

INTERNATIONAL STANDARD

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8613-5

Second edition
1994-12-15

Information technology — Open Document Architecture (ODA) and Interchange Format: Open Document Interchange Format

*Technologies de l'information — Architecture des documents ouverts
(ODA) et format d'échange: Format d'échange des documents ouverts*



Reference number
ISO/IEC 8613-5:1994(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. 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.

International Standard ISO/IEC 8613-5 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 18, *Document processing and related communication*, in collaboration with ITU-T. The identical text is published as ITU-T Rec. T.415.

This second edition cancels and replaces the first edition (ISO 8613-5:1989), which has been technically revised.

ISO/IEC 8613 consists of the following parts, under the general title *Information technology — Open Document Architecture (ODA) and Interchange Format*:

- Part 1: Introduction and general principles
- Part 2: Document structures
- Part 3: Abstract interface for the manipulation of ODA documents
- Part 4: Document profile
- Part 5: Open Document Interchange Format
- Part 6: Character content architectures
- Part 7: Raster graphics content architectures
- Part 8: Geometric graphics content architectures
- Part 9: Audio content architectures
- Part 10: Formal specifications
- Part 11: Tabular structures and tabular layout
- Part 12: Identification of document fragments
- Part 13: Spreadsheet
- Part 14: Temporal relationships and non-linear structures

Annex E forms an integral part of this part of ISO/IEC 8613. Annexes A, B, C, D, F and G are for information only.

INTRODUCTION

This ITU-T Recommendation | International Standard was prepared as a joint publication by CCITT Study Group VIII and ISO/IEC Joint Technical Committee 1.

At present, ITU-T Rec. T.410 Series | ISO/IEC 8613 consists of:

- Introduction and general principles;
- Document structures;
- Document profile;
- Open document interchange format;
- Character content architectures;
- Raster graphics content architectures;
- Geometric graphics content architectures;
- Formal specification of the Open Document Architecture (FODA).

(The formal specification is applicable to ISO/IEC 8613 only.)

Further Recommendations | International Standards may be added to this set of Recommendations | International Standards.

Development of this set of Recommendations | International Standards was originally in parallel with the ECMA-101 standard: *Open Document Architecture*.

This set of Recommendations | International Standards is a new edition of the CCITT T.410 Series of Recommendations (1988) and ISO 8613:1989.

Significant technical changes are the inclusion of the following amendments as agreed by CCITT and ISO/IEC:

- Alternative Representation;
- Annex on use of MHS/MOTIS;
- Colour;
- Conformance Testing annex;
- Document Application Profile Proforma and Notation;
- Security;
- Streams;
- Styles;
- Tiled Raster Graphics.

In addition, a number of technical corrigenda have been applied.

This Recommendation | International Standard contains seven annexes:

- Annex A (non-integral): Coded representation;
- Annex B (non-integral): Application class tag assignments;
- Annex C (non-integral): Summary of object identifiers;
- Annex D (non-integral): Examples;
- Annex E (integral): Open Document Language (ODL) (this annex is applicable to ISO/IEC 8613-5 only);
- Annex F (non-integral): Examples of Open Document Language representations (this annex is applicable to ISO/IEC 8613-5 only);
- Annex G (non-integral): Use of the Distinguished or Canonical Encoding Type.

INTERNATIONAL STANDARD

ITU-T RECOMMENDATION

**INFORMATION TECHNOLOGY –
OPEN DOCUMENT ARCHITECTURE (ODA) AND INTERCHANGE FORMAT:
OPEN DOCUMENT INTERCHANGE FORMAT**

1 Scope

The purpose of ITU-T Rec. T.410 Series | ISO/IEC 8613 is to facilitate the interchange of documents.

In the context of these Recommendations | International Standards, documents are considered to be items such as memoranda, letters, invoices, forms and reports, which may include pictures and tabular material. The content elements used within the documents may include graphic characters, raster graphics elements and geometric graphics elements, all potentially within one document.

NOTE – These Recommendations | International Standards are designed to allow for extensions, including hypermedia features, spreadsheets and additional types of content such as audio and video.

In addition to the content types defined in these Recommendations | International Standards, ODA also provides for arbitrary content types to be included in documents.

These Recommendations | International Standards apply to the interchange of documents by means of data communications or the exchange of storage media.

These Recommendations | International Standards provide for the interchange of documents for either or both of the following purposes:

- to allow presentation as intended by the originator;
- to allow processing, such as editing and reformatting.

The composition of a document in interchange can take several forms:

- formatted form, allowing presentation of the document;
- processable form, allowing processing of the document;
- formatted processable form, allowing both presentation and processing of the document.

These Recommendations | International Standards also provide for the interchange of ODA information structures used for the processing of interchanged documents.

This Recommendation | International Standard defines

- the format of the data stream used to interchange documents structured in accordance with ITU-T Rec. T.412 | ISO/IEC 8613-2;
- the representation of the constituents which may appear in an interchanged document.

NOTES

- 1 This ITU-T Recommendation | International Standard does not specify the coded representation of content elements.
- 2 Data formats for presentation attributes and coding attributes are defined in other Recommendations | International Standards in ITU-T Rec. T.410 Series | ISO/IEC 8613.

2 Normative references

The following Recommendations and International Standards contain provisions which, through reference in this text, constitute provisions of this Recommendation | International Standard. At the time of publication, the editions indicated were valid. All Recommendations and Standards are subject to revision, and parties to agreements based on this Recommendation | International Standard are encouraged to investigate the possibility of applying the most recent edition of the Recommendations and Standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards. The Telecommunication Standardization Bureau of the ITU maintains a list of currently valid ITU-T Recommendations.

2.1 Identical Recommendations | International Standards

- ITU-T Recommendation T.411 (1993) | ISO/IEC 8613-1:1994, *Information technology – Open Document Architecture (ODA) and Interchange Format: Introduction and general principles.*
- ITU-T Recommendation T.412 (1993) | ISO/IEC 8613-2:1994, *Information technology – Open Document Architecture (ODA) and Interchange Format: Document structures.*
- ITU-T Recommendation T.414 (1993) | ISO/IEC 8613-4:1994, *Information technology – Open Document Architecture (ODA) and Interchange Format: Document profile.*
- ITU-T Recommendation T.416 (1993) | ISO/IEC 8613-6:1994, *Information technology – Open Document Architecture (ODA) and Interchange Format: Character content architectures.*
- ITU-T Recommendation T.417 (1993) | ISO/IEC 8613-7:1994, *Information technology – Open Document Architecture (ODA) and Interchange Format: Raster graphics content architectures.*
- ITU-T Recommendation T.418 (1993) | ISO/IEC 8613-8:1994, *Information technology – Open Document Architecture (ODA) and Interchange Format: Geometric graphics content architectures.*
- ITU-T Recommendation X.209-3¹⁾ | ISO/IEC 8825-3:...¹⁾, *Information technology – Open Systems Interconnection – Specification of ASN.1 Encoding Rules: Distinguished and Canonical encoding rules.*
- ITU-T Recommendation X.509 (1993) | ISO/IEC 9594-8:1994, *The Directory – Authentication framework.*

2.2 Paired Recommendations | International Standards equivalent in technical content

- CCITT Recommendation 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 Recommendation 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).*

2.3 Additional references

- ISO 2022:1986, *Information processing – ISO 7-bit and 8-bit coded character sets – Code extension techniques.*
- ISO 8601:1988, *Data elements and interchange formats – Information interchange – Representation of dates and times.*
- ISO/IEC 8613-10:1991, *Information processing – Text and office systems – Office Document Architecture (ODA) and Interchange Format – Part 10: Formal specifications.*
- ISO 8879:1986, *Information processing – Text and office systems – Standard Generalized Markup Language (SGML).*
- ISO 9069:1988, *Information processing – SGML support facilities – SGML Document Interchange Format (SDIF).*
- ISO/IEC 9541-2:1991, *Information technology – Font information interchange – Part 2: Interchange format.*

3 Definitions

For the purposes of this Recommendation | International Standard, the definitions given in ITU-T Rec. T.411 | ISO/IEC 8613-1 apply.

In addition, the definitions of CCITT Rec. X.208 | ISO/IEC 8824 and CCITT Rec. X.209 | ISO/IEC 8825 apply to this Recommendation | International Standard.

¹⁾ Presently at the stage of draft.

4 Abbreviations

For the purposes of this Specification, the abbreviations given in ITU-T Rec. T.411 | ISO/IEC 8613-1 apply.

For the purposes of this Specification, the following additional abbreviations apply:

DTD	Document type definition
EOC	End of contents
GI	SGML generic identifier
IA5	International Alphabet no. 5
ID	SGML unique identifier
LIT	Literal start or end
LITA	Literal start or end (alternative)
LPD	Link process definition
OSI	Open Systems Interconnection
ULA	Upper Layer Applications
UTC	Coordinated Universal Time

5 Conventions

For the purpose of this Specification, the conventions given in ITU-T Rec. T.411 | ISO/IEC 8613-1 apply.

6 Document representations

A document structured in accordance with ITU-T Rec. T.410 Series | ISO/IEC 8613 is represented for interchange by either the Open Document Interchange Format (ODIF), or the Open Document Language (ODL) in conjunction with the SGML Document Interchange Format (SDIF). The ODIF and ODL/SDIF representations are technically equivalent; a document can be transformed from one to the other without loss of semantic information about the document constituents and attributes.

The use of ODL and SDIF is applicable to ISO/IEC 8613 only.

NOTE – Both data structure (ODIF) and language (ODL) representations have been standardized in order to meet the document representation requirements of distinct application environments. ODIF, being a data structure specified using ASN.1, is particularly intended for use in an OSI environment. ODL is particularly appropriate for systems that share information through marked-up text files, especially where human users can access the markup directly.

6.1 ODIF

ODIF is an abstract data syntax in which the constituents and attributes of the document are represented by a hierarchy of data structures and data items, specified using the abstract syntax notation ASN.1 defined in CCITT Rec. X.208 | ISO/IEC 8824.

The coded representation of each data structure or data item is obtained by applying a set of encoding rules.

ODIF is specified in clause 7.

NOTE – ASN.1 is a formal description method that allows data types relevant to an application to be specified in terms of other data types, including basic data types such as “integer” and “octet string” which are defined in CCITT Rec. X.208 | ISO/IEC 8824 itself. Basic encoding rules for ASN.1 are defined in CCITT Rec. X.209 | ISO/IEC 8825 and are summarized in Annex A.

6.2 ODL and SDIF

The use of ODL and SDIF is applicable to ISO/IEC 8613 only.

ODL is a language in which the constituents and attributes of the document are identified by descriptive tags, and are grouped into one or more storage entities (e.g. files) as the user may require.

For interchange, each ODL entity is represented as a single data structure or data item, specified using ASN.1, in a data stream constructed according to the SGML Document Interchange Format defined in ISO 9069.

ODL is specified in Annex E.

NOTE – ODL is an SGML application conforming to ISO 8879.

7 Open Document Interchange Format (ODIF)

7.1 General description

A document structured in accordance with ITU-T Rec. T.410 Series I ISO/IEC 8613 is represented by a data stream consisting of one or more data structures of the following types:

- document profile descriptor;
- layout object descriptor;
- layout object class descriptor;
- logical object descriptor;
- logical object class descriptor;
- presentation style descriptor;
- layout style descriptor;
- text unit;
- sealed document profile descriptor;
- enciphered document profile descriptor;
- pre-enciphered document body part descriptor;
- post-enciphered document body part descriptor.

These data structures are called *interchange data elements*. Within a data stream, the interchange data elements are ordered in accordance with certain rules which are specified below. This Specification defines two such sets of rules; they are called *interchange format class A* and *interchange format class B*.

Which of these sets of rules applies to a given data stream is indicated in the document profile descriptor. In all cases, a data stream contains one and only one document profile descriptor which is always the first interchange data element in the data stream. The document profile descriptor may be the only data structure in the data stream.

When an ODIF data stream is used as part of an ASN.1 external data type, the abstract syntax shall be formed by an ASN.1 **SEQUENCE OF** type referencing the **Interchange-Data-Element** type; the encoding of the data value shall consist of an integral number of octets, formed by applying the ASN.1 basic encoding rules; and the value of the associated ASN.1 object identifier shall be { 2 8 0 0 }.

NOTE – The manner of incorporating the interchange data elements, or the external data type, in an application protocol or the manner of mapping them on service data units (in an OSI environment) is not defined by this Specification.

7.2 Interchange format class A

According to interchange format class A, a data stream consists of one document profile descriptor and, optionally, one or more interchange data elements of the following types:

- layout object descriptor;
- layout object class descriptor;
- logical object descriptor;
- logical object class descriptor;
- presentation style descriptor;
- layout style descriptor;
- text unit;
- sealed document profile descriptor;
- enciphered document profile descriptor;
- pre-enciphered document body part descriptor;
- post-enciphered document body part descriptor.

The order of the interchange data elements is as follows:

- a) document profile descriptor;
- b) layout object class descriptors;

- c) logical object class descriptors;
- d) text units representing generic content portions;
- e) presentation style descriptors;
- f) layout style descriptors;
- g) layout object descriptors;
- h) logical object descriptors;
- i) text units representing specific content portions;
- j) sealed document profile descriptors;
- k) enciphered document profile descriptors;
- l) pre-enciphered document body part descriptors;
- m) post-enciphered document body part descriptors.

Within each of the groups of layout object descriptors and logical object descriptors, the order of the descriptors is equal to the sequential order defined in ITU-T Rec. T.412 | ISO/IEC 8613-2.

If the data stream contains layout object descriptors, the text units representing specific content portions are ordered according to the sequential layout order; otherwise, they are ordered according to the sequential logical order.

Within each of the other groups of interchange data elements, the order is arbitrary.

For basic objects for which alternative descriptions have been specified there is one descriptor representing the primary description and one descriptor for each alternative description. In the data stream, the descriptors for alternative descriptions of basic object descriptions follow immediately after the descriptors for their primary description, in the order of decreasing preference. The text units representing the content portions associated to alternative subtrees follow immediately after the text units representing the content portions associated to the primary subtree, in the order of decreasing preference.

7.3 Interchange format class B

According to interchange format class B, a data stream consists of one document profile descriptor and, optionally, one or more interchange data elements of the following types:

- layout object descriptor;
- layout object class descriptor;
- presentation style descriptor;
- text unit;
- sealed document profile descriptor;
- enciphered document profile descriptor;
- post-enciphered document body part descriptor.

Interchange format class B can be used only to represent documents that do not contain any specific or generic logical structure, i.e. documents that conform to the formatted document architecture class.

NOTE – Interchange format class B is provided only for use with the document application profile for the interchange of Group 4 facsimile documents as specified in CCITT Rec. T.503.

The order of the interchange data elements is as follows:

- a) document profile descriptor;
- b) layout object class descriptors and associated text units;
- c) presentation style descriptors;
- d) layout object descriptors and associated text units;
- e) sealed document profile descriptors;
- f) enciphered document profile descriptors;
- g) post-enciphered document body part descriptors.

Within the group of layout object class descriptors and associated text units, the order is such that a group of descriptors that have identical identifiers, except for the last number in each identifier, follow each other in the data stream without any other descriptor between them. However, each descriptor of an object class for a basic layout object is followed immediately by the associated text units.

Within the group of layout object descriptors and associated text units, the order of the descriptors is equal to the sequential order defined in ITU-T Rec. T.412 | ISO/IEC 8613-2. However, each descriptor of a basic layout object is followed immediately by the associated text units.

Within the group of presentation style descriptors, the order is arbitrary.

7.4 Descriptors and text units

A document profile descriptor, layout object descriptor, layout object class descriptor, logical object descriptor, logical object class descriptor, presentation style descriptor, layout style descriptor, sealed document profile descriptor, enciphered document profile descriptor, pre-enciphered document body part descriptor or post-enciphered document body part descriptor consists of simple and composite data items representing the attributes of the constituent concerned.

The document profile, each object class, each style, each object and each protected part is represented by one descriptor.

A text unit consists of two parts:

- a) an attribute field, i.e. a data structure consisting of simple and composite data items representing the attributes of the content portion concerned;
- b) an information field, i.e. a data structure that is either a data item or a set of data items representing the content elements making up the content portion concerned.

Each content portion is represented by one text unit.

The data formats of the interchange data elements are specified in 7.6 to 7.15, using the abstract syntax notation ASN.1 defined in CCITT Rec. X.208 | ISO/IEC 8824.

NOTE – Subclauses 7.6 to 7.15 by themselves do not completely define the data stream format; additional rules are specified in 7.1 to 7.5 of this Specification and in other Specifications in ITU-T Rec. T.410 Series | ISO/IEC 8613. For example, the keyword **OPTIONAL** merely indicates that a particular data structure or data item is not part of every instance of the containing data structure; the conditions controlling the presence or absence of the data structure or data item are specified in ITU-T Rec. T.412 or T.414 | ISO/IEC 8613-2 or 8613-4.

7.5 ASN.1 encoding and cryptographic techniques

7.5.1 Enciphered information

The parts of the document body or the parts of the document profile which are the output of an encipherment process will form a new constituent of the document. It consists of an identifier and the enciphered information. The latter is of the ASN.1 **OCTET STRING** type, the value of which will remain unchanged in any transfer.

7.5.2 Sealed information

The ODA security attributes and ODA document parts are defined in ASN.1. To ensure a unique encoding of ASN.1, the ASN.1 Distinguished or Canonical Encoding Rules are used. These rules are defined in ITU-T Rec. X.209-3 | ISO/IEC 8825-3, and information on how they can be used is found in Annex G. The ASN.1 Distinguished and Canonical Encoding Rules specify a set of restrictions on the ASN.1 Basic Encoding Rules, which provide a unique mapping between ASN.1 and its representation. This is required from a cryptographical point of view.

The main difference between the Distinguished and the Canonical Encoding Rules is that the former use definite length encoding, while the latter use indefinite length. The Distinguished Encoding Rules are more suitable if the encoded value is small enough to fit into the available memory and there is a need to skip rapidly over some nested values. The Canonical Encoding Rules are more suitable if there is a need to encode values that are so large that they cannot readily fit into the available memory or it is necessary to encode and transmit part of a value before the entire value is available.

The parts of the document profile and the parts of the document body subject to sealing will remain unchanged after the sealing process. The ASN.1 Distinguished and Canonical Encoding Rules will assure that the same encoding of the information can be established by the recipient as that used by the originator when sealing. This is necessary in order to obtain identical fingerprints of the information, the means by which one associates the content with the seal.

The seal is composed of a set of data. Three basic steps are performed to generate this seal:

- a) The chosen information (encoded using the ASN.1 Distinguished or Canonical Encoding Rules, according to the document profile attribute "sealed information encoding") is input to a hashing process which generates a fingerprint, the encoded form of the fingerprint being an **OCTET STRING**.
- b) The fingerprint together with additional optional information is called **Sealed-Information**. The optional parameters are the date and time of day, in accordance with ISO 8601, the name and the location of the creator of the seal. This is (again encoded using the ASN.1 Distinguished or Canonical Encoding Rules, according to the document profile attribute "sealed information encoding") input to a cryptographic process which generates the seal, the encoded form of the seal being an **OCTET STRING**.
- c) Information on the seal method is provided such that the seal can be checked. This is specified in the **Seal-Method** type and consists of information on the generation of the fingerprint as well as information on how to decipher the seal.

The order of the constituents is the same as the one specified by the interchange format class.

When the order of the constituents is not completely specified by the interchange format class, the following rules apply:

- object classes are to be sealed in the same order as they are specified in the parameter "sealed constituents";
- for interchange format class A, the common content portions are to be sealed in the same order as the corresponding object classes;
- presentation styles are to be sealed in the same order as they are specified in the parameter "sealed constituents";
- layout styles are to be sealed in the same order as they are specified in the parameter "sealed constituents".

7.6 Interchange data elements

Interchange-Data-Elements { 2 8 1 5 5 }

DEFINITIONS ::= BEGIN

EXPORTS Interchange-Data-Element;

IMPORTS Document-Profile-Descriptor
 FROM Document-Profile-Descriptor -- see 7.7
 Layout-Class-Descriptor, Layout-Object-Descriptor
 FROM Layout-Descriptors -- see 7.9
 Logical-Class-Descriptor, Logical-Object-Descriptor
 FROM Logical-Descriptors -- see 7.10
 Presentation-Style-Descriptor, Layout-Style-Descriptor
 FROM Style-Descriptors -- see 7.11
 Text-Unit
 FROM Text-Units -- see 7.13
 Sealed-Doc-Prof-Descriptor, Enciphered-Doc-Prof-Descriptor,
 Preenciphered-Bodypart-Descriptor, Postenciphered-Bodypart-Descriptor
 FROM Protected-Part-Descriptors; -- see 7.15

Interchange-Data-Element	::= CHOICE {
document-profile	[0] IMPLICIT Document-Profile-Descriptor,
layout-object-class	[1] IMPLICIT Layout-Class-Descriptor,
layout-object	[2] IMPLICIT Layout-Object-Descriptor,
content-portion	[3] IMPLICIT Text-Unit,
logical-object-class	[5] IMPLICIT Logical-Class-Descriptor,
logical-object	[6] IMPLICIT Logical-Object-Descriptor,
presentation-style	[7] IMPLICIT Presentation-Style-Descriptor,
layout-style	[8] IMPLICIT Layout-Style-Descriptor,
sealed-doc-prof-descriptor	[9] IMPLICIT Sealed-Doc-Prof-Descriptor,
enciphered-doc-prof-descriptor	[10] IMPLICIT Enciphered-Doc-Prof-Descriptor,
preenciphered-bodypart-descriptor	[11] IMPLICIT Preenciphered-Bodypart-Descriptor,
postenciphered-bodypart-descriptor	[12] IMPLICIT Postenciphered-Bodypart-Descriptor }

END

7.7 Document profile descriptor

Document-Profile-Descriptor { 2 8 1 5 6 }

DEFINITIONS ::= BEGIN

EXPORTS Document-Profile-Descriptor, Character-Data;

IMPORTS Resource-Name, Object-or-Class-Identifier, Protected-Part-Identifier, Style-Identifier
 FROM Identifiers-and-Expressions -- see 7.8
 Measure-Pair, Transparency, Colour, Dimension-Pair, One-Of-Four-Angles,
 Border, Medium-Type, Comment-String,
 Content-Background-Colour, Content-Foreground-Colour
 FROM Layout-Descriptors -- see 7.9
 Protection -- see 7.10
 FROM Logical-Descriptors -- see 7.11
 Content-Architecture-Class, Content-Type, Block-Alignment, Fill-Order
 FROM Style-Descriptors -- see 7.11
 Type-Of-Coding -- see 7.13
 FROM Text-Units -- see 7.13
 Colour-Characteristics, Colour-Spaces-List, Colour-Expression, Colour-Table
 FROM Colour-Attributes -- see 7.14
 Character-Content-Defaults, Char-Presentation-Feature,
 Character-Coding-Attribute
 FROM Character-Profile-Attributes { 2 8 1 6 4 } -- see ITU-T Rec. T.416 | ISO/IEC 8613-6
 Raster-Gr-Content-Defaults, Ra-Gr-Presentation-Feature,
 Ra-Gr-Coding-Attribute
 FROM Raster-Gr-Profile-Attributes { 2 8 1 7 4 } -- see ITU-T Rec. T.417 | ISO/IEC 8613-7
 Geo-Gr-Content-Defaults, Geo-Gr-Presentation-Feature,
 Geo-Gr-Coding-Attribute
 FROM Geo-Gr-Profile-Attributes { 2 8 1 8 4 } -- see ITU-T Rec. T.418 | ISO/IEC 8613-8
 Font-Attribute-Set
 FROM ISO-STANDARD-9541-FONT-ATTRIBUTE-SET { 1 0 9541 2 2 }; -- see ISO/IEC 9541-2

Document-Profile-Descriptor ::= SET {
 generic-layout-structure [0] IMPLICIT NumericString OPTIONAL,
 specific-layout-structure [1] IMPLICIT NumericString OPTIONAL,
 generic-logical-structure [4] IMPLICIT NumericString OPTIONAL,
 specific-logical-structure [5] IMPLICIT NumericString OPTIONAL,
 presentation-styles [6] IMPLICIT NumericString OPTIONAL,
 layout-styles [7] IMPLICIT NumericString OPTIONAL,
 sealed-profiles [12] IMPLICIT NumericString OPTIONAL,
 enciphered-profiles [13] IMPLICIT NumericString OPTIONAL,
 preenciphered-bodyparts [14] IMPLICIT NumericString OPTIONAL,
 postenciphered-bodyparts [15] IMPLICIT NumericString OPTIONAL,

 -- for the generic structures,
 -- 'partial-generator-set' is represented by "0", 'complete-generator-set'
 -- is represented by "1", 'factor-set' is represented by "2";
 -- for the other cases, the numeric string has the value 'present'
 -- represented by "1"

 external-document-class [9] Document-Reference OPTIONAL,
 resource-document [10] Document-Reference OPTIONAL,
 resources [11] IMPLICIT SET OF SET {
 resource-identifier Resource-Name,
 object-class-identifier Object-or-Class-Identifier } OPTIONAL,
 document-characteristics [2] IMPLICIT Document-Characteristics,
 document-management-attributes [3] IMPLICIT Document-Management-Attributes OPTIONAL,
 document-security-attributes [16] IMPLICIT Document-Security-Attributes OPTIONAL }

