

Irdeto Tracemark™ for OTT

Forensic watermarking to protect live and on-demand content delivered over-the-top (OTT)

Video viewing habits have changed across the world, especially among younger consumers. People watch movies, TV series and sports on personal devices via an OTT service more and more – sometimes even exclusively – because of the attractive content offering, pricing and convenience. Unfortunately, pirating OTT content and illegally redistributing it over the internet has also become easier with the availability of technology and broadband speed. Internet redistribution piracy is now the greatest threat to the media business.

If you want to offer a competitive OTT service that grows in revenue and profit, you must have a security strategy that enables you to acquire premium content and protect its value

from piracy. Content owners such as Hollywood studios and sports rights holders have raised the security requirements for premium content in order to combat content redistribution piracy. For example, with the introduction of ultra HD (UHD) content, MovieLabs has defined a set of security requirements which all providers must meet to be eligible for premium content such as early release movies.

These include forensic watermarking and breach/ piracy response to help service providers stay one step ahead of the pirates.

Irdeto TraceMark for OTT is a forensic watermarking solution that embeds a unique, persistent and invisible mark to identify the content and individual streams. It protects video on demand (VOD) and live content, such as sports, delivered over the Internet. When used in conjunction with Irdeto Piracy Control services, it provides a quick and easy method to trace the content or stream back to the source of the leak and enable service providers to take actions against the pirate. TraceMark is also pre-integrated with Irdeto Control, the multi-DRM and policy management system to help you launch OTT services that support the widest range of devices and business models. Only with this level of security and ease of management can premium content be conveniently and widely offered to consumers on any screen.



KEY BENEFITS

Renewable, robust security to meet stringent requirements

The central architecture is inherently secure. It makes it nearly impossible for pirates to tamper with the watermark on the client device, yet it is easy to renew security from the headend if a breach occurs. Content is watermarked as part of the operator's content preparation workflow before being released from the operator's secure premises to the CDN.

TraceMark™ for OTT inserts a robust, high-fidelity watermark that is invisible to viewers and compliant with Hollywood studio requirements. This ensures viewers enjoy the best picture quality possible while enabling the best protection of premium content. The solution is capable of consistently identifying the offender's session even when content is redistributed in different formats and/or manipulated using video compression, cropping, luminance filtering, blurring or scaling techniques.

Ease of deployment and scaling

TraceMark for OTT embeds forensic watermarking at the headend. This means consumers can receive and view watermarked content on any device, without requiring any changes to their client-side hardware or software. TraceMark for OTT is also DRM agnostic. The operator can encrypt watermarked content on its headend using any of the common DRM technologies available today, while the DRM client in the consumer device is completely unaffected by the watermarking. The solution is pre-integrated with many popular encoders and CDNs, as well as Irdeto Control for multi-DRM and policy management. This level of end-to-end integration makes it quick and easy to deploy forensic watermarking to your ever-increasing consumer base and wide range of devices.

Effective defense against content redistribution piracy

Having state-of-the-art watermarking technology on its own provides minimal benefit. The winning formula involves combining robust and scalable forensic marking technologies with proactive enforcement and investigative services. With TraceMark, service providers can easily and quickly identify the source of the leak using session-based watermarking. Irdeto Piracy Control services then enable service providers to find leaked content on the internet and identify the source of the leak using TraceMark. By providing actionable insights Irdeto helps service providers shut down rights-infringing services and prosecute parties involved in the piracy.

