



Signature

Certain copies make you smile.
Others don't.



www.ina.fr/signature

Video copy detection with a direct and viable solution

Rights holders

► protect and manage your assets

With Signature, you take the fingerprint of your video assets and decide once and for all how and when your content may or may not be broadcast on web-sharing sites.

Video-sharing sites

► manage rights claims and revenue-sharing deals efficiently

With Signature, your incoming stream is efficiently managed and assets linked to revenue-sharing deals are automatically identified. Once this tool has been set up, rights issues are properly handled and the relationship with rights holders is improved.

Encoding/authoring service providers

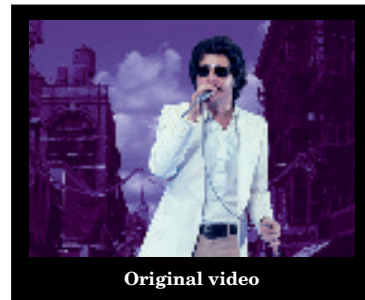
► propose a new and efficient protection service to your customers

Signature enables the generation of fingerprints for rights holders. If you are already offering digitization or post-production services, this add-on automatically protects customers' contents once and for all on video-sharing sites using the system.

Monitoring service providers

► Take advantage of an advanced video copy detection technology that will automate your monitoring services

Signature enables the automatic generation of detection reports. The technology efficiently handles the detection of large sets of monitored content versus a large stream of incoming content. Robustness to changes in the video is handled properly (see pictures above). The system is tuned to avoid any false positive for a better automation.



On the left the original content, and on the right the broadcast content that was properly identified by Signature. This illustrates the robustness of the technology.

Video fingerprint principles

Video fingerprints are small digital genetic codes, computed from the digitized images of a video sequence, and designed to represent its content. A set of fingerprints computed from a video sequence is a very condensed piece of information representing the essence of the sequence.

In practice, computing fingerprints from digitized video files is a very simple process: a software program allows to quickly compute one fingerprint file per video file.

Technically, the fingerprints are computed from the luminance of various areas of the images and from the motion information in the sequence. The precise mathematical algorithms that enable the computing of fingerprints from digitized videos are complex and remain confidential.

Signature in a few words

The Signature technology was initially designed, developed and set up in the R&D department of Ina.

The initial R&D methodology involved frequent shuttles back and forth between the technology design and actual tests on representative content sets.

After several years of such work, the resulting software tool was set up at Ina for its TV monitoring needs in as early as 2005. This successful setup validated Signature's performance, robustness and scalability on a real-world application.

The tool proposed here is an industrial-strength second generation of software that has been heavily consolidated since 2005.

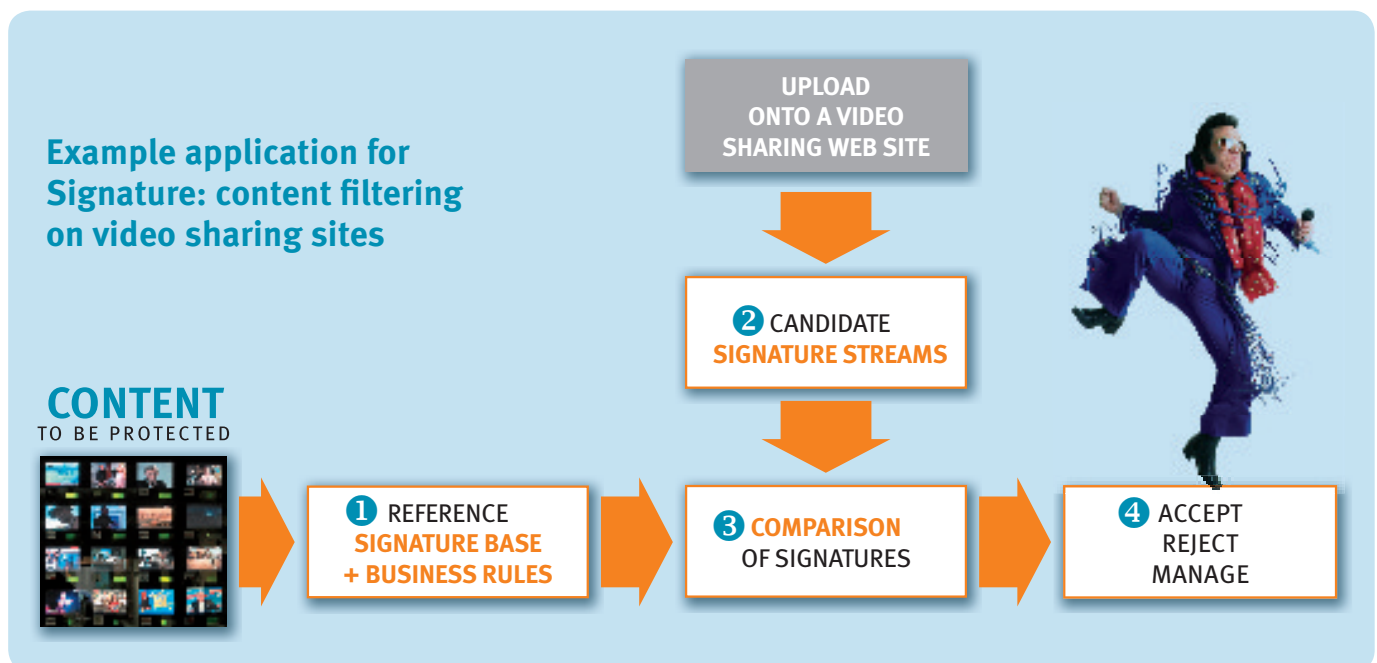
As a result, many players have decided to support this technology and make it a de facto standard, including: rights holders (Canal+, EuropaCorp), video web sharing sites (Dailymotion, Wat), technical facilities (CMC, Eclair Laboratories, MPO) and many more turning to Signature regularly.

