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Technical Specification

**Methods for Testing and Specification (MTS);
SS7 Message Transfer Part 3 - User Adaptation Layer;
(IETF RFC 3332);
Test Suite Structure and Test Purposes (TSS&TP)**



Reference

DTS/MTS-00087

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Methods for Testing and Specification (MTS).

1 Scope

The present document proposes a Test Suite Structure and Test Purposes (TSS&TP) for the SIGTRAN M3UA protocol as described in RFC 3332 [1], "Signalling System 7 (SS7) Message Transfer Part 3 (MTP3) User Adaptation Layer (M3UA)".

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <http://docbox.etsi.org/Reference>.

- [1] IETF RFC 3332 (2002): "Signalling System 7 (SS7) Message Transfer Part 3 (MTP3) User Adaptation Layer".
- [2] ISO/IEC 9646-1: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".
- [3] ISO/IEC 9646-2: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 2: Abstract Test Suite specification".
- [4] ISO/IEC 9646-3: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 3: The Tree and Tabular Combined Notation (TTCN)".
- [5] ETSI TS 102 142: "Services and Protocols for Advanced networks (SPAN); MTP/SCCP/SSCOP and SIGTRAN (Message of SS7 over IP); 3332 (2002) modified".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in M3UA RFC 3332 [1], ISO/IEC 9646-1 [2], -2 [3], -3 [4] and the following apply.

inOpportune: tests that handle invalid signalling exchanges of messages, i.e. signalling messages that are properly structured and correctly encoded but are used out of sequence

invalid: tests that handle valid signalling exchanges of messages, which are either not properly structured or incorrectly encoded

Test Purpose (TP): non-formal high-level description of a test, mainly using text.

NOTE: This test description can be used as the basis for a formal test specification (e.g. Abstract Test Suite in TTCN). See ISO/IEC 9646-2 and ISO/IEC 9646-3.

valid: tests that handle valid signalling exchanges of messages, which are properly structured and correctly encoded

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

AS	Application Server
ASP	Application Server Process
ASPM	ASP Maintenance Procedures
ASPSM	Application Server Process State Maintenance
ASPTM	Application Server Process Traffic Maintenance
ATS	Abstract Test Suite
I	Invalid
IUT	Implementation Under Test
MSG	MeSsaGing
MTR	Message Transfer
O	InOpportune
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
RKM	Routing Key Management
SCTP	Stream Control Transmission Protocol
SG	Signalling Gateway
SGP	Signalling Gateway Process
SSNM	SS7 Signalling Network Management
SUT	System Under Test
TSS	Test Suite Structure
V	Valid

4 Test Suite Structure (TSS)

4.1 Introduction

4.1.1 M3UA entities

Test Purposes have been written for M3UA Peers according to the M3UA RFC 3332 [1]. Two kinds of entities are considered successively as IUT:

- Signalling Gateway Process.
- Application Server Process.

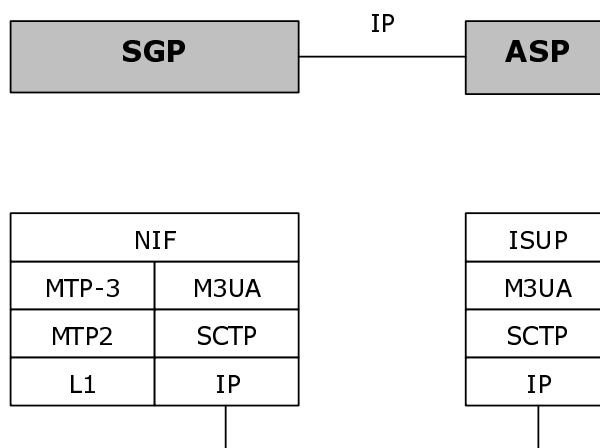


Figure 1: M3UA protocol entities

To enable the verification of certain aspects of the protocol, certain test purposes will require the use of multiple ASPs within an AS.

4.1.2 General assumptions

Test Purposes have been written for behaviours requested with "MUST" or that appear as obvious in present form. In addition test purposes have been defined for implementation dependent behaviour, where at least one of the implementation options is mandatory.

The listed features below are not covered by the present document. Reasons are described along with their description:

- Registration Status 1 "Error-Unknown": No statement in RFC 3332 [1] clearly outlines its use or applications.
- Deregistration Status 1 "Error-Unknown": No statement in RFC 3332 [1] clearly outlines its use or applications.
- Deregistration Status 2 "Error-Invalid Routing Context": No statement in RFC 3332 [1] clearly outlines its use or applications.

A more complete set of torture tests for both ASPs and SGPs shall be provided.

4.1.3 System Under Test

In SIGTRAN M3UA, one or more ASP can be contained within an ASP; furthermore, one or more SGP can be contained within an SGP.

ASPs and SGPs can be interconnected so that full redundancy is provided.

Several scenarios have been envisioned in the present document:

- One ASP within the AS.
- Several ASPs within the ASP.
- One ASP connected to one SGP.
- Several ASPs connected to one SGP.

4.2 Overview of the Test Suite Structure

The Test Suite Structures is based on the main functionalities as defined above.

Figure 2 shows the Test Suite Structure.

Last Sub groups may be subdivided in three subgroups: Valid behaviour (V), Invalid behaviour (I), inOpportune behaviour (O).

