Stable Implementation Agreements for Open Systems Interconnection Protocols: Part 23 - ODA Raster DAP

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Foreword

This part of the Stable Implementation Agreements was prepared by the Office Document Architecture (ODA) Special Interest Group (SIG) of the Open Systems Environment Implementors' Workshop (OIW). Development of this document application profile has been done in liaison with several organizations. These include the DoD Computer-aided Acquisition and Logistic Support (CALS) Office, Navy's David Taylor Research Center, and the ad-hoc Tiling Task Group.

This document application profile is intended to be suitable for the interchange of large format raster images.

This part contains four annexes:

a) annex A (normative): Amendments and corrigenda;

b) annex B (informative): Recommended practices;

c) annex C (informative): References to other standards and registers;

d) annex D (informative): Supplementary information on attributes.

Future changes and additions to this version of these Implementor Agreements will be published as a new part. Deleted and replaced text will be shown as struckout. New and replacement text will be shown as shaded.

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

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0 Introduction

This is the definition of a specification for an Open Document Architecture (ODA) Document Application Profile (DAP) named ODA Raster DAP. This DAP is suitable for interchanging documents in formatted form. The documents contain only raster graphics images.

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

This DAP has been prepared by the ODA Special Interest Group (SIG) of the Open Systems Environment Implementors' Workshop (OIW). The DAP is defined in accordance with ISO 8613-1 and follows the standardized proforma and notation defined in ISO 8613-1 Annex F. The DAP is based on ODA as defined in ISO 8613 and the Tiled Raster Graphics Addendum to ISO 8613, Part 7.

1 Scope and field of applications

This DAP specifies an interchange format suitable for transfer of structured documents between equipment designed for raster processing. The documents supported by this DAP are based on a paradigm of an electronic engineering drawing or illustration. Such documents contain one or more pages. Each page consists of an image in the form of a bi-tonal raster graphics content. There is no restriction on the minimum size of the image.

This document defines a DAP that allows large format raster documents to be interchanged in a formatted form in accordance with ISO 8613.

It is assumed that, when negotiation is performed by the service using this DAP, all non-basic values are subject to negotiation.

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

The features of a document that can be interchanged using this DAP fall into the following categories:

a) Page format features - these concern how the layout of each page of a document will appear when reproduced;

b) Raster graphics layout and imaging features - these concern how the document content will appear within pages of the reproduced document;

c) Raster graphics coding - these concern the raster graphics representations and control functions that make up the document raster graphics content.

2 Normative references

The following references are required in order to implement this DAP:

2.1 ISO

[**1**] ISO 8613-1 : 1989, *Information processing - Text and Office Systems; Open Document Architecture (ODA) and Interchange Format - Part 1: Introduction and General Principles*;

[**2**] ISO 8613-2 : 1989, *Information processing - Text and Office Systems; Open Document Architecture (ODA) and Interchange Format - Part 2: Document Structures*;

[**3**] ISO 8613-4 : 1989, *Information processing - Text and Office Systems; Open Document Architecture (ODA) and Interchange Format - Part 4: Document Profile*;

[**4**] ISO 8613-5 : 1989, *Information processing - Text and Office Systems; Open Document Architecture (ODA) and Interchange Format - Part 5: Open Document Interchange Format*;

[**5**] ISO 8613-7 : 1989, *Information processing - Text and Office Systems; Open Document Architecture (ODA) and Interchange Format - Part 7: Raster Graphics Content Architectures*;

[**6**] ISO 8613-1 : 1991, *Information processing - Text and Office Systems; Open Document Architecture (ODA) and Interchange Format - Part 1:Annex F - A Document Application Profile Proforma and Notation*;

[**7**] ISO 8613-7 : (~~to be published~~see CCITT/TSS T.417), *Information processing - Text and Office Systems; Office Document Architecture (ODA) and Interchange Format - Part 7: Amendment - Tiled Raster Graphics Addendum to ISO 8613, Part 7*;

[**8**] ISO 8613-7 : (~~to be published~~see CCITT/TSS T.417), *Information processing - Text and Office Systems; Office Document Architecture (ODA) and Interchange Format - Part 7: Amendment - Additional Bit Order Mapping Addendum*;

[**9**] ISO 8824 : 1987, *Information Processing Systems - Open Systems Interconnection - Specification of Abstract Syntax Notation One (ASN.1)*;

[**10**] ISO 8825 : 1987, *Information Processing Systems - Open Systems Interconnection - Specification of Basic Encoding Rules for Abstract Syntax Notation One (ASN.1)*;

[**11**] ISO 8879 : 1986, *Information processing - Text and office systems - Standard Generalized Markup Language (SGML)*;

[**12**] ISO 8879 : 1986, *Information processing - Text and office systems - Standard Generalized Markup Language (SGML), Amendment 1*;

[**13**] ISO 9069 : 1988, *Information processing - SGML support facilities - SGML Document Interchange Format (SDIF)*.

2.2 CCITT-->ITU

[**14**] Recommendation T.4 : 1988, *Standardization of Group 3 Facsimile Apparatus for Document Transmission*.

[**15**] Recommendation T.6 : 1988, *Facsimile Coding Schemes and Coding Control Functions for Group 4 Facsimile Apparatus*.

[**16**] TSS Recommendation T.417 : 1992, *Information Technology - Open Document Architecture (ODA) and Interchange Formats - Raster Graphics Content Architectures*.

3 Definitions and terminology

3.1 Definitions

The definitions given in ISO 8613-1 are applicable to this document.

3.2 Constituent names

Each constituent that may be included in a document that conforms to this profile has been given a unique name which serves to identify that constituent throughout this profile.

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

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

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

Although the constituent names relate to the purpose of the constituents, the semantics of constituents must not be implied from the actual names that are used. Also, these names do not appear in an interchanged document but a mechanism for identifying constituents in an interchange document is provided. Thus in an application using this profile, the constituents may be known to the user by different names.

4 Relationship to other DAPs

Functionally, this DAP is a functional superset of the CCITT Recommendation T.503, A Document Application Profile for the Interchange of Group 4 Facsimile Documents. This DAP is a functional subset of Part 22 - ODA Image DAP.

5 Conformance

In order to conform to this DAP, a data stream representing a document must meet the requirements specified in 5.1.

The requirements for implementations that originate and/or receive data streams conforming to this DAP are specified in 5.2.

5.1 Data stream conformance

The following requirements apply to the encoding of data streams that conform to these agreements:

a) The data stream shall be encoded in accordance with the ASN.1 encoding rules defined in ISO 8825 or the SGML grammar and syntax of ISO 8879;

b) The data stream shall be structured in accordance with the interchange format defined in clause 8;

c) The document shall be structured in accordance with only the formatted document architecture class specified in clause 7. In addition, the document shall contain all mandatory constituents specified for that class and may optionally contain constituents permitted for that class as specified in clause 7;

d) Each constituent shall contain all those attributes specified as required for that constituent in this profile. Other attributes may be specified provided they are permitted for that constituent;

e) The attributes shall have values within the range of permissible values specified in this profile;

f) The encoded document shall be structured in accordance with the abstract document architecture defined in ISO 8613-2;

g) The encoded document shall be structured in accordance with the characteristics defined in clause 6 and shall contain only those features defined in clause 6.

5.2 Implementation conformance

This clause states the requirements for implementations claiming conformance to this DAP.

