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

Part 10:
Formal specifications

AMENDMENT 1: Formal specification of the document profile

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

Partie 10: Spécifications formelles

AMENDEMENT 1: Spécification formelle du profil de document

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.

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

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Annex B

(normative)

Formal specification of the document profile

B.1   Introduction

This annex gives a formal specification of the document profile as described in part 4 of ISO 8613. This annex is composed of 4 clauses:

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

Clauses B.2 and B.3 give all the definitions related to the document profile. Clause B.2 contains the definition for the structure of the document profile; clause B.3 contains the definitions for the attributes which appear in the document profile.

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

Any time a clause number is specified in the semi-formal descriptions this refers to a clause number in ISO 8613-4.

What follows is the outline of the formula which specifies the document profile. 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.

$\qquad$ ... $\text{IsDocumentProfile}^{4.1}(cst)$ ...

and ... $\text{IsProfileAttributeSet}^{4.2}(as)$ ...

and ... $\text{IsSetOfProfCharSeq}^{4.3}(v)$ ...

and ... $\text{IsProfCharSeq}^{4.4}(v)$ ...

and ... $\text{IsProfileCharacter}^{4.5}(v)$ ...

and ... $\text{IsExternalReferenceValue}^{4.6}(v)$ ...

and ... $\text{IsASN1ObjectIdentifier}^{4.7}(v)$ ...

and ... $\text{IsResourcesValue}^{4.8}(v)$ ...

and ... $\text{IsDocumentApplicationProfileValue}^{4.9}(v)$ ...

and ... $\text{IsDocumentApplicationProfileDefaultsValue}^{4.10}(v)$ ...

and ... $\text{IsProfileDefaultableCharacterContentArchitectureAttribute}^{4.11}(v)$ ...

and ... $\text{IsProfileDefaultableRasterGraphicsContentArchitectureAttribute}^{4.12}(v)$ ...

and ... $\text{IsProfileDefaultableGeometricGraphicsContentArchitectureAttribute}^{4.13}(v)$ ...

and ... $\text{IsContentArchitectureClassesValue}^{4.14}(v)$ ...

and ... $\text{IsODAVersionValue}^{4.15}(v)$ ...

and ... $\text{IsCharacterSetsValue}^{4.16}(v)$ ...

and ... $\text{IsPageDimensionsValue}^{4.17}(v)$ ...

and ... $\text{IsMediumTypesValue}^{4.18}(v)$ ...

and ... $\text{IsLayoutPathsValue}^{4.19}(v)$ ...

and ... $\text{IsProtectionsValue}^{4.20}(v)$ ...

and ... $\text{IsBlockAlignmentsValue}^{4.21}(v)$ ...

and ... $\text{IsFillOrdersValue}^{4.22}(v)$ ...

and ... $\text{IsTransparenciesValue}^{4.23}(v)$ ...

and ... $\text{IsColoursValue}^{4.24}(v)$ ...

and ... $\text{IsBordersValue}^{4.25}(v)$ ...

and ... $\text{IsPagePositionsValue}^{4.26}(v)$ ...

and ... $\text{IsTypesOfCodingValue}^{4.27}(v)$ ...

