ISAN REST Web Services API

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<td>Rev:</td>
</tr>
</tbody>
</table>
# Table of contents

1. **INTRODUCTION**

2. **METADATA SCHEMAS**
   - 2.1 ISAN & V-ISAN Schema
   - 2.2 ISANDataType
   - 2.3 Status of a work or version of a work: StatusType
   - 2.4 Non-episodic work metadata: WorkMetadataType
   - 2.5 Serial header (series) metadata: SerialHeaderType
   - 2.6 Episodic work metadata: EpisodeWorkMetadataType
   - 2.7 Versions of works (V-ISAN): VersionType

3. **API AUTHENTICATION**
   - 3.1 ISAN API Authorized user
   - 3.2 ISAN System Authorized user

4. **ID RESOLUTIONS: LOOKUP SERVICE**
   - 4.1 Description
   - 4.2 Request
     - 4.2.1 Syntax
     - 4.2.2 Parameters
     - 4.2.3 Request Headers
   - 4.3 Response
     - 4.3.1 Response Headers
     - 4.3.2 Response Elements
   - 4.4 Errors
   - 4.5 Notes
   - 4.6 Examples of possible requests

5. **ISAN REGISTRATION OR MATCHING SERVICES**
   - 5.1 Description
   - 5.2 Request
     - 5.2.1 Syntax
     - 5.2.2 Parameters
5.2.3. Request Headers 44
5.3. Response 45
5.3.1. Response Headers 45
5.3.2. Response Elements 45
5.4. Errors 46
5.5. Examples of use 47

6. ISAN AND V-ISAN UPDATE SERVICE 55
6.1. Description 55
6.2. Request 56
6.2.1. Syntax 56
6.2.2. Parameters 56
6.2.3. Request Headers 57
6.3. Response 57
6.3.1. Response Headers 57
6.3.2. Response Elements 57
6.4. Errors 57
6.5. Examples of use 57

7. ISAN SEARCH SERVICE 61
7.1. Description 61
7.2. Request 61
7.2.1. Syntax 61
7.2.2. Parameters 61
7.2.3. Response 65
7.2.3.1. Response Headers 65
7.2.3.2. Response Elements 66
7.2.4. Errors 67
7.2.5. Examples of use 68

8 APPENDIX: WORK STATUS LIFECYCLE 73
8.1 Possible Statuses 73
8.2 Non-episodic (single) works status lifecycle 74
8.3 Serial header status lifecycle 74
8.4 Serial episode status lifecycle 75
1. INTRODUCTION

This document outlines the ISAN Rest Web Services API, a collection of http interfaces to ISAN services that enables to read and write data in the ISAN registry. Operations such as ISAN / V-ISAN resolutions (lookups) and validations, search for registered works with ISAN, registrations / editions of works and versions of works, audiovisual metadata matching, can be realized with this API. This API will evolve and be enriched with additional services whenever needed by the industry. API users can therefore contact their ISAN registration agency or ISAN international agency to submit new API needs. To be able to use this API, users should be registered as authorized users within their ISAN registration agency.

ISAN API web services produce and consume widely used standard data formats XML and JSON. The choice of using either XML or JSON format is specified in every API query by the user. Client applications should parse XML or JSON responses using a standard XML processor or a JSON parser library to address elements within the corresponding format.

A web interface to test manually the ISAN Rest Web Services API is available at: http://test.isan.org/api/ (credentials required)
Note that testing the ISAN API through the web interface does not require other technical knowledge as reading data formatted in XML or JSON.

It is assumed that the reader of this document is familiar with XML, JSON and REST as well as with basic ISAN principles outlined in the ISAN user guide, the ISAN data fields description (currently under revision), and the ISAN Data Fields Appendix - List of Codes.

More ISAN documents are available on [http://www.isan.org/resources/](http://www.isan.org/resources/).
2. METADATA SCHEMAS

2.1 ISAN & V-ISAN Schema

Both XML and JSON data format respect the following schemas:

Main schema for non episodic (single) works:

Main schema for serial headers (series) and episodic works (serial episodes):
- [http://www.isan.org/schema/v1.21/common/serial.xsd](http://www.isan.org/schema/v1.21/common/serial.xsd)

Main XML schema used for version of works (V-ISAN):

Other dependent schemas:
- [http://www.isan.org/ISAN/isan.xsd](http://www.isan.org/ISAN/isan.xsd)

2.2 ISANDataType

ISANDataType is the main type definition used for most of the API requests or responses. It is defined in the xml schema: [http://www.isan.org/schema/v1.11/common/common.xsd](http://www.isan.org/schema/v1.11/common/common.xsd).

ISANDataType is the common base definition for audiovisual content, i.e. non episodic (single) works, episodic works (serial episodes), serial headers (series) and versions of works (V-ISAN).

ISANDataType provides readable only information about the status of a work, then specific descriptive metadata for series, works or versions of works is addressed by specialized type definition:
- WorkMetadataType: for non episodic works:
- EpisodeMetadataType: for episodic works
- SerialHeaderType: for serial headers
- VersionsType: for versions of works
2.3 Status of a work or version of a work: StatusType

StatusType provides **readable only** information about the status of a work (see ISANDataType).