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

6 Characteristics supported by this DAP

This clause describes the characteristics of documents that can be represented by data streams conforming to this profile. This clause also describes how these characteristics are represented in terms of divisional components of the data streams.

6.1 Overview

This DAP describes the features of ISO 8613 that are needed to support the interchange of documents containing only raster graphics content. It specifies interchange formats for the transfer of structured documents with simple layout structures.

This DAP describes documents that can be interchanged in the formatted form, which facilitates the reproduction of a document as intended by the originator.

Only one category of content is allowed within the document, that is, a raster graphics content in the formatted processable form. This is intended to facilitate the reproduction of the document content as intended by the originator.

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

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

Constituents defined as **required** must occur in any document that conforms to this profile. Constituents listed as **optional** may or may not be present in the document, depending on the requirements of the particular document.

The required constituents include:

a) a document profile;

b) layout object descriptions representing a specific layout structure;

c) content portion description.

The only optional constituent is the presentation style.

Document Profile
Presentation Style (Optional)
Specific Layout Structure
Content Portion Description

Figure 1 - Constituents

6.2 Logical constituents

Not applicable.

6.3 Layout constituents

This clause describes the features of the layout objects that can be represented in documents conforming to this DAP.

6.3.1 Overview of the layout characteristics

The document structure allows the document content to be laid out and presented in one or more pages. Each page in a document consists of only a single raster graphics content representing an engineering drawing, illustration, or other raster scanned image.

A specific layout structure of the document conforming to this application profile consists of a four-level hierarchy consisting of a document layout root, composite pages, frames, and blocks. The document can consist of multiple composite pages where each page represents a single image. Each composite page consists of a frame which in turn contains a block containing the content associated with the image.

Figure 2 is an illustration of the features of the document layout structure supported by this DAP.

6.3.2 DocumentLayoutRoot

A DocumentLayoutRoot is the top level in a document layout structure. A DocumentLayoutRoot consists of a sequence of one or more CompositePage constituent constraints.

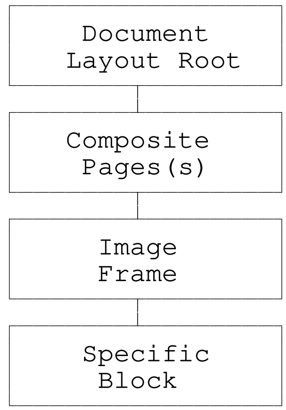

Figure 2 - Document layout structure

6.3.3 Page characteristics

Only one constituent constraint is provided to present pages within a document.

A document consists of a sequence of one or more composite pages. In a document's composite page, a frame is used to position a single raster graphics content representing the image on the page.

A document may consist of multiple pages of different sizes. Each page may be either landscape or portrait orientation. Both orientations are permitted in the document.

6.3.3.1 CompositePage

A CompositePage is a constituent constraint which defines a composite page that corresponds to the page area used for presenting the sequence of an ImageFrame frame.

6.3.3.2 Page dimensions

A wide variety of page dimensions are supported including large format raster documents. The dimensions of the pages may be specified as any value, in BMU measurement units, including the larger sizes produced from foldout-size images and roll paper. These sizes apply to both portrait and landscape orientations. The page sizes include: ISO A0-A5, ANSI A-K, Japanese legal and letter, foldouts 27.94 cm (11 in.) X 35.56 cm (14 in.) and 27.94 cm (11 in.) X 43.18 cm (17 in.), and 27.94 cm (11 in.) roll paper. See table 1.

Dimensions equivalent to or less than the common assured reproduction area (CARA) of ISO A4 and North American Letter (NAL) in portrait or landscape orientation are basic values. Larger page sizes including those produced from roll paper are non-basic and their use must be indicated in the document profile (See table 2).

The default dimensions are the CARA of North American Letter (A). Any default page dimensions may be specified in the document profile subject to the maximum dimensions defined above by using the "page dimensions" attribute. The "page position" attribute may be used to specify the position of the pel array image on the page. Although actual page dimensions may be used allowing for the raster content to completely fill a page leaving no borders, it is advised that the assured reproduction area (ARA) listed in table 1 be used wherever feasible. See 7.3 of ISO 8613-2 for general rules for positioning pages on presentation surfaces.

6.3.3.3 Nominal page sizes

The nominal page sizes that may be specified are listed in table 1. In addition, 11 inch roll paper of any length is supported. These may be specified in portrait or landscape orientations. All values of nominal page size are non-basic and hence all values used in a document must be indicated in the document profile using the "medium type" attribute (See table 2).

Any of the nominal page sizes defined in table 1, subject to the restriction specified above, may be specified as the default value in the document profile.

Table 1 also includes the recommended ARA. Information loss may occur when a document is reproduced if the dimensions of the CompositePage exceed the ARA for the specified nominal page size.

6.3.4 ImageFrame

An ImageFrame is a constituent constraint which defines a lowest level frame used for laying out the image of an engineering drawing, illustration, or other raster scanned image. This frame contains a single SpecificBlock containing a raster graphics content portion. Note that there must be exactly one ImageFrame on each page and one block in the frame.

The frame has a fixed position that is equal to the origin of the page. The vertical and horizontal dimensions of this frame are fixed and equal to the maximum size that can be achieved for the position within the area of the page.

6.3.5 SpecificBlock

A SpecificBlock is a constituent constraint which defines a basic layout object used to position and image the content portions associated with an ImageFrame.

The position of the block is fixed and defaults to the origin of the superior frame. The dimensions default to the maximum size that can be achieved for the position within the area of the superior frame.

Table 1 - Dimensions for various page sizes

Page type	Size	Size (BMU)	ARA (BMU)
- Metric			
ISO-A5	148mm x 210mm	7015 x 9920	not defined
ISO-A4	210mm x 297mm	9920 x 14030	9240 x 13200
ISO-A3	297mm x 420mm	14030 x 19840	13200 x 18480
ISO-A2	420mm x 594mm	19840 x 28060	18898 x 27118
ISO-A1	594mm x 841mm	28060 x 39680	26173 x 37843
ISO-A0	841mm x 1189mm	39680 x 56120	37843 x 54283
- ANSI, North American (NA)			
NA-A	8.5in x 11in	10200 x 13200	9240 x 12400
NA-B	11in x 17in	13200 x 20400	12744 x 19656
NA-C	17in x 22in	20400 x 26400	19500 x 25800
NA-D	22in x 34in	26400 x 40800	25800 x 39600
NA-E	34in x 44in	40800 x 52800	39600 x 52200
NA-F	28in x 40in	33600 x 48000	32400 x 47400
NA-G	11in x 90in	13200 x 108000	12400 x 106800
NA-H	28in x 143in	33600 x 171600	31400 x 170400
NA-J	34in x 176in	40800 x 211200	39600 x 210000
NA-K	40in x 143in	48000 x 171600	47400 x 170400
NA-Legal	8.5in x 14in	10200 x 16800	9240 x 15480
- Foldouts			
Small	11in x 14in	13200 x 16800	12744 x 15480
NA-B	11in x 17in	13200 x 20400	12744 x 19656
- Japan			
Legal	257mm x 364mm	12141 x 17196	11200 x 15300
Letter	182mm x 257mm	8598 x 12141	7600 x 10200

Tutorial Note - These page sizes are for the portrait orientation.

