

Information technology — International Standardized Profile FOD126 — Open Document Format: Image Applications — Enhanced document structure — Character, raster graphics, and geometric graphics content architecture —

Part 1: Document Application Profile (DAP)

The European Standard EN ISP 15124-1:1998 has the status of a British Standard

ICS 35.100.05

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National foreword

This British Standard is the English language version of EN ISP 15124-1:1998. It is identical with ISO/IEC ISP 15124-1:1998.

The UK participation in its preparation was entrusted to Technical Committee IST/18, Document processing and related communications, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

Attention is drawn to the fact that CEN and CENELEC Standards normally include an annex which lists normative references to international publications with their corresponding European publications. The British Standards which implement these international or European publications may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN ISP title page, page 2, the ISO/IEC ISP title page, pages ii to vi, pages 1 to 42, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

This British Standard, having been prepared under the direction of the DISC Board, was published under the authority of the Standards Committee and comes into effect on 15 July 1999

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Amendments issued since publication

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English version

Information technology — International Standardized
Profile FOD126 — Open Document Format: Image
Applications — Enhanced document structure —
Character, raster graphics, and geometric graphics content
architecture — Part 1: Document Application Profile (DAP)

(ISO/IEC ISP 15124-1:1996)

Technologies de l'information — Profil
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document ouvert: Applications d'image —
Structure de document améliorée —
Architecture du contenu des caractères, des
graphiques à raster et des graphiques
géométriques — Partie 1: Profil d'application
de document
(ISO/IEC ISP 15124-1:1996)

This European Standard was approved by CEN on 21 May 1998.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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CEN

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Comité Européen de Normalisation
Europäisches Komitee für Normung

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 **Documents**
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Foreword

The text of the International Standard from Technical Committee ISO/IEC/JTC 1 “Information technology” of the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) has been taken over as an European Standard by the Technical Board of CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 1998, and conflicting national standards shall be withdrawn at the latest by December 1998.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the International Standard ISO/IEC ISP 15124-1:1996 has been approved by CEN as a European Standard without any modification.

**INTERNATIONAL
STANDARDIZED
PROFILE**

**ISO/IEC
ISP
15124-1**

First edition
1998-07-01

**Information technology — International
Standardized Profile FOD126 — Open
Document Format: Image Applications —
Enhanced document structure — Character,
raster graphics, and geometric graphics
content architecture —
Part 1:
Document Application Profile (DAP)**

*Technologies de l'information — Profil normalisé international FOD126 —
Format de document ouvert: Applications d'image — Structure de
document améliorée — Architecture du contenu des caractères, des
graphiques à raster et des graphiques géométriques —*

Partie 1: Profil d'application de document



Reference number
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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. In addition to developing International Standards, ISO/IEC JTC 1 has created a Special Group on Functional Standardization for the elaboration of International Standardized Profiles.

An International Standardized Profile is an internationally agreed, harmonized document which identifies a standard or group of standards, together with options and parameters, necessary to accomplish a function or set of functions.

Draft International Standardized Profiles are circulated to national bodies for voting. Publication as an International Standardized Profile requires approval by at least 75 % of the national bodies casting a vote.

International Standardized Profile ISO/IEC ISP 15124-1 was prepared with the collaboration of

- Asia-Oceania Workshop (AOW);
- European Workshop for Open Systems (EWOS);
- Open Systems Environment Implementors' Workshop (OIW).

ISO/IEC ISP 15124 consists of the following part, under the general title *Information technology — International Standardized Profile FOD126 — Open Document Format: Image Applications — Enhanced document structure — Character, raster graphics, and geometric graphics content architecture:*

- *Part 1: Document Application Profile (DAP).*

Further parts may be added.

Annex A forms an integral part of this part of ISO/IEC 15124. Annex B and Annex C are for information only.

Introduction

This part of ISO/IEC ISP 15124 is defined within the context of Functional Standardization, in accordance with the principles specified by ISO/IEC TR 10000, “*Framework and Taxonomy of International Standardized Profiles*”. The context of Functional Standardization is one part of the overall field of Information Technology (IT) standardization activities, covering base standards, profiles and registration mechanisms. An International Standardized Profile defines a combination of base standards that collectively perform a specific well-defined IT function. Profiles standardize the use of options and other variations in the base standards, and provide a basis for the development of uniform, internationally recognized conformance test suites.

