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Technical Specification

Technical Committee for IMS Network Testing (INT);
Malicious Communication Identification (MCID)
Conformance Testing;
Part 3: Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification

Reference

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Foreword

This Technical Specification (TS) has been produced by IMS Network Testing (INT).

The present document is part 3 of a multi-part deliverable covering Malicious Communication IDentification (MCID), as identified below:

Part 1: "Protocol Implementation Conformance Statement (PICS) proforma";

Part 2: "Test Suite Structure and Test Purposes (TSS&TP)";

Part 3: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification".

1 Scope

The present document specifies the Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma based on the Test Suite Structure and Test Purposes defined in TS 186 018-2 [3].

The TSS&TP have been developed to test the Malicious Communication Identification (MCID) PSTN/ISDN simulation services.

The test notation used in the ATS is TTCN-3 (see ES 201 873-1 [9]).

The following test specification- and design considerations can be found in the body of the present document:

- the overall test suite structure;
- the testing architecture;
- the test methods and port definitions;
- the test configurations;
- the design principles, assumptions, and used interfaces to the TTCN-3 tester (System Simulator);
- TTCN styles and conventions;
- the partial PIXIT proforma;
- the modules containing the TTCN-3 ATS.

Annex A provides the Partial Implementation Extra Information for Testing (PIXIT) Proforma of the ATS.

Annex B provides the Testing and Test Control Notation (TTCN-3) part of the ATS.

2 References

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.
- Non-specific reference may be made only to a complete document or a part thereof and only in the following cases:
  - if it is accepted that it will be possible to use all future changes of the referenced document for the purposes of the referring document;
  - for informative references.

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2.1 Normative references

The following referenced documents are indispensable for the application of the present document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

[1] ETSI TS 183 016: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Malicious Communication Identification (MCID); Protocol specification".

[2] ETSI TS 186 018-1: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Malicious Communication Identification (MCID); Part 1: Protocol Implementation Conformance Statement (PICS)".

[3] ETSI TS 186 018-2: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Malicious Communication Identification (MCID); Part 2: Test Suite Structure and Test Purposes (TSS&TP)".

[4] IETF RFC 3261 (2002): "SIP: Session Initiation Protocol".

[5] ISO/IEC 9646-1: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".

[7] ISO/IEC 9646-7: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".

[9] ETSI ES 201 873-1 (V3.4.1): "Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; Part 1: TTCN-3 Core Language".

[10] ETSI ES 201 873-2: "Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; Part 2: TTCN-3 Tabular presentation Format (TFT)".

[11] ETSI ES 201 873-5: "Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; Part 5: TTCN-3 Runtime Interface (TRI)".

[12] ETSI ES 201 873-6: "Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; Part 6: TTCN-3 Control Interface (TCI)".

[13] ETSI TS 102 027-3 (V3.1.1): "Methods for Testing and Specification (MTS); Conformance Test Specification for SIP (IETF RFC 3261); Part 3: Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma".

[14] ETSI TS 102 351 (V2.1.1): "Methods for Testing and Specification (MTS); Internet Protocol Testing (IPT); IPv6 Testing: Methodology and Framework".

[15] ETSI TS 186 005-2: " Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); Terminating Identification Presentation (TIP) and Terminating Identification Restriction (TIR); Part 2: Test Suite Structure and Test Purposes (TSS and TP)".

[16] ETSI TS 186 016-2: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Closed User Group (CUG); Part 2: Test Suite Structure and Test Purposes (TSS&TP)".

[17] ETSI TS 186 017-2: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Anonymous Communication Rejection (ACR) and Communication Barring (CB); Part 2: Test Suite Structure and Test Purposes (TSS&TP)".

[18] IETF RFC 2617: "HTTP Authentication: Basic and Digest Access Authentication".

[19] IETF RFC 1321: "The MD5 Message-Digest Algorithm".

