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Document application profile for the interchange of Group 4 facsimile documents

ITU-T Recommendation T.503

(Previously CCITT Recommendation)

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For further details, please refer to ITU-T List of Recommendations.

DOCUMENT APPLICATION PROFILE FOR THE INTERCHANGE OF GROUP 4 FACSIMILE DOCUMENTS

Summary

This Recommendation defines a document application profile that may be used by any telematic service. Its purpose is to specify an interchange format suitable for the interchange of Group 4 facsimile documents that contain only raster graphics. Documents are interchanged in a formatted form, which enables the recipient to display or print the document as intended by the originator.

Source

ITU-T Recommendation T.503 is being republished in its entirety to include five amendments and one corrigendum previously approved. The last amendment, Amendment 5, was prepared by ITU-T Study Group 8 (1997-2000) and was approved under the WTSC Resolution 1 procedure on 10 February 2000.

FOREWORD

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CONTENTS

	<i>Page</i>
1 Scope	1
2 Field of application	1
3 References	1
4 Definitions	2
5 Characteristics supported by this document application profile	2
5.1 Overview	2
5.2 Logical characteristics	2
5.3 Layout characteristics	2
5.4 Content characteristics	2
6 Definition of the document application profile	3
6.1 Overview	3
6.2 Definition of document structure	3
6.3 Definition of attribute values	4
6.4 Content architectures	6
Annex A Format of the values of the attributes "object identifier"	7
Annex B Extension for continuous-tone colour and gray-scale image documents	7
B.1 Introduction	7
B.2 References	7
B.3 Definitions	8
B.4 Characteristics supported by this document application profile	8
B.5 Definition of the document application profile	9
B.6 Definition of the document application profile for soft-copy communication	10
B.7 Preferred Huffman tables for T.81 encoding	10
B.8 JPEG data structure on continuous-tone image	10
B.9 ASN.1 definition for this annex	16
Annex C Extension for colour and gray-scale image documents using Recommendation T.43	22
C.1 Introduction	22
C.2 References	22
C.3 Definitions	22
C.4 Characteristics supported by this document application profile	22
C.5 Definition of the document application profile	23
C.6 Definition of the document application profile for soft-copy communication	26
C.7 ASN.1 definition for this annex	26

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DOCUMENT APPLICATION PROFILE FOR THE INTERCHANGE OF GROUP 4 FACSIMILE DOCUMENTS

1 Scope

1.1 This Recommendation defines a document application profile conforming to the T.410 series of Recommendations.

Its purpose is to specify an interchange format suitable for the interchange of Group 4 facsimile documents that contain only raster graphics.

Documents are interchanged in a formatted form, which enables the recipient to display or print the document as intended by the originator.

1.2 This Recommendation, together with designated parts of T.563, defines a document application profile that may be used by any telematic service.

2 Field of application

2.1 This Recommendation defines a document application profile that is in conformance with the T.410 series of Recommendations and that allows Group 4 facsimile documents to be interchanged only in a formatted form, which allows a recipient to reproduce the document as intended by the originator.

2.2 This document application profile is designed to be independent of the means used to create or to interchange the encoded documents.

2.3 The features which can be interchanged using this document application profile 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 the 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.

2.4 It is assumed that, when negotiation is performed by the service using this document application profile, all non-basic features are subject to negotiation.

3 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; all users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published.

- ITU-T Recommendation T.6 (1988), *Facsimile coding schemes and coding control functions for Group 4 facsimile apparatus*.
- ITU-T T.410 series of Recommendations, *Open Document Architecture (ODA) and interchange format*.
- ITU-T Recommendation T.417 (1993) | ISO/IEC 8613-7:1994, *Information technology – Open document architecture (ODA) and interchange format: Raster graphics content architecture*.
- ITU-T Recommendation T.563 (1996), *Terminal characteristics for Group 4 facsimile apparatus*.
- ITU-T Recommendation X.680 (1997) | ISO/IEC 8824-1:1998, *Information technology – Abstract Syntax Notation One (ASN. 1): Specification of basic notation*.
- ITU-T Recommendation X.681 (1997) | ISO/IEC 8824-2:1998, *Information technology – Abstract Syntax Notation One (ASN. 1): Information object specification*.

- ITU-T Recommendation X.682 (1997) | ISO/IEC 8824-3:1998, *Information technology – Abstract Syntax Notation One (ASN. 1): Constraint specification*.
- ITU-T Recommendation X.683 (1997) | ISO/IEC 8824-4:1998, *Information technology – Abstract Syntax Notation One (ASN. 1): Parameterization of ASN. 1 specifications*.
- ITU-T Recommendation X.690 (1997) | ISO/IEC 8825-1:1998, *Information technology – ASN. 1 encoding rules – Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER)*.

