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MTP3/MTP3b/M3UA Test Port for TTCN-3 Toolset with TITAN, User Guide

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1   Introduction

1.1   Revision history

Date	Rev	Characteristics	Prepared
2004-02-25	A	Approved	ETHBAAT
2004-06-01	B	IID_String removed; new naming in test module, Config parameter "Sio" has new syntax.	ETHBAAT
2004-09-28	PC1	Chinese version (MPT) added	ETHGBH
2004-09-30	C	Inspected	ETHGBH
2005-01-27	PD1	Target testing added	ETHGBH
2005-02-09	PD2	Modifications according to [25]	ETHGBH
2005-10-12	PE1	New service type MTP3b TTC	EJMTCSO
2005-11-25	PE3	New parameter DestinationName	ETHGBH
2006-01-20	E	Full revision	ETHGBH
2006-01-27	PF1	New ASPs added	EPTEDIM
2006-02-15	PF2	Corrected after review	EPTEDIM
2006-08-10	F	Full revision	ETHJGI
2006-08-15	PG1	STC mode added	ETHGBH
2007-02-07	PH1	Updated for TITAN R7	ETHGASZ
2007-09-17	PJ1	Update to provider port	ETHGBH
2008-03-12	PK1	MTPiup mode and Dynamic connection feature added	ETHGBH
2009-04-03	PL1	Updated according to the Test Port API introduced in TITAN R7E	ECSAFEH

1.2   About this document

1.2.1   How to read this document

This is the User Guide for the MTP3/MTP3b/M3UA Test Port. The MTP3/MTP3b/M3UA Test Port is developed for the TTCN-3 Toolset with TITAN according to the Requirement Specifications [6],[25],[26],[27],[30]. This document should be read together with Product Revision Information [4] and Functional Specification [5].

1.2.2   Presumed knowledge

The knowledge of the TITAN TTCN-3 Test Executor [3] and the TTCN-3 language [1] is essential.

Of course, knowledge of specifications [11]-[21],[24] is supposed but Ericsson documents [22] [23] give a good summary and analysis and emphasise the key points.

In case of testing with SEA user of this Test Port can write TTCN test suites without knowledge about the simulated test environment SEA [7] but running the test communicating with SEA already requires expertise about it.
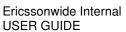
1.2.3 References

[1] ETSI ES 201 873-1 V3.2.1 (2007-02)
Methods for Testing and Specification (MTS); The Testing and Test
Control Notation version 3; Part 1: TTCN-3 Core Language

[2] 1/1531-CRL 113 200 Uen
Installation Guide for the TITAN TTCN 3 Test Executor

[3] 1/198 17-CRL 113 200 Uen
User Guide for the TITAN TTCN 3 Test Executor

[4] 109 21-CNL 113 337-5 Uen
MTP3/MTP3b/M3UA Test Port for TTCN-3 Toolset with TITAN,
Product Revision Information

[5] 155 17-CNL 113 337 Uen
MTP3/MTP3b/M3UA Test Port for TTCN-3 Toolset with TITAN,
Function Specification

[6] EED/Z/P-03:015 Rev B
PDU CNES – TTCNV3 Requirement Specification

[7] SEA homepage:
http://tcs.uab.ericsson.se/products/aps/ste/products/sea/sea_index.html

[8] 1/155 19-CAA 209 1012 Uen, Rev B:
Interwork Description for MPH (Message Protocol Handler)
component
http://tcs.uab.ericsson.se/products/aps/ste/products/sea/docs/iwd_latest/IWD_MPH.html

[9] 2/155 19-CAA 209 1012 Uen, Rev D
Interwork Description for MPH (Message Protocol Handler) libraries
http://tcs.uab.ericsson.se/products/aps/ste/products/sea/docs/iwd_latest/IWD_MPHclient.html

[10] /Unknown document number/
Interwork Description for SS7 Signalling Terminal protocol in SEA PA1
http://tcs.uab.ericsson.se/products/aps/ste/products/sea/docs/iwd_latest/IWD_SS7ST.html

