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

GTP v13.5.0 Protocol Modules for TTCN-3 Toolset with Titan, Description

# Abstract

This is the description for the GTP v13.5.0 protocol module. The GTP v13.5.0 protocol modules are developed for the TTCN-3 Toolset with Titan. This document should be read together with Product Revision Information [3].

Contents

[1 Functionality 1](#_Toc462660811)

[1.1 Implemented protocols 2](#_Toc462660812)

[1.1.1 Modified and non-implemented Protocol Elements 2](#_Toc462660813)

[1.1.2 Ericsson-specific changes 2](#_Toc462660814)

[1.2 Backward incompatibilities 2](#_Toc462660815)

[1.3 System Requirements 2](#_Toc462660816)

[2 Usage 2](#_Toc462660817)

[2.1 Installation 2](#_Toc462660818)

[2.2 Configuration 3](#_Toc462660819)

[2.3 Examples 3](#_Toc462660820)

[3 Interface description 3](#_Toc462660821)

[3.1 Top Level PDU 3](#_Toc462660822)

[3.2 Encoding/decoding and other related functions 3](#_Toc462660823)

[3.2.1 Implemented encoding and decoding functions 3](#_Toc462660824)

[4 Terminology 3](#_Toc462660825)

[4.1 Abbreviations 3](#_Toc462660826)

[5 References 4](#_Toc462660827)

[6 Change information 4](#_Toc462660828)

[6.1 R1A 4](#_Toc462660829)

# Functionality

The GTP v13.5.0 protocol module implements the message structures of the related protocol [5] 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.

The GTP v13.5.0 protocol module uses Titan’s RAW encoding attributes [4] and hence is usable with the Titan test toolset only.

## Implemented protocols

This set of protocol modules implements protocol messages and constants of the GTP v13.5.0 protocol as described in [5] and [6]. The GTPC and GTPU messages are in separate files and have their own separate encoding functions.

### Modified and non-implemented Protocol Elements

None.

### Ericsson-specific changes

None.

## Backward incompatibilities

None

## 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 CRL 113 200/5 R4A (5.3.pl0) or higher installed. For Installation Guide see [2]. Please note: This version of the test port is not compatible with Titan releases earlier than CRL 113 200/5 R4A.

# Usage

## Installation

The set of protocol modules can be used in developing TTCN-3 test suites using any text editor; however, to make the work more efficient a TTCN‑3‑enabled text editor is recommended (for example nedit, xemacs). Since the GTP v13.5.0 protocol is used as a part of a TTCN-3 test suite, this requires 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 [2].

## Configuration

None.

## Examples

None.

# Interface description

## Top Level PDU

The top level PDUs are the TTCN-3 records PDU\_GTPU and PDU\_GTPC.

## Encoding/decoding and other related functions

This product also contains encoding/decoding functions, which assure correct encoding of messages when sent from Titan and correct decoding of messages when received by Titan.

### Implemented encoding and decoding functions

Name Type of formal parameters Type of return value

enc\_PDU\_GTPC in PDU\_GTPC octetstring

dec\_PDU\_GTPC in octetstring PDU\_GTPC

enc\_PDU\_GTPU in PDU\_GTPU octetstring

dec\_PDU\_GTPU in octetstring PDU\_GTPU

dec\_PDU\_GTPU\_ext in octetstring PDU\_GTPU\_ext

# Terminology

## Abbreviations

PDU Protocol Data Unit

GTP GPRS Tunnelling Protocol version 2

GTPC GTP Control

GTPU GTP User

TTCN-3 Testing and Test Control Notation version 3

# References

1. ETSI ES 201 873-1 v4.4.1 (2012-04)   
   The Testing and Test Control Notation version 3. Part 1: Core Language
2. 1/ 198 17-CRL 113 200/5 Uen   
   User Guide for TITAN TTCN-3 Test Executor
3. 109 21-CNL 113 843-1  
   GTP v13.5.0 Protocol Modules for TTCN-3 Toolset with Titan  
   Product Revision Information
4. 2/198 17-CRL 113 200/5 Uen  
   Programmer’s Technical Reference for Titan TTCN–3 Test Executor
5. 3GPP TS 29.060 v13.5.0 (2016-06)  
   3rd Generation Partnership Project; Technical Specification Group  
   Core Network and Terminals; General Packet Radio Service (GPRS); GPRS Tunnelling Protocol (GTP) across the Gn and Gp interface  
   (Release 13)
6. 3GPP TS 29.281 v13.2.0 (2016-06)  
   3rd Generation Partnership Project; Technical Specification Group  
   Core Network and Terminals; General Packet Radio Service (GPRS); GPRS Tunnelling Protocol (GTP) User Plane (GTPv1-U)  
   (Release 13)

# Change information

## R1A

Initial version.