One of the most important roles for an ISP is to serve for the development (by organizations other than ISO and IEC) of internationally recognized tests and test centres. ISPs are produced not simply to “legitimize” a particular choice of base standards and options, but to promote real systems interoperability. The development and widespread acceptance of tests based on this and other ISPs is crucial to the successful realization of this goal.

Development of this document application profile has been done in close cooperation between several organizations. These include ODA expert groups within the Asia-Oceania Workshop (AOW), ITU-T Study Group 8, European Workshop for Open Systems (EWOS) and OSE Implementors’ Workshop (OIW). The liaison between these organizations has occurred within meetings of the Profile Alignment Group for ODA (PAGODA). These meetings have focused on the development of a single set of Internationally aligned ODA document application profiles. This part of ISO/IEC ISP 15124 is harmonized among the three workshops and has been ratified by the three workshops’ plenary assemblies.

The purpose of ISO/IEC ISP 15124 is to facilitate the interworking of basic image applications interchanging documents based on ITU-T Rec. T.410 series | ISO/IEC 8613, Open Document Architecture (ODA) and Interchange Format. This part of ISO/IEC ISP 15124 is suitable for interchanging documents in formatted form and has been defined in accordance with ITU-T Rec. T.411 | ISO/IEC 8613-1. The documents contain primarily raster graphics images but may also contain character and geometric graphics portions. The format of this part of ISO/IEC ISP 15124 is in accordance with ISO/IEC TR 10000-1 and with the standardized proforma and notation defined in Annex F of ITU-T Rec. T.411 | ISO/IEC 8613-1.

1 Scope

This part of ISO/IEC ISP 15124 specifies an interchange format suitable for transfer of structured documents between equipment designed for raster processing. The documents supported by ISO/IEC ISP 15124 are based on a paradigm of an electronic engineering drawing or illustration. Such documents contain one or more pages. Each page consists of a base image in the form of a bi-tonal raster graphics, character, or geometric graphics content. This base image may be further annotated with character, raster graphics or geometric graphics content. These latter content portions serve to provide revision control for the engineering drawing or illustration. There is no restriction on the minimum size of the base image.

ISO/IEC ISP 15124 allows large format raster documents to be interchanged in a formatted form in accordance with ISO/IEC 8613.

It is assumed that, when negotiation is performed by the service using this part of ISO/IEC ISP 15124, all non-basic values are subject to negotiation.

This part of ISO/IEC ISP 15124 is independent of the processes carried out in an end system to create, edit, or reproduce raster documents. It is also independent of the means to transfer the document which, for example, may be by means of communication links or exchanged storage media.

The features of a document that can be interchanged using this part of ISO/IEC ISP 15124 fall into the following categories:

- a) Page format features — these concern how the layout of each page of a document will appear when reproduced;
- b) Raster graphics layout and imaging features — these concern how the document content will appear within pages of the reproduced document;
- c) Raster graphics coding — these concern the raster graphics representations and control functions that make up the document raster graphics content.

There are two DAP object identifiers supporting this part of ISO/IEC ISP 15124 with the only difference being in the encoding of the data stream. One uses the ASN.1 based ODIF encoding. The other uses the SGML/SDIF based ODL encoding. When this document refers to this profile, it is referring to this specification regardless of which DAP identifier may be selected to create the data stream.

2 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC ISP 15124. At the time of publication, the editions indicated were valid. All documents are subject to revision, and parties to agreements based on this part of ISO/IEC ISP 15124 are warned against automatically applying any more recent editions of the documents listed below, since the nature of references made by ISPs to such documents is that they may be specific to a particular edition, members of IEC and ISO maintain registers of currently valid International Standards and ISPs, ITU-T maintains published editions of its current Recommendations.

2.1 Identical Recommendations | International Standards

- ITU-T Recommendations T.411(1993) | ISO/IEC 8613-1:1994, *Information technology — Open Document Architecture (ODA) and interchange format: Introduction and general principles*.
- ITU-T Recommendations T.412(1993) | ISO/IEC 8613-2:1994, *Information technology — Open Document Architecture (ODA) and interchange format: Document structures*.
- ITU-T Recommendations T.414(1993) | ISO/IEC 8613-4:1994, *Information technology — Open Document Architecture (ODA) and interchange format: Document profile*.
- ITU-T Recommendations T.415(1993) | ISO/IEC 8613-5:1994, *Information technology — Open Document Architecture (ODA) and interchange format: Open document interchange format*.
- ITU-T Recommendations T.416(1993) | ISO/IEC 8613-6:1994, *Information technology — Open Document Architecture (ODA) and interchange format: Character content architectures*.
- ITU-T Recommendations T.417(1993) | ISO/IEC 8613-7:1994, *Information technology — Open Document Architecture (ODA) and interchange format: Raster graphics content architectures*.
- ITU-T Recommendations T.418(1993) | ISO/IEC 8613-8:1994, *Information technology — Open Document Architecture (ODA) and interchange format: Geometric graphics content architectures*.

