MARQUISE TECHNOLOGIES

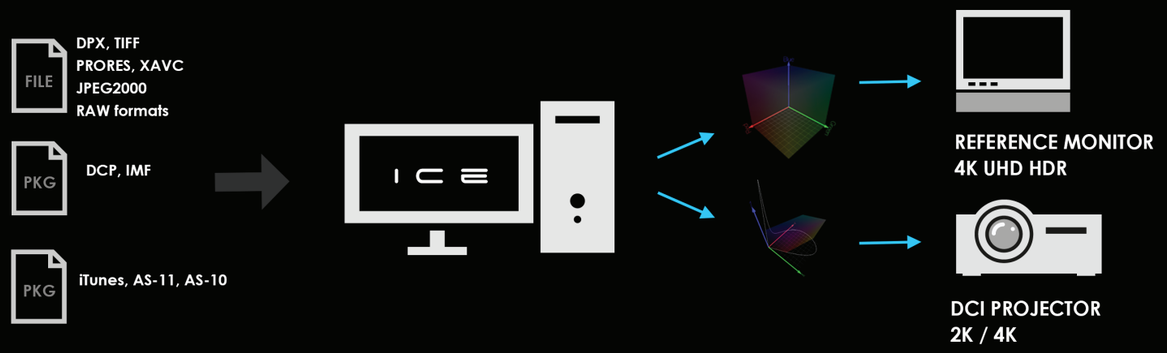
REFERENCE PLAYER
FOR QC

REFERENCE PLAYER
FOR THE QC OF DIGITAL CINEMA
BROADCAST & ONLINE MASTERS

ICE, for Image Control Engine, is a reference player for the QC of high-end masters, among them IMF, DCP, AS-10, AS-11, XAVC.

Including ACES and HDR (Dolby Vision, HDR10+, HLG), ICE offers the widest range of native format support in a player.

Designed for the business of Quality Control, ICE provides numerous tools to monitor image, audio, and subtitles, compare versions, check the compliancy with the standards and export the results.



NLE TIMELINE

ICE is the only QC player with an editing timeline, providing an unrivalled flexibility with the manipulation of content.

Support of sidecar files

Standalone subtitle files can be imported in the timeline, as well as an independent audio channels or soundfields.

Automatic import of delivery packages

IMF, DCP, iTunes or AS-11 packages are automatically mounted in the timeline by drag&drop of the main directory.

The complex folder structure of other deliveries like Netflix episodic, FOX ISM or ISR is also recognized by ICE and automatically rebuilt as a complete project.

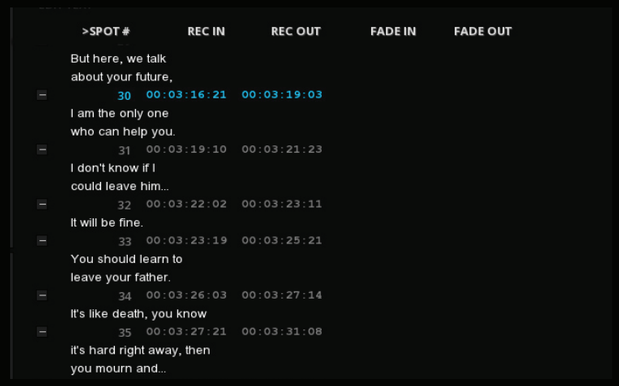
TimeLine key features

- Unlimited number of audio, video, subtitles or auxiliary tracks
- Support of soundfields
- Support of multiple resolutions and formats in the same composition
- Navigation using shortcuts (JKL) or a transport panel (Tangent or legacy RS422 panel)
- Editing functionalities
- Conforming capabilities
- EDL export
- Dual Viewport with 3-point editing support

INSPECTION OF SUBTITLES & CAPTIONS

ICE supports numerous formats of captions and subtitles: position, styles and fonts are rendered on both the user interface viewport and the reference monitor.

