AVMS Directive
Article 7a Prominence
DVB Signaling (Metadata)

December 2023

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https://dvb.org/

- Founded in 1993, the DVB Project is an industry-led consortium working together to design open technical specifications for digital media delivery.
  - Broadcasters (including PSBs) & Content Providers
  - Consumer Electronics Manufacturers & Technology Providers
  - Network Operators
  - Regulators
- DVB Members collaborate to develop specifications for digital television systems, which are turned into standards by international standards bodies, usually ETSI.
- DVB does NOT write policy papers
  - Its members most often have diverse and opposing views

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Devices cannot magically know how to implement such conditions – they must be explicitly told what to do via signalling, metadata, or, if immutably fixed, possibly by hard coding. But, as we know, such aspects are rarely, if ever, permanent and unmodifiable, so a signalling/metadata-based solution is most likely required in order to be able to realize the requirements of the AVMSD.

Photo by Christian Lue on Unsplash

A proactive approach to European media regulation

STUART SAVAGE (LG ELECTRONICS)

For several months now, a DVB task force has been looking into how a key European directive affecting media services can be implemented in a consistent manner in DVB-based systems. The aim is to help avoid unnecessary fragmentation in the market.

The EU's *Audiovisual Media Services Directive* (AVMSD) has been the cornerstone of European regulation relating to our industry since 2010, when it replaced the *Television Without Frontiers Directive*, which itself had been in existence since 1989. The latest (second) revision of the AVMSD entered into force on 19 December 2018 following three years of consultations and negotiations, with implementation in national legislation by Member States due by 19 September 2020.

REGULATORY LAG

Changes in the media industry have tended to be primarily driven by advances in technology and new business models. The surrounding regulatory framework has been in a constant state of trying to keep up with such rapidly evolving conditions. The 1980s saw the advent of cross-border broadcasting, significantly enabled by satellite television. Thus arose the enduring "country of origin principle" whereby each Member State is responsible for ensuring regulatory compliance by media service providers under its jurisdiction and permitting transmission across borders.

As the capabilities of the internet to more widely support audiovisual services improved in the 2000s, regulations were updated to encompass the emerging "television-like" services, whose "form and content are comparable to the form and content of television broadcasting" and that "compete for the same audience as television broadcasts", i.e., video on-demand (VOD) services.

Previously VOD services had been covered in the e-Commerce Directive as an "information society service", and one of the prime purposes of the original AVMSD was to bring such services under the same umbrella as traditional television services. In 2010, however, VOD was still a nascent market: Netflix didn't officially start launching in Europe until 2012, and it took until 2014 to be available in most major EU territories.

While the original AVMSD covered everything from editorial aspects to rights windows and advertising, arguably the only aspect that had any real impact on end devices related to support for accessibility services, such as subtitling and audio description. However, since the vast majority of TVs had already been supporting such capabilities for many years, there weren't really any new features for DVB or manufacturers to add. Indeed, the major issue in this respect was the ability of content providers to generate a sufficient quantity of accessible content and, in the case of live services, with sufficient accuracy.

IMPACT ON DEVICES

By 2016 the place and impact of internet-based VOD services had become much clearer. The updated directive thus addressed issues that had largely been unknown in 2010 and for the first time included articles that had a direct impact on the development and implementation of end devices and user interfaces, notably 7a and 7b.

Article 7a requires that identified services of general interest (typically from public service broadcasters) should be given due prominence in user interfaces; 7b requires that the integrity of programmes and audiovisual media services is preserved, including prohibiting overlays without appropriate consent.

Devices cannot magically know how to implement such conditions – they must be explicitly told what to do via signalling, metadata, or, if immutably fixed, possibly by hard coding. But, as we know, such aspects are rarely, if ever, permanent and unmodifiable, so a signalling/metadata-based solution is most likely required in order to be able to realize the requirements of the AVMSD.

The DVB AVMS task force has produced an extensive report that more fully analyses the subject and as I write the group is currently turning this into the specific commercial requirements, ready for approval at the next CM meeting.

Stuart Savage is Director EU Innovation R&D for LG Electronics. He has been contributing to the work of the DVB Project since 1996 and is currently leading the Commercial Module's task force on the AVMS Directive.

AVMS Directive Implementation
Problem Statement plus further Analysis

Issues with implementing "textual lists"

1) Channels and Services in most implementations are not uniquely identified by their textual names, e.g. they are uniquely identified by DVB-triplets or unique service identifier etc.
2) It is very difficult to operationally manage a device implementation based on "text based lists". Although such lists are generally "quasi-static", changes inevitably occur and guaranteeing that such changes reliably propagate through all device implementations requires a great deal of operational and manual resource to ensure all changes work correctly. Examples of changes include:
    a. Service name change: for example "PSB1" changes its name to "PSB 1" (additional space character) or to "PSB-ONE". If a device was managing it SOGI list against the original text list it may not be able to notice, acknowledge or act on such a change. As such the SOGI service may subsequently be identified as non-SOGI service and be demoted down the prominence list.
    b. New SOGIs are added to the list.
3) A list may identify "PSB" as being the SOGI, but the actual service may not be named as such, for example it may only be known to the device as "PSB north-east" or "PSB-south" etc.
4) An individual identical name might actually be a technically different services – e.g. PSB-main may the name used all over a country but is actually a different regional variation.
5) Device manufacturers may go out of business and stop operationally maintaining such lists.
6) There may be services of very similar names that mistakenly get classified as SOGIs. E.g. "PSB" may be the official SOGI, but the "Pet Shop Boys" channel may incorrectly be classified as a SOGI if a network shortened its name to "PSB" or something similar.
7) A separate list has to be maintained for each and every country
8) In the future, "legacy TV's" that are no longer supported will not receive updates to the list
9) ....WG to add more as identified / agreed etc

