

# INTERNATIONAL STANDARD

# ISO/IEC 15474-2

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## Information technology — CDIF framework —

### Part 2: Modelling and extensibility

*Technologies de l'information — Cadre de référence CDIF —  
Partie 2: Modélisation et extension*

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Reference number  
ISO/IEC 15474-2:2002(E)



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## Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO/IEC 15474 may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 15474-2 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and system engineering*.

ISO/IEC 15474 consists of the following parts, under the general title *Information technology — CDIF framework*:

- *Part 1: Overview*
- *Part 2: Modelling and extensibility*

## Introduction

This standard will assist the vendors and users of modelling tools and meta-data repositories in developing mechanisms for interchanging information. This standard specifies an element of a family of related standards. When used together, these standards specify a mechanism for transferring information between tools.

ISO/IEC 15474-1:2002, *Information technology — CDIF framework — Part 1: Overview* should be read first when initially exploring CDIF. It explains the overall CDIF Architecture and how the family of standards fits together.

This standard, ISO/IEC 15474-2:2002, *Information technology — CDIF framework — Part 2: Modelling and extensibility*, should also be read before the other standards in the CDIF Family of Standards. It defines the CDIF meta-metamodel and the modelling concepts used throughout CDIF and the extensibility mechanism.

This standard has been developed with the wide support and participation of vendors, users, academia and government involved in or familiar with the CASE industry, its products and the general requirements associated with interchanging information between these products.

This document is organized into the following Clauses:

— Clause 1 to 5 are prescribed ISO/IEC Clauses

— Clause 6: Meta-metamodel concepts and facilities

This defines the meta-metamodel, modelling rules and graphical conventions that are used. The data types supported in metamodels are introduced. The concept of the working metamodel is also explained. It also describes the types of extensibility that may be used when extending the CDIF semantic metamodel.

This Clause also describes the responsibilities of an exporter tool with regard to overlapping semantics and maximum output, and those of an importer tool with regard to the retention of information.

— Clause 7: CDIF modelling conventions

This contains the diagramming and documentation conventions used in the CDIF semantic metamodels and in the meta-metamodel specified in this document.

— Clause 8: Meta-metamodel overview

This contains an overview of the CDIF meta-metamodel. This clause includes a meta-metamodel diagram.

— Clause 9: Meta-metamodel summary

This contains an overview of the CDIF meta-metamodel. This clause includes an *AttributableMetaObject* hierarchy, a meta-meta-entity summary and a meta-meta-relationship summary

— Clause 10: Meta-metamodel specification

This contains the full definitions of all the objects in the CDIF meta-metamodel.

# Information technology — CDIF framework —

## Part 2: Modelling and extensibility

### 1 Scope

The CDIF family of standards is primarily designed to be used as a description of a mechanism for transferring information between modelling tools. It facilitates a successful transfer when the authors of the importing and exporting tools have nothing in common except an agreement to conform to CDIF.

The CDIF family of standards includes a semantic metamodel and a transfer format definition. It also includes the specification of a meta-metamodel and associated rules that define a framework for the semantic metamodel and the transfer format. The language that is defined for the transfer format also has applicability as a general language for Import/Export for repositories. The CDIF semantic metamodel also has applicability as the basis of standard definitions for use in repositories.

The standards that form the complete family of CDIF Standards are documented in ISO/IEC 15474-1:2002, *Information technology - CDIF framework - Part 1: Overview*. These standards cover the overall framework, the transfer format and the CDIF semantic metamodel.

