LYRAE

TRILOGIC
broadcasting solutions

Multiviewer Monitoring System

make it yours, keep it simple

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LYRAE

1 PRESENTATION

Lyrae is a solution for supervision, analysis, and visualization of audiovisual services, designed to adapt to the needs of various players in the broadcast industry. Whether you're managing a TV channel, a streaming platform, or any other infrastructure, Lyrae helps you monitor the Quality of Service (QoS) and the Quality of Experience (QoE) of your services across the entire processing and distribution chain.

Versatile by design, the solution can be used as an analysis probe, a mosaic generator, or offer a complete analysis and visualization system by combining both functions.

1.1 INTRODUCTION

This document provides a detailed presentation of the **Lyrae** supervision and mosaic generation solution. It is structured in several chapters grouping related functionalities.

This chapter presents general information about the solution, including its advantages, the principles behind its design, and general product features.

The **Supervision** chapter details the analysis, alarm, and logging functionalities of the solution.

The **Mosaic** chapter describes the composition and distribution features of the mosaic generation system.

The **Interface** chapter presents a detailed view of the system interface.

The **Customization** chapter explains the mechanisms provided by the solution to adapt it precisely to your specific needs.

1.2 KEY CONCEPTS

The design of Lyrae was driven by several fundamental concepts that make it a unique solution:

Versatility

A supervision solution cannot be prescriptive; Lyrae is designed to adapt to many contexts:

TV Supervision: Lyrae offers advanced monitoring of television services, including anomaly detection and centralized incident management. It supervises the entire distribution chain, from baseband acquisition to RF return feeds (DVB, ISDB...), covering all intermediate encoding and multiplexing stages.

Radio Supervision: Lyrae is perfectly suited for broadcasters managing many radio stations and offers specific options to optimize the supervision of this medium.

Service Mosaic: Lyrae allows distribution of video mosaics across your IP or DVB distribution network.

Probe: Lyrae can be used in probe-only mode. Information and alarms can be accessed through the web interface, Dataminer, the REST API, or SNMP.

Integration

Lyrae naturally integrates into your infrastructure and technology environment, and adapts to the procedures and working methods of the teams responsible for its operation.

The solution supports the acquisition of a wide range of heterogeneous signals from many physical or virtual inputs, to match your employed technologies.

It ensures optimal cooperation with your broadcast ecosystem and an effective interface with your hypervisor and information system using standard protocols (SNMP, email, Dataminer) and provides a documented REST/JSON API.

Scalability

Lyrae is designed to scale along with the infrastructure it supervises. Firstly, continuous integration of the latest protocols, standards, and codecs ensures the solution's durability and helps prevent obsolescence.

Thanks to a flexible licensing system, it is possible to progressively increase analysis capabilities, whether by raising the number of signals processed or by adding new functionalities. If hardware limitations are reached, the solution's **distributed architecture** allows for an additional machine to be deployed to handle new signals and extend decoding and analysis capacity.

The solution is equally adaptable in terms of visualization capabilities, handling everything from small mosaic configurations with just a few thumbnails to systems monitoring several hundred streams.

Ergonomics

Based on user feedback, ease of use is at the heart of Lyrae's design. The interface is intuitive and continuously evolving to constantly improve user comfort. The ability to create custom **dashboards** for each user enables precise display adaptation based on individual roles. Additionally, numerous visual and audio indicators allow for quick assessment of the supervised infrastructure's status and appropriate response.

Lyrae offers diverse options for accessing and utilizing monitoring results. In addition to the web interface, mosaics can be displayed on local screens or distributed to remote decoders.

Customization

Lyrae incorporates extensive customization capabilities to adapt to each client's specific needs:

Special attention has been given to customizing the presentation of analysis data. Mosaic screens offer pixel-perfect configuration, while the web interface enables creation of tailored **dashboards** displaying only relevant information. Each user can thus design an interface suited to their particular requirements.

For more advanced customization needs, the integrated **JavaScript** engine enables script development to adapt mosaic behavior to operational conditions. This allows, for example, creation of new alarms, graphical enhancement of mosaic pages with external system data, or addition of specific API endpoints. Thanks to the widely-used programming language, users can quickly become autonomous in managing these features.

Reliability

Deployed for over ten years with clients operating continuous 24/7 streams, Lyrae has demonstrated remarkable reliability. Unlike other solutions requiring frequent restarts or regular preventive maintenance, Lyrae ensures stable and lasting service continuity. Its robustness guarantees reliable supervision of broadcast infrastructures, even in demanding environments.

1.3 ARCHITECTURE

Lyrae's architecture is based on a distributed model, allowing the application to be spread across multiple servers. In addition to the main server, which handles mosaic page composition and centralized logging, it is possible to add secondary servers dedicated to acquiring and/or decoding additional signals. This approach offers several significant advantages:

Load Distribution – The processing capabilities of a server naturally limit the number of streams that can be analyzed and decoded simultaneously. Lyrae's distributed architecture overcomes this limitation by adding new servers to the installed system. This model allows the design of a mosaic system including a large number of streams while preserving centralized logging, a unified interface, and full flexibility in layout composition. This approach is particularly beneficial for infrastructures processing 4K HEVC signals where each server can only decode a limited number of streams.

Geographical Distribution – Servers can also be distributed across several geographic locations, allowing for local acquisition and processing of signals, especially for physical or modulated links. Analysis results and audio/video data are then transmitted to the main server over an IP link, providing consistent and centralized supervision.

Scalability – When acquiring a supervision system, sizing is typically done at the time of ordering based on initial needs. Often, needs evolve, and the addition of new signals may exceed the system's analysis and decoding capabilities. Rather than replacing existing hardware entirely, Lyrae allows an additional machine to be added to handle these new signals.

Cloud – While Lyrae operates perfectly on on-premise architectures, it is also suited to cloud deployment. It is thus possible to consider a fully hosted solution on cloud infrastructure, or a hybrid architecture where ongoing analysis is managed on-premise, while additional processing capabilities are instantiated in the cloud for special events or temporary needs.

1.4 INTEGRATION

During Lyrae's development, special effort was made to enable integration into clients' ecosystems. To this end, the solution uses only open standards, such as JSON for data exchange or JWT for security, allowing for simplified integration with third-party systems.

REST API – A REST API provides access to all probe capabilities, whether configuration, analysis, or log access. This API is thoroughly documented using the OpenAPI format. In terms of security, revocable API tokens allow fine-grained access rights to be assigned to each client system.

SNMP – For legacy systems, alarms can be forwarded as SNMP traps. Each trap includes a textual description of the alarm and all parameters available at the time it was generated. An MIB is provided.

Syslog – Alarms can be sent to a remote Syslog server to support analysis integration into automated tools.

Skyline DataMiner – A DataMiner driver has been developed by Skyline and is available to their customers.

2 SUPERVISION

Lyrae is above all a tool for supervising audiovisual signals, whose analysis and reporting capabilities are detailed in this section. While the provided interface is the primary tool for viewing the results of these analyses, the solution also makes them available to third-party monitoring systems, which can then integrate them seamlessly into the organization's overall supervision system.

2.1 SUPPORTED SIGNALS

Lyrae can handle heterogeneous audiovisual signals. Most commonly used network protocols are natively supported. When physical interfaces are required, the solution can interface with the full range of **DekTec**, **RME**, as well as certain **Matrox** cards.

