International Standard Audiovisual Number

ISAN, the only ISO Identifier for audiovisual content

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Why ISAN?

Yves Saint Laurent

France
Jalil Lespert

Saint Laurent

France / Belgium
Bertrand Bonello

2014
Why ISAN?

La Guerre Des Boutons

1961
Yves Robert

1994
John Roberts

2011
Yann Samuell
Christophe Barratier
Why ISAN?

The Mirror has Two Faces 1996

La Leçon de Séduction (France)
Le miroir a deux visages (Canada)
L’Amore ha Due Facce (Italy)
Lo Specchio a Due Facce (Switzerland)

The Mirror has Two Faces 1958

Le Miroir a Deux Faces (France)
Lo Specchio a Due Facce (Italia)
Why ISAN?

The Man Who Knew Too Much

1934

Alfred Hitchcock

1956

ISAN 0000-0000-50E4-0000-9-0000-0000-A

ISAN 0000-0000-0003-F50B-0000-A-0000-0000-7
Three main trends are transforming the audiovisual market:

Digitalization - Increase of Content - Multiplication of Stakeholders

- New consumption modes: Streaming & Replay
  - 6.4 screens per household in France*
  - 65% of web surfers use VOD*

- Multiplication of distribution channels
  - +49% of channels between 2009 & 2015 in European Union *

- Audience fragmentation

- Operators fragmentation
  - X2 #Production companies between 2000 & 2013 in France*

*Sources: Médiamétrie, 2016, European Observatory of Audiovisual
Why ISAN?

In the digital space, precise identification of audiovisual content is much needed:

- Automate digital audiovisual processes for content delivery, reporting, rights management…
- Help the content to meet its audience in digital distribution (discovery & suggestion)
- Collect and redistribute royalties to rights holders
- Help protecting content against piracy
- Aggregate fragmented sales information, perform analytics & market analysis
- Measure fragmented audience: TV, catchup, VoD, OTT, cinema, video …

ISAN helps to reduce errors and conflicts,
ISAN brings efficiency and helps to save time & money
What is ISAN?

International Standard Audiovisual Number

- 125 Countries
- 250 CMOs
- 3M Creators

- 30 countries
- 80% of worldwide prod.

- 38 Countries / 45 CMOs
- 15’000 rights holders

ISO

TC46/SC9
Identification & Description

Studios

Content Owners

Standardization bodies

Film Archives

Broadcasters
ISAN applies to all audiovisual contents

**Works**

**Versions of work**

**Editing versions:** director’s cut, localized, censored, …

**Languages versions:** dubbing, subtitling, audio description…

**Media versions:** Digital files (VoD, OTT, EST), Digital Cinema (DCP), Blu-ray, DVD, Celluloid, Tape…

**Related content & related items**

- Trailer
- Behind The Scenes
- Making Of
- Sound Track
- Closed Captions
- etc…
### Core information

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<tr>
<td>Producer</td>
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<td>Martin Campbell</td>
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<td>Neal Purvis</td>
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<td>Robert Wade</td>
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<td>Judi Dench</td>
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<td>Actor</td>
<td>Mads Mikkelsen</td>
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<tr>
<td>Actor</td>
<td>Jeffrey Wright</td>
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<td>Scriptwriter</td>
<td>Paul Haggis</td>
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<td>Charles K Feldman</td>
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<td>Director</td>
<td>John Huston</td>
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<tr>
<td>Actor</td>
<td>Woody Allen</td>
</tr>
<tr>
<td>Actor</td>
<td>Ursula Andress</td>
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<tr>
<td>Actor</td>
<td>W Holden</td>
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<tr>
<td>Actor</td>
<td>Deborah Kerr</td>
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<tr>
<td>Actor</td>
<td>David Niven</td>
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<td>Actor</td>
<td>P Sellers</td>
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<tr>
<td>Actor</td>
<td>Orson Welles</td>
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ISAN is linked to Metadata

