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Technical Specification

Digital Video Broadcasting (DVB);
System Renewability Messages (SRM) in DVB Systems

European Broadcasting Union   Union Européenne de Radio-Télévision

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Foreword

This Technical Specification (TS) has been produced by Joint Technical Committee (JTC) Broadcast of the European Broadcasting Union (EBU), Comité Européen de Normalization ELECtrotechnique (CENELEC) and the European Telecommunications Standards Institute (ETSI).

NOTE: The EBU/ETSI JTC Broadcast was established in 1990 to co-ordinate the drafting of standards in the specific field of broadcasting and related fields. Since 1995 the JTC Broadcast became a tripartite body by including in the Memorandum of Understanding also CENELEC, which is responsible for the standardization of radio and television receivers. The EBU is a professional association of broadcasting organizations whose work includes the co-ordination of its members' activities in the technical, legal, programme-making and programme-exchange domains. The EBU has active members in about 60 countries in the European broadcasting area; its headquarters is in Geneva.

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Founded in September 1993, the DVB Project is a market-led consortium of public and private sector organizations in the television industry. Its aim is to establish the framework for the introduction of MPEG-2 based digital television services. Now comprising over 200 organizations from more than 25 countries around the world, DVB fosters market-led systems, which meet the real needs, and economic circumstances, of the consumer electronics and the broadcast industry.

Introduction

More and more consumer multimedia devices are equipped with digital interfaces, enabling consumers to move content that they have acquired amongst devices they own for either consumption, archiving, conversion or similar purposes without any loss in quality. In response to the content rights owners' worries about uses of the content not in compliance with licences granted eased by those lossless, high quality interfaces, many consumer devices are being equipped with content protection and copy management (CPCM) technologies. One of the key elements of such systems is the field renewability of important parts of such CPCM implementations in order to replace those elements which have been compromised and fail in further preventing undesired use of content. Those replacement information parts are conveyed to consumer equipment in the form of System Renewability Messages (SRM) either as part of the content on pre-recorded media or as part of broadcast information. The present document deals with the latter.

1   Scope

The present document defines mechanisms for locating and conveying System Renewability Messages (SRM) in DVB systems. Here, "System Renewability" primarily refers to the renewal of typically non-volatile information relating to security functionalities including, but not limited to Conditional Access (CA) and Content Protection and Copy Management (CPCM). This characterization does however not preclude use of these mechanisms for similar, but not security-related applications, provided that the receiver can unambiguously establish such alternate context.

The syntax and semantics of SRM payloads are explicitly excluded from the present document's scope. They are defined and scoped by the originator of the messages.

2   References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific.

- •   For a specific reference, subsequent revisions do not apply.

- •   Non-specific reference may be made only to a complete document or a part thereof and only in the following cases:

    -     if it is accepted that it will be possible to use all future changes of the referenced document for the purposes of the referring document;

    -     for informative references.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

    NOTE: While any hyperlinks included in this clause were valid at the time of publication ETSI cannot guarantee their long term validity.

2.1   Normative references

The following referenced documents are indispensable for the application of the present document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

    [1]   ETSI EN 300 468: "Digital Video Broadcasting (DVB); Specification for Service Information (SI) in DVB systems".

    [2]   ISO/IEC 13818-1: "Information technology - Generic coding of moving pictures and associated audio information; Systems".

    [3]   ATSC A/98: "System Renewability Message Transport", 3 January 2007.

    [4]   ETSI TR 101 162: "Digital Video Broadcasting (DVB); Allocation of Service Information (SI) codes for DVB systems".

2.2   Informative references

The following referenced documents are not essential to the use of the present document but they assist the user with regard to a particular subject area. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Not applicable.

3 Abbreviations

For the purposes of the present document, the abbreviations given in [1], [2] and the following apply:

SRM   System Renewability Message
ATSC   Advanced Television Systems Committee

NOTE: See http://www.atsc.org/.

CP   Copy Protection
DVB   Digital Video Broadcasting Project

NOTE: See http://www.dvb.org/.