Transport

MPEG-TS
- UDP/IP
- Multicast (IGMPv2/v3)
- RTP: RFC 2250
- ASI[1]
- DVB/C, DVB/C2[1]
- DVB/T, DVB/T2[1]
- DVB/S, DVB/S2[1]
- SRT

Video
- SDI (HD, 3G, 6G, 12G)[1]
- SMPTE 2110[1]

Audio
- UDP/IP
- Multicast (IGMPv2/v3)
- RTP: RFC 2250, RFC 3640
- AES[1]
- MADI[1]
- HTTP (shoutcast, icecast)
- SDI (HD, 3G, 6G, 12G)[1]

Decoding

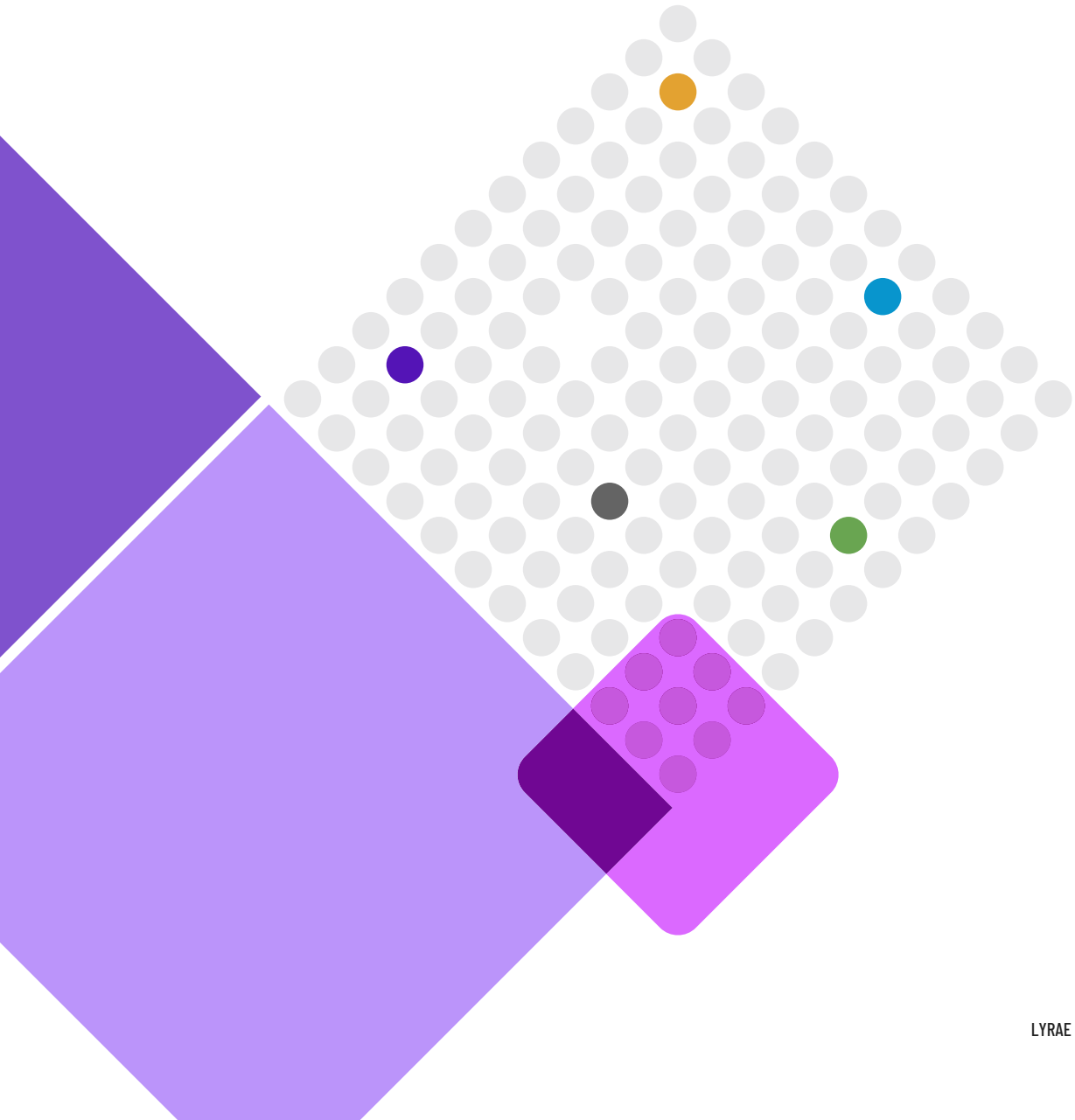
Video
- MPEG 2: ISO 13818-2
- H.264: ISO 14496-10
- H.265 (HEVC)
- 420/422/422 10 bits
- Hardware decoding

Audio
- ISO 1172-2 MPEG 1 (layers 1,2,3)
- 14496-3: AAC, HeAAC, HeAACv2
- Dolby Audio - Dolby Digital
- Dolby Audio - Dolby Digital Plus

Teletext
- DVB

Subtitles
- SDI: OP-47
- DVB: EN 300 743

Triggering
- SCTE-35
- SCTE-104



2.2 QOS/QOE ANALYSIS

SDI

Signal loss
Detects interruptions or absence of signal at the input.

Missing auxiliary data
Detects missing expected auxiliary data (OP-47, SCTE, etc.) in the SDI stream.

UDP/Multicast

Zero bitrate
Detects absence of data on the UDP stream.

RTP

Malformed RTP
Detects malformed RTP packets or inconsistencies in headers.

Invalid payload type
Detects packets with a content type incompatible with expected configuration.

Sound card

No signal
Reports absence of audio signal on the interface.

No sync
Identifies synchronization issues on AES or MADI interfaces.

MPEG-TS

ETSI TR 101 290
Verifies stream compliance with priorities 1, 2, and 3 of the standard.

Null elementary stream bitrate
Identifies declared streams that are absent in the multiplex.

Undeclared service or ES
Detects missing declaration of a service or elementary stream in SI tables.

Audio

Kantar Media (option)

- Checks for Kantar Media watermark presence in the audio stream and reports its absence.
- Verifies consistency of detected Kantar Media ID against expected list.

Codec

Compares received audio stream characteristics to expected parameters: format, bitrate, channels, sample rate.

Over-modulation

Detects excessive audio levels when a channel exceeds a defined threshold for an extended time.

Under-modulation

Identifies weak signals when a channel remains below a predefined threshold.

No dynamics

Detects lack of sound level variation over time.

Test tone

Detects presence of a specific test tone (1000 Hz) on one of the inputs.

White noise

Detects persistent white noise on one of the audio channels.

Video

Black frames

Reports persistent black screen beyond a configured duration.

Frozen frames

Detects still frames when the video remains unchanged for too long.