Table 2 - Layout attributes

Attributes	Basic values	Default values	Non-basic values
Page dimensions **	CARA NA A, ISO A4	CARA NA-A	ARA NA B-K, ISO A0-A3,Japan legal, 11" Roll Paper
Medium-type ** (Nominal page size)	None	None	NA A-K, ISO A0-A5, Japan letter & legal, 11" Roll Paper

Tutorial Note - See table 1 **

6.4 Document layout characteristics

This DAP provides only for formatted documents. Hence, no provision is made for constraining the document layout process other than as implied in the formatted documents supported by this DAP. In particular, these formatted documents are characterized by the following:

a) Documents containing only composite pages;

b) Documents may contain one or more pages;

c) Pages may vary by orientation within a document;

d) Each page contains a single raster graphics content portion representing the image;

e) Content is positioned within fixed position and dimension frames.

6.5 Content layout and imaging control

A document is modelled as an image represented by a raster graphics content portion, as specified in ISO 8613-7.

The only content architecture that may be specified using the attribute "content architecture class" is formatted processable raster graphics. The formatted processable raster graphics content must be specified as the default in the document profile.

6.5.1 Raster graphics content

6.5.1.1 Introduction

This clause defines the features that are applicable to the raster graphics content.

The default values for the following features may be specified in the document profile:

a) type of coding (required);

b) compression;

c) pel path;

d) line progression;

e) pel spacing;

f) spacing ratio.

The specification in a document of a non-basic value by a presentation or coding attribute must be indicated in the document profile.

6.5.1.2 Raster graphics content architecture

The formatted processable raster graphics content is the only content architecture class supported by this DAP and is the only default content architecture class that can be specified in the document profile.

In a composite page, only one content portion can be associated with the image.

6.5.1.3 Raster graphics encoding methods

The content may be encoded in accordance with the encoding schemes defined in CCITT Recommendations T.4 and T.6. In the case of T.4, either the one-dimensional or two-dimensional encoding scheme may be used. Also the bitmap encoding scheme defined in ISO 8613-7 may be used. All these forms of encoding may be used in a single document and all are basic values. ‘Uncompressed’ mode of encoding may also be used but only as a non-basic value.

In a content portion, it is required that the coding attribute "number of pels per line" be specified. The coding attribute "number of lines" may also be specified. No restriction is placed on the values that may be specified for these coding attributes. This profile places no constraints on the size of the pel arrays that may be used.

The type of coding method used is specified by the attribute "type of coding". The use of this attribute is mandatory in the "document architecture defaults" of the document profile to define the default value of either ‘T.6 encoding’ (untiled), ‘T.6 encoding - MSB’ (untiled), or ‘tiled encoding’. The use of this attribute in the description of the content portions is non-mandatory. If this attribute is not specified for a particular content portion, then the default value specified in the "document architecture defaults" of the document profile is used.

If the tiled encoding method is used, the default value of 512 for the "number of pels per tile line" and "number of lines per tile" must be used. No other values are supported, therefore these two attributes do not need to be specified. If the "tile types" attribute is not present, then all tiles will be T.6 encoded. If it is present, then there must be a value specified for each tile in which case only ‘null background’, ‘null foreground’, ‘T.6 encoded’, ‘T.6 encoded - MSB’, or ‘bitmap encoded’ values are supported. The T.4 encodings are not supported. There are no restrictions on the use of the "tiling offset" attribute other than that specified in ISO 8613-7 Addendum.

See table D.1, Annex D, for a tabulated list of the attributes and their basic, default, and non-basic values.

6.5.1.4 Raster presentation

Raster presentation is controlled by the presentation attributes specified in ISO 8613-7. This DAP provides for additional constraints on these presentation attributes as specified below.

The basic values for the attribute "pel path" supported by this profile are 0 and 90 degrees. The "pel path" values of 180 and 270 degrees are non-basic.

The basic values for the attribute "line progression" supported by this profile is 270 degrees. The "line progression" value of 90 degrees is non-basic.

Any value may be explicitly specified for pel spacing provided that the spacing between pels is not less than 1 BMU. The pel spacing need not be an integer value. The value of ‘null’ may not be specified because the scalable layout process is not supported. The specification of the spacings of 16, 12, 8, 6, 5, 4, 3, 2, and 1 BMU between adjacent pels are basic. The specification of any other spacing is non-basic and must be specified in the document profile.

NOTES

1 The basic pel spacing values listed above are equivalent to resolutions of 75, 100, 150, 200, 240, 300, 400, 600, and 1200 pels per 25.4mm respectively when the BMU is interpreted as 1/1200 inch.

2 The attribute "pel spacing" specifies two integers, the ratio of which determines the pel spacing. No restriction is placed on the values of these integers.

There are no restrictions on the use of the "clipping" attribute. The "image dimensions" attribute is not supported.

There are no restrictions placed on the value of the "spacing ratio" attribute providing that the resultant line spacing is not less than 1 BMU. Also, the line spacing need not be an integral number of BMUs. All values are basic.

See table D.2, Annex D, for a tabulated list of the attributes and their basic, default, and non-basic values.

6.6 Miscellaneous features

Specification and use of the attribute "application comments" is optional.

This attribute is structured so that it contains two fields. The first field is mandatory when the attribute is specified and contains a numeric string which uniquely identifies the constituent constraint applicable to the constituent for which the attribute is specified. This structure is compatible with other International Standard Profiles and facilitates the processing of documents. The identifiers are as follows:

a) DocumentLayoutRoot 0;
b) CompositePage 2;
c) ImageFrame 28;
d) SpecificBlock 30.

The second field, "external-data", is optional. It is used to contain any type of data outside the scope of ODA, i.e., tile offsets. When used in a SpecificBlock in conjunction with the "type of coding" of ‘tiled encoding’, it contains a sequence of positive integers, one for each tile in the content portion. The sequence of integers ~~is a set of indices representing~~ contains the octet offsets to the beginning of the respective tiles.~~, starting from t~~The beginning of the "content information" is an offset of zero (0). A~~ tile index~~n octet offset of zero(0) indicates that the respective tile is null. The integers will be sequenced in the same order as the tiles. The tiles will be sequenced primarily in the pel path and secondarily in the line progression direction as defined by the presentation attributes.

6.7 Document management features

Every document interchanged in accordance with this DAP must include a document profile containing information which relates to the document as a whole.

The features specified by the document profile are listed below. A definition of the information contained in these features is given in the corresponding attribute definitions in ISO 8613-4.

Document constituent information:

a) specific layout structure;

b) presentation styles (optional).

Document characteristics:

a) document application profile;

b) document application profile defaults;

c) document architecture class;

d) content architecture class;

e) interchange format class;

f) ODA version date;

g) raster graphics content defaults.

Non-basic document characteristics:

a) page dimensions;

b) medium type;

c) raster graphics presentation features.

Document management attributes:

a) document description (only document reference supported).

The attributes applicable to the document profile are defined in table D.3, Annex D.

