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XTDP Protocol Module User Guide

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# Introduction

## Revision history

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| --- | --- | --- | --- |
| Date | Rev | Characteristics | Prepared |
| 2009-10-26 | PA1 | First draft version  XUL-XTDL.xsd renamed to XTDL.xsd | ELSZSKU  EPTEBAL |
| 2013-01-28 | PB1 | Widget-ID restriction | ETHJGI |
| 2014-06-13 | C | Updated for release | EDNISND |

## How to Read this Document

This is the User Guide for the XTDP protocol module, which is developed for the TTCN-3 Toolset with TITAN. This document should be read together with Product Revision Information ‎[4].

## Presumed Knowledge

To use this protocol module the knowledge of the TTCN-3 language ‎[1], the TITAN Test Executor ‎[2] and the XML to TTCN-3 mapping ‎[5] is essential.

## References

1. ETSI ES 201 873-1 v3.1.1 (06/2005)  
   The Testing and Test Control Notation version 3. Part 1: Core Language
2. 1095-CRL 113 200/4 Uen  
   TITAN TTCN-3 Test Executor, document survey
3. 1/1553-CRL 113 200/4 Uen  
   User Documentation for the TITAN TTCN-3 Test Executor
4. 109 21-CNL 113 663-8 Uen  
   XTDP Protocol Module, Product Revision Information
5. ETSI ES 201 873-9 V4.1.1 (2009-06)  
   ETSI Standard, Methods for Testing and Specification (MTS);The Testing and Test Control Notation version 3; Part 9: Using XML schema with TTCN-3

## Abbreviations

ETSI European Telecommunications Standards Institute

TTCN-3 Testing and Test Control Notation version 3

XML Extensible Markup Language

XSD XML Schema Definition

## Terminology

No specific terminology is used.

## System Requirements

Protocol module is a set of TTCN-3 source code files that can be used as part of TTCN-3 test suites only. So in order to compile and execute a TTCN-3 test suite using the XTDP protocol module the TITAN TTCN-3 Test Executor version R8A (1.8.pl0) or higher must be installed. For installation guide see ‎[2].

**Note:** This version of the protocol module is not compatible with TITAN releases earlier than R8A.

# Protocol Module

## Overview

Protocol module implements the message structures of the related protocol in a formalized way, using the standard specification language TTCN-3. This allows definition of test data in TTCN-3 language ‎[1] and correct encoding/decoding of messages when executing test suites using the Titan TTCN-3 test environment ‎[2].

The XTDP protocol module is implemented in the following files:

XTDP\_EncDecFunctions.ttcn

XTDL.xsd  
XTDP-Message.xsd

The XSD files cannot be used directly. These files will be used when creating XTDP messages.

ttcn\_ericsson\_se\_xtdp\_xtdp\_1\_0.ttcn

ttcn\_ericsson\_se\_xtdp\_xul\_1\_0.ttcn

UsefulTtcn3Types.ttcn

XSD.ttcn

**Note:** any restrictions present in the XSD should be taken into account when assigning values to the types generated form the XSDs. For example the widget IDs, parentWidgetId-s in XTDP messages, should follow the pattern:

**"[a-zA-Z0-9]([a-zA-Z0-9]|\_| |\-|\.|/){1,}"**

## Installation

The protocol module 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 XTDP 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].

## Description of encoding and decoding functions

These functions are generated by the TITAN TTCN-3 Test Executor. Module XTDP\_EncDecFunctions.ttcn contains the external function declarations of these functions.

## Configuration

### Configuration for IPL4asp CNL 113 531

For the IPL4asp CNL 113 531 testport the function f\_XTDP\_getMsgLen(…) can be used for message delineation. For example, if we would like to use the component type definition foo\_CT, then a possible implementation of a server port opening can be done as in the function f\_connectToServerGui() example below.

type component foo\_CT {

port IPL4asp\_PT IPL4;

…

}

function f\_connectToServerGui(in charstring pl\_addr, in integer pl\_port)

runs on foo\_CT return integer //connId

{

var integer vl\_connId;

//map

map(self:IPL4, system:IPL4);

//connect to GUI

var Result result:= IPL4asp\_PortType.f\_IPL4\_connect(

IPL4,

pl\_addr, pl\_port,

"0.0.0.0", 0,

vl\_connId, {tcp := {}})

if (ispresent(result.errorCode)) {

log("Connection failed: ",result.errorCode);

setverdict(fail);

stop;

}

log("Connection open: ",result);

setverdict(pass);

vl\_connId:= result.connId

//register message dissector for receiving

var f\_IPL4\_getMsgLen fcb\_msglen := refers(f\_XTDP\_getMsgLen);

f\_IPL4\_setGetMsgLen(IPL4, vl\_connId, fcb\_msglen, {})

return vl\_connId;

}

### Configuration for TCPasp CNL 113 347

For the TCPasp CNL 113 347 the message delineation can configured via testport parameters, similarly to the following. Let us assume that the TCP port has been named as “tcp\_port”.

[TESTPORT\_PARAMETERS]

system.tcp\_port.packet\_hdr\_length\_offset := "0"

system.tcp\_port.packet\_hdr\_nr\_bytes\_in\_length := "4"

system.tcp\_port.packet\_hdr\_byte\_order := "MSB"