Teletext

Carrier

Detects absence of OP-47 carrier (SDI)

No data

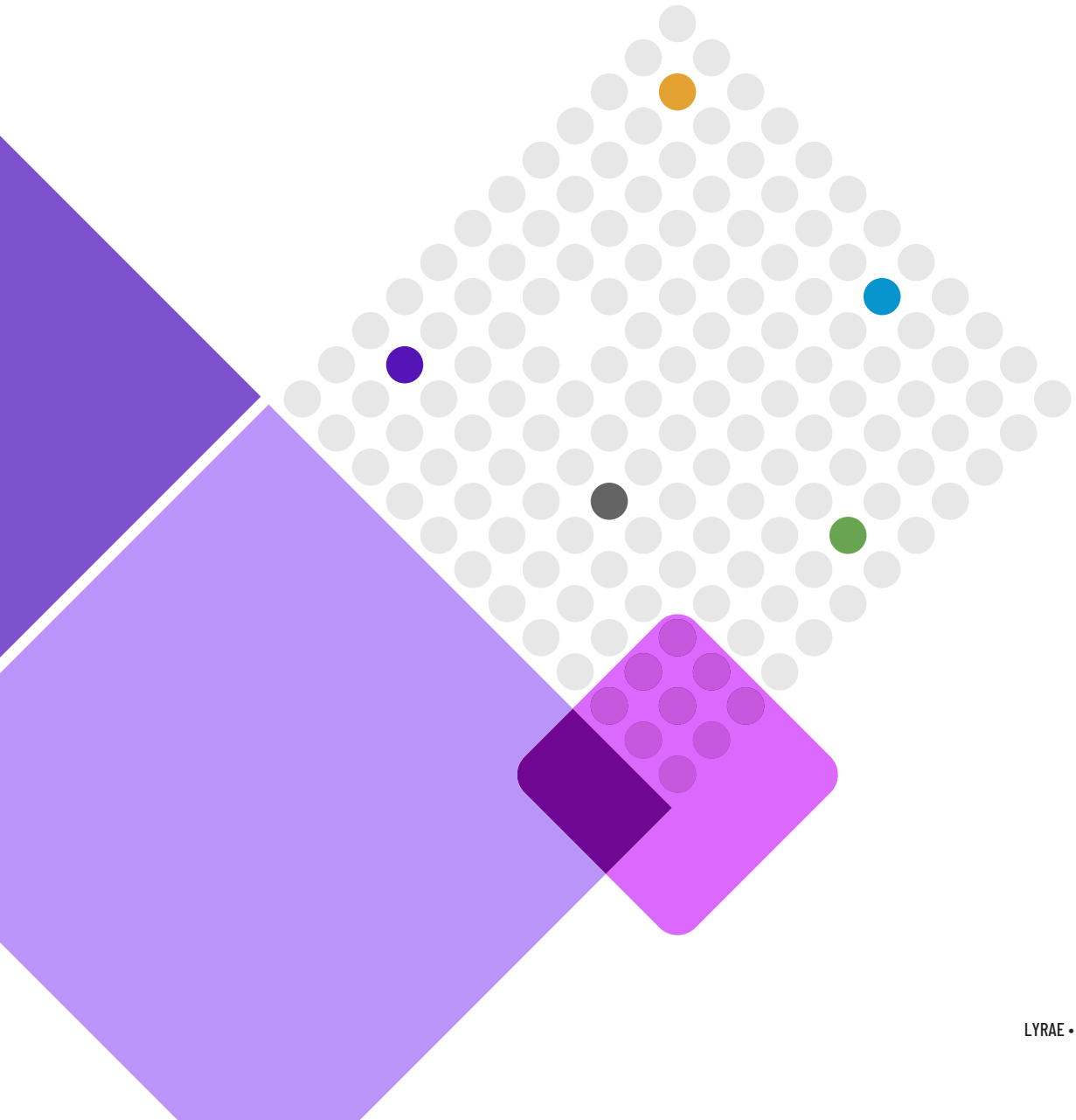
Detects absence of broadcasted teletext pages for a duration exceeding the configured threshold.

SCTE-35/104

Carrier (SCTE-104)
Detects absence of SCTE-104 command beyond the configured threshold.

No command
Detects absence of SCTE command beyond the configured threshold.

No non-null command
Detects absence of SCTE command other than `splice_null` beyond the configured threshold.



2.3 ALARMS

When a failure or anomaly is detected in the signals, Lyrae automatically generates alarms, logged with millisecond precision. Each alarm includes start and end times, source or stream IDs, and a detailed incident description.

Alarms can be transmitted via various means to notify operational teams:

- **Interface** — A clear view of ongoing alarms is available. A sound alert can be triggered to notify users even if they are not looking at the screen. The alarm can be acknowledged to stop the alert while preserving its log.
- **Mosaic** — When using a mosaic, visual indicators (e.g., colored border around the affected feed, alarm text overlay) can be activated. Custom scripts allow alarm display to be adapted to specific needs.
- **Syslog** — Alarms can be sent to a Syslog server for centralized logging and integration with existing monitoring systems.
- **SNMP** — SNMP traps are generated for each detected alarm. Each trap includes detailed incident information such as source ID, error type, timestamp, and severity.
- **Email** — Alarms can be sent by email for immediate notification to users, including remote personnel or systems without SNMP or Syslog support.
- **REST API** — All ongoing alarms and the event history are accessible via REST API calls.

2.4 LOGGING

In addition to alarms, several data types are logged for later reference. All logs are timestamped to the millisecond and include all information extracted during analysis. Logs can be viewed via the interface and exported in JSON or CSV format for post-incident analysis. The REST API also allows access for integration with a hypervisor. The retention duration of each log is individually configurable for each source or elementary stream. Logged data types include:

- **EIT** — The system supports current, next, and scheduled EIT tables (EIT p/f, EIT schedule). All descriptors present in MPEG sections are recorded upon reception for full analysis of transmitted data.
- **SCTE-35/104** — For detailed analysis of ad insertion signaling and events, each received SCTE command is logged with all descriptors. When timecode information (VITC) is present, it is included in the log.
- **Teletext** — The solution can archive teletext pages to enable retrospective monitoring. This makes it possible to verify the presence and accuracy of subtitles provided by the teletext service.

3 MOSAIC

The Lyrae system allows the creation of multiple mosaic pages, each of which can be configured with a different resolution. Resolutions higher than 4K are supported. These pages are designed using an intuitive WYSIWYG ("what you see is what you get") web configuration interface. This interface offers an ergonomics similar to commonly used drawing software, thus providing a familiar user experience.

3.1 COMPOSITION

Each mosaic is built by assembling *widgets*, each of which can be positioned to the nearest pixel. A layer stacking system and the ability to configure transparency facilitate the management of overlapping objects. It is possible to apply a rotation to the composition, for example to display the mosaic on a vertical screen.

Video This widget makes it possible to display in the mosaic one of the video streams decoded by the system.

Aspect ratio correction allows you to choose how to scale the decoded image to fit the tile dimensions. Several algorithms are available, allowing precise control of the trade-off between image quality and the device's processor resource usage.

Cropping allows to focus the video stream on specific areas of interest, such as a logo, or to combine monitoring of several sources in a single image — for example by displaying the main stream on the left half and the backup stream on the right half, as shown in the thumbnail below.

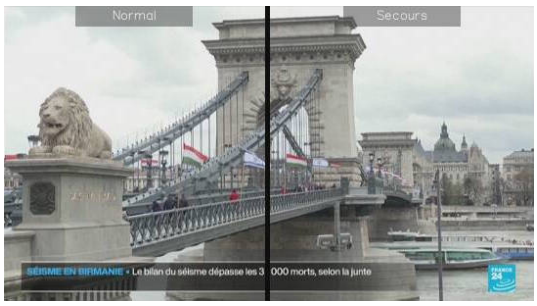


Figure 1 – Video widget

VU Meter ● This widget displays in real time the RMS and peak levels of an audio stream decoded by the system.

Subtitle ● This widget displays a DVB subtitle stream. Transparency management allows the subtitle to appear over the video if needed.

Teletext ● This widget displays teletext pages configured by the user. To optimize space and display only the relevant areas, the component allows you to select which lines to display.

