

# Decoding Sample

## Overview

**Decoding Sample** works with **Intel® Media Server Studio 2015 for Linux Server**.

It demonstrates how to use **Intel Media Server Studio – SDK** (hereinafter referred to as "**SDK**") API to create a simple console application that performs decoding of various video compression formats.

The sample can work together with **Intel® Media Server Studio – HEVC Decoder & Encoder** (hereinafter referred to as "**HEVC**").

## Features

**Decoding Sample** supports the following video formats:

input (compressed)	H.264 (AVC), MPEG-2 video, VC-1, HEVC (High Efficiency Video Coding)
output (uncompressed)	YUV420

**Note 1: Decoding Sample** renders the decoded video stream to a file in YUV 4:2:0 sampling format, with the parameters Y, U and V in that order.

## Software and Hardware Requirements

- For **SDK** requirements, please, see <msdk\_install-folder>/media\_server\_studio\_sdk\_release\_notes.pdf
- For the samples specific requirements, please, see <install-folder>/Media Samples Guide.pdf

## Package Contents

**Decoding Sample** package contains the following:

<install-folder>/sample_decode	
readme-decode.pdf	This file
CMakeLists.txt	CMake* configuration file
include	Header files for the sample
src	Source files for the sample
<install-folder>/sample_decode/include	

decode_render.h	Header file for rendering support
pipeline_decode.h	Header file for the decoding pipeline class

  

<install-folder>/sample_decode/src	
decode_render.cpp	N/A (Windows-specifics)
vaapi_decode_render.cpp	Source file for the rendering support
pipeline_decode.cpp	Source file for the decoding pipeline class
sample_decode.cpp	Source file for the sample decoder

  

<install-folder>/sample_common	
CMakeLists.txt	CMake configuration file
include	Header files for the common sample resources
src	Source files for the common sample resources

## How to Build the Application

Use the *build.pl* script located at <install-folder>. For the details on how to build samples see <install-folder>/Media Samples Guide.pdf. Shortly, you may invoke the following commands to build the sample:

```
$ export MFX_HOME=/mediasdk/installation/folder
$ cd <install-folder>
$ ./build.pl --cmake=intel64,make,release --clean
$ cd <install-folder>/__cmake/intel64.make.release && make
```

Output will be placed in the following folder: <install-folder>/\_\_cmake/intel64.make.release/\_\_bin/release

## Running the Software

Sample is buildable in a few variants depending on LibVA backends availability and support:

- sample\_decode\_drm – sample variant to run on the system without Graphic Server installed (for example, X)
- sample\_decode\_x11 – sample variant to run under X

The executable file *sample\_decode\_\*\** (\*\* - one of the supported backends) requires the following command-line switches to function properly:

h265 h264 mpeg2 vc1	Input video type. This is an elementary video stream. The use of option h265 is possible only if <b>HEVC</b> is installed.
-i <InputFile>	Input (compressed) video file, name and path

<code>-o &lt;Output&gt;</code>	Specifies output (YUV) video file, name and path.
<code>-hw</code>	Use platform-specific implementation of <b>SDK</b> . Should be always set since there is no software library for Linux platforms.
<code>-sw</code>	Use software implementation of <b>SDK</b> . Should not be set since there is no software library for Linux platforms.

The following command-line switches are optional:

<code>-vaapi</code>	Use VAAPI surfaces
<code>-p guid path_to_plugin</code>	32-character hexadecimal guid string or path to decoder plugin .so. Optional for <b>SDK</b> in-box plugins, required for user-decoder ones (HEVC, f.e.).
<code>-r</code>	Render output video file to the screen. Only for backends which support this: x11
<code>-low_latency</code>	Configures decoder for low latency mode and calculate per frame decoding latency
<code>-calc_latency</code>	Calculates per frame decoding latency
<code>-?</code>	Print help

Below are examples of a command-line to execute the **Decoding Sample**:

```
$ sample_decode_drm h264 -i input.264 -o output.yuv -hw
```

Please, also pay attention on “Running the Software” section of `<install-folder>/Media Samples Guide.pdf` document where you will find important notes on backend specific usage (drm and x11).

## Known Limitations

- **Decoding Sample** does not fully decode some video streams from a network folder. Instead, copy the input file to local storage prior to decoding.
- **Decoding Sample** renders output in the simplest way. The rendering window does not support time stamps and aspect ratio.
- `-low_latency` and `-calc_latency` options should be used with H.264 streams having exactly 1 slice per frame. Preferable streams for an adequate latency estimate are generated by **Conferencing Sample**. The options are also effective for JPEG\* input streams. For all other input formats application would return an error.
- Running **Decoding Sample** with `low_latency` can result in missed frames in case of frames with 4-bytes startcodes. It happens due simplicity of H264 frame reader (CH264FrameReader).

- Plugins loading by path feature is implemented using deprecated plugin loading mechanisms. Next versions of **Decoding Sample** will use different methods for path-based plugins loading.

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