ICAP Protocol Module for TTCN-3 Toolset with TITAN, Description

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How to Read This Document

This is the Description for the Internet Content Adaption Protocol (ICAP) protocol module. The Internet Content Adaption Protocol (ICAP) protocol module is developed for the TTCN-3 Toolset with TITAN.

Presumed Knowledge

To use this protocol module the knowledge of the TTCN-3 language [3] is essential.

Functionality

The protocol module implements the message structure of the Internet Content Adaption Protocol (ICAP), using the standard specification language TTCNv3. This allows defining of test data in the TTCNv3 language [3] and correctly encoding/decoding these messages when executing test suites using the TITAN TTCNv3 test environment.

Protocol Version Implemented

This set of protocol modules implements protocol messages and constants of RFC 3507 and RFC 2616.

Routing Functionality

Routing functionality is not performed.

Modified and Non-Implemented Protocol Elements

Relaxed Conditions

There is no constraint between received and sent messages.

Ericsson-Specific Changes

There is no Ericsson specific change in this product.

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 R7A (1.7.pl0) or higher installed. For installation guide see [4].

NOTE	This version of the protocol module is not compatible with TITAN releases earlier than R7A.

Feature List

Encoding/Decoding and Other Related Functions

This product also contains encoding/decoding functions that assure correct encoding of messages when sent from TITAN and correct decoding of messages when received by TITAN. Implemented encoding/decoding functions:

Name	Type of formal parameters	Type of return value
`f_ICAP_Enc_binary`	(in PDU_ICAP `pl_msg`)	octetstring;
`f_ICAP_Dec_binary`	(in octetstring `pl_stream`)	PDU_ICAP;
`f_ICAP_MessageLength`	(in octetstring `pl_stream`)	integer;

Message Length Function

The `f_ICAP_MessageLength` function returns the length of the ICAP message from an octetstring. If the length cannot be determined, then it returns the value `-1`.

Protocol Modules

Overview

Protocol modules implement the message 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 [3] and correctly encoding/decoding messages when executing test suites using the Titan TTCN-3 test environment.

Installation

The set of protocol modules can be used for 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 ICAP protocol is used as a part of a TTCN-3 test suite, this requires Titan 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 [4].

Configuration

Module Parameters

No module parameters are used in the ICAP protocol module.

Parser Generation Rules

In order to generate the *.c* and *.h* files from *.y* and *.l* the following *Makefile* rules should be used:

```
ICAP_parse_.tab.c ICAP _parse_.tab.h: ICAP.y
          bison -dv -p ICAP _parse_ -b ICAP _parse_ $<

lex. ICAP _parse_.c: ICAP.l
          flex -Cfr -8 -Bvpp -P ICAP _parse_ ICAP.l
```

The *.h* and *.c* parser files should be generated during the protocol module development. Only the pregenerated files are needed for test case development and test execution.

Terminology

No specific terminology used.

Abbreviations

ETSI

European Telecommunications Standards Institute

IETF

Internet Engineering Task Force

ICAP

Internet Content Adaption Protocol

References

[1] RFC 3507
Internet Content Adaption Protocol

[2] RFC 2616
Hypertext Transfer Protocol

[3] ETSI ES 201 873-1 v.3.2.1 (02/2007)
The Testing and Test Control Notation version 3. Part 1: Core Language

[4] User Guide for the TITAN TTCN-3 Test Executor