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

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1 Introduction

1.1 Revision History

Date	Rev	Characteristics	Prepared
2005-05-13	PA1	First draft version	ETHLAFA
2005-05-31	A	Updated after inspection	ETHLAFA
2012-06-28	PC1	Backtrack decoder added	ETHGBH

1.2 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. This document should be read together with the Product Revision Information [3].

1.3 Scope

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

1.4 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] 109 21-CNLC 113 439-4 Uen
IUA Protocol Modules for TTCN-3 Toolset with TITAN, Product Revision Information
- [4] 1/1553-CRL 113 200 Uen
User Documentation for the TITAN TTCN-3 Test Executor

1.5 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

1.6 Terminology

TITAN TTCN-3 Test Executor (see [4]).

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2 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 [4] and hence are usable with the Titan test toolset only.

3 Functional Specification

3.1 Protocol Version Implemented

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

3.2 Modifications/deviations Related to the Protocol Specification

3.2.1 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.

3.2.2 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.

3.3 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):

<u>Name</u>	<u>Type of formal parameters</u>	<u>Type of return value</u>
enc_PDU_IUA	PDU_IUA	octetstring
dec_PDU_IUA	octetstring	PDU_IUA
dec_PDU_IUA_backtrack	octetstring, PDU_IUA	integer

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3.4 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) doesn't 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 TITAN TTCN-3 Test Executor Technical Reference, clause 7.2.3.2) in TITAN runtime configuration files.