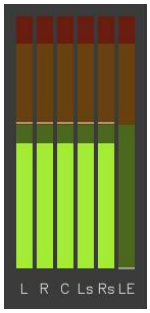
ParadeScope ● This widget analyzes color balance and luminance levels of a video.

It displays the luminance, red, green, and blue channels separately in four distinct sections, each representing the distribution of its corresponding component. The vertical axis indicates brightness, while the horizontal axis shows the pixel position in the image.

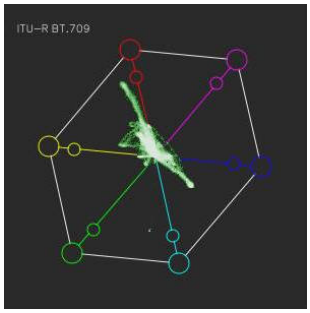
VectorScope ● The vectorscope allows color grading and correction in video editing. It represents the colors of the video as a circular diagram, indicating saturation by distance from the center. Targets show expected positions when a color test pattern is present in the image. The color space is automatically adjusted based on the characteristics of the analyzed video.

Available in horizontal or vertical format, it adapts to user preferences and the composition layout.

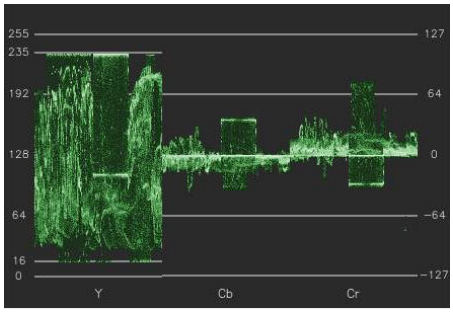
The widget allows selecting which audio channels are displayed on the VU meter in order to focus only on channels that require specific attention. For easier identification, each audio channel can be individuallv named.



VU Meter



Parade Scope



Vector Scope

Label ● This component is designed to display text information on the mosaic, essential for understanding and organizing streams. Numerous options allow precise text display adjustment.

Font size and typeface are configurable, ensuring visibility and readability suited to different contexts. Text color and background color options provide additional customization to match the interface aesthetic, specific color coding, or enhance contrast for improved text readability across various viewing environments.

Image ● This component enables integration of image files into the mosaic, such as logos or backgrounds.

Transparency management within images is supported for compatible formats (PNG). In all cases, a global transparency level can be applied to overlay images on video.

Dynamic mode allows automatic image refresh when modified on disk. This method enables real-time content generated by third-party systems or slideshow presentations.

Clock ● The clock component displays time. Two versions are available: analog or digital. Each clock can be configured for different time zones.

3.2 VISUALIZATION

Created mosaic pages can be viewed directly on a server-connected screen. Alternatively, they can be distributed over a network link for viewing on remote terminals, or modulated on an RF transponder. Multiple simultaneous outputs are possible for each mosaic.

An integrated MPEG multiplexer enables construction of SPTS or MPTS programs containing one or more videos with corresponding audio tracks.

Local Outputs

- VGA, HDMI, or DisplayPort depending on installed graphics card
- SDI

Encoded Output

- Video codec: H.264
- Audio codec: AAC, MP1L2
- Transport protocols: Multicast, Unicast, RTP, SRT, RTMP(s), ASI

4 INTERFACE

All configuration and operational functions are accessible through a web interface compatible with major browsers. Fully localized in English and French, it provides each user with a personalized profile for adjusting various settings such as data refresh rates, date formats, and time zones.

4.1 CONFIGURATION

The interface includes backup and restore functionality for configurations, available both locally and directly on the server. This feature facilitates advance configuration preparation and rapid deployment when operational conditions change.

Sources & Streams This section manages the signals to be analyzed by the system. It includes discovery tools to simplify the identification and selection of services for processing. Sources and elementary streams can be grouped together to streamline organization and facilitate searching for similar signals in logs and the operational interface.

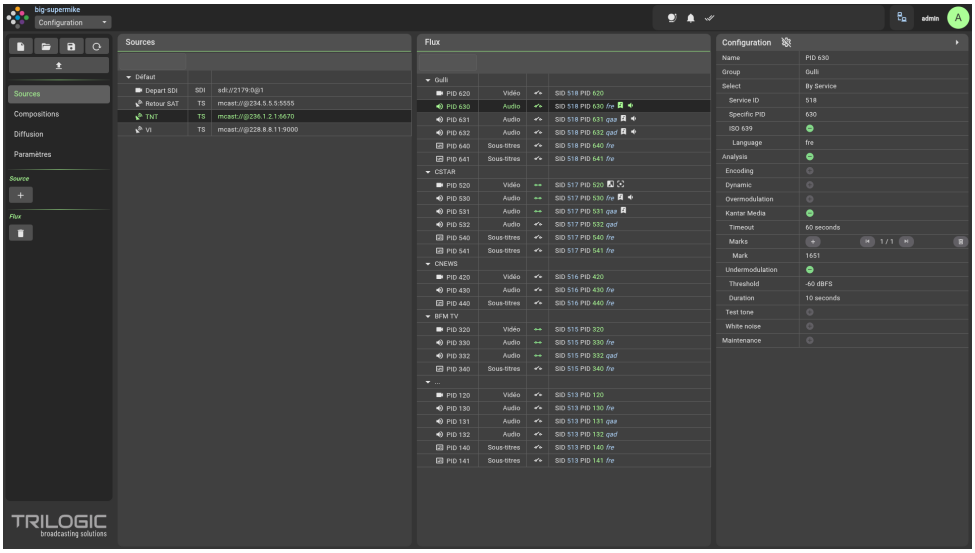


Figure 5 - Configuration Interface | *Sources and Streams*

Compositions ● Mosaic editing features a graphical editor that enables precise layout of mosaic elements.

The intuitive editor includes a comprehensive set of tools for optimizing widget arrangement: copy/paste, widget grouping, alignment, and spatial distribution.

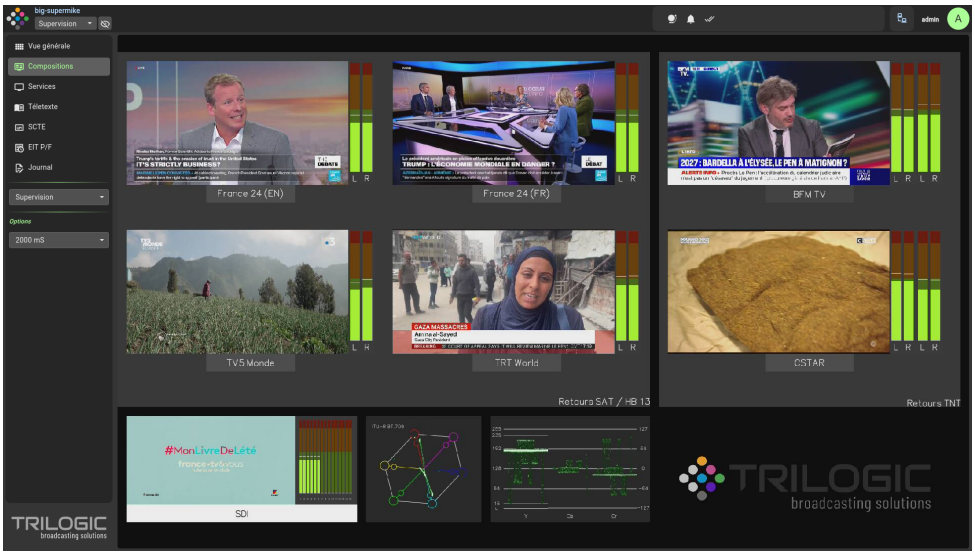


Figure 6 – Configuration Interface | *Compositions*

Distribution ● Each composition can be displayed or broadcast simultaneously to multiple outputs. This section consolidates all parameters needed to configure the display or encoding/distribution of created compositions.