 Document-Characteristics ::= SET {
 document-application-profile CHOICE {
 [0] IMPLICIT INTEGER {
 group-4-facsimile (2) },
 [4] IMPLICIT OBJECT IDENTIFIER } OPTIONAL,
 doc-appl-profile-defaults [10] IMPLICIT Doc-Appl-Profile-Defaults OPTIONAL,

document-architecture-class	[1] IMPLICIT INTEGER { formatted (0), processable (1), formatted-processable (2) },
content-architecture-classes	[5] IMPLICIT SET OF OBJECT IDENTIFIER,
interchange-format-class	[6] IMPLICIT INTEGER { if-a (0), if-b (1) },
oda-version	[8] IMPLICIT SEQUENCE { Character-Data, Date-and-Time },
standard-or-recommendation	[11] IMPLICIT SET OF SET OF OBJECT IDENTIFIER OPTIONAL,
publication-date	[2] IMPLICIT Non-Basic-Doc-Characteristics OPTIONAL,
alternative-feature-sets	[3] IMPLICIT Non-Basic-Struc-Characteristics OPTIONAL,
non-basic-doc-characteristics	[9] IMPLICIT Additional-Doc-Characteristics OPTIONAL }
non-basic-struc-characteristics	
additional-doc-characteristics	
Doc-Appl-Profile-Defaults	::= SET {
document-architecture-defaults	[0] IMPLICIT Document-Architecture-Defaults OPTIONAL,
character-content-defaults	[1] IMPLICIT Character-Content-Defaults OPTIONAL,
raster-gr-content-defaults	[2] IMPLICIT Raster-Gr-Content-Defaults OPTIONAL,
geo-gr-content-defaults	[3] IMPLICIT Geo-Gr-Content-Defaults OPTIONAL,
-- the following tags are reserved for additional types	
-- of content defaults:	
-- [4] videotex, for use in conjunction with CCITT Recommendations	
-- [5] audio	
-- [6] dynamic-graphics	
external-content-architecture-defaults	[7] IMPLICIT SEQUENCE OF EXTERNAL OPTIONAL }
Document-Architecture-Defaults	::= SET {
content-architecture-class	CHOICE { [0] IMPLICIT Content-Architecture-Class, [1] IMPLICIT Content-Type } OPTIONAL, [2] IMPLICIT Measure-Pair OPTIONAL, [3] IMPLICIT Transparency OPTIONAL, [4] IMPLICIT Colour OPTIONAL, [11] Colour-Expression OPTIONAL, [12] IMPLICIT Colour-Table OPTIONAL, [13] Content-Background-Colour OPTIONAL, [14] Content-Foreground-Colour OPTIONAL, [15] IMPLICIT Colour-Table OPTIONAL, [5] IMPLICIT One-Of-Four-Angles OPTIONAL, [6] IMPLICIT Medium-Type OPTIONAL, [7] IMPLICIT Block-Alignment OPTIONAL, [8] IMPLICIT Border OPTIONAL, [9] IMPLICIT Measure-Pair OPTIONAL, [10] Type-Of-Coding OPTIONAL }
page-dimensions	
transparency	
colour	
colour-of-layout-object	
object-colour-table	
content-background-colour	
content-foreground-colour	
content-colour-table	
layout-path	
medium-type	
block-alignment	
border	
page-position	
type-of-coding	
Non-Basic-Doc-Characteristics	::= SET {
profile-character-sets	[5] IMPLICIT OCTET STRING OPTIONAL,
comments-character-sets	[1] IMPLICIT OCTET STRING OPTIONAL,
alternative-repr-char-sets	[6] IMPLICIT OCTET STRING OPTIONAL,
-- each of these octet strings represents a string of escape sequences	
page-dimensions	[2] IMPLICIT SET OF Dimension-Pair OPTIONAL,
medium-types	[8] IMPLICIT SET OF Medium-Type OPTIONAL,
layout-paths	[21] IMPLICIT SET OF One-Of-Four-Angles OPTIONAL,
transparencies	[22] IMPLICIT SET OF Transparency OPTIONAL,
protections	[23] IMPLICIT SET OF Protection OPTIONAL,
block-alignments	[24] IMPLICIT SET OF Block-Alignment OPTIONAL,
fill-orders	[25] IMPLICIT SET OF Fill-Order OPTIONAL,
colours	[26] IMPLICIT SET OF Colour OPTIONAL,
colours-of-layout-object	[30] IMPLICIT SET OF Colour-Expression OPTIONAL,
object-colour-tables	[31] IMPLICIT SET OF Colour-Table OPTIONAL,

content-background-colours	[32] IMPLICIT SET OF Content-Background-Colour OPTIONAL,
content-foreground-colours	[33] IMPLICIT SET OF Content-Foreground-Colour OPTIONAL,
content-colour-tables	[34] IMPLICIT SET OF Colour-Table OPTIONAL,
borders	[27] IMPLICIT SET OF Border OPTIONAL,
page-positions	[28] IMPLICIT SET OF Measure-Pair OPTIONAL,
types-of-coding	[29] IMPLICIT SET OF Type-Of-Coding OPTIONAL,
char-presentation-features	[9] IMPLICIT SET OF Char-Presentation-Feature OPTIONAL,
ra-gr-presentation-features	[4] IMPLICIT SET OF Ra-Gr-Presentation-Feature OPTIONAL,
geo-gr-presentation-features	[12] IMPLICIT SET OF Geo-Gr-Presentation-Feature OPTIONAL,
-- the following tags are reserved for additional types -- of presentation features: -- [13] videotex, for use in conjunction with CCITT Recommendations -- [14] audio -- [15] dynamic-graphics	
character-coding-attributes	[16] IMPLICIT SET OF Character-Coding-Attribute OPTIONAL,
ra-gr-coding-attributes	[3] IMPLICIT SET OF Ra-Gr-Coding-Attribute OPTIONAL,
geo-gr-coding-attributes	[17] IMPLICIT SET OF Geo-Gr-Coding-Attribute OPTIONAL,
-- the following tags are reserved for additional types -- of coding attributes: -- [18] videotex, for use in conjunction with CCITT Recommendations -- [19] audio -- [20] dynamic-graphics	
ext-non-basic-pres-features	[10] IMPLICIT SEQUENCE OF EXTERNAL OPTIONAL,
ext-non-basic-coding-attributes	[11] IMPLICIT SEQUENCE OF EXTERNAL OPTIONAL }
Non-Basic-Struc-Characteristics	::= SET {
number-of-objects-per-page	[0] IMPLICIT INTEGER OPTIONAL }
Additional-Doc-Characteristics	::= SET {
unit-scaling	[3] IMPLICIT SEQUENCE { INTEGER,INTEGER } OPTIONAL,
fonts-list	[2] IMPLICIT Fonts-List OPTIONAL,
colour-characteristics	[0] IMPLICIT Colour-Characteristics OPTIONAL,
colour-spaces-list	[1] IMPLICIT Colour-Spaces-List OPTIONAL }
Fonts-List	::= SET OF SET {
font-identifier	INTEGER,
font-reference	Font-Reference }
Font-Reference	::= SET {
user-visible-name	[0] IMPLICIT Comment-String OPTIONAL,
user-readable-comment	[1] IMPLICIT Comment-String OPTIONAL,
reference-properties	[2] IMPLICIT SET OF SET {
precedence-number	[0] IMPLICIT INTEGER OPTIONAL,
properties	[1] IMPLICIT Font-Attribute-Set,
user-readable-comment	[2] IMPLICIT Comment-String OPTIONAL }
Document-Management-Attributes	::= SET {
document-description	[7] IMPLICIT Document-Description OPTIONAL,
dates-and-times	[0] IMPLICIT Dates-and-Times OPTIONAL,
originators	[1] IMPLICIT Originators OPTIONAL,
other-user-information	[2] IMPLICIT Other-User-Information OPTIONAL,
external-references	[3] IMPLICIT External-References OPTIONAL,
local-file-references	[4] IMPLICIT Local-File-References OPTIONAL,
content-attributes	[5] IMPLICIT Content-Attributes OPTIONAL,
security-information	[6] IMPLICIT Security-Information OPTIONAL }
Document-Description	::= SET {
title	[0] IMPLICIT Character-Data OPTIONAL,
subject	[1] IMPLICIT Character-Data OPTIONAL,
document-type	[2] IMPLICIT Character-Data OPTIONAL,
abstract	[3] IMPLICIT Character-Data OPTIONAL,
keywords	[4] IMPLICIT SET OF Character-Data OPTIONAL,
document-reference	[5] Document-Reference OPTIONAL }

Character-Data**::= [APPLICATION 3] IMPLICIT OCTET STRING**

- *string of characters from the sets designated by the attribute*
- *"profile character sets", plus space, carriage return and line feed*

Document-Reference**::= CHOICE {
OBJECT IDENTIFIER,
Character-Data }**

unique-reference
descriptive-reference

Dates-and-Times

::= SET {
 [0] IMPLICIT Date-and-Time OPTIONAL,
 [1] IMPLICIT Date-and-Time OPTIONAL,
 [2] IMPLICIT SEQUENCE OF Date-and-Time OPTIONAL,
 [3] IMPLICIT Date-and-Time OPTIONAL,
 [4] IMPLICIT Date-and-Time OPTIONAL,
 [5] IMPLICIT Date-and-Time OPTIONAL,
 [6] IMPLICIT Date-and-Time OPTIONAL,
 [7] IMPLICIT SEQUENCE OF SET {
 [0] IMPLICIT Date-and-Time OPTIONAL,
 [1] IMPLICIT Character-Data OPTIONAL,
 [2] IMPLICIT SET OF SET {
 [0] IMPLICIT SET OF Personal-Name OPTIONAL,
 [1] IMPLICIT Character-Data OPTIONAL,
 [2] IMPLICIT Character-Data OPTIONAL } OPTIONAL,
 [3] Document-Reference OPTIONAL,
 [4] IMPLICIT Character-Data OPTIONAL } OPTIONAL }
}

document-date-and-time
 creation-date-and-time
 local-filing-date-and-time
 expiry-date-and-time
 start-date-and-time
 purge-date-and-time
 release-date-and-time
 revision-history
 revision-date-and-time
 version-identifier
 revisers
 names
 position
 organization
 version-reference
 user-comments

Date-and-Time**::= [APPLICATION 4] IMPLICIT PrintableString**

- *string of characters representing a date and, optionally, a time*
- *in accordance with ISO 8601*

Originators

::= SET {
 [0] IMPLICIT SET OF Character-Data OPTIONAL,
 [1] IMPLICIT SEQUENCE OF SET {
 [0] IMPLICIT Personal-Name OPTIONAL,
 [1] IMPLICIT Character-Data OPTIONAL } OPTIONAL,
 [2] IMPLICIT SEQUENCE OF SET {
 [0] IMPLICIT Personal-Name OPTIONAL,
 [1] IMPLICIT Character-Data OPTIONAL } OPTIONAL,
 [3] IMPLICIT SEQUENCE OF SET {
 [0] IMPLICIT Personal-Name OPTIONAL,
 [1] IMPLICIT Character-Data OPTIONAL } OPTIONAL }
}

organizations
 preparers
 personal-name
 organization
 owners
 personal-name
 organization
 authors
 personal-name
 organization

Personal-Name

::= [APPLICATION 6] IMPLICIT SET {
 [0] IMPLICIT Character-Data,
 [1] IMPLICIT Character-Data OPTIONAL,
 [2] IMPLICIT Character-Data OPTIONAL,
 [3] IMPLICIT Character-Data OPTIONAL }
}

surname
 givenname
 initials
 generation-qualifier

Other-User-Information

::= SET {
 [0] IMPLICIT SET OF SET {
 [0] IMPLICIT SET OF Character-Data OPTIONAL,
 [1] IMPLICIT SET OF Date-and-Time OPTIONAL } OPTIONAL,
 [1] IMPLICIT Character-Data OPTIONAL,
 [2] IMPLICIT SET OF Character-Data OPTIONAL,
 [3] IMPLICIT SEQUENCE OF SET {
 [0] IMPLICIT Personal-Name OPTIONAL,
 [1] IMPLICIT Character-Data OPTIONAL } OPTIONAL,
 [5] ANY OPTIONAL }
}

copyright
 copyright-information
 copyright-dates
 status
 user-specific-codes
 distribution-list
 personal-name
 organization
 additional-information

External-References

::= SET {
 [0] IMPLICIT SET OF Document-Reference OPTIONAL,
 [1] IMPLICIT SET OF Document-Reference OPTIONAL }
}

references-to-other-documents
 superseded-documents

Local-File-References file-name location user-comments	::= SET OF SET { [0] IMPLICIT Character-Data OPTIONAL, [1] IMPLICIT Character-Data OPTIONAL, [2] IMPLICIT Character-Data OPTIONAL }
Content-Attributes document-size number-of-pages languages	::= SET { [1] IMPLICIT INTEGER OPTIONAL, [2] IMPLICIT INTEGER OPTIONAL, [4] IMPLICIT SET OF Character-Data OPTIONAL }
Security-Information authorization person organization security-classification access-rights	::= SET { CHOICE { [0] IMPLICIT Personal-Name, [4] IMPLICIT Character-Data } OPTIONAL, [1] IMPLICIT Character-Data OPTIONAL, [2] IMPLICIT SET OF Character-Data OPTIONAL }
Document-Security-Attributes sealed-info-encoding oda-security-label sealed-doc-profiles presealed-doc-bodyparts postsealed-doc-bodyparts enciphered-doc-profiles preenciphered-doc-bodyparts postenciphered-doc-bodyparts	::= SET { [7] IMPLICIT OBJECT IDENTIFIER OPTIONAL, [0] IMPLICIT Oda-Security-Label OPTIONAL, [1] IMPLICIT Sealed-Doc-Profiles OPTIONAL, [2] IMPLICIT Sealed-Doc-Bodyparts OPTIONAL, [3] IMPLICIT Sealed-Doc-Bodyparts OPTIONAL, [4] IMPLICIT Protected-Doc-Parts OPTIONAL, [5] IMPLICIT Protected-Doc-Parts OPTIONAL, [6] IMPLICIT Protected-Doc-Parts OPTIONAL }
Oda-Security-Label oda-label-text oda-label-data	::= SEQUENCE { [0] IMPLICIT Character-Data OPTIONAL, [1] IMPLICIT OCTET STRING OPTIONAL }
Seal-Data seal-method sealed-information seal	::= SEQUENCE { [0] IMPLICIT Seal-Method OPTIONAL, [1] IMPLICIT Sealed-Information OPTIONAL, [2] IMPLICIT OCTET STRING }
Seal-Method fingerprint-method fingerprint-key-information sealing-method sealing-key-information	::= SEQUENCE { [0] IMPLICIT Method-Information OPTIONAL, [1] IMPLICIT Key-Information OPTIONAL, [2] IMPLICIT Method-Information OPTIONAL, [3] IMPLICIT Key-Information OPTIONAL }
Sealed-Information fingerprint time sealing-orig-id location	::= SEQUENCE { [0] IMPLICIT OCTET STRING OPTIONAL, [1] IMPLICIT Date-and-Time OPTIONAL, [2] IMPLICIT Personal-Name OPTIONAL, [3] IMPLICIT Location OPTIONAL }
Method-Information unique-method-info descriptive-method-info	::= SEQUENCE { [0] IMPLICIT OBJECT IDENTIFIER OPTIONAL, [1] IMPLICIT Character-Data OPTIONAL }
Key-Information method-information additional-information	::= SEQUENCE { [0] IMPLICIT Method-Information OPTIONAL, [1] IMPLICIT Additional-Information OPTIONAL }
Additional-Information descriptive-information octet-string	::= SEQUENCE { [0] IMPLICIT Character-Data OPTIONAL, [1] IMPLICIT OCTET STRING OPTIONAL }
Location unique-location descriptive-location	::= SEQUENCE { [0] IMPLICIT OBJECT IDENTIFIER OPTIONAL, [1] IMPLICIT Character-Data OPTIONAL }
Sealed-Doc-Profiles sealed-doc-prof-descriptor-id privileged-recipients doc-prof-seal	::= SET OF SEQUENCE { [0] IMPLICIT Protected-Part-Identifier, [1] IMPLICIT SET OF Personal-Name OPTIONAL, [2] IMPLICIT Seal-Data }

```

Sealed-Doc-Bodyparts      ::= SET OF SEQUENCE {
    seal-id                [0] IMPLICIT INTEGER,
    sealed-constituents    [1] IMPLICIT Sealed-Constituents,
    privileged-recipients  [2] IMPLICIT SET OF Personal-Name OPTIONAL,
    doc-bodypart-seal      [3] IMPLICIT Seal-Data }

Sealed-Constituents       ::= SEQUENCE {
    object-class-identifiers [0] IMPLICIT SEQUENCE OF Object-or-Class-Identifier OPTIONAL,
    presentation-style-identifiers [1] IMPLICIT SEQUENCE OF Style-Identifier OPTIONAL,
    layout-style-identifiers [2] IMPLICIT SEQUENCE OF Style-Identifier OPTIONAL,
    object-identifiers       [3] IMPLICIT SEQUENCE OF Object-or-Class-Identifier OPTIONAL }

Protected-Doc-Parts       ::= SET OF SEQUENCE {
    protected-doc-part-id  [0] IMPLICIT Protected-Part-Identifier,
    priv-recipients-info   [1] IMPLICIT SET OF Priv-Recipients-Info }

Priv-Recipients-Info      ::= SEQUENCE {
    privileged-recipients  [0] IMPLICIT SET OF Personal-Name OPTIONAL,
    encipherment-method-info [1] IMPLICIT Method-Information OPTIONAL,
    encipherment-key-info  [2] IMPLICIT Key-Information OPTIONAL }

END

```

7.8 Identifiers and expressions

Identifiers-and-Expressions { 2 8 1 5 7 }

DEFINITIONS ::= BEGIN

EXPORTS Content-Portion-Identifier, Object-or-Class-Identifier,
Style-Identifier, Protected-Part-Identifier, Category-Name,
Resource-Name, Binding-Name,
Construction-Expression, Object-Id-Expression,
Numeric-Expression, String-Expression;

IMPORTS Layout-Object-Type
FROM Layout-Descriptors; -- see 7.9
Logical-Object-Type
FROM Logical-Descriptors; -- see 7.10

Content-Portion-Identifier ::= [APPLICATION 0] IMPLICIT PrintableString

-- only digits and space are used in the present version
-- of this Specification; other characters are reserved for extensions

Object-or-Class-Identifier ::= [APPLICATION 1] IMPLICIT PrintableString

-- only digits and space are used in the present version
-- of this Specification; other characters are reserved for extensions;
-- a 'null' value is represented by an empty string

Style-Identifier ::= [APPLICATION 5] IMPLICIT PrintableString

-- only digits and space are used in the present version
-- of this Specification; other characters are reserved for extensions;
-- a 'null' value is represented by an empty string

Protected-Part-Identifier ::= [APPLICATION 7] IMPLICIT PrintableString

-- only digits and space are used in the present version
-- of this Specification; other characters are reserved for extensions;
-- a 'null' value is represented by an empty string

Category-Name	::= PrintableString
<i>-- a 'null' value is represented by an empty string</i>	
Resource-Name	::= PrintableString
Binding-Name	::= PrintableString
Construction-Expression construction-type single-term-construction	::= CHOICE { Construction-Type, [3] Construction-Term }
Construction-Type sequence-construction aggregate-construction choice-construction	::= CHOICE { [0] IMPLICIT Term-Sequence, [1] IMPLICIT Term-Sequence, [2] IMPLICIT Term-Sequence }
Term-Sequence	::= SEQUENCE OF Construction-Term
Construction-Term required-construction-factor optional-construction-factor repetitive-construction-factor optional-repetitive-factor	::= CHOICE { [0] Construction-Factor, [1] Construction-Factor, [2] Construction-Factor, [3] Construction-Factor }
Construction-Factor object-class-identifier construction-type	::= CHOICE { Object-or-Class-Identifier, Construction-Type }
Object-Id-Expression current-object-function preceding-object-function superior-object-function current-instance-function	::= CHOICE { [0] IMPLICIT NULL, [1] Object-Id-Expression, [3] Object-Id-Expression, [4] Current-Instance-Function }
Numeric-Expression numeric-literal increment-application decrement-application ordinal-application identifier expression binding-reference	::= CHOICE { [0] IMPLICIT INTEGER, [1] Numeric-Expression, [2] Numeric-Expression, [3] CHOICE { Object-or-Class-Identifier, Object-Id-Expression }, [4] IMPLICIT Binding-Reference }
Binding-Reference object-reference identifier expression binding-identifier	::= SET { CHOICE { Object-or-Class-Identifier, Binding-Selection-Function }, Binding-Name }
Binding-Selection-Function current-object-function preceding-function superior-function current-instance-function	::= CHOICE { [0] IMPLICIT NULL, [1] Object-Id-Expression, [3] Object-Id-Expression, [4] Current-Instance-Function }
Current-Instance-Function first-parameter identifier layout-object-type logical-object-type second-parameter identifier expression	::= SEQUENCE { CHOICE { [0] IMPLICIT Object-or-Class-Identifier, [1] IMPLICIT Layout-Object-Type, [2] IMPLICIT Logical-Object-Type }, CHOICE { Object-or-Class-Identifier, Object-Id-Expression } }
String-Expression	::= SEQUENCE OF Atomic-String-Expression

```

Atomic-String-Expression ::= CHOICE {
  string-literal          [0] IMPLICIT OCTET STRING,
  binding-reference       [2] IMPLICIT Binding-Reference,
  make-string-application [3] Numeric-Expression,
  upper-alpha-application [4] Numeric-Expression,
  lower-alpha-application [5] Numeric-Expression,
  upper-roman-application [6] Numeric-Expression,
  lower-roman-application [7] Numeric-Expression }

```

END

7.9 Layout descriptors

Layout-Descriptors { 2 8 1 5 8 }

DEFINITIONS ::= BEGIN

EXPORTS Layout-Object-Descriptor, Layout-Class-Descriptor,
Layout-Object-Type, Transparency, Comment-String,
Binding-Pair, One-Of-Four-Angles, Measure-Pair, Dimension-Pair,
Medium-Type, Colour, Border, Content-Background-Colour, Content-Foreground-Colour,
Enciphered, Sealed;

IMPORTS Object-or-Class-Identifier, Style-Identifier, Protected-Part-Identifier,
Category-Name, Resource-Name, Binding-Name,
Construction-Expression, Object-Id-Expression,
Numeric-Expression, String-Expression
FROM Identifiers-and-Expressions -- see 7.8
Presentation-Attributes
FROM Style-Descriptors -- see 7.11
Default-Value-Lists-Layout
FROM Default-Value-Lists -- see 7.12
Colour-Expression, Colour-Table
FROM Colour-Attributes; -- see 7.14

```

Position-Spec ::= SET {
  offset [0] IMPLICIT SET {
    leading [0] IMPLICIT INTEGER OPTIONAL,
    trailing [1] IMPLICIT INTEGER OPTIONAL,
    left-hand [2] IMPLICIT INTEGER OPTIONAL,
    right-hand [3] IMPLICIT INTEGER OPTIONAL } OPTIONAL,
  separation [1] IMPLICIT SET {
    leading [0] IMPLICIT INTEGER OPTIONAL,
    trailing [1] IMPLICIT INTEGER OPTIONAL,
    centre [2] IMPLICIT INTEGER OPTIONAL } OPTIONAL,
  alignment [2] IMPLICIT INTEGER {
    right-hand (0), centred (1),
    left-hand (2) } OPTIONAL,
  fill-order [3] IMPLICIT INTEGER {
    normal (0), reverse (1) } OPTIONAL }

```

```

Dimension-Pair ::= SEQUENCE {
  horizontal CHOICE {
    fixed [0] IMPLICIT INTEGER,
    not-present [4] IMPLICIT NULL },
  vertical CHOICE {
    fixed [0] IMPLICIT INTEGER,
    variable [1] IMPLICIT INTEGER,
    not-present [4] IMPLICIT NULL } }

```

-- the choice 'not-present' indicates that the parameter is not present

```

Dimension-Spec ::= SEQUENCE {
  horizontal Dimension,
  vertical Dimension}

```

Dimension	::= CHOICE {
fixed	[0] IMPLICIT INTEGER,
rule-a	[1] IMPLICIT SET {
minimum	[0] IMPLICIT INTEGER OPTIONAL,
maximum	[1] IMPLICIT INTEGER OPTIONAL },
rule-b	[2] IMPLICIT SET {
minimum	[0] IMPLICIT INTEGER OPTIONAL,
maximum	[1] IMPLICIT INTEGER OPTIONAL },
maximum-size	[3] IMPLICIT NULL,
not-present	[4] IMPLICIT NULL }

-- the choice 'not-present' indicates that the parameter is not present

Transparency ::= INTEGER { transparent (0), opaque (1) }

Comment-String ::= OCTET STRING

-- string of characters from the sets designated by
 -- the document profile attribute "comments character sets",
 -- plus code extension control functions,
 -- space, carriage return and line feed

Binding-Pair	::= SET {
binding-identifier	[0] IMPLICIT Binding-Name,
binding-value	CHOICE {
	[1] Object-Id-Expression,
	[2] Numeric-Expression,
	[3] String-Expression,
	[4] IMPLICIT Object-or-Class-Identifier,
	[5] IMPLICIT INTEGER,
	[6] IMPLICIT OCTET STRING } }

One-Of-Four-Angles ::= INTEGER { d0 (0), d90 (1), d180 (2), d270 (3) }

Measure-Pair	::= SEQUENCE {
horizontal	CHOICE {
fixed	[0] IMPLICIT INTEGER,
not-present	[4] IMPLICIT NULL },
vertical	CHOICE {
fixed	[0] IMPLICIT INTEGER,
not-present	[4] IMPLICIT NULL } }

-- the choice 'not-present' indicates that the parameter is not present

Medium-Type	::= SEQUENCE {
nominal-page-size	Measure-Pair OPTIONAL,
side-of-sheet	INTEGER { unspecified (0), recto (1), verso (2) } OPTIONAL,
colour-of-medium	[3] Colour-Of-Medium OPTIONAL }

Colour ::= INTEGER { colour-of-media (0), coloured (1) }

Border	::= SET {
left-hand-edge	[0] IMPLICIT Border-Edge OPTIONAL,
right-hand-edge	[1] IMPLICIT Border-Edge OPTIONAL,
trailing-edge	[2] IMPLICIT Border-Edge OPTIONAL,
leading-edge	[3] IMPLICIT Border-Edge OPTIONAL }

Border-Edge	::= SET {
line-width	[0] IMPLICIT INTEGER OPTIONAL,
line-type	[1] IMPLICIT INTEGER {
	invisible (0), solid (1),
	dashed (2), dot (3),
	dash-dot (4),
	dash-dot-dot (5) } OPTIONAL,
freespace-width	[2] IMPLICIT INTEGER OPTIONAL,
border-line-colour	[3] Border-Line-Colour OPTIONAL }

-- a 'null' border edge is represented by an empty set

Colour-Of-Medium unspecified-colour specified-colour	::= CHOICE { [3] IMPLICIT NULL, Colour-Expression }
Border-Line-Colour implementation-defined colour-expression	::= CHOICE { [3] IMPLICIT NULL, Colour-Expression }
Content-Background-Colour content-background-transparency colour-expression	::= CHOICE { [2] IMPLICIT NULL, Colour-Expression }
Content-Foreground-Colour implementation-defined content-foreground-transparency colour-expression	::= CHOICE { [3] IMPLICIT NULL, [2] IMPLICIT NULL, Colour-Expression }
Enciphered enciphered-subordinates none-all partial protected-part-id	::= SEQUENCE { CHOICE { [0] IMPLICIT INTEGER { none(0), all(1) }, [1] IMPLICIT SEQUENCE OF NumericString }, [2] IMPLICIT Protected-Part-Identifier OPTIONAL }
Sealed sealed-status seal-ids	::= SEQUENCE { [0] IMPLICIT INTEGER { no(0), yes(1) }, [1] IMPLICIT SET OF INTEGER OPTIONAL }
Layout-Object-Descriptor object-type descriptor-body	::= SEQUENCE { Layout-Object-Type OPTIONAL, Layout-Object-Descriptor-Body OPTIONAL }
Layout-Object-Type	::= INTEGER { document-layout-root (0), page-set (1), page (2), frame (3), block (4) }
Layout-Object-Descriptor-Body object-identifier subordinates content-portions object-class position dimensions transparency presentation-attributes default-value-lists user-readable-comments bindings layout-path imaging-order layout-stream-categories layout-stream-sub-categories permitted-categories	::= SET { Object-or-Class-Identifier OPTIONAL, [0] IMPLICIT SEQUENCE OF NumericString OPTIONAL, [1] IMPLICIT SEQUENCE OF NumericString OPTIONAL, [2] IMPLICIT Object-or-Class-Identifier OPTIONAL, [3] IMPLICIT Measure-Pair OPTIONAL, [4] IMPLICIT Dimension-Pair OPTIONAL, [5] IMPLICIT Transparency OPTIONAL, [6] IMPLICIT Presentation-Attributes OPTIONAL, [7] IMPLICIT Default-Value-Lists-Layout OPTIONAL, [8] IMPLICIT Comment-String OPTIONAL, [9] IMPLICIT SET OF Binding-Pair OPTIONAL, [11] IMPLICIT One-Of-Four-Angles OPTIONAL, [12] IMPLICIT SEQUENCE OF NumericString OPTIONAL, [36] IMPLICIT SET OF Category-Name OPTIONAL, [37] IMPLICIT SET OF Category-Name OPTIONAL, [13] IMPLICIT SET OF Category-Name OPTIONAL,
-- a 'null' value is represented by an empty set	
user-visible-name page-position medium-type presentation-style balance	[14] IMPLICIT Comment-String OPTIONAL, [15] IMPLICIT Measure-Pair OPTIONAL, [16] IMPLICIT Medium-Type OPTIONAL, [17] IMPLICIT Style-Identifier OPTIONAL, [21] IMPLICIT SEQUENCE OF Object-or-Class-Identifier OPTIONAL,
-- a 'null' value is represented by an empty sequence	
colour colour-of-layout-object object-colour-table content-background-colour	[22] IMPLICIT Colour OPTIONAL, [29] Colour-Expression OPTIONAL, [30] IMPLICIT Colour-Table OPTIONAL, [31] Content-Background-Colour OPTIONAL,

content-foreground-colour	[32] Content-Foreground-Colour OPTIONAL,
content-colour-table	[33] IMPLICIT Colour-Table OPTIONAL,
border	[23] IMPLICIT Border OPTIONAL,
application-comments	[25] IMPLICIT OCTET STRING OPTIONAL,
primary	[27] IMPLICIT Object-or-Class-Identifier OPTIONAL,
alternative	[28] IMPLICIT Object-or-Class-Identifier OPTIONAL,
enciphered	[34] IMPLICIT Enciphered OPTIONAL,
sealed	[35] IMPLICIT Sealed OPTIONAL }
Layout-Class-Descriptor	::= SEQUENCE {
object-type	Layout-Object-Type,
descriptor-body	Layout-Class-Descriptor-Body }
Layout-Class-Descriptor-Body	::= SET {
object-class-identifier	Object-or-Class-Identifier,
generator-for-subordinates	[0] Construction-Expression OPTIONAL,
content-portions	[1] IMPLICIT SEQUENCE OF NumericString OPTIONAL,
position	CHOICE {
fixed-position	[3] IMPLICIT Measure-Pair,
variable-position	[26] IMPLICIT Position-Spec } OPTIONAL,
dimensions	[4] IMPLICIT Dimension-Spec OPTIONAL,
transparency	[5] IMPLICIT Transparency OPTIONAL,
presentation-attributes	[6] IMPLICIT Presentation-Attributes OPTIONAL,
default-value-lists	[7] IMPLICIT Default-Value-Lists-Layout OPTIONAL,
user-readable-comments	[8] IMPLICIT Comment-String OPTIONAL,
bindings	[9] IMPLICIT SET OF Binding-Pair OPTIONAL,
content-generator	[10] IMPLICIT String-Expression OPTIONAL,
layout-path	[11] IMPLICIT One-Of-Four-Angles OPTIONAL,
layout-stream-categories	[36] IMPLICIT SET OF Category-Name OPTIONAL,
layout-stream-sub-categories	[37] IMPLICIT SET OF Category-Name OPTIONAL,
permitted-categories	[13] IMPLICIT SET OF Category-Name OPTIONAL,
-- a 'null' value is represented by an empty set	
user-visible-name	[14] IMPLICIT Comment-String OPTIONAL,
page-position	[15] IMPLICIT Measure-Pair OPTIONAL,
medium-type	[16] IMPLICIT Medium-Type OPTIONAL,
presentation-style	[17] IMPLICIT Style-Identifier OPTIONAL,
logical-source	[18] IMPLICIT Object-or-Class-Identifier OPTIONAL,
balance	[21] IMPLICIT SEQUENCE OF Object-or-Class-Identifier OPTIONAL,
-- a 'null' value is represented by an empty sequence	
colour	[22] IMPLICIT Colour OPTIONAL,
colour-of-layout-object	[29] Colour-Expression OPTIONAL,
object-colour-table	[30] IMPLICIT Colour-Table OPTIONAL,
content-background-colour	[31] Content-Background-Colour OPTIONAL,
content-foreground-colour	[32] Content-Foreground-Colour OPTIONAL,
content-colour-table	[33] IMPLICIT Colour-Table OPTIONAL,
border	[23] IMPLICIT Border OPTIONAL,
resource	[24] IMPLICIT Resource-Name OPTIONAL,
application-comments	[25] IMPLICIT OCTET STRING OPTIONAL,
enciphered	[34] IMPLICIT Enciphered OPTIONAL,
sealed	[35] IMPLICIT Sealed OPTIONAL }
END	