Test Suite	Main Functionalities	Functionality Subgroup	Test Group
M3UA	SGP	ASP State Maintenance	V-I-O
		ASP Traffic Maintenance	V-I-O
		Message Transfer	V-I
		Routing Key Management	V-I
	ASP	ASP State Maintenance	V-I-O
		ASP Traffic Maintenance	V-I-O
		Message Transfer	V-I
		Routing Key Management	V-I

Figure 2: TSS for M3UA5

5 Test Purposes (TP)

5.1 Introduction

5.1.1 TP naming convention

Table 1: TP identifier naming convention scheme

Identifier: <protocol>_<device under test>_<main functionality>_<type>_<nn>	
<protocol>	M3UA
<device under test>	SGP (Signalling Gateway Process) ASP (Application Server Process)
<main functionality>	ASPM (ASP Maintenance procedures) RKM (Routing Key Management) MSG (MeSsaGing)
<type>	Valid behaviour (V) Invalid behaviour (I), inOpportune behaviour (O).
<nn>	sequential number (01 to 99).

5.1.2 TP structure

Each test purpose is decomposed in six keywords:

- The **TPId** gives a unique identifier to each test purpose.
- The **Status** specifies whether the test purpose or the group is mandatory or optional according to RFC 3332 [1].
- The **Group Status** applies to all test purposes belonging to this group. Within the present document only test purposes that are mandatory have been defined.
- The **Precondition** determines the initial state of the SUT for the evaluating the test purpose.
- The **Reference** outlines the references in RFC 3332 [1] used to create the test purpose.
- The **Purpose** describes the objective of the test.

5.2 Test Purposes for Signalling Gateway Process (SGP)

5.2.1 ASP State Maintenance Procedures

5.2.1.1 Valid behaviour

TPId	M3UA_SGP_ASPSM_V_001
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-DOWN at the SGP
Reference	Section 4.3.1 [1] Section 4.3.4.1 [1]
Purpose	Ensure that the IUT, upon reception of an ASP Up message, responds with an ASP Up Ack.
Comments	This test case, even though included in M3UA_SGP_ASPSM_v_003 validates the response with an ASP Up Ack regardless of the number of ASPs configured in the AS.

TPId	M3UA_SGP_ASPSM_V_003
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP One ASP configured within the AS ASP marked as ASP-DOWN at the SGP
Reference	Section 3.8.2 [1] Section 4.3.1 [1] Section 4.3.2 [1] Section 4.3.4.1 [1] Section 4.3.4.5 [1]
Purpose	Ensure that the IUT, upon reception of an ASP Up message, responds with an ASP Up Ack and sends a NOTIFY message indicating the AS state change to AS-INACTIVE
Comments	

TPId	M3UA_SGP_ASPSM_V_005
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP
Reference	Section 4.3.1 [1] Section 4.3.4.2 [1]
Purpose	Ensure that the IUT, upon reception of an ASP Down message, responds with an ASP Down Ack.
Comments	This test case, even though included in M3UA_SGP_ASPSM_v_007 validates the response with an ASP Down Ack regardless of the number of ASPs configured in the AS.

TPId	M3UA_SGP_ASPSM_V_009
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as blocked at the SGP
Reference	Section 3.8.1 [1] Section 4.3.4.1 [1]
Purpose	Ensure that the IUT, upon reception of an ASP Up message sent by an ASP marked as blocked at the SGP, responds with an ERROR message with reason 0x0d "Refused-Management Blocking"
Comments	

5.2.1.2 Invalid behaviour

TPId	M3UA_SGP_ASPSM_I_001
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP
Reference	Section 3.1.1[1] Section 3.8.1 [1] Section 4.3.4.1.1 [1]
Purpose	Ensure that the IUT, upon reception of an ASP Up message that contains an invalid M3UA version (e.g. 2), responds with an ERROR message with reason 0x01 ("Invalid Version")
Comments	

TPId	M3UA_SGP_ASPSM_I_002
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-DOWN at the SGP
Reference	Section 3.1.2 [1] Section 3.8.1 [1] Section 4.3.2 [1]
Purpose	Ensure that the IUT, upon reception of a message which class is 3 (ASPSM) and type is different from 0 (Reserved) 1 (ASP Up), 2 (ASP Down), 3 (BEAT), 4 (ASP Up Ack), 5 (ASP Down Ack) and 6 (BEAT Ack) responds with an ERROR message with reason 0x04 "Unsupported Message Type"
Comments	

TPId	M3UA_SGP_ASPSM_I_003
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-DOWN at the SGP
Reference	Section 3.1.2 [1] Section 3.8.1 [1] Section 4.3.2 [1]
Purpose	Ensure that the IUT, upon reception of a message which class is 4 (ASPTM) responds with an ERROR message with reason 0x06 "Unexpected Message" or silently discards the message.
Comments	

TPId	M3UA_SGP_ASPSM_I_004
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP
Reference	Section 3.1.2 [1] Section 3.8.1 [1] Section 4.3.2 [1]
Purpose	Ensure that the IUT, upon reception of a message which class is 3 (ASPSM) and type is different from 0 (Reserved) 1 (ASP Up), 2 (ASP Down), 3 (BEAT), 4 (ASP Up Ack), 5 (ASP Down Ack) and 6 (BEAT Ack) responds with an ERROR message with reason 0x04 "Unsupported Message Type"
Comments	

5.2.1.3 inOpportune behaviour

TPId	M3UA_SGP_ASPSM_O_001
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP
Reference	Section 4.3.1 [1] Section 4.3.4.1 [1]
Purpose	Ensure that the IUT, upon reception of an ASP Up message, responds with an ASP Up Ack
Comments	

TPId	M3UA_SGP_ASPSM_O_003
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-ACTIVE at the SGP One ASP in the AS
Reference	Section 3.8.1 [1] Section 4.3.1 [1] Section 4.3.4.1 [1] Section 4.3.4.4 [1]
Purpose	Ensure that the IUT, upon reception of an ASP Up message, responds with an ASP Up Ack, sends an ERROR message with reason 0x06 "Unexpected Message" and sends a NOTIFY message indicating the AS state change to AS-INACTIVE
Comments	