<u>and</u> ... IsProfileCodingAttributesValue$^{4.28}(v)$ ...
<u>and</u> ... IsProfileCharacterCodingSpecification$^{4.29}(v)$ ...
<u>and</u> ... IsProfileRasterGraphicsCodingSpecification$^{4.30}(v)$ ...
<u>and</u> ... IsProfileGeometricGraphicsCodingSpecification$^{4.31}(v)$ ...
<u>and</u> ... IsPresentationFeaturesValue$^{4.32}(v)$ ...
<u>and</u> ... IsProfileCharacterPresentationFeature$^{4.33}(v)$ ...
<u>and</u> ... IsProfileRasterGraphicsPresentationFeature$^{4.34}(v)$ ...
<u>and</u> ... IsProfileGeometricGraphicsPresentationFeature$^{4.35}(v)$ ...
<u>and</u> ... IsFontsListValue$^{4.36}(v)$ ...
<u>and</u> ... IsFontReference$^{4.37}(v)$ ...
<u>and</u> ... IsSetOfReferenceProperties$^{4.38}(v)$ ...
<u>and</u> ... IsReferencePropertiesValue$^{4.39}(v)$ ...
<u>and</u> ... IsISO9541Part2AttributeSet$^{4.40}(v)$ ...
<u>and</u> ... IsDateAndTimeValue$^{4.41}(v)$ ...
<u>and</u> ... IsRevisionHistoryValue$^{4.42}(v)$ ...
<u>and</u> ... IsRevisionValue$^{4.43}(v)$ ...
<u>and</u> ... IsPreparersValue$^{4.44}(v)$ ...
<u>and</u> ... IsOwnersValue$^{4.45}(v)$ ...
<u>and</u> ... IsAuthorsValue$^{4.46}(v)$ ...
<u>and</u> ... IsCopyrightValue$^{4.47}(v)$ ...
<u>and</u> ... IsSetOfDatesValue$^{4.48}(v)$ ...
<u>and</u> ... IsDateAndTimeSeq$^{4.49}(v)$ ...
<u>and</u> ... IsDateValue$^{4.50}(v)$ ...
<u>and</u> ... IsDistributionListValue$^{4.51}(v)$ ...
<u>and</u> ... IsAdditionalInformationValue$^{4.52}(v)$ ...
<u>and</u> ... IsSetOfExternalReferences$^{4.53}(v)$ ...
<u>and</u> ... IsLocalFileReferenceValue$^{4.54}(v)$ ...
<u>and</u> ... IsAuthorizationValue$^{4.55}(v)$ ...
<u>and</u> ... IsSetOfPersonalNames$^{4.56}(v)$ ...
<u>and</u> ... IsPersonalName$^{4.57}(v)$ ...
<u>and</u> ... IsAlternativeFeaturesSetsValue$^{4.58}(v)$ ...
<u>and</u> ... IsASN1ObjectIdentifierSet$^{4.59}(v)$ ...
<u>and</u> ... IsEncipheredDocumentProfilesValue$^{4.60}(v)$ ...
<u>and</u> ... IsPrivilegedRecipientInformationValue$^{4.61}(v)$ ...
<u>and</u> ... IsKeyInformationValue$^{4.62}(v)$ ...
<u>and</u> ... IsMethodInformationValue$^{4.63}(v)$ ...
<u>and</u> ... IsKeyAdditionalInformationValue$^{4.64}(v)$ ...
<u>and</u> ... IsKeyMethodValue$^{4.65}(v)$ ...
<u>and</u> ... IsEncipheredDocumentProfileId$^{4.66}(v)$ ...
<u>and</u> ... IsODASecurityLabelValue$^{4.67}(v)$ ...
<u>and</u> ... IsPreEncipheredDocumentBodyPartsValue$^{4.68}(v)$ ...
<u>and</u> ... IsPreEncipheredDocumentBodyPartId$^{4.69}(v)$ ...
<u>and</u> ... IsPostEncipheredDocumentBodyPartsValue$^{4.70}(v)$ ...
<u>and</u> ... IsPostEncipheredDocumentBodyPartId$^{4.71}(v)$ ...
<u>and</u> ... IsSealedDocumentBodyPartsValue$^{4.72}(v)$ ...
<u>and</u> ... IsDocumentSealValue$^{4.73}(v)$ ...
<u>and</u> ... IsSeqOfConstituentIds$^{4.74}(v)$ ...
<u>and</u> ... IsConstituentId$^{4.75}(v)$ ...
<u>and</u> ... IsSealMethodValue$^{4.76}(v)$ ...
<u>and</u> ... IsSealedInformationValue$^{4.77}(v)$ ...
<u>and</u> ... IsLocationValue$^{4.78}(v)$ ...
<u>and</u> ... IsSealedDocumentProfilesValue$^{4.79}(v)$ ...
<u>and</u> ... IsSealedDocumentProfileId$^{4.80}(v)$ ...

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

B.2 The Document Profile

Semiformal Description 4.1

<u>Predicate</u> "is a document profile"

A document profile is a set of profile attributes. The attributes 'content architecture classes', 'document architecture class', 'document reference', 'interchange format class' and 'ODA version' are mandatory, the other ones are optional.