7.10 Logical descriptors

Logical-Descriptors { 2 8 1 5 9 }

DEFINITIONS ::= BEGIN

EXPORTS Logical-Object-Descriptor, Logical-Class-Descriptor,
Logical-Object-Type, Protection;

IMPORTS Object-or-Class-Identifier, Style-Identifier,
Resource-Name, Construction-Expression, String-Expression
FROM Identifiers-and-Expressions -- see 7.8
Comment-String, Binding-Pair, Enciphered, Sealed
FROM Layout-Descriptors -- see 7.9
Presentation-Attributes FROM Style-Descriptors -- see 7.11
Default-Value-Lists-Logical
FROM Default-Value-Lists; -- see 7.12

Logical-Object-Descriptor ::= SEQUENCE {
object-type Logical-Object-Type OPTIONAL,
descriptor-body Logical-Object-Descriptor-Body OPTIONAL }

Logical-Object-Type ::= INTEGER {document-logical-root (0),
composite-logical-object (1),
basic-logical-object (2) }

Logical-Object-Descriptor-Body ::= SET {
object-identifier Object-or-Class-Identifier OPTIONAL,
subordinates [0] IMPLICIT SEQUENCE OF NumericString OPTIONAL,
content-portions [1] IMPLICIT SEQUENCE OF NumericString OPTIONAL,
object-class [2] IMPLICIT Object-or-Class-Identifier OPTIONAL,
presentation-attributes [6] IMPLICIT Presentation-Attributes OPTIONAL,

-- only for use for the attribute content-architecture-class;
-- the content architecture specific attributes can only be referenced by
-- use of presentation style

default-value-lists [7] IMPLICIT Default-Value-Lists-Logical OPTIONAL,
user-readable-comments [8] IMPLICIT Comment-String OPTIONAL,
bindings [9] IMPLICIT SET OF Binding-Pair OPTIONAL,
content-generator [10] IMPLICIT String-Expression OPTIONAL,
user-visible-name [14] IMPLICIT Comment-String OPTIONAL,
presentation-style [17] IMPLICIT Style-Identifier OPTIONAL,
layout-style [19] IMPLICIT Style-Identifier OPTIONAL,
protection [20] IMPLICIT Protection OPTIONAL,
application-comments [25] IMPLICIT OCTET STRING OPTIONAL,
primary [27] IMPLICIT Object-or-Class-Identifier OPTIONAL,
alternative [28] IMPLICIT Object-or-Class-Identifier OPTIONAL,
enciphered [34] IMPLICIT Enciphered OPTIONAL,
sealed [35] IMPLICIT Sealed OPTIONAL }

Logical-Class-Descriptor ::= SEQUENCE {
object-type Logical-Object-Type,
descriptor-body Logical-Class-Descriptor-Body }

Logical-Class-Descriptor-Body ::= SET {
object-class-identifier Object-or-Class-Identifier,
generator-for-subordinates [0] Construction-Expression OPTIONAL,
content-portions [1] IMPLICIT SEQUENCE OF NumericString OPTIONAL,
presentation-attributes [6] IMPLICIT Presentation-Attributes OPTIONAL,

-- only for use for the attribute content-architecture-class;
-- the content architecture specific attributes can only be referenced by
-- use of presentation style

default-value-lists [7] IMPLICIT Default-Value-Lists-Logical OPTIONAL,
user-readable-comments [8] IMPLICIT Comment-String OPTIONAL,
bindings [9] IMPLICIT SET OF Binding-Pair OPTIONAL,
content-generator [10] IMPLICIT String-Expression OPTIONAL,
user-visible-name [14] IMPLICIT Comment-String OPTIONAL,
presentation-style [17] IMPLICIT Style-Identifier OPTIONAL,
layout-style [19] IMPLICIT Style-Identifier OPTIONAL,
protection [20] IMPLICIT Protection OPTIONAL,
resource [24] IMPLICIT Resource-Name OPTIONAL,

application-comments [25] IMPLICIT OCTET STRING OPTIONAL,
 enciphered [34] IMPLICIT Enciphered OPTIONAL,
 sealed [35] IMPLICIT Sealed OPTIONAL }

Protection ::= INTEGER { unprotected (0), protected (1) }

END

7.11 Style descriptors

Style-Descriptors { 2 8 1 5 10 }

DEFINITIONS ::= BEGIN

EXPORTS Presentation-Style-Descriptor, Presentation-Attributes,
 Content-Type, Content-Architecture-Class,
 Layout-Style-Descriptor, Fill-Order, Block-Alignment;

IMPORTS Object-or-Class-Identifier, Style-Identifier,
 Category-Name, Object-Id-Expression
 FROM Identifiers-and-Expressions -- see 7.8
 Comment-String, Transparency, Colour, Border,
 Layout-Object-Type, Content-Background-Colour, Content-Foreground-Colour, Sealed
 FROM Layout-Descriptors -- see 7.9
 Colour-Expression, Colour-Table
 FROM Colour-Attributes -- see 7.14
 Character-Attributes
 FROM Character-Presentation-Attributes { 2 8 1 6 2 } -- see ITU-T Rec. T.416 | ISO/IEC 8613-6
 Raster-Graphics-Attributes
 FROM Raster-Gr-Presentation-Attributes { 2 8 1 7 2 } -- see ITU-T Rec. T.417 | ISO/IEC 8613-7
 Geometric-Graphics-Attributes
 FROM Geo-Gr-Presentation-Attributes { 2 8 1 8 2 } -- see ITU-T Rec. T.418 | ISO/IEC 8613-8

Presentation-Style-Descriptor ::= SET {
 style-identifier Style-Identifier,
 user-readable-comments [0] IMPLICIT Comment-String OPTIONAL,
 user-visible-name [1] IMPLICIT Comment-String OPTIONAL,
 application-comments [25] IMPLICIT OCTET STRING OPTIONAL,
 transparency [2] IMPLICIT Transparency OPTIONAL,
 presentation-attributes [3] IMPLICIT Presentation-Attributes OPTIONAL,
 colour [4] IMPLICIT Colour OPTIONAL,
 colour-of-layout-object [29] Colour-Expression OPTIONAL,
 object-colour-table [30] IMPLICIT Colour-Table OPTIONAL,
 content-background-colour [31] Content-Background-Colour OPTIONAL,
 content-foreground-colour [32] Content-Foreground-Colour OPTIONAL,
 content-colour-table [33] IMPLICIT Colour-Table OPTIONAL,
 border [5] IMPLICIT Border OPTIONAL,
 sealed [6] IMPLICIT Sealed OPTIONAL,
 derived-from [7] IMPLICIT Style-Identifier OPTIONAL }

Presentation-Attributes ::= SET {
 content-architecture-class CHOICE {
 Content-Architecture-Class,
 Content-Type } OPTIONAL,
 character-attributes [0] IMPLICIT Character-Attributes OPTIONAL,
 raster-graphics-attributes [1] IMPLICIT Raster-Graphics-Attributes OPTIONAL,
 geometric-graphics-attributes [2] IMPLICIT Geometric-Graphics-Attributes OPTIONAL,

-- the following tags are reserved for additional types
 -- of presentation attributes:
 -- [3] videotex, for use in conjunction with CCITT Recommendations
 -- [4] audio
 -- [5] dynamic-graphics

ext-cont-arch-pres-attributes**[6] IMPLICIT SEQUENCE OF EXTERNAL OPTIONAL}****Content-Type**

**::= [APPLICATION 2] IMPLICIT INTEGER {
formatted-raster-graphics (1) }**

- The integer representation for content architecture class,
- Content-Type, is only to be used if the value of the document
- profile attribute "document application profile" is an integer.
- The value 'formatted-raster-graphics' represents the formatted raster
- graphics content architecture as defined in ITU-T Rec. T.417 | ISO/IEC 8613-7.

Content-Architecture-Class

::= OBJECT IDENTIFIER

Layout-Style-Descriptor

::= SET {

- style-identifier** Style-Identifier,
- user-readable-comments** [0] IMPLICIT Comment-String OPTIONAL,
- user-visible-name** [1] IMPLICIT Comment-String OPTIONAL,
- application-comments** [25] IMPLICIT OCTET STRING OPTIONAL,
- layout-directives** [4] IMPLICIT Layout-Directives OPTIONAL,
- sealed** [6] IMPLICIT Sealed OPTIONAL,
- derived-from** [7] IMPLICIT Style-Identifier OPTIONAL }

Layout-Directives

::= SET {

- indivisibility** CHOICE {
- to-layout-object-class** [0] IMPLICIT Object-or-Class-Identifier,
- to-layout-category** [1] IMPLICIT Category-Name,
- to-layout-object-type** [2] IMPLICIT Layout-Object-Type,
- null** [15] IMPLICIT NULL } OPTIONAL,
- separation** [3] IMPLICIT Separation OPTIONAL,
- offset** [4] IMPLICIT Offset OPTIONAL,
- fill-order** [5] IMPLICIT Fill-Order OPTIONAL,
- concatenation** [6] IMPLICIT Concatenation OPTIONAL,
- new-layout-object** CHOICE {
- to-layout-object-class** [7] IMPLICIT Object-or-Class-Identifier,
- to-layout-category** [8] IMPLICIT Category-Name,
- to-layout-object-type** [9] IMPLICIT Layout-Object-Type,
- null** [16] IMPLICIT NULL } OPTIONAL,
- same-layout-object** [10] IMPLICIT Same-Layout-Object OPTIONAL,
- layout-object-class** [11] IMPLICIT Object-or-Class-Identifier OPTIONAL,
- logical-stream-category** [19] IMPLICIT Category-Name OPTIONAL,
- logical-stream-sub-category** [20] IMPLICIT Category-Name OPTIONAL,
- layout-category** [12] IMPLICIT Category-Name OPTIONAL,
- synchronization** CHOICE {
- [13] IMPLICIT Object-or-Class-Identifier,
- [17] Object-Id-Expression,
- [18] IMPLICIT NULL } OPTIONAL,
- [14] IMPLICIT Block-Alignment OPTIONAL,
- [24] IMPLICIT Floatability-Range OPTIONAL }
- block-alignment**
- floatability-range**

Separation

::= SET {

- leading** [0] IMPLICIT INTEGER OPTIONAL,
- trailing** [1] IMPLICIT INTEGER OPTIONAL,
- centre** [2] IMPLICIT INTEGER OPTIONAL }

Offset

::= SET {

- leading** [3] IMPLICIT INTEGER OPTIONAL,
- trailing** [2] IMPLICIT INTEGER OPTIONAL,
- left-hand** [1] IMPLICIT INTEGER OPTIONAL,
- right-hand** [0] IMPLICIT INTEGER OPTIONAL }

Fill-Order

::= INTEGER { normal (0), reverse (1) }

Concatenation

::= INTEGER { non-concatenated (0), concatenated (1) }

Same-Layout-Object

::= SET {

- logical-object** CHOICE {
- [0] IMPLICIT Object-or-Class-Identifier,
- [4] Object-Id-Expression,
- [5] IMPLICIT NULL },

```

layout-object CHOICE {
    to-stream-root-category [1] IMPLICIT Object-or-Class-Identifier,
    to-stream-sub-category [6] IMPLICIT Category-Name,
    to-layout-category [7] IMPLICIT Category-Name,
    [2] IMPLICIT Category-Name,
    [3] IMPLICIT Layout-Object-Type } OPTIONAL }

Floatability-Range ::= SET {
    forward-limit [0] SEQUENCE {
        logical-object CHOICE {
            layout-object [2] IMPLICIT Object-or-Class-Identifier,
            to-layout-object-class [3] Object-Id-Expression,
            to-stream-root-category [4] IMPLICIT NULL },
            to-stream-sub-category CHOICE {
                to-layout-category [5] IMPLICIT Object-or-Class-Identifier,
                to-layout-object-type [6] IMPLICIT Category-Name,
                [7] IMPLICIT Category-Name,
                [8] IMPLICIT Category-Name,
                [9] IMPLICIT Category-Name,
                [10] IMPLICIT Layout-Object-Type,
                [10] IMPLICIT NULL } OPTIONAL } OPTIONAL,
        backward-limit [1] SEQUENCE {
            logical-object CHOICE {
                layout-object [2] IMPLICIT Object-or-Class-Identifier,
                to-layout-object-class [3] Object-Id-Expression,
                to-stream-root-category [4] IMPLICIT NULL },
                to-stream-sub-category CHOICE {
                    to-layout-category [5] IMPLICIT Object-or-Class-Identifier,
                    to-layout-object-type [6] IMPLICIT Category-Name,
                    [7] IMPLICIT Category-Name,
                    [8] IMPLICIT Category-Name,
                    [9] IMPLICIT Category-Name,
                    [9] IMPLICIT Layout-Object-Type,
                    [10] IMPLICIT NULL } OPTIONAL } OPTIONAL }

Block-Alignment ::= INTEGER {
    right-hand (0), left-hand (1),
    centred (2), null (3) }

END

```

7.12 Default value lists

Default-Value-Lists { 2 8 1 5 11 }

DEFINITIONS ::= BEGIN

EXPORTS Default-Value-Lists-Logical, Default-Value-Lists-Layout;

```

IMPORTS Style-Identifier, Category-Name
FROM Identifiers-and-Expressions -- see 7.8
Measure-Pair, One-Of-Four-Angles, Medium-Type,
Dimension-Pair, Transparency, Colour, Border,
Content-Background-Colour, Content-Foreground-Colour, Sealed
FROM Layout-Descriptors -- see 7.9
Protection FROM Logical-Descriptors -- see 7.10
Presentation-Attributes
FROM Style-Descriptors -- see 7.11
Colour-Expression, Colour-Table
FROM Colour-Attributes; -- see 7.14

```

```

Default-Value-Lists-Layout ::= SET {
    page-set-attributes [1] IMPLICIT Page-Set-Attributes OPTIONAL,
    page-attributes [2] IMPLICIT Page-Attributes OPTIONAL,
    frame-attributes [3] IMPLICIT Frame-Attributes OPTIONAL,
    block-attributes [4] IMPLICIT Block-Attributes OPTIONAL }

```

```

Default-Value-Lists-Logical ::= SET {
    composite-logical-attributes [5] IMPLICIT Composite-Logical-Attributes OPTIONAL,
    basic-logical-attributes [6] IMPLICIT Basic-Logical-Attributes OPTIONAL }

```

Page-Set-Attributes	::= SET {
layout-stream-categories	< Attribute OPTIONAL,
layout-stream-sub-categories	< Attribute OPTIONAL }
Page-Attributes	::= SET {
dimensions	< Attribute OPTIONAL,
transparency	< Attribute OPTIONAL,
presentation-attributes	< Attribute OPTIONAL,
page-position	< Attribute OPTIONAL,
medium-type	< Attribute OPTIONAL,
presentation-style	< Attribute OPTIONAL,
layout-stream-categories	< Attribute OPTIONAL,
layout-stream-sub-categories	< Attribute OPTIONAL,
colour	< Attribute OPTIONAL,
colour-of-layout-object	< Attribute OPTIONAL,
object-colour-table	< Attribute OPTIONAL,
content-background-colour	< Attribute OPTIONAL,
content-foreground-colour	< Attribute OPTIONAL,
content-colour-table	< Attribute OPTIONAL,
sealed	< Attribute OPTIONAL }
Frame-Attributes	::= SET {
position	< Attribute OPTIONAL,
dimensions	< Attribute OPTIONAL,
transparency	< Attribute OPTIONAL,
layout-path	< Attribute OPTIONAL,
permitted-categories	< Attribute OPTIONAL,
layout-stream-categories	< Attribute OPTIONAL,
layout-stream-sub-categories	< Attribute OPTIONAL,
colour	< Attribute OPTIONAL,
colour-of-layout-object	< Attribute OPTIONAL,
object-colour-table	< Attribute OPTIONAL,
border	< Attribute OPTIONAL,
sealed	< Attribute OPTIONAL }
Block-Attributes	::= SET {
position	< Attribute OPTIONAL,
dimensions	< Attribute OPTIONAL,
transparency	< Attribute OPTIONAL,
presentation-attributes	< Attribute OPTIONAL,
presentation-style	< Attribute OPTIONAL,
layout-stream-categories	< Attribute OPTIONAL,
layout-stream-sub-categories	< Attribute OPTIONAL,
colour	< Attribute OPTIONAL,
colour-of-layout-object	< Attribute OPTIONAL,
object-colour-table	< Attribute OPTIONAL,
content-background-colour	< Attribute OPTIONAL,
content-foreground-colour	< Attribute OPTIONAL,
content-colour-table	< Attribute OPTIONAL,
border	< Attribute OPTIONAL,
sealed	< Attribute OPTIONAL }
Composite-Logical-Attributes	::= SET {
protection	< Attribute OPTIONAL,
layout-style	< Attribute OPTIONAL,
sealed	< Attribute OPTIONAL }
Basic-Logical-Attributes	::= SET {
presentation-attributes	< Attribute OPTIONAL,
-- only for use for the attribute content-architecture-class; -- the content architecture specific attributes can only be referenced by -- use of presentation style	
protection	< Attribute OPTIONAL,
presentation-style	< Attribute OPTIONAL,
layout-style	< Attribute OPTIONAL,
sealed	< Attribute OPTIONAL }

Attribute	::= CHOICE {
position	[0] IMPLICIT Measure-Pair,
dimensions	[1] IMPLICIT Dimension-Pair,
transparency	[2] IMPLICIT Transparency,
presentation-attributes	[3] IMPLICIT Presentation-Attributes,
layout-path	[4] IMPLICIT One-Of-Four-Angles,
page-position	[5] IMPLICIT Measure-Pair,
medium-type	[6] IMPLICIT Medium-Type,
permitted-categories	[7] IMPLICIT SET OF Category-Name,
layout-stream-categories	[19] IMPLICIT SET OF Category-Name,
layout-stream-sub-categories	[20] IMPLICIT SET OF Category-Name,
protection	[8] IMPLICIT Protection,
presentation-style	[9] IMPLICIT Style-Identifier,
layout-style	[10] IMPLICIT Style-Identifier,
colour	[11] IMPLICIT Colour,
colour-of-layout-object	[14] Colour-Expression,
object-colour-table	[15] IMPLICIT Colour-Table,
content-background-colour	[16] Content-Background-Colour,
content-foreground-colour	[17] Content-Foreground-Colour,
content-colour-table	[18] IMPLICIT Colour-Table,
border	[12] IMPLICIT Border,
sealed	[13] IMPLICIT Sealed }
	END

7.13 Text units

Text-Units { 2 8 1 5 12 }

DEFINITIONS ::= BEGIN

EXPORTS Text-Unit, Type-Of-Coding;

IMPORTS Content-Portion-Identifier
 FROM Identifiers-and-Expressions -- see 7.8
 Character-Coding-Attributes
 FROM Character-Coding-Attributes { 2 8 1 6 3 } -- see ITU-T Rec. T.416 | ISO/IEC 8613-6
 Raster-Gr-Coding-Attributes
 FROM Raster-Gr-Coding-Attributes { 2 8 1 7 3 } -- see ITU-T Rec. T.417 | ISO/IEC 8613-7
 Geo-Gr-Coding-Attributes
 FROM Geo-Gr-Coding-Attributes { 2 8 1 8 3 }; -- see ITU-T Rec. T.418 | ISO/IEC 8613-8

Text-Unit	::= SEQUENCE {
content-portion-attributes	Content-Portion-Attributes OPTIONAL,
content-information	Content-Information OPTIONAL }
Content-Portion-Attributes	::= SET {
content-identifier-layout	Content-Portion-Identifier OPTIONAL,
content-identifier-logical	[4] IMPLICIT Content-Portion-Identifier OPTIONAL,
type-of-coding	Type-Of-Coding OPTIONAL,
coding-attributes	CHOICE {
character-coding-attributes	[1] IMPLICIT Character-Coding-Attributes,
raster-gr-coding-attributes	[2] IMPLICIT Raster-Gr-Coding-Attributes,
geo-gr-coding-attributes	[7] IMPLICIT Geo-Gr-Coding-Attributes,
videotex-coding-attributes	[8] IMPLICIT Videotex-Coding-Attributes,

-- the use of the data item "videotex-coding-attributes" is applicable to
 -- ITU-T Rec. T.410 Series only

-- the following tags are reserved for additional types
 -- of coding attributes:
 -- [9] audio
 -- [10] dynamic-graphics

```

    ext-cont-arch-coding-attributes
    alternative-representation          [11] IMPLICIT EXTERNAL } OPTIONAL,
                                      [3] IMPLICIT Alternative-Representation OPTIONAL }

Content-Information                   ::= CHOICE {
    content                          OCTET STRING,
    tiled-content                    Tiled-Content }
Tiled-Content                        ::= SEQUENCE OF OCTET STRING

Type-Of-Coding                       ::= CHOICE {
    [0] IMPLICIT INTEGER { t6 (1)},
    [6] IMPLICIT OBJECT IDENTIFIER}

Alternative-Representation            ::= OCTET STRING

    -- string of characters from the sets designated by the document
    -- profile attribute "alternative representation character sets",
    -- plus carriage return and line feed

```

END

7.14 Colour attributes

Colour-Attributes { 2 8 1 5 14 }

DEFINITIONS ::= BEGIN

EXPORTS Colour-Expression, Colour-Table, Colour-Spaces-List, Colour-Characteristics;

IMPORTS Character-Data
FROM Document-Profile-Descriptor;

-- see 7.7

```

Real-Or-Int                          ::= CHOICE { REAL, INTEGER }

Colour-Expression                    ::= SEQUENCE {
    colour-access-mode                [0] IMPLICIT INTEGER { direct (0), indexed (1) },
    [1] CHOICE {
        direct-colour                 [0] IMPLICIT Direct-Colour,
        indexed-colour                [1] IMPLICIT Indexed-Colour } }

Direct-Colour                        ::= SET {
    colour-space-id                   [0] IMPLICIT INTEGER OPTIONAL,
    colour-specification              [1] Colour-Specification OPTIONAL,
    colour-tolerance                  [2] IMPLICIT Colour-Tolerance OPTIONAL }

Colour-Specification                 ::= CHOICE {
    cmyk-colour                       [0] IMPLICIT CMYK-Colour,
    rgb-colour                        [1] IMPLICIT RGB-Colour,
    cie-colour                        [2] IMPLICIT CIE-Colour }

CMYK-Colour                          ::= SET {
    c-value                           [0] Real-Or-Int,
    m-value                           [1] Real-Or-Int,
    y-value                           [2] Real-Or-Int,
    k-value                           [3] Real-Or-Int OPTIONAL }

RGB-Colour                          ::= SET {
    r-value                           [0] Real-Or-Int,
    g-value                           [1] Real-Or-Int,
    b-value                           [2] Real-Or-Int }

CIE-Colour                          ::= SET {
    x-value                           [0] Real-Or-Int,
    y-value                           [1] Real-Or-Int,
    z-value                           [2] Real-Or-Int }

```


Colour-Tolerance unspecified-tolerance specified-tolerance	::= CHOICE { [0] IMPLICIT NULL, [1] IMPLICIT Specified-Tolerance }
Specified-Tolerance tolerance-value tolerance-space	::= SET { [0] IMPLICIT Real-Or-Int, [1] IMPLICIT INTEGER { cieluv (3), cielab (4) } }
Indexed-Colour index	::= SET { [0] IMPLICIT INTEGER OPTIONAL }
Colour-Table colour-space-id colour-table-entries index colour-coordinates colour-tolerance	::= SET { [0] IMPLICIT INTEGER, [1] IMPLICIT SET OF SET { [0] IMPLICIT INTEGER, [1] Colour-Specification, [2] IMPLICIT Colour-Tolerance OPTIONAL } }
Colour-Characteristics colour-spaces-present colour-space-type colour-calibration-type colour-modes-present minimum-colour-tolerance maximum-colour-table-length -- "maximum number of colour table entries" -- maximum-rgb-lut-length -- "maximum number of look-up table entries" -- maximum-cmy-k-grid-size	::= SET { [0] IMPLICIT SEQUENCE OF SET { [0] IMPLICIT Colour-Space-Type, [1] IMPLICIT Colour-Space-Calibration-Type }, [1] IMPLICIT Colour-Modes-Present, [2] IMPLICIT Colour-Tolerance OPTIONAL, [3] IMPLICIT INTEGER OPTIONAL, [4] IMPLICIT INTEGER OPTIONAL, [5] IMPLICIT INTEGER OPTIONAL }
Colour-Space-Type	::= INTEGER { rgb (0), cmyk (1), cmy (2), cieluv (3), cielab (4) }
Colour-Space-Calibration-Type	::= INTEGER { no-calibration (0), matrices (1), lookup-tables (2), matrices-and-lookup-tables (3) }
Colour-Modes-Present	::= INTEGER { direct (0), indexed (1), both (2) }
Colour-Spaces-List	::= SET OF Colour-Space
Colour-Space colour-space-id colour-space-type colour-space-name colour-data-scaling calibration-data	::= SET { [0] IMPLICIT INTEGER, [1] IMPLICIT Colour-Space-Type, [2] IMPLICIT Character-Data OPTIONAL, [3] Colour-Data-Scaling OPTIONAL, [4] IMPLICIT Calibration-Data OPTIONAL }
Colour-Data-Scaling first-component second-component third-component fourth-component	::= SET { [0] IMPLICIT Scale-And-Offset, [1] IMPLICIT Scale-And-Offset, [2] IMPLICIT Scale-And-Offset, [3] IMPLICIT Scale-And-Offset OPTIONAL }
Scale-And-Offset colour-scale colour-offset	::= SET { [0] Real-Or-Int, [1] Real-Or-Int }
Calibration-Data rgb cmyk cmy cieluv cielab	::= CHOICE { [0] IMPLICIT RGB-Calibration, [1] IMPLICIT CMY-K-Calibration, [2] IMPLICIT CMY-K-Calibration, [3] IMPLICIT CIE-Calibration, [4] IMPLICIT CIE-Calibration }

```

CIE-Calibration
  reference-white ::= SET {
                    [0] IMPLICIT CIE-Ref }

RGB-Calibration
  reference-white ::= SET {
  matrix1         [0] IMPLICIT CIE-Ref,
  lookup-table    [1] IMPLICIT Three-by-Three-Matrix OPTIONAL,
  matrix2         [3] IMPLICIT Colour-Lookup-Table OPTIONAL,
  matrix2         [2] IMPLICIT Three-by-Three-Matrix OPTIONAL }

Three-by-Three-Matrix
  row-1           ::= SEQUENCE {
  row-2           Three-Nums,
  row-3           Three-Nums,
                  Three-Nums }

Three-Nums
  column-1        ::= SEQUENCE {
  column-2        Real-Or-Int,
  column-3        Real-Or-Int,
                  Real-Or-Int }

Colour-Lookup-Table
  number-of-entries
  m
  n
  colour-table    ::= SET {
                    [0] IMPLICIT INTEGER,
                    [1] IMPLICIT INTEGER,
                    [2] IMPLICIT INTEGER,
                    [3] IMPLICIT SET OF Colour-Table-Entry }

Colour-Table-Entry
  index           ::= SET {
  r               [3] IMPLICIT INTEGER,
  g               [0] Real-Or-Int,
  b               [1] Real-Or-Int,
                  [2] Real-Or-Int }

CMY-K-Calibration
  reference-white ::= SET {
  comment         [0] IMPLICIT CIE-Ref,
  cmyk-lut        [1] IMPLICIT Character-Data OPTIONAL,
                  [2] IMPLICIT Grid-Specification }

Grid-Specification
  grid-location   ::= SET OF SET {
  grid-value      [0] IMPLICIT CMYK-Colour,
                  [1] IMPLICIT Grid-Value }

Grid-Value
  x-value         ::= SET {
  y-value         [0] IMPLICIT REAL,
  z-value         [1] IMPLICIT REAL,
                  [2] IMPLICIT REAL }

CIE-Ref
  xn-value        ::= SET {
  yn-value        [0] Real-Or-Int,
  zn-value        [1] Real-Or-Int,
                  [2] Real-Or-Int }