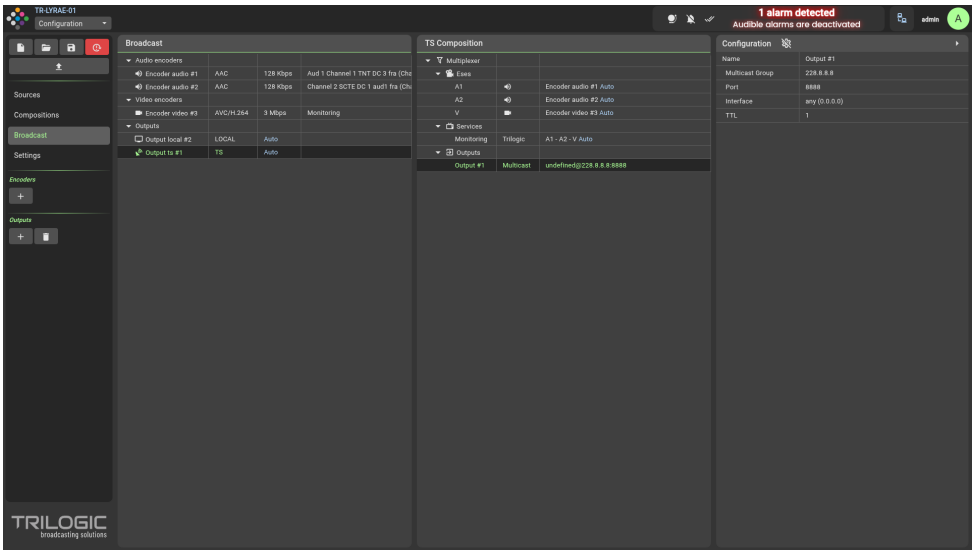


Figure 7 – Configuration Interface | *Outputs and Distribution*

Parameters ● This final section handles global system settings, including alarm destination configuration (via SNMP, email, etc.) and management of custom scripts for adapting system behavior to specific user requirements.

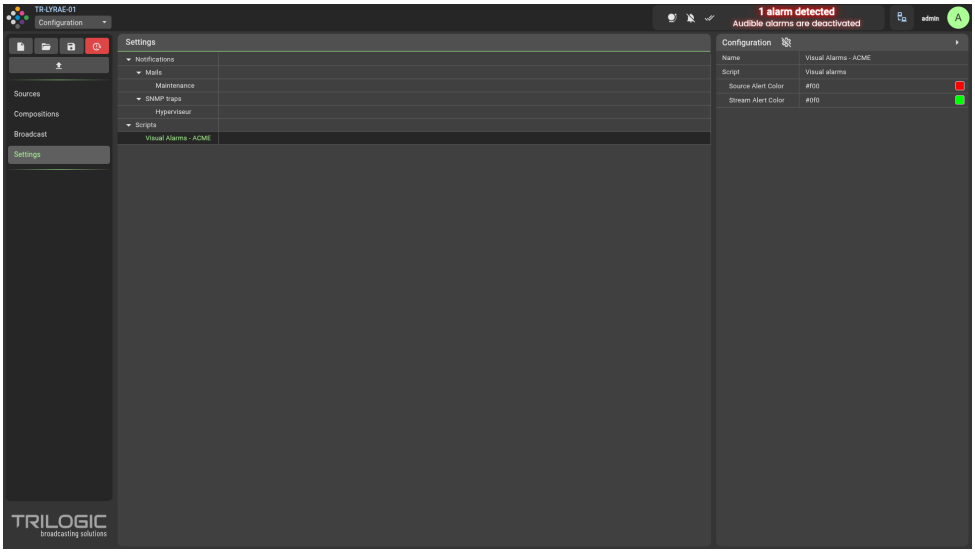


Figure 8 - Configuration Interface | *Parameters*

4.2 OPERATIONS

The operational interface provides access to all analysis results generated by the solution. Designed for clarity, it continuously displays relevant information enabling operators to identify ongoing system incidents at a glance: the number of active alarms is prominently displayed at all times, and color coding indicates each signal's status: optimal, active alarm, acknowledged alarm, or resolved alarm.

Audio Alert An audio alert can be activated to notify operators of incidents. An acknowledgment mechanism allows operators to confirm alarm receipt and silence the audio alert during resolution.

Maintenance To accommodate maintenance activities and planned events, alarms can be temporarily disabled for individual streams or stream groups. This *maintenance* mode can be activated manually, scheduled for a specific duration, or planned for predetermined events. This feature ensures controlled alert management, preventing unnecessary notifications while maintaining rigorous supervision.

Several pages are available, each addressing specific needs:

Overview Particularly useful in modulation centers, the overview monitors the entire system through one or more dashboards providing a high-level view of broadcast status. Each user can create custom dashboards, adapting displayed information to their supervised systems and work habits. Numerous parameters allow dashboard customization based on operational conditions, including colors, fonts, and widget count per dashboard. Available elements include:

Radio - Designed for supervising multiple audio streams, this element displays all audio streams within the same group. Key information is shown for each stream: a VU meter indicating audio levels and, when available, language and associated Kantar Media watermark. Real-time audio monitoring through the browser is possible. Each audio stream is color-coded by status: nominal, active alarm, acknowledged alarm, or resolved alarm.

TV - Monitors television services. Displays as a video thumbnail accompanied by all service audio streams.

Composition - Shows visualization of system compositions, enabling verification of correct mosaic broadcast.

Alarms - Displays all active dashboard alarms without requiring navigation to the event log.

Figure 9 - Operational Interface | *Overview*

Compositions ● This page allows browser-based viewing of various system-generated mosaics.

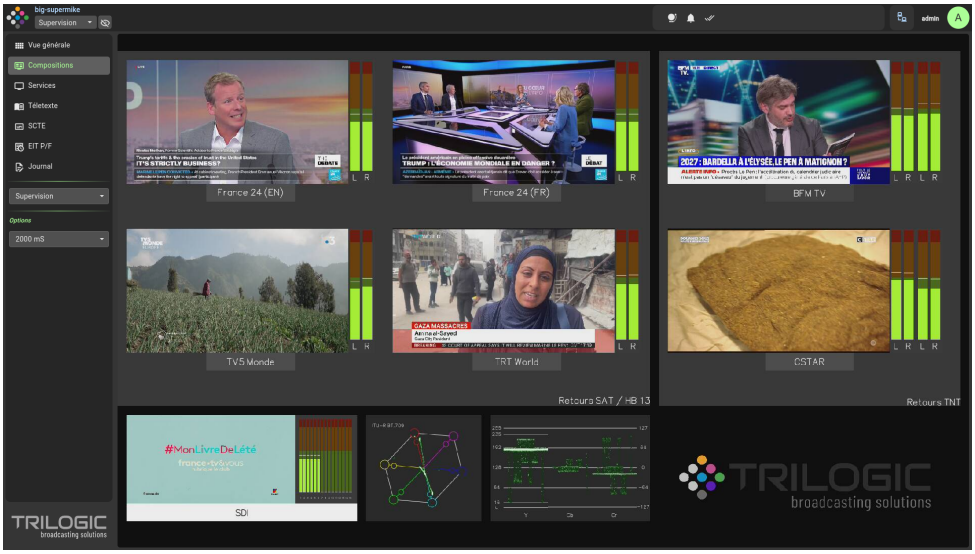


Figure 10 - Operational Interface | *Composition*

Services Unlike the previous visualization-focused views, this view emphasizes analysis and diagnostics. All services and components are displayed synthetically, with color coding indicating the status of each source and elementary stream analyzed by the system. Selecting a source or service from the list opens a panel containing comprehensive details about the selected element.