7 Specification of constituent constraints

7.1 Document profile constraints

7.1.1 Macro definitions

```
-- General macros --
DEFINE(FDA, "{'formatted'}")

DEFINE(DAC, "DocumentProfile (Document-architecture-class)")

DEFINE(FPR,"ASN.1{2 8 2 7 2}")  -- Raster formatted processable --

-- Basic page dimensions. --
DEFINE(BasicPageDimension,"
REQ #horizontal-dimension {REQ #fixed-dimension { 1..9240 }},
REQ #vertical-dimension {REQ #fixed-dimension { 1..12400 }}
| REQ #horizontal-dimension {REQ #fixed-dimension { 1..12400 }},
REQ #vertical-dimension {REQ #fixed-dimension { 1..9240 }}
")
-- Any size equal to or smaller than CARA (Common Assured Reproduction Area) of ISO A4 and NA A.
Both Portrait and Landscape may be specified. --

-- Non-basic page dimensions. --
DEFINE(NonBasicPageDimensions,"
    {REQ #horizontal-dimension {REQ #fixed-dimension {1..39680}},
    REQ #vertical-dimension {REQ #fixed-dimension {12401..56120}}}
    | {REQ #horizontal-dimension {REQ #fixed-dimension {9241..39680}},
```

```
    REQ #vertical-dimension {REQ #fixed-dimension {1..56120}}}
                          -- up to ISO A0 portrait  --
    | {REQ #horizontal-dimension {REQ #fixed-dimension {1..56120}},
    REQ #vertical-dimension {REQ #fixed-dimension {9241..39680}}}
    | {REQ #horizontal-dimension {REQ #fixed-dimension {12401..56120}},
    REQ #vertical-dimension {REQ #fixed-dimension {1..39680}}}
                          --  up to ISO A0 landscape  --
    | {REQ #horizontal-dimension {REQ #fixed-dimension {1..48000}},
    REQ #vertical-dimension {REQ #fixed-dimension {12401..211200}}}
    | {REQ #horizontal-dimension {REQ #fixed-dimension {9241..48000}},
    REQ #vertical-dimension {REQ #fixed-dimension {1..211200}}}
                          -- up to ANSI J/K portrait  --
    | {REQ #horizontal-dimension {REQ #fixed-dimension {1..211200}},
    REQ #vertical-dimension {REQ #fixed-dimension {9241..48000}}}
    | {REQ #horizontal-dimension {REQ #fixed-dimension {12401..211200}},
    REQ #vertical-dimension {REQ #fixed-dimension {1..48000}}}
                          --  up to ANSI J/K landscape  --
    | {REQ #horizontal-dimension {REQ #fixed-dimension {1..12141}},
    REQ #vertical-dimension {REQ #fixed-dimension {12401..17196}}}
    | {REQ #horizontal-dimension {REQ #fixed-dimension {9241..12141}},
    REQ #vertical-dimension {REQ #fixed-dimension {1..17196}}}
                          -- up to Japanese legal portrait  --
    | {REQ #horizontal-dimension {REQ #fixed-dimension {1..17196}},
    REQ #vertical-dimension {REQ #fixed-dimension {9241..12141}}}
    | {REQ #horizontal-dimension {REQ #fixed-dimension {12401..17196}},
    REQ #vertical-dimension {REQ #fixed-dimension {1..12141}}}
                          --  up to Japanese legal landscape  --
    | {REQ #horizontal-dimension {REQ #fixed-dimension {13200}},
    REQ #vertical-dimension {REQ #fixed-dimension {>= 16801}}}
      --  Any portrait size larger than the typical foldout size (11 in x 14 in) including 11 inch roll paper.  --
    | {REQ #horizontal-dimension {REQ #fixed-dimension {>= 16801}},
    REQ #vertical-dimension {REQ #fixed-dimension {13200}}}
     --  Any landscape size larger than the typical foldout size (14 in x 11 in) including 11 inch roll paper
--
    ")

DEFINE(PermissiblePageDimensions,"
    {REQ #horizontal-dimension {REQ #fixed-dimension {1..39680}},
    REQ #vertical-dimension {REQ #fixed-dimension {1..56120}}}
                          -- up to ISO A0 portrait  --
    | {REQ #horizontal-dimension {REQ #fixed-dimension {1..56120}},
    REQ #vertical-dimension {REQ #fixed-dimension {1..39680}}}
                          --  up to ISO A0 landscape  --
    | {REQ #horizontal-dimension {REQ #fixed-dimension {1..48000}},
    REQ #vertical-dimension {REQ #fixed-dimension {1..211200}}}
                          -- up to ANSI J/K portrait  --
    | {REQ #horizontal-dimension {REQ #fixed-dimension {1..211200}},
    REQ #vertical-dimension {REQ #fixed-dimension {1..48000}}}
                          --  up to ANSI J/K landscape  --
```

```
    | {REQ #horizontal-dimension {REQ #fixed-dimension {1..12141}},
    REQ #vertical-dimension {REQ #fixed-dimension {1..17196}}}
                        -- up to Japanese legal portrait  --
    | {REQ #horizontal-dimension {REQ #fixed-dimension {1..17196}},
    REQ #vertical-dimension {REQ #fixed-dimension {1..12141}}}
                        --  up to Japanese legal landscape  --
    ")

DEFINE(NominalPageSizes,"

-- ISO Page Sizes --
    REQ #horizontal-dimension {7015},  REQ #vertical-dimension {9920}
                        --  ISO A5 Portrait --
    | REQ #horizontal-dimension {9920},  REQ #vertical-dimension {7015}
                        --  ISO A5 Landscape --
    | REQ #horizontal-dimension {9920},  REQ #vertical-dimension {14030}
                        --  ISO A4 Portrait --
    | REQ #horizontal-dimension {14030},  REQ #vertical-dimension {9920}
                        --  ISO A4 Landscape --
    | REQ #horizontal-dimension {14030},  REQ #vertical-dimension {19840}
                        --  ISO A3 Portrait --
    | REQ #horizontal-dimension {19840},  REQ #vertical-dimension {14030}
                        --  ISO A3 Landscape --
    | REQ #horizontal-dimension {19840},  REQ #vertical-dimension {28060}
                        --  ISO A2 Portrait --
    | REQ #horizontal-dimension {28060},  REQ #vertical-dimension {19840}
                        --  ISO A2 Landscape --
    | REQ #horizontal-dimension {28060},  REQ #vertical-dimension {39680}
                        --  ISO A1 Portrait --
    | REQ #horizontal-dimension {39680},  REQ #vertical-dimension {28060}
                        --  ISO A1 Landscape --
    | REQ #horizontal-dimension {39680},  REQ #vertical-dimension {56120}
                        --  ISO A0 Portrait --
    | REQ #horizontal-dimension {56120},  REQ #vertical-dimension {39680}
                        --  ISO A0 Landscape --

-- ANSI Page Sizes --

    | REQ #horizontal-dimension {10200},  REQ #vertical-dimension {13200}
                        --  ANSI A Portrait --
    | REQ #horizontal-dimension {13200},  REQ #vertical-dimension {10200}
                        --  ANSI A Landscape --
    | REQ #horizontal-dimension {10200},  REQ #vertical-dimension {16800}
                        --  ANSI Legal Portrait --
    | REQ #horizontal-dimension {16800},  REQ #vertical-dimension {10200}
                        --  ANSI Legal Landscape --
    | REQ #horizontal-dimension {13200},  REQ #vertical-dimension {20400}
                        --  ANSI B Portrait --
    | REQ #horizontal-dimension {20400},  REQ #vertical-dimension {13200}
```

```
                              --  ANSI B Landscape --
     | REQ #horizontal-dimension {20400},  REQ #vertical-dimension {26400}
                              --  ANSI C Portrait --
     | REQ #horizontal-dimension {26400},  REQ #vertical-dimension {20400}
                              --  ANSI C Landscape --
     | REQ #horizontal-dimension {26400},  REQ #vertical-dimension {40800}
                              --  ANSI D Portrait --
     | REQ #horizontal-dimension {40800},  REQ #vertical-dimension {26400}
                              --  ANSI D Landscape --
     | REQ #horizontal-dimension {40800},  REQ #vertical-dimension {52800}
                              --  ANSI E Portrait --
     | REQ #horizontal-dimension {52800},  REQ #vertical-dimension {40800}
                              --  ANSI E Landscape --
     | REQ #horizontal-dimension {33600},  REQ #vertical-dimension {48000}
                              --  ANSI F Portrait --
     | REQ #horizontal-dimension {48000},  REQ #vertical-dimension {33600}
                              --  ANSI F Landscape --
     | REQ #horizontal-dimension {13200},  REQ #vertical-dimension {108000}
                              --  ANSI G Portrait --
     | REQ #horizontal-dimension {108000},  REQ #vertical-dimension {13200}
                              --  ANSI G Landscape --
     | REQ #horizontal-dimension {33600},  REQ #vertical-dimension {171600}
                              --  ANSI H Portrait --
     | REQ #horizontal-dimension {171600},  REQ #vertical-dimension {33600}
                              --  ANSI H Landscape --
     | REQ #horizontal-dimension {40800},  REQ #vertical-dimension {211200}
                              --  ANSI J Portrait --
     | REQ #horizontal-dimension {211200},  REQ #vertical-dimension {40800}
                              --  ANSI J Landscape --
     | REQ #horizontal-dimension {48000},  REQ #vertical-dimension {171600}
                              --  ANSI K Portrait --
     | REQ #horizontal-dimension {171600},  REQ #vertical-dimension {48000}
                              --  ANSI K Landscape --

-- Foldouts --

    | REQ #horizontal-dimension {13200},  REQ #vertical-dimension {16800}
                              --  Foldout Portrait --
    | REQ #horizontal-dimension {16800},  REQ #vertical-dimension {13200}
                              --  Foldout Landscape --
     | REQ #horizontal-dimension {13200},  REQ #vertical-dimension {>= 16801}
     --  Any portrait size larger than the typical foldout size (11 in x 14 in) including 11 inch roll paper --
     | REQ #horizontal-dimension {>= 16801},  REQ #vertical-dimension {13200}
     --  Any landscape size larger than the typical foldout size (14 in x 11 in) including 11 inch roll paper --
")
```