```

END

7.15 Protected part descriptors

Protected-Part-Descriptors { 2 8 1 5 13 }

DEFINITIONS ::= BEGIN

EXPORTS Sealed-Doc-Prof-Descriptor,
 Enciphered-Doc-Prof-Descriptor,
 Preenciphered-Bodypart-Descriptor,
 Postenciphered-Bodypart-Descriptor;

IMPORTS Protected-Part-Identifier
 FROM Identifiers-and-Expressions;

-- see 7.8

Sealed-Doc-Prof-Descriptor sealed-doc-prof-identifier sealed-doc-prof-information	::= SEQUENCE { Protected-Part-Identifier, Document-Profile-Attribute-Names }
Document-Profile-Attribute-Names	::= BIT STRING { generic-layout-structure (0), specific-layout-structure (1), generic-logical-structure (2), specific-logical-structure (3), layout-styles (4), presentation-styles (5), sealed-profiles (6), enciphered-profiles (7), pre-enciphered-body-parts (8), post-enciphered-body-parts (9), external-document-class (10), resource-document (11), resources (12), document-application-profile (13), document-application-profile-defaults (14), document-architecture-class (15), content-architecture-classes (16), interchange-format-class (17), oda-version (18), alternative-feature-sets (19), profile-character-sets (20), comments-character-sets (21), alternative-representation-character-sets (22), page-dimensions (23), medium-types (24), layout-paths (25), protections (26), block-alignments (27), fill-orders (28), transparencies (29), colours (30), colours-of-layout-object (31), object-colour-tables (32), content-background-colours (33), content-foreground-colours (34), content-colour-tables (35), borders (36), page-positions (37), types-of-coding (38), coding-attributes (39), presentation-features (40), number-of-objects-per-page (41), unit-scaling (42), fonts-list (43), colour-characteristics (44), colour-spaces-list (45), title (46), subject (47), document-reference (48), document-type (49), abstract (50), keywords (51), document-date-and-time (52), creation-date-and-time (53), local-filing-date-and-time (54), expiry-date-and-time (55), start-date-and-time (56), purge-date-and-time (57), release-date-and-time (58), revision-history (59), organizations (60), preparers (61), owners (62), authors (63), copyright (64), status (65), user-specific-codes (66), distribution-list (67), additional-information (68), references-to-other-documents (69), superseded-documents (70), local-file-references (71), document-size (72), number-of-pages (73), languages (74), authorization (75), security-classification (76), access-rights (77), sealed-information-encoding (78), oda-security-label (79), sealed-document-profiles (80), pre-sealed-document-body-parts (81), post-sealed-document-body-parts (82), enciphered-document-profiles (83), pre-enciphered-document-body-parts (84), post-enciphered-document-body-parts (85) }
Enciphered-Doc-Prof-Descriptor enciphered-doc-prof-identifier enciphered-doc-prof-information	::= SEQUENCE { Protected-Part-Identifier, Enciphered-Information }
Preenciphered-Bodypart-Descriptor preenciphered-bodypart-identifier preenciphered-bodypart-info	::= SEQUENCE { Protected-Part-Identifier, Enciphered-Information }
Postenciphered-Bodypart-Descriptor postenciphered-bodypart-identifier postenciphered-bodypart-info	::= SEQUENCE { Protected-Part-Identifier, Enciphered-Information }
Enciphered-Information	::= OCTET STRING
	END

Annex A

Coded representation

(This annex does not form an integral part of this Recommendation | International Standard)

This annex is a summary of the basic encoding rules for the abstract syntax notation ASN.1 defined in CCITT Rec. X.209 | ISO/IEC 8825.

The coded representation of each data structure or data item that constitutes, or constitutes part of, a descriptor or a text unit consists of a type field, a length field and a value field.

If the data item concerned is an elementary data item, then the type field specifies the elementary data type, the length field specifies the length of the value field, and the value field represents the value of the data item.

If the data structure or data item concerned is not elementary, then the type field identifies the attribute or group of attributes corresponding to the data structure or data item, the length field specifies the length of the value field, and the value field consists of one or more triplets, each of which is composed of a type field, a length field and a value field, representing the subordinate data structures and data items.

The *type field* (which is called “identifier octets” in CCITT Rec. X.209 | ISO/IEC 8825) consists of one or more bytes. The bits of the first byte are used as follows:

- bits 8 and 7: tag class (00: universal,
01: application,
10: context-specific,
11: private);
- bit 6: contents encoding form (0: simple,
1: structured);
- bits 5 to 1: 00000 to 11110: tag number;
11111 indicates a multi-octet type field.

The tag numbers for universal tags shown in Table A.1 have been assigned in CCITT Rec. X.208 | ISO/IEC 8824 and CCITT Rec. X.209 | ISO/IEC 8825.

Table A.1 – Universal class tags

Built-in data types	Defined data types
0: End-of-contents 1: Boolean 2: Integer 3: Bit String 4: Octet String 5: Null 6: Object Identifier 7: Object Descriptor 8: External 9: Real 10: Enumerated 11: Encrypted 16: Sequence 17: Set	18: Numeric String 19: Printable String 20: Teletex String 21: Videotex String 22: IA5 String 23: UTC Time 24: Generalized Time 25: Graphic Character String 26: General String 27: Visible String

Data items of type End-of-contents, Boolean, Integer or Null are simple (elementary data items). Sequences and Sets are structured (data structures with subordinate data items). Data items of type Bit String, Octet String or any of the defined data types can be either simple or structured.

A data structure or data item with an indefinite length field must be structured and must be terminated by a delimiter consisting of an End-of-contents (EOC) item. An EOC item consists of two bytes: a type field of one byte and a length field of one byte. Both are equal to zero. An EOC item has no value field.

Annex B

Application class tag assignments

(This annex does not form an integral part of this Recommendation | International Standard)

The application class tag assignments made in various clauses of this Specification are summarized in Table B.1.

Table B.1 – Application class tags

Tag	Data type	Reference (Subclause)
APPLICATION 0	Content-Portion-Identifier	7.8
APPLICATION 1	Object-or-Class-Identifier	7.8
APPLICATION 2	Content-Type	7.11
APPLICATION 3	Character-Data	7.7
APPLICATION 4	Date-and-Time	7.7
APPLICATION 5	Style-Identifier	7.8
APPLICATION 6	Personal-Name	7.7
APPLICATION 7	Protected-Part-Identifier	7.8

Annex C

Summary of object identifiers

(This annex does not form an integral part of this Recommendation | International Standard)

Values of ASN.1 object identifiers are assigned in various clauses in this Specification. These are summarized in Table C.1.

Table C.1 – Summary of ASN.1 object identifiers

Object identifier value	Meaning	Reference (Subclause)
{ 2 8 0 0 }	Identifies External data type	7.1
{ 2 8 1 5 5 }	Identifies Module Interchange-Data-Elements	7.6
{ 2 8 1 5 6 }	Identifies Module Document-Profile-Descriptor	7.7
{ 2 8 1 5 7 }	Identifies Module Identifiers-and-Expressions	7.8
{ 2 8 1 5 8 }	Identifies Module Layout-Descriptors	7.9
{ 2 8 1 5 9 }	Identifies Module Logical-Descriptors	7.10
{ 2 8 1 5 1 0 }	Identifies Module Style-Descriptors	7.11
{ 2 8 1 5 1 1 }	Identifies Module Default-Value-Lists	7.12
{ 2 8 1 5 1 2 }	Identifies Module Text-Units	7.13
{ 2 8 1 5 1 3 }	Identifies Module Protected-Part-Descriptors	7.15
{ 2 8 1 5 1 4 }	Identifies Module Colour-Attributes	7.14

Annex D

Examples

(This annex does not form an integral part of this Recommendation | International Standard)

The first four examples in this annex consist of data streams representing various versions of the sample document in Annex B of ITU-T Rec. T.412 | ISO/IEC 8613-2.

Four versions of the sample document are considered:

- Example 1: specific layout structure only. This example is specified by B.4.1, including Figure B.7 and Table B.1, of ITU-T Rec. T.412 | ISO/IEC 8613-2.
- Example 2: specific logical structure only. This example is specified by B.4.2, including Figure B.8 and Tables B.2, B.3 of ITU-T Rec. T.412 | ISO/IEC 8613-2.
- Example 3: specific logical structure, generic logical structure and generic layout structure. This example is specified by B.5, including Figures B.8, B.9, B.10, and Tables B.4, B.5, B.6, B.7 of ITU-T Rec. T.412 | ISO/IEC 8613-2.
- Example 4: specific layout structure only, as generated from the structures in example 3. This example is specified by B.6, including Figure B.11 and Table B.8, of ITU-T Rec. T.412 | ISO/IEC 8613-2.

The four examples are presented in D.1, D.2, D.3 and D.4 below. The data stream constituting each example is shown in two forms of notation:

- a) the ASN.1 notation for data values defined in CCITT Rec. X.208 | ISO/IEC 8824;
- b) the hexadecimal notation of the encoded data values, after applying the basic encoding rules defined in CCITT Rec. X.209 | ISO/IEC 8825.

The ASN.1 notation is shown on the left and the hexadecimal notation is shown on the right of each page. The symbol **LL** represents a length field of which the length is unknown.

NOTE – ODL data streams equivalent to these examples are presented in Annex F.

In addition, D.5 presents an example consisting of a data stream representing the sample document profile in Annex C of ITU-T Rec. T.414 | ISO/IEC 8613-4.

D.1 Example 1: Sample document from Annex B of ITU-T Rec. T.412 | ISO/IEC 8613-2; Specific layout structure only

document-profile {	A06F
specific-layout-structure "1",	810131
document-characteristics {	A26A
document-architecture-class formatted,	810100
content-architecture-classes {	A512
{ 2 8 2 6 0 },	060458020600
{ 2 8 2 7 0 },	060458020700
{ 2 8 2 8 0 }},	060458020800
interchange-format-class if-b,	860101
oda-version {	A84E
standard-or-recommendation	43424954552D54205265632E2054
"ITU-T Rec. T.410 Series (1993) ISO/IEC 8613 : 1994;	2E34313020536572696573202831
version 2.00",	39393329207C2049534F2F494543
	2038363133203A20313939343B20
	76657273696F6E20322E3030
publication-date "19920501" }},	44083139393230353031
layout-object {	A21B
object-type document-layout-root,	020100
descriptor-body {	3116
object-identifier "1",	410131
user-visible-name "Letter",	8E064C6574746572
subordinates {	A009
"0", "1", "2" }},	120130120131120132
layout-object {	A232
object-type page,	020102
descriptor-body {	312D

object-identifier "1 0",	4103312030
user-visible-name "Header Page",	8E0B48656164657220506167
	65
dimensions {	A408
horizontal 9920,	800226C0
vertical fixed 14030 },	800236CE
subordinates {	A00F
"0", "1", "2", "3", "4" }},	120130120131120132120133
	120134
layout-object {	A238
object-type block,	020104
descriptor-body {	3133
object-identifier "1 0 0",	41053120302030
user-visible-name "Logo",	8E044C6F676F
position {	A308
horizontal 710,	800202C6
vertical 730},	800202DA
dimensions {	A408
horizontal 3685,	80020E65
vertical fixed 2495 },	800209BF
presentation-attributes {	A60B
content-architecture-class	
{ 2 8 2 7 0 },	060458020700
raster-graphics-attributes {	A103
pel-transmission-density p2 }},	820105
content-portions { "0" }},	A103120130
content-portion {	A3LL
content-portion-attributes {	31LL
content-identifier-layout "1 0 0 0",	400731203020302030
raster-gr-coding-attributes {	A204
number-of-pels-per-line 737 },	800202E1
content-information { /*Array of raster	04LL.....
graphic elements for the logo*/ },	
layout-object {	A22B
object-type block,	020104
descriptor-body {	3126
object-identifier "1 0 1",	41053120302031
user-visible-name "Date",	8E0444617465
position {	A308
horizontal 5440,	80021540
vertical 1275 },	800204FB
dimensions {	A408
horizontal 3060,	80020BF4
vertical fixed 540 },	8002021C
content-portions { "0" }},	A103120130
content-portion {	A321
content-portion-attributes {	3109
content-identifier-layout "1 0 1 0" },	400731203020312030
content-information { "CESSON, 26 JUNE 1985" },	0414434553534F4E2C..
	..31393835
layout-object {	A230
object-type block,	020104
descriptor-body {	312B
object-identifier "1 0 2",	41053120302032
user-visible-name "Addressee",	8E09416464726573736565
position {	A308
horizontal 1105,	80020451
vertical 4310 },	800210D6
dimensions {	A408
horizontal 4505,	80021199
vertical fixed 540},	8002021C
content-portions { "0" }},	A103120130
content-portion {	A32C
content-portion-attributes {	3109
content-identifier-layout "1 0 2 0" },	400731203020322030
content-information { "To members of ISO/	041F546F206D656D626572
TC97/SC18/WG3" }},	73....574733

```

layout-object {
  object-type block,
  descriptor-body {
    object-identifier "1 0 3",
    user-visible-name "Subject",
    position {
      horizontal 1105,
      vertical 6660 },
    dimensions {
      horizontal 7200,
      vertical fixed 905 },
    presentation-attributes {
      character-attributes {
        line-spacing 300 },
      content-portions { "0" } },
  content-portion {
    content-portion-attributes {
      content-identifier-layout "1 0 3 0" },
    content-information { "SUBJECT: PROPOSED
      EXAMPLE TO CLARIFY
      THE DOCUMENT \n
      ARCHITECTURE MODEL" } },

```

```

layout-object {
  object-type block,
  descriptor-body {
    object-identifier "1 0 4",
    user-visible-name "Summary",
    position {
      horizontal 2180,
      vertical 9695 },
    dimensions {
      horizontal 5585,
      vertical fixed 2325 },
    presentation-attributes {
      character-attributes {
        alignment justified },
      content-portions { "0" } },
  content-portion {
    content-portion-attributes {
      content-identifier-layout "1 0 4 0" },
    content-information { /*Formatted string of
      SUMMARY- */ },

```

```

layout-object {
  object-type page,
  descriptor-body {
    object-identifier "1 1",
    user-visible-name "Body Page 1",
    dimensions {
      horizontal 9920,
      vertical fixed 14030 },
    subordinates {
      "0", "1", "2", "3", "4" },

```

```

layout-object {
  object-type block,
  descriptor-body {
    object-identifier "1 1 0",
    user-visible-name "Para A",
    position {
      horizontal 1105,
      vertical 1105 },
    dimensions {
      horizontal 7935,
      vertical fixed 1785 },
    presentation-attributes {
      character-attributes {
        line-spacing 300,
        alignment justified },
      content-portions { "0" } },

```

```

A236
020104
3131
41053120302033
8E075375626A656374
A308
80020451
80021A04
A408
80021C20
80020389
A606
A004
8702012C
A103120130
A3LL
3109
400731203020332030
04LL5456424A4543553A..
.....
..... 4D4F44454C
A235
020104
3130
41053120302034
8E0753756D6D617279
A308
80020884
800225DF
A408
800215D1
80020915
A605
A003
880103
A103120130
A3LL
31LL
400731203020342030
04LL53554D4D4152415259..
.....
A232
020102
312D
4103312031
8E0B426F647920506167652031
A408
800226C0
800236CE
A00F
12013012013112013212013312
A238
020104
3133
41053120312030
8E06506172612041
A308
80020451
80020451
A408
80021EFF
800206F9
A609
A007
8702012C
880103
A103120130

```

```

content-portion {
  content-portion-attributes {
    content-identifier-layout "1 1 0 0" },
  content-information { /* Formatted string
                        of A's */ },
layout-object {
  object-type block,
  descriptor-body {
    object-identifier "1 1 1",
    user-visible-name "Para B",
    position {
      horizontal 1105,
      vertical 3770 },
    dimensions {
      horizontal 7935,
      vertical fixed 1785 },
    presentation-attributes {
      character-attributes {
        line-spacing 400,
        alignment justified },
      content-portions { "0" } },
content-portion {
  content-portion-attributes {
    content-identifier-layout "1 1 1 0" },
  content-information { /* Formatted string
                        of B's */ },
layout-object {
  object-type block,
  descriptor-body {
    object-identifier "1 1 2",
    user-visible-name "Drawing",
    position {
      horizontal 2180,
      vertical 6460 },
    dimensions {
      horizontal 5045,
      vertical fixed 4140 },
    presentation-attributes {
      content-architecture-class
      { 2 8 2 8 0 } },
      content-portions { "0" } },
content-portion {
  content-portion-attributes {
    content-identifier-layout "1 1 2 0" },
  content-information { /* Ordered set of
                        geometric graphics
                        content elements for
                        the diagram */ },
layout-object {
  object-type block,
  descriptor-body {
    object-identifier "1 1 3",
    user-visible-name "Caption",
    position {
      horizontal 2550,
      vertical 10800 },
    dimensions {
      horizontal 3970,
      vertical fixed 370 },
      content-portions { "0" } },
content-portion {
  content-portion-attributes {
    content-identifier-layout "1 1 3 0" },
  content-information { /* Formatted string
                        for the caption */ },
layout-object {
  object-type block,

```

```

A3LL
3109
400731203120302030
04LL414141.....
.....
A238
020104
3133
41053120312031
8E06506172612042
A308
80020451
80020EBA
A408
80021EFF
800206F9
A609
A007
87020190
880103
A103120130
A3LL
3109
400731203120312030
04LL4242.....
.....
A236
020104
3131
41053120312032
8E0744726177696E67
A308
80020884
8002193C
A408
800213B5
8002102C
A606
060458020800

A103120130
A3LL
3109
400731203120322030
04LL.....
.....
.....
A22E
020104
3129
41053120312033
8E0743617074696F6E
A308
800209F6
80022A30
A408
80020F82
80020172
A103120130
A3LL
3109
400731203120332030
04LL63617074696F6E..
.....
A23B
020104

```

descriptor-body {	3136
object-identifier "1 1 4",	41053120312034
user-visible-name "Para C(1)",	8E09506172612043283129
position {	A308
horizontal 1105,	80020451
vertical 11980 },	80022ED6
dimensions {	A408
horizontal 7935,	80021EFF
vertical fixed 1075 },	80020433
presentation-attributes {	A609
character-attributes {	A007
line-spacing 300,	8702012C
alignment justified },	880103
content-portions { "0" }},	A103120130
content-portion {	A3LL
content-portion-attributes {	3109
content-identifier-layout "1 1 4 0" },	400731203120342030
content-information { /* Formatted string	04LL.....
of C's */ },	
layout-object {	A232
object-type page,	020102
descriptor-body {	312D
object-identifier "1 2",	4103312032
user-visible-name "Body Page 2",	8E0B426F647920506167652032
dimensions {	A408
horizontal 9920,	800226C0
vertical fixed 14030 },	800236CE
subordinates { "0", "1", "2", "3", "4" }},	A00F120130120131120132120133
	120134
layout-object {	A23B
object-type block,	020104
descriptor-body {	3136
object-identifier "1 2 0",	41053120322030
user-visible-name "Para C(2)",	8E09506172612043283229
position {	A308
horizontal 1105,	80020451
vertical 1105 },	80020451
dimensions {	A408
horizontal 7935,	80021EFF
vertical fixed 1275 },	800206F9
presentation-attributes {	A609
character-attributes {	A007
line-spacing 300,	8702012C
alignment justified },	880103
content-portions { "0" }},	A003120130
content-portion {	A3LL
content-portion-attributes {	3109
content-identifier-layout "1 2 0 0" },	400731203230302030
content-information { /* Formatted string	04LL4343.....
of C's */ },	
layout-object {	A238
object-type block,	020104
descriptor-body {	3133
object-identifier "1 2 1",	41053120322031
user-visible-name "Para D",	8E06506172612044
position {	A308
horizontal 1105,	80020451
vertical 3260 },	80020CBC
dimensions {	A408
horizontal 7935,	80021EFF
vertical fixed 1615 },	8002064F
presentation-attributes {	A609
character-attributes {	A007
line-spacing 300,	8702012C
alignment justified },	880103
content-portions { "0" }},	A103120130


```

content-portion {
  content-portion-attributes {
    content-identifier-layout "1 2 1 0" },
  content-information { /* Formatted string
    of D's */ },

```

```

layout-object {
  object-type block,
  descriptor-body {
    object-identifier "1 2 2",
    user-visible-name "Ending",
    position {
      horizontal 1985,
      vertical 5755 },
    dimensions {
      horizontal 6860,
      vertical fixed 2155 },
    presentation-attributes {
      character-attributes {
        line-spacing 300,
        alignment justified },
      content-portions { "0" } },

```

```

content-portion {
  content-portion-attributes {
    content-identifier-layout "1 2 2 0" },
  content-information { /* Formatted string of
    FORMAL ENDING */ },

```

```

layout-object {
  object-type block,
  descriptor-body {
    object-identifier "1 2 3",
    user-visible-name "Signature",
    position {
      horizontal 3260,
      vertical 8675 },
    dimensions {
      horizontal 5585,
      vertical fixed 2495 },
    presentation-attributes {
      content-architecture-class
        { 2 8 2 7 0 },
      raster-graphics-attributes {
        pel-transmission-density p2 },
    content-portions { "0" } },

```

```

content-portion {
  content-portion-attributes {
    content-identifier-layout "1 2 3 0",
    raster-gr-coding-attributes {
      number-of-pels-per-line 1117 },
    content-information { /* Array of
      raster-graphics content
      elements for the
      signature */ },

```

```

layout-object {
  object-type block,
  descriptor-body {
    object-identifier "1 2 4",
    user-visible-name "Name",
    position {
      horizontal 5950,
      vertical 11170 },
    dimensions {
      horizontal 2520,
      vertical fixed 905 },
    presentation-attributes {
      character-attributes {
        line-spacing 300 },
    content-portions { "0" } },

```

```

A3LL
3109
400731203220312030
04LL444444 .....
.....
A238
020104
3133
41053120322032
8E06456E64696E67
A308
800207C1
8002167B
A408
80021ACC
8002086B
A609
A007
8702012C
880103
A103120130
A3LL
3109
400731203220322030
04LL464F524D414C2045
4E44494E47 .....
A23D
020104
3138
41053120322033
8E095369676E6174757265
A308
80020CBC
800221E3
A408
800215D1
800209BF
A60B

060458020700
A103
820105
A103120130
A3LL
310F
400731203220332030
A204
8002045D
04LL .....
.....
.....
.....
A233
020104
312E
41053120322034
8E044E616D65
A308
8002173E
80022BA2
A408
800209D8
80020389
A606
A004
8702012C
A103120130

```

content-portion {	A3LL
content-portion-attributes {	3109
content-identifier-layout "1 2 4 0" },	400731203220342030
content-information { "Miss Aude HEA \n	04LL4D697373
Document Architect" }}	

D.2 Example 2: Sample document from Annex B of ITU-T Rec. T.412 | ISO/IEC 8613-2; Specific logical structure only

document-profile {	A072
presentation-styles "1",	860131
specific-logical-structure "1",	850131
document-characteristics {	A26A
document-architecture-class	
formatted-processable,	810101
content-architecture-classes {	A512
{ 2 8 2 6 1 },	060458020601
{ 2 8 2 7 1 },	060458020701
{ 2 8 2 8 0 },	060458020800
interchange-format-class if-a,	860100
oda-version {	A84E
standard-or-recommendation	43424954552D54205265632E2054
"ITU-T Rec. T.410 Series (1993) ISO/IEC 8613 : 1994;	2E34313020536572696573202831
version 2.00",	39393329207C2049534F2F494543
	2038363133203A20313939343B20
	76657273696F6E20322E3030
	44083139393230353031
publication-date "19920501" }},	A70D
presentation-style {	4503352030
style-identifier "5 0",	A306
presentation-attributes {	A004
character-attributes {	8702012C
line-spacing 300 }},	A711
presentation-style {	4503352031
style-identifier "5 1",	A30A
presentation-attributes {	A008
character-attributes {	97020589
first-line-offset 1417,	8702012C
line-spacing 300 }},	A714
presentation-style {	4503352032
style-identifier "5 2",	A30D
presentation-attributes {	A00B
character-attributes {	97020589
first-line-offset 1417,	880103
alignment justified,	8702012C
line-spacing 300 }},	A714
presentation-style {	4503352033
style-identifier "5 3",	A30D
presentation-attributes {	A00B
character-attributes {	970203FC
first-line-offset 1020,	880103
alignment justified,	8702012C
line-spacing 300 }},	A714
presentation-style {	4503352034
style-identifier "5 4",	A30D
presentation-attributes {	A00B
character-attributes {	97020589
first-line-offset 1417,	880103
alignment justified,	87020190
line-spacing 400 }},	A624
logical-object {	020100
object-type document-logical-root,	311F
descriptor-body {	410133
object-identifier "3",	8E064C6574746572
user-visible-name "Letter",	A006120130120131
subordinates{ "0","1" },	A70A
default-value-lists {	

basic-logical-attributes { presentation-attributes { content-architecture-class { 2 8 2 6 1 } } } } },	A608 A306 060458020601
logical-object { object-type composite-logical, descriptor-body { object-identifier "3 0", user-visible-name "Header", subordinates { "0", "1", "2", "3" } } },	A620 020101 311B 4103332030 8E06486561646572 A00C120130120131120132120133 A617
logical-object { object-type basic-logical, descriptor-body { object-identifier "3 0 0", user-visible-name "Date", content-portions { "0" } } },	020102 3112 41053320302030 8E0444617465 A103120130 A61C
logical-object { object-type basic-logical, descriptor-body { object-identifier "3 0 1", user-visible-name "Addressee", content-portions { "0" } } },	020102 3117 41053320302031 8E09416464726573736565 A103120130 A61F
logical-object { object-type basic-logical, descriptor-body { object-identifier "3 0 2", user-visible-name "Subject", presentation-style "5 0", content-portions { "0" } } },	020102 311A 41053320302032 8E075375626A656374 9103352030 A103120130 A61A
logical-object { object-type composite-logical, descriptor-body { object-identifier "3 0 3", user-visible-name "Summary", subordinates { "0" } } },	020101 3115 41053320302033 8E0753756D6D617279 A003120130 A62B
logical-object { object-type basic-logical, descriptor-body { object-identifier "3 0 3 0", user-visible-name "Summary-paragraph", presentation-style "5 1", content-portions { "0" } } },	020102 3126 410733203020332030 8E1153756D6D617279 2D706172616772617068 9103352031 A103120130 A627
logical-object { object-type composite-logical, descriptor-body { object-identifier "3 1", user-visible-name "Body", subordinates { "0", "1", "2", "3", "4", "5", "6" } } },	020101 3122 4103332031 8E04426F6479 A0151201301201311201321201 120134120135120136 A623
logical-object { object-type basic-logical, descriptor-body { object-identifier "3 1 0", user-visible-name "Paragraph A", presentation-style "5 2", content-portions { "0" } } },	020102 311E 41053320312030 8E0B5061726167726170682041 9103352032 A103120130 A623
logical-object { object-type basic-logical, descriptor-body { object-identifier "3 1 1", user-visible-name "Paragraph B", presentation-style "5 2", content-portions { "0" } } },	020102 311E 41053320312031 8E0B5061726167726170682042 9103352032 A103120130 A61C
logical-object { object-type composite-logical,	020101

descriptor-body {	3117
object-identifier "3 1 2",	41053320322032
user-visible-name "Figure",	8E06466967757265
subordinates { "0", "1" } },	A006120130120131
logical-object {	A624
object-type basic-logical,	020102
descriptor-body {	311F
object-identifier "3 1 2 0",	410733203120322030
user-visible-name "Drawing",	8E0744726177696E67
presentation-attributes {	A606
content-architecture-class	060458020800
{ 2 8 2 8 0 } },	
content-portions { "0" } },	A103120130
logical-object {	A61C
object-type basic-logical,	020102
descriptor-body {	3117
object-identifier "3 1 2 1",	410733203120322031
user-visible-name "Caption",	8E0743617074696F6E
content-portions { "0" } },	A103120130
logical-object {	A623
object-type basic-logical,	020102
descriptor-body {	311E
object-identifier "3 1 3",	41053320312033
user-visible-name "Paragraph C",	8E0B5061726167726170682043
presentation-style "5 2",	9103352032
content-portions { "0" } },	A103120130
logical-object {	A623
object-type basic-logical,	020102
descriptor-body {	311E
object-identifier "3 1 4",	41053320312034
user-visible-name "Paragraph D",	8E0B5061726167726170682044
presentation-style "5 2",	9103352032
content-portions { "0" } },	A103120130
logical-object {	A61E
object-type basic-logical,	020102
descriptor-body {	3119
object-identifier "3 1 5",	41053320312035
user-visible-name "Ending",	8E06456E64696E67
presentation-style "5 3",	9103352033
content-portions { "0" } },	A103120130
logical-object {	A628
object-type composite-logical,	020101
descriptor-body {	3123
object-identifier "3 1 6",	41053320312036
user-visible-name "Signature and Name",	8E125369676E617475726520
	616E64204E616D65
subordinates { "0", "1" } },	A006120130120131
logical-object {	A626
object-type basic-logical,	020102
descriptor-body {	3121
object-identifier "3 1 6 0",	410733203120362030
user-visible-name "Signature",	8E095369676E6174757265
presentation-attributes {	A606
content-architecture-class	060458020701
{ 2 8 2 7 1 } },	
content-portions { "0" } },	A103120130
logical-object {	A61E
object-type basic-logical,	020102
descriptor-body {	3119
object-identifier "3 1 6 1",	410733203120362031
user-visible-name "Name",	8E044E616D65
presentation-style "5 0",	9103352030
content-portions { "0" } },	A103120130
content-portion {	A321
content-portion-attributes {	3109
content-identifier-logical "3 0 0 0",	840733203020302030
content-information { "CESSON, 26	
JUNE 1985" } },	0414434553534F4E2C31393835

```

content-portion {
  content-portion-attributes {
    content-identifier-logical "3 0 1 0" },
    content-information { "To members
      of ISO/TC97/SC18/WG3" },
  content-portion {
    content-portion-attributes {
      content-identifier-logical "3 0 2 0" },
      content-information { "SUBJECT: PROPOSED
        EXAMPLE TO CLARIFY THE
        DOCUMENT ARCHITECTURE
        MODEL" },
    content-portion {
      content-portion-attributes {
        content-identifier-logical "3 0 3 0 0" },
        content-information { /* Unformatted string of
          SUMMARY-*/ },
      content-portion {
        content-portion-attributes {
          content-identifier-logical "3 1 0 0" },
          content-information { /* Unformatted string of
            A's */ },
        content-portion {
          content-portion-attributes {
            content-identifier-logical "3 1 1 0" },
            content-information { /* Unformatted string of
              B's */ },
          content-portion {
            content-portion-attributes {
              content-identifier-logical "3 1 2 0 0" },
              content-information { /* Ordered set of
                geometric-graphics
                content elements for
                the diagram */ },
            content-portion {
              content-portion-attributes {
                content-identifier-logical "3 1 2 1 0" },
                content-information { /* Unformatted string
                  for the caption */ },
              content-portion {
                content-portion-attributes {
                  content-identifier-logical "3 1 3 0" },
                  content-information { /* Unformatted string of
                    C's */ },
                content-portion {
                  content-portion-attributes {
                    content-identifier-logical "3 1 4 0" },
                    content-information { /* Unformatted
                      string of D's */ },
                  content-portion {
                    content-portion-attributes {
                      content-identifier-logical "3 1 5 0" },
                      content-information { /* Unformatted string
                        for Ending */ },
                    content-portion {
                      content-portion-attributes {
                        content-identifier-logical "3 1 6 0 0",
                        raster-gr-coding-attributes {
                          number-of-pels-per-line 1117 },
                        content-information { /* Array of
                          raster-graphics
                          content elements for
                          the signature */ },
                      content-portion {
                        content-portion-attributes {
                          content-identifier-logical "3 1 6 1 0" },
                          content-information { "Miss Aude HEA Document
                            Architect" }