Definition 4.1

1   $\forall cst$
2   $(_0$IsDocumentProfile(cst) <u>iff</u>
3   IsProfileAttributeSet$^{4.2}(cst)$ <u>and</u>
4   NAMS$^{1.18}(cst) \supseteq$ ['content architecture classes';   'document architecture class';
5   'document reference';   'interchange format class';
6   'ODA version'] <u>and</u>
7   NAMS$^{1.18}(cst) \subseteq$ ['abstract';   'access rights';
8   'additional information';   'alternative feature sets';
9   'alternative representation character sets'; 'authorization';
10   'authors';   'block alignments';
11   'borders';   'coding attributes';
12   'colours';   'comments character sets';
13   'content architecture classes'; 'copyright';
14   'creation date and time';   'distribution list';
15   'document application profile'; 'document application profile defaults';
16   'document architecture class'; 'document date and time';
17   'document reference';   'document size';
18   'document type';   'enciphered document profiles';
19   'enciphered profiles';   'expiry date and time';
20   'external-document class';   'fill orders';
21   'fonts list';   'generic layout structure';
22   'generic logical structure';   'interchange format class';
23   'keywords';   'languages';
24   'layout paths';   'layout styles';
25   'local file references';   'local filing date and time';
26   'medium types';   'number of objects per page';
27   'number of pages';   'ODA security label';
28   'ODA version';   'organizations';
29   'owners';   'page dimensions';
30   'page positions';   'post-enciphered body parts';
31   'post-enciphered document body parts'; 'post-sealed document body parts';
32   'pre-enciphered body parts';   'pre-enciphered document body parts';
33   'preparers';   'pre-sealed document body parts';
34   'presentation features';   'presentation styles';
35   'profile character sets';   'protections';
36   'purge date and time';   'references to other documents';
37   'release date and time';   'resource-document';
38   'resources';   'revision history';
39   'sealed document profiles';   'sealed profiles';
40   'security classification';   'specific layout structure';
41   'specific logical structure'; 'start date and time';
42   'status';   'subject';
43   'superseded documents';   'title';
44   'transparencies';   'types of coding';

45   'unit scaling';   'user-specific codes'] _and_
46     $(_1$ 'document application profile defaults' $\in$ NAMS$^{1.18}$(cst) _impl_
47   'document application profile' $\in$ NAMS$^{1.18}$(cst $_1)_0)$

B.3   Attributes of the document profile

| Semiformal Description 4.2 |

<u>Predicate</u> "is a profile attribute set" (clause 5.2, table B.1)

In this definition the attribute names are linked with the ranges of the attribute values.