Original Title + International Titles
Duration (MIN / SEC)
Original language(s)
Work Type (Feature Film, Documentary, etc…)
Year of reference (Copyright or production)
Country (ies) of reference
Color Kind
Year of first publication
Production companies
Full name of principal director(s)
Full name of Cast (actors scriptwriter, etc…)
External IDs (e.g. ISRC, UMID, EIDR, …)
Work Composites (list of ISAN)
Episode # (episodic works)
Season # (eisodic works)

1 Work = 1 ISAN

Title: Casino Royale
Year: 2006
Dir: Martin Campbell

Title: Casino Royale
Year: 1966
Dir: John Huston

ISAN is Unique – Global - Permanent
What is ISAN?

ISAN is a Global Standard Identifier

ISAN 1234-5678-9101-0004-X-0000-00A1-Y

URN:ISAN: 0000-0001-DB15-0000-X-0000-000C-N

ISAN is a registered Namespace Identifier (NID) with IETF and IANA. ([IETF RFC 4246](https://datatracker.ietf.org/doc/rfc4246/))
ISAN is operated by...

A worldwide network of Registration Agencies

Register
Audiovisual content

Search
ISAN Idetifiers

Lookup

connected to the central ISAN registry
How does ISAN work?

The producer* creates the ISAN

* or a trusted third party

Title: Casino Royale
Year: 1966
Dir: John Huston

Broadcasters, Digital Platforms, etc..
Create Version ISAN

ISAN and meta-data are publicly available
www.isan.org

...then, everyone can use it.
ISAN in audiovisual standards

**Distribution**

AMWA:
AS-03
AS-11
UK DPP

**Digital Cinema Package**

**Delivery**

**Reporting**

**Archiving**

**Digital Video Broadcasting**

**CEN**

EN 15744:
EN 15907:

**MXF**

**BXF**

**Framework for Interoperable Media Services**

**Moving Picture Experts Group**

**www.tv-anytime.org**

**Blu-ray Disc**
Accessing the ISAN Registry

**Rest API**
- Web interface
- Registration search lookup

**Files**
- Bulk registration
- Bulk search / matching

**User Copy**
- Local search & lookup
- Registry snapshots

**Web interface**
- Web application
- Registration search lookup
ISAN in numbers: The ISAN Registry

+1’300’000 ISAN

ISAN identify productions from

- Europe (54%)
- Asia (3%)
- N. America (40%)
- Lat. America (3%)

33% produced after 2008
50% produced after 2002
80% produced after 1985

80’000 New ISAN / Year

+1M Linked IDs

AGICOA
ITV
IMDB
EIDR
Lumiere
Netflix
Procinema
CNC
Google
Le Film Documentaire
etc …
ISAN Users Worldwide

14’000 ISAN Registrants from 81+ Countries

+1500 new adopters every year

+16’000 ISAN Users

Producers

Collecting Societies

Distributors

Studios

Market Analytics

Post Production

Broadcasters

Digital Platform

Authors

Performers

Media Funds

Film archives / databases

Data Providers

Public Organisations

Appointed ISAN Registration Agencies (RA)

15 RA In Europe

+ 4 Prospective agencies

© ISAN International Agency
ISAN Ecosystem of identified users or supporters

Collecting societies
- MAGICOA
- GWT
- PROCIREP
- DAMA
- ASCAP
- SIAE
- SCAPR
- PRS
- KOPIOPTA
- VFF
- ZAPA
- SACD
- 100+

Content production & Creation
- Gaumont
- V
- SONY
- FOX
- KING RECORDS
- CAPA
- DISNEY
- CHES
- SHINE
- Televisa
- STUDIO CANAL
- 10000+

Content delivery
- iTunes
- YouTube
- FRANCETV
- PLAY
- FILMOTV
- FIME
- ARTES
- UNIVERSAL
- CANAL
- VOD
- 100+

Data providers, market analytics, ...
- plurimedia
- OfS
- Kantar Media
- OfS
- MediaGeniX
- MediaGeniX
- DALET
- VOD FACTORY
- opencube
- Scenarist BD
- etc.