7.1.2 Constituent constraints

7.1.2.1 DocumentProfile

```
{

-- Presence of document constituents --

        REQ     Specific-layout-structure          {'present'},
        PERM    Presentation-styles                {'present'},

-- Document characteristics --

        REQ     Document-application-profile       {-- See clause 8 for a definition of the permitted values for
                                                   this attribute. --},

        REQ     Document-application-profile-defaults     {

        -- Document architecture defaults --

                REQ   #content-architecture-class      {$FPR},
                PERM  #dimensions                      {$PermissiblePageDimensions},
                PERM  #medium-type                     {
                        PERM  #nominal-page-size       {$NominalPageSizes},
                        PERM  #side-of-sheet           {ANY_VALUE}},

                        -- Any permitted medium type. Both landscape and portrait may be specified. --

                REQ   #type-of-coding                  {ASN.1 {2 8 3 7 0} -- T6 encoding --
                                                       | ASN.1 {2 8 3 7 5} -- tiled encoding --
                                                       | ASN.1 (2 8 3 7 6}  -- T6 encoding - MSB -- },
                PERM  #page-position                   {ANY_VALUE},
                PERM  raster-graphics-contents-defaults      {
                        PERM  #pel-path                {ANY_VALUE},
                        PERM  #line-progression        {ANY_VALUE},
                        PERM  #pel-spacing             {REQ #length {ANY_VALUE},
                                                       REQ #pel-spaces {ANY_VALUE}},
                        PERM  #spacing-ratio
                              {REQ  #line-spacing-value      {ANY_VALUE},
                               REQ  #pel-spacing-value       {ANY_VALUE}},
                        PERM  #compression             {ANY_VALUE}},

        REQ     Document-architecture-class            {$FDA},
        REQ     Content-architecture-classes           {$FPR},
        REQ     Interchange-format-class               {-- This attribute required only for ODIF
                                                       interchange.  See clause 8 for a definition of the
                                                       permitted value for this attribute. --},
        REQ     ODA-version
```

```
        {REQ #standard-or-recommendation {'ISO 8613
                CCITT Rec. T.410 series (1992) | ISO/IEC 8613:1993;  version 2.00'},
        REQ #publication-date  {'1991-12-311992-05-01'}},
                -- This date represents the date that this DAP was approved.  This is the only
                -- approved value, however, the date will be changed if the DAP is significantly
                -- revised.  If the date is revised, use of the new date is required only when the
                -- additional functionality is being used.  That is, legacy products may continue to
                -- support the earlier DAP.

    -- Non-basic document characteristics --

        PERM Page-dimensions                    {MUL {$NonBasicPageDimensions}},
        PERM Medium-types                       {MUL{
                PERM   #nominal-page-size       {$NominalPageSizes},
                PERM   #side-of-sheet           {ANY_VALUE}}},
                -- All values of "medium type" are non-basic --
        PERM Coding-attributes                  {
                REQ #raster-graphics-coding-attributes {
                        REQ #compression        {'uncompressed'}}},

        PERM Presentation-features              {
                PERM   #Raster-graphics-presentation-features  { MUL {
                        | PERM          #pel-path               {'180-degrees' |
                                                                '270-degrees'}
                        | PERM          #line-progression       {'90-degrees'}
                        | PERM          #pel-spacing            {REQ #length {ANY_VALUE}
                                                                EXCEPT {16,12,8,6,5,4,3,2,1},
                                                                REQ #pel-spaces {ANY_VALUE}
                                                                EXCEPT
                                                                 {1}}
                        | PERM          #spacing-ratio
                                        {REQ #line-spacing-value        {ANY_VALUE} EXCEPT
                                                                        {1},
                                         REQ #pel-spacing-value         {ANY_VALUE} EXCEPT
                                                                        {1}}}}},


-- Document management attributes --

    -- Document description --
    REQ  Document-reference                     {ANY_VALUE}

}
```

7.2 Logical constituent constraints

No logical constituents applicable in this clause.

