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

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# About this Document

### 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. 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 [1] is essential.

Basic knowledge of the Google Protocol Buffers protocol [4] is valuable to use this protocol module.

### 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. [1/198 17-CRL 113 200/6](http://ttcn.ericsson.se/download/doc/userguide.pdf) Uen  
    User Guide for TITAN TTCN–3 Test Executor
3. 109 21-CNL 113 795-3 Uen  
   ProtoBuff Protocol Module for TTCN-3 Toolset with TITAN, Product Revision Information
4. <http://code.google.com/p/protobuf/>

# Functionality

## Product contents, structure

The major parts of PBPMG are:

1. 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
2. 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

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## Ericsson-specific changes

There is no Ericsson specific change in this product.

## Backward incompatibilities

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## 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]. Please 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 scipt

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>