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Information technology — Coding of audio-visual objects —

Part 34: Syntactic description language

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Partie 34: Langage de description syntaxique

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Foreword

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This document was prepared by Joint Technical Committee JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

A list of all parts in the ISO 14496 series can be found on the ISO and IEC websites.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

Introduction

This document describes the mechanism with which bitstream syntax is documented in several standard parts such as in ISO/IEC 14496 or ISO/IEC 23000. This mechanism is called the Syntactic Description Language (SDL) and is documented here in the form of syntactic and semantic rules.

The SDL builds on concepts defined in the C-like syntax used in ISO/IEC 11172-1 and ISO/IEC 13818-1 to define an extensible framework for describing bitstreams. This framework is inspired by class typing system concepts from the C++ and Java programming languages. SDL specialises this class typing system concept by providing facilities for defining bitstream-level quantities, and how they should be parsed.

The aim of this document is to elevate the SDL syntax which has been used for over 20 years to specify encoded bitstreams as a standalone part. The SDL syntax was initially defined in a previous edition of ISO/IEC 14496-1 and this document is largely based on that original syntax.

Lexical elements of the SDL are described first, followed by elementary and composite type constructs to specify bitstreams. Finally, support for general purpose computation and syntactic control flow are addressed. Example SDL specification fragments and corresponding bitstreams are provided to clarify various concepts.

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Part 34:
Syntactic description language

1 Scope

This document specifies a syntactic description language for describing the structure of binary data. It covers the representation of an SDL specification in plain text, the syntax of the SDL and the semantic rules of the SDL.

In scenarios where the usage or interpretation of the SDL are ambiguous or undefined, this document attempts to specify whether such a scenario is considered an invalid SDL specification or will result in undefined behaviour.

NOTE While the SDL borrows from and contains some aspects of a general-purpose programming language, it is not intended, nor is it suitable, to be used for such a purpose. This is reflected in the fact that many concepts related to general-purpose programming languages are not addressed in this document. Examples of concepts considered irrelevant to the SDL and therefore not addressed in this document include storage of an SDL specification in a file, compilation, execution, input/output, execution environment and machine architecture.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 10646, *Information technology — Universal coded character set (UCS)*

IETF RFC 4648, *The Base16, Base32, and Base64 Data Encodings*

IEEE Std 754-2019, *IEEE Standard for Floating-Point Arithmetic*

3 Terms and definitions

For the purposes of this document, the following terms, abbreviations and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
fixed length code
FLC
constant-length direct representation bit fields

3.2
syntactic description language
SDL
language defined by this document that allows the description of a bitstream's syntax