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H.248 V2 Protocol Modules for TTCN-3 Toolset with TITAN, Function Specification

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# Introduction

## Revision history

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| --- | --- | --- | --- |
| Date | Rev | Characteristics | Prepared |
| 2005-04-05 | PA1 | First draft version | ETHCKY |
| 2005-04-08 | A | Reviewed version | ETHCKY |
| 2005-06-01 | B | Added SDP parsing description | ETHECS |
| 2005-06-09 | C | Corrections after review | ETHECS |
| 2005-09-08 | PD1 | Encoder/decoder functions are changed | ETHGASZ |
| 2014-07-07 | E | New backtrack SDP decoder | ETHGASZ |

## How to Read this Document

This is the Function Specification for the set of H.248 V2 protocol modules. H.248 V2 protocol modules is developed for the TTCN-3 Toolset with TITAN. This document should be read together with Product Revision Information ‎[4].

## Scope

The purpose of this document is to specify the content of the H.248 V2 protocol modules.

## References

1. H.248.1 (05/2002)  
   Gateway control protocol: Version 2
2. H.248.1 v2 Corrigendum 1 (03/2004)  
   Gateway control protocol: Version 2 Corrigendum 1
3. ETSI ES 201 873-1 v.2.2.1 (02/2003)  
   The Testing and Test Control Notation version 3. Part 1: Core Language
4. 109 21-CNL 113 424-5  
   H.248 V2 Protocol Modules for TTCN-3 Toolset with TITAN, Product Revision Information
5. 1/198 17-CRL 113 200/4  
   User Documentation for the TITAN TTCN-3 Test Executor
6. RFC 2327 SDP: Session Description Protocol
7. H.248.1 (08/2005)  
   Gateway control protocol: Version 3 Draft

## Abbreviations

TTCN-3 Testing and Test Control Notation version 3

## Terminology

No specific terminology is used.

# General

Protocol modules implement the message structures 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.

Protocol module is using Titan’s TEXT encoding attributes ‎[5] for SDP encoder and hence is usable with the Titan test toolset only.

# Functional specification

## Protocol version implemented

This set of protocol modules implements protocol messages of the H.248 V2 ‎[1] with its corrigendum 1 ‎[2] and V3 draft protocol ‎[7].

The protocol module uses Flex/Bison parser to decode messages for better performance. The encoder is configurable to put long, short or random length tokens into the encoded message.

The Local and Remote descriptor described in the H.248 protocol can be further decoded and encoded as SDP messages. This is not done automatically. A H.248 specific SDP protocol module is shipped with this module, which is based on the SDP protocol specification (see ‎[6]), but it includes deviations described in ‎[1] section 7.1.8 and in current document section ‎3.2.2.

## Modifications/deviations related to the protocol specification

### Unimplemented Messages, Information Elements and Constants

None

### Protocol Modifications/Deviations

#### TermIDList

The TermIDList is introduced in H248.1 v3. In this implementation TermID used instead of TermIDList.

#### SDP specific deviations described in ‎[1] section 7.1.8:

* the "s=", "t=" and "o=" lines are optional
* the use of CHOOSE value (‘$’ character) is allowed in place of a single parameter value
* a single session description MUST NOT include more than one media description ("m=" line)

#### Implementation specific deviations:

* Every SDP attribute value is defined as ‘charstring’ type, even if it would contain integer number, in order to allow to contain the value ‘$’ (CHOOSE)
* The ‘H248\_SDP\_contact’ type is not encoded/decoded as it is implemented in the standard SDP protocol module. The email address/phone number field is **NOT** split from the displayable name. Please do not use the ‘disp\_name’ field of the type.
* The SDP parsing functionality is implemented in separate module ‘H248\_SDP\_Types’.

## 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\_H248\_Enc (in PDU\_H248 pl\_pdu) charstring;

f\_H248\_Dec (in charstring pl\_stream) PDU\_H248;

f\_H248\_SDP\_Enc (in H248\_SDP\_Message\_list pl\_msg) charstring;

f\_H248\_SDP\_Dec (in charstring pl\_stream) H248\_SDP\_Message\_list;

f\_H248\_SDP\_Dec\_backtrack(in charstring pl\_stream, out H248\_SDP\_Message\_list pl\_message) integer;