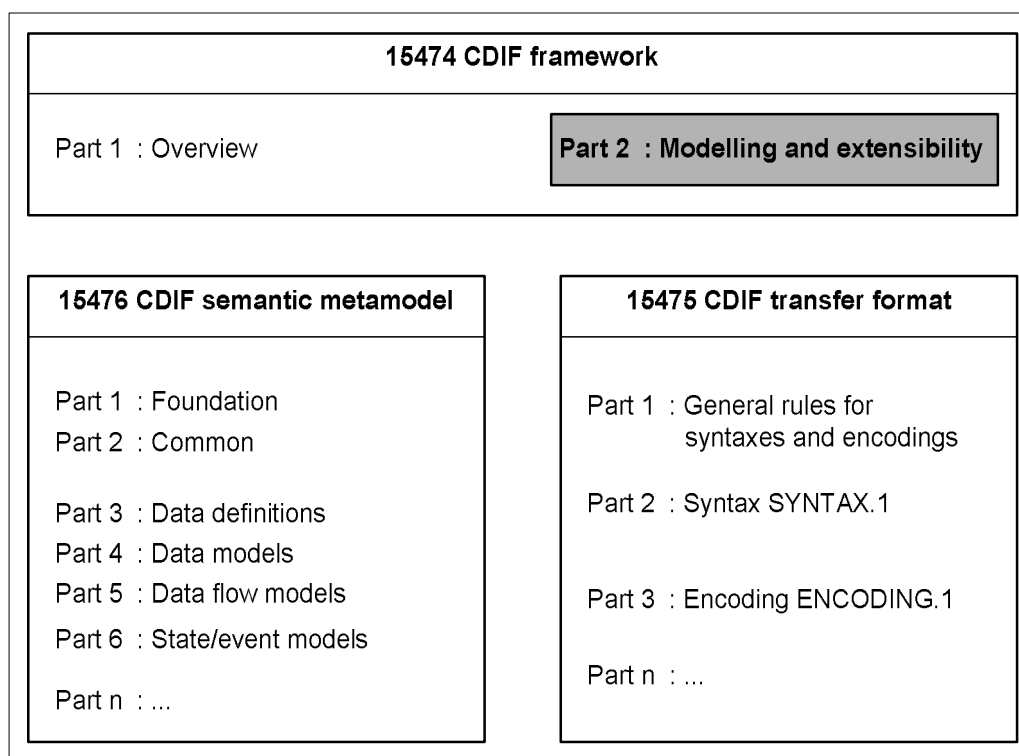


Figure 1 – CDIF family of standards

The diagram in Figure 1 depicts the various standards that comprise the CDIF family of standards. The shaded box depicts this Standard and its position in the CDIF family of standards.



## ISO/IEC 15474-2:2002(E)

This document (ISO/IEC 15474-2:2002, *Information technology - CDIF framework - Part 2: Modelling and extensibility*) includes the definition of the CDIF meta-metamodel and describes the rules and notations used throughout the CDIF family of standards. The rules for extending the CDIF semantic metamodel are also defined.

This document is intended to be used by anyone wishing to understand and/or use CDIF. This document provides an introduction to the entire CDIF family of standards. It is suitable for:

- Those evaluating CDIF,
- Those who wish to understand the principles and concepts of a CDIF transfer, and
- Those developing importers and exporters.

The document, ISO/IEC 15474-1:2002, *Information technology - CDIF framework - Part 1: Overview*, and this framework document ISO/IEC 15474-2:2002, *Information technology - CDIF framework - Part 2: Modelling and extensibility*, should be read first when initially exploring CDIF and before attempting to read other documents in the CDIF family of standards.

While there are no specific prerequisites for reading this document, it will be helpful for the reader to have familiarity with the following:

- Entity-Relationship-Attribute modelling;
- Modelling (CASE) tools;
- Information repositories;
- Data dictionaries;
- Multiple meta-layer modelling.

## 2 Conformance

A product is CDIF architecture conformant if and only if it can, as a property of that product, represent the product's metamodel instances, and/or the product's metamodel using the concepts defined in the ISO/IEC 15474-2:2002, *Information technology — CDIF framework — Part 2: Modelling and extensibility* ("Framework document"), and all the concepts defined in the standard ISO/IEC 15476-1:2002, *Information technology — CDIF semantic metamodel — Part 1: Foundation* ("Foundation document"), and obeys all the constraints and rules for metamodels and meta-data defined in the Framework document, and obeys all the rules and constraints defined in the Foundation document. Conformance to the graphical notation as defined in the Framework document is not required.

## 3 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 15474. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO/IEC 15474 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO/IEC 15474-1:2002, *Information technology — CDIF framework — Part 1: Overview*

ISO/IEC 13238-1:—<sup>1)</sup>, *Information technology — Data management export/import — Part 1: Standardization framework*

ISO/IEC 15476-1:2002, *Information technology — CDIF semantic metamodel — Part 1: Foundation*

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<sup>1)</sup> To be published.