TPId	M3UA_SGP_ASPSM_O_004
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-DOWN at the SGP
Reference	Section 4.3.1 [1] Section 4.3.4.2 [1]
Purpose	Ensure that the IUT, upon reception of an ASP Down message, responds with an ASP Down Ack
Comments	

5.2.2 ASP Traffic Maintenance procedures

5.2.2.1 Valid behaviour

TPId	M3UA_SGP_ASPTM_V_001
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP
Reference	Section 4.3.1 [1] Section 4.3.4.3 [1]
Purpose	Ensure that the IUT, upon reception of an ASP Active message, responds with an ASP Active Ack
Comments	

TPId	M3UA_SGP_ASPTM_V_003
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP One ASP configured in the AS ASP marked as ASP-INACTIVE at the SGP
Reference	Section 3.8.2 [1] Section 4.3.1 [1] Section 4.3.2 [1] Section 4.3.4.3 [1]
Purpose	Ensure that the IUT, upon reception of an ASP Active message, responds with an ASP Active Ack and sends a NOTIFY message indicating the AS state change to AS-ACTIVE
Comments	

TPId	M3UA_SGP_ASPTM_V_005
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP
Reference	Section 4.3.4.3 [1]
Purpose	Ensure that the IUT, upon reception of an ASP Active message that contains a Routing Context, responds with an ASP Active Ack that contains the Routing Context
Comments	

TPId	M3UA_SGP_ASPTM_V_006
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-ACTIVE at the SGP
Reference	Section 4.3.1 [1] Section 4.3.4.4 [1]
Purpose	Ensure that the IUT, upon reception of an ASP Inactive message, responds with an ASP Inactive Ack
Comments	

TPId	M3UA_SGP_ASPTM_V_008
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-ACTIVE at the SGP One ASP in the AS
Reference	Section 3.8.2 [1] Section 4.3.1 [1] Section 4.3.2 [1] Section 4.3.4.4 [1]
Status	Mandatory
Purpose	Ensure that the IUT, upon reception of an ASP Inactive message, responds with an ASP Inactive Ack and sends a NOTIFY message indicating the AS state change to AS-PENDING
Comments	

TPId	M3UA_SGP_ASPTM_V_010
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-ACTIVE at the SGP
Reference	Section 4.3.4.6 [1]
Purpose	Ensure that the IUT, upon reception of a Heartbeat message, responds with a Heartbeat Ack
Comments	

TPId	M3UA_SGP_ASPTM_V_011
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-ACTIVE at the SGP
Reference	Section 4.3.4.6 [1]
Purpose	Ensure that the IUT, upon reception of a Heartbeat message that contains an opaque Heartbeat Data parameter, responds with a Heartbeat Ack that echoes back unchanged the opaque Heartbeat Data parameter
Comments	

TPId	M3UA_SGP_ASPTM_V_013
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP 2 ASP in the AS Both ASPs marked as ASP ACTIVE at the SGP AS configure in Broadcast mode
Reference	Section 3.8.2 [1] Section 4.3.4.4 [1]
Purpose	Ensure that the IUT, upon reception of an ASP Inactive message from ASP1 responds with an ASP Inactive Ack and sends a NOTIFY message with status "Insufficient ASP Resources Active in AS" to all Inactive ASPs
Comments	The use of "Broadcast" mode is not recommended by ETSI

TPId	M3UA_SGP_ASPTM_V_014
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP 2 ASP in the AS ASP1 marked as ASP INACTIVE at the SGP ASP2 marked as ASP ACTIVE at the SGP ASP1 and ASP2 configured in "Override" mode
Reference	Section 3.8.2 [1] Section 4.3.4.3 [1]
Purpose	Ensure that the IUT, upon reception of an ASP Active message from ASP1 that indicates a Traffic Handling Type of "Override", responds with an ASP Active Ack and sends a NOTIFY message with status "Alternate ASP Active" to ASP 2
Comments	

TPId	M3UA_SGP_ASPTM_V_015
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP 2 ASP in the AS ASP1 marked as ASP INACTIVE at the SGP ASP2 marked as ASP ACTIVE at the SGP
Reference	Section 3.8.2 [1] Section 4.3.4.3 [1]
Purpose	Ensure that the IUT, upon reception of an ASP Active message from ASP1 that indicates a Traffic Handling Type of "Override", responds with an ASP Active Ack and sends a NOTIFY message with status "Alternate ASP Active" to ASP 2 that includes the ASP ID of the Alternate ASP
Comments	

5.2.2.2 Invalid behaviour

TPId	M3UA_SGP_ASPTM_I_001
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP
Reference	Section 3.1.1 [1] Section 3.8.1 [1] Section 4.3.1 [1] Section 4.3.4.3[1]
Purpose	Ensure that the IUT, upon reception of an ASP Active message that contains an invalid M3UA version (e.g. 2), responds with an ERROR message with reason 0x01 ("Invalid Version")
Comments	Requires Clarification in the IG

TPId	M3UA_SGP_ASPTM_I_003
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP One ASP in the AS
Reference	Section 3.7.1 [1] Section 3.8.1 [1] ETSI Profile [Broadcast mode not supported]
Purpose	Ensure that the IUT, upon reception of an ASP Active, that indicates a Traffic Mode Type of "Broadcast", responds with an ERROR message with reason 0x05 "Unsupported Traffic Mode Type"
Comments	