2.2 Paired Recommendations | International Standards equivalent in technical content

- CCITT Rec. X.208(1988), *Specification of Abstract Syntax Notation One (ASN.1)*.
ISO/IEC 8824:1990, *Information technology — Open Systems Interconnection — Specification of Abstract Syntax Notation One (ASN.1)*.
- CCITT Rec. X.209(1988), *Specification of Basic Encoding Rules for Abstract Syntax Notation One (ASN.1)*.
ISO/IEC 8825:1990, *Information technology — Open Systems Interconnection — Specification of Basic Encoding Rules for Abstract Syntax Notation One (ASN.1)*.
- CCITT Rec. T.502, *Document Application Profile PM-11 for the Interchange of Character Content Documents in Processable and Formatted Forms*.
ISO/IEC ISP 10610-1:1993, *Information technology — International Standardized Profile FOD11 — Open Document Format: Simple document structure — Character content architecture only — Part 1: Document Application Profile (DAP)*.
- CCITT Rec. T.505, *Document Application Profile PM-26 for the Interchange of Mixed Content Documents in Processable and Formatted Forms*.
ISO/IEC ISP 11181-1:1993, *Information technology — International Standardized Profile FOD26 — Open Document Format: Enhanced document structure — Character, raster graphics and geometric graphics content architectures — Part 1: Document Application Profile (DAP)*.
- CCITT Rec. T.506, *Document Application Profile PM-36/ISO/IEC ISP 11182-1 — Open Document Format: Extended document structure — Character, raster graphics and geometric graphics content architectures*.
ISO/IEC ISP 11182-1:1993, *Information technology — International Standardized Profile FOD36 — Open Document Format: Extended document structure — Character, raster graphics and geometric graphics content architectures — Part 1: Document Application Profile (DAP)*.

2.3 Additional references

- CCITT Rec. T.4:1988, *Standardization of Group 3 Facsimile Apparatus for Document Transmission*.
- CCITT Rec. T.6:1988, *Facsimile Coding Schemes and Coding Control Functions for Group 4 Facsimile Apparatus*.
- CCITT Rec. T.400:1988, *Introduction to Document Architecture, Transfer and manipulation*.
- ISO/IEC 646:1991, *Information technology — ISO 7-bit coded character set for information interchange*.
- ISO/IEC 2022:1994, *Information technology — Character code structure and extension techniques*.
- ISO 2375:1985, *Data processing — Procedure for registration of escape sequences techniques*.
- ISO/IEC 6937:1994, *Information technology — Coded graphic character set for text communication — Latin alphabet*.
- ISO 7350:1991, *Information technology — Registration of repertoires of graphic characters from ISO/IEC 10367*.
- ISO/IEC 8632-1:1992, *Information technology — Computer graphics — Metafile for the storage and transfer of picture description information — Part 1: Functional specification*.
- ISO/IEC 8632-3:1992, *Information technology — Computer graphics — Metafile for the storage and transfer of picture description information — Part 3: Binary encoding*.
- ISO 8859-1:1987, *Information processing — 8-bit single-byte coded graphic character sets — Part 1: Latin alphabet No. 1*.
- ISO 8879:1986, *Information processing — Text and office systems — Standard Generalized Markup Language (SGML)*.
- ISO 8879:1986/Amd.1:1988, *Information processing — Text and office systems — Standard Generalized Markup Language (SGML), Amendment 1*.
- ISO 9069:1988, *Information processing — SGML support facilities — SGML Document Interchange Format (SDIF)*.
- ISO/IEC 9293:1994, *Information technology — Volume and file structure of disk cartridges for information interchange*.
- ISO/IEC 9541 (all parts), *Information technology — Font information interchange*.
- ISO/IEC TR 10000-1:1995, *Information technology — Framework and taxonomy of International Standardized Profiles — Part 1: General principles and documentation framework*.
- ISO/IEC TR 10000-2:1995, *Information technology — Framework and taxonomy of International Standardized Profiles — Part 2: Principles and Taxonomy of ISO profiles*.
- ISO/IEC ISP 12064-1:1995, *Information technology — International Standardized Profile FOD112 — Open Document Format: Image Applications — Simple Document Structure — Raster Graphics content architecture — Part 1: Document Application Profile (DAP)*.

