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Electronic imaging — Guidance for selection of document image compression methods

dec son d'h Imagerie électronique — Guide pour la sélection des méthodes de compression d'image



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Contents

Forew	vord	iv
Introd	uction	v
1	Scope	1
2	Normative references	1
-	Torme and definitione	4
3	Terms and deminitions	1
4	General	3
5	Type of document and digitization parameters	3
5.1 E 2	General.	ວ ຈ
5.2	Types of documents	J
5.3	General	+ ۸
532	Black and white documents	+4 ۸
532	Grevecale documents	ب ۸
531	Psoudo-grav documents	7
535	Colour documents	5
536	Mixed documents	5
0.0.0		
6	Compression methods and standards	6
6.1	RLE compression (Run-Length Encoding)	6
6.2	LZW compression (Lempel-Ziv-Welch)	6
6.3	ITU-T algorithms	6
6.3.1	General	6
6.3.2	Group 3 one-dimensional method (G3 1D)	6
6.3.3	Group 3 two-dimensional method (G3 2D) and Group 4 method	7
6.4	JBIG compression	7
6.5	JPEG compression	7
6.5.1	General	7
6.5.2	Discrete Cosine Transform (DCT)	8
6.5.3	JPEG steps	8
6.5.4	Components of JPEG	8
6.6	Fractal compression	9
6.7	wavelet compression	9
7	Selecting compression parameters	9
7.1	Pertinence of compression	9
7.2	Selecting a compression method	10
7.3	Adjusting JPEG compression	10
0	Conclusion	11
0		
Biblio	graphy	12

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of normative document:

- an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;
- an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed after three years with a view to deciding whether it should be confirmed for a further three years, revised to become an International Standard, or withdrawn. In the case of a confirmed ISO/PAS or ISO/TS, it is reviewed again after six years at which time it has to be either transposed into an International Standard or withdrawn.

Attention is drawn to the possibility that some of the elements of this Technical Specification may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/TS 12033 was prepared by Technical Committee ISO/TC 171, Document imaging applications, Subcommittee SC 2, Application issues.

Introduction

With respect to the rapid increase of applications using digitization techniques, the role of compression methods has become a factor of growing importance for the management of the volumes of stored data.

The effects of the available compression methods vary greatly, depending on the source documents. For example, an Electronic Image Management (EIM) system configured for scanning and storing continuous tone images will have different image compression requirements as compared to an application involving only text.

Practical methods for analyzing user requirements for image compression in order to select accurate and optimal image compression schemes are complex. It was evidently useful to issue this Technical Specification in order to is a constraint of the constra guide users and system developers in their selection of these methods.

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Electronic imaging — Guidance for selection of document image compression methods

1 Scope

This Technical Specification provides information to enable a user or EIM integrator to make an informed decision on selecting compression methods for digital images of business documents. It is designed to provide technical guidance to analyze the type of documents and which compression methods are most suitable for particular documents in order to optimize their storage and use.

For the user, this Technical Specification provides information on image compression methods incorporated in hardware or software in order to help this user during the selection of equipment in which the methods are embedded.

For the equipment or software designer, it provides planning information.

This Technical Specification is applicable only to still images in bit-map mode. It only takes into account compression algorithms based on well-tested mathematical work.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this Technical Specification. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this Technical Specification are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 12651:1999, Electronic imaging — Vocabulary

ITU-T Recommendation T.4:1999, Standardization of Group 3 facsimile terminals for document transmission

ITU-T Recommendation T.6:1988, *Facsimile coding schemes and coding control functions for group 4 facsimile apparatus*

3 Terms and definitions

For the purposes of this Technical Specification, the terms and definitions given in ISO 12651 and the following apply.

3.1

lossless compression

compression algorithm that is capable of recalling all of the original information of a compressed image

3.2

lossy compression

compression algorithm which loses some of the original information during compression, so that the decompressed image is only an approximation of the original