



The TAG solution provides a complete Multiviewing application tool combined with probing and monitoring as well. It can receive and monitor all Broadcast formats like the 2110/2022-6 Uncompressed; compressed MPEG-TS; and OTT streams all the way down to the encoded video content and its quality. The solution provides the operator with a strong tool for error detection, alerting and Multiviewing.

The created output Mosaic/Head is an HD or UHD video stream, encoded and transmitted as 2110-21 and standard H.264/H.265 SPTS along an HLS parallel output – enabling remote multiviewing, mobile devices access and a very flexible installation topology.

## FEATURES

- Flexible Mosaic layout generation: User defined layouts, 1-100 channels per layout; Layout editor via embedded web browser, Round-Robin and Paneity Box (CED) layout displays
- Overlay display of errors, Tally, UMD's, events and DVB Teletext & Subtitles, Close Captions/ID3 multilanguage subtitling overlay
- Mosaic output encoded as standard HD or UHD Multicast H.264 /H.265/ MPEG-2 SPTS service, and/or low latency SMPTE-2110/2022-6/7 with simultaneous HLS output for each generated Mosaic/Head
- Mosaic output viewable on standard STB, ST-2110/2022-6 to HDMI convertors, mobile devices and web browsers
- Up to 32 audio streams loudness display per ser

## SPECIFICATIONS

### Mosaic/Head Outputs

Uncompressed ..... ST 2110-21 & ST 2022-6 selectable  
 Redundancy ..... ST 2022-7 redundant outputs from two separate Network Cards  
 Compressed ..... Standard H.264/H.265 SPTS MPEG-TS  
 OTT ..... HLS parallel output of each generated Mosaic  
 Resolutions ..... HD or UHD in 25/50/30/60 fps  
 Audio output ..... flexible setup or control by TAG's API  
 Mosaic outputs # ..... Software defined multiple outputs  
 Tile source ..... flexible mixing of different source types on the same Mosaic Layout

### Mosaic Layouts

User defined layouts ..... 1-100 channels per layout  
 Layout editor ..... via embedded web browser  
 Tile editor ..... Create your own tile to be used in one of multiple Mosaic layouts (available early 2010)  
 Layout Displays ..... Static View, Round-Robin and Paneity Box (CED) display types  
 Audio Meters ..... Up to 32 audio streams of loudness display per service  
 Graphics elements ..... JPEG or Video file placement

### Overlay display

Events/Errors ..... user defined errors display in different colors per severity on each tile  
 Tally ..... Via TSL protocol or TAG's elaborated API UMD's ..... dual UMD's configured internally or via TAG's elaborated API  
 Clocks ..... multiple face type selectable clocks

### Subtitling Display

DVB subtitles ..... multiple language Overlay display  
 ID3 subtitles ..... Overlay display  
 CC errors ..... Separate rules  
 Closed Caption ..... CEA-708, CEA-608  
 Multi language support ..... Support for up to 8 PIDs



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The TAG solution provides a complete probing and monitoring application tool for all the transmission layers starting from the 2110/2022-6 uncompressed; MPEG-TS compressed; and OTT streams all the way down to the encoded video content and its quality. The solution provides the operator with a strong tool for error detection and alerting.

## FEATURES

- High density solution; concurrent monitoring of up to 300 services per server.
- Ability to mix variety of Uncompressed, Compressed and OTT sources: SMPTE-2022-6;7/ST-2110/ HEVC /H.264 /MPEG-2 /JEPG2000 TR-01/ HLS/ MPEG-DASH/ MSS/ UHD/HD/SD/RADIO/DATA
- Simultaneous, real-time analysis of all sources on all channels
- Three levels of monitoring: transport level monitoring based on ETR-101-290 compliance, Video/Audio baseband content level monitoring, and template-based monitoring for detection of configuration changes in the monitored stream.
- Transport layer monitoring: ETR-101-290 priority 1-3, ATSC A/78A; Channel Statistics; Video content monitoring: freeze frame, black frame; Audio content monitoring: audio levels, audio Silence; Subtitles content monitoring: display and validity
- Subtitling analysis of DVB Subtitles, ID3 and 708/608 closed captioned
- Unique alarm trigger settings for individual channels or groups of channels
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- Event notification by SNMP, Syslog, Email and Mosaic overlay
- Source recording for compressed streams, triggered by any of the event detection rules

