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JSON v07 2006 Protocol Modules for TTCN-3 Toolset with Titan, Description

# Abstract

This is the description for the JSON v07 2006 protocol module. The JSON v07 2006 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 JSON v07 2006 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 JSON v07 2006 protocol module uses Titan’s TEXT 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 JSON protocol as described in [5].

### Modified and non-implemented Protocol Elements

Numbers: the numbers can only be integers with the digits specified. “.”, “e+”, “e-”, “E+”, “E-” is not handled. Fractions and exponentials are discarded when decoding.

### 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 JSON 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 is the TTCN-3 union JSON\_PDU.

## 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\_JSON JSON\_PDU pdu **charstring**

dec\_JSON **charstring** msg JSON\_PDU

dec\_JSON\_Sliding **charstring** msg, JSON\_PDU pdu **integer**

enc\_JSON\_escaped JSON\_PDU pdu **charstring**

dec\_JSON\_escaped **charstring** msg JSON\_PDU

dec\_JSON\_Sliding\_escaped **charstring** msg, JSON\_PDU pdu **integer**

The usage of the *\_escaped* functions is recommended, since they automatically handle escaped characters in strings.

# Terminology

## Abbreviations

PDU Protocol Data Unit

JSON JavaScript Object Notation

TTCN-3 Testing and Test Control Notation version 3

# References

1. ETSI ES 201 873-1 v4.5.1 (2013-04)   
   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 113 676-2  
   JSON v07 2006 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. IETF RFC 4627  
   The application/json Media Type for JavaScript Object Notation (JSON)  
   July 2006

# Change information

## R2A

Functions for escaping and unescaping in JSON\_String added.