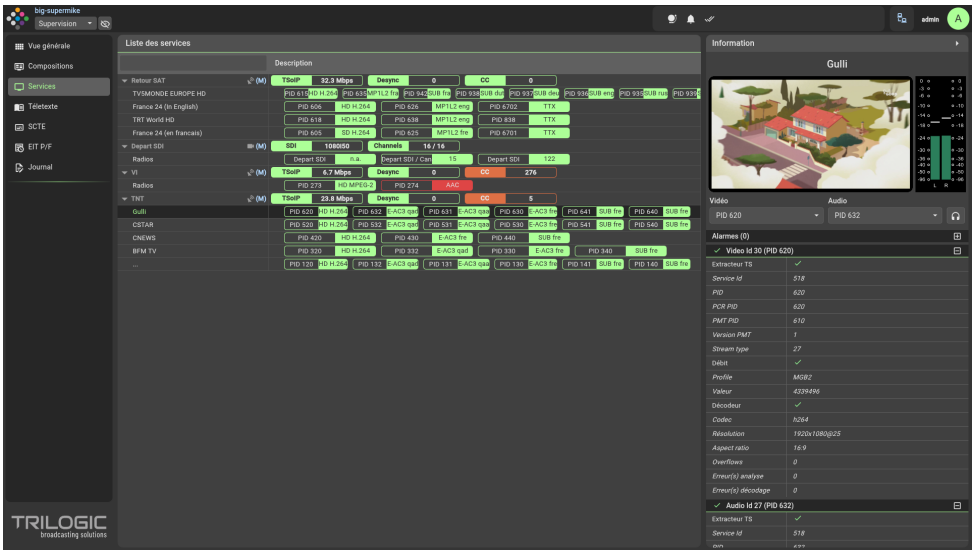


Figure 11 – Operational Interface | *Services*

Event Log This page provides access to all system-recorded events. It offers information filtering by date, group, source, or elementary stream. It also enables log export in `.csv` format.

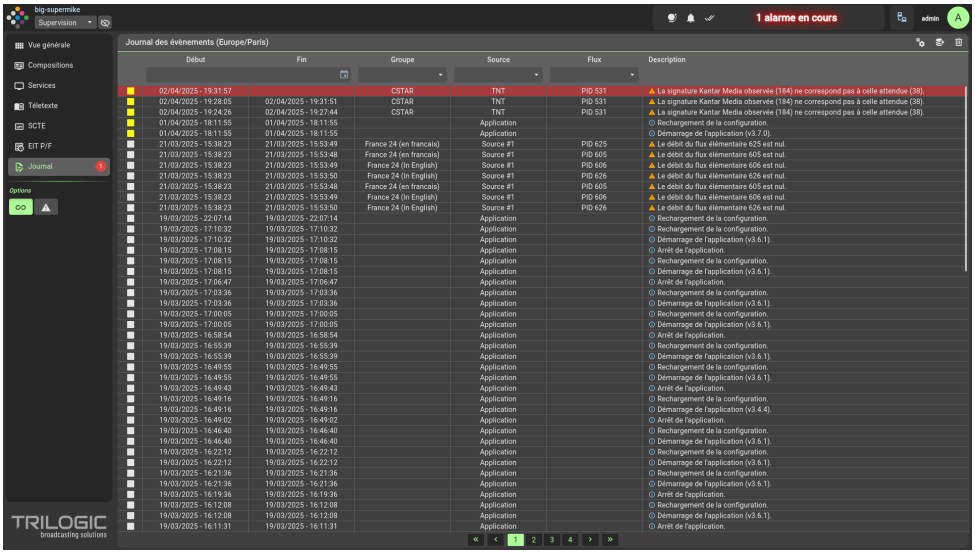


Figure 12 – Operational Interface | *Event Log*

Teletext ● This page enables monitoring of received teletext pages, particularly for subtitle verification. Like all logs, each entry is timestamped with millisecond precision.

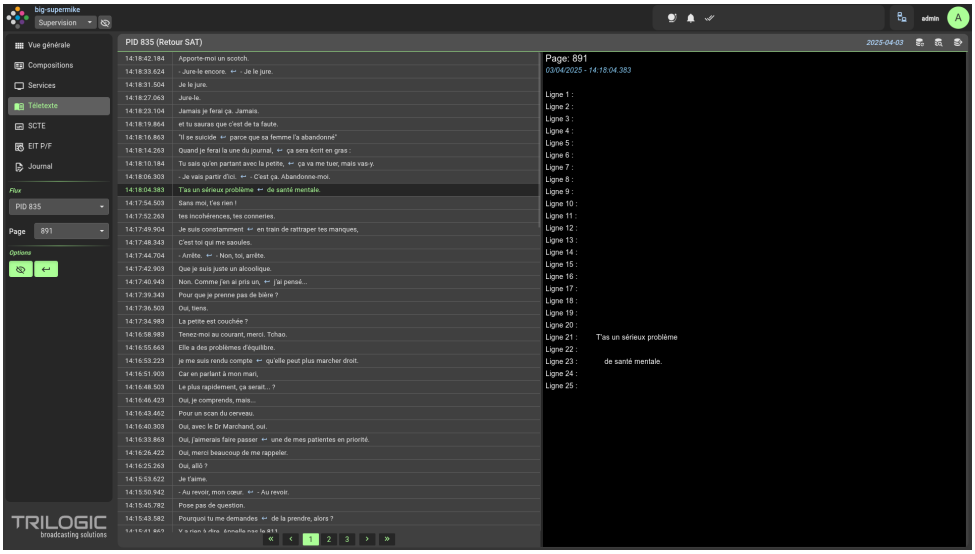


Figure 13 – Operational Interface | *Teletext Viewer*

SCTE Logs ● This page provides detailed access to SCTE 104 and SCTE 35 command logs received by the system. Each command is timestamped to the millisecond and accessible through a dual-panel interface: the first panel chronologically lists commands, while the second displays associated descriptors for each command.

The interface also offers a comparative view, displaying two viewers side by side. This feature is particularly useful for analyzing the correspondence between SCTE 104 commands and their SCTE 35 conversion.

