

# Genova

INTEGRATED SOFTWARE HEADEND



Turn-key software suite for multiscreen OTT  
Dynamic resource allocation to live/VoD tasks  
Designed to run on blade servers hosts  
Future-proof, upgradable headend

Carrier-grade software headend, including:

- Genova Live Transcoder, for Live multiscreen TV.
- Genova File Transcoder, for batch transcoding of VoD assets.
- Genova Fragmenter, for remuxing Live stream to all OTT Formats.
- Genova Origin, to serve VoD and Live content to major CDNs.
- Genova Manager, with embedded DataMiner© management application.

Highly integrated, redundant, future-proof design.



**ALLEGRO**  
Digital Video Technology



# Genova Live Transcoder

Genova Live Transcoder ingests MPEG-2 and H.264 compressed inputs and delivers live audio/video outputs in several formats simultaneously, adapted to multiscreen, IPTV, PIP, OTT, and Mobile TV. The same source, or different sources, can then be delivered to various targets such as mobile phones, set-top boxes, and PC players at the same time, for catching the broadest audience.

Multi-bitrate encoding allows adaptive streaming for Apple HLS, Microsoft Live Smooth Streaming, Adobe Flash, Windows Media VC-1, and RTP 3GPP bitstream-switching (BSS). This permits the viewer to experience the best video quality according to his local and instantaneous network conditions. Genova Live Transcoder can be used to deploy multiscreen services as well as multirate IPTV. Genova Live Transcoder offers proven interoperability with various streaming servers and redundancy with N+P flexible schemes and network teaming. Genova Live Transcoder is easily administered by Genova Manager or SNMP and can be integrated in any existing Management System.

## LIVE INPUT

Video	MPEG-2 MP@HL, up to HD; H.264 HP@L4, up to HD	Support for TS/UDP/IP and SDI inputs
Audio	MPEG-1 Layer II, AAC, AC-3, E-AC-3	

## LIVE OUTPUT

Video Preprocessing	Adaptive de-interlacing Video resize Aspect-ratio conversion or pass-through	Frame rate down-conversion / doubling: 1080i to 720p Color enhancement Logo / Slate insertion
Video Encoding	H.264 / MPEG-4 AVC, Baseline/Main/High, all levels, up to HD MPEG-2 MP@ML/HL, up to HD H.263 Profile 0 Level 45, QCIF or Sub-QCIF	MPEG-4 SP Level 0 to 3, up to CIF WM8, WM9, VC-1, up to HD Multi-bitrate video encoding (Adaptive Streaming)
Audio Preprocessing	Automatic Gain Control Audio level	Stereo-to-mono downmix Audio resampling
Audio Encoding	8 audio streams per video stream Pass-through with perfect A/V sync (SPTS) MPEG-1 Layer II (SPTS)	AMR-NB (RTP) WMA Voice 9, WMA 9.2, WMA 10 Professional (ASF/MMS) AAC, LC, HE v1, HE v2, in ADTS or LOAS/LATM
Pass-Through	2 Teletext streams per video stream (SPTS) 2 DVB-Subtitle streams per video stream (SPTS)	Closed Caption (CEA-608/708) Ad-Insertion (SCTE-35)
Transport	Apple HLS (embedded segmenter) Microsoft Live Smooth Streaming Microsoft Windows Media Adobe Flash	3GPP / Edge IPTV & PiP: SPTS/UDP Supported protocols: FTP, HTTP, WebDAV, RTMP, SPTS, RTP/RTCP
Encryption	Native interoperability with Verimatrix (HLS) DGI (DRM Generic Interface)	Microsoft PIFF Protection for Live Smooth Streaming
Operations	Up to x16 live services	N+M Redundancy

# Genova File Transcoder

Genova File Transcoder allows operators to generate single or multi bitrate VoD assets with tremendous video quality. It is designed to batch process large amounts of video files, faster than real-time and can implement load-balancing for transcoding over multiple nodes.

## FILE INPUT

Video	H.264 up to Level5.1 MPEG-2 MP@HL	Support for TS input files
Audio	MPEG-1 Layer II, AAC, AC-3	

## FILE OUTPUT

Video Preprocessing	Adaptive de-interlacing Video resize Aspect-ratio conversion or pass-through	Frame rate down-conversion / doubling: 1080i to 720p Color enhancement Logo / Slate insertion
Video Encoding	H.264 / MPEG-4 AVC, Baseline/Main/High, all levels, up to HD MPEG-2 MP@HL	Multi-bitrate video encoding (Adaptive Streaming)
Audio Preprocessing	Automatic Gain Control Audio level	Stereo-to-mono downmix Audio resampling
Audio Encoding	8 audio streams per video stream	AAC, LC, HE v1, HE v2, in ADTS or LOAS/LATM
Pass-Through	Closed Caption, Teletext, DVB-Subtitle	
Output formats	Multirate MP4 files, SMIL files for all major streaming servers	Transport Stream files.
Operations	Single node or cluster	

Allegro DVT

15, avenue du Granier  
38240 Meylan – FRANCE

info@allegrodvt.com  
www.allegrodvt.com

+33 4 76 42 66 85

# Genova Fragmenter

Genova Fragmenter is a multi-format delivery platform, for Live and VOD IPTV and OTT-TV, designed to complete broadcasters' headends in order to offer new services. Genova Fragmenter allows N-Screen Live TV, Catch-Up TV, Start Over TV and VOD.

