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Frame Relay Protocol Modules for TTCN-3 Toolset with Titan, Description

# Abstract

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

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# Functionality

The Frame Relay 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 Frame Relay 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 Frame Relay protocol as described in [5].

### Modified and non-implemented Protocol Elements

Only default address field format (See A.2 [5]) is implemented.

### 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 R7A (1.7.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 R7A.

# 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 Frame Relay 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 PDU is the TTCN-3 records PDU\_Frame\_Relay.

## 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

f\_PDU\_Frame\_Relay\_Enc in PDU\_Frame Relay octetstring

f\_PDU\_Frame\_Relay\_Enc in octetstring PDU\_Frame\_Relay

# Terminology

## Abbreviations

PDU Protocol Data Unit

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 113 200/3 Uen   
   User Guide for TITAN TTCN-3 Test Executor
3. 109 21-CNL 113 790-1  
   Frame Relay Protocol Modules for TTCN-3 Toolset with Titan  
   Product Revision Information
4. 2/198 17-CRL 113 200/3 Uen  
   Programmer’s Technical Reference for Titan TTCN–3 Test Executor
5. ITU-t Q.922  
   ISDN DATA LINK LAYER SPECIFICATION FOR FRAME MODE BEARER SERVICES

# Change information

None