

# Intel® Stress Bitstreams and Encoder (Intel® SBE) 2016 - SHVC Release Notes (Version 2.2)

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## Overview

The **Intel® Stress Bitstreams and Encoder (Intel® SBE) 2016 - SHVC** is designed to ensure decoder compliance with SHVC. Streams cover features of **HEVC Scalable Main Extension Profile** and can be used to prove that decoder supports all these features.

## Features

The **Intel® (SBE) 2016 - SHVC** offers the following features:

**Stress Bitstreams** for decoder validation. Stress Bitstreams include several sets that are designed for validation of the features related to specific parts of HEVC Scalable Main Extension Profile. For example, INTRA set covers intra specific features and SYNTAX set contains streams covering other format features.

There are different types of streams, such as Syntax and Stress. Syntax streams are designed to test certain subsets of features. Stress streams include extremal configurations.

**Random Encoder**, a highly configurable and flexible syntax encoder tool. Unlike regular encoders, it is not intended to achieve compression but mainly designed to create a valid specification-compliant stream.

Compliant streams contain only allowed combinations of syntax elements and their levels to test decoder for unusual cases or boundary stress cases.

As an input, Random Encoder accepts an 8-bit *YUV file* and a JSON *parfile* describing test settings: features to utilize, fixed values, random values. As an output, Random Encoder produces an encoded bitstream and optionally writes a *YUV file* with internal

reconstruction data. This file is used to validate that Encoder generated a proper compressed file and that the resulted bitstream is valid. All bitstreams can be decoded with the SHVC SHM reference decoder.

## Changes History

### Version 2.2

- Enabled HEVC Scalable Main Extension profile
- Added syntax and stress parfiles

## System Requirements

### Hardware

- Bitstreams: no limitations.
- Reference Decoder and Random Encoder: systems based on IA-32 architecture or Intel® 64 architecture.

### Software

- Bitstreams: no limitations.
- Reference Decoder: Microsoft\* Windows\* 7, Microsoft Windows 8, Microsoft Windows 8.1, Microsoft Windows Server 2012 or Microsoft Windows Server 2012 R2 for 64-bit architecture, Ubuntu\* 12.04 LTS for 64-bit architecture (currently 12.04.3) or SUSE\* Linux\* Enterprise Server 11 for 64-bit architecture, OS X\* 10.9 (currently 10.9.3).
- Random Encoder: Microsoft\* Windows\* 7, Microsoft Windows 8, Microsoft Windows 8.1, Microsoft Windows Server 2012 or Microsoft Windows Server 2012, Ubuntu\* 12.04 LTS for 64-bit architecture (currently 12.04.3) or SUSE\* Linux\* Enterprise Server 11 for 64-bit architecture.

## Installation

- Extract files from archive to the target hard drive.

## Package Contents

**Note:** <install-folder> - folder where **Intel® SBE** is installed.

<install-folder>\	Contains <b>Intel® SBE</b> Release Notes (this file), End User License Agreement (EULA), spreadsheet with detailed description of every bitstream, history document for each bitstream, Getting started document, Using Branch and Syntax Coverage Static View document, HEVC Syntax Coverage Report and User Guide document.
<install-folder>\Branch and	Contains "Branch and Syntax Coverage

Syntax Coverage Static View\ 	Static View" report (basecov.html) for SHM reference decoder
<install-folder>\decoder	Contains <b>SHM Reference Decoder</b> for Windows*, Linux* and OS X* and a readme file.
<install-folder>\streams	Contains compliance <b>SHVC bitstreams</b> , their MD5 check sums, and MD5 check sums for decoding results of each encoded file.
<install-folder>\encoder	Contains <b>SHVC Random Encoder</b> for Windows* and Linux*.
<install-folder>\encoder\parfiles	Contains parfiles for the Intel® SBE Random Encoder.

## Known Limitations

- Encoder does not support SHVC features related to color gamut.
- Though 10-bit bitstream can be generated with Encoder, full support of 10-bit is not provided.
- Encoder supports only a small number of variants of AU and layers mixing.
- Encoder supports up to 8 layers only.
- Encoder does correct resampling for bitstreams of two layers only.
- Interlayer references are not fully supported for three or more layers.
- Encoder supports only four different coding structure configurations (GOP).
- Tiles are supported.
- Scaling lists are not supported.
- POC reset feature with poc\_reset\_idc equal to 3 is not fully supported.
- Temporal scalability is not supported.
- VUI (including HRD) features are not fully supported though relevant syntax may be present.
- Output layers sets are not fully supported.
- Only HEVC base layer is supported
- DPB size syntax is not supported.
- Activation of headers is not supported.

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