It ingests Live or VoD intermediate content from encoders in TS format and delivers it in multiple formats, to allow Adaptive Streaming and progressive download on all devices, over the Internet or operators' managed network.

## INPUT

Video	H.264 HP@L4, up to HD Multi SPTS for multi-bitrate inputs File input on remote SMB Server Live input on TS/UDP	IP source input redundancy
Audio	AAC, LC, HE v1, HE v2	

## OUTPUT

Pass-Through	Closed Caption (CEA-608/708)	Ad-Insertion (SCTE-35)
File Outputs for VoD	Multirate MP4 files	
Live OTT / WebTV Outputs	Apple HLS (embedded segmenter) Microsoft Live Smooth Streaming Microsoft Windows Media Adobe Flash	3GPP / Edge IPTV & PiP Supported protocols : FTP, HTTP, WebDAV, RTMP, SPTS, RTP/ RTCP
Encryption	Native interoperability with Verimatrix (HLS) DGI (DRM Generic Interface)	Microsoft PIFF Protection for Live Smooth Streaming
Operations	Up to 44 Live services Up to x4 publishing points per service	N+M Redundancy

# Genova Origin

Genova Origin is the natural companion of Genova Life / File Transcoder. It provides in the same environment an HTTP streaming server for VoD and Live, and supports output formats for iOS, Android and Flash. Genova Origin provides tight integration with Genova Manager, to implement full remote management and complex redundancy schemes, in order to eliminate single points of failure in the delivery pipeline.

Genova Origin can host market leader third-party streaming servers if required, and is validated to operate with major CDNs on the market.

## INPUT

Formats for Live	Smooth Streaming, RTMP, RTP, Transport Stream	
Formats for VoD	Multirate MP4 files, ISMV, Transport Stream	

## OUTPUT

Formats Live/VoD	Smooth Streaming, RTMP, RTP, HLS	
Live OTT / WebTV Outputs	Apple HLS (embedded segmenter) Microsoft Live Smooth Streaming Microsoft Windows Media Adobe Flash	3GPP / Edge
Encryption	Microsoft PIFF Protection for Live Smooth Streaming	
Operations	N+P redundancy	

MULTISCREEN – CATCH-UP TV – VOD

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# Genova Manager

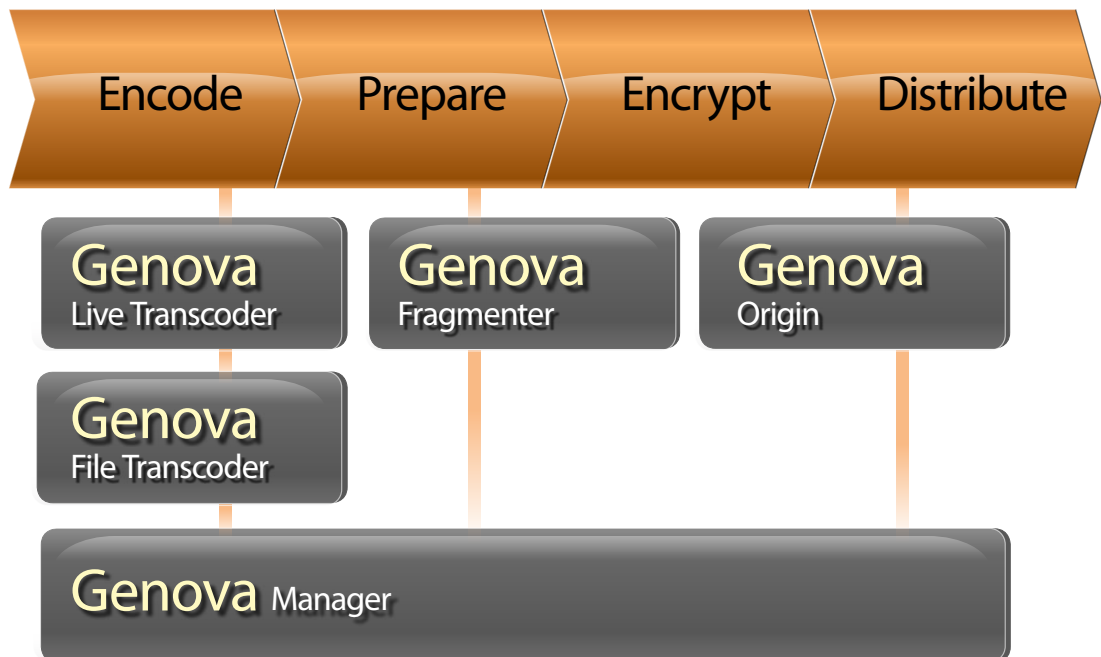
Genova Manager acts as a spinal nerve for the Genova software suite. It manages all devices in the software headend and implements complex redundancy schemes and workflow operations.

Genova Manager embeds market leader DataMiner® management application, which permits fine dashboard monitoring, through a rich user interface.

## Features

- Manages other Genova based devices
- Drivers for third party network equipments
- Extensive logging capabilities
- Alarms and automated reports
- Single view headend monitoring

## OVERVIEW



Software multiscreen headend  
Validated on blade servers hosts  
Centralized system management  
Great video quality for Live/VoD  
Transcode, Deliver, DRM, Ad-insertion