[20] IETF RFC 3455: "Private Header (P-Header) Extensions to the Session Initiation Protocol (SIP) for the 3rd-Generation Partnership Project (3GPP)".

[21] IETF RFC 4028: "Session Timers in the Session Initiation Protocol (SIP)".

2.2 Informative references

The following referenced documents are not essential to the use of the present document but they assist the user with regard to a particular subject area. For non-specific references, the latest version of the referenced document (including any amendments) applies.

[i.1] ETSI EG 202 568: "Methods for Testing and Specification (MTS); Internet Protocol Testing (IPT); Testing: Methodology and Framework".

[i.2] ETSI TS 102 587-2: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Conformance testing for the Peer-to-Peer Digital Private Mobile Radio; Part 2: Test Suite Structure and Test Purposes (TSS&TP) specification".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ISO/IEC 9646-7 [7], TS 102 587-2 [i.2] and the following apply:

abstract test case: Refer to ISO/IEC 9646-1 [5].

Abstract Test Method (ATM): Refer to ISO/IEC 9646-1 [5].

Abstract Test Suite (ATS): Refer to ISO/IEC 9646-1 [5].

Implementation Under Test (IUT): Refer to ISO/IEC 9646-1 [5].

Lower Tester (LT): Refer to ISO/IEC 9646-1 [5].

Test Purpose (TP): Refer to ISO/IEC 9646-1 [5].

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in ISO/IEC 9646-1 [5], ISO/IEC 9646-7 [7] and the following apply:

NOTE: Abbreviations have been used both in the present document and in the TTCN-3 library modules (see annex B).

ACK	SIP message like INVITE, REGISTER
ACR	Anonymous Communication Rejection
AS	Application Server
ATM	Abstract Test Method
ATS	Abstract Test Suite
CB	Communication Barring
CSCF	Call Session Control Function
CUG	Closed User Group
EDS	Encoding/Decoding System
ETS	Executable Test Suite
HTML	HyperText Markup Language
IBCF	Interconnection Border Control Function
ICB	Incoming Communication Barring
I-CSCF	Interrogating CSCF
ICSCF	Interrogating CSCF
IMS	IP Multimedia Subsystem
INT	IMS Network Testing

IP	Internet Protocol
IPV	IP Version
ISC	interface between SUT and AS
ISDN	Integrated Services Digital Network
IUT	Implementation Under Test
LAN	Local Area Network
LT	Lower Tester
LWS	Linear White Spaces
MCID	Malicious Communication Identification
OCB	Outgoing Communication Barring
PA	Platform Adapter
PCO	Point of Control and Observation
P-CSCF	Proxy CSCF
PCSCF	Proxy CSCF
PICS	Protocol Implementation Conformance Statement
PIXIT	Partial Protocol Implementation Extra Information for Testing
PSTN	Public Switched Telephone Network
PTC	Parallel Test Component
SA	SUT Adapter
S-CSCF	Serving CSCF
SDP	Session Description Protocol
SIP	Session Initiation Protocol
SS	Supplementary Services
SUT	System under Test
T3RTS	TTCN 3 Runtime System
TC	Test Case
TCI	TTCN-3 Control Interface
TCP	check
TE	TTCN 3 Executable
TIP	Terminating Identification Presentation
TIR	Terminating Identification Restriction
TL	Test Logging
TM	Test Management
TP	Test Purpose
TRI	TTCN-3 Runtime Interface
TS	Test System
TSI	Transmission Control Protocol
TSS	Test Suite Structure
TTCN	Testing and Test Control Notation
TTCN-3	Testing and Test Control Notation version 3
UDP	User Datagram Protocol
UE	User Equipment
XML	eXtensible Markup Language

4 Abstract Test Method (ATM)

4.1 Network architecture

The SUT is assumed as a complete IMS core network and contains the following components: P-CSCF, I/S-CSCF, E-CSCF and IBCF. As illustrated in the following figure the PCOs for the communication between the systems are Gm, Mw, Ic and Isc. Each component can play role of SUT.

