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M2UA Protocol Modules for TTCN-3 Toolset with TITAN, User Guide

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# Introduction

## Revision history

|  |  |  |  |
| --- | --- | --- | --- |
| Date | Rev | Characteristics | Prepared |
| 2005-07-27 | PA1 | First draft version | ETHGBH |
| 2005-07-29 | PA2 | Updated after inspection | ETHGBH |
| 2007-01-30 | PB1 | Updated for TITAN R7 | ETHBAAT |
|  |  |  |  |

## About this Document

### How to Read this Document

This is the User Guide for the M2UA protocol module. The M2UA 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] is essential.

M2UA is specified in the IETF RFC [5]. A Function Specification was not available.

### References

[1] ETSI ES 201 873-1 v.3.1.1 (06/2005)  
The Testing and Test Control Notation version 3. Part 1: Core Language

[2] 1095-CRL 113 200 Uen  
Document Survey for the TITAN TTCN-3 Test Executor

[3] 109 21-CNL 113 465 –1 Uen  
M2UA Protocol Modules for TTCN-3 Toolset with TITAN, Product Revision Information

[4] 155 17-CNL 113 465  
M2UA Protocol Modules for TTCN-3 Toolset with TITAN, Function Specification

[5] IETF RFC 3331  
Signaling System 7 (SS7) Message Transfer Part 2 (MTP2) – User Adaptation Layer

### Abbreviations

ASP Application Server Process

ISDN Integrated Services Digital Network

M2UA Message Transfer Part 2 User Application Layer Protocol

MGC Media Gateway Controller

PDU Protocol Data Unit

TEI Terminal Endpoint Identifier

TTCN-3 Testing and Test Control Notation version 3

### Terminology

#### Application Server Process (ASP)

A process instance of an application Server. Examples of Application Server Processes are primary or backup MGC instances.

## 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.

Protocol modules are using Titan’s RAW encoding attributes [2] and hence are usable with the Titan test toolset only.

The table below contains the implemented messages and the corresponding TTCN-3 type records. Using those type records, templates can be defined to send and receive a given message.

|  |  |  |
| --- | --- | --- |
| Message name | Reference | Corresponding type record in **M2UA\_Types.ttcn** |
| Data | [5] 3.3.1.1 | M2UA\_DATA |
| Establish Request | [5] 3.3.1.3 | M2UA\_EST\_REQ |
| Establish Confirm | [5] 3.3.1.3 | M2UA\_EST\_CFM |
| Release Request | [5] 3.3.1.4 | M2UA\_REL\_REQ |
| Release Confirm | [5] 3.3.1.4 | M2UA\_REL\_CFM |
| Release Indication | [5] 3.3.1.4 | M2UA\_REL\_IND |
| State Request | [5] 3.3.1.5 | M2UA\_STATE\_REQ |
| State Confirm | [5] 3.3.1.6 | M2UA\_STATE\_CFM |
| State Indication | [5] 3.3.1.7 | M2UA\_STATE\_IND |
| Data Retrieval Request | [5] 3.3.1.9 | M2UA\_DATA\_RETR\_REQ |
| Data Retrieval Confirm | [5] 3.3.1.10 | M2UA\_DATA\_RETR\_CFM |
| Data Retrieval Indication | [5] 3.3.1.11 | M2UA\_DATA\_RETR\_IND |
| Data Retrieval Compete Indication | [5] 3.3.1.12 | M2UA\_DATA\_RETR\_COMP\_IND |
| Congestion Indication | [5] 3.3.1.8 | M2UA\_CONG\_IND |
| Data Acknowledge | [5] 3.3.1.2 | M2UA\_DATA\_ACK |
| ASP Up | [5] 3.3.2.1 | M2UA\_ASPUP |
| ASP Up Ack | [5] 3.3.2.2 | M2UA\_ASPUP\_Ack |
| ASP Down | [5] 3.3.2.3 | M2UA\_ASPDN |
| ASP Down Ack | [5] 3.3.2.4 | M2UA\_ASPDN\_Ack |
| ASP Active | [5] 3.3.2.7 | M2UA\_ASPAC |
| ASP Active Ack | [5] 3.3.2.8 | M2UA\_ASPAC\_Ack |
| ASP Inactive | [5] 3.3.2.9 | M2UA\_ASPIA |
| ASP Inactive Ack | [5] 3.3.2.10 | M2UA\_ASPIA\_Ack |
| Heartbeat | [5] 3.3.2.5 | M2UA\_BEAT |
| Heartbeat Ack | [5] 3.3.2.6 | M2UA\_BEAT\_Ack |
| Error | [5] 3.3.3.1 | M2UA\_ERR |
| Notify | [5] 3.3.3.2 | M2UA\_NTFY |
| Registration Request | [5] 3.3.4.1 | M2UA\_REG\_REQ |
| Registration Response | [5] 3.3.4.2 | M2UA\_REG\_RSP |
| Deregistration Request | [5] 3.3.4.3 | M2UA\_DEREG\_REQ |
| Deregistration Response | [5] 3.3.4.4 | M2UA\_DEREG\_RSP |

## 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 M2UA 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.

# Example

There are no examples available for this protocol module.