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ICMPv6 Protocol Modules for TTCN-3 Toolset with TITAN, Function Specification

Contents

1 Introduction

1.1 Revision History

Date	Rev	Characteristics	Prepared
2009-02-24	PA1	First draft version	ETHEKR
2010-05-26	PA2	Added CR_TR00017203	ETHEKR

1.2 How to Read this Document

This is the Function Specification for the set of ICMPv6 protocol modules. ICMPv6 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 ICMPv6 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.3.1.1 (06/2005)
The Testing and Test Control Notation version 3. Part 1: Core Language

[3] 109 21-CNL 113 631-1 Uen
ICMPv6 Protocol Modules for TTCN-3 Toolset with TITAN, Product Revision Information

[4] IETF RFC 4443
Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification

[5] IETF RFC 4861
Neighbor Discovery for IP version 6 (IPv6)

1.5 Abbreviations

IETF	Internet Engineering Task Force
ICMPv6	Internet Control Message Protocol for IPv6
IPv6	Internet Protocol Version 6
RFC	Request for Comments

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 ICMPv6 protocol (see [4] and [5]),

3.2 Modifications/deviations Related to the Protocol Specification

3.2.1 Implemented messages

All message types listed in protocol descriptions 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 updates the checksum field with the correct value. Implemented encoding/decoding functions:

Name	Type of formal parameters	Type of return value
f_enc_PDU_ICMPv6	**PDU_ICMPv6, OCT16, OCT16**	**octetstring**
f_dec_PDU_ICMPv6	**octetstring**	**PDU_ICMPv6**

There is also a function which verifies the checksum field in an encoded ICMPv6 message:

Name	Type of formal parameters	Type of return value
f_ICMPv6_verify_checksum	**octetstring, OCT16, OCT16**	**boolean**