7.3 Layout constituent constraints

7.3.1 Macro definitions

DEFINE(RAST," CONTENT_ID_OF(Raster-graphics-content-portion)")

7.3.2 Factor constraints

FACTOR ANY-LAYOUT {

SPECIFIC:
PERM Object-type {VIRTUAL},
REQ Object-identifier {ANY_VALUE},
PERM Subordinates {VIRTUAL},
PERM User-visible-name {ANY_VALUE},
PERM User-readable-comments {ANY_VALUE}
}

7.3.3 Constituent constraints

7.3.3.1 DocumentLayoutRoot

DocumentLayoutRoot: ANY-LAYOUT {

SPECIFIC:
REQ Object-type { 'document-layout-root'},
REQ Subordinates {SUB_ID_OF(CompositePage)+}
}

7.3.3.2 CompositePage

CompositePage: ANY-LAYOUT {

SPECIFIC:
REQ Object-type {'page'},
REQ Subordinates {SUB_ID_OF(ImageFrame)},
PERM Dimensions {$PermissiblePageDimensions},
PERM Page-position {ANY_VALUE},

```
PERM  Medium-type                       {PERM #nominal-page-size {$NominalPageSizes},
                                         PERM #side-of-sheet {ANY_VALUE}},
PERM  Application-comments              {REQ #constraint-name {"2"},
                                        PERM #external-data {ANY_VALUE}}
}
```

7.3.3.3 ImageFrame

```
ImageFrame:              ANY-LAYOUT     {

SPECIFIC:
REQ   Object-type                       {'frame'},
REQ   Subordinates                      {SUB_ID_OF(SpecificBlock)},
PERM  Application-comments              {REQ #constraint-name {"28"},
                                        PERM #external-data {ANY_VALUE}}
}
```

7.3.3.4 SpecificBlock

```
SpecificBlock                           {

SPECIFIC:
REQ   Object-type                       {'block'},
REQ   Object-identifier                 {ANY_VALUE},
REQ   Content-portions                  {$RAST},
PERM  Position                          {REQ #fixed-position    {
                                                REQ #horizontal-position  {ANY_VALUE},
                                                REQ #vertical-position  {ANY_VALUE}}},
PERM  Dimensions                        {REQ #horizontal-dimension
                                                {REQ #fixed-dimension {ANY_VALUE}},
                                        REQ #vertical-dimension
                                                {REQ #fixed-dimension {ANY_VALUE}}},
PERM  Content-architecture-class        {$FPR},
PERM  User-readable-comments            {ANY_STRING},
PERM  User-visible-name                 {ANY_STRING},
PERM  Application-comments              {REQ #constraint-name {"30"},
                                        PERM #external-data {ANY_VALUE}},
                                        -- See 8.1.3 and 8.2.3 --
PERM  Presentation-style                {STYLE_ID_OF(PStyle)},
           -- PStyle for raster content --
PERM  Presentation-attributes           {
      PERM  #raster-graphics-attributes         {
            PERM #pel-path              {ANY_VALUE},
            PERM #line-progression      {ANY_VALUE},
            PERM #pel-spacing           {REQ #length {ANY_VALUE},
                                        REQ #pel-spaces {ANY_VALUE}},
            PERM #spacing-ratio         {REQ #line-spacing-value {ANY_VALUE},
```

```
                    PERM #clipping          REQ #pel-spacing-value {ANY_VALUE}},
                                            {ANY_VALUE}}}
}
```

7.4 Layout style constraints

No layout style constraints applicable in this clause.

7.5 Presentation style constraints

7.5.1 Macro definitions

No macro definitions are applicable to this clause.

7.5.2 Factor constraints

```
FACTOR      ANY-PRESENTATION-STYLE {

REQ   Presentation-style-identifier        {ANY_VALUE},
PERM  User-readable-comments               {ANY_STRING},
PERM  User-visible-name                    {ANY_STRING}
}
```

7.5.3 Presentation style constituent constraint

7.5.3.1 PStyle

```
PStyle:     ANY-PRESENTATION-STYLE {

      -- This style is used for raster graphics content --

PERM  Presentation-attributes              {
      PERM  #raster-graphics-attributes    {
            PERM #pel-path                 {ANY_VALUE},
            PERM #line-progression         {ANY_VALUE},
            PERM #pel-spacing              {REQ #length {ANY_VALUE},
                                           REQ #pel-spaces {ANY_VALUE}},
            PERM #spacing-ratio            {REQ #line-spacing-value {ANY_VALUE},
                                           REQ #pel-spacing-value {ANY_VALUE}},
            PERM #clipping                 {ANY_VALUE}}}
}
```

7.6 Content portion constraints

7.6.1 Macro definitions

```
DEFINE(TILED,"        ASN.1{2 8 3 7 5}")  -- Tiled raster encoding --
```

7.6.2 Factor constraints

No factor constraints are applicable to this clause.

7.6.3 Constituent constraints

7.6.3.1 Raster graphics content portion

```
Raster-graphics-content-portion          {
REQ   Content-identifier-layout          {ANY_VALUE},
PERM  Type-of-coding                     { ASN.1{2 8 3 7 0}  -- T.6 encoding --
                                         | ASN.1{2 8 3 7 1}  -- T.4 one dimensional --
                                         | ASN.1{2 8 3 7 2}  -- T.4 two dimensional --
                                         | ASN.1{2 8 3 7 3}  -- bitmap encoding --
                                         | ASN.1{2 8 3 7 5}  -- tiled encoding --
                                         | ASN.1{2 8 3 7 6}  -- T.6 encoding - MSB --
                                         | ASN.1{2 8 3 7 7}  -- T.4 one dimensional - MSB --
                                         | ASN.1{2 8 3 7 8}  -- T.4 two dimensional - MSB -- },

PERM  Coding-attributes                                {
      REQ   #raster-graphics-coding-attributes         {
            PERM #compression                          {ANY_VALUE},
            PERM #number-of-lines                      {>0},
            REQ  #number-of-pels-per-line              {>0},
            CASE Raster-graphics-content-portion (Type-of-coding) OF {

            {$TILED}:     {PERM  #number-of-pels-per-tile-line   {512},
                           PERM  #number-of-lines-per-tile       {512},
                           PERM  #tiling-offset                  {ANY_VALUE},
                           PERM  #tile-types                     {'null background' |
                                                                 'null foreground' |
                                                                 'T.6 encoded' |
                                                                 'bitmap encoded' |
                                                                 'T.6 encoded - MSB'}}}},
PERM  Alternative-representation         {ANY_STRING},
PERM  Content-information                {RASTER}
}
```

7.7 Additional usage constraints

No other usage constraints are currently defined.

8 Interchange format

Two interchange formats are supported by this profile. The interchange format ODIF (class A) can be used by applications requiring a binary encoding based on ASN.1. The Interchange Format SDIF can be used by applications requiring a SGML based clear text encoding. This latter interchange format is an SGML application, called Office Document Language (ODL). For the purposes of interchange, the ODL ENTITIES are placed in an ASN.1 wrapper, as defined by SDIF. Each encoding form has inherent advantages. Conversion of document encoded in one interchange format into the other should not produce the loss of semantic document information.

8.1 Interchange format ODIF (class A)

8.1.1 Interchange format

The value of the document profile attribute "interchange format" for this interchange format is ‘if-a’. This form of ODIF is defined in ISO 8613-5.

The encoding is in accordance with the Basic Encoding Rules for Abstract Syntax Notation One (ASN.1), as defined in ISO 8825.

