
**Information technology — CDIF transfer
format —**

**Part 2:
Syntax SYNTAX.1**

*Technologies de l'information — Format de transfert CDIF —
Partie 2: Syntaxe SYNTAX.1*
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ISO/IEC 15475-2:2002

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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 15475 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 15475-2 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and system engineering*.

ISO/IEC 15475 consists of the following parts, under the general title *Information technology — CDIF transfer format* :

- *Part 1: General rules for syntaxes and encodings* [ISO/IEC 15475-2:2002
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- *Part 2: Syntax SYNTAX.1*
- *Part 3: Encoding ENCODING.1*

Annex A forms a normative part of this part of ISO/IEC 15475. Annex B is for information only.

Introduction

This standard will assist the vendors and users of modelling tools and metadata 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* and ISO/IEC 15474-2:2002, *Information technology — CDIF framework — Part 2: Modelling and extensibility* should be read first when initially exploring CDIF. The first explains the overall CDIF Architecture and how the family of standards fits together. The second explains the scope, and modelling approach in CDIF. The CDIF Meta-metamodel and extensibility mechanisms are also defined in that document.

ISO/IEC 15475-3:2002, *Information technology — CDIF transfer format — Part 3: Encoding ENCODING.1*, defines an encoding of SYNTAX.1. ISO/IEC 15475-1:2002, *Information technology — CDIF transfer format — Part 1: General rules for syntaxes and encodings* define how CDIF supports multiple exchange syntaxes and encodings.

This document, ISO/IEC 15475-2:2002, *Information technology — CDIF transfer format — Part 2: Syntax SYNTAX.1* defines the CDIF transfer format syntax, SYNTAX.1.

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:

- Clauses 1 to 5 are prescribed ISO/IEC Clauses [ISO/IEC 15475-2:2002](https://standards.iteh.ai/catalog/standards/sist/2410bd9b-b415-4f30-a700-14ac2b9e7ee8/iso-iec-15475-2-2002)
- Clause 6: Concepts and facilities

This specifies the unique identifier for the syntax defined in this document and describes the concept of token separation used in this document.

- Clause 7: Syntax sections and structures in the CDIF transfer

This section describes, in detail, the exact syntax of each of the three major sections of a transfer.

- Annex A (normative): SYNTAX.1 formal grammar

This defines the grammar rules for the syntax in Backus Naur Form (BNF).

- Annex B (informative): Multibyte examples

Supplementary Examples using multibyte codeset encoding are provided.

Information technology — CDIF transfer format —

Part 2: Syntax SYNTAX.1

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 language that is defined for the transfer format also has applicability as a general language for Import/Export from repositories. The CDIF semantic metamodel defined for modelling tools also has applicability as the basis of standard definitions for use in repositories.

The standards, which 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.

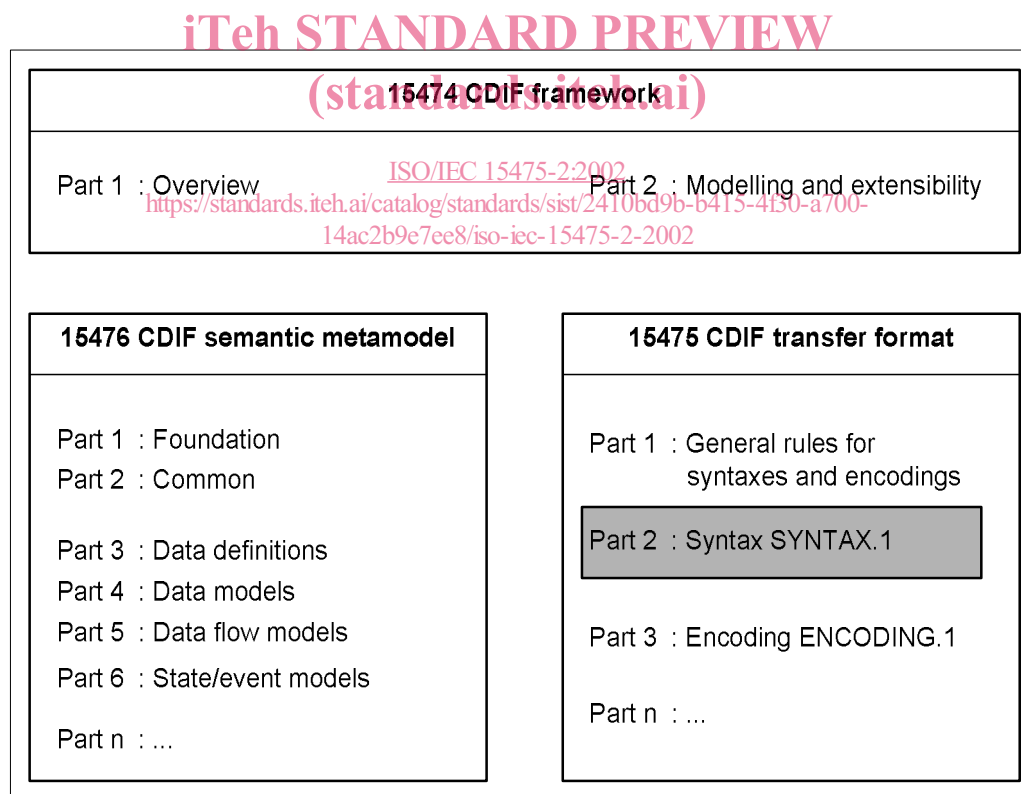


Figure 1 – Position in the CDIF family of standards

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 15475-2:2002(E)

