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| *Title:* | **Presentation info SEI message proposal for 8K UHD coded as 4K applications** | | |
| *Status:* | Input document to JCT-VC | | |
| *Purpose:* | Proposal | | |
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| *Source:* | MovieLabs | | |

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# Abstract

This proposal introduces two alternative presentation info SEI messages for AVC and HEVC (and future VVC) that can be used to indicate that the coded bitstream is intended for display at a level of service greater than indicated by the level and resolution signalled in the sequence parameter set. For example, this proposed SEI message could convey that the intended presentation of the content is 8K, while the bitstream conforms to level 5.x ("4K") and therefore can then be decoded by legacy level 5.x IRDs (integrated receiver decoders). In this use scenario, the decoded output pictures should be upscaled by an indicated factor (2x in this example), in an IRD display with HDMI 2.1 "8K" output, or by the display device itself.

# Background

At NAB 2019, broadcast vendors demonstrated coding "8K" Super-UHD video services with "4K" UHD-compatible video distribution bitstreams, relying upon post-decode upscaling process to re-scale the decoded video to the source "8K" resolution. At the "8K Association" seminar at NAB 2019 [1], it was proposed by some 8K proponents that 8K capture and display, with 4K coded transmission, is sufficient to convey the 8K experience intended by content creators and service operators. Currently there is no mechanism in AVC, HEVC (and VVC draft) bitstreams to convey an intended higher level of display service than what is supported by legacy or deployed decoders.

# Proposal

No particular scaling mechanism is suggested in this proposal. Instead, only an indicator that the program or content conveyed within the bitstream is intended for a higher-resolution service than would otherwise be inferred from the sequence parameter set and level indicators.

## proposed presentation info SEI message syntax

|  |  |
| --- | --- |
| presentation\_info( payloadSize ) { | **Descriptor** |
| **presentation\_info\_cancel\_flag** | u(1) |
| if( !presentation\_info\_cancel\_flag ) { |  |
| **presentation\_info\_persistence\_flag** | u(1) |
| **presentation\_scaling\_factor\_numerator** | ue(v) |
| **presentation\_scaling\_factor\_denominator** | ue(v) |
| } |  |
| } |  |

## proposed presentation info SEI message semantics

**presentation\_info\_cancel\_flag** equal to 1 indicates that the presentaion info SEI message cancels the persistence of any previous presentation info SEI message in output order. presentation\_info\_cancel\_flag equal to 0 indicates that presentation information follows.

**presentation\_info\_persistence\_flag** specifies the persistence of the presentation info SEI message for the current layer.

presentation\_info\_persistence\_flag equal to 0 specifies that the presentation info SEI message applies to the current decoded picture only.

**presentation\_scaling\_numerator** specifies the numerator of the variable PresentationScalingFactor.

**presentation\_scaling\_denominator** specifies the denominator of the variable PresentationScalingFactor.

When presentation\_scaling\_denominator is not equal to 0, the variable PresentationScalingFactor is derived as follows:

PresentationScalingFactor = presentation\_scaling\_numerator ÷ presentation\_scaling\_denominator

The intended presentation picture is scaled by PresentationScalingFactor times the conformance cropping window in clause 7.4.3.2.1.

## mastering display viewing info SEI message

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# References

[1] [http://8kassociation.com](http://8kassociation.com/)

# Patent rights declaration(s)

**MovieLabs does not have any current or pending patent rights relating to the technology described in this contribution.**