8.1.2 DAP identifier

The value for the document profile attribute "document application profile" for this interchange format is represented by the following object identifier.

iso (1) identified-organization (3) oiw (14) odasig (11) image-appl (1) raster-dap-odif (1)

8.1.3 Encoding of application comments

ISO 8613-5 define the encoding of the attribute "application comments" as an octet string. This document application profile requires that the encoding within that octet string be in accordance with the ASN.1 syntax specified in the following module definition:

```
NIST_DAPSpecification
DEFINITIONS ::= BEGIN
EXPORTS  Appl-Comm-Encoding;

Appl-Comm-Encoding ::=  SEQUENCE {
        constraint-name         [0] IMPLICIT Printable String
```

```
                OPTIONAL,
external-data           [1] IMPLICIT OCTET STRING          OPTIONAL}

END
```

For SpecificBlock containing a content portion with a "type of coding" of ‘tiled encoding’, this DAP additionally requires that the encoding within th~~at~~e "external-data" octet string be in accordance with the ASN.1 syntax specified in the following module definition.

```
NIST-_DAPSpecification
DEFINITIONS  ::=        BEGIN
EXPORTS ~~Object Appl Comm~~Octet-Offset-Encoding;

~~Object Appl Comm~~Octet-Offset-Encoding  ::=    SEQUENCE OF INTEGER
END
```

8.2 Interchange format SDIF

8.2.1 Interchange format

The document profile attribute "interchange format" does not apply for this interchange format. The SDIF encoding of ODA is defined in Annex E of ISO 8613-5. In addition, ISO 8613-7 contains additional specifications for this encoding of ODA.

8.2.2 DAP identifier

The value for this attribute "document application profile" for this interchange format is represented by the following object identifier.

iso (1) identified-organization (3) oiw (14) odasig (11) image-appl (1) raster-dap-sdif (2)

8.2.3 Encoding of application comments

For SpecificBlock, the encoding of the attribute "application comments" is defined in a data stream conforming to this profile with the following DTD definition:

~~<!-- The following set of declarations may be invoked by using a public entity as follows:~~

~~<!DOCTYPE odaac Public "-//USA-OIW//DTD SGML ENCODING ODA APPLICATION COMMENTS//EN"> -->~~

~~<!-- NOTE: To parse the following Document Type Declaration Subset, place the Document Type declaration" <!DOCTYPE odaac [" at the beginning of the file and "]>" at the end of the file. -->~~

~~<!ELEMENT odaac - - (objappc)+ >~~

~~<!-- Object application comment -->~~
~~<!ELEMENT objappc - O (#PCDATA)>~~

```
<!-- Public document type definition.  Typical invocation:
<!DOCTYPE fodapc PUBLIC "-//USA-OIW//DTD
                                    Application Comments//EN">
-->
<!ELEMENT fodapc    - O     (externl?)>
<!ATTLIST fodapc    consname CDATA  #IMPLIED>
<!ELEMENT externl   - O     (#PCDATA)>
<!ATTLIST externl   loc     ENTITY   #CONREF>
```

For example, a typical SUBDOC for representing the "application comments" of the tile offsets in the SpecificBlock then would look like:

```
<!DOCTYPE fodapc PUBLIC "-//USA-OIW//DTD                          Application Comments//EN">
<fodapc consname="30">
```

8.3 Encoding of raster content information

The encoding of raster content information in the bitmap encoding scheme is that specified in 9.3 of the raster graphics content architecture part of ISO 8613-7, that is, the first pel in the order of bits is allocated to the most significant bit of an octet. The encoding of the code words in the CCITT Recommendation T.4 and T.6 encoding schemes may be done in either the **up** or **down** bit order. The bit order is specified by the attributes "type of coding" or "tile types". The attribute "tile types" is used only when the value for "type of coding" is ‘tiled encoded’. For the **up** order, it is such that the first or only bit of the first code word shall be placed in the least significant bit of the first octet. Subsequent bits of the first and following code words are placed in the direction of more significant bits in the first and following octets. For the **down** order, it is such that the first or only bit of the first code word shall be placed in the most significant bit (MSB) of the first octet. Subsequent bits of the first and following code words are placed in the direction of least significant bits in the first and following octets.

Annex A (normative)

Amendments and corrigenda

A.1 Amendments

A.1.1 Amendments to the base standard

The amendments applicable to this DAP includes the ISO 8613 - Amendment 1: 1990. This amendment includes text to be included in ISO 8613-1 as the following annexes:

a) Annex E: Use of ISO/IEC 10021 (MOTIS) to interchange documents conforming to ISO 8613;

b) Annex F: Document application profile proforma and notation;

c) Annex G: Conformance testing methodology;

d) Annex H: Recording of documents conforming to ISO 8613 on flexible disk cartridges conforming to ISO 9293.

In addition, this amendment addresses the inclusion of the ISO 8613 Technical Corrigenda 1.

This DAP does not include the following features of the amendment:

a) Addendum on security;

b) Addendum on styles;

c) Addendum on alternative representation.

Additionally, this DAP includes features from the Tiled Raster Graphics Addendum to ISO 8613-7, ISO/IEC JTC1/SC18/WG5 901, dated September 1990, and the Additional Bit Order Mapping Addendum to CCITT Rec. T.417|ISO 8613-7, ISO/IEC JTC 1/WG 3, dated July 1991. A new version of ISO 8613-7 | CCITT T.417 which also will incorporate the Colour Addendum is scheduled to be issued in 1993.

A.2 Corrigenda

A.2.1 Corrigenda to this DAP

~~There are no corrigenda to this DAP.~~The March 1993 version of the document incorporated changes approved at the March 1993 ODA SIG meeting. The primary change was to the "application comments" attribute which now consist of two fields to be compatible with other ISPs. Additionally the value for the "ODA version" attribute was changed. At the June 1993 ODA SIG meeting, editorial changes were made to update the normative references to CCITT T.417 (1992).

Annex B (informative)

Recommended practices

B.1 Transfer methods for ODA

B.1.1 Conveyance of ODA over CCITT X.400-1984

This recommendation describes how ODA body parts are to be encoded for transmission over a CCITT X.400-1984 service.

An ODA body part is encoded as OdaBodyPart in the definition given below:

```
OdaBodyPart ::= SEQUENCE { OdaBodyPartParameters, OdaData }
OdaBodyPartParameters ::= SET {
        document–application–profile
                [0] IMPLICIT OBJECT IDENTIFIER,
        document–architecture–class
                [1] IMPLICIT INTEGER {
                        formatted (0),
                        processable (1),
                        formatted–processable (2) }
OdaData ::=     SEQUENCE OF Interchange–Data–Element
```

NOTE - It is recommended to transfer an ODA document as a single body part with tag 12:

Oda [12] IMPLICIT OCTETSTRING

The content of the octet string is encoded as OdaBodyPart, defined above. However, this is out of the scope of this profile.

B.1.2 Conveyance of ODA over FTAM

This recommendation describes the File Transfer, Access, and Management (FTAM) Document Type to be used for minimal storage and transfer capabilities of ODA data streams. It is recognized that enhanced capabilities may at some point be added.

When using FTAM to transfer an ODA file, the FTAM-3, "ISO FTAM Unstructured Binary", document type should be specified. However, since files that do not contain ODA data streams can have the same document type, it is left up to the user of application programs that remotely access files using FTAM to know that a given file contains an ODA data stream.

B.1.3 Conveyance of ODA over DTAM

This recommendation provides for information concerning the interchange of ODA based documents with Document Transfer and Manipulation (DTAM) protocols.

DTAM is defined in the T.430-Series of recommendations and is, like ODA, an integral part of the T.400-Series of CCITT Recommendations named *Open Document Architecture, Transfer and Manipulation*.