The subtitle inspector panel allows to display and navigate within the spotting list. If several subtitle tracks are present, ICE can toggle between the different versions during the playback.



Subtitles support

- CineCanvas
- Cheetah CAP
- DCinema
- EBU STL
- EEG 708 Closed Captions
- SCC
- Screen Electronics PAC
- Sony BDN
- Spruce STL,
- SubRip
- SubViewer
- TTML (Apple iTunes ITT, EBU-TT(D), SMPTE-TT, CFF-TT / DECE, IMSC1, IMSC1.1)
- WebVTT

COLOR MANAGEMENT

The Color Management Systems available in ICE allows a maximum flexibility in the color pipeline:
The color space as well as SDR / HDR conversions allow the monitoring of a Dolby Cinema DCP on a reference monitor, or the preview of an HDR10 content in HLG.

Color Systems

- Native support of media color space
- ACES 1.1 color system
- MTCMS, the internal CMS of ICE permitting the colorimetric conversions.

ACES

PRODUCT PARTNER

Control of the Mastering Display

ICE has the unique capacity to remote control the Mastering Display device and automatically sets the monitor according to the color space, EOTF and luminance levels information enclosed in the media or set by the user (ST-2086 Mastering Display Color Volume Metadata), giving the operator full confidence in the image displayed.

Supported Devices:

- Canon
- TV-Logic
- Eizo 4K HDR monitors.

Video Pipeline Diagram

ICE displays the video pipeline defined for a composition, including the connection to external devices like a reference monitor or a Dolby Vision CMU.
This instant view of the video workflow helps defining the video settings and controlling them.