3 Definitions and terminology

3.1 Definitions

The definitions given in ISO/IEC 8613-1 are applicable to this part of ISO/IEC ISP 15124.

3.2 Constituent names

Each constituent that may be included in a document that conforms to this part of ISO/IEC ISP 15124 has been given a unique name which serves to identify that constituent throughout ISO/IEC ISP 15124.

The convention is that full names are used (i.e., no abbreviations are used), two or more words in a name are concatenated and each word begins with a capital. Examples of constituent names used in ISO/IEC ISP 15124 are CompositePage, DocumentLayoutRoot, and SpecificBlock.

In clause 6, each constituent provided by this part of ISO/IEC ISP 15124 is underlined once at the point in the text at which the purpose of that constituent is defined. This also serves to identify all the constituents provided by this part of ISO/IEC ISP 15124.

The same constituent names are also used in the technical specification in clause 7 so that there is a one-to-one correspondence between the use of these names in clauses 6 and 7.

Although the constituent names relate to the purpose of the constituents, the semantics of constituents shall not be implied from the actual names that are used. Also, these names do not appear in an interchanged document but a mechanism for identifying constituents in an interchange document is provided. Thus in an application using this part of ISO/IEC ISP 15124, the constituents may be known to the user by different names (e.g. in different languages).

3.3 Conventions

This part uses a convention of double and single quotes that has been established by ISO for use in the ODA base standard and related document application profiles. The convention is to use within the text double quotes to accentuate ODA attribute names and single quotes to accentuate values for those attributes.

4 Relationship to other International Standardized Profiles

The raster graphics content portion of this part of ISO/IEC ISP 15124 closely aligns with ISO/IEC ISP 11182-1. The primary exception is that ISO/IEC ISP 15124 supports tiled raster graphics and the additional bit order mapping.

The features supported by ISO/IEC ISP 15124 are a superset of the features supported by the International Standardized Profile FOD112 and thus all data streams that are conformant to FOD112 are also conformant to ISO/IEC ISP 15124, apart from the document application profile identifier.

Apart from the use of the tiling addendum and the use of Most Significant Bit encoding the features supported by this part of ISO/IEC ISP 15124 are a subset of the features supported by the International Standardized Profile ISO/IEC ISP 11182-1 and thus all data streams conformant to this part of ISO/IEC ISP 15124 are also conformant to ISO/IEC ISP 11182-1, apart from the document application profile identifier.

5 Conformance

In order to conform to ISO/IEC ISP 15124, a data stream representing a document shall meet the requirements specified in 5.1.

The requirements for implementations that originate and/or receive data streams conforming to ISO/IEC ISP 15124 are specified in 5.2.

5.1 Data stream conformance

The following requirements apply to the encoding of data streams that conform to ISO/IEC ISP 15124:

- a) The data stream shall be encoded in accordance with the ASN.1 encoding rules defined in ISO/IEC 8825 or the SGML grammar and syntax of ISO 8879;
- b) The data stream shall be structured in accordance with the interchange format defined in clause 8;
- c) The document shall be structured in accordance with the formatted document architecture class specified in clause 7. In addition, the document shall contain all mandatory constituents specified for that class and may optionally contain constituents permitted for that class as specified in clause 7;
- d) Each constituent shall contain all those attributes specified as required for that constituent in this part of ISO/IEC ISP 15124. Other attributes may be specified provided they are permitted for that constituent;
- e) The attributes shall have values within the range of permissible values specified in this part of ISO/IEC ISP 15124;
- f) The encoded document shall be structured in accordance with the abstract document architecture defined in ITU-T Rec. T.412 | ISO/IEC 8613-2;
- g) The encoded document shall be structured in accordance with the characteristics defined in clause 6 and shall contain only those features defined in clause 6.

5.2 Implementation conformance

This clause states the requirements for implementations claiming conformance to ISO/IEC ISP 15124.

