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Information processing — Text and office systems — Office Document Architecture (ODA) and interchange format —

Part 10: Formal specifications

AMENDMENT 2: Formal specification of the Raster Graphics content architectures

*Traitement de l'information — Bureautique — Architecture des documents de
bureau (ODA) et format d'échange —*

Partie 10: Spécifications formelles

*AMENDEMENT 2: Spécification formelle de l'architecture des contenus des
caractères graphiques à raster*



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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.

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Amendment 2 to International Standard ISO/IEC 8613-10 : 1991 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*.

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format —**

Part 10:
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**AMENDMENT 2: Formal specification of the Raster Graphics
content architectures**

Annex D

(normative)

Formal specification of the raster graphics content architectures

D.1 Introduction

This annex gives a formal specification of the raster graphics content architectures as described in part 7 of ISO 8613. This annex is composed of 5 clauses:

Clause D.1 provides a general introduction, including a list of all definitions which are given in clauses D.2, D.3 and D.4

Clause D.2 provides the interface to the document profile and its formal specification.

Clauses D.3 and D.4 provide the interface to the document architecture by giving a formal specification of raster graphics presentation attributes and content portion attributes that apply to raster graphics content portions.

Clause D.5 is an index to the terms (definitions, operators, attribute names) used in clauses D.2, D.3 and D.4.

At any time a clause number is specified in the semi-formal descriptions this refers to a clause number in ISO 8613-7.

What follows is the outline of the formula which specifies the raster graphics content architecture. The dots indicate formal text fragments which have been left out for the sake of readability. The full formula can be obtained by replacing each line (apart from the *and*) with the definition which is referenced by the superscript of the predicate symbol or operator symbol, respectively. The variables used in the definition of the predicate have to be replaced by those appearing in the outline (if they are different).

NOTE — A definition is a formula, hence it may never yield an undefined result, whatever value has been inserted for the variable.

... IsDefaultableRasterGraphicsContentArchitectureAttribute^{7.1}(*att*) ...
and ... IsRasterGraphicsCodingSpecification^{7.2}(*v*) ...
and ... IsRasterGraphicsPresentationFeature^{7.3}(*v*) ...
and ... SatisfiesRasterGraphicsContentArchitectureConstraints^{7.4}(*prof*, *doby*) ...
and ... IsFormattedProcessableRasterGraphicsContent^{7.5}(*cont*) ...
and ... IsFormattedRasterGraphicsContent^{7.6}(*cont*) ...
and ... IsRasterGraphicsContentPortionDescription^{7.7}(*cont*) ...
and ... IsRasterGraphicsContentPresentationAttribute^{7.8}(*att*) ...
and ... IsRasterGraphicsContentCodingAttribute^{7.9}(*att*) ...
and ... IsRasterGraphicsContentPortionAttributeSet^{7.10}(*as*) ...
and ... IsClippingValue^{7.11}(*v*) ...
and ... IsRasterGraphicsLineProgressionValue^{7.12}(*v*) ...
and ... IsPelPathValue^{7.13}(*v*) ...
and ... IsRasterGraphicsInitialOffsetValue^{7.14}(*v*) ...
and ... IsPelTransmissionDensityValue^{7.15}(*v*) ...
and ... IsImageDimensionsValue^{7.16}(*v*) ...
and ... IsPelSpacingValue^{7.17}(*v*) ...
and ... IsSpacingRatioValue^{7.18}(*v*) ...
and ... IsRasterGraphicsContentArchitectureClassValue^{7.19}(*v*) ...
and ... IsRasterGraphicsContentTypeOfCodingValue^{7.20}(*v*) ...
and ... IsCompressionValue^{7.21}(*v*) ...
and ... IsNumberOfLinesValue^{7.22}(*v*) ...
and ... IsNumberOfPelsPerLineValue^{7.23}(*v*) ...
and ... IsNumberOfDiscardedPelsValue^{7.24}(*v*) ...
and ... IsRasterGraphicsContentInformationValue^{7.25}(*v*) ...

and ... IsNumberOfLinesPerTileValue^{7.26}(*v*) ...
and ... IsNumberOfPelsPerTileLineValue^{7.27}(*v*) ...
and ... IsTilingOffsetValue^{7.28}(*v*) ...
and ... IsTileTypesValue^{7.29}(*v*) ...
and ... IsTileEncodingValue^{7.30}(*v*) ...

NOTE — Other predicates or operators which are used here, but are defined in clause 6, are not listed here.