TPId	M3UA_SGP_ASPTM_I_004
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP One ASP in the AS
Reference	Section 3.7.1 [1] Section 3.8.1 [1]
Purpose	Ensure that the IUT, upon reception of an ASP Active, that indicates a Traffic Mode Type of "4" (i.e. not valid), responds with an ERROR message with reason 0x05 "Unsupported Traffic Mode Type"
Comments	

TPId	M3UA_SGP_ASPTM_I_005
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP
Reference	Section 4.3.4.3 [1]
Purpose	Ensure that the IUT, upon reception of an ASP Active message that contains a Routing Context which has not been provisioned at the SGP, responds with ERROR message with reason "Invalid Routing Context"
Comments	

TPId	M3UA_SGP_ASPTM_I_006
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP
Reference	Section 3.1.2 [1] Section 3.8.1 [1]
Purpose	Ensure that the IUT, upon reception of a message which class is 4 (ASPTM) and type is different from 0 (Reserved) 1 (ASP Active), 2 (ASP Inactive), 3 (ASP Active Ack), and 4 (ASP Inactive Ack) responds with an ERROR message with reason 0x04 "Unsupported Message Type"
Comments	

TPId	M3UA_SGP_ASPTM_I_008
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-ACTIVE at the SGP
Reference	Section 3.1.2 [1] Section 3.8.1 [1]
Purpose	Ensure that the IUT, upon reception of a message which class is 4 (ASPTM) and type is different from 0 (Reserved) 1(ASP Active), 2 (ASP Inactive), 3 (ASP Active Ack), and 4 (ASP Inactive Ack) responds with an ERROR message with reason 0x04 "Unsupported Message Type"
Comments	

TPId	M3UA_SGP_ASPTM_I_009
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP 2 ASPs in AS ASPs marked as ASP-ACTIVE at the SGP
Reference	Section 3.8.2 [1] Section 4.3.3 [1]
Purpose	Ensure that the IUT that has lost SCTP connectivity with ASP1 sends a NOTIFY message with status "ASP Failure" to ASP2
Comments	

TPId	M3UA_SGP_ASPTM_I_010
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-ACTIVE at the SGP
Reference	Section 3.1.4 [1] Section 4.3.4.4 [1]
Purpose	Ensure that the IUT, upon reception of an ASP Inactive message, responds with an ASP Inactive Ack which Message Length, in the Common Message Header, includes the parameter padding bytes, if any.
Comments	

5.2.2.3 inOpportune behaviour

TPId	M3UA_SGP_ASPTM_O_001
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-ACTIVE at the SGP
Reference	Section 4.3.4.3 [1]
Purpose	Ensure that the IUT, upon reception of an ASP Active, responds with an ASP Active Ack
Comments	

TPId	M3UA_SGP_ASPTM_O_003
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP
Reference	Section 4.3.4.4 [1]
Purpose	Ensure that the IUT, upon reception of an ASP Inactive, responds with an ASP Inactive Ack
Comments	

5.2.3 Message Transfer

5.2.3.1 Valid behaviour

TPId	M3UA_SGP_MTR_V_001
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASPs marked as ASP Active at the SGP Multiple Routing Keys and Routing Contexts are being used across a common association
Reference	Section 3.3.1 [1]
Purpose	Ensure that the IUT includes a valid Routing Context in any Payload Data Message
Comments	

TPId	M3UA_SGP_MTR_V_002
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASPs marked as ASP Active at the SGP
Reference	Section 3.3.1 [1]
Purpose	Ensure that the IUT includes the Protocol Data parameter in any Payload Data Message
Comments	

TPId	M3UA_SGP_MTR_V_003
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP
Reference	Section 4.1.1 [1]
Purpose	Ensure that the IUT sends DATA messages on any valid SCTP stream other than stream "0".
Comments	

TPId	M3UA_SGP_MTR_V_004
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP AS configured as Broadcast mode At least one ASP within the AS marked as ASP-ACTIVE
Reference	Section 4.3.4.3 [1]
Purpose	Ensure that the IUT tags the first DATA message broadcast whenever an ASP becomes active
Comments	Broadcast mode not recommended by ETSI

5.2.3.2 Invalid behaviour

TPId	M3UA_SGP_MTR_I_001
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-ACTIVE at the SGP
Reference	Section 3.8.1 [1]
Purpose	Ensure that the IUT, upon reception of a DATA message that specifies a protocol version 2, responds with an ERROR message with reason 0x01 "Invalid Version"
Comments	Requires Clarification in the IG

TPId	M3UA_SGP_MTR_I_002
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-ACTIVE at the SGP
Reference	Section 3.1.2 [1] Section 3.8.1 [1]
Purpose	Ensure that the IUT, upon reception of a message that specifies a class different from 0 ("Management Message"), 1 ("Transfer Message"), 2 ("SS7 Signalling Network Message"), 3 ("ASP State Maintenance Message"), 4 ("ASP Traffic Maintenance Message"), or 9 ("Routing Key Management"), responds with an ERROR message with reason 0x03 "Unsupported Message Class"
Comments	

TPId	M3UA_SGP_MTR_I_003
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-ACTIVE at the SGP
Reference	Section 3.1.2 [1] Section 3.8.1 [1]
Purpose	Ensure that the IUT, upon reception of a message that specifies a class equal to 1 ("Transfer Message") and a type different from 0 ("Reserved"), and 1 ("Payload DATA") responds with an ERROR message with reason 0x04 "Unsupported Message Type"
Comments	

5.2.3.3 inOpportune Behaviour

Void

5.2.4 Routing Key Management procedures

- Dynamic registration shall not be used for configuration management. The configuration of the system shall be modified only by the management system, and not by the protocol itself according to clause 4.6 of TS 102 142 [5].
- Dynamic registration of Routing Keys shall not be used for configuration management according to clause 5.2 of TS 102 142 [5].
- The Routing Key to enable messages to be distributed to the appropriate AS shall have a granularity no smaller than Point Code according to clause 5.3 of TS 102 142 [5].