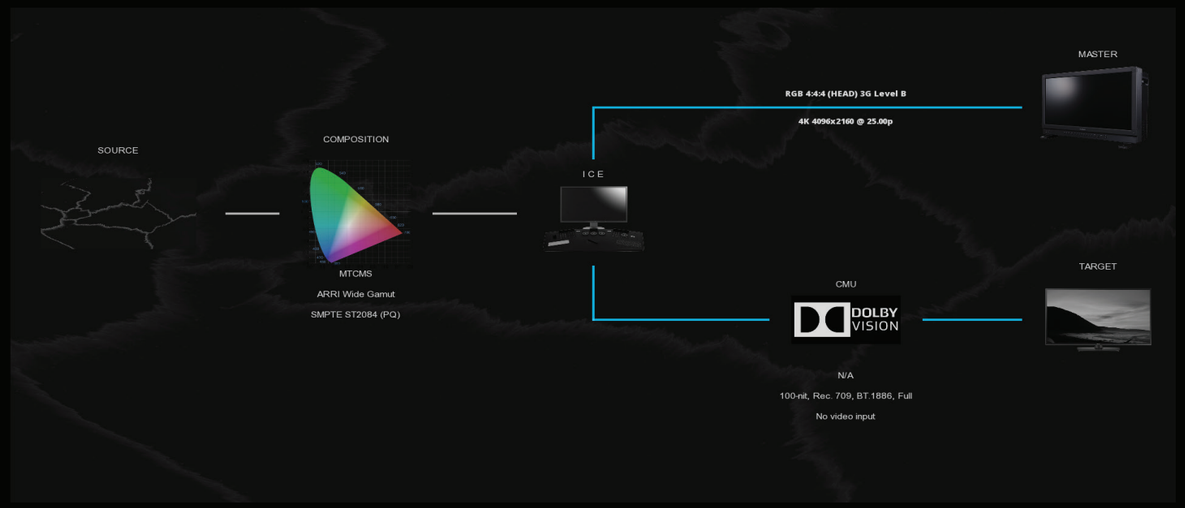


IMAGE CONTROL TOOLS

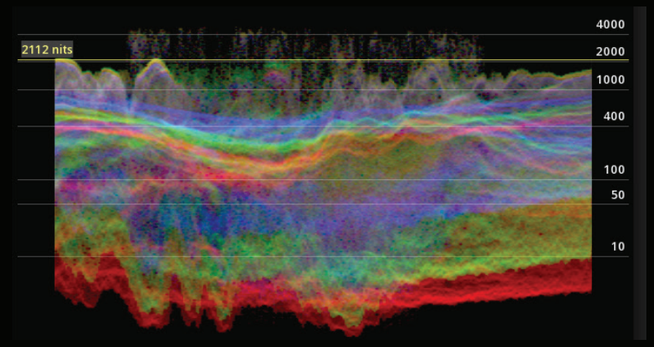
Many analysis tools are available for monitoring the quality of the image. Mobile and resizable Histogram, Vectorscope and Waveform are available, and also a CIE chromaticity diagram that gives indications of how the color is distributed within the boundaries of the color space.

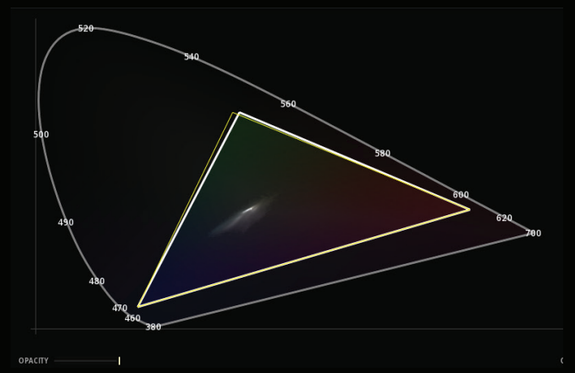
Encoding bitrate meter to verify the compression's consistency, and PSNR analysis are also part of the toolset.

HDR Monitoring

ICE has dedicated HDR analysis tools, and permits the verification that the metadata embedded in the file are consistent with the image:

- HDR analysis tool to measure MaxFALL and the MaxCLL, Gammut and frame average PQ statistics.
- DMCVT Metadata Inspector to verify Dynamic metadata
- Scopes with PQ & HLG mode, displaying Nits values
- Subtitles color space & brightness management
- Export of HDR analysis in PDF and XML
- Transport of dynamic metadata in HDMI (depending on video IO board).
- Out of Luminance control in Zebra mode



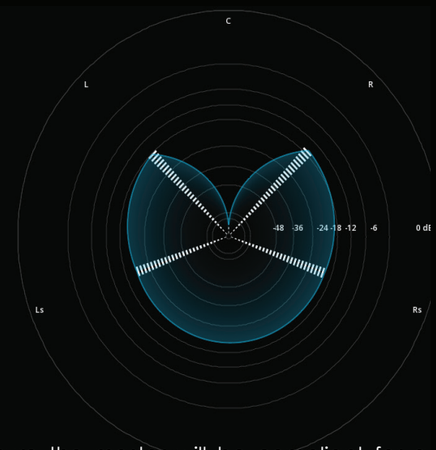


Supported HDR standards

- Dolby Vision
- HLG
- HDR10 & HDR10+
- Dolby Cinema
- Eclair Color
- DMCVT App 1 & App 4

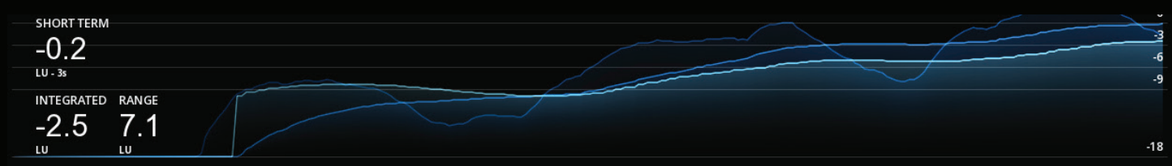
AUDIO MONITORING

Numerous tools are available in ICE to verify the audio channels: the synchro is assured by using SDI output for both image and sound and a down mix allows to listen 5.1 or 7.1 tracks on a stereo device.
VU-Meter, Sample Peak and True Peak controls are available for the channels inspection, a Surround Scope (a.k.a Jellyfish display) and a Phase Correlation Meter complete the audio metrics toolset.