[11] ITU-T Recommendations Q.700 (03/93)
Specifications of Signalling System No. 7 (SS7)
INTRODUCTION TO CCITT SIGNALLING SYSTEM NO. 7

[12] ITU-T Recommendations Q.701 (03/93)
Specifications of Signalling System No. 7 (SS7)
FUNCTIONAL DESCRIPTION OF THE MESSAGE TRANSFER
PART (MTP) OF SIGNALLING SYSTEM NO. 7

[13] ITU-T Recommendations Q.702 (Blue book)
Specifications of Signalling System No. 7 (SS7)
SIGNALLING DATA LINK

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[14]   ITU-T Recommendations Q.703 (07/96)
       Specifications of Signalling System No. 7 (SS7)
       Signalling Link

[15]   ITU-T Recommendations Q.704 (07/96)
       Specifications of Signalling System No. 7 (SS7)
       Signalling Network functions and messages

[16]   ITU-T Recommendations Q.707 (Blue Book)
       Specifications of Signalling System No. 7 (SS7)
       TESTING AND MAINTENANCE

[17]   ITU-T Recommendations Q.710 (Blue Book)
       Specifications of Signalling System No. 7 (SS7)
       SIMPLIFIED MTP VERSION FOR SMALL SYSTEMS

[18]   ITU-T Recommendations Q.2210 (07/96)
       Specifications of Signalling System No. 7 (SS7)
       Message Transfer Part Level 3 functions and messages using the
       services of ITU-T Recommendation Q.2140

[19]   IETF RFC 3332 (2002 September)
       Signaling System 7 (SS7) Message Transfer Part 3 (MTP3) – User
       Adaptation Layer

[20]   ANSI T.1.111 (2001)
       Signalling System Number 7 (SS7) – Message Transfer Part (MTP)

[21]   TTC JT-Q704 (04/2002)
       Message Transfer Part (MTP), Signalling Network Functions

[22]   3/15517-FAY 112 011/2 Uen Rev B
       CCITT7 Signalling System No.7, Message Transfer Part

[23]   2/1056-FCPW 101 086/P-1 Uen Rev B
       M3UA Protocol Specification for SS7 over IP, CNCS 4.0

[24]   GF001-9001 (August 1990)
       Technical Specifications of SS7 for National Telephone Network of
       China

[25]   15/0363 FCPW 101 97/F Uen Rev C
       TTCNv3 Requirement Specification for MSC R12

[26]   16/0363 FCPW 101 97/E Uen Rev A
       MTP3/M3UA, SCCP and TCAP Test Port Improvements

[27]   109 21-CNL 113 410-1 Uen
       M3UA Server for TTCN-3 Toolset with TITAN, Product Revision
       Information

[28]   109 21-CNL 113 487-3 Uen
       M3UA SCTP Daemon for TTCN-3 Toolset with TITAN, Product
       Revision Information

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[29]   5/0363-1/FCP 101 2180-*CR3* Uen Rev A
        MSC-S BC Changes and Improvements

[30]   6/0363 FCP 101 3665/P Uen Rev A
        TTCNv3 Requirement Specification for MSC R13

[31]   15/155 17-CRTG 212 12 Uen Rev A
        Interconnect User Part: Formats and Codes

1.2.4   Abbreviations

ANSI   American National Standards Institute

DPC   Destination Point Code

IETF   Internet Engineering Task Force

ITU   International Telecommunication Union

ITU-T   Telecommunication Standardization Sector of ITU

IUT   Implementation Under Test

MPH   Message Protocol Handler

MPT   Ministry of Post and Telecommunications (People's Republic of China)

MTP3   Message Transfer Part level 3

MTP3b   MTP3 adaptation for Q.2140

M3UA   SS7 MTP3 User Adaptation Layer

NI   Network Indicator

OPC   Originating Point Code

PDU   Protocol Data Unit

SDK   Software Development Kit

SEA   Simulator Environment Architecture

SPC   Signalling Point Code

SS7   Signalling System No 7

SUT   System Under Test

TTCN-3   Testing and Test Control Notation version 3

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TTC   Telecommunications Technology Committee (Standardization body of Japan)

1.2.5   Terminology

CCS   Common Channel Signalling System: A signalling system where the voice and signalling are performed in separated channels i.e. it is a not channel associated signalling system.