4 Definitions

The definitions in Recommendation T.411 apply to this Recommendation.

5 Characteristics supported by this document application profile

5.1 Overview

A Group 4 facsimile document is the result of a formatting process and therefore the purpose of this document application profile is to allow transfer of the complete layout of the document.

Only one category of content is allowed within the same page, namely: *raster graphics content* (per ITU-T Recommendation T.417) as used by facsimile Group 4 apparatus.

This section specifies the functional description of the features supported by this document application profile.

5.2 Logical characteristics

Not applicable.

5.3 Layout characteristics

5.3.1 Layout document structure

A document is seen as a succession of pages.

The content of a page is: *raster graphics content* architecture.

5.3.2 Document structure elements

5.3.2.1 Page format

5.3.2.1.1 The document is imaged in a text area which must be within the assured reproduction area.

5.3.2.1.2 The dimensions of the assured reproduction area depend on the paper used.

5.3.2.1.3 The possible paper formats are defined in Recommendation T.563.

5.3.2.1.4 Only the vertical orientation of the page is permitted.

5.3.2.2 Block

Not applicable (the content is directly related to the page).

5.4 Content characteristics

The Group 4 facsimile document contains raster graphics in facsimile Group 4 format.

5.4.1 Raster-graphics content

5.4.1.1 Raster-graphics imaging

The content of raster-graphics is defined by the dimensions of the page and the number of pels per line, in accordance with Table 2/T.563.

5.4.1.2 Pel spacing, line spacing and pel transmission density

This property defines the distance between successive pels on a line and between successive lines of pels.

The basic value is 6 BMU, corresponding to 200 pels per 25.4 mm. It is also the default value.

The non-basic values are 1, 2, 3, 4 and 5 BMU, respectively corresponding to 1200, 600, 400, 300 and 240 pels per 25.4 mm.

5.4.2 Received document

This document application profile, being limited to formatted form, does not support any features to facilitate processing of an interchanged document by a receiver.

6 Definition of the document application profile

6.1 Overview

6.1.1 Document architecture level

This document profile makes use of document architecture class FDA, as defined in Recommendation T.412. A document according to this document architecture profile includes a specific layout structure only.

The document architecture level is defined in Tables 2, 3 and 4.

The specific layout structure is always present in any document conforming to this document application profile.

6.1.2 Content architecture level

The content architecture level that may be used in documents conforming to this document application profile is as follows: *raster graphics formatted content architecture level*, defined in Tables 5 and 6.

The coding method to be used is that defined by Recommendation T.6. In addition, any non-basic features defined in Recommendation T.6 may be used, provided that they are indicated in the document profile.

6.1.3 Document profile level

The document profile level used in this document application profile is defined in Table 1. Every document interchanged in accordance with this document application profile must include a document profile. Every non-basic attribute value used in a document must be indicated in the document profile.

6.1.4 Interchange format class

The interchange format class used in this document application profile is "B", as defined in Recommendation T.415.

6.2 Definition of document structure

6.2.1 Specific layout structure

The number of hierarchical levels is 2, namely:

- document layout root;
- page.

The document layout root and page levels are mandatory. Only one content portion must be associated with each page.

6.2.2 Generic layout structure

Not applicable.

6.3 Definition of attribute values

The attributes applicable to layout components are defined in Table 2. The following notation is used in this table:

- attribute not applicable to object description
- m mandatory attribute
- nm non-mandatory attribute
- d defaultable attribute

Capital letters (M, NM and D) are used for groups of attributes. The allowable attribute values for object descriptions are defined in Table 3.

Table 1/T.503 – Document profile attributes

Attribute	Value	Permissible values
Document profile descriptor	M	
Specific layout structure	m	Present
Document characteristics	M	
Document Application Profile	m	Group 4 fax
Document architecture class	m	Formatted
No basic document charact.	NM	
Page dimensions (Note 1)	nm	North American letter = (10 200, 13 200 fixed or variable) ISO B4 = (11 811, 16 677 fixed or variable) ISO B3 = (14 030, 19 840 fixed or variable) Japanese legal = (12 141, 17 196 fixed or variable) Japanese letter = (8598, 12 141 fixed or variable) North American legal = (10 200, 16 800 fixed or variable) North American ledger = (13 200, 20 400 fixed or variable) (Note 2)
Type of coding	nm	T.85 single-progression (Note 3)
Raster graphics coding attributes	NM	
Compression	nm	Uncompressed
Raster graphics presentation features	NM	
Pel transmission density	nm	5 BMU (240 pels/25.4 mm) 4 BMU (300 pels/25.4 mm) 3 BMU (400 pels/25.4 mm) 2 BMU (600 pels/25.4 mm) 1 BMU (1200 pels/25.4 mm)
NOTE 1 – This dimension attribute is represented as a data element which consists of two integers. Two integers specify width and height of a page in basic measurement units (BMUs). NOTE 2 – An indefinite page length is represented by a variable measure in the vertical dimension. The value of this data is then arbitrary and should be the nominal page length. NOTE 3 – If basic Lo is supported, object ID {0020850} shall be indicated. If optional Lo is supported, object ID {0020851} shall be indicated. When object ID {0020851} is indicated, object ID {0020850} shall also be indicated. This is the coding scheme defined in clause 4/T.85.		

