



CONTENT **ARMOR**

# FORENSIC VIDEO WATERMARKING

THE BITSTREAM FORENSIC WATERMARKING SOLUTION  
For **seamless integration** at any point of your digital distribution workflows

Any business handling high-value content is subject to substantial losses due to content piracy. Deploying state-of-the-art security techniques, Studios, Sports Leagues, Content Aggregators and Service Providers maximize the value of their assets.

**CONTENTARMOR** solutions deter piracy and pinpoint the source of content leaks in any digital distribution channel.

**In a fully connected world, ubiquitous piracy is a major threat for the complete value chain**

- **Media and Sports industries** want to protect their investment in content creation and premium events.
- **Production houses** need to thwart leakage to protect their reputation and liability.
- **Content service providers** must protect their VOD assets or Live sports feeds to maximize the value of their rights.

As market dynamics continue to shift, those responsible for content creation and distribution are under growing pressure to shorten time-to-market. Security solutions must easily and seamlessly integrate into distribution workflows without threatening cost competitiveness or degrading user experience.

**WE PROTECT YOUR CONTENT | YOU MAXIMIZE YOUR REVENUES**

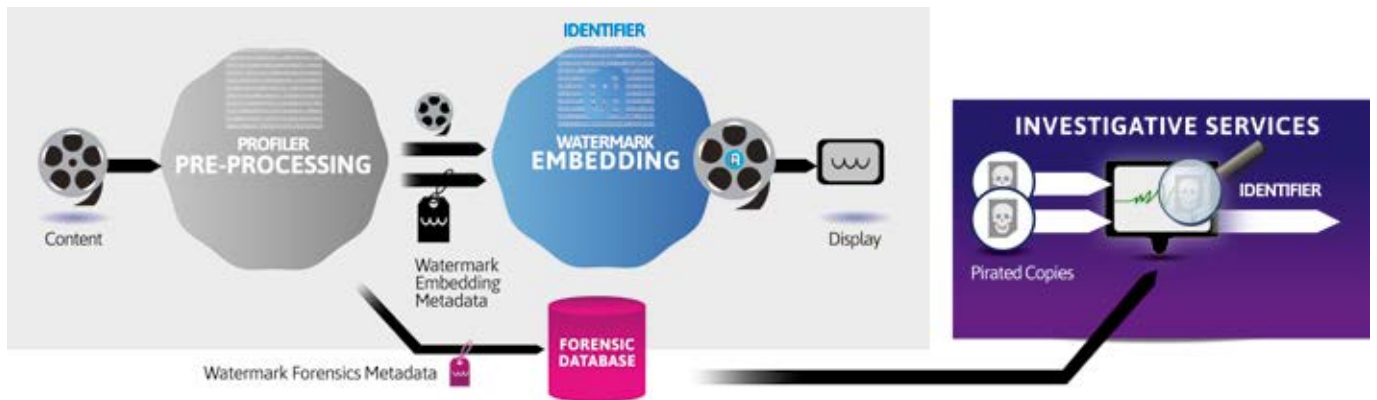


## TECHNOLOGY

CONTENTARMOR Video Watermarking deters stakeholders along the content value chain from leaking content. An invisible forensic watermark is embedded to uniquely identify the device or the recipient whom the content has been delivered to.

CONTENTARMOR two-step video watermarking algorithm operates directly in the video bitstream, should it be a file or a live stream, thus resulting in blitz-fast embedding and enabling integration at any point of the distribution chain.

## HOW DOES IT WORK?



### THE PROFILER

- Analyzes the video bitstream in order to identify watermark embedding locations and values
- Generates and formats the Watermark Embedding Metadata (WEM) transmitted to the watermark embedder
- Generates and stores Watermark Forensic Metadata (WFM) required for investigation.

### THE EMBEDDER

- Marks a unique identifier(ID) in the video using WEM computed by the profiler
- The ID definition and the semantics of the ID are determined according to the application scenario.



After profiling the video bitstream, CONTENTARMOR video watermarking algorithm only modifies small blocks (highlighted in green) that offer the best fidelity-robustness trade-off.

### INVESTIGATIVE SERVICES

- CONTENTARMOR Detection as a Service operates in the cloud and recovers the identifier present in provided pirate videos in minutes.



## KEY DIFFERENTIATORS

### BITSTREAM WATERMARKING

- Isolation of computationally intensive operations in an offline profiler
- One unique profiling per content regardless of the number of recipients
- Server or client based watermark insertion for Broadcast and OTT.