MTP3   MTP level 3, the signalling network layer of SS7.

MTP3-User   Any protocol normally using the services of the SS7 MTP3 (e.g. ISUP, SCCP, TUP, etc).

Test Port   An adaptation between the TTCN-3 Test Executor and the SUT.

SEA   Simulator Environment Architecture: It provides the possibility to have simulated AXE nodes running on a Unix workstation.

M3UA   SS7 MTP3 User Adaptation Layer. M3UA is a protocol supporting the transport of any SS7 MTP3-User signalling over IP using the services of the SCTP protocol (See[19]).

1.3   System requirements

In order to operate the MTP3/MTP3b/M3UA Test Port the following system requirements must be satisfied:

- TITAN TTCN-3 Test Executor version R8A (1.8.pl0) or higher installed. For installation guide see [2]. Please note: This version of the Test Port is not compatible with TITAN releases earlier than R8A.

- The Abstract_Socket CNL 113 384, rev. R6A or later product has to be installed.

1.4   Fundamental concepts

The Test Port establishes connection between the TTCN-3 test executor and SUT and transmits/receives messages.

2   The Test Port

2.1   Overview

This Test Port is a provider Test Port, therefore it is possible to realize dual-faced Test Ports based on this Test Port.

2.1.1   In case of testing with SEA

This Test Port is developed for testing higher level protocols over the already tested MTP3 and M3UA protocols, not for testing the MTP3 and M3UA protocols themselves.

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The SUT is the Simulated Environment Architecture (SEA) and the software implementation loaded in it (see [7])

The MTP3/MTP3b/M3UA Test Port provides a connection between the executable test suite and the SUT. The Test Port opens an MPH channel (see [8]-[10]) and establishes the connection between the MPH Interface of SEA and the test component. The communication goes on protocol MTP3 or M3UA according the variable settings in the configuration file of the test suite (see chapter 2.5.1).
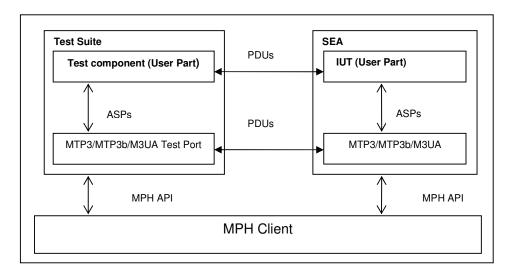

Table 1   The overview of the test system using MTP3/M3UA Test Port

The user of the Test Port ("MTP3-User") is any next higher level protocol (optionally but likely implemented in TTCN language).

2.1.2   In case of testing with real target

If the configuration parameter shows, that the Test Port is working in target mode, then the Test Port establishes a connection towards a TCP server. This TCP server should be connected to another functionality, which ensures the connection towards the target SUT. In this case the Test Port just forwards the information (configuration parameters, ASPs) to the remote functionality over the TCP connection. In case of testing real MSC the functionality over the TCP is implemented in M3UA Server [27].

2.1.3   In case of testing in STC mode

In several nodes the GCP over SCTP is implemented, meaning the M3UA layer is missing. In order to minimize the impact on existing GCP over M3UA test suites new modes are added to MTP3/M3UA Test Port, which simulate the lack of MTP3/M3UA layer:

- MTP3ServiceType='STC' used for testing with SEA.

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- MTP3ServiceType='TargetSTC' used for testing real target through M3UA Server.