The T.520-Series of recommendations contain *Communication Application Profiles (CAP)*. Recommendation T.522 describes the Communication Application Profile BT1 for document bulk transfer. Recommendation T.522 is applicable for the Office Document Format Profile (FOD) published in this ISP.

> **NOTE -** The use of BT1 within the end-to-end oriented Telematic Services Telefax 4 and Teletex is described in 7.1 of Recommendation T.561 and 7.1 of Recommendation T.562.

B.1.4 Conveyance of ODA over flexible disks

The recommended method for interchanging ODA documents between systems by the exchange of magnetically recorded Flexible Disk Cartridges is by the use of an annex to ISO 8613-1 (to be published), *Recoding of Documents Conforming to ISO 8613 on Flexible Cartridges Conforming to ISO 9293*. This annex provides for recording each ODA document as a separate file as defined by ISO 9293, *Volume and File Structure of Flexible Disk Cartridges for Information Interchange*.

> **NOTE -** Document encoded in ODL can be stored such that each SGML ENTITY is recorded in a separate file or in the case of an SDIF encoding, the file can be stored in a single file.

B.2 Interoperability with SGML applications

The recommended method for the exchange of documents between Standard Generalized Markup Language (ISO 8879, SGML) based systems and systems based on this ODA document application profile is by means of exchanging a document representation conforming to these agreements in an encoded form of the SGML language known as the Office Document Language (ODL). ODL is a standardized SGML application for representing documents conforming to the ODA base standard. Such a representation can be converted into the Office Document Interchange Format (ODIF) supported by this document application profile.

Annex C (informative)

References to other standards and registers

CCITT Recommendation T.400 : 1988, Introduction to Document Architecture, Transfer and Manipulation;

CCITT Recommendation T.411 : 1988, Open Document Architecture (ODA) and Interchange Format: Introduction and General Principles;

CCITT Recommendation T.412 : 1988, Open Document Architecture (ODA) and Interchange Format: Document Structures;

CCITT Recommendation T.414 : 1988, Open Document Architecture (ODA) and Interchange Format: Document Profile;

CCITT Recommendation T.415 : 1988, Open Document Architecture (ODA) and Interchange Format: Open Document Interchange Format;

~~CCITT Recommendation T.417 : 1988, Open Document Architecture (ODA) and Interchange Format: Raster Graphics Content Architecture;~~

CCITT Recommendation T.503 : 1984, Document Application Profile for the Interchange of Group 4 Facsimile Documents;

ISO 8571 : 1988, Information processing systems - Open Systems Interconnection - File transfer, access and management;

ISO 9070 : 1990, Information processing - SGML support facilities - Registration procedures for public owner identifiers;

ISO/TR 9573 : 1988, Information processing - SGML technical report - Techniques for using SGML;

ISO 10021 : (to be published), Information processing systems - Text communication - Message Oriented Text Interchange System;

ISP ~~FOD26 : (to be published), Office document format profile for the interchange of enhanced function mixed content documents in processable and formatted forms;~~ 11181-1 : 1992, Information Technology - International Standardized Profile FOD26 - Office Document Format: Enhanced Document Structure - Character, Raster Graphics and Geometric Graphics content architecture;

ISP ~~FOD36 : (to be published), Office document format profile for the interchange of extended function mixed content documents in processable and formatted forms;~~ 11182-1 : 1992, Information Technology - International Standardized Profile FOD36 - Office Document Format: Extended Document Structure - Character, Raster Graphics and Geometric Graphics content architecture;

MIL-R-28002~~A~~B : 199~~0~~2, MILITARY SPECIFICATION, RASTER GRAPHICS REPRESENTATION IN BINARY FORMAT, REQUIREMENTS FOR.

Annex D (informative)

Supplementary information on attributes

Table D.1 - Content coding attributes

Attributes	**Basic values**	**Default values**	**Non-basic values**
Number-of-pels-per-line	any positive integer	None	None
Number-of-lines	any positive integer	None	None
Tiling-offset*	(any non-negative integer < 512, any non-negative integer < 512)	(0,0)	None
Tile-types*	T.6 encoded, bitmap encoded, null background, null foreground, T.6 encoded -MSB	T.6 encoded	None
Type-of-coding	T.6 encoding (untiled), bitmap (untiled), tiled encoded, T.4 1D encoding, T.4 2D encoding, T.6 encoding - MSB (untiled), T.4 1D encoding - MSB, T.4 2D encoding - MSB	T.6 encoding, T.6 encoding - MSB, tiled encoding **	None

Tutorial Note - * Only used if "type of coding" is ‘tiled encoded’

Tutorial Note - ** As specified in the document profile

Table D.2 - Presentation attributes

Attributes	**Basic values**	**Default values**	**Non-basic values**
Pel-path	0, 90 deg	0 deg	180, 270 deg
Line-progression	270 deg	270 deg	90 deg
Pel-spacing	16, 12, 8, 6, 5, 4, 3, 2, 1 BMU	4 BMU (300)	Any value except ‘null’
Clipping	Two Coordinate Pairs (any non-negative integer, any non-negative integer)	(0,0), (N-1, L-1)	None

Table D.3 - Document profile attributes

Attribute	Class	Permissible values
Specific-layout-structure	m	present
Presentation-styles	nm	present
Document-characteristics	M	
Document-architecture-class	m	formatted
Document-application-profile	m	{-- See clause 8 for a definition of the permitted values for this attribute. --}
Content-architecture-classes	m	{2 8 2 7 2}
Interchange-format-class	m	A
ODA-version	m	ISO 8613, 1991-12-31
Document-architecture-defaults	M	
Content-architecture-class	m	formatted processable raster graphics
Type-of-coding	m	T.6 encoding, tiled encoding, T.6 encoding - MSB
Page-dimensions	nm	See list in table 1, (Default value is NA-A, 9240 x 13200 BMU)
Medium-types	nm	See list in table 1, (Default value is NA-A, 9240 x 13200 BMU)
Page-position	nm	any coordinate pair within page
Raster-gr-content-defaults	NM	
Pel-path	nm	0, 90, 180, 270 degrees (0 is normal default)
Line-progression	nm	90, 270 degrees (270 is normal default)
Pel-spacing	nm	16, 12, 8, 6 5, 4, 3, 2, 1 BMU, (Normal default is 4 BMU)
Spacing Ratio	nm	Any value
Non-basic-doc-characteristics	NM	
Page-dimensions	nm	See table 1
Medium-types	nm	See table 1

Table D.3 - Document profile attributes (concluded)

Attribute	**Class**	**Permissible values**
Raster-gr-presentation-features	NM	
Pel-path	nm	180, 270 degrees
Line-progression	nm	90 degrees
Pel-spacing	nm	Any value except 16, 12, 8, 6, 5, 4, 3, 2, or 1 BMU
Document-management-attribute s	M	
Document Reference	m	Any string of characters

The following notation is used in the class column of this table:

a) m mandatory attribute

b) nm non-mandatory attribute

c) d defaultable attribute

Capital letters (M, NM, and D) are used for groups of attributes.

Annex E (informative)

Register index

Table E.1 - Object identifiers

Object identifier	Reference
iso (1) identified-organization (3) oiw (14) odasig (11) image-appl (1) raster-dap-odif (1)	8.1.2
iso (1) identified-organization (3) oiw (14) odasig (11) image-appl (1) raster-dap-sdif (2)	8.2.2