

# Aquila Streaming Solution

## Single set of tools for a rich user experience

Aquila Streaming is designed to provide a rich experience across all devices leveraging its state-of-the-art components (Encoding Live and Packaging Live) by providing:

- The best-in-class picture quality across multiple codecs (MPEG-2, H.264 & HEVC) and resolution up to UHD with a 10% enhancement every year
- Stereo and surround audio experience as your own personal home theater
- Rich subtitles management including ingest of DVB subtitles, teletext and closed caption and their translations for each format
- Wide player and device support for all major segment and manifest formats (HLS, SS, DASH, CMAF)

## One software solution that fits all infrastructures

As operating a video headend is not the same for all, Aquila Streaming can be deployed in three different ways to meet your needs and expectations:

- As **Appliances** under a common control system to build an infrastructure dedicated to video channels processing .
- As **Software** where the headend is fully integrated in your operational flow and infrastructure is managed by you, deployed on:
  - Mediakind reference hardware
  - Dedicated data center hardware
  - Private Cloud infrastructure
  - Public Cloud deployment
- As a **Service** so you do not have to manage the infrastructure and can only focus on channels processing.

Through integral industry and technology partner integrations Aquila Streaming provides a turnkey solution from securely delivering content from a contribution link to the end user on any device.



## Input

	Aquila Streaming Software	Aquila Streaming Appliances	Aquila Streaming as a Service
Compressed Input	<p><b>Type:</b> IP (IGMPv3-based redundancy and dual multicast redundancy), Dual source redundancy (active / active &amp; active / passive modes), Pro-MPEG FEC support, Secure reliable Transport (SRT)</p> <p><b>Monitoring:</b> ETR 290, Packet loss statistics</p> <p><b>Protocols:</b> MPEG-2 TS (MPTS &amp; SPTS), RTMP</p> <p><b>Codec:</b> MPEG-2, H.264, HEVC – MPEG-1 LII, Dolby Digital (AC-3), Dolby Digital Plus (E-AC3), AAC, HEAAC v1 and v2, Dolby E</p> <p><b>Data rate:</b> SD / HD up to 50 Mbps, UHD up to 80 Mbps</p>		
Baseband input	SDI over IP (ST-2022-6) SMPTE ST-2110	Support for 3G / HD / SD-SDI SDI over IP (ST-2022-6) SMPTE ST-2110	

## Pre-Processing

	Aquila Streaming Software	Aquila Streaming Appliances	Aquila Streaming as a Service
Aspect ratio	WSS, AFD, Video index		
Metadata	SCTE 104, SCTE-35, IA 608 / 708 Closed Caption, SCTE-20, DVB Teletext, DVB-VBI, SCTE-27, OP47, SMPTE 2031, VITC		
Image settings	Brightness, Contrast, Saturation, Hue, Gamma, Temperature		
Enhancement filters	<p><b>Video:</b> De-interlacing, Cropping, Letter boxing, Stretching, SD and HD Cross-scaling, 3:2 Pull down, MCTF<sup>(1)</sup>, Deblocking filter<sup>(1)</sup>, Spatial Denoising filter<sup>(1)</sup>, Cross Talk filter<sup>(1)</sup>, Sharpening<sup>(1)</sup>, Diamond filter<sup>(1)</sup></p> <p><b>Audio:</b> Automatic loudness control (A/85), Audio gain adjustment, Mute</p>		
Image overlays	Image insertion on input loss		

## Video Encoding

	Aquila Streaming Software	Aquila Streaming Appliances	Aquila Streaming as a Service
Video codec	HEVC Main 10, HEVC Main Profile, H.264 Baseline / Main / High profile, MPEG-2 HDR: HDR10, HLG10, PQ10. Dolby Vision 8.1 pass-through		
Rate control	CBR, VBR, Constant Video Quality		
Data rate	From 10 kbps to 30 Mbps		
Resolutions	<p><b>Progressive:</b> from QCIF to 4K, up to 60 fps</p> <p><b>Interlaced:</b> 480i, 576i, 720i and 1080i</p>		
Multi-stream	Shared and Split encoding for ABR outputs		
Templates	Channel templates creation and management Default profiles templates for SD, HD & UHD services		