Infrastructure & Post Production
- Microsoft
- Marquise
- Imagine
- Northplains
- semisoft
- PCC
- DREAMLOGIC
- Scenarist BD
- etc.

Cultural Founds
- Screen Australia
- KOEIC
- COGECO
- FILMFACTORY
- FILMFACTORY
- FILMFACTORY
- Generalitat de Catalunya
- film INSTITUTE
- etc.

Anti-piracy
- civolution
- Hadopi
- 100+

Regulators, Public Orgs
- CNC
- 1000+

Trade & Professional Organizations
- Writers Guild of Canada
- USPA
- A
- EUROPECAP
- GBPA
- DGA
- FILMFACTORY
- FILMFACTORY
- etc.

Archives
- Library and Archives Canada
- FILMFACTORY
- FILMFACTORY
- FILMFACTORY
- arabcinemadirectory
- etc.

* when required by CMOs
ISAN use cases
New European Regulations

France (since 2017)
CNC requires ISAN for all AV projects they finance (25% international)
➢ Script writing & production
➢ Distribution
➢ Digital Platforms

Switzerland (since 2017)
Legal obligation to report ISAN for Digital Platforms
➢ Domestic & foreign productions
➢ Domestic & foreign platforms that distribute content in the country
➢ Platforms require ISAN for distribution in Switzerland (apple, ..)

European Union (since 2018)
➢ EU Commission engage work for the adoption of a Standard ID in Europe
➢ EC Promotes the interoperability between ISAN & EIDR.
➢ Required an interoperable ID for all Media Program Funding
Public & private **Film Funds** use ISAN to identify and track the projects they finance (grants, tax credit, etc…)

- ISAN (or indel ISAN) is required for selected projects (creation, production, distribution…)
- Indev ISAN is activated (=> regular ISAN ) when the project is completed
- The funding org. collects usage statistics inc. ISAN on the distribution of the resulting works

ISAN helps audiovisual funding organization to follow the projects they finance and measure their funding strategy!
Digital platforms: report usage with ISAN

- European regulations (France, Switzerland): these ISAN are available worldwide
- Arte, Apple, Google, Netflix, Microsoft, FilmoTV, SFR Play, …

International rights registries: process international rights

- Producers (IRRIS – AGICOA)
- Authors (IDA – CISAC)
- Music (AVI – CISAC)
- Performers (VRDB – SCAPR)

Metadata & analytics: deliver data enriched with ISAN to their customers

- Broadcast logs: Eurodata TV, Kantar media (Spain), INA (private copy -FR), Business Bureau (LatAm), …
- TV listing, EPG: Plurimedia (FR), Mediapress TV (EU), Bindinc (NL), European Metadata Group
- VoD Market analysis: GfK, NPA, BFS, EAO
- Fingerprint monitoring: INA, BMAT, ALPA (Google)
ISAN Use Case: Delivering Film Content for the iTunes Store

New ISAN mandatory in Switzerland

- Sales and income reports with ISAN (easy consolidation with data from other platforms)
- Usage reports to CMOs (DDEX) for automated rights management

iTunes Package Film Specification

```xml
<?xml version="1.0" encoding="UTF-8"?>
<package xmlns="http://apple.com/itunes/importer" version="film5.0">
  <provider>Paramount</provider>
  <language>en-US</language>
  <video>
    <type>film</type>
    <subtype>feature</subtype>
    <vendor_offer_code>408CH98720X103</vendor_offer_code>
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    <country>US</country>
    ...
  </video>
</package>
```

Learn more: itunespartner.apple.com
ISAN Use Case: Use of ISAN in Digital Distribution

**Analytics**

- **Film Fonds**
  - Consolidated statistics

**Digital Distribution**

- **iTunes**
  - Film package
  - Sales & Forecast

**Automated Rights Processing**

- **Users**
- **ISAN**
- **ISAN**
- **ISAN**

**Rights Holders**

- **Music Authors Performers Producers**
  - Domestic rights
  - International rights
  - 100+