```

```

A32C
3109
840733203020312030

041F546F206D656D62657273..
A3LL
3109
840733203020322030
04LL5456424A4543553A..

..... 4D4F44454C
A3LL
310B
8409332030203320302030
04LL53554D4D415259.....

A3LL
3109
840733203120302030

04LL414141.....
A3LL
3109
840733203120312030

04LL4242424242.....
A3LL
310B
8409332031203220302030
04LL.....

A3LL
310B
8409332031203220312030
04LL63617074696F6E .....

.....
A3LL
3109
840733203120332030

04LL4343434343.....
A3LL
3109
840733203120342030
04LL44444444.....

A3LL
3109
840733203120352030
04LL464F524D414C20
454E44494E47 .....

A3LL
3111
8409332031203620302030
A204
8002045D
04LLZZZZZZZZZZZZ .....

.....
.....
.....
A3LL
310B
8409332031203620312030
04LL4D697373 .....

.....

```

D.3 Example 3: Sample document from Annex B of ITU-T Rec. T.412 | ISO/IEC 8613-2; Generic layout, generic logical and specific logical structures

document-profile {	A07B
generic-layout-structure "1",	800131
generic-logical-structure "1",	840131
presentation-styles "1",	860131
layout-styles "1",	870131
specific-logical-structure "1",	850131
document-characteristics {	A26A
document-architecture-class	
processable,	810101
content-architecture-classes {	A512
{ 2 8 2 6 1 },	060458020601
{ 2 8 2 7 0 },	060458020700
{ 2 8 2 8 0 }},	060458020800
interchange-format-class if-a,	860100
oda-version {	A84E
standard-or-recommendation	43424954552D54205265632E2054
"ITU-T Rec. T.410 Series (1993) ISO/IEC 8613 : 1994;	2E34313020536572696573202831
version 2.00",	39393329207C2049534F2F494543
	2038363133203A20313939343B20
	76657273696F6E20322E3030
publication-date "19920501" }},	44083139393230353031
layout-object-class {	A122
object-type document-layout-root,	020100
descriptor-body {	311D
object-class-identifier "0",	410130
user-visible-name "Letter",	8E064C6574746572
generator-for-subordinates {	A010
sequence-construction	A00E
required-construction-factor	A005
object-class-identifier "0 0",	4103302030
repetitive-construction-factor	A205
object-class-identifier "0 1" }},	4103302031
layout-object-class {	A14D
object-type page,	020102
descriptor-body {	3148
object-class-identifier "0 0",	4103302030
user-visible-name "Header",	8E06486561646572
dimensions {	A408
horizontal fixed 9920,	800226C0
vertical fixed 14030},	800236CE
generator-for-subordinates {	A02F
sequence-construction	A02D
required-construction-factor	A007
object-class-identifier "0 0 0",	41053020302030
required-construction-factor	A007
object-class-identifier "0 0 1",	41053020302031
required-construction-factor	A007
object-class-identifier "0 0 2",	41053020302032
required-construction-factor	A007
object-class-identifier "0 0 3",	41053020302033
required-construction-factor	A007
object-class-identifier	
"0 0 4" }},	41053020302034
layout-object-class {	A12F
object-type frame,	020103
descriptor-body {	312A
object-class-identifier "0 0 0",	41053020302030
position {	
fixed-position {	A308
horizontal 710,	800202C6
vertical 730 }},	800202DA
dimensions {	A408
horizontal fixed 3685,	80020E65
vertical fixed 2495 },	800209BF

generator-for-subordinates {	A00D
single-term-construction	A30B
required-construction-factor	A009
object-class-identifier	
"0 0 0 0" }},	410730203020302030
layout-object-class {	A121
object-type block,	020104
descriptor-body {	311C
object-class-identifier "0 0 0 0",	410730203020302030
user-visible-name "Logo",	8E044C6F676F
presentation-attributes {	A606
content-architecture-class	
{ 2 8 2 7 0 }},	060458020700
content-portions { "0" }},	A103120130
layout-object-class {	A126
object-type frame,	020103
descriptor-body {	3121
object-class-identifier "0 0 1",	41053020302031
user-visible-name "Date",	8E0444617465
position {	
fixed-position {	A308
horizontal 5045,	800213B5
vertical 565 }},	80020235
dimensions {	A408
horizontal fixed 3970,	80020F82
vertical fixed 1615 }},	8002064F
layout-object-class {	A12B
object-type frame,	020103
descriptor-body {	3126
object-class-identifier "0 0 2",	41053020302032
user-visible-name "Addressee",	8E09416464726573736565
position {	
fixed-position {	A308
horizontal 1105,	80020451
vertical 4310 }},	800210D6
dimensions {	A408
horizontal fixed 5395,	80021513
vertical fixed 1415 }},	80020587
layout-object-class {	A129
object-type frame,	020103
descriptor-body {	3124
object-class-identifier "0 0 3",	41053020302033
user-visible-name "Subject",	8E075375626A656374
position {	
fixed-position {	A308
horizontal 1105,	80020451
vertical 6660 }},	80021A04
dimensions {	A408
horizontal fixed 7200,	80021C20
vertical fixed 1785 }},	800206F9
layout-object-class {	A129
object-type frame,	020103
descriptor-body {	3124
object-class-identifier "0 0 4",	41053020302034
user-visible-name "Summary",	8E0753756D6D617279
position {	
fixed-position {	A308
horizontal 2180,	80020884
vertical 9695 }},	800225DF
dimensions {	A408
horizontal fixed 6290,	80021892
vertical fixed 3570 }},	80020DF2
layout-object-class {	A127
object-type page,	020102
descriptor-body {	3122
object-class-identifier "0 1",	4103302031
user-visible-name "Body",	8E04426F6479

dimensions {	A408
horizontal fixed 9920,	800226C0
vertical fixed 14030 },	800236CE
generator-for-subordinates {	A00B
single-term-construction	A309
required-construction-factor	A007
object-class-identifier	
"0 1 0" }},	41053020312030
layout-object-class {	A126
object-type frame,	020103
descriptor-body {	3121
object-class-identifier "0 1 0",	41053020312030
user-visible-name "Body",	8E04426F6479
position {	
fixed-position {	A308
horizontal 565,	80020235
vertical 565 },	80020235
dimensions {	A408
horizontal fixed 8815,	8002226F
vertical fixed 12870 }},	80023246
logical-object-class {	A522
object-type document-logical-root,	020100
descriptor-body {	311D
object-class-identifier "2",	410132
user-visible-name "Letter",	8E064C6574746572
generator-for-subordinates {	A010
sequence-construction	A00E
required-construction-factor	A005
object-class-identifier "2 0",	4103322030
required-construction-factor	A005
object-class-identifier	
"2 1" }},	4103322031
logical-object-class {	A53A
object-type composite-logical,	020101
descriptor-body {	3135
object-class-identifier "2 0",	4103322030
user-visible-name "Header",	8E06486561646572
generator-for-subordinates {	A026
sequence-construction	A024
required-construction-factor	A007
object-class-identifier "2 0 0",	41053220302030
required-construction-factor	A007
object-class-identifier "2 0 1",	41053220302031
required-construction-factor	A007
object-class-identifier "2 0 2",	41053220302032
required-construction-factor	A007
object-class-identifier	
"2 0 3" }},	41053220302033
logical-object-class {	A51F
object-type basic-logical,	020102
descriptor-body {	311A
object-class-identifier "2 0 0",	41053220302030
user-visible-name "Date",	8E0444617465
layout-style "4 0",	9303342030
presentation-attributes {	A606
content-architecture-class	060458020601
{ 2 8 2 6 1 }},	
logical-object-class {	A524
object-type basic-logical,	020102
descriptor-body {	311F
object-class-identifier "2 0 1",	41053220302031
user-visible-name "Addressee",	8E09416464726573736565
layout-style "4 1",	9303342031
presentation-attributes {	A606
content-architecture-class	060458020601
{ 2 8 2 6 1 }},	

logical-object-class { object-type basic-logical, descriptor-body { object-class-identifier "2 0 2", user-visible-name "Subject", layout-style "4 2", presentation-style "5 0", presentation-attributes { content-architecture-class { 2 8 2 6 1 } }}, }	A527 020102 3122 41053220302032 8E075375626A656374 9303342032 9103352030 A606 060458020601
logical-object-class { object-type composite-logical, descriptor-body { object-class-identifier "2 0 3", user-visible-name "Summary", layout-style "4 3", generator-for-subordinates { single-term-construction repetitive-construction-factor object-class-identifier "2 0 3 1" }}, }	A529 020101 3124 41053220302033 8E0753756D6D617279 9303342033 A00D A30B A309
logical-object-class { object-type basic-logical, descriptor-body { object-class-identifier "2 0 3 1", user-visible-name "Summary-paragraph", layout-style "4 4", presentation-style "5 1", presentation-attributes { content-architecture-class { 2 8 2 6 1 } }}, }	410732203020332031 A533 020102 312E 410732203020332031 8E1153756D6D6172792D70617261 6772617068 9303342034 9103352031 A606 060458020601
logical-object-class { object-type composite-logical, descriptor-body { object-class-identifier "2 1", user-visible-name "Body", layout-style "4 5", generator-for-subordinates { sequence-construction repetitive-construction-factor choice-construction required-construction-factor object-class-identifier "2 1 0", required-construction-factor object-class-identifier "2 1 1", required-construction-factor object-class-identifier "2 1 2", required-construction-factor object-class-identifier "2 1 3" }}, }	A541 020101 313C 4103322031 8E04426F6479 9303342035 A02A A028 A214 A212 A007 41053220312030 A007 41053220312031 A007 41053220312032 A007 41053220312033 A533 020101 312E 41053220312030 8E06466967757265 9303342036 A018 A016 A009
logical-object-class { object-type composite-logical, descriptor-body { object-class-identifier "2 1 0", user-visible-name "Figure", layout-style "4 6", generator-for-subordinates { sequence-construction required-construction-factor object-class-identifier "2 1 0 0", required-construction-factor object-class-identifier "2 1 0 1" }}, }	410732203120302030 A009 410732203120302031

logical-object-class { object-type basic-logical, descriptor-body { object-class-identifier "2 1 0 0", user-visible-name "Drawing", presentation-attributes { content-architecture-class { 2 8 2 8 0 }}, layout-style "4 7" }}, logical-object-class { object-type basic-logical, descriptor-body { object-class-identifier "2 1 0 1", user-visible-name "Caption", layout-style "4 8", presentation-attributes { content-architecture-class { 2 8 2 6 1 }}, logical-object-class { object-type basic-logical, descriptor-body { object-class-identifier "2 1 1", user-visible-name "Body-paragraph", layout-style "4 9", presentation-style "5 3", presentation-attributes { content-architecture-class { 2 8 2 6 1 }}, logical-object-class { object-type basic-logical, descriptor-body { object-class-identifier "2 1 2", user-visible-name "Ending", layout-style "4 10", presentation-style "5 4", content-portions { "0" }, presentation-attributes { content-architecture-class { 2 8 2 6 1 }}, logical-object-class { object-type composite-logical, descriptor-body { object-class-identifier "2 1 3", user-visible-name "Signature-and-Name", generator-for-subordinates { sequence-construction required-construction-factor object-class-identifier "2 1 3 0", required-construction-factor object-class-identifier "2 1 3 1" }}, logical-object-class { object-type basic-logical, descriptor-body { object-class-identifier "2 1 3 0", user-visible-name "Signature", presentation-attributes { content-architecture-class { 2 8 2 7 1 }}, layout-style "4 11" }}, logical-object-class { object-type basic-logical, descriptor-body { object-class-identifier "2 1 3 1",	A524 020102 311F 410732203120302030 8E0744726177696E67 A606 060458020800 9303342037 A524 020102 311F 410732203120302031 8E0743617074696F6E 9303342038 A606 060458020601 A52E 020102 3129 41053220312031 8E0E426F64792D70617261677261 7068 9303342039 9103352033 A606 060458020601 A52C 020102 3127 41053220312032 8E06456E64696E67 930434203130 9103352034 A103120130 A606 060458020601 A53A 020101 3135 41053220312033 8E125369676E61747572652D616E 642D4E616D65 A018 A016 A009 410732203120332030 A009 410732203120332031 A527 020102 3122 410732203120332030 8E095369676E6174757265 A606 060458020701 930434203131 A527 020101 3122 410732203120332031
--	--

user-visible-name "Name",	8E044E616D65
layout-style "4 12",	930434203132
presentation-style "5 0",	9103352030
presentation-attributes {	A606
content-architecture-class	060458020601
{ 2 8 2 6 1 } } } },	
content-portion {	A3LL
content-portion-attributes {	3111
content-identifier-layout "0 0 0 0 0",	4007302030203020302030
raster-gr-coding-attributes {	A204
number-of-pels-per-line 737 } },	800202E1
content-information { /* Array of	
raster-graphics	04LL.....
content elements for	
the logo */ } },	
content-portion {	A3LL
content-portion-attributes {	3109
content-identifier-logical "2 1 2 0" },	840732203120322030
content-information { /* Unformatted string	04LL.....
for ending */ } },	
presentation-style {	A70D
style-identifier "5 0",	4503352030
presentation-attributes {	A306
character-attributes {	A004
line-spacing 300 } } },	8702012C
presentation-style {	A710
style-identifier "5 1",	4503352031
presentation-attributes {	A309
character-attributes {	A007
first-line-offset 1417,	97020589
alignment justified } } },	880103
presentation-style {	A714
style-identifier "5 3",	4503352033
presentation-attributes {	A30D
character-attributes {	A00B
first-line-offset 1417,	97020589
alignment justified,	880103
line-spacing 300 } } },	8702012C
presentation-style {	A714
style-identifier "5 4",	4503352034
presentation-attributes {	A30D
character-attributes {	A00B
first-line-offset 1020,	970203FC
alignment justified,	880103
line-spacing 300 } } },	8702012C
layout-style {	A818
style-identifier "4 0",	4503342030
layout-directives {	A411
layout-object-class "0 0 1",	8B053020302031
offset {	A408
trailing 710,	820202C6
right-hand 395 } } },	8002018B
layout-style {	A80E
style-identifier "4 1",	4503342031
layout-directives {	A407
layout-object-class "0 0 2" } },	8B053020302032
layout-style {	A80E
style-identifier "4 2",	4503342032
layout-directives {	A407
layout-object-class "0 0 3" } },	8B053020302033
layout-style {	A80E
style-identifier "4 3",	4503342033
layout-directives {	A407
layout-object-class "0 0 4" } },	8B053020302034
layout-style {	A80D
style-identifier "4 4",	4503342034
layout-directives {	A406

offset {	A404
left-hand 705 }},	810202C1
layout-style {	A80C
style-identifier "4 5",	4503342035
layout-directives {	A405
new-layout-object {	
to-layout-object-class "0 1" }},	8703302031
layout-style {	A80E
style-identifier "4 6",	4503342036
layout-directives {	A407
indivisibility {	
to-layout-object-class "0 1 0" }},	80053020312030
layout-style {	A817
style-identifier "4 7",	4503342037
layout-directives {	A410
offset {	A408
right-hand 1615,	8002064F
left-hand 2155 },	8102086B
separation {	A304
trailing 905 }},	81020389
layout-style {	A817
style-identifier "4 8",	4503342038
layout-directives {	A410
offset {	A408
right-hand 1985,	800207C1
left-hand 2860 },	81020B2C
separation {	A304
trailing 200 }},	810200C8
layout-style {	A81F
style-identifier "4 9",	4503342039
layout-directives {	A418
offset {	A410
trailing 540,	8202021C
leading 280,	83020118
right-hand 540,	8002021C
left-hand 340 },	81020154
separation {	A304
trailing 880 }},	81020370
layout-style {	A818
style-identifier "4 10",	450434203130
layout-directives {	A410
offset {	A408
right-hand 1420,	8002058C
left-hand 535 },	81020217
separation {	A304
trailing 880 }},	81020370
layout-style {	A818
style-identifier "4 11",	450434203131
layout-directives {	A410
offset {	A408
right-hand 2695,	80020A87
left-hand 535 },	81020217
separation {	A304
trailing 765 }},	810202FD
layout-style {	A812
style-identifier "4 12",	450434203132
layout-directives {	A40A
offset {	A408
right-hand 5385,	80021509
left-hand 910 }},	8102038E
logical-object {	A61B
object-type document-logical-root,	020100
descriptor-body {	3116
object-identifier "3",	410133
object-class "2",	820132
user-visible-name "Letter",	8E064C6574746572
subordinates{ "0","1" }},	A006120130120131

logical-object { object-type composite-logical, descriptor-body { object-identifier "3 0", object-class "2 0", user-visible-name "Header", subordinates { "0", "1", "2", "3" } }, logical-object { object-type basic-logical, descriptor-body { object-identifier "3 0 0", object-class "2 0 0", user-visible-name "Date", content-portions { "0" } }, logical-object { object-type basic-logical, descriptor-body { object-identifier "3 0 1", object-class "2 0 1", user-visible-name "Addressee", content-portions { "0" } }, logical-object { object-type basic-logical, descriptor-body { object-identifier "3 0 2", object-class "2 0 2", user-visible-name "Subject", content-portions { "0" } }, logical-object { object-type composite-logical, descriptor-body { object-identifier "3 0 3", object-class "2 0 3", user-visible-name "Summary", subordinates { "0" } }, logical-object { object-type basic-logical, descriptor-body { object-identifier "3 0 3 0", object-class "2 0 3 1", user-visible-name "Summary-paragraph", content-portions { "0" } }, logical-object { object-type composite-logical, descriptor-body { object-identifier "3 1", object-class "2 1", user-visible-name "Body", subordinates { "0", "1", "2", "3", "4", "5", "6" } }, logical-object { object-type basic-logical, descriptor-body { object-identifier "3 1 0", object-class "2 1 1", user-visible-name "Paragraph A", content-portions { "0" } }, logical-object { object-type basic-logical, descriptor-body { object-identifier "3 1 1", object-class "2 1 1", user-visible-name "Paragraph B",	A625 020101 3120 4103332030 8203322030 8E06486561646572 A00C120130120131120132120133 A61E 020102 3119 41053320302030 82053220302030 8E0444617465 A103120130 A623 020102 311E 41053320302031 82053220302031 8E09416464726573736565 A103120130 A621 020102 311C 41053320302032 82053220302032 8E075375626A656374 A103120130 A621 020101 311C 41053320302033 82053220302033 8E0753756D6D617279 A003120130 A62F 020102 312A 410733203020332030 820732203020332031 8E1153756D6D617279 2D706172616772617068 A103120130 A62C 020101 3127 4103332031 8203322031 8E04426F6479 A015120130120131120132120133 120134120135120136 A625 020102 3120 41053320312030 82053220312031 8E0B5061726167726170682041 A103120130 A62D 020102 3128 41053320312031 82053220312031 8E0B5061726167726170682042
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presentation-attributes {	A606
character-attributes {	A004
line-spacing 400 },	87020190
content-portions { "0" }},	A103120130
logical-object {	A623
object-type composite-logical,	020101
descriptor-body {	311E
object-identifier "3 1 2",	41053320312032
object-class "2 1 0",	82053220312030
user-visible-name "Figure",	8E06466967757265
subordinates { "0", "1" }},	A006120130120131
logical-object {	A625
object-type basic-logical,	020102
descriptor-body {	3120
object-identifier "3 1 2 0",	410733203120322030
object-class "2 1 0 0",	820732203120302030
user-visible-name "Drawing",	8E0744726177696E67
content-portions { "0" }},	A103120130
logical-object {	A625
object-type basic-logical,	020102
descriptor-body {	3120
object-identifier "3 1 2 1",	410733203120322031
object-class "2 1 0 1",	820732203120302031
user-visible-name "Caption",	8E0743617074696F6E
content-portions { "0" }},	A103120130
logical-object {	A625
object-type basic-logical,	020102
descriptor-body {	3120
object-identifier "3 1 3",	41053320312033
object-class "2 1 1",	82053220312031
user-visible-name "Paragraph C",	8E0B5061726167726170682043
content-portions { "0" }},	A103120130
logical-object {	A625
object-type basic-logical,	020102
descriptor-body {	3120
object-identifier "3 1 4",	41053320312034
object-class "2 1 1",	82053220312031
user-visible-name "Paragraph D",	8E0B5061726167726170682044
content-portions { "0" }},	A103120130
logical-object {	A61B
object-type basic-logical,	020102
descriptor-body {	3116
object-identifier "3 1 5",	41053320312035
object-class "2 1 2",	82053220312032
user-visible-name "Ending" },	8E06456E64696E67
logical-object {	A62F
object-type composite-logical,	020101
descriptor-body {	312A
object-identifier "3 1 6",	41053320312036
object-class "2 1 3",	82053220312033
user-visible-name "Signature and Name",	8E125369676E617475726520
	616E64204E616D65
subordinates { "0", "1" }},	A006120130120131
logical-object {	A627
object-type basic-logical,	020102
descriptor-body {	3122
object-identifier "3 1 6 0",	410733203120362030
object-class "2 1 3 0",	820732203120332030
user-visible-name "Signature",	8E095369676E6174757265
content-portions { "0" }},	A103120130
logical-object {	A622
object-type basic-logical,	020102
descriptor-body {	311D
object-identifier "3 1 6 1",	410733203120362031
object-class "2 1 3 1",	820732203120332031
user-visible-name "Name",	8E044E616D65
content-portions { "0" }},	A103120130

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content-portion {
  content-portion-attributes {
    content-identifier-logical "3 0 0 0" },
    content-information { "CESSON, 26 JUNE 1985" } },
content-portion {
  content-portion-attributes {
    content-identifier-logical "3 0 1 0" },
    content-information { "To members of ISO/TC97
                          /SC18/WG3" } },
content-portion {
  content-portion-attributes {
    content-identifier-logical "3 0 2 0" },
    content-information { "SUBJECT: PROPOSED
                          EXAMPLE TO CLARIFY THE DOCUMENT
                          ARCHITECTURE MODEL" } },
content-portion {
  content-portion-attributes {
    content-identifier-logical "3 0 3 0 0" },
    content-information { /* Unformatted string
                          of SUMMARY-*/ } },
content-portion {
  content-portion-attributes {
    content-identifier-logical "3 1 0 0" },
    content-information { /* Unformatted string of
                          A's */ } },
content-portion {
  content-portion-attributes {
    content-identifier-logical "3 1 1 0" },
    content-information { /* Unformatted string
                          of B's */ } },
content-portion {
  content-portion-attributes {
    content-identifier-logical "3 1 2 0 0" },
    content-information { /* Ordered set of
                          geometric-graphics content
                          elements for the diagram */ } },
content-portion {
  content-portion-attributes {
    content-identifier-logical "3 1 2 1 0" },
    content-information { /* Unformatted string
                          for the caption */ } },
content-portion {
  content-portion-attributes {
    content-identifier-logical "3 1 3 0" },
    content-information { /* Unformatted string of
                          C's */ } },
content-portion {
  content-portion-attributes {
    content-identifier-logical "3 1 4 0" },
    content-information { /* Unformatted string of
                          D's */ } },
content-portion {
  content-portion-attributes {
    content-identifier-logical "3 1 6 0 0",
    raster-gr-coding-attributes {
      number-of-pels-per-line 1117 } },
    content-information { /* Array of
                          raster-graphics content elements
                          for the signature */ } },
content-portion {
  content-portion-attributes {
    content-identifier-logical "3 1 6 1 0" },
    content-information { "Miss Aude HEA Document
                          Architect" } }

```

```

A321
3109
840733203020302030
0414434553534F4E2C ..... 31393835
A32C
3109
840733203020312030
041F546F206D656D62657273..
..4733
A3LL
3109
840733203020322030

04LL5456424A4543553A..
..... 4D4F44454C
A3LL
310B
8409332030203320302030
04LL53554D4D415259.....