(1) Option

## Audio Encoding

	Aquila Streaming Software	Aquila Streaming Appliances	Aquila Streaming as a Service
Audio channels per service	Up to 8 stereo pairs. Radio Channels for IPTV		
Audio encoding	MPEG-4 / MPEG-2 AAC, HE-AAC v1 and v2, AMR-NB, AMR-WB, Windows Media		
Pass-through	MPEG 1 LII, AC-3, Dolby Digital Plus (E-AC3) 5.1-ch or stereo, Dolby E		
Data rate	From 4.75 kbps to 320 kbps (from 64 to 1024 kbps for DD+)		

## Metadata

	Aquila Streaming Software	Aquila Streaming Appliances	Aquila Streaming as a Service
Subtitles pass-through and translation	EIA 608/708 Closed Caption, SCTE-20, DVB Teletext, DVB Subtitles, SCTE-27		
Ad insertion	EBIF / EISS / AITSCTE-35 pass-through		
Nielsen	Watermark extraction for multi-screen devices		

## Output Processing

	Aquila Streaming Software	Aquila Streaming Appliances	Aquila Streaming as a Service
Formatting	Apple HTTP Live Streaming (Over CMAF or TS), Microsoft Smooth Streaming, DASH Common CMAF segment delivery for HLS and DASH Low Latency Chunking support for DASH		
Subtitling	<b>Closed Captions:</b> WebVTT for HLS, DFXP for HSS, WebVTT or SMPTE-TT for DASH <b>DVB-Teletext page 888:</b> WebVTT for HLS, DFXP for HSS, WebVTT or SMPTE-TT for DASH <b>DVB-Subtitles:</b> DFXP for HSS, SMPTE-TT for DASH		
Multi audio	Multiple audio streams per output for HLS, Smooth Streaming and DASH		
Content protection	Microsoft PlayReady DRM support for HLS / TS, Smooth Streaming and DASH Apple Segment for HLS / TS FairPlay support for HLS / TS and HLS / CMAF Adobe Primetime Access support HLS / TS Widevine, PlayReady and Marlin support in CTR mode for DASH Widevine and PlayReady support in CBC mode for DASH Key provisioning interface to leading CAS & DRM vendors		

## Output

	Aquila Streaming Software	Aquila Streaming Appliances	Aquila Streaming as a Service
Content publishing	Support for pull scenarios in just-in-time packaging Support publishing to local storage or to WebDAV servers		
Origin server	Built-in live and VOD origin server for HLS, Smooth Streaming and DASH Up to 8000 simultaneous connections Custom HTTP headers management (Expiry settings, CORS headers...) Built-in support of HTTP 1.1 Chunked Transfer Encoding for Low Latency		
CDN	Interfaces to leading CDNs Certified with Akamai MSL 4 for HLS and DASH		Google CDN can be included Interfaces to leading CDNs Certified with Akamai MSL 4 for HLS and DASH

## Monitoring & Control

	Aquila Streaming Software	Aquila Streaming Appliances	Aquila Streaming as a Service
Control interface	Up to 2 IP ports, monitoring and control ports (primary and spare) through API & GUI		Access through API & GUI is provided by Mediakind
Control and system protocols	REST, HTTP, NTP, FTP, IGMP v2 / v3, SNMP v2 / 3c		
High availability	Support both 1+1 and N+M redundancy schemes Service synchronization on encoder and packager		High availability managed by Mediakind based on agreed uptime
Content replacement	SCTE-35 in-band / ESAM out-of-band <b>Triggers:</b> Time signal, Splice-out / Splice-in, Alternate command, or manually triggered from GUI		
Licensing	Centralized floating license	Appliance node locked license	Pay per use

## Infrastructure

	Aquila Streaming Software	Aquila Streaming Appliances	Aquila Streaming as a Service
Servers	Mediakind referenced HW IT Datacenter based on COTS servers (DELL, HP, Cisco) Private and public clouds	Aquila Streaming Appliances (G8, T1)	Mediakind selected cloud infrastructure
Option boards		SDI option boards	
Blueprint deployment	Centralized management and licensing (3x) with processing servers for channels transcoding and packaging	Centralized management with control over the different processing appliances	Per channel deployment managed by Mediakind