**Consolidated statistics**
ISAN Use Case: Workflow for automated rights processing using ISAN

Electronic Data Transfer

Royalty Distributions

Rights holders identification

International Rights Registries

Music CMOs
Authors CMOs
Performers CMOs

Music rights (AVIndex)
Authors rights (IDA)
Producers rights (IRRIS)
Performers rights (VRDB)

Domestic rights

International rights

100+

content owners

iTunes
VoD/ EST

iTunes Package

ISAN
Use Case: ISAN simplifies music reporting of TV productions

- With the shift to digital the amount of data to process by CMOs has dramatically increased.
- ITV, major commercial broadcaster in UK, has registered +100’000 productions with ISAN.
- ITV use ISAN as a key identifier for their productions and is using ISAN in business message transactions such as music reporting to PRS for Music (as a start).
- ITV’s ISANs are being populated in CISAC’s AudioVisual Index (AVI), an important source of music cue sheets (music rights in AV content) for music rights societies.
- The first time a production is broadcast, the full metadata set (including music cue sheet) needs to be reported.
- Thereafter for repeats and catch-up services, the ISAN is reported without the need for music cue sheets (saving of 23 metadata fields replaced by one ISAN).
- This is particularly useful for catch-up content on 3rd platforms in the UK (BT Vision, Virgin Media, iPlayer, ITV player, 4OD, YouView etc.).

The use of ISAN brings greater automation to the music reporting process by ITV in the UK and reduces the cost for processing rights by PRS for music.

>> Read the Press Release
ISAN Use Case: Automated workflow for music rights processing with ISAN

Weekly bulk registrations → Electronic Data Transfer → PRS for Music → Royalty Distributions

AudioVisual Index (AVI) → Music cue sheet exchange → Collecting societies

PRS & MCPS members
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Spain: Kantar Media provides ISAN in TV reports

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ISAN Use Case: Content Recommandation

Cisco Videoscape Media Suite EPG
Better monetize content with ISAN

ISAN binds linear content with recommended non linear content such as other episodes of a serie, supplemental material or similar movies … for purchase or rental.
Imagine D-Series DSX™
Advanced Playout Automation

Linear & File based content delivery is empowered with open metadata exchange via BXF, MXF, AAF and ISAN.

Read more on imaginecommunications.com …
ISAN Use Case: Blu-ray Disk

ISAN is the recommended Content ID in AACS (Advanced Access Content System) used to protect Blu-ray disks.

AACS helps to ensure content is secure across devices and media while it maintains the highest standards and flexibility.

more on http://www.aacsla.com/home
ISAN Use Case: Linguistic versions identification

Subtitles

Key features

Share & Monetize
- Share subtitles with more than 300 VOD platforms, 1,500 distributors and 1,700 festivals
- Monetize subtitles with no intermediaries and retain 100% of the revenues

Search & Find
- Browse referenced subtitles with advanced search tools
- Festivals & Distributors: find and acquire films subtitles in your language
- VOD platforms: find and acquire multi-language versions for a specific film

Check & Conform
- Subtitles providers approved by the Cinando team
- Quality check and conversion to TTML standard advanced format
- Unique ISAN number for each subtitle version

Archive & Protect
- Long-term, free and secure repository to archive subtitles
- Automatic notification to film rights-holders when subtitles are shared
ISAN Use Case: Embed ISAN in Windows Media files

Windows Media SDK (encoder / decoder)

more on msdn.microsoft.com
ISAN Use Case: ISAN use in Media Asset Management

Asset Container Record

ISAN Schema Element (String Field)

Collateral Metadata Objects (Container Field)

Telescope DAM SW by North Plains Systems
ISAN Organisation Overview
The Registration Agency (RA) is established to serve a specific country or region
✓ Deliver the ISAN Registration Service to local audiovisual users
✓ Facilitate the access to the ISAN Registry
✓ Make sure that ISAN complies with local needs and practices

✓ ISO is the owner of the ISAN standard and related IP (ISAN Registry, etc…)
✓ ISAN is maintained and reviewed by ISO with the approval of its members
✓ The management of ISAN and operational & implementation specification is delegated to ISAN-IA (via the Registration Authority Agreement) who reports to ISO.

