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# Introduction

## Revision history

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| --- | --- | --- | --- |
| Date | Rev | Characteristics | Prepared |
| 2008-11-13 | PA1 | First draft version | ETHEKR |
| 2013-09-06 | A | References updated | ESCHZOL |
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|  |  |  |  |

## About this Document

### How to Read this Document

This is the User Guide for the WTP protocol module. The WTP protocol module is developed for the TTCN-3 Toolset with TITAN. This document should be read together with Product Revision Information [[3]](#PRI) and Function Specification [[4]](#FS).

### Presumed Knowledge

To use this protocol module the knowledge of the TTCN-3 language [[1]](#TTCN3_CORE_LANGUAGE) and TITAN Test Executor [[2]](#TITAN_UG) is essential.

### 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 113 200/3 Uen  
   User Guide for the TITAN TTCN-3 Test Executor
3. 109 21-CNL 113 619-1 Uen  
   WTP Protocol Modules for TTCN-3 Toolset with TITAN, Product Revision Information
4. 155 17- CNL 113 619  
   WTP Protocol Modules for TTCN-3 Toolset with TITAN, Function Specification
5. 2/198 17-CRL 113 200/3 Uen  
   Programmer’s Technical Reference for the TITAN TTCN-3 Test Executor
6. 1/1531-CRL 113 200/3 Uen  
   Installation Guide for the TITAN TTCN-3 Test Executor

### Abbreviations

WTP Wireless Transaction Protocol

TTCN-3 Testing and Test Control Notation version 3

### Terminology

No specific terminology is used.

## 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 ‎[6]Please note: This version of the protocol module is not compatible with TITAN releases earlier than R7A

# Protocol Modules

## Overview

Protocol modules implement the messages 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 [[1]](#TTCN3_CORE_LANGUAGE) and correctly encoding/decoding messages when executing test suites using the TITAN TTCN-3 test environment [[2]](#TITAN_UG).  
Protocol modules are using TITAN’s RAW encoding attributes [‎[5]](#TITAN_UG) and hence are usable with the TITAN test toolset only.

## 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 (e.g. nedit, xemacs). Since the WTP 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 ‎[6].

## Configuration

None.

## Encoding/Decoding functions

This product also contains encoding/decoding functions, which assure correct RAW encoding of messages when sent from TITAN and correct RAW decoding of messages when received by TITAN. Implemented encoding/decoding functions:  
  
Name Type of formal parameters Type of return value  
enc\_PDU\_WTP PDU\_WTP octetstring

dec\_PDU\_WTP octetstring PDU\_WTP

Note that during the encoding of *WTP\_Concatenation* messages Titan automatically fills in the *lengthType* and *pDU\_Length* fields depending on the actual length of the *pDU\_WTP* field. If the length of *pDU\_WTP* is larger than 127 bytes the long format is automatically chosen. If the length of *pDU\_WTP* is 127 bytes or smaller the short length form is automatically chosen. In both cases the actual length value is also automatically filled in. (The user needs to apply dummy values which will be overwritten. It is recommended to use the *short\_len* with value 0 in the message to be encoded.)

Note that during encoding of *Info\_TPI* and *Option\_TPI* the selection of long or short format is not automatic. If short format is selected but the value is long then it will result in an encoding error. Therefore the user must calculate the length of the value first with the TTCN-3 “lengthof” operation and based on the result set *short\_len* or *long\_len.* The actual length value is however calculated automatically.

# Examples