![Grass Valley logo](GV Grass Valley)

ALCHEMIST X

Cloud-based Frame Rate Conversion (FRC) for Live Media Streams

Perfection in Motion

Alchemist®, now in its eighth generation, is recognized throughout the world as the undisputed gold standard of motion-compensated frame rate standards conversion.

The very best in motion-compensated frame rate conversion is now available as a cloud service as part of Grass Valley®'s Agile Media Processing Platform, AMPP®. Alchemist X provides transparent, artifact-free frame rate conversion for seamless global distribution of live and prerecorded media.

Fully integrated into the AMPP environment, Alchemist X can convert live events in real time for simultaneous delivery in multiple formats as part of the production chain. The HTML5 interface can

be accessed simultaneously by multiple users located anywhere with a standard browser and internet connection.

Alchemist X delivers clear, sharp and fluid images without the need for complex optimization settings and specifically solves the problem of artefacts during real-time conversion.
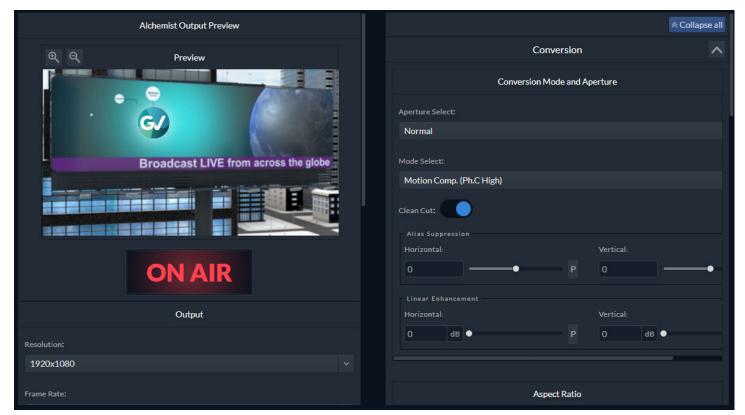
Alchemist X will process up to 16 channels of audio with a delay to match the video processing and includes audio gain, delay and shuffling features.

For seasonal or periodic events, Alchemist X instances can be spun up and spun down as needed to easily accommodate high usage periods without additional investment using a pay-as-you-go model.
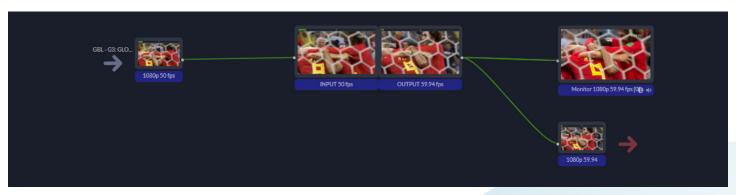
Alchemist X is available as a suite of applications including three tiers of frame rate conversion, both motion-compensated and linear, along with up/down/crossconversion and HDR/ SDR processing — all drawing on the same unique industry leading technology.
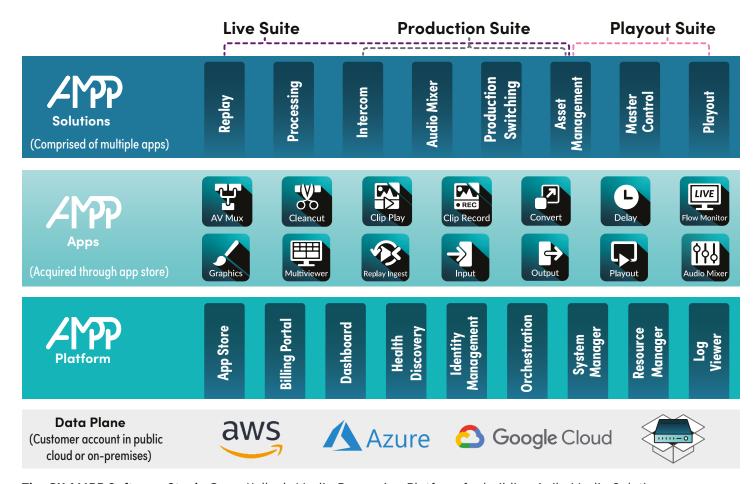
Key Features

- World-class cloud-based motion-compensated frame rate conversion — new technology optimized to deliver stunning image quality, however complex the source
- SD, HD, 1080p and UHD 2160p support
- Color space conversion and HDR handling for HLG and PQ, including custom LUTs
- Video processing including alias suppression, linear enhancement, proc amp and RGB legalizer
- Graphics-friendly low Ph.C mode
- Logo inserter, closed caption support and ancillary data bridge
- 16-channel audio processing with gain, shuffling and delay
- Runs on AMPP, Grass Valley's cloud-based SaaS platform
- Deployable in public cloud, private cloud or hybrid configurations

HTML5 web interface for control of Alchemist X

Alchemist X workflow

The GV AMPP Software Stack: Grass Valley's Media Processing Platform for building Agile Media Solutions.

Specifications

Supported Video Formats
SD: 525, 625
HD: 720 50/59.94/60p, 1080i 25/29/30, 1080p 23/24/25/29/30
3G: 1080 – 50/59.94/60p
UHD: 2160 – 50/59.94/60p

Frame Rate Conversion Modes
High Ph.C Motion Compensated Interpolation
Low Ph.C Motion Compensated Interpolation
Linear
Synchronous

Supported Audio Format
16 PCM pass-through channels of audio with gain, delay and shuffling

Video Utilities
Color space conversion (REC601 / BT709 / BT2020)
Alias Suppression — Horizontal & vertical
RGB Legalization (700 / 721 / 735 / Custom)
Aperture — Sharp / Normal / Anti-alias
VANC bypass
Logo inserter

HDR Processing
HDR (PQ/HLG) to SDR
HDR (PQ/HLG) to HDR (PQ/HLG)
SDR to HDR (PQ/HLG)
Custom LUTs

Ordering

Please contact your Grass Valley sales representative for more details.

Key Features	UDC Processing & Utility Apps		Frame Rate Conversion Apps		
	Alchemist X HDR	Alchemist X UDC	Alchemist X Essential	Alchemist X Professional	Alchemist X Enterprise
Frame rate conversion	No	No	Good Quality Linear/ Synchro	Better Quality Motion Comp	Best Quality Motion Comp
UDX Conversion	No	Yes	Yes	Yes	Yes
HDR Support	Yes	UHD Version Only	No	UHD Version Only	Yes
Color Space Conversion	Yes	UHD Version Only	No	UHD Version Only	Yes

Security

Rest assured, AMPP is designed with security in mind. Conforming to the best IT practices of a representational state transfer (REST) architecture:

- All REST operations are executed over HTTPS for secure communication.
- All REST operations rely on JSON Web Tokens (JWT) for authorization.

IP streaming in AMPP is encrypted when applicable (SRT (AES), RIST (AES), RTMPS (TLS/SSL), WebRTC (DTLS/SRTP), AMPP Streaming (DTLS/SRTP)).

AMPP authentication is handled through an Identity Service, which can optionally delegate authentication to an Okta server.

To ensure strict security standards are maintained, Grass Valley also regularly conducts third-party penetration testing.

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