This document describes the standard CDIF transfer syntax. No encodings for SYNTAX.1 are specified in this document. ISO/IEC 15475-3:2002, *Information technology — CDIF transfer format — Part 3: Encoding ENCODING.1*, specifies one standard encoding for this syntax.

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

This document should be read in conjunction with ISO/IEC 15475-1:2002, *Information technology — CDIF transfer format — Part 1: General rules for syntaxes and encodings*.

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;
- Formal grammars;
- Transfer formats.

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2 Conformance

A product is standards conformant this standard if and only if the product obeys all definitions and rules in Annex A of this standard, and is also CDIF architecture conformant, as defined in Clause 2 of ISO/IEC 15474-1:2002, *Information technology — CDIF framework — Part 1: Overview*. A product can be either transfer format standards conformant or non-conformant. Partial standards conformance to a standard defining a part of the CDIF transfer format is not defined.

A product is standards conformant to a CDIF encoding standard only if it is standards conformant to Annex A of ISO/IEC 15475-3:2002, *Information technology — CDIF transfer format — Part 3: Encoding ENCODING.1* and also conformant to Annex A of ISO/IEC 15475-2:2002, *Information technology — CDIF transfer format — Part 2: Syntax SYNTAX.1*. A product is standard conformant to a CDIF syntax standard only if it is standards conformant to Annex A of ISO/IEC 15475-2:2002, *Information technology — CDIF transfer format — Part 2: Syntax SYNTAX.1*.

3 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 15475. 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 15475 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 9075:1992, *Information technology — Database languages — SQL*

ISO/IEC 10646-1:1993, *Information technology — Universal Multiple-Octet Coded Character Set (UCS) — Part 1: Architecture and Basic Multilingual Plane*

ISO/IEC 10646-1:1993/Amd:2:1996, *Information technology — Universal Multiple-Octet Coded Character Set (UCS) — Part 1: Architecture and Basic Multilingual Plane. Amendment 2: UCS Transformation Format 8 (UTF-8)*

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

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

ISO/IEC 15474-2:2002, *Information technology — CDIF framework — Part 2: Modelling and extensibility*

ISO/IEC 15475-1:2002, *Information technology — CDIF transfer format — Part 1: General rules for syntaxes and encodings*

4 Terms and definitions

For the purposes of this part of ISO/IEC 15475, the following definitions apply. Unless otherwise noted, the definitions are specific to this part of ISO/IEC 15475.

4.1 From other standards

4.1.1 ISO/IEC 15474-1

[ISO/IEC 15475-2:2002](https://standards.iteh.ai/catalog/standards/sist/2410bd9b-b415-4f30-a700-14ac2b9e7ee8/iso-iec-15475-2-2002)

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This part of ISO/IEC 15475 makes use of the following terms defined in ISO/IEC 15474-1:

CDIF
CDIF family of standards
CDIF graphical notation
CDIF identifier
CDIF semantic metamodel
CDIF meta-metamodel
CDIF transfer
CDIF transfer format
Character set
Encoding
ENCODING.1
Instance
Meta-attribute
Meta-entity
Metamodel
Meta-object
Meta-relationship
Model
Non-terminal symbol
Production rule
Subject area
Syntax
SYNTAX.1
Terminal symbol

1) To be published.

Transfer
Transfer format

4.1.2 ISO/IEC 15475-1

This part of ISO/IEC 15475 makes use of the following terms defined in ISO/IEC 15475-1:

Metamodel section
Transfer header

4.1.3 ISO/IEC 13238-1

This part of ISO/IEC 15474 makes use of the following terms from ISO/IEC 13238-1:

Transfer file
CDIF transfer file
Export process
Exporter
Import process
Importer
Clear text file encoding

4.2 For this standard

For the purposes of this part of ISO/IEC 15475 new terms are defined when introduced. Double quotes are used to introduce new terms (e.g., "model layer").

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5 Symbols (and abbreviated terms)

5.1 Naming and diagramming notations

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All meta-objects and meta-meta-objects in CDIF (in metamodels and meta-metamodels) are named by concatenating all the words that name the meta-object or meta-meta-object; the first letter of each word is upper-case, the rest are lower-case (e.g., *MetaAttribute*, *AttributeDerivation*, *IsDrawnUsing*, *IsOptional*).

Full details of the CDIF graphical notation used in the metamodel and the meta-metamodel can be found in the Framework document (ISO/IEC 15474-2:2002).