The initial conclusion is that a text based implementation approach is not reliable or robust method, and requires manual intervention and additional efforts by CEM's to update in market devices.

The initial conclusion is that a text based implementation approach is not reliable or robust method,

Table of Contents

Manual Text Lists will fail : phoenix

1. Empfehlung zur Listung der beitragsfinanzierten und privaten Bewegtbildangebote

1	ARD
2	ZDF
3	RTL Television (RTL) → geolokalisierte Ausspielung des Programmsignals mit dem jeweils regional relevanten Fensterprogramm'
4	SAT.1 → geolokalisierte Ausspielung des Programmsignals mit dem jeweils regional relevanten Fensterprogramm²
5	ProSieben
6	VOX
7	Das jeweils lokal/regional relevante Angebot der Landesrundfunkanstalt (Drittes Programm) (1 aus 9) → BR, HR, MDR, NDR, Radio Bremen TV, RBB, SR, SWR, WDR → geolokalisierte Ausspielung
8	n-tv
9	WELT
10	tagesschau24
11	ZDFinfo
12	Phoenix
13	BBC World News
14	BILD
15	ZDFneo

Phoenix

Phoenix HD

	Channel Name (DVB name)	remark	webOS23 "public"	webOS23 (new 03.10.04)
26	WDR HD Siegen	07	ok	ok
27	WDR HD Wuppertal	07	ok	ok
28	SWR BW HD	07	ok	ok
29	SWR RP HD	07	ok	ok
30	SR Fernsehen HD	07	ok	ok
31	Radio Bremen HD	07	ok	ok
32	rbb Berlin HD	07	ok	ok
33	rbb Brandenburg HD	07	ok	ok
34	NDR FS HH HD	07	ok	ok
35	NDR FS MV HD	07	ok	ok
36	NDR FS NDS HD	07	ok	ok
37	NDR FS SH HD	07	ok	ok
38	MDR S-Anhalt HD	07	ok	ok
39	MDR Sachsen HD	07	ok	ok
40	MDR Thüringen HD	07		
41	hr-fernsehen HD	07	ok	ok
42	BR Fernsehen Nord HD	07	ok	ok
43	BR Fernsehen Süd HD	07		
44	ntv	08		
45	WELT	09		
46	tagesschau24 HD	10	ok	ok
47	ZDFinfo HD	11	ok	ok
48	phoenix HD	12	ok	ok
49	BBC Worldnews Europe HD	13		
50	BILD HD	14		
51	zdf_neo HD	15	ok	ok
52	ONE HD	16	ok	ok
53	arte HD	17	ok	ok
54	3sat HD	18		
55	kabel eins	19		

phoenix HD ≠ PHOENIX HD

TV Networks are not static – typically 3 or 4 changes every week

DVB SI®

https://dvb.org/wp-content/uploads/2022/11/A038r16_Specification-for-Service-Information-SI-in-DVB-Systems_Interim-draft_EN_300-468-v1-18-1_Apr-2023.pdf