General difference:

- The "broadcast" traffic mode shall not be used according to clause 4.4 of TS 102 142 [5].

5.2.4.1 Valid behaviour

TPId	M3UA_SGP_RKM_V_001
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP SGP does support the Routing Key Management Procedures
Reference	Section 4.4.1 [1]
Purpose	Ensure that the IUT, upon reception of a REG REQ that contains a Routing Key which matches an existing SGP Routing Key and which ASP is not currently included in the list of ASPs for the related AS, responds with REG RSP with Registration Result 0 "Successfully Registered"
Comments	

TPId	M3UA_SGP_RKM_V_002
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP SGP does support the Routing Key Management Procedures SGP does support dynamic configuration of Routing Keys
Reference	Section 4.4.1 [1]
Purpose	Ensure that the IUT, upon reception of a REG REQ that contains a Routing Key which does not currently exist, responds with REG RSP with Registration Result 0 "Successfully Registered"
Comments	

TPId	M3UA_SGP_RKM_V_003
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP SGP does support the Routing Key Management Procedures SGP does support dynamic configuration of Routing Keys ASP registered at the SGP
Reference	Section 3.6.4 [1] Section 4.4.2 [1]
Purpose	Ensure that the IUT, upon reception of a Dereg REQ, responds with Dereg RSP with Deregistration Result 0 "Successfully Deregistered"
Comments	

TPId	M3UA_SGP_RKM_V_004
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP SGP does not support the Routing Key Management Procedures
Reference	Section 3.8.1 [1] Section 4.4.1 [1] Section 3.2.2
Purpose	Ensure that the IUT, upon reception of a REG REQ responds with an ERROR message with reason 0x03 "Unsupported Message Class"
Comments	

5.2.4.2 Invalid behaviour

TPId	M3UA_SGP_RKM_I_003
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP SGP does support the Routing Key Management Procedures
Reference	Section 3.6.2 [1] Section 4.4.1 [1]
Purpose	Ensure that the IUT, upon reception of a REG REQ that contains an invalid Routing Key, responds with a REG RSP message with Registration Result 4 "Error-Invalid Routing Key"
Comments	

TPId	M3UA_SGP_RKM_I_004
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP SGP does support the Routing Key Management Procedures
Reference	Section 3.6.2 [1] Section 4.4.1 [1]
Purpose	Ensure that the IUT, upon reception of a REG REQ that contains an invalid Destination Point Code (DPC), responds with a REG RSP message with Registration Result 2 "Error-Invalid DPC"
Comments	

TPId	M3UA_SGP_RKM_I_005
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP SGP does support the Routing Key Management Procedures
Reference	Section 3.6.2 [1] Section 4.4.1 [1]
Purpose	Ensure that the IUT, upon reception of a REG REQ that contains an invalid Network Appearance, responds with a REG RSP message with Registration Result 2 "Error-Invalid Network Appearance"
Comments	

TPId	M3UA_SGP_RKM_I_006
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP SGP does support the Routing Key Management Procedures
Reference	Section 3.6.2 [1] Section 4.4.1 [1]
Purpose	Ensure that the IUT, upon reception of a REG REQ with a Routing Key that is completely identical to an existing Routing Key, responds with a REG RSP message with Registration Result 6 "Error-Cannot Support Unique Routing" if it determines that a unique Routing Key cannot be created
Comments	

TPId	M3UA_SGP_RKM_I_007
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP SGP does support the Routing Key Management Procedures
Reference	Section 3.6.2 [1] Section 4.4.1 [1]
Purpose	Ensure that the IUT, upon reception of a REG REQ that cannot be authorized, responds with a REG RSP with Registration Result 5 "Error-Permission Denied"
Comments	

TPId	M3UA_SGP_RKM_I_008
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP SGP does support the Routing Key Management Procedures SGP does not support dynamic configuration
Reference	Section 3.6.2 [1] Section 4.4.1 [1]
Purpose	Ensure that the IUT, upon reception of a REG REQ that contains a Routing Key that does not exist, responds with a REG RSP with Registration Result 7 "Error-Routing Key not Currently Provisioned"
Comments	

TPId	M3UA_SGP_RKM_I_009
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP SGP does support the Routing Key Management Procedures SGP does support dynamic configuration of Routing Keys
Reference	Section 3.6.2 [1] Section 4.4.1[1]
Purpose	Ensure that the IUT, upon reception of a REG REQ that contains a Routing Key which does not currently exist, responds with a REG RSP with Registration Result 8 "Error-Insufficient Resources" if it does not have the capacity to add a new Routing Key and AS entries
Comments	

TPId	M3UA_SGP_RKM_I_010
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP SGP does support the Routing Key Management ProceduresSGP does support dynamic configuration of Routing Keys
Reference	Section 3.6.2 [1] Section 4.4.1 [1]
Purpose	Ensure that the IUT, upon reception of a REG REQ that contains parameters used for creating the new Routing Key entries that are not supported, responds with a REG RSP with Registration Result 9 "Error-Unsupported RK Parameter Field"
Comments	

TPId	M3UA_SGP_RKM_I_01[1]
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP AS in Override mode SGP does support the Routing Key Management Procedures SGP does support dynamic configuration of Routing Keys
Reference	Section 3.6.2 [1] Section 4.4.1 [1]
Purpose	Ensure that the IUT, upon reception of a first REG REQ that specifies a Traffic Mode Type of Override, followed, once the first REG REQ has been ACKed, by a second REG REQ that specifies a Traffic Mode Type of Loadshare, responds to the second REG REQ with a REG RSP with Registration Result 10 "Error-Unsupported/Invalid Traffic Handling Mode"
Comments	

