IUA Protocol Modules for TTCN-3 Toolset with TITAN, Function Specification

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How to Read This Document

This is the Function Specification for the set of IUA protocol modules. IUA protocol modules are developed for the TTCN-3 Toolset with TITAN.

Scope

The purpose of this document is to specify the content of the IUA protocol modules.

General

Protocol modules implement the message structures of the related protocol in a formalized way, using the standard specification language TTCN-3. This allows defining of test data (templates) in the TTCN-3 language [2] and correctly encoding/decoding messages when executing test suites using the Titan TTCN-3 test environment.

Protocol modules are using Titan's RAW encoding attributes [3] and hence are usable with the Titan test toolset only.

Functional Specification

Protocol Version Implemented

This set of protocol modules implements protocol messages and constants of a draft IUA protocol (see [1]).

Modifications/deviations Related to the Protocol Specification

Implemented Messages

All IUA message types of message classes 0, 3, 4 and 5 as listed in chapter 3.1.2 of [1] will be implemented.

Parameters with the following identifiers will be implemented (see chapter 3.1.5 of [1]): 0x0001, 0x0003, 0x0004, 0x0005, 0x0007, 0x0008, 0x0009, 0x000b, 0x000c, 0x000d, 0x000e, 0x000f, 0x0010, and 0x0011.

Protocol Modifications/Deviations

Although the interface identifier parameters 0x0001, 0x0008 (integer) and 0x0003 (text) are

mutually exclusive (see e.g. chapter 3.3.2.5 in [1]), this restriction has not been implemented.

Encoding/Decoding and Other Related Functions

This product also contains encoding/decoding functions that assure correct encoding of messages when sent from Titan and correct decoding of messages when received by Titan. Implemented encoding/decoding functions. Via using the backtrack decoder function dynamic testcase error can be avoided when trying to decode invalid message (in this case the return value won't be `0`):

Name	Type of formal parameters	Type of return value
`enc_PDU_IUA`	PDU_IUA	octetstring
`dec_PDU_IUA`	octetstring	PDU_IUA
`dec_PDU_IUA_backtrack`	octetstring, PDU_IUA	integer

Limitations

Debug log generation is not supported when this revision of this product is used with TITAN version R7A (1.7pl0), because the encoder/decoder functions, automatically generated by TITAN version R7A (1.7pl0) does not contain logging functions. Newer versions of TITAN supports the debug logging within the automatically generated encoder/decoder functions that can be activated by allowing the `DEBUG_ENCDEC` (see [3], clause 7.2.3.2) in TITAN runtime configuration files.

Terminology

TITAN TTCN-3 Test Executor (see [3]).

Abbreviations

ISDN

Integrated Services Digital Network

IUA

ISDN User Application Layer Protocol

PDU

Protocol Data Unit

TTCN-3

Testing and Test Control Notation version 3

References

[1] draft-ietf-sigtran-rfc3057bis-02.txt
ISDN Q.921-User Adaptation Layer

[2] ETSI ES 201 873-1 v.4.4.1 (2012)
The Testing and Test Control Notation version 3. Part 1: Core Language

[3] User Documentation for the TITAN TTCN-3 Test Executor