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

Contents

1 Introduction

1.1 Revision History

Date	Rev	Characteristics	Prepared
2010-03-08	PA1	First draft version	ETHEKR

1.2 How to Read this Document

This is the Function Specification for the set of TCP protocol modules. TCP 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 TCP protocol modules.

1.4 References

[1] 2/198 17-CRL 113 200 Uen
Programmer's Technical Reference for the TITAN TTCN-3 Test Executor

[2] ETSI ES 201 873-1 v.4.1.1 (2009-06)
The Testing and Test Control Notation version 3. Part 1: Core Language

[3] 109 21-CNL 113 675-1 Uen
TCP Protocol Modules for TTCN-3 Toolset with TITAN, Product Revision Information

[4] IETF RFC 793
Transmission Control Protocol

1.5 Abbreviations

IETF	Internet Engineering Task Force
RFC	Request for Comments
TCP	Transmission Control Protocol
TTCN-3	Testing and Test Control Notation version 3

1.6 Terminology

TITAN	TTCN-3 Test Executor.

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 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 [1] and hence are usable with the TITAN test toolset only.

3 Functional Specification

3.1 Protocol Version Implemented

This protocol module contains the protocol messages and elements of the TCP protocol (see [4]),

3.2 Modifications/deviations Related to the Protocol Specification

3.2.1 Implemented messages

All message types listed in protocol description are implemented.

3.2.2 Protocol Modifications/Deviations

None

3.3 Encoding/Decoding and Other Related Functions

This product also contains encoding/decoding functions that provide for the correct encoding of messages when sent from TITAN and correct decoding of messages when received by TITAN. The encoder can be instructed to update the checksum field with the correct value. The encoder can also be instructed to update the data offset field with the correct value.

Implemented encoding/decoding functions:

Name	Type of formal parameters	Type of return value
f_enc_PDU_TCP	IP_Address, // src. IPv4 or IPv6 address IP_Address, // dest. IPv4 or IPv6 address PDU_TCP,	octetstring
	boolean // automatically calculate data offset boolean // automatically calculate checksum	
f_dec_PDU_TCP	octetstring	PDU_TCP

There is also a function which verifies the checksum field in an encoded TCP message:

Name	Type of formal parameters	Type of return value
f_TCP_verify_checksum	octetstring, IP_Address, IP_Address	boolean