5.2 BNF conventions

An extended Backus Naur Form (BNF) is used to define the structure and describe the sequence of data in the transfer file.

This document uses the conventions established in subclause 5.2 of ISO/IEC 15475-1:2002, *Information technology — CDIF transfer format — Part 1: General rules for syntaxes and encodings*.

5.3 Abbreviations

The following abbreviations are used in this part of ISO/IEC 15475:

BNF Backus Naur Form

CDIF CASE Data Interchange Format (originally)

6 CDIF transfer concepts and facilities

6.1 Syntax identifier

The syntax defined in this version of this standard shall have a CDIF standardized syntax identifier of "SYNTAX.1", and a version of "15475-2:2002". This is used to define the standardized syntax used in a CDIF transfer (see ISO/IEC 15475-1).

The syntax of the CDIF syntax ID and the syntax Version is as follows:

```
<SyntaxID> ::= 'SYNTAX.1'
<SyntaxVersion> ::= '15475-2:2002'
```

6.2 Token separation rules

The "tokens" (or terminal symbols) are the primitive level elements in the syntax. Tokens are normally separated by one or more "whitespace" characters, as defined in the specific encoding. After token identification, these whitespace characters are ignored by importers.

Certain terminal symbols act as token separators; these terminal symbols do not need to be preceded or followed by whitespace characters. All other terminal symbols must be followed by one of these token separators or by one or more whitespace characters. The terminal symbols that act as token separators are listed in subclause 7.7 Syntax terminal symbols.

7 Syntax sections and structures in the CDIF transfer

7.1 Introduction

This section describes, in detail, the exact syntax of each of the major sections of a transfer, together with the syntax of each of the component structures.

Examples of transfers given in this section use the CDIF standard encoding as defined in ISO/IEC 15475-3.

7.2 CDIF transfer components

7.2.1 Introduction

The general syntax of a CDIF transfer is as follows:

```
<CDIFtransfer> ::= <TransferHeader>
                  <TransferContents>
```

Figure 2 illustrates the complete structure of a CDIF transfer.

A transfer is typically contained in a file, but other means of transfer such as pipes, mailboxes, shared memory, or any other mechanism that can be interpreted as a byte stream may be used.

7.2.2 Transfer header

The transfer header consists of the CDIF Signature, the syntax identifier and the encoding identifier. As the transfer header syntax is the same for any CDIF transfer, it is defined in ISO/IEC 15475-1. The syntax identifier for SYNTAX.1 is specified in 6.1 Syntax identifier of this document.

7.2.3 Transfer contents

As the first level of the grammar of the transfer Contents is the same for any CDIF transfer, it is defined in ISO/IEC 15475-1, but is reproduced here for clarity:

```
<TransferContents> ::= <HeaderSectionClause>
                        <MetaModelSectionClause>
                        [ <ModelSectionClause> ]
```

The further levels are detailed in the next section.

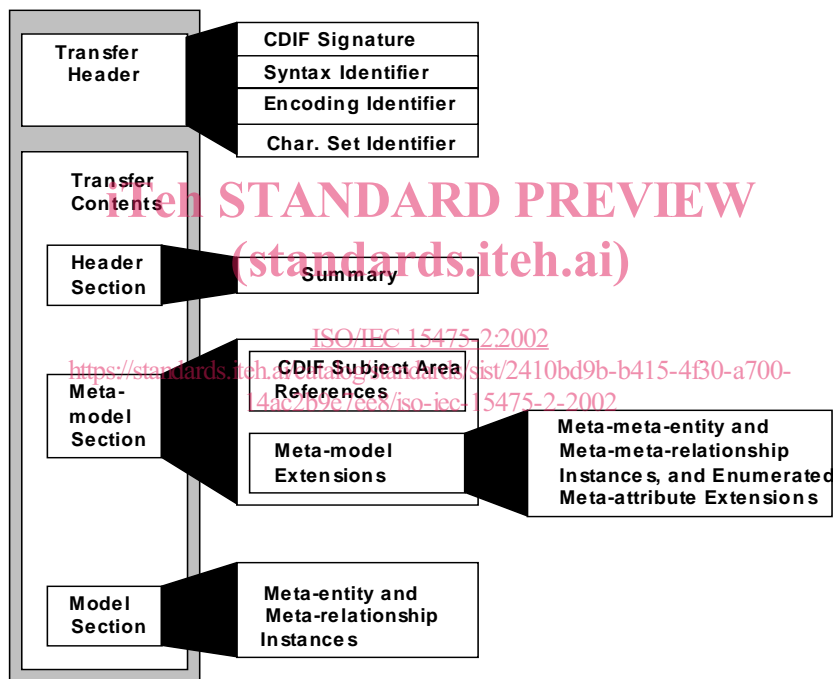


Figure 2 – CDIF transfer

7.3 Header section

7.3.1 Introduction

The header section defines information that applies to the whole transfer.

The syntax of the header section is:

```
<HeaderSectionClause> ::= <OpenScope>
                        <HeaderKeyword>
```