### COST OF OWNERSHIP

- No need for additional encoding or storage capacity
- Fast pace watermark insertion
- Seamless integration at any point of digital distribution workflows including network servers or CE devices such as CI+ modules, STB, etc.

### MARKET APPROVED

- High fidelity watermarked assessed by Hollywood Studios golden eyes
- Robustness against an extensive range of signal processing attacks (crude recompression, HDMI stripping, screencasting, camcording) benchmarked by independent security auditors

## TECHNICAL CHARACTERISTICS

### THE PROFILER

- Video containers: MPEG-2/TS, MOV, MP4, ES
- Video codec: H.264 MPEG-4/AVC with CABAC (Main and High Profiles), HEVC SDR & HDR
- Application: File or Live streams

### THE EMBEDDER

- Video containers: MPEG-2/TS, MOV, MP4, ES
- Video distribution modes: file, progressive download, broadcast and multicast, HLS and DASH adaptive streaming
- OS independent



## USE CASES

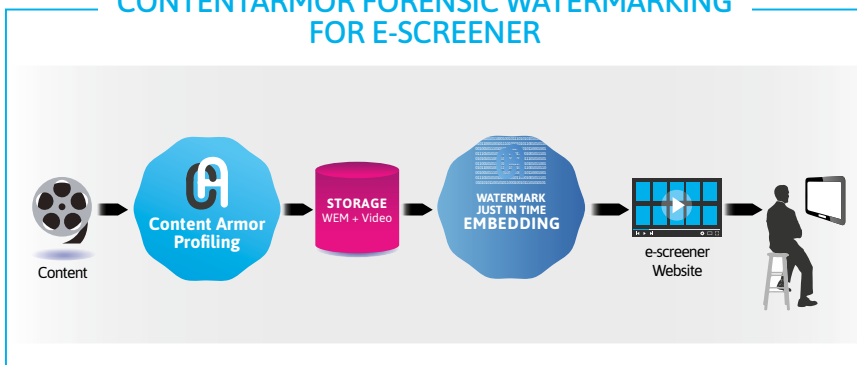
CONTENTARMOR provides state-of-the-art security with easy integration into existing workflows.

It identifies the source of leakage for applications such as pre-release screeners or live sports distribution to subscribers.

### SECURE E-screener

A traitor tracing mechanism for high risk screeners: internal quality assessment and validation reviews, screeners and promotional viewing for distributors.

#### CONTENTARMOR FORENSIC WATERMARKING FOR E-SCREENER



## BENEFITS

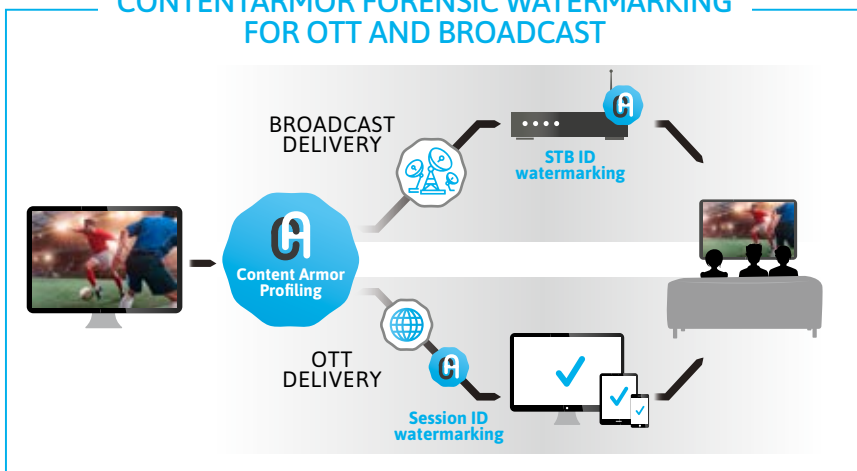
Secure E-screener:

- Fully automated process within digital workflows
- Flexible integration of the embedder in existing content distribution frameworks
- Stronger reputation and controlled liability of the stakeholders

### Live Sports

Session based watermarking to deter piracy of your premium sports events and cut illegal feeds within minutes.

#### CONTENTARMOR FORENSIC WATERMARKING FOR OTT AND BROADCAST



## BENEFITS

Live Sports:

- Session based watermarking to identify the origin of illicit content redistribution
- No additional encoding or storage requirements
- Independent of the CAS/DRM system

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