Signature: for right management

Content filtering on video-sharing sites with Signature

This technology allows to filter and manage incoming contents on video-sharing websites:

- 1 Each rights holder, as a preliminary step, computes the fingerprint files representing the video assets to be monitored. Each fingerprint file is linked with business rules (decisions on how content may or may not be distributed). The resulting bank of fingerprint files and associated data are made available to video-sharing web sites.
- 2 On his side, the web site owner continuously computes the fingerprint files representing the videos he receives.
- 3 The website owner then continuously compares the fingerprint files he has computed (candidates) with the rights holders' fingerprint banks (reference); a positive comparison indicates that the corresponding uploaded content contains sequences from a rights holder catalog.
- 4 Uploaded contents containing sequences from the corresponding catalogs can therefore be automatically accepted, rejected or managed according to revenue sharing deals.



With Signature, manage your rights efficiently

- rights holders only have to give one instruction once for each asset; all (possibly modified) copies of the asset are then protected and managed;
- one fingerprinting operation handles all international versions of each program;
- fingerprints can even be preemptively computed on early versions of unreleased programs;
- trailers and movies can be handled and detected separately with different business rules.

Software package

The software tool comes in 2 configurations:

- ➔ a fingerprint computing system for reference video fingerprint generation,
- ➔ a fingerprint generation and comparison system for operators of video sharing sites and for monitoring service providers.

The software package includes both:

- ➔ ready-to-use sample applications, including a drag-and-drop fingerprinting daemon,
- ➔ a SDK (Software Development Kit) that can be properly integrated in your information system for an optimal automation.

Signature is not watermarking

Signature allows to take the fingerprints of video assets:

it computes a small genetic code representing all copies of a given program. This principle is very different from watermarking technologies. Watermarking is a tattooing operation, that only allows to identify tattooed copies.

On the contrary, a fingerprinting process analyzes very closely a content copy and then deduces a genetic code without modifying the content. The fingerprint is then valid to identify any past and future copy of the video program.

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Ina, the world leader in digital archiving and promotion of audiovisual archives.

Preserving, promoting, transmitting : Ina's mission. Gathering and preserving the images and sounds which make up our collective memory, giving them meaning and sharing them with the general public: since 1974, this has been Ina's primary mission.

World's number one audiovisual centre for digital archiving and archive promotion, Ina has become the reference for technical innovation in both these fields. Its expertise is acknowledged today on every continent. To date, Ina's archives represent more than 3 million hours of programmes. Ina mediapro (www.inamediapro.com), the world's number 1 online digitized archive bank provides professionals with online access to more than 500,000 hours of television, 100,000 hours of radio and 3,000,000 documentary items, available in both French and English.

Metadata

The fingerprints are associated with instructions from the rights holders on how to deal with content.

Each rights holder decides in advance if/how he wants his content to be broadcast or not (e.g. one may want to allow broadcast of an excerpt for a limited time in order to promote a content, on a specific web site, with revenue-sharing deals).

The rights holder may also update those instructions as required (e.g., he decides to ban any broadcast first and then allows distribution in a well defined context and time period).

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Images that speak to you