PMT   Program Map Table [2]
SDT   Service Description Table [1]
SI   Service Information [1]
SRM PID   Packet Identifier [2] carrying SRM data
T-STD   Transport System Target Decoder [2]

4 Locating System Renewability Sreams

4.1 Overview

For locating SRM streams from the SDT, the present document defines two mechanisms. The first mechanism allows to locate a DVB Service the Components of which only convey SRM data. Consequently such a service shall be signalled as being of the type "SRM Service". The second mechanism allows to locate a Component conveying SRM data and being part of a DVB Service other than "SRM Service" like for instance "Digital Television".
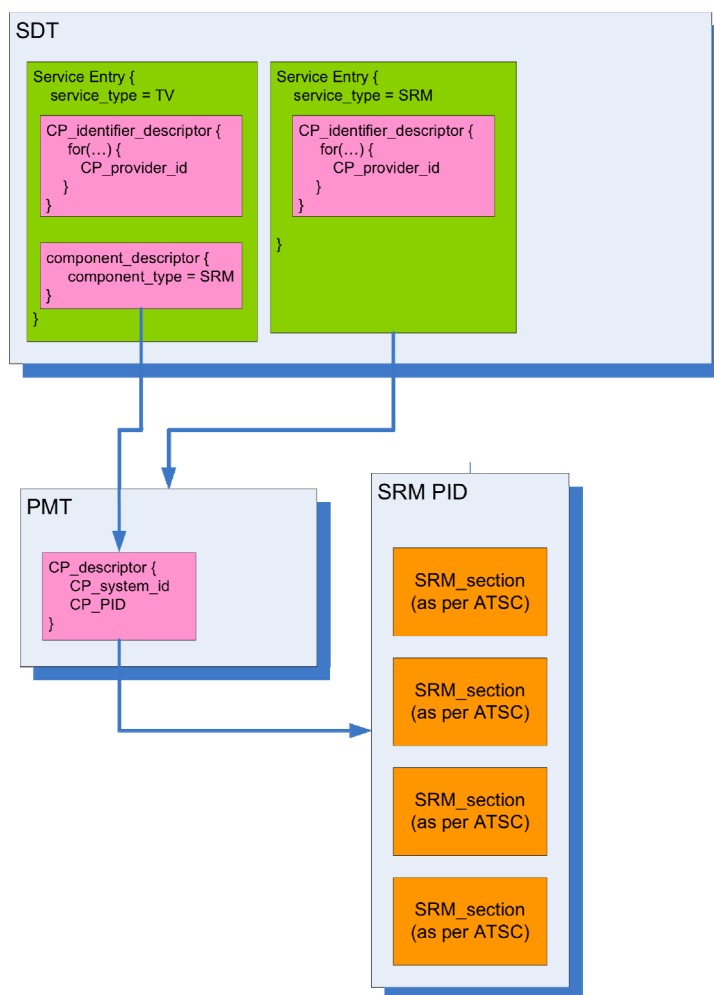
Figure 1: Overview of the SRM stream location options

4.2   Service Description Table (SDT) Signalling

4.2.1   Locating SRM Services

When all components of a DVB Service convey SRM data, the service_descriptor describing this Service in the SDT shall bear a service_type of 0x08 (SRM Service [1]).

In the service descriptor loop of the SDT containing said service_descriptor, at least one CP_identifier_descriptor [1] shall be present, indicating the CP_system_ids [4] for which SRMs are carried in the components making up the service. The CP_identifier_descriptor shall convey all the CP_system_ids for which one or more components of the service carry SRMs.

SRMs for which CP_system_ids are carried in which of the components can be inferred from processing the CP_descriptors in the ES_info loop of the service's PMT as described in clause 4.3.

4.2.2   Locating SRM Streams as Components of other services

When only a few of the components of a DVB Service convey SRM data, the service_descriptor describing this Service in the SDT shall bear a service_type as defined by [1] but may use a value other than 0x08 (SRM Service [1]).

In the service descriptor loop of the SDT containing said service_descriptor, at least one component_descriptor [1] shall be present bearing stream_content/component_type values of 0x08/0x01 (SRM Data [1]) designating the components as carrying SRMs.

SRMs for which CP_system_ids are carried in which of the components can be inferred from processing the CP_descriptors in the ES_info loops carrying stream_identifier_descriptors with matching component_tag values in the service's PMT as described in clause 4.3.

4.3   Programme Map Table (PMT) Signalling

In the ES_info loop describing a SRM component, one or more CP_descriptors [1] shall be conveyed indicating the CP_system_ids [4] for which SRMs are carried in the component.

The stream_type field for SRM components shall be set to 0x05 (ISO/IEC 13818-1 Private Sections [2]).

> NOTE: This enables SRMs from several CP systems to be carried in the same component as well as carrying SRMs from several CP systems in a separate component, or any combination thereof.

5   Transport of System Renewability Messages

The SRM shall be carried in System renewability message sections as specified in ATSC A/98 [3], clause 4.

The Transport System Target Decoder (T-STD) model for SRM transport is defined by ATSC A/98 [3], clause 6.

History

Document history		
V1.1.1	May 2009	Publication