IEC/TS 62579

Edition 1.0 2010-05

TECHNICAL SPECIFICATION

colour inside

Multimedia home server systems – Conceptual model for domain management

INTERNATIONAL ELECTROTECHNICAL COMMISSION

PRICE CODE V

ICS 33.160; 35.240

ISBN 978-2-88910-932-6

® Registered trademark of the International Electrotechnical Commission

CONTENTS

FOREWORD 4
INTRODUCTION 6
1 Scope 7
2 Terms, definitions and abbreviations 7
2.1 Terms and definitions 7
2.2 Abbreviations 9
3 Use cases 9
3.1 Purpose of description of use cases 9
3.2 Example 1: A domain in ARIB TR-B27 9
3.3 Example 2: A domain in DVB CPCM 10
3.4 Example 3: A domain in OMA DRM V2.0 10
3.5 Example 4: A domain in permission code 11
3.6 Example 5: A common domain in Marlin DRM 12
4 Conceptual model 13
4.1 Definition of a domain 13
4.2 Forming a domain 13
4.3 Components of a device which can join a domain 14
4.4 Requirements 14
4.4.1 Abstract domain model 14
4.4.2 Information elements 16
4.4.3 Joining and leaving domains 16
4.4.4 Usage control by usage rules 17
4.4.5 Revocation of a device 18
4.4.6 Items gathered by content issuer 18
5 Reference models 18
5.1 General 18
5.2 Basic model 18
5.2.1 Overview of basic model 18
5.2.2 RI management domain model 18
5.2.3 Autonomous domain model 21
5.3 Enhanced model 22
5.3.1 Overview of enhanced model 22
5.3.2 Domain model which extends over multiple domains 22
5.3.3 Merged (or divorced) domain model 23
Annex A (informative) Existing domain specifications 27
Annex B (informative) Management for simultaneous information in a domain 30
Bibliography 31

Figure 1 – Domain in ARIB TR-B27 9
Figure 2 – Domain in DVB CPCM 10
Figure 3 – Domain in OMA DRM V2.0 11
Figure 4 – Domain in permission code 11
Figure 5 – Common domain in Marlin DRM 12
Figure 6 – Overview of a domain 13
Figure 7 – Components of a device 14

Figure 8 – Relationship between the basic elements of a domain model 15
Figure 9 – Example of RI management domain model..... 19
Figure 10 – Example of an RI management domain model..... 19
Figure 11 – Example of the RI management domain model..... 20
Figure 12 – Example of the RI management domain model..... 20
Figure 13 – Example of RI management domain model..... 20
Figure 14 – Example of an autonomous domain model 21
Figure 15 – Example of Autonomous domain model..... 22
Figure 16 – Regional domain 22
Figure 17 – Time stamped domain..... 23
Figure 18 – Merged user domains..... 23
Figure 19 – Merging domains based on user entities 24
Figure 20 – Merged domain 24
Figure 21 – Divorced user domain 25
Figure 22 – Divorced user domain based on user entities 25
Figure 23 – Divorced domain 26

Table 1 – Information elements of a domain..... 16
Table 2 – Device parameters that join domain 17
Table 3 – Items managed in a domain 18
Table A.1 – Domain specifications in DVB 27
Table A.2 – Domain specifications in OMA..... 27
Table A.3 – Domain specifications in ARIB 28
Table A.4 – Domain specifications in permission code 28
Table A.5 – Domain specifications in Marlin..... 28
Table A.6 – Domain specifications in iTunes..... 29
Table A.7 – Domain specifications in Coral 29
Table A.8 – Domain specifications in Cluster Protocol 29

INTERNATIONAL ELECTROTECHNICAL COMMISSION

MULTIMEDIA HOME SERVER SYSTEMS – CONCEPTUAL MODEL FOR DOMAIN MANAGEMENT

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.

The main task of IEC technical committees is to prepare International Standards. In exceptional circumstances, a technical committee may propose the publication of a technical specification when

- the required support cannot be obtained for the publication of an International Standard, despite repeated efforts, or
- the subject is still under technical development or where, for any other reason, there is the future but no immediate possibility of an agreement on an International Standard.

Technical specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC 62579, which is a technical specification, has been prepared by technical area 8: Multimedia home server systems of IEC technical committee 100: Audio, video and multimedia systems and equipment.

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

Enquiry draft	Report on voting
100/1626/CDV	100/1676/RVC

Full information on the voting for the approval of this technical specification 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 web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be be

- transformed into an International standard,
- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

Compared with analog media, digital contents can be copied easily and the copies don't decline in quality. So it is certain that digital contents should be protected.

But, compared to the rights of private records on analog media, it is hard for users to enjoy their digital contents freely. The concept of a domain has been defined in several organizations for the purpose of improving user convenience. Domains enable users to consume and manage their digital contents in a manner which is more like enjoying analog contents. Users can enjoy digital contents, which are stored on a device, not only on the device where they are stored on but also on other devices within the same domain such as home or school, etc. From a standpoint of copyrights, it means that the contents are allowed to be consumed with a copy control technology on limited devices. A domain manages both user convenience and contents protection. Depending on the scenario of the operated domain, the limit and the boundary on domain configuration can be flexible.

MULTIMEDIA HOME SERVER SYSTEMS – CONCEPTUAL MODEL FOR DOMAIN MANAGEMENT

1 Scope

This Technical Specification defines the conceptual model of domain management, which includes terms, requirements and reference models. The domain is a set of devices, users, and/or other entities which can share contents. Entities within a domain are allowed to play, copy and move content and usage rules to other entities within the same domain.

Some existing systems have been proposed in this field of domain, but various vocabularies and models are specified. This situation causes confusion and misunderstanding of systems, and disturbs interoperability. This Technical Specification is intended to standardize the vocabularies and clarify the models.

All kinds of digital content, including broadcast content which needs to be protected, are considered in this specification. On the other hand, rights management and content protection technology are beyond the scope of this specification.

NOTE In addition, network protocol and media format for content sharing and exchange are also out of the scope of this specification. Refer also to IEC 62481-1 and IEC 62481-2 for interoperability guidelines..