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

Contents

1 Introduction

1.1 Revision History

Date	Rev	Characteristics	Prepared
2007-03-14	PA1	First draft version	ETHGBH

1.2 How to Read this Document

This is the Function Specification for the set of ICMP protocol modules. ICMP 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 ICMP 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 113 529-1 Uen
ICMP Protocol Modules for TTCN-3 Toolset with TITAN, Product Revision Information

[4] IETF RFC 792
Internet Control Message Protocol

[5] IETF RFC 950
Internet Standard Subnetting Procedure

[6] IETF RFC 1256
ICMP Router Discovery Messages

[7] IETF RFC 1393
Traceroute Using an IP Option

[8] IETF RFC 1475
TP/IX: The Next Internet

[9] IETF RFC 1788
ICMP Domain Name Messages

[10] IETF RFC 2521
ICMP Security Failures Messages

[11] IETF RFC 3344
IP Mobility Support for IPv4

[12] IETF RFC 3012
Mobile IPv4 Challenge/Response Extensions

1.5 Abbreviations

IETF	Internet Engineering Task Force
IP	Internet Protocol
ICMP	Internet Control Message Protocol
MIP	Mobile IP
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 ICMP protocol (see [4],[5],[6],[7],[8], [9],[10]), with the extensions for MIP available in [11],[12].

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_ICMP	**PDU_ICMP**	**octetstring**
f_dec_PDU_ICMP	**octetstring**	**PDU_ICMP**