

SINGLE FRAME FORENSIC WATERMARKING



Remarkable security against piracy embedded across your digital assets, retrievable with just ONE image

In an ever-evolving digital world, protecting your digital assets against content piracy, information leaks, and intellectual property (IP) theft has become excruciating and expensive. Facing losses of up to \$71 billion,¹ studios and content owners are constantly fighting a more sophisticated piracy industry leeching from stolen content. Likewise, IP crimes deeply hurt companies' value by stealing patents, copyrights, trademarks, or trade secrets.

Luckily, we're one frame ahead. Our game-changer single frame watermarking technology efficiently embeds watermarks with tunable robustness levels across every frame or page of your digital assets. Then, it extracts the information using only a single picture of the video, document, or design with remarkable precision in just seconds.

Our technology can be applied to all types of media and use-cases where tunable robustness levels can embed marks imperceptible to the untrained eye.

Features at a glance

- **Complete single-frame watermarking:** For video streaming, we watermark every frame entirely for comprehensive protection. This means our solution works with even just a snapped photo or screenshot.
- **Obstruction flexibility:** Other solutions mark only a portion of content: If the area is obstructed or cropped, so is the watermark. We protect entire frames and images allowing identification even when content is only half visible.
- **Downscale endurance:** Dramatically downscaled images and frames can still be identified.
- **Blind extraction:** Our method is so robust, the source content isn't needed for extraction letting you avoid the cost and security concerns of storing raw video or images.
- **Rugged robustness with one image:** In contrast to other alternatives, we offer unmatched resilience using just one image. Our algorithm resists distortions and attacks including camcording, HDCP stripping, collusion, and screencasting.
- **Distortion resistance:** Our extraction service accommodates diverse geometric distortions occurring when images are captured from different angles, positions, and distances, as well as mirroring.
- **Filtering tolerance:** The mark withstands color conversion, sharpening, and other image alterations.
- **Compression durability:** Our watermark survives low bitrate encoding for video and single-image files.
- **Format freedom:** Apply our solution no matter which codec, container, or streaming format you use.

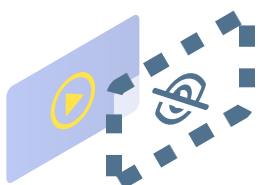
SOLVING CHALLENGES FOR

Media and entertainment

- Studios and companies involved in the video delivery industry
- Media outlets fighting fake news and deep fakes

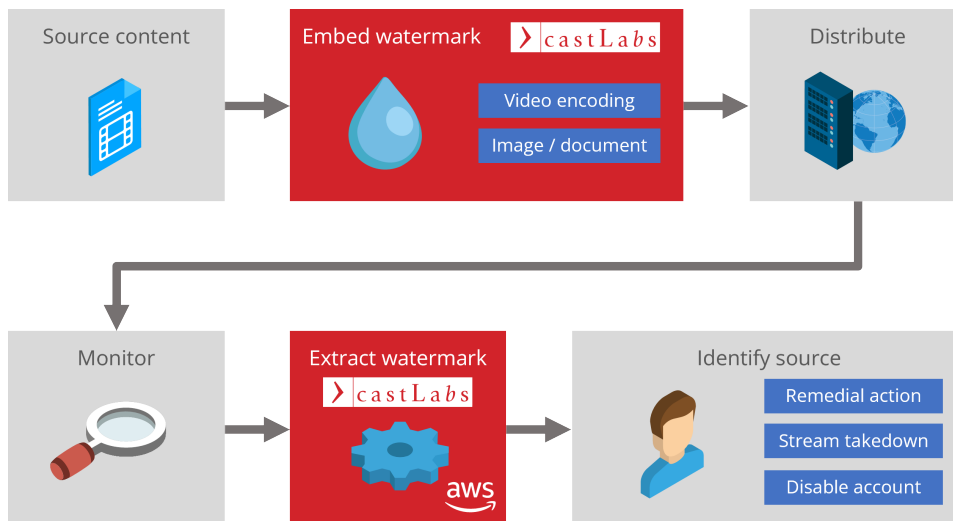
Security, authentication, and intellectual property protection

- Government agencies concerned about sensitive information leaks
- Companies seeking to protect intellectual property
- Publishing and educational platforms concerned about piracy



How do we do it?

The solution consists of two parts: an embedder and an extractor.



Secure server-side embedding: Watermarks are embedded through our [Video Toolkit](#) cloud service. We quickly watermark your assets without waiting times, making the solution ideal for [WebRTC](#) and low-latency streaming.

Speedy cloud extraction: Then, our secure [Amazon Web Service \(AWS\)](#)-based cloud service quickly extracts content within seconds, ideal for an immediate takedown or access removal if piracy occurs.

OTHER FEATURES

Protect VOD, live, & real-time WebRTC video streaming INCLUDING OTT, IPTV, & DVB	<input checked="" type="checkbox"/>
Blind extraction SOURCE CONTENT ISN'T NEEDED FOR WATERMARK EXTRACTION	<input checked="" type="checkbox"/>
Non-blind extraction SOURCE CONTENT IS USED FOR EXTRACTION FOR HIGHER ROBUSTNESS	<input checked="" type="checkbox"/>
Embedding time ZERO-LATENCY EMBEDDING FOR LIVE OTT & WEBRTC	<input checked="" type="checkbox"/>
Perceptual model OUR ALGORITHM FINDS THE BEST AREAS IN A FRAME TO PLACE THE WATERMARK	<input checked="" type="checkbox"/>



Ready to protect your digital assets?

Get in touch with us at sales@castlabs.com to experience a live demo of our single frame watermarking solution!