AVHD-AS Model Requirements

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Editorial History

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# . Introduction

This document contains the technical requirements for models to be submitted as proposals for the VQEG Adaptive Streaming project (AVHD-AS).

# . Model Types

Model types submitted for evaluation may comprise no-reference (NR), reduced reference (RR) as well as full reference (FR) and Hybrid (NR, RR, FR) methods. Each proponent may submit one model of each type. Each model must support all tested video resolutions and formats. This also includes applicability for mobile and TV scenarios.

# . Model Input

Input to the models will be:

* The source video sequence (FR and RR models only), or in the case of data captured from real services, the stream representation with the highest available quality (this quality must be “good” or better as scored by expert viewers.). The SRC video format is always 1080p23 to 1080p60. Some SRCs may be letterboxed. The file format used is avi (with >2GB video length extension) containing FFV1 coded signals.
* The decoded video sequence as it is seen by the observer in the subjective experiment (the PVS). The PVS video format is always 1080p. The framerate and resolution matches the one of the original sequence. This may be achieved by upscaling and frame duplication if required and variations may only occur at segment borders. It can be assumed, that the aspect ratio of the SRC is maintained. Non-square pixels will be converted to square pixels by proper scaling. No horizontal or vertical shift is allowed. Delay variations should not happen, but variations of very few frames (+/-5 frames over the entire video with max. 5 min duration) should be handled by the models. Stalling does not count as a delay variation. The file format used is avi (with >2GB video length extension) containing FFV1 coded signals.
* An audio chunk may be present in the avi files, but must be ignored by the models.
* A simple text file with information on initial buffering and stalling events.
* Additional input to Hybrid models is a file containing the coding scheme and containing for each GOP the resolution (height, width), size (in bytes), and the duration.

# . Stalling Information File

This ASCII text file contains one line for each stalling event. Each line contains tab separated the frame number of the first stalled frame and the frame number of the last stalled frame and is terminated by CR/LF. The file contains at least one line, which indicates the initial buffering. The initial buffering will always start with frame 0. Frame numbers refer directly to the PVS file.

# Additional Input for Hybrid Models

Tbd.

# . Commandline Format and Output Format

NameOfExecutable <FullPathOfProcessingList> <PathToVideoFiles>

ProcessingList is the name of an ASCII text file with one line for each file pair to be processed. The values in this list are tab or space separated and terminated by CR/LF. Each line contains the following values in the given sequence:

<SRCFilename> <PVSFilename> <StallingFilename> <Monitor | TV>

The resulting output must be one line written to stdout with the following format (tab separated):

<SRCFilename> <PVSFilename> <StallingFilename> <Monitor | TV> <MOS>

# . Supported Platforms and Executable Type

All models must run on a modern, but common Windows PC under a Windows version starting with Windows 7 or later. The submission of 64 bit as well as 32 bit executables is allowed, but 64 bit is recommended. Ideally, RAM requirements shall be less than 16 GB total in the machine. Other operating systems and requirements are discouraged and must be individually accepted by the entities running the model for verification.

RR models must be submitted as two programs:

* A “source side” program that takes the original video sequence, and
* A “processed side” program that takes the processed video sequence.

Data communicated must be stored to files, which will be used to check the side channel data transmission rate. The source side program must be able to run when the PVS is absent. The processed side program must be able to run when the SRC is absent. Any type of model that meets these criteria may be submitted.

The input control list and output data files will be as listed for the FR model.