DVB Digital Video Broadcasting

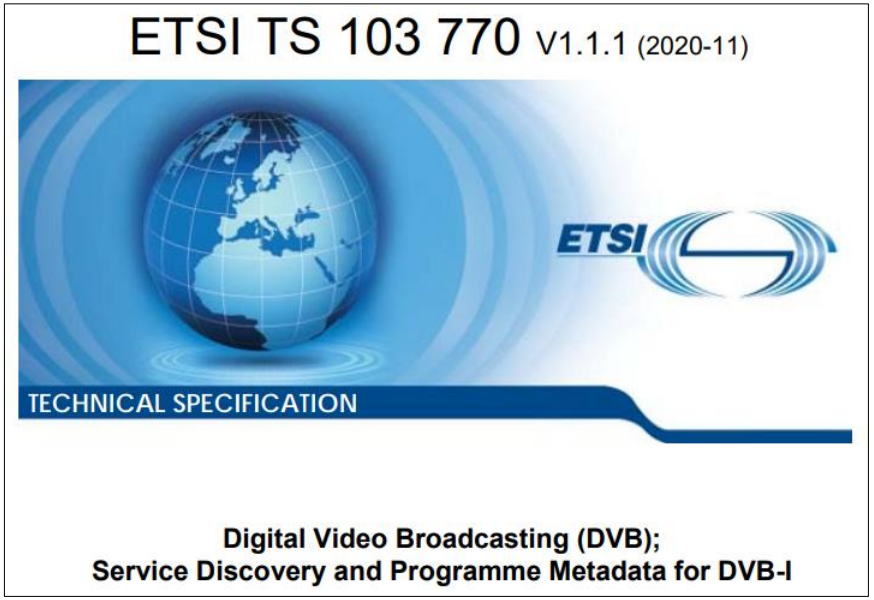
CM-TF-AVMS00xx

Commercial Requirements for AVMS Signalling

DVB CM-TF-AVMS-D Group

Version: R06
Creation Date: 30.07.2021
Revision Date: 19.11.2021

Date	Version	Remarks
2021-07-30	R1	First draft
2021-09-09	R5	Initial complete set
2021-11-22	R6	Candidate final



https://www.etsi.org/deliver/etsi_ts/103700_103799/103770/01.01.01_60/ts_103770v010101p.pdf

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6.4.18 Service Prominence Descriptor

The service prominence descriptor offers a solution for compliance with Article 7a of Directive (EU) 2018/1808 [i.9] and allow signalling of Services of General Interest (SOGI). The descriptor may be used to list all SOGI within the transport stream descriptor loop in the NIT or the BAT, or to signal an individual service as a SOGI within the descriptor loop of the SDT for the service.

Therefore to fully identify the DVB triplet (transport_stream_id, original_network_id, service_id) of a service in the NIT or the BAT, the *service_id* is signalled within this descriptor and the *transport_stream_id* and the *original_network_id* are implied by the descriptor loop that this descriptor is placed in. Therefore to fully identify the DVB triplet (*transport_stream_id*, *original_network_id*, *service_id*) of a service in the SDT the three parts of the DVB triplet are implied by the descriptor loop that this descriptor is placed in.

Individual services that are broadcast to multiple geographical regions may have differing SOGI statuses or SOGI priorities within those regions. The service prominence descriptor allows signalling of a target region for each SOGI, and each SOGI may be defined multiple times with unique target region information.

Table 162c: service_prominence_descriptor

Syntax	Number of bits	Identifier
service_prominence_descriptor() {		
descriptor_tag	8	uimsbf
descriptor_length	8	uimsbf
descriptor_tag_extension	8	uimsbf
SOGI_list_length	8	uimsbf
if (SOGI_list_length > 0) {		
for (i=0;i<N;i++) {		
SOGI_flag	1	bslbf
target_region_flag	1	bslbf
service_flag	1	bslbf
reserved_future_use	1	bslbf
SOGI_priority	12	uimsbf
if (service_flag == 0b1) {		
service_id	16	uimsbf
}		
if (target_region_flag == 0b1) {		
target_region_loop_length	8	uimsbf
for (j=0;j<N;j++) {		
reserved_future_use	5	bslbf
country_code_flag	1	bslbf
region_depth	2	uimsbf
if (country_code_flag == 0b1) {		
country_code	24	bslbf
}		
if (region_depth >= 1) {		
primary_region_code	8	uimsbf
if (region_depth >= 2) {		
secondary_region_code	8	uimsbf
if (region_depth == 3) {		
tertiary_region_code	16	uimsbf
}		
}		
}		
}		
}		
}		
}		
for (i=0; i<N; i++) {		
private_data_byte	8	bslbf
}		
}		

Service Discovery and Programme Metadata for DVB-I

DVB Document A177 Rev.5

July 2023

5.5.27 Service Prominence

```
<complexType name="ServiceProminenceListType">
  <sequence>
    <element name="Prominence" type="dvbisd:ServiceProminenceEntryType" maxOccurs="unbounded"/>
  </sequence>
</complexType>

<complexType name="ServiceProminenceEntryType">
  <simpleContent>
    <extension base="string">
      <attribute name="country" type="tva:ISO-3166-Code"/>
      <attribute name="region" type="dvbisd:RegionIdRefType"/>
      <attribute name="ranking">
        <simpleType>
          <restriction base="integer">
            <minInclusive value="1"/>
            <maxInclusive value="4095"/>
          </restriction>
        </simpleType>
      </attribute>
    </extension>
  </simpleContent>
</complexType>
```

Table 37d: ServiceProminenceListType Fields

Name	Semantic Definition	Constraints
Prominence	A list of prominence entries for the service.	Mandatory 1..∞

Table 37e: ServiceProminenceEntryType Fields

Name	Semantic Definition	Constraints
@country	The code for the country where this prominence entry applies.	Optional
@region	The region identifier (@regionID as defined in clause 5.6.2.1) for the region where this prominence entries applies.	Optional
@ranking	Indicates the relative prominence to be attributed to the service within the specified country or region. Lower values of this attribute indicate a higher priority. If this attribute is not provided, then the service can be considered as prominent, but its correlation with other prominent services is indeterminant.	Optional

Whole EcoSystem needs to collaborate to implement these specifications

- And this requires full end to end ecosystem support
  - Manufacturers cannot implement this in Isolation
  - “Magic” doesn’t just happen
    - Signalling and Metadata necessary
- Must be implemented in Broadcasters networks who need prominence