Tutorial – Running the Application

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1. Overview

To run our Code and the application you should use an up to date and common webbrowser (Chrome, Firefox, Edge etc.). We have developed and tested the application with a Windows 10 system. This part is important for the webserver approach in 3.1.

In general, there are 2 approaches when it comes to the index.html page. The first one includes setting up a webserver with Apache to access the index.html page, the other approach is using the the ARD example index.html page. (http://itv.ard.de//ardstart//index.html)

We recommend using Google Chrome as Webbrowser and the ARD example index.html page because it is much easier to check.

Recommended approach with explanation:

- WebBrowser = Chrome, because it is much easier to integrate the HybridTvViewer extension locally – Firefox could make some problems here, on the other hand it is much easier to interact in Debug Mode F12 with Firefox.
- Index.html = We recommend using the ARD example index.html page, because the Apache approach does not seem to be stable after testing it on different machines, however the approach also works, but you might have to try it multiple times. Therefore the ARD example would run much smoother.

2. Installing HybridTvViewer extension

Add HybridTvViewer in Browser:

1. Download and extract the Code
2. Use Firefox or Chrome, add the extension locally ("Install add-on from file")
   a. Chrome:
      i. Navigate to chrome://extensions/
      ii. Press unpack extension
      iii. Select the local path of the code (Note: manifest-chrome will help recognizing the extension for the browser)
      iv. The extension should be listed in the extension list
   b. Firefox:
      i. Navigate to **about:debugging#/runtime/this-firefox**
      ii. Press "load temporary addon"
      iii. Select the manifest.json file from the local extension
3. **IMPORTANT**: make sure to give the Browser all possible rights. The most important ones are:
   a. JavaScript
   b. Autoplay
   c. Audio
   d. AutoDownload
4. After installing the PlugIn into the Webbrowser, you should be able to activate the PlugIn by pressing with Turn On button inside the extension (where you can manually force to active the HbbTV mode)

3. Using index.html page

3.1 Approach with WebServer (with Windows 10)

1. Download Apache HTTP Server (https://httpd.apache.org/download.cgi#apache24)
2. Extract the zip file and put it under System C
3. Copy the path to Apache24/bin
4. Open the CommandLinePrompt as Administrator
5. Type in "cd <<path-of-apache>>\Apache24\bin
6. Run "httpd.exe"
7. Accept Windows Security Alert
8. Open http://127.0.0.1/ in the browser
9. Inside the "htdocs" folder (which is inside the Apache24 folder), there is an autogenerated index.html file
10. Now switch the index.html file with our files (inside our source code – copy the content of the folder "OurHbbTvAPP" inside the htdocs folder of Apache24)
11. Open http://127.0.0.1/index.xhtml should run the Application

12. **IMPORTANT**:
    - TURN ON AUTO PLAY for desired webbrowser, else the application wont work
    - TURN ON AUDIO: worked on Firefox, but not in Chrome ! (Right click on the video, Turn audio on)
13. You should be able to see the running Application with a first switch after 5 and the second switch after 15 seconds with
    - the original "broadcast" video: `http://clips.vorwaerts-gmbh.de/VfE_html5.mp4`
    - and html5 video: `https://test-videos.co.uk/vids/jellyfish/mp4/h264/720/Jellyfish_720_10s_1MB.mp4`

3.2 Approach with ARD example (recommended):

1. **IMPORTANT**: TURN ON AUTO PLAY for desired webbrowser, else the application wont work.
2. Enter http://itv.ard.de//ardstart//index.html
3. Turn on HybridTvViewer
4. You should be able to see the running Application with a first switch after 5 and the second switch after 15 seconds with
    a. the original "broadcast" video: `http://clips.vorwaerts-gmbh.de/VfE_html5.mp4`
    b. and html5 video: `https://test-videos.co.uk/vids/jellyfish/mp4/h264/720/Jellyfish_720_10s_1MB.mp4`

4. Other notes and hints:

FastMediaSwitch API is inside *hbbobj.js* and starts at Line of Code 830.

Call of the FastMediaSwitch API is performed in *hbbobj.js* at LoC 1380.

Manipulating the video input for the DOM structure in *hbbtv.js* (Starting at LoC: 389)

Adjusting the settings of the video input in *hbbdom.js* (Starting at LoC: 566)

We left multiple *Console.logs()* inside the Code, for better understanding and debugging since there was and is no documentation of the HybridTvViewer extension. Some of them are commented out, others that are explaining the process (e.g "switch in progress", "switch done" etc) are still active.