A conforming receiving implementation shall be capable of receiving *either* any data streams conforming to this part of ISO/IEC ISP 15124 structured in accordance with ODIF *or* any data streams conforming to this part of ISO/IEC ISP 15124 structured in accordance with ODL *or* both of these. Receiving usually, but not always, involves recognizing and further processing the data stream elements.

6 Characteristics supported by this part of ISO/IEC ISP 15124

This clause describes the characteristics of documents that can be represented by data streams conforming to this part of ISO/IEC ISP 15124. This clause also describes how these characteristics are represented in terms of divisional components of the data streams.

6.1 Overview

This part of ISO/IEC ISP 15124 describes the features of ITU-T Rec. T.400 series | ISO/IEC 8613 that are needed to support the interchange of documents containing raster graphic images. It specifies interchange formats for the transfer of structured documents with simple layout structures.

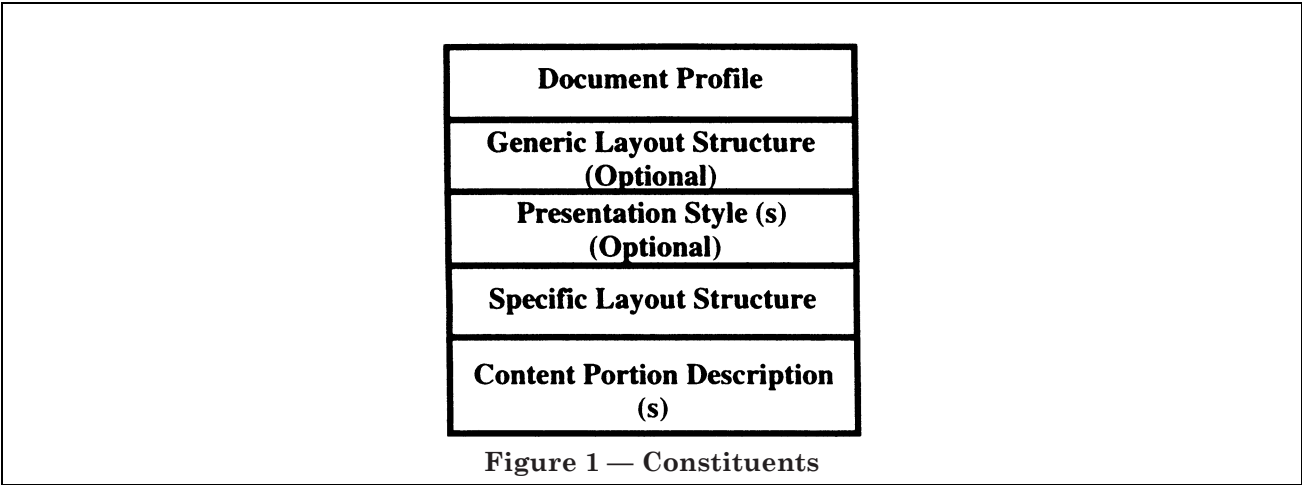
This part of ISO/IEC ISP 15124 describes documents that can be interchanged in the formatted form, which facilitates the reproduction of a document as intended by the originator.

The content within the document forming the original or base image(s) is of content type formatted processable raster graphics.

The content allowed within the document to annotate revisions to the base image(s) may also be formatted processable raster graphics, or may be formatted processable geometric graphics, and/or formatted character. This is intended to facilitate the reproduction of the corrections or annotations as intended by the originator or allow the reformatting of the corrections or annotations.

This clause describes the layout features that can be represented in documents conforming to this part of ISO/IEC ISP 15124. The features are described in terms that are typical of the user-perceived capabilities and semantics found in a raster document interchange environment.

For the purpose of interchange, a document is represented as a collection of **constituents**, each of which is represented by a set of attributes. The constituents that make up a formatted document are defined below in this clause and are illustrated in Figure 1.



Constituents defined as **required** shall occur in any document that conforms to ISO/IEC ISP 15124. Constituents listed as **optional** may or may not be present in the document, depending on the requirements of the particular document.

The required constituents include:

- a) a document profile;
- b) layout object descriptions representing a specific layout structure;
- c) content portion descriptions.

The only optional constituents are presentation style and layout object class descriptions representing a generic layout structure.

6.2 Logical constituents

Not applicable.

6.3 Layout constituents

This clause describes the features of the layout constituents that can be represented in documents conforming to ISO/IEC ISP 15124.