Registration Authority Agreement (RAA): defines the Role, Responsibility and Obligations of ISAN-IA and ISAN RA
✓ Manage & Operate the ISAN Standard in compliance with the ISO RAA, report to ISO
✓ Operate the ISAN Registry and make sure it is accessible to all ISAN users.
✓ Appoint & support ISAN Registration Agencies (ISAN RA)
✓ Specifies with ISAN RA recommended practice.

Registration Agency Agreement: defines the Role, Responsibility and Obligations ISAN RA in accordance with ISO RAA

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... 163 countries

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ISAN is regulated by ISO

✓ RAND Principle: "reasonable and non-discriminatory" terms and conditions shall apply.
✓ Accessibility of the ISAN Registry: ISAN data shall be accessible to all ISAN users.
✓ ISAN Service Fees shall be reasonable and delivered on a strict Cost Recovery principle.
✓ Compliance with competition laws:
  ✓ Local ISAN Service fees are defined by each RA: harmonization of fees = illegal price fixing.
  ✓ ISAN users are free to be serviced by the ISAN RA of their choice (not necessary the one appointed in their country).
  ✓ ISAN users are free to change for another ISAN RA, anytime.
✓ Reporting: ISAN-IA is obliged to report to ISO on a yearly basis (activity, obligations fulfillment,...)
✓ Audit: ISO has an audit right on ISAN-IA (agreements, books, records, documentation etc...).
✓ RAA Reassignment: ISO is entitled to reassign the ISAN Registration Authority mandate to another organization if justified by a good cause (obligation violation, bankruptcy, etc...).

ISAN-IA and ISAN RA are not for profit association created (by not for profit organizations) for the sole purpose of Managing / Operating the ISAN Standard.
ISAN Intellectual Property

✓ ISO is the exclusive owner of the ISAN standard (ISO 15706-1 & ISO15706-2).

✓ All intellectual property related to the proper functioning of the ISAN standard, such as the ISAN Registry, trademarks, documents, etc. is owned by ISO and licensed to ISAN-IA.

✓ Metadata submitted by registrants in the ISAN Registry are the property of the registrant who grants a non exclusive, perpetual worldwide license to ISAN-IA and ISO.

✓ ISAN identifiers are public and can be stored, used, circulated for free and freely by anyone (irrespective of commercial and non commercial purpose).

✓ ISAN-IA can sub-license ISAN metadata to third parties: a cost recovery based contribution can apply for preparing data and processing scheduled updates.
The ISAN-IA association is composed of 3 main bodies:

- **The General Assembly**: validates the accounts and nominates the auditors.
- **The Administration Committee**: composed today by representatives of the founding Members: CISAC, AGICOA, FIAPF, and representatives of the ISAN RA.
- **The Registration Agency Committee (RAC)**: composed of representatives of all ISAN RA, the RAC coordinate local efforts and reports local experience, specification or requirement and propose evolutions of the ISAN system to the AC.

- ISAN-IA’s bylaw enables to accept other industry representatives in its governance structure such as Archives, Broadcasters, Digital Platforms, Data providers, etc… willing to play an active role in the development of ISAN.
- ISAN RA are distinct legal entities, not for profit associations created for this specific purpose.
- ISAN RA are usually co-founded by several local constituents of the audiovisual industry:
  - ISO 15706 requires that local producers support or are represented in the RA
  - Artists, music societies, broadcasters, national archives, etc…
ISAN metadata model
Audiovisual Works & Versions

**Work / AV Work ⇔ ISAN**
- Distinct Intellectual Creation (Realization) with constant characteristics throughout all its versions
- A Work refers to all its derived versions; it is Abstract (no one can point a particular medium for the Work)
- A Work exist because it has been realized (1st manifestation). Unfinished projects (e.g. Clouzot’s “L’Enfer” 1964) are not considered as works (Indev ISAN)

