IEC 62842

Edition 1.0 2015-09

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Multimedia home server systems – File allocation system with minimized reallocation

Systèmes de serveur domestique multimédias – Système d'allocation de fichiers avec réallocation réduite le plus possible

IEC 62842:2015-09(en-fr)

IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC
The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications
The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform
The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, …). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished
Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc
If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC online collection - oc.iec.ch
Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org
The world's leading online dictionary on electrotechnology, containing more than 22 000 terminological entries in English and French, with equivalent terms in 18 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

A propos de l'IEC
La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC
Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Recherche de publications IEC - webstore.iec.ch/advsearchform
La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études, …). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished
Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et une fois par mois par email.

Service Clients - webstore.iec.ch/csc
Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: sales@iec.ch.

IEC online collection - oc.iec.ch
Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

Electropedia - www.electropedia.org
Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 000 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

IEC 62842

Edition 1.0 2015-09

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Multimedia home server systems – File allocation system with minimized reallocation

Systèmes de serveur domestique multimédias – Système d'allocation de fichiers avec réallocation réduite le plus possible

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 33.160.60

ISBN 978-2-8322-1029-9

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

MULTIMEDIA HOME SERVER SYSTEMS – FILE ALLOCATION SYSTEM WITH MINIMIZED REALLOCATION

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62842 has been prepared by technical area 8: Multimedia home systems and applications for end-user network of IEC technical committee 100: Audio, video and multimedia systems and equipment.

The text of this technical report is based on the following documents:

CDV	Report on voting
100/2367/CDV	100/2459/RVC

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

INTRODUCTION

Recently, hard disk and Blu-ray Disc[1] recorders have become popular in the home to record television programmes. Normally a Hard Disk Recorder (HDR) is used for time shift and a Blu-ray Disc (BD) is used for library. When an HDR is used for time shift, television programmes are recorded and played, then many of them are deleted to reuse the spaces for other programmes to be recorded. These programmes are stored as files in a hard disk drive (HDD) using a file system. Continuous recording and deletion of programmes involves the continuous storing and deletion of files in the file system. Television programme streams include at least videos and an electronic programme guide (EPG). The HDR stores videos in a long, variable length file depending on the quality and recording hours. Compared with videos, EPG related information is stored in a shorter file or files but is often updated. This continuous creation, deletion and updating of files of different lengths finally causes the files to be stored in fragments, and the system performance becomes very low.

In a computer, defragmentation tools are provided to solve the problem of a fragmented file system. Normally defragmentation with reallocation of files in sequence takes a long time and the end user cannot but wait for the completion of the defragmentation, with no other activity. In the home server environment, a smarter solution to resolve this problem needs to be provided.

The recent newly developed HDD features will be reflected in the next version of the standard.

[1] Blu-ray Disc™ is a trademark of the Blu-ray Disc Association. This information is given for the convenience of users of this document and does not constitute and endorsement by IEC of the product named.

MULTIMEDIA HOME SERVER SYSTEMS – FILE ALLOCATION SYSTEM WITH MINIMIZED REALLOCATION

1 Scope

This International Standard specifies the method for allocating requested file space with no fragmentation, to minimize the need for reallocation of fragmented files in the Universal Disc Format (UDF) file system applied to hard disk drives used in hard disk recorders.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 13346 (all parts), *Information technology – Volume and file structure of write-once and rewritable media using non-sequential recording for information*

ISO/IEC 13346-1:1995, *Information technology – Volume and file structure of write-once and rewritable media using non-sequential recording for information interchange – Part 1: General*

ISO/IEC 13346-3:1999, *Information technology – Volume and file structure of write-once and rewritable media using non-sequential recording for information interchange – Part 3: Volume structure*

ISO/IEC 13346-4:1999, *Information technology – Volume and file structure of write-once and rewritable media using non-sequential recording for information interchange – Part 4: File structure*

OSTA UDF2.01:200, *Information technology – OSTA Universal Disk Format Specification, Revision 2.01*

Secure Universal Disk Format Specification Revision 1.00, *Optical Storage Technology Association (OSTA)*, http://www.osta.org/

3 Terms, definitions, abbreviations and notation

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1.1
partition
region allocated to a file system by a disk volume space management system

3.1.2
virtual container partition
virtual partition containing a partition which has a minimum size of power-of-2 of allocation unit size of the disk