



# Sentry<sup>®</sup>

## High Density, Real-Time Content Monitoring

### Introduction

Sentry is a high-density, all-purpose content monitoring solution incorporating both quality of experience (QoE) and quality of service (QoS) measurements. The variety of inputs allows video service providers to customize Sentry to easily integrate into any monitoring scheme.

Sentry takes the guess work out of troubleshooting issues. By providing detailed root-cause information, Sentry allows engineers to resolve problems quickly and often before subscribers experience any quality deterioration or outage.

Sentry is a comprehensive video and audio quality monitoring solution for advanced video networks. It enables video providers to deliver services with optimum quality while reducing operational expenditures.

### Key Benefits

- Ensure the delivery of high-quality content
- Reduce MTTR and operational costs
- Verify SCTE-35 Ad-Insertion
- Achieve regulatory compliance

### Key Features

- Real-time 24/7 QoS and QoE monitoring and analysis of entire channel lineup
- In-depth monitoring for compliance to closed captioning standards Audio silence and audio-level issue detection based on ITU BS.1770 specification
- Perceptual video quality (eMOS) for MPEG2, H.264 and H.265
- PID-level IDR (Instantaneous Decoding Refresh) and EBP (Encoder Boundary Point) reporting and alerting
- Video thumbnails and Thumbnail Wall
- Comprehensive TR 101 290 measurements
- User-triggered and alert-triggered stream captures
- QoE monitoring including JPEG2000 codec
- Error second and program availability reporting
- Stream to view (video backhauling)
- Historical reporting and graphing
- Transport Stream and Program Group bandwidth graphing
- Appliance, Virtual Machine (VM) and Cloud options

## Quality Of Experience (QoE) Monitoring

Quality of experience refers to the quality of the picture itself and not what caused the picture to look poor. It is how the viewer sees or perceives the video quality. Sentry's QoE monitoring stands apart from other solutions by going deep into the content looking at the sequence, GOP, picture, slice, macro-block and block layers of every video and audio service in every transport stream. Sentry's QoE measurements give a strong correlation to the actual viewer experience and Sentry is able to catch encoder specific errors regardless of network status.

## Quality Of Service (QoS) Monitoring

Quality of service measurements look at the transmission and health of the MPEG/IP transport network. Sentry monitors the most critical TR 101 290 Priority 1, 2 and 3 tests to offer comprehensive QoS checks and alarming. Real-time monitoring and alerting notify service providers right away if there are errors related to the priority checks they are most concerned about. This saves on operational costs related to mean time to detect (MTTD) and mean time to repair (MTTR) an issue. Sentry also offers PCR measurements including PCR Interval and PCR Accuracy.

## Perceptual Video Quality (Pvq) Monitoring

Sentry ranks picture quality in real time on SD, HD, 4K UHD and 8K UHD programs (MPEG2, H.264 and H.265), so service providers can understand how video compression artifacts such as blocking video are affecting the viewer's experience with the picture. These problems are extremely difficult to detect and are becoming a critical issue to monitor as video content continues to grow while bandwidth is becoming more limited than ever. Sentry's eMOS is the industry's first and only highly scalable "nonreference" perceptual quality score that correlates closely with the Telestream PQA - the industry standard for picture quality test and measurement, used by leading encoder manufacturers worldwide.

Sentry accurately detects video artifacts and scores them as PVQ (or eMOS), which ranks video quality in a similar way as a Mean Opinion Score (MOS). eMOS can be used, in the case when there are no technical "errors" in the transport stream, to measure perceptual video quality in the compressed domain. Sentry's PVQ scoring is sensitive to certain artifacts caused by over-compression that specifically affect chroma detail.

## Technical Specifications

### Platforms

- Virtual Machine (VM) options for VMware and KVM deployments
- AWS and Google cloud options available (call for other options)
- Appliances
  - RS appliance (ability to monitor up to 500 programs or up to 4 Gbps)
  - GS appliance (ability to monitor up to 1500 programs or up to 8 Gbps)

### Video Support

- 8K UHD/4K UHD/HD/SD programs, SPTS or MPTS, multicast (IGMP v3) and unicast
- Video Codecs: MPEG-1, MPEG-2, AVC/H.264, HEVC/H.265, VC-1, JPEG2000
- IDR and EBP reporting and alerts
- Closed Caption compliance including Korean Closed Caption
- Perceptual Video Quality (PVQ) for MPEG2, H.264 and H.265
- Video thumbnails and thumbnail timeline
- MPEG-PSI, DVB-SI, ATSC-PSIP program information

### Audio Support

- Audio Codecs: MPEG-1, MPEG-2, AC3, E-AC3, AAC
- Dolby AC-3 (5.1 Surround), E-AC-3
- MPEG-1 Layer II (Mono, Stereo)
- AAC, HE-AAC, and HE-AAC v2
- Audio Loudness and CALM Act compliance (ITU BS. 1770)

### Other Support

- SCTE-35 type 5 and 6 including support for French Spec "Segmented TV Services"
- Advanced DPI reporting and thumbnails
- SNMP trap, email, JSON API, and CSV support
- Comprehensive TR 101 290 measurements
- Integrates into ARGUS video management system
- Integrated SRT and Zixi Receiver allows the same port to support SRT or Zixi streams and standard multicast streams