| Definition 4.2 |
---

1    $\forall as$
2    $(_0$ IsProfileAttributeSet(as) _iff_
3       $(_1$ IsNeNom$^{1.2}$(as) _and_
4       $\forall a \,\hat{\in}\, {}^\frown as$ •
5          $(_2$ N $a =$ 'abstract' _impl_ IsProfCharSeq$^{4.4}$(C a) $_2)$ _and_
6          $(_3$ N $a =$ 'access rights' _impl_ IsSetOfProfCharSeq$^{4.3}$(C a) $_3)$ _and_
7          $(_4$ N $a =$ 'additional information' _impl_ IsAdditionalInformationValue$^{4.52}$(C a) $_4)$ _and_
8          $(_5$ N $a =$ 'alternative feature sets' _impl_ IsAlternativeFeaturesSetsValue$^{4.58}$(C a) $_5)$ _and_
9          $(_6$ N $a =$ 'alternative representation character sets' _impl_ IsCharacterSetsValue$^{4.16}$(C a) $_6)$ _and_
10         $(_7$ N $a =$ 'authorization' _impl_ IsAuthorizationValue$^{4.55}$(C a) $_7)$ _and_
11         $(_8$ N $a =$ 'authors' _impl_ IsAuthorsValue$^{4.46}$(C a) $_8)$ _and_
12         $(_9$ N $a =$ 'block alignments' _impl_ IsBlockAlignmentsValue$^{4.21}$(C a) $_9)$ _and_
13         $(_{10}$N $a =$ 'borders' _impl_ IsBordersValue$^{4.25}$(C a) $_{10})$ _and_
14         $(_{11}$N $a =$ 'coding attributes' _impl_ IsProfileCodingAttributesValue$^{4.28}$(C a) $_{11})$ _and_
15         $(_{12}$N $a =$ 'colours' _impl_ IsColoursValue$^{4.24}$(C a) $_{12})$ _and_
16         $(_{13}$N $a =$ 'comments character sets' _impl_ IsCharacterSetsValue$^{4.16}$(C a) $_{13})$ _and_
17         $(_{14}$N $a =$ 'content architecture classes' _impl_ IsContentArchitectureClassesValue$^{4.14}$(C a) $_{14})$ _and_
18         $(_{15}$N $a =$ 'copyright' _impl_ IsCopyrightValue$^{4.47}$(C a) $_{15})$ _and_
19         $(_{16}$N $a =$ 'creation date and time' _impl_ IsDateAndTimeValue$^{4.41}$(C a) $_{16})$ _and_
20         $(_{17}$N $a =$ 'distribution list' _impl_ IsDistributionListValue$^{4.51}$(C a) $_{17})$ _and_
21         $(_{18}$N $a =$ 'document application profile' _impl_ IsDocumentApplicationProfileValue$^{4.9}$(C a) $_{18})$ _and_
22         $(_{19}$N $a =$ 'document application profile defaults' _impl_
23   IsDocumentApplicationProfileDefaultsValue$^{4.10}$(C a) $_{19})$ _and_
24         $(_{20}$N $a =$ 'document architecture class' _impl_
25   C $a \in$ ['formatted'; 'processable'; 'formatted processable'] $_{20})$ _and_
26         $(_{21}$N $a =$ 'document date and time' _impl_ IsDateAndTimeValue$^{4.41}$(C a) $_{21})$ _and_
27         $(_{22}$N $a =$ 'document reference' _impl_ IsExternalReferenceValue$^{4.6}$(C a) $_{22})$ _and_
28         $(_{23}$N $a =$ 'document size' _impl_ IsNat(C a) $_{23})$ _and_
29         $(_{24}$N $a =$ 'document type' _impl_ IsProfCharSeq$^{4.4}$(C a) $_{24})$ _and_
30         $(_{25}$N $a =$ 'enciphered document profiles' _impl_ IsEncipheredDocumentProfilesValue$^{4.60}$(C a) $_{25})$ _and_
31         $(_{26}$N $a =$ 'enciphered profiles' _impl_ C $a =$ 'present' $_{26})$ _and_
32         $(_{27}$N $a =$ 'expiry date and time' _impl_ IsDateAndTimeValue$^{4.41}$(C a) $_{27})$ _and_
33         $(_{28}$N $a =$ 'external-document class' _impl_ IsExternalReferenceValue$^{4.6}$(C a) $_{28})$ _and_
34         $(_{29}$N $a =$ 'fill orders' _impl_ IsFillOrdersValue$^{4.22}$(C a) $_{29})$ _and_
35         $(_{30}$N $a =$ 'fonts list' _impl_ IsFontsListValue$^{4.36}$(C a) $_{30})$ _and_
36         $(_{31}$N $a =$ 'generic layout structure' _impl_
37   C $a \in$ ['factor set'; 'partial generator set'; 'complete generator set'] $_{31})$ _and_
38         $(_{32}$N $a =$ 'generic logical structure' _impl_
39   C $a \in$ ['factor set'; 'partial generator set'; 'complete generator set'] $_{32})$ _and_
40         $(_{33}$N $a =$ 'interchange format class' _impl_ C $a \in$ ['A'; 'B'] $_{33})$ _and_

41 $(_{34}$ N $a = $ 'keywords' $impl$ IsSetOfProfCharSeq$^{4.3}$(C a) $_{34})$ and

42 $(_{35}$ N $a = $ 'languages' $impl$ IsSetOfProfCharSeq$^{4.3}$(C a) $_{35})$ and

43 $(_{36}$ N $a = $ 'layout paths' $impl$ IsLayoutPathsValue$^{4.19}$(C a) $_{36})$ and

44 $(_{37}$ N $a = $ 'layout styles' $impl$ C $a = $ 'present' $_{37})$ and

45 $(_{38}$ N $a = $ 'local file references' $impl$ IsLocalFileReferenceValue$^{4.54}$(C a) $_{38})$ and

46 $(_{39}$ N $a = $ 'local filing date and time' $impl$ IsDateAndTimeSeq$^{4.49}$(C a) $_{39})$ and

47 $(_{40}$ N $a = $ 'medium types' $impl$ IsMediumTypesValue$^{4.18}$(C a) $_{40})$ and

