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

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# Introduction

## Revision History

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| --- | --- | --- | --- |
| Date | Rev | Characteristics | Prepared |
| 2007-03-14 | PA1 | First draft version | ETHGBH |
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## 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].

## Scope

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

## 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

## 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

## Terminology

TITAN TTCN-3 Test Executor.

# 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.

# Functional Specification

## 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].

## Modifications/deviations Related to the Protocol Specification

### Implemented messages

All message types listed in protocol descriptions are implemented.

### Protocol Modifications/Deviations

None

## 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**