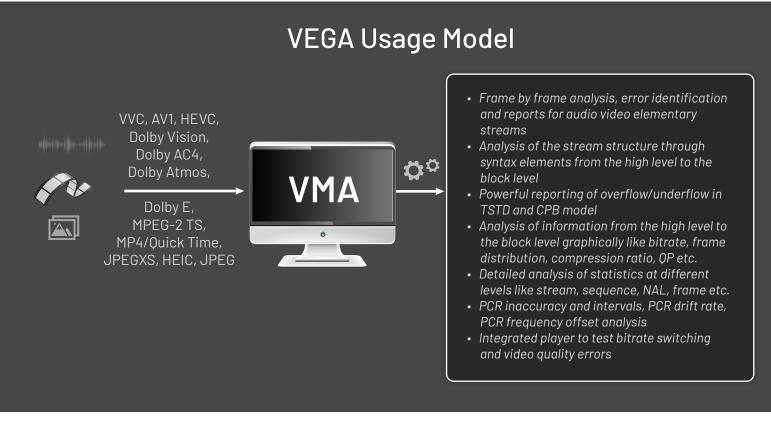


VEGA is an industry leading media analysis platform for debugging, verification of standards compliance, and interoperability testing of encoded streams. VEGA enables navigation down to the deepest levels of a media file to generate error reports and analysis. This significantly reduces R&D and QA time in delivering standards-compliant video. VEGA supports all popular video compression and container standards and includes features such as video comparison and quality checks. These features help deliver high-quality media.



analyze | debug | refine | optimize

## Advantages

- Accurate, in-depth video analysis assures standards compliance & interoperability
- Comprehensive format support: Apple ProRes, AV1, HEVC, H.264, MMT, HLS, MXF, VP9, VP8, VVC, VC1, MPEG-2, MPEG-DASH, JPEG-2K, ISM, PCAP, Dolby Vision, Dolby AC4, HEIF/HEIC, Dolby Atmos, ATSC 3.0, Dolby E, DTS Audio
- Cost-effective, PC-based software with multi-core support
- Fast performance improves operational, R&D & QA efficiency

- Value-added tools enable video comparisons, video quality checks, buffer analysis and debugging
- Regular updates and aggressive product roadmap anticipates next generation requirements, meeting customer needs
- Encoding comparison, encoding regression tests, STB compatibility
- Responsive support team available 24X7 worldwide

## **Key Features**

- Comprehensive, easy to navigate visuals, high level picture information down to feature thumbnail structure
- Frame by frame navigation down to the smallest block partitions of Frame
- Conformance violations at all levels to enable accurate examination of media standards
- Summary information for all levels stream summary, sequence summary, Block (NAL / OBU.etc) summary, picture summary and more
- Analytical graphs for bird's-eye view of the stream: Bitrate, frame distribution, compression ratio, QP, DPB occupancy, prediction data and transform data
- Overlay of Slices, Tiles, Blocks over the picture
- Quick examination of coded bits, prediction data, motion vectors, QP, interpolation and reference index over the picture
- Detailed display of syntax elements at header and data levels
- DPB and reference picture information
- Quad Tree view for both HEVC and VP9 which displays the block splitting
- Display pixel values and pictures at every stage of decoding
- Graphical representation of in loop filter process
- Graphical representation of Intra prediction p
  rocess
- Visualization of Closed Caption data
- Support for detailed residue view for HEVC and H264 streams

- Efficient and high-performance analysis multi-core support
- Support for SCC (Screen Content Coding) Extension in HEVC video
- Support for Frext Streams (4:2:2, 4:4:4)
- Provides a microscopic view into MPEG-2 transport streams
- PCR inaccuracy and intervals, PCR drift rate, PCR frequency offset and PTS/DTS analysis
- Strong ABR content validation with respect to the manifest file and ability to report the minutest violations
- Compliance to media standards
- Verification of encoded streams' bit rates
- Detailed verification of chunks alignment based on the following:
  - Timing of encoded frame rate in elementary streams
  - Chunks play time
  - Stream structure
  - PTS/DTS encoded in TS
  - IDR alignment at start of chunks
- Verification of video and audio quality checks, such as blockiness, black frames, freeze frames, loudness, silence and CALM specification checks
- Play and switch between different Variants
- Analysis of QP variations across different bit rate streams
- Analysis of frame size and compression ratio variation





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# Utilities

#### **Buffer Analyzer**

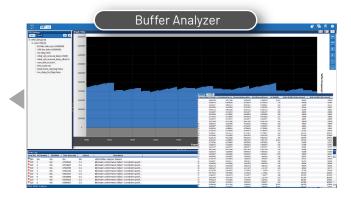
- Analyzes Coded Picture Buffer (CPB) and T-STD Buffer Model
- Conformance violation as per standard
- Rich Buffer analysis report for easy debugging

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#### **Trace Viewer**

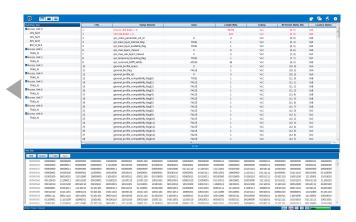
• Examine various syntax elements in detail e.g. syntax element name, offset and value. The elements are linked with the Hex View





### **YUV Quality Viewer**

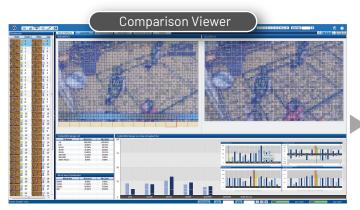
- Evaluate video quality matrices such as PSNR, RMSE and SSIM
- Evaluate pixel level comparisons
- Play reference, comparison and residual video
- Compare multiple YUVs



### File Info

• Quickly identify the high-level information about the stream





### Comparison Viewer (HEVC/H264/VP9 vs HEVC/H264/VP9)

- Encoding comparison bit rate, QP data, buffer occupancy, motion vectors and more
- Quality comparison contrast, blockiness, pixelation, and blurriness

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Error	LOQ	Viewer

• Examine, search, and filter error messages and dump the errors in XML or PDF file

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### **Batch Mode**

• Used to analyze multiple files simultaneously in GUI

## **Standard Support**

Video Streams - Apple ProRes, AV1, H.264, HEVC, JPEG-2K, MPEG-2TS, WebM, VVC, VP8, VP9, MPEG-DASH, Apple HLS, ISM, Dolby Vision, AVS and AVSPlus Video, AVI

Audio Streams - AAC, AC-3, EAC3, LPCM G.711 (A Law/Mu Law Audio), G.722 (ADPCM Audio), MP3, ALS Audio, AES3 Audio, FLAC, Vorbis, Dolby AC4, Dolby Atmos, Dolby E, DTS Audio

System Streams - MMT, MXF, Transport / Program, MP4, MPEG-2, WebM, MKV, PCAP, TLV-MMT, HEIF/HEIC container

ABR Streams - MPEG-DASH, HTTP Live Streaming (HLS), Microsoft Smooth Streaming (ISM), OGG Line 21 formats - EIA 608, EIA 708, AFD, XDS, SCTE-608, DIVICOM-608, CMAF Constraints

Other Formats - HDR-BT2020, HDR10, DVB Subtitle, ATSC 3.0 checks, TELETEXT, JPEG, JPEG-XS, HEIF, GIF Conformance Checks - TR101290 checks, Cable Labs 3.0, ARIB STD-B1 Annex C, ARIB TR-B14 Profile C, and HbbTV checks

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