48 $(_{41}$ N $a = $ 'number of objects per page' $impl$ IsNat(C a) $_{41})$ and

49 $(_{42}$ N $a = $ 'number of pages' $impl$ IsNnInt$^{1.7}$(C a) $_{42})$ and

50 $(_{43}$ N $a = $ 'ODA security label' $impl$ IsODASecurityLabelValue$^{4.67}$(C a) $_{43})$ and

51 $(_{44}$ N $a = $ 'ODA version' $impl$ IsODAVersionValue$^{4.15}$(C a) $_{44})$ and

52 $(_{45}$ N $a = $ 'organizations' $impl$ IsSetOfProfCharSeq$^{4.3}$(C a) $_{45})$ and

53 $(_{46}$ N $a = $ 'owners' $impl$ IsOwnersValue$^{4.45}$(C a) $_{46})$ and

54 $(_{47}$ N $a = $ 'page dimensions' $impl$ IsPageDimensionsValue$^{4.17}$(C a) $_{47})$ and

55 $(_{48}$ N $a = $ 'page positions' $impl$ IsPagePositionsValue$^{4.26}$(C a) $_{48})$ and

56 $(_{49}$ N $a = $ 'post-enciphered body parts' $impl$ C $a = $ 'present' $_{49})$ and

57 $(_{50}$ N $a = $ 'post-enciphered document body parts' $impl$

58 IsPostEncipheredDocumentBodyPartsValue$^{4.70}$(C a) $_{50})$ and

59 $(_{51}$ N $a = $ 'post-sealed document body parts' $impl$ IsSealedDocumentBodyPartsValue$^{4.72}$(C a) $_{51})$ and

60 $(_{52}$ N $a = $ 'pre-enciphered body parts' $impl$ C $a = $ 'present' $_{52})$ and

61 $(_{53}$ N $a = $ 'pre-enciphered document body parts' $impl$

62 IsPreEncipheredDocumentBodyPartsValue$^{4.68}$(C a) $_{53})$ and

63 $(_{54}$ N $a = $ 'preparers' $impl$ IsPreparersValue$^{4.44}$(C a) $_{54})$ and

64 $(_{55}$ N $a = $ 'pre-sealed document body parts' $impl$ IsSealedDocumentBodyPartsValue$^{4.72}$(C a) $_{55})$ and

65 $(_{56}$ N $a = $ 'presentation features' $impl$ IsPresentationFeaturesValue$^{4.32}$(C a) $_{56})$ and

66 $(_{57}$ N $a = $ 'presentation styles' $impl$ C $a = $ 'present' $_{57})$ and

67 $(_{58}$ N $a = $ 'profile character sets' $impl$ IsCharacterSetsValue$^{4.16}$(C a) $_{58})$ and

68 $(_{59}$ N $a = $ 'protections' $impl$ IsProtectionsValue$^{4.20}$(C a) $_{59})$ and

69 $(_{60}$ N $a = $ 'purge date and time' $impl$ IsDateAndTimeValue$^{4.41}$(C a) $_{60})$ and

70 $(_{61}$ N $a = $ 'references to other documents' $impl$ IsSetOfExternalReferences$^{4.53}$(C a) $_{61})$ and

71 $(_{62}$ N $a = $ 'release date and time' $impl$ IsDateAndTimeValue$^{4.41}$(C a) $_{62})$ and

72 $(_{63}$ N $a = $ 'resource-document' $impl$ IsExternalReferenceValue$^{4.6}$(C a) $_{63})$ and

73 $(_{64}$ N $a = $ 'resources' $impl$ IsResourcesValue$^{4.8}$(C a) $_{64})$ and

74 $(_{65}$ N $a = $ 'revision history' $impl$ IsRevisionHistoryValue$^{4.42}$(C a) $_{65})$ and

75 $(_{66}$ N $a = $ 'sealed document profiles' $impl$ IsSealedDocumentProfilesValue$^{4.79}$(C a) $_{66})$ and

76 $(_{67}$ N $a = $ 'sealed profiles' $impl$ C $a = $ 'present' $_{67})$ and

77 $(_{68}$ N $a = $ 'security classification' $impl$ IsProfCharSeq$^{4.4}$(C a) $_{68})$ and

78 $(_{69}$ N $a = $ 'specific layout structure' $impl$ C $a = $ 'present' $_{69})$ and