TPId	M3UA_SGP_RKM_I_012
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP AS in Override mode SGP does support the Routing Key Management Procedures SGP does support dynamic configuration of Routing Keys
Reference	Section 3.6.2 [1] Section 4.4.1 [1]
Purpose	Ensure that the IUT, upon reception of a first REG REQ that specifies a Traffic Mode Type of Override, followed, once the first REG REQ has been ACKed, by a second REG REQ that specifies a Traffic Mode Type of Broadcast, responds to the second REG REQ with a REG RSP with Registration Result 10 "Error-Unsupported/Invalid Traffic Handling Mode".
Comments	

TPId	M3UA_SGP_RKM_I_013
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP SGP does support the Routing Key Management Procedures SGP does support dynamic configuration of Routing Keys
Reference	Section 3.6.2[1] Section 4.4.1 [1]
Purpose	Ensure that the IUT, upon reception of a REG REQ that specifies a Traffic Mode Type of 4 (i.e. invalid), responds with a REG RSP with Registration Result 10 "Error-Unsupported/Invalid Traffic Handling Mode"
Comments	

TPId	M3UA_SGP_RKM_I_014
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP AS in Loadshare mode SGP does support the Routing Key Management Procedures SGP does support dynamic configuration of Routing Keys
Reference	Section 3.6.2 [1] Section 4.4.1 [1]
Purpose	Ensure that the IUT, upon reception of a first REG REQ that specifies a Traffic Mode Type of Loadshare, followed, once the first REG REQ has been ACKed, by a second REG REQ that specifies a Traffic Mode Type of Override, responds to the second REG REQ with a REG RSP with Registration Result 10 "Error-Unsupported/Invalid Traffic Handling Mode"
Comments	

TPId	M3UA_SGP_RKM_I_015
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP AS in Loadshare mode SGP does support the Routing Key Management ProceduresSGP does support dynamic configuration of Routing Keys
Reference	Section 3.6.2 [1] Section 4.4.1 [1]
Purpose	Ensure that the IUT, upon reception of a first REG REQ that specifies a Traffic Mode Type of Loadshare, followed, once the first REG REQ has been ACKed, by a second REG REQ that specifies a Traffic Mode Type of Broadcast, responds to the second REG REQ with a REG RSP with Registration Result 10 "Error-Unsupported/Invalid Traffic Handling Mode"
Comments	

TPId	M3UA_SGP_RKM_I_017
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP AS in Broadcast mode SGP does support the Routing Key Management ProceduresSGP does support dynamic configuration of Routing Keys
Reference	Section 3.6.2 [1] Section 4.4.1 [1]
Purpose	Ensure that the IUT, upon reception of a first REG REQ that specifies a Traffic Mode Type of Broadcast, followed, once the first REG REQ has been ACKed, by a second REG REQ that specifies a Traffic Mode Type of Override, responds to the second REG REQ with a REG RSP with Registration Result 10 "Error-Unsupported/Invalid Traffic Handling Mode."
Comments	NOTE: ETSI does not recommend the use of "Broadcast" mode.

TPId	M3UA_SGP_RKM_I_018
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP AS in Broadcast mode SGP does support the Routing Key Management ProceduresSGP does support dynamic configuration of Routing Keys
Reference	Section 3.6.2 [1] Section 4.4.1 [1]
Purpose	Ensure that the IUT, upon reception of a first REG REQ that specifies a Traffic Mode Type of Broadcast, followed, once the first REG REQ has been ACKed, by a second REG REQ that specifies a Traffic Mode Type of Loadshare, responds to the second REG REQ with a REG RSP with Registration Result 10 "Error-Unsupported/Invalid Traffic Handling Mode."
Comments	NOTE: ETSI does not recommend the use of "Broadcast" mode

TPId	M3UA_SGP_RKM_I_020
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP SGP does support the Routing Key Management ProceduresSGP does support dynamic configuration of Routing Keys
Reference	Section 3.6.4 [1] Section 4.4.2 [1]
Purpose	Ensure that the IUT, upon reception of a Dereg REQ for a Routing Context that was not registered, responds with a Dereg RSP with Deregistration Result 4 "Error-Not Registered"
Comments	

TPId	M3UA_SGP_RKM_I_021
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP SGP does support the Routing Key Management Procedures SGP does support dynamic configuration of Routing Keys registered
Reference	Section 3.6.4 [1] Section 4.4.2 [1]
Purpose	Ensure that the IUT, upon reception of a Dereg REQ for a Routing Context that was registered but not authorized to deregister, responds with a Dereg RSP with Deregistration Result 3 "Error-Permission Denied"
Comments	

TPId	M3UA_SGP_RKM_I_022
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-ACTIVE at the SGP SGP does support the Routing Key Management Procedures SGP does support dynamic configuration of Routing Keys Routing Key registered
Reference	Section 3.6.4 [1] Section 4.4.2 [1]
Purpose	Ensure that the IUT, upon reception of a Dereg REQ issued by an ASP marked as ASP Active in that Routing Context, responds with a Dereg RSP with Deregistration Result 5 "Error-ASP Currently Active for Routing Context"
Comments	

TPId	M3UA_SGP_RKM_I_023
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-ACTIVE at the SGP SGP does support the Routing Key Management Procedures SGP does support dynamic configuration of Routing Keys Routing Key Registered
Reference	Section 3.1.2 [1] Section 3.8.1 [1]
Purpose	Ensure that the IUT, upon reception of a message which class is 9 (RKM) and type is different from 0 ("Reserved"), 1 ("Registration Request"), 2 ("Registration Response"), 3 ("Deregistration Request"), and 4 ("Deregistration Response"), responds with an ERROR message with reason 0x04 ("Unsupported Message Type")
Comments	