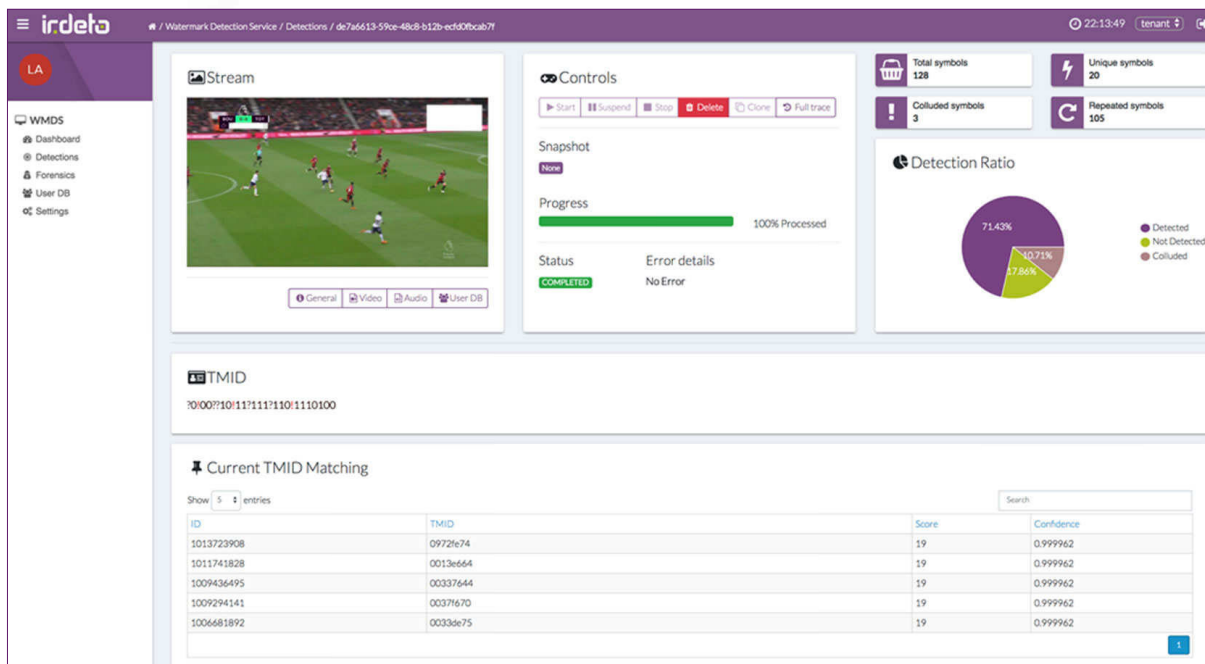


Figure 1. Irdeto's online portal providing an overview of content piracy detection using TraceMark for OTT and anti-piracy services



HOW IT WORKS

TraceMark™ for OTT provides encoder-integrated watermarking for VOD and live content on IP networks using HTTP adaptive bitrate streaming protocols such as HLS and MPEG-DASH.

This headend-based approach to session-based watermarking ensures that each device receives a uniquely watermarked version of the content, and consists of two steps:

Pre-processing

In this stage, two copies of each video segment are encoded and a different watermark is inserted into each copy to form A and B versions of the video segment. The software component that performs this function can be hosted on-premise or in the cloud.

Irdeto TraceMark Embedder inserts watermarks into content video streams during the encoding process, minimizing any delay in the content delivery process or disruption to the content preparation and delivery workflow.

Post-processing

In this stage, the watermarked copies are interleaved into unique sequences of video segments such that each viewer receives a version of the content like no other (for example, AAAAA, BBBBB, ABABA). This uniqueness is what enables Irdeto Piracy Control services to pinpoint the content leak to a specific session or user ID. The software component that performs this function can be hosted on-premise or in the cloud.

- **Irdeto TraceMark Switcher** dynamically creates individualized sequences of watermarked copies to form millions of unique sessions. This scalability ensures content protection across a massive viewer base for any service provider.

TraceMark for OTT is DRM agnostic. And there is no need for client changes or client processing, as the content arrives already watermarked in the regular content format. This means there is minimal impact on the consumer, and both managed and unmanaged devices are covered.



	4K UHD early release, box office	4K UHD and premium content	Catch-up & VOD library	Free to air content
	SMP	SMP w/exceptions	SMP w/exceptions	No SMP
4K TV with HDCP 2.2	✓	✓	✓	✓
4K TV with HDCP 1.4+		✓	✓	✓
SD & HD TV		✓ Down-res	✓	✓
Mobile devices		✓ Down-res	✓	✓
Analog TV		✓ Down-res	✓	✓

Figure 2. TraceMark for OTT embedding watermarks in content distributed to unmanaged devices

Cartesian is trusted and recommended by the major Hollywood studios. Its auditing services comply to the studios rigorous standards, including MovieLabs Enhanced Content Protection specification for Ultra HD and 4K content. The Farncombe Security Audit® Watermark provides confidence in the robustness of the watermark technology tested.



Cartesian, Inc.

Irdeto is the world leader in digital platform cybersecurity, empowering businesses to innovate for a secure, connected future. Building on over 50 years of expertise in security, Irdeto's services and solutions protect revenue, enable growth and fight cybercrime in video entertainment, video games, and connected industries including transport, health and infrastructure. With teams around the world, Irdeto's greatest asset is its people and diversity is celebrated through an inclusive workplace, where everyone has an equal opportunity to drive innovation and support Irdeto's success. Irdeto is the preferred security partner to empower a secure world where people can connect with confidence.