79 $(_{70}$ N $a = $ 'specific logical structure' $impl$ C $a = $ 'present' $_{70})$ and

80 $(_{71}$ N $a = $ 'start date and time' $impl$ IsDateAndTimeValue$^{4.41}$(C a) $_{71})$ and

81 $(_{72}$ N $a = $ 'status' $impl$ IsProfCharSeq$^{4.4}$(C a) $_{72})$ and

82 $(_{73}$ N $a = $ 'subject' $impl$ IsProfCharSeq$^{4.4}$(C a) $_{73})$ and

83 $(_{74}$ N $a = $ 'superseded documents' $impl$ IsSetOfExternalReferences$^{4.53}$(C a) $_{74})$ and

84 $(_{75}$ N $a = $ 'title' $impl$ IsProfCharSeq$^{4.4}$(C a) $_{75})$ and

85 $(_{76}$ N $a = $ 'transparencies' $impl$ IsTransparenciesValue$^{4.23}$(C a) $_{76})$ and

86 $(_{77}$ N $a = $ 'types of coding' $impl$ IsTypesOfCodingValue$^{4.27}$(C a) $_{77})$ and

87 $(_{78}$ N $a = $ 'unit scaling' $impl$ IsPairOfPosInt$^{1.9}$(C a) $_{78})$ and

88 $(_{79}$ N $a = $ 'user-specific codes' $impl$ IsSetOfProfCharSeq$^{4.3}$(C a) $_{79})_1)_0)$

Semiformal Description 4.3

Predicate "is a set of profile character sequences"

A set of profile character sequences is a set where each element is a profile character sequence.

Definition 4.3
---

1    $\forall v$
2    $(_0 \text{IsSetOfProfCharSeq}(v)$ <u>*iff*</u>
3      $\text{IsNeCol}^{1.1}(v)$ <u>*and*</u> $\forall m \in v \ (\text{IsProfCharSeq}^{4.4}(m)) \ _0)$

Semiformal Description 4.4

Predicate "is a profile character sequence" (e.g., clause 5.2.7)

A profile character sequence is a catenation of characters from the document profile character set.

Definition 4.4
---

1    $\forall v$
2    $(_0 \text{IsProfCharSeq}(v)$ <u>*iff*</u>
3      $\text{IsNeCat}^{1.3}(v)$ <u>*and*</u> $\forall m \ \hat{\in} \ \hat{}v \bullet (\text{IsProfileCharacter}^{4.5}(C \ m)) \ _0)$

Semiformal Description 4.5

Predicate "is a profile character" (e.g., clause 5.2.7)

A profile character is considered an atomic construct in the formal specification.

Definition 4.5
---

1    $\forall v$
2    $(_0 \text{IsProfileCharacter}(v)$ <u>*iff*</u>
3      $\text{IsAtom}(v)_0)$

Semiformal Description 4.6

Predicate "is an external reference value" (e.g., clause 5.2.7)

An external reference value is either an ASN.1 object identifier or a sequence of characters from the document profile character set.

Definition 4.6
---

1    $\forall v$
2    $(_0 \text{IsExternalReferenceValue}(v)$ <u>*iff*</u>
3      $(_1 \text{IsASN1ObjectIdentifier}^{4.7}(v)$ <u>*or*</u> $\text{IsProfCharSeq}^{4.4}(v) \ _1)_0)$

| Semiformal Description 4.7 |

Predicate "is an ASN.1 object identifier" (e.g., clause 5.2.7)

An ASN.1 object identifier is considered an atomic construct in the formal specification.

| Definition 4.7 |

1   $\forall v$
2   $(_0 \text{IsASN1ObjectIdentifier}(v)$ *iff*
3       $\text{IsAtom}(v)_0)$

| Semiformal Description 4.8 |

Predicate "is a resources value" (clause 5.2.9)

The value of the attribute 'resources' is a set where each element consists of a pair, the first part being a sequence of characters from the minimum subrepertoire of ISO 6937-2, the second part being an object class identifier.

