|  |  |
| --- | --- |
|  |  |

The Generic Routing Encapsulation (GRE) Protocol Module for TTCN-3 Toolset with TITAN, Description

**Abstract**

The purpose of this document is to specify the content of The Generic Routing Encapsulation (GRE) protocol module. [1]

Contents

[1 About this Document 2](#_Toc366071487)

[1.1 How to Read this Document 2](#_Toc366071488)

[1.2 Presumed Knowledge 2](#_Toc366071489)

[2 Functionality 2](#_Toc366071490)

[2.1 Protocol version implemented 2](#_Toc366071491)

[2.2 Routing Functionality 2](#_Toc366071492)

[2.3 Modified and non-implemented Protocol Elements 2](#_Toc366071493)

[2.3.1 Relaxed conditions 2](#_Toc366071494)

[2.4 Ericsson-specific changes 2](#_Toc366071495)

[2.5 Backward incompatibilities 3](#_Toc366071496)

[2.6 System Requirements 3](#_Toc366071497)

[3 Feature list 3](#_Toc366071498)

[3.1 Encoding/Decoding and Other Related Functions 3](#_Toc366071499)

[4 Protocol Modules 3](#_Toc366071500)

[4.1 Overview 3](#_Toc366071501)

[4.2 Installation 4](#_Toc366071502)

[4.3 Configuration 4](#_Toc366071503)

[4.4 Module parameters 4](#_Toc366071504)

[5 Terminology 4](#_Toc366071505)

[5.1 Abbreviations 4](#_Toc366071506)

[6 References 4](#_Toc366071507)

[7 Change information 5](#_Toc366071508)

[7.1 R1A 5](#_Toc366071509)

# About this Document

## How to Read this Document

This is the Description for the The Generic Routing Encapsulation (GRE) protocol module. The GRE protocol module is developed for the TTCN-3 Toolset with TITAN. This document should be read together with Product Revision Information [3].

## Presumed Knowledge

To use this protocol module the knowledge of the TTCN-3 language [4] is essential.

# Functionality

The protocol module implements the message structure of the Generic Routing Encapsulation (GRE) using the standard specification language TTCNv3. This allows defining of test data in the TTCNv3 language [4] and correctly encoding/decoding these messages when executing test suites using the TITAN TTCNv3 test environment.

## Protocol version implemented

This set of protocol modules implements protocol messages and constants of RFC 1701 [1].

For example of GRE used over IPv4 networks, please read RFC 1702. [2]

## Routing Functionality

The payload (a packet that needs to be encapsulated and routed) is first encapsulated in a GRE packet and the GRE packet can be encapsulated in some other protocol and then forwarded.

## Modified and non-implemented Protocol Elements

### Relaxed conditions

There is no constraint between received and sent messages.

## Ericsson-specific changes

There is no Ericsson specific change in this product.

## Backward incompatibilities

-

## System Requirements

Protocol modules are a set of TTCN-3 source code files that can be used as part of TTCN-3 test suites only. Hence, protocol modules alone do not put specific requirements on the system used. However in order to compile and execute a TTCN-3 test suite using the set of protocol modules the following system requirements must be satisfied:

* TITAN TTCN-3 Test Executor version R7A (1.7.pl0) or higher installed. For installation guide see [5]. Please note: This version of the protocol module is not compatible with TITAN releases earlier than R7A.

# Feature list

## 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:

Name Type of formal parameters Type of return value

**enc\_GRE\_PDU (in PDU\_GRE pdu) octetstring**

**dec\_GRE\_PDU (in octetstring stream) PDU\_GRE**

# Protocol Modules

## Overview

Protocol modules implement the message structure 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 [4] and correctly encoding/decoding messages when executing test suites using the Titan TTCN-3 test environment.

## Installation

The set of protocol modules can be used for developing TTCN-3 test suites using any text editor. However to make the work more efficient a TTCN-3- enabled text editor is recommended (e.g. nedit, xemacs). Since the GRE protocol is used as a part of a TTCN-3 test suite, this requires Titan TTCN-3 Test Executor be installed before the module can be compiled and executed together with other parts of the test suite. For more details on the installation of TTCN-3 Test Executor see the relevant section of [5].

## Configuration

## Module parameters

No module parameters are used in the ICAP protocol module.

# Terminology

No specific terminology used.

## Abbreviations

ETSI European Telecommunications Standards Institute

IETF Internet Engineering Task Force

GRE Generic Routing Encapsulation

TTCNv3 Testing and Test Control Notation version 3

# References

1. RFC 1701  
   Generic Routing Encapsulation (GRE)
2. RFC 1702  
   Generic Routing Encapsulation over IPv4 networks
3. 109 21-CNL 113 789-1 Uen Rev. A  
   The Generic Routing Encapsulation (GRE) Protocol Module for TTCN-3 Toolset with TITAN, Product Revision Information
4. ETSI ES 201 873-1 v.3.2.1 (02/2007)  
   The Testing and Test Control Notation version 3. Part 1: Core Language
5. 1/198 17-CRL 113 200/3 Uen  
   User Guide for the TITAN TTCN-3 Test Executor

# Change information

## R1A

Initial version.