**Variant of the AV Work (version) ⇔ V-ISAN**
- Changes to the AV Work that do not significantly alter the nature of the intellectual Creation (not a ≠ Intellectual Creation).
- A Variant refers to all its derived manifestations, It is an Abstract thing.
- Changes can be one or a combination of: minor editions, dubbing, subtitling, alterations of the soundtrack, …

**Manifestation of a work or a variant (version) ⇔ V-ISAN**
- Fixation of the AV Work or a Variant on a physical medium (film print, tape, optical disk, …) or a logical medium (i.e. without a fixed physical carrier) such as digital files or streams.
- A manifestation points a specific version of the Work, it refers to a Real thing.
- Defined with the technical properties of the media embodiment (Image Format, Encoding Details, Media of Fixation, …)
ISAN work & version relationship

- **Episodic**
- **Non-Episodic**

**Work / Episode**
- **Serie**
- **Season**

**Related Content**
- Clips
- Trailer
- Teaser
- Supplements

**Edition Variant**
- Director's cuts
- Short / long
- Rating
- Music change
- Theatrical / Home video / Broadcast
- Restored / Remastered

**Language Variant**
- Subtitles / Dubbing
- Audio transcription

**Related Item**
- Subtitle file
- Dubbing resource
- Soundtrack

**Media Manifestation**
- Blu-ray / DVD / Film Print
- Digital Package
- Distribution region / country

*ISAN work & version relationship diagram with ISAN related content, edition variant, language variant, related item, and media manifestation.*
ISAN Work & Version Metadata Elements

**Minimal descriptive metadata required to unduplicate AV works**

**SINGLE AV WORK**

- **Title** of audiovisual work/content + alternate titles (when applicable)
- **Duration** (in minutes and/or seconds)
- **Original language(s)**
- **Work Type** (Feature Film, Documentary, TV entertainment, etc...)
- **Year of reference** (Copyright or production)
- **Country** (or countries) of reference
- **Color Kind**
- Year of first publication
- Main production company
- Full name of principal **director(s)**
- Full name of **participants** (actors, scriptwriter, etc...)
- Linked **IDs** (e.g. ISRC, UMID, EIDR, ...)
- Work **Composites** (list of ISAN)

**EPISODIC WORK**

- **Title of the Serial**
- **Episode Title**
- **Episode Number**
- **Season**

**VERSION of an AV Work**

- **Version Type**
  - Language, Edition (Clips,...) (Expression)
  - Media (Manifestation)
  - Related Content (e.g. Bonus, Soundtrack, ...)
  - Related Item (e.g. Boxed set, ...)
- **Parent Relationship**
- **Title & Descriptive Name**
- **Release Year / Date**
- **Version Running Time**
- **Linked Identifiers** (ISRC, UPC, EIDR,...)
- **Spoken & Written Languages**
- **Image Details** (Color, Definition, Ratio, 2D/3D)
- **Media embodiment** (DVD, BR, EST, VOD,...)
- **Audio & Video codec** + encoding profiles
- **Distribution** (counties + channel/platform)
- **Rating & Content Alert**
- **Version Composites** (list of Version ISAN)
- **Resolution**
- **Service Provider** (3rd party DB)
- Up to 3 customizable metadata fields
Using ISAN in distribution workflows
ISAN Use Case: Use of ISAN in Digital Distribution

### ISAN Use Case

**Analytics**
- Lumiere
- OFS
- ISAN
- Consolidated statistics
- Film Founds

**Digital Distribution**
- iTunes
- Film package
- Sales & Forecast

**Rights Holders**
- Rights Holders
- Music Authors
- Performers
- Producers
- ISAN
- Consolidated statistics

**Automated Rights Processing**
- CMO
- Matching
- Processing
- Domestic rights
- International rights
- 100+

**Film Founds**
- Cineforom
- CNC
- NL Film Fonds
- Generalitat de Catalunya
- Gobierno de Canarias

**Digital Distribution**
- ISAN
- Match processing
- Royalty distribution
- OFDex

**Consolidated statistics**
- Analytics

---

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ISAN in audiovisual standards