5.3 Test Purposes for Application Server Process

5.3.1 ASP State Maintenance Procedures

5.3.1.1 Valid behaviour

TPId	M3UA_ASP_ASPSM_V_002
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-DOWN at the SGP
Reference	Section 3.1.1 [1] Section 4.3.4.1 [1]
Purpose	Ensure that the IUT sends an ASP Up with a Version in the Common Message Header set to 1
Comments	

TPId	M3UA_ASP_ASPSM_V_005
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP
Reference	Section 3.1.1 [1] Section 4.3.4.2 [1]
Purpose	Ensure that the IUT sends an ASP Down with a Version in the Common Message Header set to 1
Comments	Requires Clarification in the IG

5.3.1.2 Invalid behaviour

TPId	M3UA_ASP_ASPSM_I_001
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP
Reference	Section 3.1.1 [1] Section 3.8.1 [1]
Purpose	Ensure that the IUT, upon reception of an ASP Up Ack that indicates a version 2 of the M3UA protocol, responds with an ERROR message with reason 0x01 "Invalid Version"
Comments	Requires clarification in the IG

TPId	M3UA_ASP_ASPSM_I_002
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP
Reference	Section 3.1.1 [1] Section 3.8.1 [1]
Purpose	Ensure that the IUT, upon reception of an ASP Down Ack that indicates a version 2 of the M3UA protocol, responds with an ERROR message with reason 0x01 "Invalid Version"
Comments	Requires Clarification in the IG

TPId	M3UA_ASP_ASPSM_I_003
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP
Reference	Section 3.1.2 [1] Section 3.8.1[1]
Purpose	Ensure that the IUT, after sending an ASP Up, upon reception of a message which class is 3 (ASPSM) and type is different from 0 (Reserved) 1(ASP Up), 2 (ASP Down), 3 (Heartbeat), 4 (ASP Up Ack), and 5 (ASP Down Ack) responds with an ERROR message with reason 0x04 "Unsupported Message Type"
Comments	

5.3.1.3 inOpportune behaviour

TPId	M3UA_ASP_ASPSM_O_001
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-DOWN at the SGP
Reference	Section 4.3.4.1 [1]
Purpose	Ensure that the IUT, after sending an ASP Up, upon reception of an ASP Down Ack, does not send an ASP Active
Comments	

TPId	M3UA_ASP_ASPSM_O_002
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-DOWN at the SGP
Reference	Section 3.8.1 [1]
Purpose	Ensure that the IUT, after sending an ASP Up, upon reception of an ASP Active Ack, does not send DATA messages
Comments	The IUT MAY send an error message "unexpected message" and/or retransmit the ASP Up after T(Ack) expiry

5.3.2 ASP Traffic Maintenance Procedures

5.3.2.1 Valid behaviour

TPId	M3UA_ASP_ASPTM_V_001
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP
Reference	Section 4.3.4.3 [1]
Purpose	Ensure that the IUT sends an ASP Active to indicate that it is ready to start processing traffic
Comments	

TPId	M3UA_ASP_ASPTM_V_002
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP
Reference	Section 3.1.1 [1] Section 4.3.4.3 [1]
Purpose	Ensure that the IUT sends an ASP Active with a Version in the Common Message Header set to 1
Comments	Requires Clarification in the IG

TPId	M3UA_ASP_ASPTM_V_005
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-ACTIVE at the SGP
Reference	Section 3.1.1 [1] Section 4.3.4.4 [1]
Purpose	Ensure that the IUT sends an ASP Inactive with a Version in the Common Message Header set to 1
Comments	Requires Clarification in the IG

TPId	M3UA_ASP_ASPTM_V_007
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-ACTIVE at the SGP
Reference	Section 4.3.4.6 [1]
Purpose	Ensure that the IUT, upon reception of a Heartbeat message, responds with a Heartbeat Ack
Comments	

TPId	M3UA_ASP_ASPTM_V_008
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-ACTIVE at the SGP
Reference	Section 4.3.4.6 [1]
Purpose	Ensure that the IUT, upon reception of a Heartbeat message that contains an opaque Heartbeat Data parameter, responds with a Heartbeat Ack that echoes back unchanged the opaque Heartbeat Data parameter
Comments	

5.3.2.2 Invalid behaviour

TPId	M3UA_ASP_ASPTM_I_001
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP
Reference	Section 3.8.1 [1]
Purpose	Ensure that the IUT, upon reception of an ASP Active Ack that indicates a version 2 of the M3UA protocol, responds with an ERROR message with reason 0x01 "Invalid Version" and does not send DATA messages since the ASP Active Ack was invalid.
Comments	Requires clarification in the IG

TPId	M3UA_ASP_ASPTM_I_002
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP
Reference	Section 3.8.1 [1]
Purpose	Ensure that the IUT, upon reception of an ASP Inactive Ack that indicates a version 2 of the M3UA protocol, responds with an ERROR message with reason 0x01 "Invalid Version"
Comments	Requires clarification in the IG

TPId	M3UA_ASP_ASPTM_I_003
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-DOWN at the SGP
Reference	Section 3.1.2 [1] Section 3.8.1 [1]
Purpose	Ensure that the IUT, after sending an ASP Active, upon reception of a message which class is 4 (ASPTM) and type is different from 0 (Reserved) 1(ASP Active), 2 (ASP Inactive), 3 (ASP Active Ack), and 4 (ASP Inactive Ack), responds with an ERROR message with reason 0x04 "Unsupported Message Type"
Comments	