| Definition 4.8 |

1   $\forall v$
2   $(_0 \text{IsResourcesValue}(v)$ *iff*
3       $\text{IsNeCol}^{1.1}(v)$ *and*
4       $\forall a \in v \; \exists l, r$
5       $(_1 a = [\rightarrow l \rightarrow r \rightarrow]$ *and*
6           $\text{IsISO6937MSString}^{1.20}(l)$ *and* $\text{IsObjectClassId}^{2.83}(r)_1)_0)$

| Semiformal Description 4.9 |

Predicate "is a document application profile value" (clause 5.3.1)

The value of the attribute 'document application profile' is either an ASN.1 object identifier or the integer 2.

| Definition 4.9 |

1   $\forall v$
2   $(_0 \text{IsDocumentApplicationProfileValue}(v)$ *iff*
3       $(_1 \text{IsASN1ObjectIdentifier}^{4.7}(v)$ *or* $v = 2_1)_0)$

Semiformal Description 4.10

<u>Predicate</u> "is a document application profile defaults value" (clause 5.3.2)

A document application profile defaults value is either a non-empty nomination, where the names are 'content architecture class', 'dimensions', 'transparency', 'colour', 'border', 'layout path', 'page position', 'medium type', 'block alignment' and/or 'type of coding' and the component is a value of the corresponding attribute as defined in ISO 8613-2, or it is a defaultable attribute from the character content architecture, the raster graphics architecture or the geometric graphics architecture.

Definition 4.10
---

1 $\forall v$
2 $(_0$ IsDocumentApplicationProfileDefaultsValue(v) <u>*iff*</u>
3 $(_1 (_2$ IsNeNom$^{1.2}(v)$ <u>*and*</u>
4   NAMS$^{1.18}(v) \subseteq$ ['content architecture class'; 'dimensions'; 'colour'; 'border'; 'layout path';
5   'page position'; 'transparency'; 'medium type'; 'block alignment';
6   'type of coding'] <u>*and*</u>
7 $\forall a \hat{\in} \ \hat{\ }v \ \bullet$
8     $(_3$ N $a =$ 'content architecture class' <u>*impl*</u> IsContentArchitectureClassValue$^{2.88}$(C a) $_3)$ <u>*and*</u>
9     $(_4$ N $a =$ 'dimensions' <u>*impl*</u> IsDimensionsValue$^{2.99}$(C a) $_4)$ <u>*and*</u>
10    $(_5$ N $a =$ 'transparency' <u>*impl*</u> IsTransparencyValue$^{2.103}$(C a) $_5)$ <u>*and*</u>
11    $(_6$ N $a =$ 'colour' <u>*impl*</u> IsColourValue$^{2.104}$(C a) $_6)$ <u>*and*</u>
12    $(_7$ N $a =$ 'border' <u>*impl*</u> IsBorderValue$^{2.100}$(C a) $_7)$ <u>*and*</u>
13    $(_8$ N $a =$ 'layout path' <u>*impl*</u> IsLayoutPathValue$^{2.102}$(C a) $_8)$ <u>*and*</u>
14    $(_9$ N $a =$ 'page position' <u>*impl*</u> IsPairOfNnInt$^{1.8}$(C a) $_9)$ <u>*and*</u>
15    $(_{10}$ N $a =$ 'medium type' <u>*impl*</u> IsMediumTypeValue$^{2.105}$(C a) $_{10})$ <u>*and*</u>
16    $(_{11}$ N $a =$ 'block alignment' <u>*impl*</u> IsBlockAlignmentValue$^{2.108}$(C a) $_{11})$ <u>*and*</u>
17    $(_{12}$ N $a =$ 'type of coding' <u>*impl*</u> IsTypeOfCodingValue$^{2.120}$(C a) $_{12})_2)$ <u>*or*</u>
18 IsProfileDefaultableCharacterContentArchitectureAttribute$^{4.11}(v)$ <u>*or*</u>
19 IsProfileDefaultableRasterGraphicsContentArchitectureAttribute$^{4.12}(v)$ <u>*or*</u>
20 IsProfileDefaultableGeometricGraphicsContentArchitectureAttribute$^{4.13}(v)$ $_1)_0)$

Semiformal Description 4.11

<u>Predicate</u> "is a profile defaultable character content architecture value" (clause 5.3.2)

A profile defaultable character content architecture value is one of the attributes (name and value) which is classified as defaultable in ISO 8613-6. It is considered an atomic construct in the formal specification of the document profile. This predicate is formally defined in annex C, definition 6.1.