## SPECIFICATIONS

### Supported Video/Audio Uncompressed Formats

ST-2110 .....	2110-10/20/21/30/3140
ST-2022-6 .....	SDI over IP
ST-2022-7.....	Redundancy for Uncompressed & MPEG-TS

### Supported Video Compression Formats

MPEG-2 Video .....	up to MP@5.1
H.264 Video .....	up to Hi@4.1
HEVC Video .....	up to MP@5.1
JPEG2000 TR-01.....	up to 200mbps
Color Space .....	YUV420, YUV422, YUV422-10bit

### Audio Layer Analysis

Audio codec .....	MPEG2 / AAC / HE-AAC / A-52 / AES67
Audio channel mode .....	1 / 1+1 / 2 / 5.1
Loudness monitoring...	EBU-R-128/ITU-1770-3/ATSC A/85
Silence detection ....	Mono, stereo, dual mono, surround
Clipping detection .....	User adjustable threshold

### Video Layer Analysis

Video codec ...	MPEG2 / H.264 / HEVC / UNCOMPRESSED
HDR .....	HDR10, HLG,PQ
Video encoding .....	Level and profile
Video resolution .....	480i, 576i, 1080i, 1080p, UHD
Video aspect ratio .....	4:3 / 16:9
Video frame rate .....	25 / 29.97 / 30 / 50 / 59.94 / 60
Video content .....	Black / Freeze / Black with logo
Video quality .....	Blocking detection

### Signaling Analysis

SCTE-35/104.....	XML & Binary
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### Transport Protocols

Multicast & Unicast.....	TS over UDP
	TS over RTP, TS over HRTMP
HLS/MPEG-DASH/MSS .....	OTT formats
RTMP .....	PUSH & PULL
SMPTE-2022-6/7.....	RTP over UDP
ST-2110 .....	RTP over UDP

### Subtitling Analysis

DVB subtitles .....	Overlay display
ID3 subtitles .....	Overlay display
CC errors .....	Separate rules
Closed Caption .....	CEA-708, CEA-608
Multi language support .....	Support for up to 8 PIDs

## Notifications

SNMP ..... Configurable SNMP TRAPS  
SYS LOG ..... Configurable sys-log notifications  
SMTP ..... Email notifications  
Overlay ..... Overlay error display on the mosaic  
Centralized Error Display ..... Group error channels  
to a single display

## DVB Transport Layer Analysis

ETR, First priority ..... TS sync loss  
Sync byte error  
PAT error  
Continuity count error  
PMT error  
PID error  
ETR, Second priority ..... Transport error  
CRC error  
PCR repetition error  
PCR discontinuity  
PCR accuracy error  
PTS error  
CAT error  
ETR, Third priority ..... NIT actual/other error  
SDT actual/other error  
EIT actual/other error  
RST/TDT Error  
Table analysis ..... TS PSI, TS DVB\_SI

## Scrambling Analysis

Scrambling verification  
Crypto period measurement  
ECM/EMM existence tests  
ECM Private data change notification  
DVB Simulcrypt AES-ECB descrambling  
HLS AES descrambling

## Channel Statistics

Service structure tree-view (per PID)  
Display of each PID's bitrate  
Display of service bitrate  
Display of service properties  
Graphical display of audio loudness and True-peak

## Hardware Requirements

Operates on standard off the shelf hardware  
Intel CPU based platforms  
No software installation required

# Decryption Applications



**PRIOR TO DECRYPTION**



**AFTER DECRYPTION**

TAG's solution offers a proven and secure method of real time Decryption, Monitoring and Viewing of DVB Simulcrypt, as well as OTT content after the packager within the secure zone, and after the CDN while interacting with Verimatrix MultiRights key management.

Content providers are taking all means necessary to secure their content. As such, most OTT content is encrypted during the encoding phase, causing a difficult tradeoff by not being able to Monitor and View the OTT content to insure the quality of real-time distribution.