2.2 The user interface: Abstract Service Primitives

The Test Port communicates with its user by means of Abstract Service Primitives (ASPs). These ASPs and their behaviour rules are identical in MTP3 and M3UA. In other words MTP3 and M3UA are identical from the MTP3-User's point of view.

The next table shows the primitives and its name in our Test Port (see Table 1/Q.701 [11]).

ITU-T, ANSI and TTC names			Test Port
Generic name	Specific name	Parameters	ASP name
MTP-TRANSFER	Request or indication	OPC, DPC, SLS, SIO, User data	ASP_MTP3_TRANSFERreq, ASP_MTP3_TRANSFERind
MTP-PAUSE	Indication		ASP_MTP3_PAUSE
MTP-RESUME	Indication		ASP_MTP3_RESUME
MTP-STATUS	Indication		ASP_MTP3_STATUS

Table 2   Message Transfer Part primitives

The MTP3-User can send messages of type ASP_MTP3_TRANSFERreq and can receive messages of type ASP_MTP3_TRANSFERind and ASP_MTP3_RESUME.

In case of testing with real target messages types ASP_MTP3_PAUSE, and ASP_MTP3_STATUS can also be received. Otherwise they will be ignored.

These primitives are implemented as records. Any higher-level protocol inserts its message in the field "User data". The implementation (in MTP3asp_Types.ttcn) is the following:

```
type record MTP3_Field_sio
{
   bitstring ni   length(2),
   bitstring prio length(2),
   bitstring si   length(4)
}

type record ASP_MTP3_TRANSFERind
{
   MTP3_Field_sio    sio,
   integer           opc,
```

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```
            integer          dpc,
            integer          sls,
            octetstring      data
}

type record ASP_MTP3_TRANSFERreq
{
   MTP3_Field_sio    sio,
   integer           opc,
   integer           dpc,
   integer           sls,
   octetstring       data
}

type record ASP_MTP3_PAUSE {};

type record ASP_MTP3_RESUME {};

type record ASP_MTP3_STATUS {};
```

In case of STC and Target STC mode where the MTP3/M3UA layer is missing the same ASP types are used but only the data field carries useful information. Every other field is filled with zeros.

2.3 Choosing between protocol standards resp. versions

The service type or "flavor" of the Test Port defines which specification should be followed.

2.3.1 Simulated SUT

These types are: MTP3 ITU, MTP3 ANSI, MTP3 TTC, MTP3b TTC, MTP3 MPT, MTP3 IUP and M3UA (see also 2.5.1).

The length of the fields OPC and DPC and the maximal length of the data field are different in the specifications [11]-[21],[24],[31] as discussed in the Function Specification [5]. It is the MTP3-User's responsibility to set the fields in the ASP to the correct length, see field lengths in Function Specification [5]. The type MTP3b TTC (ATM TTC National) differs from MTP3 TTC only in an additional octet that can be found in the beginning of a message and which is sent back in the next reply. This functionality is completely transparent on TTCN-3 level, since it is implemented in the Test Port.

2.3.2 Real target SUT

The type must be TargetM3UA.

2.3.3 Missing M3UA and MTP3 layer by simulated SUT

The type must by STC

2.3.4 Missing M3UA layer by target test

The type must by TargetSTC

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2.4 Installation

Since the MTP3/M3UA Test Port is used as a part of the TTCN-3 test environment this requires TTCN-3 Test Executor to be installed before any operation of the MTP3/M3UA Test Port. For more details on the installation of TTCN-3 Test Executor see the relevant part of [2].

2.4.1 Description of the files implementing the Test Port

The MTP3/M3UA Test Port consists of the following files:

```
MTP3asp_Types.ttcn
MTP3asp_PortType.ttcn
MTP3asp_PT.cc
MTP3asp_PT.hh
```

File listed below also must be available to produce a successful compilation but they are used generally therefore delivered separately:

Mandatory files in SEA mode from the SEA SDK:

```
mphclib.h
libmphclib.a
```

Mandatory file in both SEA and target test modes:

```
General_Types.ttcn
```

Mandatory files in target test mode:

```
Abstract_Socket.cc
Abstract_Socket.hh
```

Their functionality is as follows:

`MTP3asp_Types.ttcn`:
This file contains the interface between MTP3/ M3UA and the upper layer called "User Part". It contains the abstract service primitives implemented by means of definitions of messages, ports and templates.

`MTP3asp_PortType.ttcn`:
This file contains port definition.

`MTP3asp_PT.cc` and `MTP3asp_PT.hh`:
The implementation of the Test Port behaviour.

`mphclib.h` and `libmphclib.a`:
Header and library files are to use MPH interface. The Test Port uses them and they are invisible for the tester. They are parts of the SEA Software Development Kit. See[7].

`General_Types.ttcn`:

This file contains general basic type definitions. This is available in CNL 113 368 product.

`Abstract_Socket.cc` and `hh`:
This is a separate product CNL 113384, which is needed to establish and maintain the TCP connection. In case of simulated test these files are not needed.

2.4.2 Installation steps

1   Check if the Test Executor is installed:
    `compiler -v`
    Compiler will print out its version as well as other information. If it doesn't work, check [2].

2   Make an empty directory (e.g. mtp_test)

3   Copy (or link) the files (listed in the previous chapter) into the directory.

4   Create a Makefile. See [2] for details.

5   In case of testing with SEA the directory where the SEA SDK is installed should be put into the Makefile and edit the Makefile on the following way:

```
SEA_DIR = /vobs/ttcn/TCC_Releases/Other/SEA_LATEST
CPPFLAGS = -D$(PLATFORM) -I$(TTCN3_DIR)/include -
I$(SEA_DIR)/include

$(TARGET): $(OBJECTS)
        $(CXX) $(LDFLAGS) -o $@ $^ \
                -L$(TTCN3_DIR)/lib -l$(TTCN3_LIB) \
                -L$(OPENSSL_DIR)/lib -lcrypto $($(PLATFORM)_LIBS) \
        $(SEA_DIR)/lib/libmphclib.a
```

In case of target test, -DTARGET_TEST must be added to CPPFLAGS:

```
CPPFLAGS = -D$(PLATFORM) -DTARGET_TEST -I$(TTCN3_DIR)/include
```

In case of simulated test with SEA this pre-processor flag should not be added. In this case, the Abstract Socket is not needed.

6   Compile the Test Port using the make command.

2.5 Configuration

The executable test program behaviour is determined via the run-time configuration file. This is a simple text file, which contains various sections (e.g. [TESTPORT_PARAMETERS]) after each other. The usual suffix of configuration files is .cfg.

The configuration files in Examples can be used as a base to make your own configuration file.

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2.5.1   MTP3/M3UA Test Port parameters in the Test Port configuration file

The [TESTPORT_PARAMETERS] section of the RTE configuration file contains the following parameters, which values have to be enclosed in quotation marks

2.5.1.1   DynamicConnection

This parameter defines if MPH connection towards SEA is established by map operation and closed by unmap operation (value: "OFF") or connection established only by calling function f_MTP3_SEA_connect and closed via calling function f_MTP3_SEA_disconnect (value: "ON"). This parameter is optional and used only for simulated test. Default value is "OFF").

2.5.1.2   Hostname

This is the host name of the machine where the SEA is running.

This parameter is mandatory for simulated test if dynamic connection feature is switched off. If dynamic connection feature is switched on, then it is discarded.

2.5.1.3   HttpPort

This is the HTTP Port address of the SEA. Its value can be found in the SEA by the settings part of the simulated MSC in the 'Runtime data' box. This is maybe not the same as in the 'Tool specific data' box.

This parameter is mandatory for simulated test if dynamic connection feature is switched off. If dynamic connection feature is switched on, then it is discarded.

2.5.1.4   Loop

This parameter decides whether the messages should be looped back or not. Two values are allowed: "ON" or "OFF". If it is "ON", then messages will not sent to SEA, but they will be put back to the input buffer. If it is "OFF", messages will be sent to SEA.

This parameter is optional and not used in STC and TargetSTC modes.

The default value is "OFF".

2.5.1.5   Filter

This parameter decides whether the messages should be filtered or not. Two values are allowed: "ON" or "OFF. If configuration variable Loop is "OFF" and Filter is "ON", then the messages will be filtered out by configuration parameters: SUT_Pc, TESTER_Pc, NI

This parameter is optional and not used in STC and TargetSTC modes.

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The default value is ″OFF″.

2.5.1.6 MTP3ServiceType

This parameter determines if the test is performed on real target or on simulated SEA. In case of real target test its value must be ″TargetM3UA″ or ″TargetSTC″. In case of simulated test it determines, also the type of level 3 protocol: ″MTP3itu″, ″MTP3ansi″, ″MTP3ttc″, ″MTP3bttc″, ″MTP3mpt″, ″MTP3iup″,″M3UA″, ″STC″,

This parameter is optional.

The default value is ″MTP3itu″.

2.5.1.7 EntityName

This parameter determines which SUT device should be connected. Typical values:
 ″S7ST-xx″ for MTP3 ANSI device, ″C7ST-xx″ for MTP3 ITU/TCC/MPT device, ″SCTP_ASSOC_<ip_addr>″ for M3UA device,

This parameter is mandatory for simulated test if dynamic connection feature is switched off. If dynamic connection feature is switched on, then it is discarded.

2.5.1.8 NI

This parameter determines the Network Indicator of the message to be sent by the Tester. Typical values:
 ″2″ for national network and ″1″ for international network.

This parameter is mandatory except for STC and TargetSTC modes where it is not used.

2.5.1.9 SUT_Pc

This is the point code of the SUT.

This parameter is mandatory except for STC and TargetSTC modes where it is not used.

2.5.1.10 TESTER_Pc

This is the point code of the tester.

This parameter is mandatory except for STC and TargetSTC modes where it is not used.

2.5.1.11 M3UA_version

This is the version of M3UA if the protocol type is M3UA.

This parameter is optional but cannot be "0" in TargetM3UA mode.

The default value is "1". Currently only this value is used by M3UA.

2.5.1.12   M3UAtarget_TCP_IPAddr

This is the IP address of the TCP server (on M3UA Server)

This parameter is mandatory for testing with real target.

 Example: "123.123.123.123".

2.5.1.13   M3UAtarget_TCP_Port

This is the port number address of the TCP server (on M3UA Server)

This parameter is mandatory for testing with real target.

 Example: "9999".

2.5.1.14   DestinationName

This name is forwarded towards M3UA Server to make possible the differentiation between ports with same Point Codes and NI (In this case for successful connection the same name should be defined in M3UA Server as 'destination_name'). If not set, then the port name (eg.: "MTP_1" in case of **map(self:MTP_1,system:MTP_1);**) is forwarded.

Parameter is mandatory for TargetSTC mode, optional for TargetM3UA mode, not used by simulated test.

 Example: "DEST_1"

2.5.1.15   Forward_Pause

This parameter is optional and can be used to enable or disable forwarding ASP_MTP3_PAUSE ASPs. Available values: "forward"/"ignore". The default value is "ignore".

Note: this parameter can only be used in case of testing with real target.

2.5.1.16   Forward_Resume

This parameter is optional and can be used to enable or disable forwarding ASP_MTP3_RESUME ASPs. Available values: "forward"/"ignore". The default value is "ignore".

2.5.1.17   Forward_Status

This parameter is optional and can be used to enable or disable forwarding ASP_MTP3_STATUS ASPs. Available values: "forward"/"ignore". The default value is "ignore".

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Note: this parameter can only be used in case of testing with real target.

2.6 External functions for dynamic connection

If dynamic connection feature is activated then the following external functions are needed to open and close MPH connection towards SEA:

```
external function f_MTP3_SEA_connect
 ( inout MTP3asp_PT  portRef,  //The name of the test port entity
   in charstring  Hostname,   //The host where the SEA is running
   in integer     Port,       //The port number of the SEA
   in charstring  EntityName, //Component name of the of MTP3/M3UA
                              connection endpoint within SEA
   in boolean     Http        //Http Port (true) or MPH Port (false) is
                              sent in 'Port' parameter
 )return boolean;

external function f_MTP3_SEA_disconnect
 ( inout MTP3asp_PT  portRef  //The name of the test port entity
 )return boolean;
```

2.7 Error messages

The general form of an MTP3/MTP3b/M3UA Test Port error message is:

```
<TTCN_ERROR> MTP3 Test Port(<port no>):

<message>

Fatal error in MTP3 Test Port <port name>
```

Where the <message> is one of the followings:

Parameter <*parameter*> is not set.
The printed mandatory parameter is not defined in .cfg file. It must be defined.

Converting <*iid_string*> to MPH_IID failed.
Invalid IID_string. Check parameter MPH_SEA_COMPONENT_IID.

GetMphPort failed: <*error_string*>
The SEA did not find the Mph Port Number. Check Hostname and HttpPort parameter.

Opening connection to <*hostname*>: <*Mphport*> failed.
Mph connection was refused by SEA. Check Hostname and HttpPort parameter. Check if SEA is running.

Incorrect file descriptor: <*fd*>
This is an unexpected error returned by the UNIX operating system. A typical reason for such errors is that you have run out of some resources, like file descriptors in your machine.

Invalid MTP3ServiceType setting

The MTP3ServiceType parameter has some other value as listed above.
Check MTP3ServiceType parameter.

Received NI is different from sent NI.
The network indicator in the received message is not the same as the network
indicator in the sent message. Check parameter NI

2.7.1 Error messages in target mode

The errors in Abstract Socket not listed here.

**Message was received before successful registration in
SCTP server.**
Fault in M3UA Server.

Unsuccessful unregistration.
Fault in M3UA Server.

Unsuccessful registration.
Fault in M3UA Server.

**No response received for REGISTER message. Exiting after
timeout.**
Fault in M3UA Server.

**No response received for UNREGISTER message. Exiting
after timeout.**
Fault in M3UA Server.

**TargetM3UA not supported, since TARGET_TEST not in
Makefile.**
**TargetSTC not supported, since TARGET_TEST not in
Makefile.**
In case of target test -DTARGET_TEST should be added to CPPFLAGS in
Makefile. Start the compilation from the beginning after Makefile updated.

2.8 Warning messages

The general form of an MTP3/MTP3b/M3UA Test Port warning message is:

<TTCN_WARNING> MTP3 Test Port(<port no>):<message>

Where the <message> is one of the followings:

0 byte long message received -> packet dropped.

**Incompatible M3UA protocol version in header -> packet
dropped.**

**Length in common header (<decimal value>) mismatches
received buffer length ((<decimal value>), Assuming that
it is because of the omission of final parameter padding
in indicated length.**

Unsupported M3UA msg class M3UA_RKM -> packet dropped.

Unsupported M3UA msg class -> packet dropped.

Unknown MTPServiceType!!!

Invalid length in APC parameter -> not processed

Unsupported masking (mask=<mask>) for PC=<decimal value> in APC parameter -> ignored.

MTP3<version>:len< <5/6/8>. Too short message!

2.8.1 Warning messages in target mode

The warnings in Abstract Socket not listed here.

Invalid STATUS message received from M3UA server with status code=<decimal value>.

Invalid message received from M3UA server.

3 Examples

3.1 Configuration file - SEA

```
 [LOGGING]
#FileName := "mtp3test_MTP3_ansi2.cfg"
FileMask := LOG_ALL | TTCN_DEBUG | TTCN_MATCHING
ConsoleMask := LOG_ALL | TTCN_DEBUG | TTCN_MATCHING