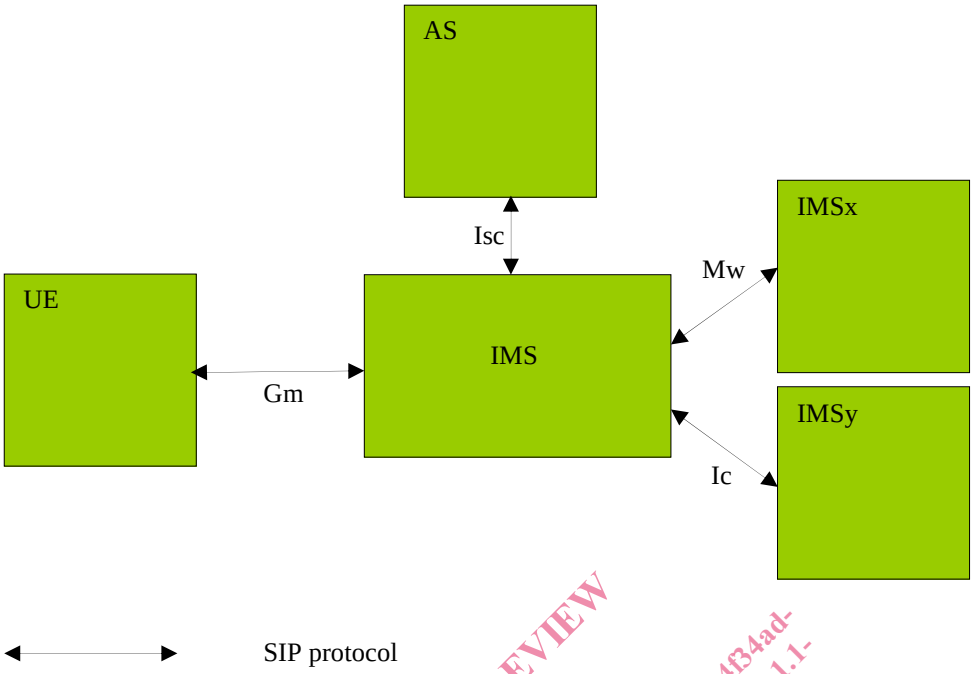

Figure 1: SUT test interface

4.2 Protocol architecture

The Implementation Under Test (IUT) for which this test case specification applies consists of the SIP protocol (see figure 2).

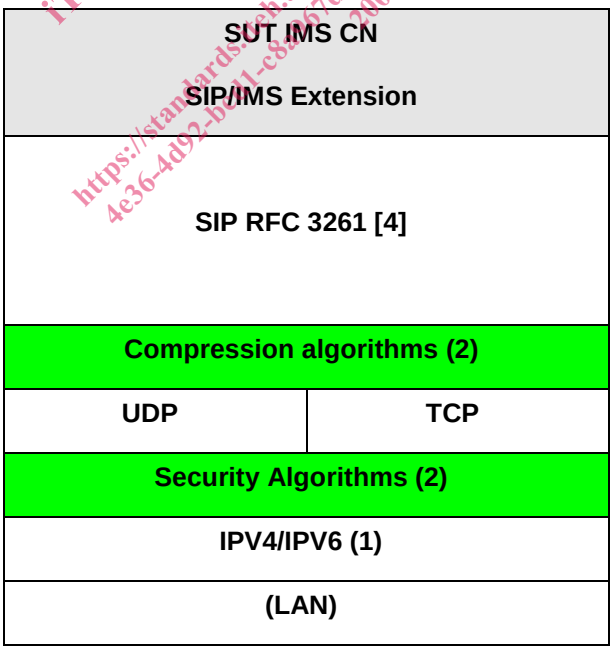

Figure 2: SIP protocol architecture