A3LL
3109
840733203120302030

04LL414141.....
A3LL
3109
840733203120312030

04LL4242424242.....
A3LL
310B
8409332031203220302030

04LL.....
.....
A3LL
310B
8409332031203220312030

04LL63617074696F6E .....
A3LL
3109
840733203120332030

04LL4343434343.....
A3LL
3109
840733203120342030

04LL44444444.....
A3LL
3111
8409332031203620302030
A204
8002045D

04LLZZZZZZZZZZZZ .....
.....
A3LL
310B
8409332031203620312030
04LL4D697373 .....
.....

```

D.4 Example 4: Sample document from Annex B of ITU-T Rec. T.412 | ISO/IEC 8613-2; Specific layout structure only

layout-object {	A21E
object-type document-layout-root,	020100
descriptor-body {	3119
object-identifier "1",	410131
object-class "0",	820130
user-visible-name "Letter",	8E064C6574746572
subordinates { "0", "1", "2" } },	A009120130120131120132
layout-object {	A228
object-type page,	020102
descriptor-body {	3123
object-identifier "1 0",	4103312030
object-class "0 0",	8203302030
user-visible-name "Header",	8E06486561646572
subordinates { "0", "1", "2", "3", "4" } },	A00F120130120131120132120133
	120134
layout-object {	A218
object-type frame,	020103
descriptor-body {	3113
object-identifier "1 0 0",	41053120302030
object-class "0 0 0",	82053020302030
subordinates { "0" } },	A003120130
layout-object {	A22A
object-type block,	020104
descriptor-body {	3125
object-identifier "1 0 0 0",	410731203020302030
object-class "0 0 0 0",	820730203020302030
user-visible-name "Logo",	8E044C6F676F
presentation-attributes {	A60B
content-architecture-class	060458020700
{ 2 8 2 7 0 },	
raster-graphics-attributes {	A103
pel-transmission-density p2 } },	820105
layout-object {	A21E
object-type frame,	020103
descriptor-body {	3119
object-identifier "1 0 1",	41053120302031
object-class "0 0 1",	82053020302031
user-visible-name "Date",	8E0444617465
subordinates { "0" } },	A003120130
layout-object {	A22F
object-type block,	020104
descriptor-body {	312A
object-identifier "1 0 1 0",	410731203020312030
position {	A308
horizontal 395,	8002018B
vertical 710 },	800202C6
dimensions {	A408
horizontal 3060,	80020BF4
vertical fixed 540 },	8002021C
content-portions { "0" },	A103120130
presentation-attributes {	A606
content-architecture-class	060458020602
{ 2 8 2 6 2 } },	
layout-object {	A223
object-type frame,	020103
descriptor-body {	311E
object-identifier "1 0 2",	41053120302032
object-class "0 0 2",	82053020302032
user-visible-name "Addressee",	8E09416464726573736565
subordinates { "0" } },	A003120130
layout-object {	A225
object-type block,	020104
descriptor-body {	3120

object-identifier "1 0 2 0", dimensions { horizontal 4505, vertical fixed 540 }, content-portions { "0" }, presentation-attributes { content-architecture-class { 2 8 2 6 2 } } } },	410731203020322030 A408 80021199 8002021C A103120130 A606 060458020602
layout-object { object-type frame, descriptor-body { object-identifier "1 0 3", object-class "0 0 3", user-visible-name "Subject", subordinates { "0" } } },	A221 020103 311C 41053120302033 82053020302033 8E075375626A656374 A003120130 A22A 020104 3125 410731203020332030 A408 80021C20 80020389 9103352030 A103120130 A606 060458020602
layout-object { object-type block, descriptor-body { object-identifier "1 0 3 0", dimensions { horizontal 7200, vertical fixed 905 }, presentation-style "5 0", content-portions { "0" }, presentation-attributes { content-architecture-class { 2 8 2 6 2 } } } },	A221 020103 311C 41053120302034 82053020302034 8E0753756D6D617279 A003120130 A22A 020104 3125 410731203020342030 A408 800215D1 80020915 9103352031 A103120130 A606 060458020602
layout-object { object-type frame, descriptor-body { object-identifier "1 0 4", object-class "0 0 4", user-visible-name "Summary", subordinates { "0" } } },	A221 020103 311C 41053120302034 82053020302034 8E0753756D6D617279 A003120130 A22A 020104 3125 410731203020342030 A408 800215D1 80020915 9103352031 A103120130 A606 060458020602
layout-object { object-type block, descriptor-body { object-identifier "1 0 4 0", dimensions { horizontal 5585, vertical fixed 2325 }, presentation-style "5 1", content-portions { "0" }, presentation-attributes { content-architecture-class { 2 8 2 6 2 } } } },	A21A 020102 3115 4103312031 8203302031 8E04426F6479 A003120130 A22A 020103 3125 41053120312030 82053020312030 8E04426F6479 A00F1201301201311201321201 33120134
layout-object { object-type page, descriptor-body { object-identifier "1 1", object-class "0 1", user-visible-name "Body", subordinates { "0" } } },	A234 020104 312F 410731203120302030 A308 8002021C 8002021C
layout-object { object-type block, descriptor-body { object-identifier "1 1 0 0", position { horizontal 540, vertical 540 },	

<pre> dimensions { horizontal 7935, vertical fixed 1785 }, presentation-style "5 3", content-portions { "0" }, presentation-attributes { content-architecture-class { 2 8 2 6 2 } } } }, layout-object { object-type block, descriptor-body { object-identifier "1 1 0 1", position { horizontal 540, vertical 3205 }, dimensions { horizontal 7935, vertical fixed 1785 }, presentation-style "5 3", content-portions { "0" }, presentation-attributes { character-attributes { line-spacing 400 }, content-architecture-class { 2 8 2 6 2 } } } }, layout-object { object-type block, descriptor-body { object-identifier "1 1 0 2", position { horizontal 1615, vertical 6460 }, dimensions { horizontal 5045, vertical fixed 4140 }, presentation-attributes { content-architecture-class { 2 8 2 8 0 } }, content-portions { "0" } } }, layout-object { object-type block, descriptor-body { object-identifier "1 1 0 3", position { horizontal 1985, vertical 10235 }, dimensions { horizontal 3970, vertical fixed 370 }, content-portions { "0" }, presentation-attributes { content-architecture-class { 2 8 2 6 2 } } } }, layout-object { object-type block, descriptor-body { object-identifier "1 1 0 4", position { horizontal 540, vertical 11485 }, dimensions { horizontal 7935, vertical fixed 1075 }, presentation-style "5 3", content-portions { "0" }, presentation-attributes { </pre>	<pre> A408 80021EFF 800206F9 9103352033 A103120130 A606 060458020602 A23A 020104 3135 410731203120302031 A308 8002021C 80020C85 A408 80021EFF 800206F9 9103352033 A103120130 A60C A004 87020190 060458020602 A22F 020104 312A 410731203120302032 A308 8002064F 8002193C A408 800213B5 8002102C A606 060458020800 A103120130 A22F 020104 312A 410731203120302033 A308 800207C1 800227FB A408 80020F82 80020172 A103120130 A606 060458020602 A234 020104 312F 410731203120302034 A308 8002021C 80022CDD A408 80021EFF 80020433 9103352033 A103120130 A606 </pre>
---	--

content-architecture-class { 2 8 2 6 2 }},	060458020602
layout-object { object-type page, descriptor-body { object-identifier "1 2", object-class "0 1", user-visible-name "Body", subordinates { "0" }},	A21A 020102 3115 4103312032 8203302031 8E04426F6479 A003120130 A22A 020103 3125 41053120322030 82053020312030 8E04426F6479 A00F120130120131120132120133 120134
layout-object { object-type frame, descriptor-body { object-identifier "1 2 0", object-class "0 1 0", user-visible-name "Body", subordinates { "0", "1", "2", "3", "4" }},	
layout-object { object-type block, descriptor-body { object-identifier "1 2 0 0", position { horizontal 540, vertical 540 }, dimensions { horizontal 7935, vertical fixed 1275 }, presentation-style "5 3", content-portions { "0" }, presentation-attributes { content-architecture-class { 2 8 2 6 2 }},	A234 020104 312F 410731203220302030 A308 8002021C 8002021C A408 80021EFF 800204FB 9103352033 A103120130 A606 060458020602
layout-object { object-type block, descriptor-body { object-identifier "1 2 0 1", position { horizontal 540, vertical 2695 }, dimensions { horizontal 7935, vertical fixed 1615 }, presentation-style "5 3", content-portions { "0" }, presentation-attributes { content-architecture-class { 2 8 2 6 2 }},	A234 020104 312F 410731203220302031 A308 8002021C 80020A87 A408 80021EFF 8002064F 9103352033 A103120130 A606 060458020602
layout-object { object-type block, descriptor-body { object-identifier "1 2 0 2", position { horizontal 1820, vertical 5190 }, dimensions { horizontal 6860, vertical fixed 2155 }, presentation-style "5 4", content-portions { "0" }, presentation-attributes { content-architecture-class { 2 8 2 6 2 }},	A234 020104 312F 410731203220302032 A308 8002071C 80021446 A408 80021ACC 8002086B 9103352034 A103120130 A606 060458020602
layout-object { object-type block, descriptor-body { object-identifier "1 2 0 3",	A22F 020104 312A 410731203220302033

position { horizontal 2695, vertical 8110 }, dimensions { horizontal 5585, vertical fixed 2495 }, presentation-attributes { content-architecture-class { 2 8 2 7 0 }}, content-portions { "0" }}, layout-object { object-type block, descriptor-body { object-identifier "1 2 0 4", position { horizontal 5385, vertical 10605 }, dimensions { horizontal 2520, vertical fixed 905 }, presentation-style "5 0", content-portions { "0" }, presentation-attributes { content-architecture-class { 2 8 2 6 2 }}, content-portion { content-portion-attributes { content-identifier-layout "1 0 1 0 0", content-identifier-logical "3 0 0 0", content-information { "CESSON, 26 JUNE 1985" }}, content-portion { content-portion-attributes { content-identifier-layout "1 0 2 0 0", content-identifier-logical "3 0 1 0", content-information { "To members of ISO/ TC97/SC18/WG3" }}, content-portion { content-portion-attributes { content-identifier-layout "1 0 3 0 0", content-identifier-logical "3 0 2 0", content-information { "SUBJECT-PROPOSED EXAMPLE TO CLARIFY THE DOCUMENT <SOS>\n<ST> ARCHITECTURE MODEL" }}, content-portion { content-portion-attributes { content-identifier-layout "1 0 4 0 0", content-identifier-logical "3 0 3 0 0", content-information { /* Formatted processable string of SUMMARY- */ }}, content-portion { content-portion-attributes { content-identifier-layout "1 1 0 0 0", content-identifier-logical "3 1 0 0", content-information { /* Formatted processable string of A's */ }}, content-portion { content-portion-attributes { content-identifier-layout "1 1 0 1 0", content-identifier-logical "3 1 1 0", content-information { /* Formatted processable string of B's */ }}, content-portion { content-portion-attributes { content-identifier-layout "1 1 0 2 0",	A308 80020A87 80021FAE A408 800215D1 800209BF A606 060458020700 A103120130 A234 020104 312F 410731203220302034 A308 80021509 8002296D A408 800209D8 80020389 9103352030 A103120130 A606 060458020602 A32C 3114 4009312030203120302030 840733203020302030 0414434553534F4E2C.. ..31393835 A337 3114 4009312030203220302030 840733203020312030 041F546F206D656D62657273.. ..574733 A3LL 3114 4009312030203320302030 840733203020322030 04LL5456424A4543553A.. ..4D4F44454C A3LL 3116 4009312030203420302030 8409332030203320302030 04LL53554D4D415259..... A3LL 3114 4009312031203020302030 840733203120302030 04LL414141..... A3LL 3114 4009312031203020312030 840733203120312030 04LL424242..... A3LL 3116 4009312031203020322030
---	---

content-identifier-logical "3 1 2 0 0" },	8409332031203220302030
content-information { /* Ordered set of geometric-graphics content elements for the diagram */ },	04LL.....
content-portion {	A3LL
content-portion-attributes {	3116
content-identifier-layout "1 1 0 3 0",	4009312031203020332030
content-identifier-logical "3 1 2 1 0" },	8409332031203220312030
content-information { /* Formatted processable string for the caption */ },	04LL63617074696F6E..
content-portion {	A3LL
content-portion-attributes {	3114
content-identifier-layout "1 1 0 4 0",	4009312031203020342030
content-identifier-logical "3 1 3 0" },	840733203120332030
content-information { /* Formatted processable string of C's */ },	04LL434343.....
content-portion {	A3LL
content-portion-attributes {	3114
content-identifier-layout "1 2 0 0 0",	4009312032203020302030
content-identifier-logical "3 1 3 1" },	840733203120332031
content-information { /* Formatted processable string of C's */ },	04LL434343.....
content-portion {	A3LL
content-portion-attributes {	3114
content-identifier-layout "1 2 0 1 0",	4009312032203020312030
content-identifier-logical "3 1 4 0" },	840733203120342030
content-information { /* Formatted processable string of D's */ },	04LL444444.....
content-portion {	A3LL
content-portion-attributes {	310B
content-identifier-layout "1 2 0 2 0" },	4009312032203020322030
content-information { /* Formatted processable string of ENDING */ },	04LL454E44494E47
content-portion {	A3LL
content-portion-attributes {	311C
content-identifier-layout "1 2 0 3 0",	4009312032203020332030
content-identifier-logical "3 1 6 0 0" },	8409332031203620302030
raster-gr-coding-attributes {	A204
number-of-pels-per-line 1117 },	8002045D
content-information { /* Array of raster-graphics content elements for the signature */ },	04LL.....
content-portion {	A3LL
content-portion-attributes {	3116
content-identifier-layout "1 2 0 4 0",	4009312032203020342030
content-identifier-logical "3 1 6 1 0" },	8409332031203620312030
content-information { "Miss Aude HEA <SOS>\n<ST> Document Architect" }	04LL4D697373

D.5 Example 5: Sample document profile from Annex C of ITU-T Rec. T.414 | ISO/IEC 8613-4; Document profile only

document-profile {	A082LLLL
generic-layout-structure "1",	800131
specific-layout-structure "1",	810131
specific-logical-structure "1",	850131
resource-document	AA41
descriptive-reference "Finance Master, Widget Inc.,4511 McKenzie, Atlanta, Georgia, USA.",	433F46696E616E636520 4D61737465722C576964 67657420496E632E2C34 353131204D634B656E7A 69652C41746C616E7461 2C2047656F726769612C 205553412E

document-characteristics {	A2LL
document-application-profile { },	84LL.....
doc-app-profile-defaults {	AA0F
document-architecture-defaults {	A00D
page-dimensions {	A208
horizontal 10200,	800227D8
vertical 13200 },	80023390
transparency opaque (1) },	830101
document-architecture-class	810102
formatted-processable (2),	
content-architecture-classes {	A506060458020602
{ 2 8 2 6 2 }},	
interchange-format-class if-a (0),	860100
oda-version {	A84E
standard-or-recommendation	43424954552D54205265632E2054
"ITU-T Rec. T.410 Series (1993) ISO/IEC 8613 : 1994;	2E34313020536572696573202831
version 2.00",	39393329207C2049534F2F494543
	2038363133203A20313939343B20
	76657273696F6E20322E3030
	44083139393230353031
publication-date "19920501" },	A222
non-basic-doc-characteristics {	A20A
page-dimensions {	300880023390
{ horizontal 13200,	800227D8
vertical 10200 }},	A80F
medium-types {	300D3008
{nominal-page-size {	800227D8
horizontal 10200,	80023390
vertical 13200 },	020101
side-of-sheet recto (1) },	B703
protections {	020101
protected (1) },	A9LL
additional-doc-characteristics {	A30602010C02010A
unit-scaling { 12, 10 },	A2LL
fonts-list {	31LL020100
{ font-identifier 0,	
font-reference { } },	
	30LL.....
	31LL020101
	30LL.....
	
document-management-attributes {	A382034F
document-description {	A781E9
title "May finance report",	80124D61792066696E61
	6E6365207265706F7274
subject "May results",	810B4D61792072657375
	6C7473
document-reference	A51743154D6179206669
descriptive-reference	6E616E6369616C207072
"May financial prelim."	656C696D2E
	82065265706F7274
document-type "Report",	83795468652063757272
abstract "The current figures show	656E7420666967757265
an improvement in return	732073686F7720616E20
on assets but still show	696D70726F76656D656E
an undercapitalization of	7420696E207265747572
production capacity.",	6E206F6E206173736574
	7320627574207374696C
	6C2073686F7720616E20
	756E64657263
	61706974616C697A6174
	696F6E206F662070726F
	64756374696F6E206361
	7061636974792E

keywords {
 "Finance", "Financial",
 "May", "Return on assets" }}

dates-and-times {
 document-date-and-time "19880605",
 creation-date-and-time
 "19880523T162957",
 local-filing-date-and-time
 { "19880605T115103" },

expiry-date-and-time "1989",
 purge-date-and-time "19891231",
 release-date-and-time "19880605" },

originators {
 organizations {
 "Widget Inc., Finance and Control" },

preparers {
 {personal-name {
 surname "Maltby",
 givenname "Reginald",
 initials "P" }}}},
 owners {
 { organization
 "Widget Inc., 4511 McKenzie,

 Atlanta, Georgia, USA." }},

authors {
 { organization
 "Dewey, Cheatham & Howe CPA" }}}},

other-user-information {
 copyright {
 copyright-information { "Widget Inc." },

copyright-dates { "1988" },
 status "May final report",

distribution-list {
 {personal-name {
 surname "Marks",
 initials "D" }},
 { personal-name {
 surname "Bucks",
 initials "B" },
 organization "Finance" },
 { personal-name {
 surname "Pencil",
 givenname "James",
 initials "K" },
 organization "Audits" },
 { personal-name {
 surname "Duck",
 initials "D" }},
 additional-information
 "Signature receipt req'd" },

A42A
 430746696E616E6365
 430846696E616369616C
 43034D6179
 431052657475726E206F
 6E20617373657473
 A048
 80083139383830363035
 810F3139383830353233
 54313632393537
 A211
 440F3139383830363035
 54313135313033
 830431393839
 85083139383931323331
 86083139383830363035
 A18195
 A022
 43205769646765742049
 6E632E2C2046696E616E
 636520616E6420436F6E
 74726F6C
 A1193117
 A015
 80064D616C746279
 8108526567696E616C64
 820150
 A2353133
 81315769646765742049
 6E632E2C203435313120
 4D634B656E7A69652C20
 41746C616E74612C4765
 6F726769612C20555341
 2E
 A31D311B
 81194465776579
 2C204368656174616D20
 2620486F7765
 20435041
 A2819B
 A01A3118
 A00E
 430C5769646765742049
 6E632E2C
 A106440431393838
 81104D61792066696E61
 6C207265706F7274
 A350
 310CA00A
 80054D61726B73
 820144
 3115A00A
 80054275636B73
 820142
 810746696E616E6365
 311CA012
 800650656E63696C
 81054A616D6573
 82014B
 8106417564697473
 310BA009
 80044475636B
 820144
 A519
 43175369676E61747572
 65207265636569707420
 7265712764

external-references {	A350
references-to-other-documents {	A03B
descriptive-reference	4314417072696C206669
"April finance report",	6E616E6365207265706F
	7274
descriptive-reference	430B4D61792062616C61
"May balance",	6E6365
descriptive-reference	43164D6179206163636F
"May accounting prelim." },	756E74696E6720707265
	6C696D2E
superceded-documents {	A111
descriptive-reference	430F4D61792066696E61
"May financial A" }},	6E6369616C2041
local-file-references {	A43B
{ file-name "mayfin",	311C
	80066D617966696E
location "financial_previous" },	811266696E616E636961
	6C5F70726576696F7573
{ file-name "mayfin",	311B
	80066D617966696E
location "financial_current" }},	811166696E616E636961
	6C5F63757272656E74
content-attributes {	A516
document-size 40447,	8103009DFF
number-of-pages 16,	820110
languages { "US English" },	A40C
	430A555320456E676C69
security information {	7368
authorization {	A63A
organization "Widget Inc., Finance" },	
	84145769646765742049
security-classification	6E632E2C2046696E616E
"Company Financial",	6365
access-rights "Finance Group" }}}	8111436F6D70616E7920
	46696E616E6369616C
	A20F
	430D46696E616E636520
	47726F7570

Annex E

Open Document Language (ODL)

(This annex forms an integral part of this International Standard)

This annex is applicable to ISO/IEC 8613-5 only.

NOTE – To maintain correspondence in clause numbering between ITU-T Recommendation T.415 and ISO/IEC 8613-5, this portion of the Open Document Language (ODL) is specified in a normative annex rather than in the body of this Specification.

E.1 Introduction

This annex specifies a standardized SGML representation of ODA documents, known as the Open Document Language (ODL). ODL is an SGML application conforming to ISO 8879.

This annex also includes rules for using the SGML Document Interchange Format (SDIF) for ODA/ODL documents.

The definitions of ISO 8879 apply to this annex.

NOTES

1 ODL applies SGML to the representation of ODA documents. The specification of ODL focuses on areas that require significant choices to be made: it does not attempt to restate the normal rules of either SGML or ODA for “business as usual”. Therefore, if an item is not discussed explicitly:

- a) On issues of semantics, normal ODA rules apply (e.g. allowable attribute values).
- b) On issues of syntax, normal SGML rules apply (e.g. formulation of generic identifiers). Frequently, these rules allow wide latitude to an implementation with no adverse effect on interchange.

For example, SGML requires object class identifiers (element type names, or “generic identifiers (GIs)”) to be unique to an element type and to conform to certain syntactic rules. An ODL implementation could, therefore, generate GIs sequentially (G1, G2, ..., Gn). E.2.2.6, however, recommends that GIs be based on (“normally derived from”) user-visible names. The preferred “derivation” obviously would be to use the user-visible name “as is” as the GI, but where this is not possible (none specified, not unique, or non-compliance with syntax), an implementation would generate a different name. (Note that there is no constraint on the user-visible name itself; only on the GI.)

2 SGML applications are classified as “structure-controlled” if they operate on the structure that the markup describes, or “markup-sensitive” if they operate on the markup itself. The ODA layout process is a structure-controlled application, while editing an ODA document or converting it from one interchange format to another are markup-sensitive.

The ODL specification defines the precise representation of all ODA processing semantics, thereby permitting “round trips” between ODIF and ODL that will yield the same processing fidelity for structure-controlled applications as interchange with a single format. However, several non-semantic ODA attributes that are used only in markup-sensitive applications are represented using a single SGML construct called a “comment”. The means by which these kinds of information are distinguished from one another in ODL is left to the implementation (e.g. both user-visible names and user-readable comments are representable as SGML comments, but an implementation could distinguish between the two by a convention such as beginning the comment with “**URC:**” or “**UVN:**”).

3 For both ODIF and ODL, the base notation parser (ASN.1 or SGML) must be supplemented by ODA-specific parsers. For example, an ODIF parser must validate and resolve cross-references to ODA object identifiers, a function that is an intrinsic part of an SGML parser. An ODL parser, however, will need to segregate components of an attribute value with constructed parameters, which is done intrinsically by ASN.1. In some cases, both ODIF and ODL parsers will need to accomplish the same task, such as resolving defaulted attribute values. (A system that supported both could probably do such tasks with common code.)

4 In both ODIF and SDIF, content portions are normally represented in the ASN.1 data stream as distinct structure components, corresponding, in the case of SDIF, to data entities. In the case of character content, this technique avoids the problem – inherent in all character-based parsing – of data characters that could confuse the parsers. ODL/SDIF can, therefore, represent multiple character sets and control characters to the same extent as ODIF (and with the same efficiency, since both use ASN.1 to demark content portions). (The way in which an implementation treats separate entities within its own environment is not constrained by any standard.)

ODL, however, like other properly-designed SGML applications, also offers the technique of including character content in the same entity as the markup. This technique can be employed for those content portions in which none of the characters conflict with the concrete syntax chosen by the implementation. ISO 8879 contains an extensive discussion of this subject, along with two “multicode” concrete syntax definitions intended for use in multiple character set environments.

E.2 Fundamentals

E.2.1 Basic objects and their content

In ODA, a basic object can have the attribute “content portions” and cannot have the attribute “subordinates”. In the ODL representation of ODA, all content portions occur in “data elements”.

A data element is an element that is declared either to be empty, or to contain only data. An application should normally define at least one data element type for each content architecture class in use.

NOTE – Definitions for “generic” data elements are given in E.10.2.1 and E.10.2.2. Specialized data element types could also be defined. For example, see the element declaration for “**logo**” in F.1.2.2.

In the layout structure, a data element is itself a basic object. In the logical structure, however, a data element is the sole subelement of a basic object. Attributes of a basic object that are dependent on the content architecture (such as presentation attributes) are represented as attributes of its data element.

A content model for a basic logical object normally offers a choice of all possible data element types (and therefore content architecture classes), as in:

<!ELEMENT blo O O (cf | cfp | cp | gfp | rf | rfp) >

An instance of a basic logical object, however, can contain only a single data element.

E.2.2 ODL names

ODL names are used as generic identifiers of element types, in attribute values, and in the construction of certain data content notation and attribute names.

NOTE – In some SGML concrete syntaxes, including the reference concrete syntax, case distinctions in names other than entity names are not significant. The names defined in ODL are unique even in such syntaxes.

E.2.2.1 Logical object type names

The ODL names for the logical object types are the short form human-readable names defined in A.2.5 of ITU-T Rec. T.412 | ISO/IEC 8613-2:

DLOR -- document logical root
CLO -- composite logical object
BLO -- basic logical object

E.2.2.2 Layout object type names

The ODL names for the layout object types are the short form human-readable names defined in A.2.5 of ITU-T Rec. T.412 | ISO/IEC 8613-2, with two exceptions noted below:

DLAR -- document layout root
PAGES -- page set (Exception: equivalent to **PAGE_SET**)
PAGE -- page (composite)
BPAGE -- page (basic) (Exception: see Note.)
FRAME -- frame
BLOCK -- block

NOTE – For syntactic convenience, an object of the type ‘composite or basic page’ is given the ODL object type name **PAGE** when it is a composite page and the ODL object type name **BPAGE** when it is a basic page. This technique allows composite and basic pages to be represented in ODL as distinct element types, with the appropriate attributes defined for each.

E.2.2.3 Content architecture class names

ODL names for content architecture classes are defined in the Specifications in ISO/IEC 8613 where the SGML representations of the content-related attributes are defined.

Those defined at present are:

cf -- character formatted content architecture
cfp -- character formatted processable content architecture
cp -- character processable content architecture
gfp -- geometric graphics formatted processable content architecture
rf -- raster graphics formatted content architecture
rfp -- raster graphics formatted processable content architecture

E.2.2.4 Data element type names

The ODL names for data element types are the same as the ODL names for the content architecture classes. All are permitted in the logical structure; those with “formatted” in the name are also permitted in the layout structure.

E.2.2.5 Data content notation names

In ODL, content architectures are represented by an SGML construct called a “data content notation”. It is necessary to declare each notation that is used in a document (see E.10).

An ODL notation name is constructed by prefixing “ODA” to the ODL content architecture class name. To allow for future changes in ODA, the prefix “ODA” in notation names and parameter entity names is reserved.

E.2.2.6 SGML generic identifier (GI)

An element’s generic identifier is normally derived from the ODA user-visible name for an object class description.

NOTE – The word “derived” is used to denote that normal SGML rules must be followed. This means that the generic identifier must be a unique name for its class and it must conform to the concrete syntax. If the user-visible name satisfies these requirements then it can be used as specified. If not, then some implementation-specific derivation must be accomplished to satisfy the SGML rules. This will not affect processing since the GIs carry no semantics and are used merely to establish linkage. If the user-visible name must be preserved for other purposes, an SGML comment and convention can be used. For example “<!--UVN: user-visible name-->” where “UVN:” is the convention.

Where no object class description exists (for example, when there is no generic part), the ODL name for the object type (see E.2.2.1 and E.2.2.2) is used instead.

A generic identifier cannot be the same as an ODL object type name, unless the element is of that object type and no other elements are of that object type. In the layout structure, such elements must have a fixed object type attribute whose value is the object type name.

A generic identifier cannot be the same as an ODL data element type (content architecture class) name, unless the element is a data element of that type (see E.2.2.4).

A generic identifier cannot be “null”, in any combination of uppercase and/or lowercase characters.

E.2.2.7 SGML unique identifier (ID)

In ODL, an object identifier is represented symbolically by an SGML construct called a “unique identifier”, or “ID”. A symbol is assigned only if there is a need to reference the object.

NOTE – This technique is practical because the attribute “subordinates”, which conceptually requires a reference to every object, is implied in ODL by the position of the subordinate objects.

An ODL unique identifier cannot be “null”, in any combination of uppercase and/or lowercase characters.

E.2.2.8 Default value list attribute names

Each default value list that can be specified for an element is represented in ODL by an individual attribute. The attribute names are constructed by prefixing the letters “dv” to the ODL name for an object type or content architecture class.

The presently recognized default value list attribute names are:

dvclo	-- composite logical object
dvblo	-- basic logical object
dvpages	-- page set
dvpage	-- page (composite)
dvbpage	-- page (basic)
dvframe	-- frame
dvblock	-- block
dvcf	-- character formatted content architecture
dvcfp	-- character formatted processable content architecture
dvcp	-- character processable content architecture
dvgfp	-- geometric graphics formatted processable content architecture
dvr	-- raster graphics formatted content architecture
dvrp	-- raster graphics formatted processable content architecture

E.2.3 Content

NOTE – In most SGML applications, the content information (data) of an element with character content normally occurs between its start- and end-tags. The data is either recognized as such because the element’s content is declared to be data and has no markup within it, or because the element has mixed content and the parser distinguishes the data from any nested subelement tags or other markup. In ODL, however, even though nested subelements cannot occur, character content is normally declared to be #PCDATA in order to permit entity references and markup declarations. Geometric and raster graphics content are NDATA entities.

The content information attribute of a content portion is represented in ODL as the content of a data element. The other attributes of a content portion are represented as attributes of the data element.

For character content architectures, the data can occur either in the normal content, or in one or more data entities that are referenced from the ODL attribute “content” that is defined for the data element. The normal content is declared to be #PCDATA, so that it can contain references to other content portions, and so that the start-tag can be minimized when only one data element type can occur.

Geometric and untiled raster graphics content, which cannot be parsed for markup, is always stored in separate data entities. The entities are referenced by the ODL attribute “**content**” on the data element’s start-tag. Tiled raster graphics content contains one or more data elements, one for each tile, but no tile data. Therefore, tiled raster graphics content can be parsed for markup. Tile content, which cannot be parsed for markup, is always stored in separate data entities. The entities are referenced by the ODL attribute “**content**” on the tile data element’s start-tag.

Generic content is discussed in E.4.2.2.

E.2.4 Linking the logical and layout structures

In order to permit the automatic generation of a specific layout structure, the generic logical structure must be linked to the styles and other attributes that govern the layout process. In ODL, this is accomplished by an explicit **LINKTYPE** declaration. The declaration encompasses other SGML declarations (just as a document type declaration does). In particular, it contains one or more **LINK** set declarations, which associate the ODA logical object class, layout style, presentation style, and layout object class.

NOTE – The following example illustrates two link sets, named “**#INITIAL**” and “**set1**”. Consider the last line, which is the link rule for “**logobj3**” in the link set named “**set1**”. It has four parameters: the logical object class, the layout style directives, the layout object class, and the presentation style attributes. In SGML, they are called the source element type, link attribute specification, result element type, and result attribute specification, respectively.

<!LINK	#INITIAL			dlar
	dlor			#IMPLIED
	logobj1	[sep="450 00 00"]		#IMPLIED
	logobj2	#USELINK set1 [newlay=page]		#IMPLIED
	logobj3	[blkalign=c]		layobj2 >
<!LINK	set1			
	logobj3	[blkalign=l]		layobj2 [trans=o] >

The optional **USELINK** parameter in line 4 identifies the link set that will be current for the specified logical object class, except when overridden by the link set associated with a subordinate object. A link set called “**#INITIAL**” must always be present, and is the current link set at the start of the document. In the example, **#INITIAL** is the current link set for all of the logical structure, except within **logobj2** and its subordinates, where **set1** is current.

E.2.5 Attributes

Attribute definitions must be associated with the corresponding element definition (object class description) for all potential attributes of an object. Except, however, that an attribute need not be defined if the attribute is not specified for the object class concerned, or for any object derived from it.

If the attribute definition’s default value is to be overridden for a particular specific object, the attribute must be specified in the start-tag of the element, or in a link or result attribute specification list. Parameter-wise defaulting is achieved by defining entities for each parameter.

NOTE – Conventions for such defaulting can be established by a document application profile.

E.3 Representation of attribute values

The representations of the ODA attributes are presented in the form of SGML public text. In this form they can be referenced from a document rather than included within it.

The semantics of the attribute values are specified in ITU-T Rec. T.412 | ISO/IEC 8613-2. The representation of attribute values is as specified in ITU-T Rec. T.412 | ISO/IEC 8613-2, except where a different representation is specified in the public text or elsewhere in this annex.

The default values specified in the public text are those defined in ITU-T Rec. T.412 | ISO/IEC 8613-2. If a different default value is wanted for an element (such as a non-standard default value specified in the document profile or in an object class description), the public text should not be referenced; instead, the definitions should be duplicated with the required changes made in the default values.

Attribute values are sequences of one or more parameters, separated by SGML separator characters. The description of the attribute in ITU-T Rec. T.412 | ISO/IEC 8613-2 determines the number of parameters, and whether any can be omitted. An omitted parameter is represented by a keyword consisting of two zeros: **00**.

A parameter is either constructed, or is one of a number of primitive types: string, keyword, integer, expression, or identifier. String and expression parameters are delimited, and can contain separator characters. Other parameters are not delimited and cannot contain separator characters.

NOTE – Most attribute values consist of a single parameter.

E.3.1 Constructed parameters

In ITU-T Rec. T.412 | ISO/IEC 8613-2, a parameter is a constructed parameter if one or more of its permissible values is a group of two or more sub-parameters. The description of the attribute in ITU-T Rec. T.412 | ISO/IEC 8613-2 determines the number of sub-parameters, and whether any can be omitted. If more than one sub-parameter is present, they are separated from one another by commas. Successive commas denote an omitted sub-parameter, but they are required only if a succeeding sub-parameter is present.

NOTE – For an example of a constructed parameter, see the attribute “**position**” in the public text.

E.3.2 String parameters

A string parameter could contain characters not permitted in an SGML name token, and it is therefore delimited by SGML **LIT** or **LITA** delimiters.

E.3.3 Keyword parameters

Possible keyword values are defined in ITU-T Rec. T.412 | ISO/IEC 8613-2 for some parameters, and by this annex for others.

Lowercase letters in keyword parameters are treated as though they were uppercase.

For certain parameters whose permissible values constitute a set of keywords, fixed numeric values, or both keywords and fixed numeric values, the value is represented by choosing from a set of substitute keywords. These parameters are documented in comments in the public text, in the form:

parameter name: keyword keyword ...

with the keywords appearing in the same order as the permissible values that they represent appear within ITU-T Rec. T.412 | ISO/IEC 8613-2. For attributes that have but one parameter, the attribute name is the parameter name.

NOTE – For example:

-- side of sheet: R V U --

means that in the “side of sheet” parameter of the attribute “medium type”, a value of “**r**” represents ‘recto’, a value of “**v**” represents ‘verso’, and so on.

E.3.4 Integer parameters

An integer is represented by a sequence of digits. If preceded by a hyphen, it represents a negative integer.

Parameters whose permissible values constitute an enumerated set of quantities of degrees or SMUs are represented by the integer quantities alone, without the word “degrees” or “SMU”.

E.3.5 Real parameters

A real number is represented as defined for the value notation of ASN.1 in CCITT Rec. X.208 | ISO/IEC 8824.

NOTE – A value without a fractional part will be regarded as an integer.

E.3.6 Expression parameters

Expression parameters use the ODA human-readable expression notation defined in normative Annex A of ITU-T Rec. T.412 | ISO/IEC 8613-2. Its application to ODL is specified in this subclause.

NOTE – Construction expressions are discussed in E.4.2.1.

E.3.6.1 Delimiters

The hexadecimal form of a string literal is represented in functional notation to minimize potential conflicts with SGML delimiters:

H(hexadecimal string)

NOTE – When the reference delimiter set is used, attribute values containing ODA string expressions should normally be delimited with **LITA** delimiters, as the ODA expression notation uses **LIT** delimiters for string literals.

E.3.6.2 Names and identifiers

An object class identifier is represented by the ODL generic identifier (element type).

An object type is represented by its ODL name.

NOTE 1 – ODL naming rules prevent conflicts between GIs and ODL object type names.

An object identifier is represented by an SGML unique identifier.

NOTE 2 – An element must have an **ID** attribute specified on its start-tag in order for there to be an object identifier to reference.

A binding name is represented by an SGML name derived from it.

NOTE 3 – It cannot be confused with any other ODL name because it can only occur as the second argument of a binding reference.

E.3.6.3 String literals

A string literal in an expression parameter may be contained in a general entity that is referenced from the expression by means of an ODL function called “**E**”:

E(general entity name)

NOTE – The **E** function may be used for string literals that contain non-SGML characters.

E.3.7 Parameters requiring names or identifiers

Object types, object class identifiers, and object identifiers, are represented as specified in E.3.6.2.

When a unique identifier occurs in a context in which a generic identifier or object type name could also occur, the unique identifier is represented as the argument to an “**ID**” function to distinguish it.

Example – ID(myid)

A null name or identifier is represented by the keyword “**null**”.

E.3.8 Special SGML constructs

Some ODA attributes are represented by SGML constructs other than the SGML attribute syntax. Their representation is described for each such attribute individually.

E.3.9 Alternative descriptions

Alternative descriptions are represented in ODL using marked sections. For this purpose, a primary subtree and each of its alternative subtrees are each enclosed in a marked section and are placed in the document in the order of decreasing preference. A document is interchanged with the primary subtree marked **INCLUDED** and the alternative subtrees marked **IGNORED**. This may be changed by the recipient if required. To facilitate ignoring primary descriptions and including alternative descriptions, conventional use of entities allows for avoiding having to change the external keywords. The names of the entities to choose an appropriate alternative can be derived from the attribute “**switch**” in the “alternative feature set” in the document profile.

E.3.10 Protected parts

E.3.10.1 Enciphered parts

In ODL a single enciphered part is always contained in an entity that contains only that enciphered part. An enciphered part identifier is represented in ODL by the entity name of the entity containing the enciphered part.

The particular kind of enciphered part description is determined unambiguously by the content in which the enciphered part ID occurs.

NOTE – A user may wish to identify the particular kind of enciphered part description by placing a comment in the entity declarations for the enciphered part entity.

E.3.10.2 Sealed parts

A sealed document body part has its normal (not enciphered) structure. A sealed document body part is identified by the presence of the attribute “sealed” (see E.4.5.6.2) on the element.

A sealed document profile is represented by a list of the names of the document profile attributes that are sealed. This list is the value of the ODL attribute “**sealatts**” of a **sealedpr** element.

NOTES

1 Preservation of constituents and content seals is possible only if a normalized encoding of the sealed constituents and content is produced. This makes authentication encoding dependent, i.e. the encoding of sealed constituents and content can not be modified in any manner without invalidating seals and losing authentication. This further means that the original encoding of a sealed constituent or content portion, either ASN.1 binary or ODL character encoding, must be preserved.

2 As it is customary for SGML applications to preserve the SGML forms, in this case the ODL form, of the encoded document, no additional rules for preserving the authenticity of sealed document parts are required. The authenticity is preserved by transmitting the original SGML form of the sealed document parts to the intended recipient(s). It is possible to facilitate the processing of sealed documents by placing the sealed document parts in entities.

E.4 Shared attributes**E.4.1 Identification attributes****E.4.1.1 Object type****E.4.1.1.1 Logical objects**

The attribute “object type” is not specified for logical objects, as it is implied by the content model:

- a) if the content is declared to be a data element or a choice of data elements, the object is a basic logical object;
- b) if the element is the document element, the object is the document logical root;
- c) in all other cases, the object is a composite logical object.

E.4.1.1.2 Layout objects

The attribute “object type” is declared as follows:

objtype NAME #FIXED ODLname

where “ODLname” is the ODL name for the object type, as described above.

NOTE – The attribute “object type” must be defined for a layout object class even if the object type name is used as its generic identifier.

E.4.1.2 Object identifier

The attribute “object identifier” is represented symbolically by an SGML “unique identifier” attribute, as follows:

id ID #IMPLIED

It need be defined and specified only for elements that are actually referenced.

E.4.1.3 Object class identifier

The attribute “object class identifier” is the “element type” in an element definition.

E.4.2 Construction attributes**E.4.2.1 Generator for subordinates**

The semantics of the attribute “generator for subordinates” are represented in ODL by the SGML content model syntax.

NOTE – The content model syntax differs only in notational constructs from the human-readable construction expression in Annex A of ITU-T Rec. T.412 | ISO/IEC 8613-2.

An ambiguous generator for subordinates must be made unambiguous by means of “intermediate elements”, as described in ISO 8879. An intermediate element has no semantic effect. It is distinguished from other elements in the following manner:

- 1) In the logical DTD, the following attribute is defined for it:
ignore NAME #FIXED ignore
- 2) In the layout DTD, the attribute “object type” is defined for it as follows:
objtype NAME #FIXED ignore

E.4.2.2 Content generator and generic content information**E.4.2.2.1 Layout structure**

In the layout structure, the attribute “content generator” is declared for data elements as follows:

congen CDATA #FIXED ‘string expression’

and the attribute “content information” is declared as:

coninfo ENTITIES #FIXED ‘entity names’

E.4.2.2.2 Link attribute definition

In a link attribute definition, the attribute “content generator” is declared as follows:

congen CDATA ‘string expression’

The attribute “content information” is not declared as such; instead, its value is assigned to the attribute “**congen**”, and the ODL attribute “**gentype**” is set to “**CONINFO**” to indicate this. The latter attribute is declared as:

gentype NAME "CONGEN"

If the attribute “content generator” is specified at the same time, it is specified as the value of the ODL attribute “ignored content generator”:

icongen CDATA #IMPLIED

The ODL attribute “**congen**” can have semantic significance only when the instance of the source data element has no data and the ODL attribute “**content**” is not specified. In such cases, the attribute will cause generation of content data for the result data element when the value of the ODL attribute “use content generator” is “**YES**” (the default). To prevent content generation, the attribute “use content generator” should be specified as “**NO**”.

The link attribute “use content generator” is declared as:

ucongen CDATA yes

E.4.3 Relationship attributes

E.4.3.1 Object class

The attribute “object class” is an element’s generic identifier, which is specified on its tags.

E.4.3.2 Subordinates

The attribute “subordinates” is not specified as such. Elements that occur between the start- and end-tags of another element are that element’s subordinates (sub-elements). The order of appearance of the sub-elements defines the sequential order among them.

E.4.3.3 Content portions

All content portions occur in data elements. Non-character content is always stored in data entities and is referenced by specifying the entity names as the value of a content attribute of the data element, as follows:

content ENTITIES #REQUIRED

Non-character data elements are declared to have **EMPTY** normal content.

For character content, the content portions normally occur between the start- and end-tags of the data element. They are declared to be **#PCDATA** and can contain references to character data entities. The declaration

content ENTITIES #CONREF

allows the data for a given element to occur in separate entities, depending upon whether a value is specified for the attribute. When a content attribute value is specified, the normal content of that instance of the element must be empty.

Generic content is discussed in E.4.2.2.

E.4.3.4 Resource

This attribute is declared as:

resource CDATA #FIXED "table key"

E.4.3.5 Presentation style

See E.8.1.

E.4.4 Content architecture class attributes: content architecture class

The attribute “content architecture class” is declared for data elements as:

conarch NAME #FIXED ODLarch

where “**ODLarch**” is the ODL name for a content architecture class (see E.2.2.3).

NOTE – When an ODA/ODL document is converted to ODIF, the attribute “content architecture class” would be coded in ODIF using either the object identifier representation or the integer representation, as appropriate.

E.4.5 Miscellaneous attributes**E.4.5.1 User-readable comments**

These are represented by SGML comment declarations.

E.4.5.2 Application comments

An application comment is the text of an entity whose name is specified as the value of an attribute that is declared as follows:

appcmnt ENTITY #IMPLIED

E.4.5.3 User-visible name

This attribute is represented either by the element's generic identifier or unique identifier, or by an associated comment.

NOTE – If the user-visible name contains other than SGML parsable character data, it must appear in a comment.

E.4.5.4 Bindings

Each binding is represented as an SGML attribute that is declared as:

binding-name CDATA #IMPLIED

or

binding-name CDATA 'binding-value'

and specified in the form

binding-name = 'binding-value'

where

“**binding-name**” is an SGML name derived from the ODL binding name; and

“**binding-value**” is an expression, represented as specified in E.3.6.

E.4.5.5 Default value lists

Default value lists are represented by one or more of the following attributes:

ODLdvnm ENTITY #IMPLIED

where “**ODLdvnm**” is replaced by an ODL name for a default value list (see E.2.2.8).

The value of each attribute is the name of a data entity whose value conforms to the syntax of an attribute specification list.

Default value list attributes can be defined for elements in the source and result document types, and as link attributes. A default value list that is a link attribute must contain a link attribute specification list.

NOTE – In ODL, the attributes “presentation style” and “layout style” are represented as attribute specification lists in link rules (see E.7 and E.8). Default value lists for these attributes consist of similarly-formed attribute specification lists.

E.4.5.6 Security attributes

Security attributes are represented by one or more of the following ODL attributes.

E.4.5.6.1 Enciphered

enciph CDATA #IMPLIED -- enciphered --
-- encsub: (ENCNONE | ENCALL | ENCPART) ENCNONE --
-- encsubid: sequence of IDREF #IMPLIED --
-- encppid: ENTITY #IMPLIED --

E.4.5.6.2 Sealed

sealed CDATA #IMPLIED -- sealed --
-- sealstat: (SEALED | UNSEALED) UNSEALED --
-- sealids: sequence of IDREF #IMPLIED --

E.5 Layout attributes

E.5.1 Property, formatting, and imaging attributes

This subclause defines a public entity set whose entities contain standard definitions of ODA layout attributes. When the public entity is referenced in a document type definition, the individual entities can be referenced as needed in attribute definition lists.

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<!-- Public entity set. Typical invocation:

```
<!ENTITY % layatt PUBLIC "ISO/IEC 8613-5:1994//ENTITIES
    ODA Layout Attributes//EN">
%layatt;
```

-->

```
<!-- Property Attributes -->
<!ENTITY % ODApos -- position --
    "pos CDATA '0 0'"
    -- fixed or variable: implied by number of parameters --
    -- horizontal position: integer --
    -- vertical position: integer --
    -- offset: (integer,integer,integer,integer) --
    -- separation: (integer,integer,integer) --
    -- alignment: R C L --
    -- fill order: N R -->
<!ENTITY % ODAdim -- dimensions --
    "dim CDATA #IMPLIED"
    -- fixed dimension: integer --
    -- variable page height: (V,integer) --
    -- rule a: (A,(integer,integer)) --
    -- rule b: (B,(integer,integer)) --
    -- maximum size: M -->
<!ENTITY % ODAbor -- border --
    "border CDATA #IMPLIED"
    "bordspid IDREF #IMPLIED"
    -- border sub-structured as --
    -- null: N --
    -- border line width: integer --
    -- border line type: S DA DO DD DDD I --
    -- border free space width: integer --
    -- border line colour: choice of --
    -- implementation defined: IMPLDEF --
    -- colour expression: a colour expression as defined in E.5.3.1 --
    -- bordspid: a reference to a colour space id -->
<!-- Formatting Attributes -->
<!ENTITY % ODAbal -- balance --
    "balance CDATA null">
<!ENTITY % ODApath -- layout path: 0 90 180 270 --
    "laypath NUMBER 270">
<!ENTITY % ODAsrce -- logical source --
    "logsrce NAME #IMPLIED">
<!ENTITY % ODAperm -- permitted category names --
    "permcatt NAMES null" >
<!ENTITY % ODAlct -- layout stream categories --
    "laycat NAMES null" >
<!ENTITY % ODAlsct -- layout stream sub-categories --
    "layscat NAMES null" >
<!-- Imaging Attributes -->
<!ENTITY % ODAiord -- imaging order --
    "imagord IDREFS #IMPLIED" >
<!ENTITY % ODAtran -- transparency: T O --
    "trans NAME t" >
```

```

<!ENTITY % ODAcol -- colour: COLMEDIA COLOURED --
    "colour NAME colmedia" >
<!ENTITY % ODAppos -- page position: integer integer --
    "ppos NUMBERS #IMPLIED">
<!ENTITY % ODAmed -- medium type --
    "medium NMTOKENS '9920,14030 u unspec'
    medspid IDREF #IMPLIED"
    -- medium sub-structured as --
    -- nominal page size: (integer,integer) --
    -- side of sheet: R V U --
    -- colour of medium: choice of --
    -- unspecified colour: UNSPEC --
    -- specified colour: a colour expression as defined in E.5.3.1 --
    -- medspid: a reference to a colour space id -->

    <!-- Colour Attributes -->
<!ENTITY % ODAclay -- colour of layout object --
    "clay CDATA #IMPLIED
    clayspid IDREF #IMPLIED"
    -- clay: a colour expression as defined in E.5.3.1 --
    -- clayspid: a reference to a colour space id -->
<!ENTITY % ODAobct -- object colour table --
    "obct CDATA #IMPLIED
    obctspid IDREF #IMPLIED"
    -- obct: a colour table as defined in E.5.3.2 --
    -- obctspid: a reference to a colour space id -->
<!ENTITY % ODAbcol -- content background colour --
    "bcol CDATA #IMPLIED
    bcolspid IDREF #IMPLIED"
    -- bcol sub-structured as --
    -- choice of --
    -- transparent: TRANSPAR --
    -- colour expression: a colour expression as defined in E.5.3.1 --
    -- bcolspid: a reference to a colour space id -->
<!ENTITY % ODAfcol -- content foreground colour --
    "fcol CDATA #IMPLIED
    fcolspid IDREF #IMPLIED"
    -- fcol sub-structured as --
    -- choice of --
    -- transparent: TRANSPAR --
    -- implementation defined: IMPLDEF --
    -- colour expression: a colour expression as defined in E.5.3.1 --
    -- fcolspid: a reference to a colour space id -->
<!ENTITY % ODAcnct -- content colour table --
    "cnct CDATA #IMPLIED
    cnctspid IDREF #IMPLIED"
    -- cnct: a colour table as defined in E.5.3.2 --
    -- cnctspid: a reference to a colour space id -->

```

E.5.2 Presentation attributes

The presentation attributes are described in the Specifications in ISO/IEC 8613 in which content architectures are specified.

Presentation attributes can be defined and specified only for data elements. The syntactically allowable set of attributes depends on the data element type (that is, on the data element's content architecture class).

Layout presentation attributes are applicable to formatted (F) and formatted processable (FP) architecture classes. They are known in ODL as "format attributes" and are specified as attributes of a data element in the layout structure.

NOTE – Although they are also syntactically valid in a result attribute specification, they are ignored by the layout process.

Logical presentation attributes are applicable to unformatted processable (P) and FP architecture classes. They are known in ODL as "format directives" and are specified as link attributes.

ODA also defines “shared” attributes that apply to all three categories of architecture class. They are known in ODL as “format attribute-directives” and are specified for the various content architecture classes as follows:

- a) **P**: result attribute specifications in link rules (that is, in presentation styles).
- b) **F**: like format attributes (that is, in data element start-tags in the layout structure).
- c) **FP**: both of the above, with the link rules being recognized for the layout process and the layout structure start-tags for the imaging process.

When a result attribute must be specified and the layout object class is either a composite layout object or is unspecified, a subordinate link set must be defined. The result attributes are then specified in an entry in the subordinate link set in which the source element type is specified as **#IMPLIED**, and the result element type is the generic identifier of the basic layout object whose content architecture class is that to which the result attributes apply.

NOTE – See how “**para**” is handled in the example in F.1.2.3.

E.5.3 Colour

E.5.3.1 Colour expressions

A colour expression is represented as **CDATA** and is substructured as follows:

```
-- colour expression: sequence of --
-- colour access mode: DIR IND --
-- choice of --
-- direct colour expression: sequence of --
-- colour specification: (real, real, real [, real]) --
-- colour tolerance: choice of --
-- specified tolerance: sequence of --
-- tolerance value: real --
-- tolerance space: LUV LAB --
-- unspecified tolerance: INFINITE --
-- indexed colour expression: integer --
```

For each element and attribute which has a colour expression as (part of) its value, a referencing attribute must be declared with a value type of **IDREF**. This referencing attribute may be used to identify a colour space for direct colour expressions. In the case of a direct colour expression, any value specified for the referencing attribute must refer to the unique object identifier of a colour space in the profile. When no value for the referencing attribute is present, the default colour space is used. In the case of an indexed colour expression, the colour space is found through the applicable colour table.

E.5.3.2 Colour tables

A colour table is represented as **CDATA** and is substructured as follows:

```
-- colour table: sequence of --
-- colour table entries: sequence of triples of the form --
-- index: integer --
-- colour coordinates: (real, real, real [, real]) --
-- colour tolerance: choice of --
-- unspecified tolerance: INFINITE --
-- specified tolerance: sequence of --
-- tolerance value: real --
-- tolerance space: LUV LAB --
```

For each element and attribute which has a colour table as its value, a referencing attribute must be declared with a value type of **IDREF**. This referencing attribute may be used to identify a colour space for the colour table. Any value specified for the referencing attribute must refer to the unique object identifier of a colour space in the profile. When no value for the referencing attribute is present, the default colour space is used.

E.6 Logical attributes

E.6.1 Protection

The attribute “protection” is defined as:

```
protect NAME unprot -- protection: PROTECT UNPROT --
```

E.6.2 Layout style

See E.7.1.

E.7 Layout style attributes

Layout directive attributes are specified as “link attributes” in the link rule for the logical object class.

E.7.1 Layout style identifier

Layout styles are represented by entities, conventions for which can be defined in a document application profile. The entity name is the layout style identifier. (See the example in F.1.2.3.)

E.7.2 Layout object class

The layout object class attribute is represented by specifying the generic identifier of the layout object class as the result element type in the link rule. If the logical object does not have a known layout object class, the keyword “#IMPLIED” should be specified in the link rule instead.

E.7.3 Layout category

A layout category name is represented by an SGML name. In situations where another type of name could also occur, a layout category name is represented as the argument to a “CAT” function, to distinguish it.

Example – CAT(mycat)

A layout category name cannot be “null”, in any combination of uppercase and/or lowercase characters.

E.7.4 Logical stream category

A logical stream category name is represented by an SGML name. In situations where another type of name could also occur, a logical stream category name is represented as the argument to an “LCAT” function, to distinguish it.

Example – LCAT(mylogcat)

A logical stream category name cannot be “null”, in any combination of uppercase and/or lowercase characters.

E.7.5 Logical stream sub-category

A logical stream sub-category name is represented by an SGML name. In situations where another type of name could also occur, a logical stream sub-category name is represented as the argument to an “LSCAT” function, to distinguish it.

Example – LSCAT(mylogscat)

A logical stream sub-category name cannot be “null”, in any combination of uppercase and/or lowercase characters.

E.7.6 Other layout directive attributes

This subclause includes public entities containing attribute definitions for the layout directives. The entities can be referenced directly within an attribute definition list declaration.

E.7.6.1 Layout directives for basic and composite logical objects

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<!-- Public text entity. Typical invocation:

<!ENTITY % ldir-bc PUBLIC "ISO/IEC 8613-5:1994/TEXT

Layout Directives: Basic and Composite//EN">

<!ATTLIST clo %ldir-bc; >

-->

-- layout object class is not an attribute: see E.7.2 --

-- 'object type page' is represented by 'PAGE' --

indiv CDATA null -- indivisibility --

logcat NAME null -- logical stream category --

logscat NAME null -- logical stream sub-category --

frange CDATA null -- floatability range --

newlay CDATA null -- new layout object --

samelay CDATA null -- same layout object --

synchr CDATA null -- synchronization --

appcmnt ENTITY #IMPLIED -- application comments --

derived NMTOKENS #IMPLIED -- source of derived style --

E.7.6.2 Layout directives for basic logical objects

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<!-- Public text entity. Typical invocation:

<!ENTITY %ldir-b PUBLIC "ISO/IEC 8613-5:1994/TEXT
Layout Directives: Basic//EN">

<!ATTLIST blo %ldir-b; %ldir-bc;>

-->

blkalign	NAME	r	-- block alignment: R L C N --
concat	NAME	n	-- concatenation: C N --
fillord	NAME	n	-- fill order: N R --
category	NAME	null	-- layout category --
offset	NUMBERS	"0 0 0 0"	-- offset: four integers --
sep	NUMBERS	"0 0 0"	-- separation: three integers --

E.7.7 Derived layout styles

If a style is derived from another, it shall include the following attribute:

derived = 'link-set-name link-rule-number'

where "link-set-name" is the name of a link set, and "link-rule-number" is a number expressing the position of a link rule within the link set that contains the source of the derived style. (Numbering of link rules within a link set begins at one.)

The attribute "derived from" shall be declared in the same way as other style attributes, as follows:

derived NMTOKENS #IMPLIED -- source of derived style --

E.8 Presentation style attributes

E.8.1 Presentation style identifier

Presentation styles are represented by entities, conventions for which can be defined in a document application profile. The entity name is the presentation style identifier. (See the example in F.1.2.3.)

E.8.2 Other presentation style attributes

Layout attributes that have been defined for a result element are syntactically valid as result attributes in link rules. However, only the attributes "border", "transparency", and "colour" (see E.5.1) are semantically valid during the layout process, and only when they are attributes of blocks.

E.8.3 Derived presentation styles

Derived presentation styles are represented in the same way as derived layout styles (see E.7.7).

E.9 Content portion attributes

E.9.1 Identification attributes: content identifier

Content (data) is normally identified by the fact that it occurs between the start-tag and end-tag of a data element. The document type specification on the start-tag or tags that introduce the data indicates whether it is part of the logical or layout structure, or both.

When data is stored in a separate entity, its name serves as the content identifier.

E.9.2 Common coding attributes: type of coding

The attribute "type of coding" is defined as an attribute of a data content notation, in the form:

codetype NAME (default)

where the default and permissible values are defined in the Specifications in ISO/IEC 8613 that deal with content architectures, or in document application profiles.

The attribute is specified on the entity declarations of entities containing content portions that conform to the notation.

E.9.3 Content information attributes**E.9.3.1 Content information**

The content information attribute is discussed in E.2.3.

E.9.3.2 Alternative representation

The attribute "alternative representation" is defined as follows for data elements whose content portions could have alternative representations:

altreps ENTITIES #IMPLIED

The value of this attribute is a list of names of data entities that contain the alternative representations of the corresponding content portions.

If there is no alternative representation for one or more content portions, the reserved entity name "**NONE**" should occupy its position in the list. An entity used for an alternative representation cannot be named "**NONE**".

E.9.4 Coding attributes

The representation of these attributes is defined in the Specifications in ISO/IEC 8613 that deal with content architectures.

The attributes are defined as attributes of a data content notation, and are specified on the entity declarations of entities containing content portions that conform to the notation.

E.10 Data content notations**E.10.1 Notation declarations for content architectures**

ODL notation declarations for data content notations representing the content architecture classes are included in the parts of ISO/IEC 8613 where the content-related attributes are defined.

E.10.2 Content-related public text

The following SGML public text contains notation declarations for existing ODA content architecture classes, element and attribute list declarations for the corresponding data element types, entity declarations for presentation attribute definitions, and entity declarations for lists of data element GIs and default value lists derived from them.

E.10.2.1 Logical structure