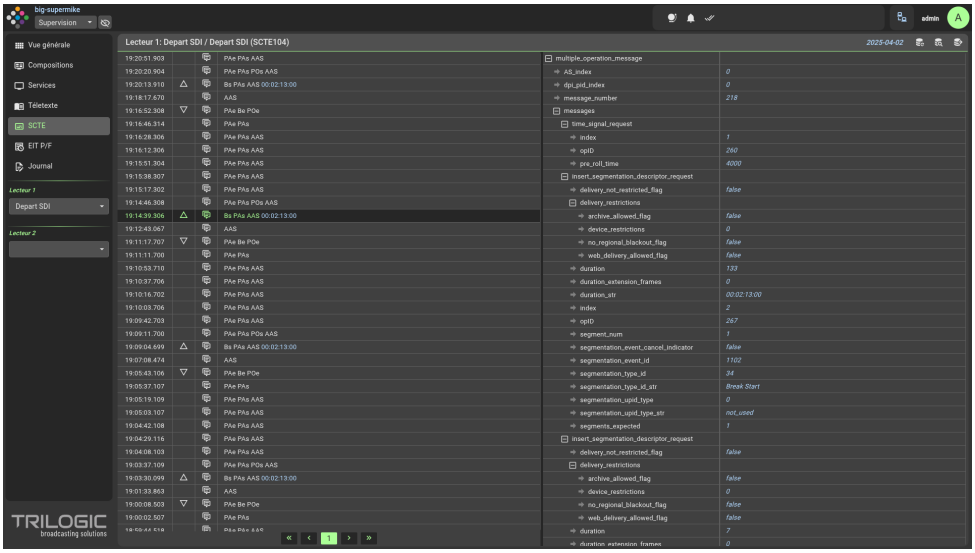


Figure 14 – Operational Interface | *SCTE Viewer*

EIT/pf Logs ● This page provides access to program guides received by the system. Two views are available for each received element:

- The "high-level" view displays program guide elements similar to an IRD presentation
- The detailed view shows all DVB descriptors transmitted in the EIT table

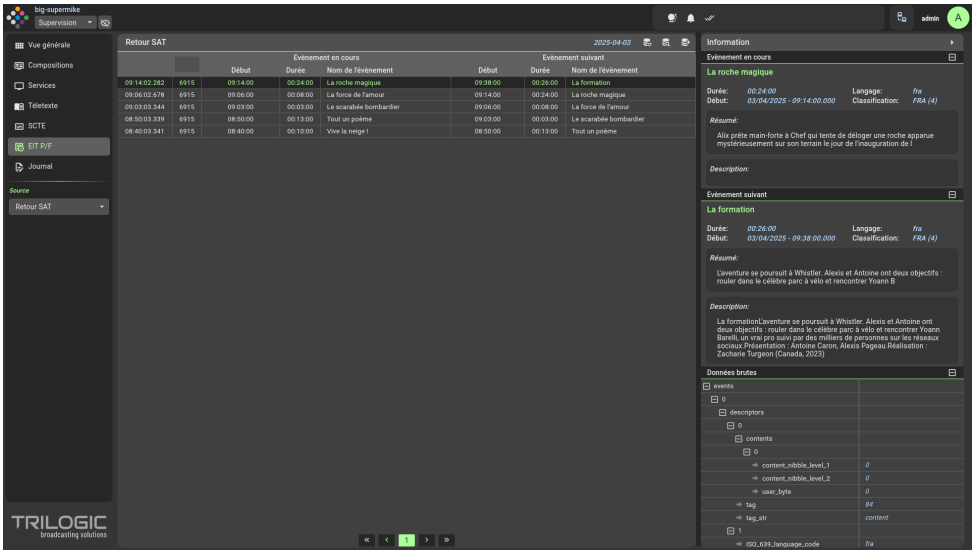


Figure 15 - Operational Interface | *EIT Viewer*

4.3 ADMINISTRATION

This section is dedicated to system configuration and supervision. It includes hardware health monitoring via dashboard, user management, role assignment, and system maintenance tasks.

Authentication This page configures roles and users. Each user can be assigned specific rights that restrict their system capabilities. API tokens can also be configured for third-party system access.

Files This page enables file transfers such as images or scripts to the server.

System This page monitors all system parameters: RAID system, memory and CPU usage, power supplies, and network throughput. It also allows server maintenance operations: restart and shutdown.

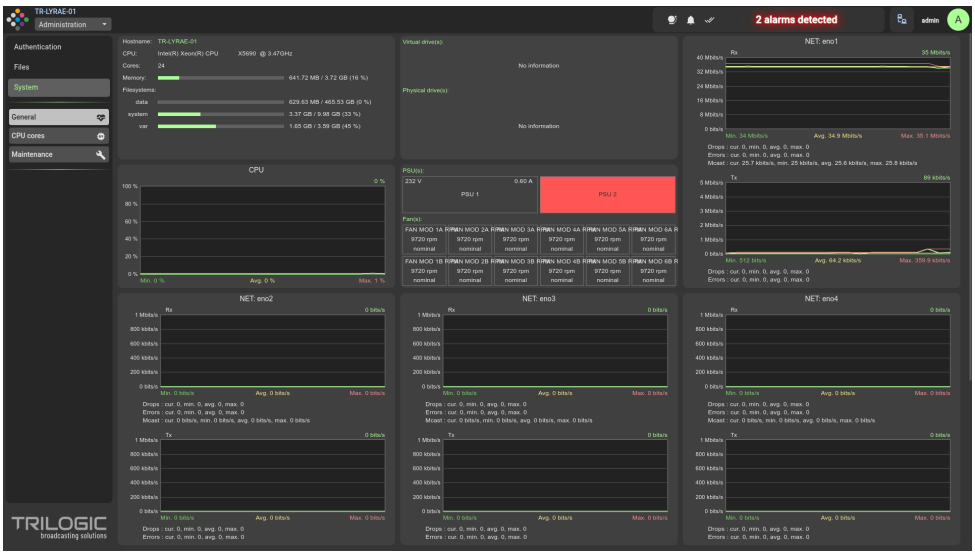


Figure 16 - Administration Interface | *System Status*

5 CUSTOMIZATION

One of our solution's key strengths lies in its ability to adapt to the specific needs of each company and team, delivering a truly tailored solution.

5.1 JAVASCRIPT

5.1.1 Features

Our solution features a built-in JavaScript engine that provides unlimited customization possibilities. You can write scripts that seamlessly interact with all aspects of the solution: configuration, alarms, status, analysis results, and compositions.

API The engine also enables the creation of custom REST API endpoints, allowing seamless integration with your existing environment. These interfaces can expose internal functions, interact with third-party systems, or automate various operations.

Configuration Scripts can expose configurable parameters that are directly accessible through the **Parameters** section of the graphical interface.

JavaScript By leveraging a widely-adopted programming language, comprehensive documentation, and numerous examples, your developers can implement custom behaviors tailored to your needs—with our support whenever required. Of course, we remain at your service to handle development on your behalf.

5.1.2 Use Cases

Round robin
- For a system displaying over 300 streams across two screens, our client needed to manage stream organization through an Excel file that detailed all streams and the sequence of screen compositions. We developed a script that reads the client's Excel format, generates the configuration, and automatically cycles through compositions every thirty seconds.

Alarm correlation
- Some clients needed to trigger specific alarms when multiple alarms occurred simultaneously. The developed script captures active alarms, correlates them according to client-defined rules, and activates custom alarms based on these correlations.

Alarm suppression
- Several clients monitoring satellite or HF returns experience intermittent alarms due to weak signal levels caused by cloud cover or passing aircraft. We developed a script to suppress these short-duration alarms that complicate monitoring operations.

SCTE-104 - SCTE-35
- For a system receiving both SDI contribution feeds and multiplexed MPEG-TS streams, we created a script to verify consistency between SDI commands and multiplexed commands. The script:
  - extracts SCTE-104 and SCTE-35 messages
  - compares SCTE-35 section content to verify integration consistency
  - ensures splice commands reference I-frames
  - confirms that the MPEG stream splice point matches the SDI SCTE-104 command specification

Custom display
- When alarms trigger, specific visual indicators are often required. However, operational practices and preferences for alarm colors and signaling methods vary between users. The scripting engine allows you to customize these indicators, including drawing custom graphics or adding text overlays to the monitoring screen.