Distribution

Delivery

Reporting

Archiving

AMWA:
AS-03
AS-11
UK DPP

Digital Cinema Package

MXF

BXF

EN 15744:
EN 15907:

MPEG

BDF

www.tv-anytime.org

Blu-ray Disc

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Standardized representations for ISAN

**Printed Form**

ISAN 1234-5678-9101-0004-X-0000-00A1-Y

**URN Form**

*URN:ISAN:0000-0001-DB15-0000-X-0000-000C-N*

ISAN is a registered Namespace Identifier (NID) with IETF and IANA. ([IETF RFC 4246](#))

**Hexadecimal & Binary Form** (ISAN prefix and check digits can be omitted)

1234567891010004000000A1 000...011101101101010100000000000000000000000000000000000 (96-bit binary number)

**XML Form**

<ISAN root="0000-0001-DB15" episode="0000" check1="X" version="0000-000C" check2="N" />
Retrieving existing ISAN

- Metadata Matching Service
- ISAN Rest API
How to obtain existing ISAN for large catalogues?

1. AV Metadata (XML/Json) File or API
2. ISAN retrieval (Matching)
3. Matching Results
   - Unique Match
   - No Match
   - Multiple Matches
4. Resolve ambiguities & confirm matches
5. Import ISAN for confirmed matches
9 Years Experience in Audiovisual Metadata Matching

Multilingual data Matching & Unduplication

Assistance and service in 81 countries
15 local Registration Agencies

Match confirmation tools

Metadata Matching

Minimize the Human Work
ISAN Dissemination Use Cases

✓ Matching Service
  ✓ IDA (International authors rights registry), BfS (Swiss statistic office), ICAA (Spanish ministry of culture), Lumière (EAO), CNC (FR)

✓ ISAN Registry API
  ✓ Plurimedia, Eurodata TV / Mediametrie, Agicoa (International producers rights registry), VRDB (International performers rights registry)

✓ ISAN Registry Snapshots
  ✓ GfK, Business Bureau (Lat Am.), BMAT (music monitoring), AV Index (International Music rights registry)
ISAN Rest API

✓ REST API: read and write data in the ISAN Registry
✓ Data encoded in XML (Same schema as for file based data exchange) and JSON
✓ Double authentication:
  ✓ API authentication: HTTP authorization header
  ✓ ISAN registry authentication: custom X-ISAN authorization header

```plaintext
apiSignatureValue = Base64 (api_username:api_password)
isanSignatureValue = Base64 (isan_username : MD5 (isan_password))
```

✓ Swagger active documentation [http://web.isan.org/api/](http://web.isan.org/api/) (contact us for credentials)
✓ List of operations
  ✓ Register a new work or version of a work
  ✓ Search in the ISAN Registry (Query)
  ✓ Update informations for existing works or versions
  ✓ Resolve ISAN codes or external identifiers (Lookup)
  ✓ List child versions from an ISAN (hierarchical Registry browsing)
ISAN Registry API: Search & Lookup functions

✓ Lookup Service (ISAN resolutions / external IDs resolutions)
  ✓ Retrieve the metadata associated to an ISAN (all ISAN representations: classic, URI, ..)
  ✓ Validate an ISAN (check digits, existence, active/inactive)
  ✓ Translate ISAN ⇔ External IDs

✓ Search Service
  ✓ Perform search in the ISAN registry (Oracle search: to be replaced soon by Solr)
  ✓ Filtering, Sorting, Pagination:

GET /api/works?filter=string&sorting=string&limit=n&page=i

✓ Search criteria (filter): « AND » combination between : Work Type, Serial Type, Title, Year, Duration, Participants (name / role), root ISAN (episodes of a serial)

=> supported operators: OR (|), exclusions (_), numeric intervals( [xx-yy])

✓ Sorting: ascending (by default), descending (-) order, multiple fields are supported (sorting).
✓ Pagination: define the number of results per pages (limit) and call results page by page (page),