5.3.2.3 inOpportune behaviour

TPId	M3UA_ASP_ASPTM_O_001
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP
Reference	Section 3.8.1 [1] Section 4.3.4.3 [1]
Purpose	Ensure that the IUT, after sending an ASP Active, upon reception of an ASP Up Ack, does not send DATA messages
Comments	The IUT MAY send an error message "unexpected message" and/or retransmit the ASP Active after T(Ack) expiry

5.3.3 Message Transfer

5.3.3.1 Valid behaviour

TPId	M3UA_ASP_MTR_V_001
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASPs marked as ASP Active at the SGP Multiple Routing Keys and Routing Contexts are being used across a common association
Reference	Section 3.3.1 [1]
Purpose	Ensure that the IUT includes the Routing Context in any Payload Data Message
Comments	

TPId	M3UA_ASP_MTR_V_002
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASPs marked as ASP Active at the SGP Multiple Routing Keys and Routing Contexts are being used across a common association
Reference	Section 3.3.1 [1]
Purpose	Ensure that the IUT includes the Protocol Data parameter in any Payload Data Message
Comments	

TPId	M3UA_ASP_MTR_V_003
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP
Reference	Section 4.1.1 [1]
Purpose	Ensure that the IUT sends DATA messages on a valid SCTP stream other than stream "0".
Comments	

5.3.3.2 Invalid behaviour

TPId	M3UA_ASP_MTR_I_001
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-ACTIVE at the SGP
Reference	Section 3.8.1 [1]
Purpose	Ensure that the IUT, upon reception of a DATA message that specifies a protocol version 2, responds with an ERROR message with reason 0x01 "Invalid Version"
Comments	Requires clarification in IG.

TPId	M3UA_ASP_MTR_I_002
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-ACTIVE at the SGP
Reference	Section 3.1.2 [1] Section 3.8.1 [1]
Purpose	Ensure that the IUT, upon reception of a message that specifies a class different from 0 ("Management Message"), 1 ("Transfer Message"), 2 ("SS7 Signalling Network Message"), 3 ("ASP State Maintenance Message"), 4 ("ASP Traffic Maintenance Message"), or 9 ("Routing Key Management"), responds with an ERROR message with reason 0x03 "Unsupported Message Class"
Comments	

TPId	M3UA_ASP_MTR_I_003
Status	Mandatory
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-ACTIVE at the SGP
Reference	Section 3.1.2 [1] Section 3.8.1 [1]
Purpose	Ensure that the IUT, upon reception of a message that specifies a class equal to 1 ("Transfer Message") and a type different from 0 ("Reserved"), and 1 ("Payload DATA") responds with an ERROR message with reason 0x04 "Unsupported Message Type"
Comments	

5.3.4 Routing Key Management Procedures

NOTE: Differences between:

- Dynamic registration shall not be used for configuration management.
- The configuration of the system shall be modified only by the management system, and not by the protocol itself according to clause 4.6 of TS 102 142 [5].
- Dynamic registration of Routing Keys shall not be used for configuration management according to clause 5.2 of TS 102 142 [5].
- The Routing Key to enable messages to be distributed to the appropriate AS shall have a granularity no smaller than Point Code according to clause 5.3 of TS 102 142 [5].

General difference:

- The "broadcast" traffic mode shall not be used according to clause 4.4 of TS 102 142 [5].

5.3.4.1 Valid behaviour

TPId	M3UA_ASP_RKM_V_002
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP SGP does support the Routing Key Management Procedures SGP does support dynamic configuration of Routing Keys
Reference	Section 3.6.1 [1] Section 4.4.1 [1]
Purpose	Ensure that the IUT sends a REG REQ that contains a valid Routing Key when it wishes to dynamically register with an SGP as an ASP within an AS.
Comments	

TPId	M3UA_ASP_RKM_V_003
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP SGP does support the Routing Key Management Procedures ASP Registered
Reference	Section 3.6.3 [1] Section 4.4.2 [1]
Purpose	Ensure that the IUT sends a DEREG REQ when it wishes to deregister with an SGP as an ASP within an AS.
Comments	

TPId	M3UA_ASP_RKM_V_004
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-INACTIVE at the SGP SGP does support the Routing Key Management Procedures SGP does support dynamic configuration of Routing Keys ASP Registered
Reference	Section 3.6.2 [1] Section 3.6.3 [1] Section 4.4.2 [1]
Purpose	Ensure that the IUT sends a DEREG REQ that includes the Routing Context returned by the SGP in the REG RSP when registration occurred when it wishes to deregister with an SGP as an ASP within an AS.
Comments	

5.3.4.2 Invalid behaviour

TPId	M3UA_ASP_RKM_I_001
Status	Optional
Pre-condition	Successfully established SCTP association between the SGP and the ASP ASP marked as ASP-ACTIVE at the SGP ASP not registered
Reference	Section 3.1.2 [1] Section 3.8.1 [1]
Purpose	Ensure that the IUT, after sending a REG REQ, upon reception of a message which class is 9 (RKM) and type is different from 0 ("Reserved"), 1 ("Registration Request"), 2 ("Registration Response"), 3 ("Deregistration Request"), and 4 ("Deregistration Response"), responds with an ERROR message with reason 0x04 ("Unsupported Message Type")
Comments	

5.3.4.3 inOpportune behaviour

Void.

Annex A (informative): Bibliography

draft-ietf-sigtran-m3ua-implementors-guide-02.txt (2002): "M3UA Implementor's Guide", work in progress.

History

Document history		
V1.1.1	December 2004	Publication