Loudness measurement

EBU R128 Loudness recommendation can be monitored to make sure the master will be compliant for a broadcast delivery.



IMF VALIDATION & QC

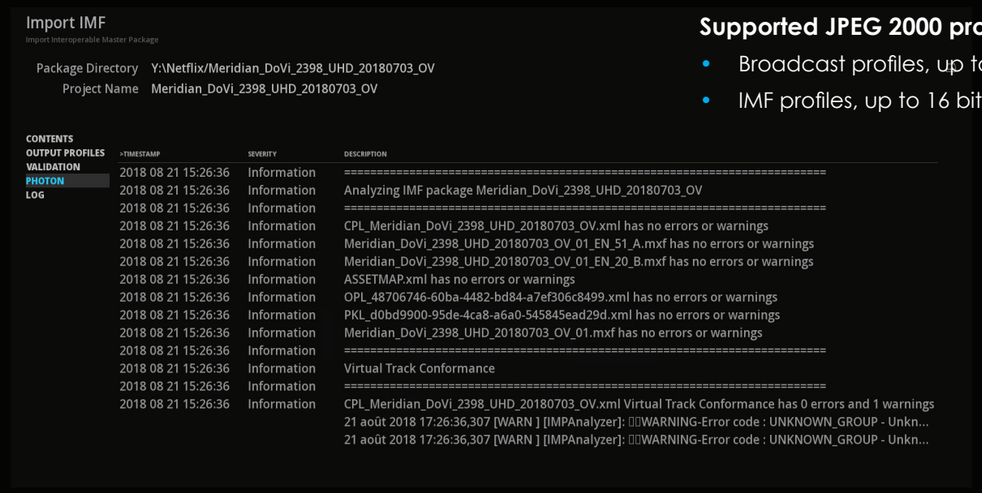
At the forefront of IMF developments, ICE supports all the newly released capabilities of this standard.

- Playback of supplemental packages
- Support for multiple CPLs and PKLs packages

Validation

Control of the IMF package can be done in ICE using the Asset Inspector and a variety of validation tests are available for checking the compliancy with the application chosen.

In addition, Photon IMF validation tool has been integrated in ICE interface for preparing successful Netflix deliveries.



Supported IMF Applications

- Application 2, 2e (Studio Profile)
- Application 4 (Cinema Mezzanine)
- Application 5 (ACES) and Academy Digital Source Master
- IMF RDD45
- TSP.2121 Application DPP

Supported JPEG 2000 profiles

- Broadcast profiles, up to BPC L7
- IMF profiles, up to 16 bit

DCP QUALITY CONTROL

ICE allows an in deep review of any type of DCP packages, including the most complex ones:

- Support 2K and 4K DCI specs, including Stereo3D, up to 4K @ 60 FPS
- Support for Interop and SMPTE DCP
- Support of supplemental packages
- Support of packages with multiple CPLs and PKLs
- Support for Dolby Cinema and Eclair Color
- Playback of proxy resolutions
- Playback of encrypted DCPs

KDMs support

ICE can be synchronized with KEYMaster, the cloud-based platform for KDM deliveries, and receives the KDMs using the TKR protocol.

DCP Validation

Asset inspector and Validation tests with PDF reports are part of the validation tools included in ICE.