[EXECUTE]
mtp3test.TC1
mtp3test.TC2

[TESTPORT_PARAMETERS]
// ********************************************************
// * DO NOT FORGET TO SET THE FOLLOWING TWO LINE TO YOUR SEA *
// ********************************************************
system.*.Hostname := "zaire"  //sea server name
system.*.HttpPort := "5000"   //sea http port
system.*.Loop:= "OFF"
system.*.Filter:= "OFF"
system.*.MTP3ServiceType := "MTP3itu" // ["MTP3itu" (default)|"MTP3ansi" |
"M3UA" | "MTP3ttc" | "MTP3bttc" | "MTP3mpt" | "MTP3iup" | "TargetM3UA" ]

// CMGW6 -> SCTP_ASSOC_10.2.110.102
// CMGW3 data: SCTP_ASSOC_10.2.110.2
system.CMGW6.EntityName := "S7ST-0" //device name to connect
system.CMGW6.NI:= "2"
system.CMGW6.SUT_Pc:= "461086" // 07-09-30  =0x07091E see command:
s7stp:st=s7stg-0&&-32;
system.CMGW6.TESTER_Pc:= "461087" //07-09-31=0x07091F
system.CMGW6.M3UA_version:= "1"

[MODULE_PARAMETERS]
```

Prepared (also subject responsible if other)		No.		
ETH/RZX Csaba Fehér +36 1 439 5641		198 17-CNL 113 337 Uen		
Approved	Checked	Date	Rev	Reference
ETH/RZXC (Elemér Lelik)		2009-04-03	L	GASK2

```
// MTP3_user_part for test suite 'mtp3userpart_test' in mtp3test.ttcn
MTP3_UserPart_SIO := {
  ni := '10'B,
  prio := '00'B,
  si := '1110'B
};
MTP3_UserPart_OPC := 461087  // =0x07091E
MTP3_UserPart_DPC := 461086 //
MTP3_UserPart_SLS := 0;

[MAIN_CONTROLLER]
TCPPort := 7145
NumHCs := 1
```

3.2 Configuration file - target test

```
#ModuleName.SampleParameter := SampleValue
[TESTPORT_PARAMETERS]
system.MTP3_A.socket_debugging := "yes"
system.MTP3_A.forward_pause := "forward"
system.MTP3_A.forward_resume := "forward"
system.MTP3_A.forward_status := "forward"
system.MTP3_A.MTP3ServiceType := "TargetM3UA"
system.MTP3_A.NI := "143"
system.MTP3_A.TESTER_Pc := "101"
system.MTP3_A.SUT_Pc := "300"
system.MTP3_A.M3UAtarget_TCP_IPAddr := "159.107.197.130"
system.MTP3_A.M3UAtarget_TCP_Port := "17705"
system.MTP3_A.DestinationName := "Peer_A"

system.MTP3_B.socket_debugging := "yes"
system.MTP3_B.forward_pause := "forward"
system.MTP3_B.forward_resume := "forward"
system.MTP3_B.forward_status := "forward"
system.MTP3_B.MTP3ServiceType := "TargetM3UA"
system.MTP3_B.NI := "143"
system.MTP3_B.TESTER_Pc := "300"
system.MTP3_B.SUT_Pc := "101"
system.MTP3_B.M3UAtarget_TCP_IPAddr := "159.107.197.130"
system.MTP3_B.M3UAtarget_TCP_Port := "17706"
system.MTP3_B.DestinationName := "Peer_B"

 [LOGGING]
FileMask := LOG_ALL | TTCN_MATCHING | TTCN_DEBUG
ConsoleMask := TTCN_ERROR | TTCN_WARNING | TTCN_ACTION |
TTCN_TESTCASE | TTCN_STATISTICS | TTCN_DEBUG
SourceInfoFormat := Single

 [MAIN_CONTROLLER]
TCPPort := 19999
NumHCs := 1

 [EXECUTE]
MTP3asp_regressiontest_Testcases.control
```