ISUP ITU-T Protocol Modules for TTCN-3 Toolset with TITAN, User Guide

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# Introduction

## Revision history

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| --- | --- | --- | --- |
| Date | Rev | Characteristics | Prepared |
| 2004-10-01 | PA1 | First draft version | ETHEKR |
| 2004-10-01 | A | Updated after inspection | ETHEKR |
| 2005-01-20 | PB1 | Chapter 2.4 added | ETHEKR |
| 2005-01-28 | B | Approved version | ETHGBH |
| 2007-01-30 | PC1 | Updated for TITAN R7 | ETHBAAT |
|  |  |  |  |

## About this Document

### How to Read this Document

This is the User Guide for the ISUP ITU-T protocol module. The ISUP ITU-T protocol module is developed for the TTCN-3 Toolset with TITAN. This document should be read together with Product Revision Information [3] and Function Specification [4].

### Presumed Knowledge

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

### References

[1] ETSI ES 201 873-1 v.2.2.1 (02/2003)  
The Testing and Test Control Notation version 3. Part 1: Core Language

[2] 1/1553-CRL 113 200 Uen  
User Documentation for the TITAN TTCN-3 Test Executor

[3] 109 21-CNL 113 365-4 Uen  
ISUP ITU-T Protocol Modules for TTCN-3 Toolset with TITAN, Product Revision Information

[4] 155 17- CNL 113 365 Uen  
ISUP ITU-T Protocol Modules for TTCN-3 Toolset with TITAN, Function Specification

### Abbreviations

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 R7A (1.7.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 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] and correctly encoding/decoding messages when executing test suites using the Titan TTCN-3 test environment [2].

Protocol modules are using Titan’s RAW encoding attributes [2] and hence is 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 ISUP ITU-T 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.

## Sending order of parameters

From R2A02 the parameters are in “set” and not in “set of”. It has the consequence, that the parameters will be sent out in fixed order (as defined in set). So the tester cannot modify the sending order of the parameters with modification of the field order in the template. There is a limited number of parameters, which can be multiple within a message (e.g.: Generic digits). If such a parameter is repeated in the message then they are sent out directly after each other.

Parameters in the received message can be in any order, but after decoding the tester will see the parameters in order as defined in TTCN protocol module.

If the order is important, then the previous version of this protocol module should be used.

# Examples

The demo directory of the deliverable contains the following additional files:

Makefile – used for controlling the compiling procedure.

General\_Types.ttcn – contains types which are used by several protocols. ISUP ITU-T imports information from this file.

ISUP\_Mapping.ttcn – contains component definitions and encoding decoding function for ISUP ITU-T.

MTP3asp\_PT.cc, MTP3asp\_PT.hh, MTP3asp\_PortType.ttcn, MTP3asp\_Types.ttcn, mphclib.h, libmphclib.a – these files are needed for the MTP3 test port