DVB-I Testing Toolkit

DVB Webinar - Road-testing DVB-I: en route for deployment

3.5.2022
DVB-I core tools and related ecosystem

Sofia Digital has been implementing a few interesting Open-Source projects

- HbbTV MPEG-DASH & DRM Reference application
  - MPEG-DASH test streams and client app
    ✓ Completed
- DVB-I Reference application Phase 1 and 2
  - Back-end: Service list Tool
    ✓ Completed
  - ✓ Front-end applications (HbbTV client and HTML5 / Android PWA)
    ✓ Completed
- DVB-I Central Service Registry application and API
  ✓ Phase 1 Completed (Under final testing)

Other interesting projects we find useful

- MPEG-DASH validator
- DASH-IF Reference player
**DVB-I service workflow**

**Data sources**
- CMS systems
- EPG Databases i.e. Gracenote
- Playout i.e. asrun

**Operations**
- TV + Radio Channel Lineup
  - Service logos
  - DASH Manifest URLs

**TV Service Operator**

**Interactive Applications**

**DVB Broadcast Network**

**DVB-I Service discovery**
- Channels + Guide

**Rich EPG (OTT + Hybrid)**

**DVB-I CSR**

**Client Devices and Applications**
- DTV sets
  - HbbTV App
- Handheld/mobile Apps
- SmartTV Apps
- STB

**Client Devices and Applications**

**Operations**

**Interactive Applications**

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**Data sources**
- CMS systems
- EPG Databases i.e. Gracenote
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DVB-I service tools in the workflow

Data sources
- CMS systems
- EPG Databases (e.g., Gracenote)
- Playout (e.g., asrun)

Operations
- TV + Radio Channel Lineup
- Service logos
- DASH Manifest URLs

MPEG-DASH Manifest Validator
- XML-TV
- EXCEL
- JSON

HbbTV DASH - DRM
- REFERENCE
- Client App

Interactive Applications
- TV Service Operator
- DASH-IF Reference Player

DASH-IF Reference Player
- Rich EPG (OTT + Hybrid)

DVB-I CSR SKELETON
- DVB-I CSR

DVB-I REFERENCE BACK-END

DVB Broadcast Network
- DVB-I Service discovery

DVB-I Service discovery
- DVB-PSI-SI
- DVB EIT
- DVB-T2
- HbbTV AIT

Client Devices and Applications
- Client App
- DTV sets
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Deployment options of DVB-I

**Internet Only**
- DVB-I Applications
  - e.g. Android App from Google Appstore

**Broadcast + Internet**
- Native / Proprietary DVB-I client in any CE device
- Downloaded DVB-I Applications
  - i.e. Android App from Google Appstore
- HTML5 Web-applications client
- Smart TV Application

**Broadcast Only**
- DVB Satellite, Cable or Antenna receiver
- HbbTV Application
  - (OpApp option)

**DVB-I Reference**
- Front-end
- Back-end Tools
- Client Apps

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DVB-I Open Source Projects

• DVB-I CSR Project:
  • Aims to test the feasibility and features of a Central Service Registry, providing access to service lists globally, and with an efficient and reliable Query API
  • More info at https://github.com/DVBProject/DVB-I-Reference-CSR

• DVB-I Reference App Project:
  • Backend allows generation and editing of DVB-I service lists.
  • TV-guide (EPG data) management is not included into the reference app back-end.
  • Tools have TV-guide data generator to populate EPG with sample mock-up schedule.
  • The DVB-I app frontend have 2 versions
    1. HbbTV OpApp implementation of a DVB-I compatible Client. It offers Service list navigation, selection/tuning of services, info banner and a simple EPG.
    2. HTML5 client for PC and Android devices. Android client is a PWA application, offering roughly the same functionality.
  • More info and demos at https://github.com/DVBproject/DVB-I-Reference-Client
DVB-I CSR Tool – demo URL and screenshots

- Service list management UI available at https://csr.dtv.fi/
- Service list discovery API available at https://csr.dtv.fi/api/query
DVB-I DOLBY AC4 with NGA Dialog Enhancement
(Based on DVB-I Reference Client Design)

Key points
• UI based on DVB-I ref-app client
• Application converted as Native Android App
  • Using common modules in Android SDK
  • WebView HTML5 chrome engine
  • ExoPlayer to use native playback engine
• Works in Android devices with Dolby AC4 codecs
• Android SDK standard ExoPlayer with extensions by Dolby Laboratories
DVB-I adaptations  
Based on Reference Client Design

In Germany  
• rbb service list validated with the DVB-I Reference application  
• Channel logos and XML AIT service  
  • Including app only service!  
• Complete TVA-EPG data with preview pictures  
• Running also in Panasonic OpApp compatible TV

POC with MyTV Broadcasting Malaysia 2019-2020  
• UI based on DVB-I ref-app client  
• Application converted as Native Android App  
  • Using Android Webview  
• Use available / existing MPEG-DASH OTT streams  
• Utilize existing EPG data from Sofia Backstage  

Ref App also tested in Cambodia, Iran, and more...
Sofia Digital
HbbTV / Smart TV Application

CASE: HbbTV Operator App
Replace the main UI for watching Live TV Streaming (and broadcast) channels

CASE: Smart TV App
Install smarttv app to watch OTT-channels and broadcast if device allow access to the tuner

Use DVB-I “end-to-end”
• Management of service list and guide listings
• Client apps core based on Reference App
More information about Open-Source Media Applications and Tools
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