTRAFFIC 2100 2200 127.0.0.1";

inform task * "STOPTRAFFIC";

inform task * "STOP";
```

The right window, titled "SS7 Protocol Analysis SS7 ITU", shows a table of captured frames:

| Dev | TSlot | SubCh | Frame# | TIME (Relative) | Len | Enor | BSN | BIB | FSN | FIB | SLC | DPC | OPC | SCCP Mess |
|-----|-------|-------|--------|-----------------|-----|------|-----|-----|-----|-----|-----|---------|---------|-----------|
| ✓ | 1 | 30 | 322568 | 00:02:12:007500 | 5 | | 106 | 1 | 127 | 1 | | | | |
| ✓ | 2 | 30 | 322568 | 00:02:12:007625 | ... | | 127 | 1 | 110 | 1 | 4 | 0.104.2 | 2.162.1 | |
| ✓ | 1 | 30 | 322570 | 00:02:12:008250 | 5 | | 106 | 1 | 127 | 1 | | | | |
| ✓ | 1 | 30 | 322571 | 00:02:12:009000 | 5 | | 106 | 1 | 127 | 1 | | | | |
| ✓ | 1 | 30 | 322572 | 00:02:12:009875 | 5 | | 106 | 1 | 127 | 1 | | | | |
| ✓ | 1 | 30 | 322573 | 00:02:12:010625 | 5 | | 106 | 1 | 127 | 1 | | | | |
| ✓ | 1 | 30 | 322574 | 00:02:12:011375 | 5 | | 106 | 1 | 127 | 1 | | | | |
| ✓ | 2 | 30 | 322575 | 00:02:12:011625 | ... | | 127 | 1 | 111 | 1 | 4 | 0.104.2 | 2.162.1 | |
| ✓ | 1 | 30 | 322576 | 00:02:12:012125 | ... | | 106 | 1 | 127 | 1 | | | | |

Below the table, the "Card2 TimeSlot=30 Frame=322569 at 00:02:12:007625 OK Len=31" section shows the HDLC Frame Data + FCS details:

```

***** MTP2 Layer *****
BSN = .111111 (127)
BIB = 1..... (1)
FSN = .110110 (110)
FIB = 1..... (1)
LI = ..011010 MSU Format

***** MTP3 Layer *****
Service Indicator = ...0001 Signalling network testing and maintenance mes
Priority Code = ..00.... Priority Code 0
Sub-service field = 01..... Spare (for international use only)
DPC = 0.104.2(01000010 ..000011)
OPC = 2.162.1(01..... 01000100 ....0101)
Signalling Link Code = 0100.... (4)
***** Reg Testing Messages Layer *****
Heading Code H0 = ...0110 Reserved
Heading Code H1 = 0100.... Reserved
Length indicator = 0100.... (4)
Test pattern = x48494A4B

```

The bottom section shows the "Hex Dump of the Frame Data":

```

FF EE 1A 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F 50 51 52 53 54 55 56 57 58 59 5A 5B 5C 5D 5E 5F 60 61 62 63 64 65 66 67 68 69 6A 6B 6C 6D 6E 6F 70 71 72 73 74 75 76 77 78 79 7A 7B 7C 7D 7E 7F 80 81 82 83 84 85 86 87 88 89 8A 8B 8C 8D 8E 8F 90 91 92 93 94 95 96 97 98 99 9A 9B 9C 9D 9E 9F A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 AA AB AC AD AE AF B0 B1 B2 B3 B4 B5 B6 B7 B8 B9 BA BB BC BD BE BF C0 C1 C2 C3 C4 C5 C6 C7 C8 C9 CA CB CC CD CE CF D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 DA DB DC DD DE DF E0 E1 E2 E3 E4 E5 E6 E7 E8 E9 EA EB EC ED EE EF F0 F1 F2 F3 F4 F5 F6 F7 F8 F9 FA FB FC FD FE FF

```

Buyer's Guide

| Item No | Product Description |
|-----------------------|---------------------------------|
| XX643 | MTP2 Simulator (requires XX600) |
| XX600 | Windows Client Server |

| Item No | Related Software |
|------------------------|--|
| XX647 | MAPS™ SS7 for ISUP Conformance Scripts |
| XX649 | MAPS™ SS7 for ISUP Simulation |
| XX649 | MAPS™ SS7 for MAP Simulation |
| XX120 | SS7 Analyzer Software |
| PKS130 | MAPS™ SIGTRAN |

| Item No | Related Hardware |
|------------------------|---|
| PTE001 | tProbe™ T1 E1 Base Unit |
| FTE001 | QuadXpress T1 E1 Main Board (Quad Port– requires additional licenses) |
| ETE001 | OctalXpress T1 E1 Main Board plus Daughter Board (Octal Port– requires additional licenses) |
| XTE001 | Dual T1 E1 Express (PCIe) Boards (requires additional licenses) |

For more information, refer to [Windows Client Server](#) webpage.



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