```
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1994
```

```
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defined in ISO 8879, provided this notice is included in all copies.
```

```
-->
```

```
<!-- Public text entity. Typical invocation:
```

```
<!ENTITY % ODAdlg PUBLIC "ISO/IEC 8613-5:1994/TEXT
ODA Data Elements: Logical//EN">
```

```
%ODAdlg;
```

```
-->
```

```
<!ENTITY % r-p-c PUBLIC "ISO/IEC 8613-7:1993/TEXT
Raster Coding Attributes//EN">
```

```
<!NOTATION ODAcf PUBLIC "ISO/IEC 8613-6:1993//NOTATION
Character formatted content architecture//EN">
```

```
<!NOTATION ODAcfp PUBLIC "ISO/IEC 8613-6:1993//NOTATION
Character formatted processable content architecture//EN">
```

```
<!NOTATION ODAcp PUBLIC "ISO/IEC 8613-6:1993//NOTATION
Character processable content architecture//EN">
```

```
<!NOTATION ODAgfp PUBLIC "ISO/IEC 8613-8:1993//NOTATION
Geometric graphics formatted processable content architecture//EN">
```

```
<!NOTATION ODArf PUBLIC "ISO/IEC 8613-7:1993//NOTATION
Raster graphics formatted content architecture//EN">
```

```
<!NOTATION ODArfp PUBLIC "ISO/IEC 8613-7:1993//NOTATION
Raster graphics formatted processable content architecture//EN" >
```

```
<!ATTLIST NOTATION (ODArfp) %r-p-c; >
```

<!ELEMENT	cf	o o	(#PCDATA)		-- formatted character content -->
<!ATTLIST	cf	conarch	NAME	#FIXED cf	-- content architecture class --
		id	ID	#IMPLIED	-- object identifier --
		content	ENTITIES	#CONREF	-- content portions --
		altreps	ENTITIES	#IMPLIED	-- alternative representations --
		appcmnt	ENTITY	#IMPLIED	-- application comments --
		enciph	CDATA	#IMPLIED	-- enciphered --
		sealed	CDATA	#IMPLIED	-- sealed -->
<!ELEMENT	cfp	o o	(#PCDATA)		-- fp character content-->
<!ATTLIST	cfp	conarch	NAME	#FIXED cfp	-- content architecture class --
		id	ID	#IMPLIED	-- object identifier --
		content	ENTITIES	#CONREF	-- content portions --
		altreps	ENTITIES	#IMPLIED	-- alternative representations --
		appcmnt	ENTITY	#IMPLIED	-- application comments --
		enciph	CDATA	#IMPLIED	-- enciphered --
		sealed	CDATA	#IMPLIED	-- sealed -->
<!ELEMENT	cp	o o	(#PCDATA)		-- processable character content -->
<!ATTLIST	cp	conarch	NAME	#FIXED cp	-- content architecture class --
		id	ID	#IMPLIED	-- object identifier --
		content	ENTITIES	#CONREF	-- content portions --
		altreps	ENTITIES	#IMPLIED	-- alternative representations --
		appcmnt	ENTITY	#IMPLIED	-- application comments --
		enciph	CDATA	#IMPLIED	-- enciphered --
		sealed	CDATA	#IMPLIED	-- sealed -->
<!ELEMENT	gfp	- o	EMPTY		-- fp geometric content-->
<!ATTLIST	gfp	conarch	NAME	#FIXED gfp	-- content architecture class --
		id	ID	#IMPLIED	-- object identifier --
		content	ENTITIES	#REQUIRED	-- content portions --
		altreps	ENTITIES	#IMPLIED	-- alternative representations --
		appcmnt	ENTITY	#IMPLIED	-- application comments --
		enciph	CDATA	#IMPLIED	-- enciphered --
		sealed	CDATA	#IMPLIED	-- sealed -->
<!ELEMENT	rf	- o	EMPTY		-- formatted raster content -->
<!ATTLIST	rf	conarch	NAME	#FIXED rf	-- content architecture class --
		id	ID	#IMPLIED	-- object identifier --
		content	ENTITIES	#REQUIRED	-- content portions --
		altreps	ENTITIES	#IMPLIED	-- alternative representations --
		appcmnt	ENTITY	#IMPLIED	-- application comments --
		enciph	CDATA	#IMPLIED	-- enciphered --
		sealed	CDATA	#IMPLIED	-- sealed -->
<!ELEMENT	rfp	- o	(tile*)		-- fp raster content -->
<!ATTLIST	rfp	conarch	NAME	#FIXED rfp	-- content architecture class --
		id	ID	#IMPLIED	-- object identifier --
		content	ENTITIES	#CONREF	-- content portions --
		altreps	ENTITIES	#IMPLIED	-- alternative representations --
		appcmnt	ENTITY	#IMPLIED	-- application comments --
		enciph	CDATA	#IMPLIED	-- enciphered --
		sealed	CDATA	#IMPLIED	-- sealed -->
<!ELEMENT	tile	- o	EMPTY		-- fp raster content tile -->
<!ATTLIST	tile	content	ENTITIES	#REQUIRED	-- tile content portions -->
<!ENTITY	% ODA delg "cf cp cfp gfp rf rfp"				-- logical data element types -->

E.10.2.2 Layout structure

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-->

<! -- Public text entity. Typical invocation:

<!ENTITY % ODAly PUBLIC "ISO/IEC 8613-5:1994//TEXT
ODA Data Elements: Layout//EN">

%ODAly;

-->

<!ENTITY % c-p-a PUBLIC "ISO/IEC 8613-6:1993//TEXT
Character Presentation Format Attributes//EN">

<!ENTITY % c-p-ad PUBLIC "ISO/IEC 8613-6:1993//TEXT
 Character Presentation Format Attribute-Directives//EN" >
 <!ENTITY % g-p-ad PUBLIC "ISO/IEC 8613-8:1993//TEXT
 Geometric Presentation Format Attribute-Directives//EN" >
 <!ENTITY % r-p-a PUBLIC "ISO/IEC 8613-7:1993//TEXT
 Raster Presentation Format Attributes//EN">
 <!ENTITY % r-p-ad PUBLIC "ISO/IEC 8613-7:1993//TEXT
 Raster Presentation Format Attribute-Directives//EN" >
 <!ENTITY % r-p-c PUBLIC "ISO/IEC 8613-7:1993//TEXT
 Raster Coding Attributes//EN">

<!NOTATION ODAcf PUBLIC "ISO/IEC 8613-6:1993//NOTATION
 Character formatted content architecture//EN">
 <!NOTATION ODAcfp PUBLIC "ISO/IEC 8613-6:1993//NOTATION
 Character formatted processable content architecture//EN">
 <!NOTATION ODAgfp PUBLIC "ISO/IEC 8613-8:1993//NOTATION
 Geometric graphics formatted processable content architecture//EN" >
 <!NOTATION ODArf PUBLIC "ISO/IEC 8613-7:1993//NOTATION
 Raster graphics formatted content architecture//EN">
 <!NOTATION ODArfp PUBLIC "ISO/IEC 8613-7:1993//NOTATION
 Raster graphics formatted processable content architecture//EN" >
 <!ATTLIST NOTATION (ODArf | ODArfp) %r-p-c; >

<!ENTITY % layatt PUBLIC "ISO/IEC 8613-5:1993//ENTITIES
 ODA Layout Attributes//EN">
 %layatt;

<!ELEMENT cf o o (#PCDATA) -- formatted character content -- >
 <!ATTLIST cf
 conarch NAME #FIXED cf -- presentation attributes --
 content ENTITIES #CONREF -- content architecture class --
 altreps ENTITIES #IMPLIED -- content portions --
 id ID #IMPLIED -- alternative representations --
 objtype NAME #FIXED block -- object identifier --
 appcmnt ENTITY #IMPLIED -- object type --
 %ODApas; %ODAdim; %ODAbor; %ODAtan; -- application comments --
 %ODAcay; %ODAbct; %ODAbcol; %ODAfcol; -- layout attributes --
 %ODAlct; %ODAcnct; -- colour attributes --
 %ODAlsc; -- layout stream categories --
 enciph CDATA #IMPLIED -- layout stream sub-categories --
 sealed CDATA #IMPLIED -- enciphered --
 <!ELEMENT cfp o o (#PCDATA) -- fp character content -->
 <!ATTLIST cfp
 conarch NAME #FIXED cfp -- presentation attributes --
 content ENTITIES #CONREF -- content architecture class --
 altreps ENTITIES #IMPLIED -- content portions --
 id ID #IMPLIED -- alternative representations --
 objtype NAME #FIXED block -- object identifier --
 appcmnt ENTITY #IMPLIED -- object type --
 %ODApas; %ODAdim; %ODAbor; %ODAtan; -- application comments --
 %ODAcay; %ODAbct; %ODAbcol; %ODAfcol; -- layout attributes --
 %ODAlct; %ODAcnct; -- colour attributes --
 %ODAlsc; -- layout stream categories --
 enciph CDATA #IMPLIED -- layout stream sub-categories --
 sealed CDATA #IMPLIED -- enciphered --
 <!ELEMENT gfp - o EMPTY -- fp geometric content -->
 <!ATTLIST gfp
 conarch NAME #FIXED gfp -- presentation attributes --
 content ENTITIES #REQUIRED -- content architecture class --
 altreps ENTITIES #IMPLIED -- content portions --
 id ID #IMPLIED -- alternative representations --
 objtype NAME #FIXED block -- object identifier --
 appcmnt ENTITY #IMPLIED -- object type --
 %ODApas; %ODAdim; %ODAbor; %ODAtan; -- application comments --
 %ODAcay; %ODAbct; %ODAbcol; %ODAfcol; -- layout attributes --
 %ODAlct; %ODAcnct; -- colour attributes --
 %ODAlsc; -- layout stream categories --
 %ODAlsc; -- layout stream sub-categories --

| | | | | | |
|-----------|---|-----------|-----------|--------------|------------------------------------|
| | | enciph | CDATA | #IMPLIED | -- enciphered -- |
| | | sealed | CDATA | #IMPLIED | -- sealed -- > |
| <!ELEMENT | rf | - o | EMPTY | | -- formatted raster content -- > |
| <!ATTLIST | rf | | %r-p-a; | %r-p-ad; | -- presentation attributes -- |
| | | conarch | NAME | #FIXED rf | -- content architecture class -- |
| | | content | ENTITIES | #REQUIRED | -- content portions -- |
| | | altreps | ENTITIES | #IMPLIED | -- alternative representations -- |
| | | id | ID | #IMPLIED | -- object identifier -- |
| | | objtype | NAME | #FIXED block | -- object type -- |
| | | appcmnt | ENTITY | #IMPLIED | -- application comments -- |
| | %ODApas; | %ODAadim; | %ODAabor; | %ODAtan; | %ODAcot; -- layout attributes -- |
| | %ODAcay; | %ODAobct; | %ODAbcol; | %ODAfcol; | %ODAcnct; -- colour attributes -- |
| | | %ODAict; | | | -- layout stream categories -- |
| | | %ODAisct; | | | -- layout stream sub-categories -- |
| | | enciph | CDATA | #IMPLIED | -- enciphered -- |
| | | sealed | CDATA | #IMPLIED | -- sealed -- > |
| <!ELEMENT | rfp | - o | (tile*) | | -- fp raster content --> |
| <!ATTLIST | rfp | | %r-p-a; | %r-p-ad; | -- presentation attributes -- |
| | | conarch | NAME | #FIXED rfp | -- content architecture class -- |
| | | content | ENTITIES | #CONREF | -- content portions -- |
| | | altreps | ENTITIES | #IMPLIED | -- alternative representations -- |
| | | id | ID | #IMPLIED | -- object identifier -- |
| | | objtype | NAME | #FIXED block | -- object type -- |
| | | appcmnt | ENTITY | #IMPLIED | -- application comments -- |
| | %ODApas; | %ODAadim; | %ODAabor; | %ODAtan; | %ODAcot; -- layout attributes -- |
| | %ODAcay; | %ODAobct; | %ODAbcol; | %ODAfcol; | %ODAcnct; -- colour attributes -- |
| | | %ODAict; | | | -- layout stream categories -- |
| | | %ODAisct; | | | -- layout stream sub-categories -- |
| | | enciph | CDATA | #IMPLIED | -- enciphered -- |
| | | sealed | CDATA | #IMPLIED | -- sealed -- > |
| <!ELEMENT | tile | - o | EMPTY | | -- fp raster content tile -- > |
| <!ATTLIST | tile | content | ENTITIES | #REQUIRED | -- tile content portions -- > |
| <!ENTITY | % ODAely "cf cfp gfp rf rfp" -- layout data element types --> | | | | |
| <!ENTITY | % ODAvly -- default value lists for layout data element types -- | | | | |
| | "dvcp ENTITY #IMPLIED dvcp ENTITY #IMPLIED | | | | |
| | dvgrp ENTITY #IMPLIED dvrf ENTITY #IMPLIED dvrfp ENTITY #IMPLIED"> | | | | |

E.11 SGML document type declaration and document type definition

E.11.1 Generic and specific parts present

For both logical and layout structures, when either or both generic parts, and at least one corresponding specific part, are present, the usual form of SGML document type declaration is used. The document type name is the generic identifier of the element that represents the root object.

If there are objects in the specific part that have no object class attribute, the generic part is said to be "partially present". The ODL object type names of such objects are used as their generic identifiers, and a standard element definition for the object type (see E.11.3) is included in the document type definition.

E.11.2 Generic parts only

When either or both generic parts are present, and no specific parts, a document type declaration in the following form is used:

```
<!DOCTYPE generic [
  <!ELEMENT generic o o (logical?, layout?)>
  <!ELEMENT logical - o CDATA>
  <!ELEMENT layout - o CDATA>
]>
```

E.11.3 Specific parts only

When either or both specific parts are present, and no generic parts, the ODL names for the object types are used as the generic identifiers. One or both of the two following public document type definitions are used, corresponding to the specific parts that are present.

E.11.3.1 Document type definition for specific logical structure

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-->

<!-- Public document type definition. Typical invocation:

<!DOCTYPE dlor PUBLIC "ISO/IEC 8613-5:1994//DTD ODA Logical Structure//EN" [

-->

<!ENTITY % ODAAdlg PUBLIC "ISO/IEC 8613-5:1993//TEXT
 ODA Data Elements: Logical//EN">
 %ODAAdlg;

<!ELEMENT	dlor	o o (clo blo)+	-- document logical root -->
<!ELEMENT	clo	-- (clo blo)+	-- composite logical object -->
<!ELEMENT	blo	-- o (%ODAAdlg;)	-- basic logical object -->
<!ATTLIST	(dlor clo)		
	dvclo	ENTITY #IMPLIED	-- default value list --
	dvblo	ENTITY #IMPLIED	-- default value list --
	id	ID #IMPLIED	-- object identifier --
	protect	NAME unprot	-- protection: PROTECT UNPROT --
	enciph	CDATA #IMPLIED	-- enciphered --
	sealed	CDATA #IMPLIED	-- sealed -->
<!ATTLIST	blo		
	id	ID #IMPLIED	-- object identifier --
	protect	NAME unprot	-- protection: PROTECT UNPROT --
	enciph	CDATA #IMPLIED	-- enciphered --
	sealed	CDATA #IMPLIED	-- sealed -->

E.11.3.2 Document type definition for specific layout structure

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-->

<!-- Public document type definition. Typical invocation:

<!DOCTYPE dlar PUBLIC "ISO/IEC 8613-5:1994//DTD ODA Layout Structure//EN" [

-->

<!ENTITY % ODAAdly PUBLIC "ISO/IEC 8613-5:1993//TEXT
 ODA Data Elements: Layout//EN">
 %ODAAdly;

<!ELEMENT	dlar	o o ((pages page)+ bpage+)	-- document layout root -->
<!ELEMENT	pages	-- (pages page)+	-- page set -->
<!ELEMENT	page	-- o (frame+ (%ODAAdly;)+)	-- page (composite) -->
<!ELEMENT	frame	-- (frame+ (%ODAAdly;)+)	-- frame -->
<!ELEMENT	bpage	-- o (%ODAAdly;)	-- basic page -->
<!ENTITY	% layatt	PUBLIC "ISO/IEC 8613-5:1993//ENTITIES ODA Layout Attributes//EN"> %layatt;	
<!ATTLIST	dlar		
	objtype	NAME #FIXED dlar	-- object type --
	id	ID #IMPLIED	-- object identifier --
	dvpages	ENTITY #IMPLIED	-- default value list --
	dvpag	ENTITY #IMPLIED	-- default value list --
	dvframe	ENTITY #IMPLIED	-- default value list --
	dvblock	ENTITY #IMPLIED	-- default value list --
	dvbpage	ENTITY #IMPLIED	-- default value list --
	%ODAAdvly;		-- data elements: default value lists --
	%ODABal;		-- balance --
	enciph	CDATA #IMPLIED	-- enciphered --
	sealed	CDATA #IMPLIED	-- sealed -->
<!ATTLIST	pages		
	objtype	NAME #FIXED pages	-- object type --
	id	ID #IMPLIED	-- object identifier --
	dvpages	ENTITY #IMPLIED	-- default value list --
	dvpag	ENTITY #IMPLIED	-- default value list --
	dvframe	ENTITY #IMPLIED	-- default value list --

<!ATTLIST	bpage	dvblock	ENTITY	#IMPLIED	-- default value list --
		%ODAdvly;			-- data elements: default value lists --
<!ATTLIST	page	%ODAbal;			-- balance --
		%ODAlct;			-- layout stream categories --
<!ATTLIST	frame	%ODAlsc;			-- layout stream sub-categories --
		enciph	CDATA	#IMPLIED	-- enciphered --
<!ATTLIST	bpage	sealed	CDATA	#IMPLIED	-- sealed -->
		objtype	NAME	#FIXED bpage	-- object type --
<!ATTLIST	page	id	ID	#IMPLIED	-- object identifier --
		%ODAdvly;			-- data elements: default value lists --
<!ATTLIST	frame	%ODAdim;			-- dimensions --
		%ODAlct;			-- layout stream categories --
<!ATTLIST	bpage	%ODAlsc;			-- layout stream sub-categories --
		%ODAttran;			-- transparency --
<!ATTLIST	page	%ODAccl;			-- colour --
		%ODAppos;			-- page position --
<!ATTLIST	frame	%ODAmcd;			-- medium type --
		%ODAbcol;			-- content background colour --
<!ATTLIST	bpage	%ODAfcol;			-- content foreground colour --
		%ODAcnct;			-- content colour table --
<!ATTLIST	page	enciph	CDATA	#IMPLIED	-- enciphered --
		sealed	CDATA	#IMPLIED	-- sealed -->
<!ATTLIST	frame	objtype	NAME	#FIXED page	-- object type --
		id	ID	#IMPLIED	-- object identifier --
<!ATTLIST	bpage	dvframe	ENTITY	#IMPLIED	-- default value list --
		dvblock	ENTITY	#IMPLIED	-- default value list --
<!ATTLIST	page	%ODAdvly;			-- data elements: default value lists --
		%ODAdim;			-- dimensions --
<!ATTLIST	frame	%ODAbal;			-- balance --
		%ODAlct;			-- layout stream categories --
<!ATTLIST	bpage	%ODAlsc;			-- layout stream sub-categories --
		%ODAiord;			-- imaging order --
<!ATTLIST	page	%ODAttran;			-- transparency --
		%ODAccl;			-- colour --
<!ATTLIST	frame	%ODAppos;			-- page position --
		%ODAmcd;			-- medium type --
<!ATTLIST	bpage	%ODAcclay;			-- colour of layout object --
		%ODAcobct;			-- object colour table --
<!ATTLIST	page	enciph	CDATA	#IMPLIED	-- enciphered --
		sealed	CDATA	#IMPLIED	-- sealed -->
<!ATTLIST	frame	objtype	NAME	#FIXED frame	-- object type --
		id	ID	#IMPLIED	-- object identifier --
<!ATTLIST	bpage	dvframe	ENTITY	#IMPLIED	-- default value list --
		dvblock	ENTITY	#IMPLIED	-- default value list --
<!ATTLIST	page	permimp	NAME	y	-- implicit layout category: Y N --
		%ODAdvly;			-- data elements: default value lists --
<!ATTLIST	frame	%ODApas;			-- position --
		%ODAdim;			-- dimensions --
<!ATTLIST	bpage	%ODAbor;			-- border --
		%ODAbal;			-- balance --
<!ATTLIST	page	%ODApas;			-- layout path --
		%ODAsrce;			-- logical source --
<!ATTLIST	frame	%ODApas;			-- permitted category names --
		%ODAlct;			-- layout stream categories --
<!ATTLIST	bpage	%ODAlsc;			-- layout stream sub-categories --
		%ODAiord;			-- imaging order --
<!ATTLIST	page	%ODAttran;			-- transparency --
		%ODAccl;			-- colour --
<!ATTLIST	frame	%ODAcclay;			-- colour of layout object --
		%ODAcobct;			-- object colour table --
<!ATTLIST	bpage	enciph	CDATA	#IMPLIED	-- enciphered --
		sealed	CDATA	#IMPLIED	-- sealed -->

E.11.3.3 Link process definition

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```

-->
<!-- Public link process definition. Typical invocation:
<LINKTYPE ODAlay PUBLIC "ISO/IEC 8613-5:1994//LPD
        ODA Layout Process//EN" [
]>
-->
<!-- Define ODA layout directives as SGML link attributes -->
<ENTITY      %ldir-bc PUBLIC "ISO/IEC 8613-5:1993//TEXT
        Layout Directives: Basic and Composite//EN">
<ATTLIST     clo %ldir-bc; >
<ENTITY      %ldir-b PUBLIC "ISO/IEC 8613-5:1993//TEXT
        Layout Directives: Basic//EN">
<ATTLIST     blo %ldir-b; %ldir-bc; >

<!-- Define logical presentation attributes as SGML link attributes -->
<ENTITY      %c-p-d PUBLIC "ISO/IEC 8613-6:1993//TEXT
        Character Presentation Format Directives//EN">
<ATTLIST     (cfp | cp) %c-p-d; >
<ENTITY      %g-p-d PUBLIC "ISO/IEC 8613-8:1993//TEXT
        Geometric Presentation Format Directives//EN">
<ATTLIST     gfp %g-p-d; >
<ENTITY      %r-p-d PUBLIC "ISO/IEC 8613-7:1993//TEXT
        Raster Presentation Format Directives//EN">
<ATTLIST     rfp %r-p-d; >

<!-- Define ODA default link set -->

<LINK        #INITIAL
        dlcr      dlcr
        gfp       gfp
        rf        rf
        rfp       rfp>

```

E.12 Identification of ODA/ODL documents

The application information parameter ("APPINFO") of the SGML declaration must begin with "ODL" in order to identify the document as one that conforms to the ODA architecture and is represented in ODL.

E.13 Use of SDIF with ODA/ODL documents

SDIF shall be used for OSI interchange of ODA documents that are represented in ODL. SDIF should be used for non-OSI interchange of such documents.

When SDIF is used, the ODA document profile shall be represented by the first document descriptor in the SDIF data stream, which shall be given the SDIF name "DOC PROF".

E.14 Document profile

This clause specifies a standardized SGML representation of the ODA document profile defined in ITU-T Rec. T.414 | ISO/IEC 8613-4.

NOTE – Some of the elements in the ODA profile are redundant when ODL is used. They are included in order to simplify conversion between ODL and ODIF; the redundant elements can be omitted if desired.

E.14.1 Representation of profile values

E.14.1.1 Attribute list

The profile contains a number of lists of attribute names and their default values. The names are ODL names that are defined for the attributes in other Specifications in ISO/IEC 8613. Such lists are designated in the profile document type definition (DTD) by a reference to the parameter entity "m.attl".

NOTE – The purpose of the attribute lists is to establish default values that differ from those stated in ITU-T Rec. T.410 Series | ISO/IEC 8613.

An attribute list can optionally have an associated scope, such as an object type or content architecture class. The content of an attribute list is in the same form as an SGML attribute specification list.

Multiple non-basic values that may apply to one attribute (and thus cannot be described within one attribute specification list) are represented by using multiple **scope/dvlist** pairs with the same scope.

E.14.1.2 Document reference

The element in the ODL profile representation that contains a reference to a document is termed a “document reference” (**docref**). The element containing the string by which the document described by the profile is referenced is called the “document reference identifier” (**docrefid**). The content of both element types can be an SGML formal public identifier, an ASN.1 object identifier, or a character string.

E.14.1.3 ASN.1 object identifier

A value of an attribute, or content of an element, that is identified in ITU-T Rec. T.414 | ISO/IEC 8613-4 as an “object identifier” is an ASN.1 object identifier. Such a value is represented in the clear text notation that is used for such identifiers in ISO standards. For example, the object identifier for the SDIF abstract syntax would be represented as:

[iso standard 9069 abstract-syntax (1)]

E.14.1.4 Escape sequences

A string parameter that is an escape sequence formulated in accordance with ISO 2022 is represented in the form used for the “public text designating sequence” defined in ISO 8879.

NOTE – This is the clear text form commonly used in ISO standards.

E.14.2 Public text

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-->

<!-- Public document type definition. Typical invocation:

<!DOCTYPE profile PUBLIC "ISO/IEC 8613-4:1994/DTD ODA Profile//EN" [
>

-->

<!ENTITY % m.attl "(scope?, dvlist)+ " -- model: attribute list -->

<!ENTITY % m.date "(date, time?)" -- model: date and time -->

<!ELEMENT profile -- ((constit?, docchar, docmanag?, docsecat?) | sealedpr)>

<!-- Document Constituents -->

<!ELEMENT constit -- presence of document constituents --
-- o (extdoc?, resdoc?, resource*) >

<!ATTLIST constit present -- structural and style constituents present --
NAMES #IMPLIED

-- one to ten keywords, where each generic must
be partial or normal, but not both:
(GENLAY | PGENLAY | FGENLAY)? & (GENLOG | PGENLOG | FGENLOG)? &
SPECLAY? & SPECLOG? & PRESSTYL? & LAYSTYL? &
SEALPROF? & ENCPROF? & PRENCDP? & POENCDP? -->

<!ELEMENT extdoc -- external document class --
-- o (#PCDATA)>

<!ELEMENT resdoc -- resource document --
-- o (docref)>

<!ELEMENT resource -- external identifier of resource --
-- (format determined by document application profile) --
-- o (#PCDATA)>

<!ATTLIST resource key -- resource identifier: character string --
CDATA #REQUIRED >

<!-- Document Characteristics -->

<!ELEMENT docchar -- document characteristics --
-- o (approf?, appdefs?, ODAver, altfeat?, nonbasic?, fontlist?,
colchar?, colspacs?) >

<!ATTLIST docchar objects -- number of objects per page --
NUMBER #IMPLIED
BMUscale -- unit scaling --
NUMBERS "1 1"