

ProtoBuff Protocol Module for TTCN-3 Toolset with TITAN, Description

Tímea Moder

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How to Read This Document

This is the Function Description of the **ProtoBuff** Protocol Module (PBPMG). The **ProtoBuff** Protocol Module is developed for the TTCN-3 Toolset with TITAN.

Presumed Knowledge

To use this protocol module the knowledge of the TTCN-3 language [\[1\]](#) is essential.

Basic knowledge of the Google Protocol Buffers protocol [\[3\]](#) is valuable to use this protocol module.

Functionality

Product Contents, Structure

The major parts of PBPMG are:

- a. *PBPMG.awk* and *PBPMG.sh* scripts:

This is the most important part of the product. The scripts parse the *.proto* files and produces the TTCN-3 representation of them and the encoder/decoder functions

- b. Encoder/decoder functions for base types.

Protocol Version Implemented

The PBPMG based on the 2.5.0 and 3.0.0 version of the Google protocol Buffer

Modified and Non-Implemented Protocol Elements

None.

Ericsson-Specific Changes

There is no Ericsson specific change in this product.

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 113 200/6 R3A (6.3.pl0) or higher installed. For installation guide see [\[2\]](#).

NOTE

This version of the protocol module is not compatible with TITAN releases earlier than CRL 113 200/6 R3A.

- GNU AWK 3.1.8 or later

Feature List

Script Operation

The PBPMG reads the definitions from *.proto* files and translates them into TTCN-3 type definitions and C++ encoder decoder functions.

Using the Script

In order to translate the *.proto* files you need to use GNU Awk 3.1.8 or newer.

Usage: **PBPMG.sh** <proto files>

Functional Specification

Encoding/Decoding and Other Related Functions

The PBPMG generates encoder/ decoder function for every messages defined in the *.proto* files

Prototype of the functions:

```
external function f_encode_<message_type_name>(in <message_type_name> pdu) return  
octetstring
```

```
external function f_decode_<message_type_name> (in octetstring pdu) return  
<message_type_name>
```

References

[1] ETSI ES 201 873-1 v3.2.1 (2007-02)The
Testing and Test Control Notation version 3. Part 1: Core Language

[2] User Guide for TITAN TTCN-3 Test Executor

[3] <http://code.google.com/p/protobuf/>