Now, Content owners can rest assured that all their content will remain secured during all streaming media methods. Even OTT content, is monitored and analyzed within the TAG's IP Software-Only Platform. No more frustration of not being able to monitor and view after the Packager, or at the CDN output.

TAG's innovative and unique decryption capabilities within the system, surpasses the conventional features of today's Multiviewing Probing and Monitoring solutions, thus, ensuring reliability, flexibility and quality for monitoring secured OTT content in real time.

#### Currently Available for:

Verimatrix | Huawei | DVB Simulcrypt

## SOLUTION OVERVIEW

The TAG solution provides a complete Probing Monitoring and Multiviewing application tool for all the transmission layers starting from the 2110/2022-6 uncompressed; MPEG-TS compressed; and OTT streams all the way down to the encoded video content and its quality.

The solution creates a visual mosaic from the monitored services with rich data overlay, supplying the operator with a strong tool for error detection and alerting.

The created output Mosaic/Head is an HD or UHD video stream, encoded and transmitted as 2110-21 and standard H.264/H.265 SPTS along an HLS parallel output – enabling remote monitoring, mobile devices access and very flexible installation topology.

## KEY FEATURES

**High density offering** concurrent probing/monitoring of up to 300 services per server

**In-parallel inputs** ability to mix a variety of sources HEVC/H.264/MPEG-2/J2K/HLS/MPEG-DASH/SMPTE-2110/2022-6/7 UHD/HD/SD/RADIO/DATA

**Simultaneous, real-time analysis** of all sources across all channels

**Flexible deployment** by unique mosaic over SPTS for output streaming or ST-2110/2022-6 Uncompressed output, as well as HLS parallel output

**Unique alarm trigger** settings for individual or groups of channels

**Event notification** by SNMP, Syslog, Email and Mosaic overlay

**On screen** analysis and display of DVB Subtitles, ID3 and 708/608 closed captioned

**Source recording** for compressed streams, triggered by any of the event detection rules

**Content Decryption** within the solution.



The TAG system includes an independent solution that enables real-time live transcoding of internet audio streams such as radio stations, and encapsulating them into MPEG-2 transport stream.

## FEATURES

- “All IP” Software only solution
- Runs on COTS Server Hardware
- Up to 48 channels per 1RU Server unit
- Individual program per radio (PCR on Audio PID)
- PSI tables insertion (PAT/PMT/SDT)
- Support of RDS over UECP
- Channel Backup Playback from internal File
- Supports audio re-sampling to a variety of frequencies and stereo to mono down sampling
- Source redundancy solution (3 sources per stream)
- Management via embedded Web server, external SNMP or local CLI
- Ideal for broadcast applications
- Offers competitive price per channel

## SPECIFICATIONS

### Inputs

Physical ..... 2 Gigabit ports (up to 8 ports supported)  
Access ..... MMS, RTSP, ShoutCast, IcyCast  
Transport ..... ASF, Real, ADTS  
Codec..... MPEG-2/MP3/AAC/AACP/REAL/WMV

### Outputs

Physical ..... 2 Gigabit ports (up to 8 ports supported)  
Transport ..... MPTS/UDP, SPTS/UDP  
Codec..... MPEG Layer II/AAC/V1/V2  
Sample Rates ..... 24KHz, 32KHz, 44.1 KHz, 48KHz  
Channels ..... Mono, Stereo  
Level ..... Adjustable gain (-20...+20db)  
Rate Control ..... CBR, capped VBR  
Bitrates.....24,32,48,64,92,128,160,192,256,324kbps

### Source Redundancy

3 sources per channel, hot-swapped upon source failure  
User defined source timeout definitions  
User defined connection retries

### Notifications

SNMP ..... Configurable SNMP TRAPS V1/2  
SMNP Type ..... RFC1213, RFC1215  
SYS LOG ..... Configurable sys-log notifications  
SMTP ..... Email notifications

### Management

Web ..... Complete configuration via web  
Remote ..... JSON WEB services  
CLI ..... Network & software management  
Software upgrade..... via FTP & CLI interface