Quarantine zone
- This script displays streams with active alarms (with customizable error criteria) in a dedicated area of the composition, along with text information such as stream name and error description.

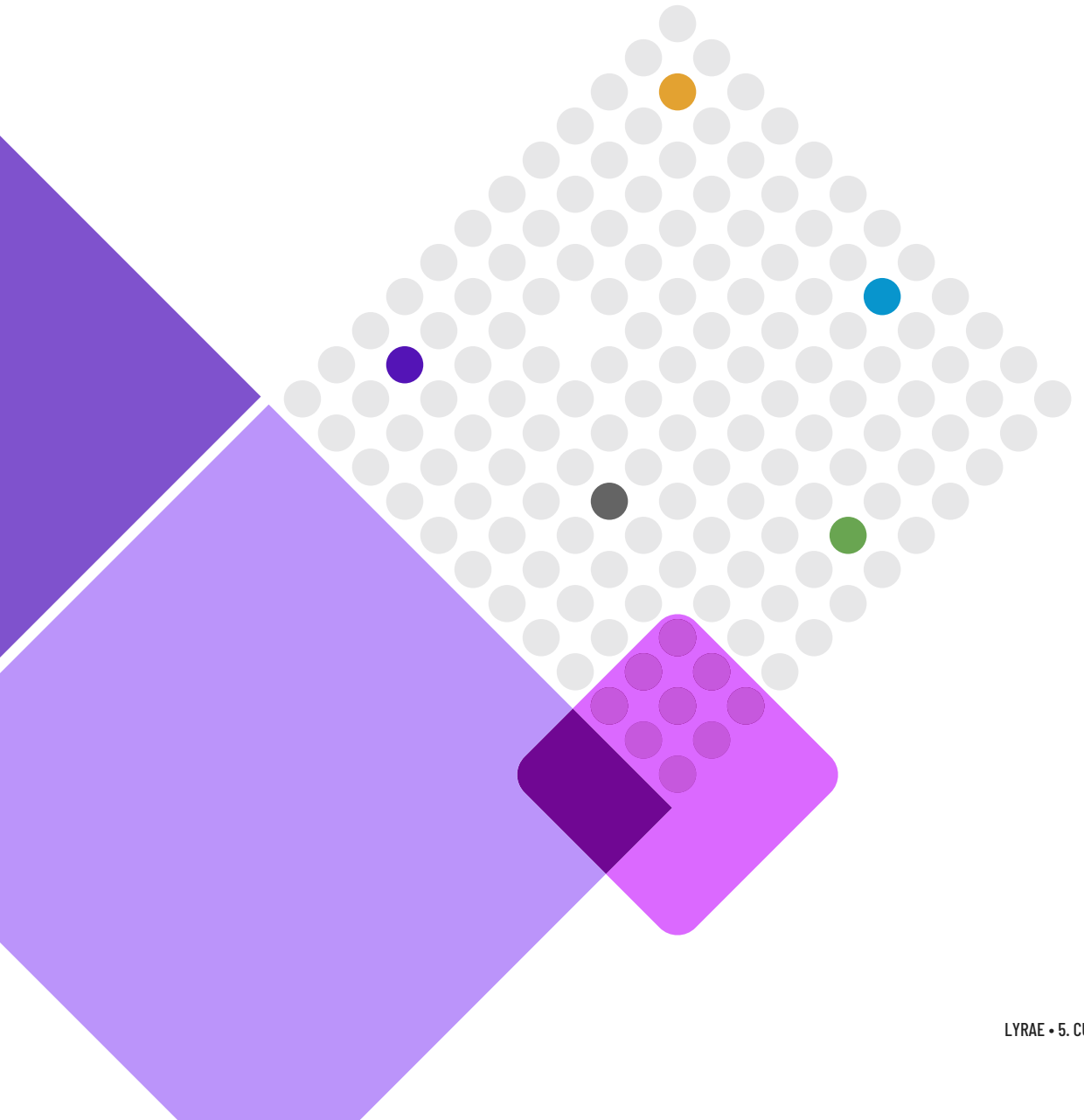
Automatic scanning
- This script requires only source configuration and automatically scans all available elementary streams at startup, building a comprehensive mosaic display of all detected streams.

5.2 FEATURE ENHANCEMENT

If our customization capabilities don't fully meet your requirements, we have the flexibility to enhance the system with new features. We can extend the solution's capabilities by adding support for new acquisition standards, codecs, analysis checks, or graphical widgets.

We can also create bespoke interface adaptations, including custom monitoring screens or theme modifications to align with your preferences and visual identity.

Please don't hesitate to contact us to discuss any challenges or requirements you may have.



6 TRILOGIC

Trilogic is a French company, operating since 1989, specializing in the design and development of professional solutions for digital broadcasting (terrestrial, cable, satellite, and telecom operators). Our team of engineers has recognized expertise in DVB technologies and video over IP. This technical proficiency enables us to offer a comprehensive range of products for digital television and radio, as well as new multiscreen delivery methods.

6.1 OUR BUSINESS

Our business is structured around three main areas:

Development
- Our core activity is designing software solutions for the multimedia sector, particularly for broadcast. Our products leverage current technologies (OTT, HEVC, 4K, etc.) and are designed to meet the needs of diverse stakeholders: television and radio channels, broadcast operators, equipment manufacturers, and hospitality providers. Reliability, user-friendliness, modularity, and customization are the key concepts behind our products, facilitating integration and adoption while serving the people who operate them. Throughout the entire product lifecycle—from design to production, including support and maintenance—you benefit from easy, direct access to our team's expertise and guidance.

Expertise and Consulting
- The experience gained through projects and collaborations over recent decades enables us to provide technical support across the entire video distribution chain, whether traditional or IP-based (OTT). Multiplexing, DVB, HbbTV, EIT, DVB, SRT, and SMPTE 2110 are just a few examples of technologies we've mastered and can support you with.

DekTec
- Among the very first users of **DekTec** products (modulation cards, SDI interfaces, DVB analyzers, etc.), we have been the exclusive distributor of this equipment in France since 2003. Our technical expertise with this product line enables us to provide informed advice and local support, including for integrating DekTec cards into your own software solutions.

6.2 OUR OTHER SOLUTIONS

Broadcasting | Cygnus is an audio/video encoding and broadcasting solution designed for professional environments. It enables real-time encoding, multiplex creation, and live broadcasting, with redundancy and automatic failover mechanisms to ensure service continuity.

Compatible with a wide range of signals and easily integrated via SNMP and REST API, Cygnus ensures optimal management of incoming and outgoing streams. It also enables broadcasting to social networks and live program creation, meeting the needs of broadcast and cable distribution professionals.

Publishing | Alcyone Combining our CUTSCENE and PRISM products, is a solution designed to simplify the recording, extraction, and publishing of live video content.

With its intuitive interface and advanced features, it meets the needs of broadcasters active on social media. Alcyone enables continuous stream recording, extraction, editing, and graphics overlay for video segments, then publishing the results to various platforms such as YouTube or Facebook.

6.3 REFERENCES

System integrators, television and radio channels, audiovisual groups, broadcast operators, and equipment manufacturers—over 400 clients worldwide have trusted us.

TRILOGIC
broadcasting solutions

Futuropolis - Téléport 4
86360 Chasseneuil-du-Poitou
+33(0) 549 494 080
info@trilogic.fr

LYRAE
ALCYONE
CYGNUS

supervision diffusion publication