WORKLFOW FLEXIBILITY

Extensive source media support

- Support for Interop and SMPTE DCP, including stereo3D DCPs up to 4K @60 FPS
- Support for IMF and other mezzanine formats such as XAVC, Avid DNxHD 444, XDCAM, AVC Intra, AS-11 DPP, AS-10…
- Support for HDR content encoded in Dolby Vision, HDR10, HDR10+ or HLG
- Native support of RAW data at the camera resolution (ARRIRAW, DNG, RED R3D, SONY F65, F55 RAW, Phantom flex 4K, Canon C500, etc..)
- Support for uncompressed formats such as DPX, TIFF, OpenEXR, etc…

Configuration

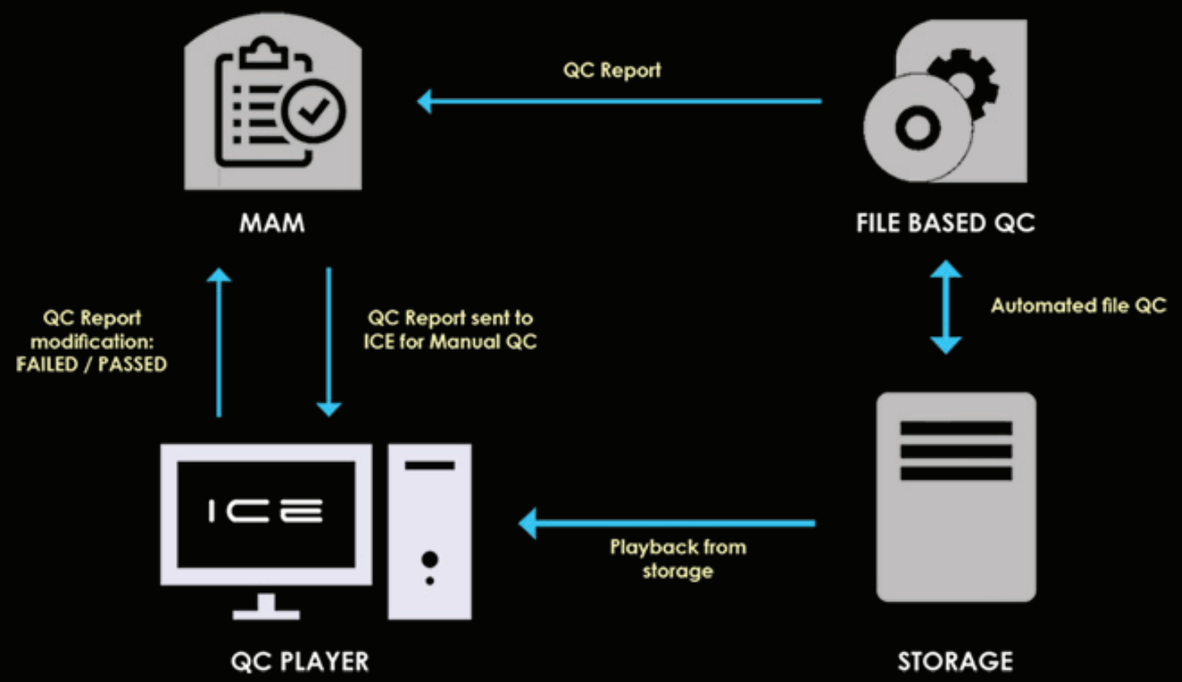
ICE is a software solution that runs on certified hardware configurations.

- OS: Windows 10 64 bit
- JPEG2000 decoding based on high-end GPU technology (min 2 GPUs)
- Video OUT: support for Bluefish444 (Neutron, Supernova S+), AJA (Kona 3G and 4G) and BlackMagic DeckLink Studio
- RS422 remote control capabilities
- Support for Tangent Device panels
- Site licensing mode

Integration in the QC Workflow

Thanks to its integration with file based QC solutions, ICE permits the creation of efficient QC workflows, allowing the human control of errors reported, and the modification of the error status for final approbation.

Integration with MAM is possible using ICE's REST API.



Supported file based QC tools

- Aurora (Tektronix)
- Baton (Interra)
- Pulsar (Venera)
- Vidchecker (Telestream)

MARQUISE TECHNOLOGIES

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