IEC 62842

Edition 1.0 2015-09

INTERNATIONAL STANDARD

Multimedia home server systems – File allocation system with minimized reallocation

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 33.160.60

ISBN 978-2-8322-2843-2

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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International Standard IEC 62842 has been prepared by technical aerea 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- withdrawn,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.

A bilingual version of this publication may be issued at a later date.

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.

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[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/