D.2 Interface to the Document Profile

Semiformal Description 7.1

Predicate "is a defaultable raster graphics content architecture attribute"

A defaultable raster graphics content architecture attribute is one of the attributes 'clipping', 'compression', 'image dimensions', 'initial offset', 'line progression', 'number of discarded pels', 'number of lines per tile', 'number of pels per line', 'number of pels per tile line', 'pel path', 'pel spacing', 'pel transmission density', 'spacing ratio', 'tile types', 'tiling offset' or 'type of coding' with an appropriate value.

NOTE — This predicate is used in annex B.

Definition 7.1

```

1   $\forall att$ 
2  (0IsDefaultableRasterGraphicsContentArchitectureAttribute(att) iff
3     $\exists n, c$ 
4    (1att = [n : c] and
5      n ∈ ['clipping'; 'compression';
6        'image dimensions'; 'initial offset';
7        'line progression'; 'number of discarded pels';
8        'number of lines per tile'; 'number of pels per line';
9        'number of pels per tile line'; 'pel path';
10       'pel spacing'; 'pel transmission density';
11       'spacing ratio'; 'tile types';
12       'tiling offset'; 'type of coding'] and
13      (2n = 'clipping' impl IsClippingValue7.11(c) 2) and
14      (3n = 'compression' impl IsCompressionValue7.21(c) 3) and
15      (4n = 'image dimensions' impl IsImageDimensionsValue7.16(c) 4) and
16      (5n = 'initial offset' impl IsRasterGraphicsInitialOffsetValue7.14(c) 5) and
17      (6n = 'line progression' impl IsRasterGraphicsLineProgressionValue7.12(c) 6) and
18      (7n = 'number of discarded pels' impl IsNumberOfDiscardedPelsValue7.24(c) 7) and
19      (8n = 'number of lines per tile' impl IsNumberOfLinesPerTileValue7.26(c) 8) and
20      (9n = 'number of pels per line' impl IsNumberOfPelsPerLineValue7.23(c) 9) and
21      (10n = 'number of pels per tile line' impl IsNumberOfPelsPerTileLineValue7.27(c) 10) and
22      (11n = 'pel path' impl IsPelPathValue7.13(c) 11) and
23      (12n = 'pel spacing' impl IsPelSpacingValue7.17(c) 12) and
24      (13n = 'pel transmission density' impl IsPelTransmissionDensityValue7.15(c) 13) and
25      (14n = 'spacing ratio' impl IsSpacingRatioValue7.18(c) 14) and
26      (15n = 'tile types' impl IsTileTypesValue7.29(c) 15) and
27      (16n = 'tiling offset' impl IsTilingOffsetValue7.28(c) 16) and
28      (17n = 'type of coding' impl IsRasterGraphicsContentTypeOfCodingValue7.20(c) 17) 0)

```

Semiformal Description 7.2

Predicate “is a raster graphics coding specification”

A raster graphics coding specification is a nomination where each element is a raster graphics content coding attribute.

NOTE — This predicate is used in annex B.

Definition 7.2

- 1 $\forall v$
- 2 $(\circ \text{IsRasterGraphicsCodingSpecification}(v) \text{ iff}$
- 3 $(\text{IsNom}(v) \text{ and}$
- 4 $\forall b \in \sim v. (\text{IsRasterGraphicsContentCodingAttribute}^{7.9}(C\ b)) \text{) } \circ)$

Semiformal Description 7.3

Predicate “is a raster graphics presentation feature”

A raster graphics presentation feature is a nomination where each element is a raster graphics content presentation attribute.

NOTE — This predicate is used in annex B.

Definition 7.3

- 1 $\forall v$
- 2 $(\circ \text{IsRasterGraphicsPresentationFeature}(v) \text{ iff}$
- 3 $(\text{IsNom}(v) \text{ and}$
- 4 $\forall b \in \sim v. (\text{IsRasterGraphicsContentPresentationAttribute}^{7.8}(C\ b)) \text{) } \circ)$

D.3 Interface to the Document Architecture

Semiformal Description 7.4

Predicate “satisfies raster graphics content architecture constraints”

A document profile *prof* and a document body *doby* satisfy the constraints imposed by the raster graphics content architecture if the following holds:

For all constituents for which the attribute 'content architecture class' is specified and has the value '2 8 2 7 2' (4), the content portion is a formatted processable raster graphics content portion (5).

For all constituents for which the attribute 'content architecture class' is specified and has the value '2 8 2 7 0' (6), the content portion is a formatted raster graphics content portion (7).

The value '2 8 2 7 2' appears in the document profile attribute 'content architecture classes' if and only if there exists a content portion for which the attribute 'content architecture class' has also this value (8, 9).

The value '2 8 2 7 0' appears in the document profile attribute 'content architecture classes' if and only if there exists a content portion for which the attribute 'content architecture class' has also this value (10, 11).

NOTE — This predicate is used in clause 7 of this part of ISO 8613.