Table 2/T.503 – Attributes applicable to layout components

Attribute	Document layout root	Page
<i>Shared attributes</i>		
Object type	m	m
Object identifier	nm	nm
Subordinate	nm	–
Content portions	–	nm
Default value lists	nm	–
<i>Layout attributes</i>		
Presentation attributes	–	d
Dimensions	–	d

Table 3/T.503 – Attribute values for layout object descriptions

Attribute	Basic value	Default value	Non-basic value
<i>Shared attributes</i>			
Object type	Document layout root, page	None	None
Object identifier	As defined in Rec. T.412 (see also Annex A)	None	None
Subordinate	As defined in Rec. T.412	None	None
Content portions	As defined in Rec. T.412	None	None
Default value lists	See Table 4	None	None
<i>Layout attributes</i>			
Presentation attributes	See Table 5		
Dimensions (Note 1)	Horizontal = 9920 BMU Vertical = 14 030 BMU (Note 2)	Horizontal = 9920 BMU Vertical = 14 030 BMU (Note 3)	North American letter = (10 200, 13 200) ISO B4 = (11 811, 16 677) ISO A3 = (1430, 19 840) Japanese legal = (12 141, 17 196) Japanese letter = (8598, 12 141) North American legal = (10 200, 16 800) North American ledger = (13 200, 20 400) (Note 2)

NOTE 1 – This dimension attribute is represented as a date element which consists of two integers. Two integers specify width and height of a page in basic measurement units (BMUs).

NOTE 2 – Width is indicated by fixed measure, and at the same time height is indicated by either fixed or variable measure.

The use of variable measure for height indication depends on each application, for example, real time scanning, fixed printing paper, etc. Therefore, for example, when a transmitting terminal requests to use variable measure for height indication, a receiving terminal will accept variable measure for height indication even though the receiving terminal adopts cut sheet paper (fixed size paper) for printing.

NOTE 3 – Both width and height are indicated by fixed measures.

Table 4/T.503 – Defaultable attributes that may be specified in a default value list of the document layout root

Object type	Defaultable attributes that can be specified
Page	Presentation attributes Dimensions

6.4 Content architectures

The following raster graphics content architecture level is used in this document application profile.

6.4.1 Raster graphics content architecture level

The type of coding to be used is as defined in Recommendation T.6.

The code extension control function may be used, provided its use is agreed by prior negotiation and is indicated in the document profile. This control function is used to invoke uncompressed mode of coding.

The presentation attributes that may be used are defined in Table 5.

Table 5/T.503 – Presentation attributes

Attributes	Basic values	Default values	Non-basic values
Type of content	Formatted raster graphics content architecture	Formatted raster graphics content architecture	None
<i>Raster graphics attributes</i>			
Pel path	0°	0°	None
Line progression	270°	270°	None
Pel transmission density	6 BMU (200 pels/25.4 mm)	6 BMU	5 BMU (240 pels/25.4 mm) 4 BMU (300 pels/25.4 mm) 3 BMU (400 pels/25.4 mm) 2 BMU (600 pels/25.4 mm) 1 BMU (1200 pels/25.4 mm)

6.4.2 Coding attributes

Attributes applicable to content portions are defined in Table 6.

Table 6/T.503 – Attributes applicable to content portions

Attributes	Qualifier	Basic values	Default value	Non-basic values
Content identifier layout	nm	As defined in Rec. T.412	None	None
Type of coding	d	Rec. T.6	Rec. T.6	T.85 single-progression
<i>Raster graphics coding attributes</i>				
Number of pels per line	d	As defined in Table 3/T.563	As defined in Table 3/T.563	None
Compression	d	Compressed	Compressed	Uncompressed
Number of discarded pels	d	As defined in Table 3/T.563	As defined in Table 3/T.563	None
Content information	m	T.6 string	None	T.85 single-progression string