Definition 4.11
---

1 $\forall v$
2 $(_0$ IsProfileDefaultableCharacterContentArchitectureAttribute(v) <u>*iff*</u>
3   IsAtom$(v)_0)$

Semiformal Description 4.12

Predicate "is a profile defaultable raster graphics content architecture value" (clause 5.3.2)

A profile defaultable raster graphics content architecture value is one of the attributes (name and value) which is classified as defaultable in ISO 8613-7. It is considered an atomic construct in the formal specification of the document profile. This predicate is formally defined in annex D, definition 7.1.

Definition 4.12
---

1 $\forall v$
2 $(_0 \text{IsProfileDefaultableRasterGraphicsContentArchitectureAttribute}(v)$ _iff_
3 $\quad \text{IsAtom}(v)_0)$

Semiformal Description 4.13

Predicate "is a profile defaultable geometric graphics content architecture value" (clause 5.3.2)

A profile defaultable geometric graphics content architecture value is one of the attributes (name and value) which is classified as defaultable in ISO 8613-8. It is considered an atomic construct in the formal specification of the document profile. This predicate is formally defined in annex E, definition 8.1.

Definition 4.13
---

1 $\forall v$
2 $(_0 \text{IsProfileDefaultableGeometricGraphicsContentArchitectureAttribute}(v)$ _iff_
3 $\quad \text{IsAtom}(v)_0)$

Semiformal Description 4.14

Predicate "is a content architecture classes value" (clause 5.3.4)

The value of the attribute 'content architecture classes' is a non-empty set where each element is a content architecture class value.

Definition 4.14
---

1 $\forall v$
2 $(_0 \text{IsContentArchitectureClassesValue}(v)$ _iff_
3 $\quad \text{IsNeCol}^{1.1}(v)$ _and_
4 $\quad \forall a \in v \, (\text{IsContentArchitectureClassValue}^{2.88}(a)) \,_0)$

Semiformal Description 4.15

Predicate "is an ODA version value" (clause 5.3.6)

An ODA version value is a catenation of two elements. The first element is a sequence of characters from the document profile character set, the second element is a date value in accordance with ISO 8601.

Definition 4.15
---

1 $\forall v$
2 $(_0 \text{IsODAVersionValue}(v)$ _iff_
3 $\quad \exists l, r$
4 $\quad (_1 v = [\rightarrow l \rightarrow r \rightarrow] $ _and_
5 $\quad\quad \text{IsProfCharSeq}^{4.4}(l)$ _and_ $\text{IsDateValue}^{4.50}(r) \,_1)_0)$

> Semiformal Description 4.16

Predicate "is a character sets value" (e.g., clause 5.3.7.1)

This value consists of escape sequences in accordance with ISO 2022 and ISO 2375. It is considered an atomic construct in the formal specification.

> Definition 4.16

1 $\forall v$
2 $(_0$ IsCharacterSetsValue(v) *iff*
3 $\quad$ IsAtom$(v)_0)$

> Semiformal Description 4.17

Predicate "is a page dimensions value" (clause 5.3.7.4.1)

The value of the attribute 'page dimensions' is a set of pairs of positive integers.

> Definition 4.17

1 $\forall v$
2 $(_0$ IsPageDimensionsValue(v) *iff*
3 $\quad$ IsNeCol$^{1.1}(v)$ *and*
4 $\quad \forall a \in v$ (IsPairOfPosInt$^{1.9}(a))\ _0)$

> Semiformal Description 4.18

Predicate "is a medium types value" (clause 5.3.7.4.2)

The value of the attribute 'medium types' is a set where each element is a medium type value.

> Definition 4.18

1 $\forall v$
2 $(_0$ IsMediumTypesValue(v) *iff*
3 $\quad$ IsNeCol$^{1.1}(v)$ *and*
4 $\quad \forall a \in v$ (IsMediumTypeValue$^{2.105}(a))\ _0)$

> Semiformal Description 4.19

Predicate "is a layout paths value" (clause 5.3.7.4.3)

The value of the attribute 'layout paths' is a set where each element is a layout path value.

> Definition 4.19

1 $\forall v$
2 $(_0$ IsLayoutPathsValue(v) *iff*
3 $\quad$ IsNeCol$^{1.1}(v)$ *and*
4 $\quad \forall a \in v$ (IsLayoutPathValue$^{2.102}(a))\ _0)$