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DataType</strong></td>
<td><strong>Type: String ; Occurrence : 1</strong></td>
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</tbody>
</table>

  - Describes the type of metadata that is processed, values are
    - WORK_METADATA_TYPE: *non episodic (single) work metadata*
    - EPISODE_WORK_METADATA_TYPE: *episodic work metadata (serial episode)*
    - SERIAL_HEADER_TYPE: *serie (serial header) metadata*
    - VERSION_TYPE: *version of a work metadata*
## ISAN

**Type:** isan:isanType  
(See Schema: http://www.isan.org/ISAN/isan.xsd)  
**Occurrence:** 1

24 digit ISAN / V-ISAN identifier of the work or version (when applicable). Contains root, episodeOrPart, checkDigit1, version, checkDigit2

### XML Example:
```
<common:ISAN
  check2=""  version=""  check1=""  episodeOrPart=""  root=""/>
```

### JSON Example
```
"isan": {
  "root": "",
  "episodeOrPart": "",
  "check1": "",
  "version": "",
  "check2": ""
}
```

## WorkStatus

**Type:** String ;  
**Occurrence:** 1

Status of the work (or version) in the ISAN registry, values are

- **ACTIVE**: the work or version is an active registration in the ISAN registry.
- **INACTIVE**: the work / version / identifier has been inactivated in the ISAN registry. An inactivation is always linked to an active ISAN identifier, see **ActiveISAN field** for the corresponding active ISAN.
- **INDEV**: the work is still in development. At this stage of the production, metadata can still change and is only available to the registrant of the work. INDEV works are activated by the registrant once the work is finalized, metadata becomes public and the status will then be ACTIVE.
- **PENDING** (registration service only): the registration processes is pending as the work is potentially already registered with ISAN, i.e. the submitted work is matching with one or several other works in the ISAN registry; a duplicate check and a manual action (web user interface) is required to finalize the registration process.
- **NO_MATCH** *(AV metadata matching service only):* no registered work is matching with the AV metadata in the ISAN registry.

- **MATCH** *(AV metadata matching service only): a unique match with the AV metadata has been found in the ISAN registry.* See the MatchingISANs field for obtaining the matching ISAN identifier.

- **PENDING_MATCH** *(AV metadata matching service only): multiple matches with the AV metadata have been found in the ISAN registry.* A manual duplicate check is required to identify the matching work among the several matching candidates. See the MatchingISANs field for obtaining the matching candidates ISAN identifiers.

**XML Example:**
```xml
<common:WorkStatus> </common:WorkStatus>
```

**JSON Example**
```json
"workStatus":"
```

**ActiveISAN**

*Type: isan:isanType* *(See Schema: http://www.isan.org/ISAN/isan.xsd)*

*Occurrence: 0 or 1*

ISAN number of the active work. Applies only when the status of the described work is INACTIVE.

**XML Example:**
```xml
<common:ActiveISAN check2="" version="" check1="" episodeOrPart="" root=""/>
```

**JSON Example**
```json
"activeIsan": {
    "root": "",
    "episodeOrPart": "",
    "check1": "",
    "version": "",
    "check2": ""
}
```

**MatchingISANs**

*Type: isan:isanListType* *(See Schema: http://www.isan.org/ISAN/isan.xsd)*

*Occurrence: 0 or 1*

List of ISAN numbers.

Applies only for matching request when the submitted work status is MATCH or PENDING_MATCH: the list contains the matching ISAN candidate(s).
# XML Example:

```xml
<common:WorkStatus>PEND_MATCH</common:WorkStatus>
<common:MatchingISANs>
  <isan:ISAN check2="" version="" check1="" episodeOrPart="" root=""/>
  <isan:ISAN check2="" version="" check1="" episodeOrPart="" root=""/>
</common:MatchingISANs>
```

# JSON Example

```json
"workStatus": "PEND_MATCH",
"matchingISANs": {
  "isans": [
    {
      "root": "",
      "episodeOrPart": "",
      "check1": "",
      "version": "",
      "check2": ""
    },
    {
      "root": "",
      "episodeOrPart": "",
      "check1": "",
      "version": "",
      "check2": ""
    }
  ]
}
```

**Description**

**Type:** String; **Occurrence:** 0,1  
Error description  
Applies only for error description purpose

### XML example of ISANDataType

```xml
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<common:isanDataType xmlns:isan="http://www.isan.org/ISAN/isan"
xmlns:serial="http://www.isan.org/schema/v1.21/common/serial"
xmlns:title="http://www.isan.org/schema/v1.11/common/title"`
2.4 Non-episodic work metadata: WorkMetadataType
The `WorkMetadataType` element extends `ISANDataType` in the xml schema http://www.isan.org/schema/v1.11/common/common.xsd.

The element `WorkMetadataType` defines descriptive metadata for non-episodic (single) works, it includes:

- the `work status` description inherited from `ISANDataType`,
- all descriptive information of the non-episodic work such as the work classification (type, code), year of reference, duration, titles, participants, languages, production companies, countries, ....

`WorkMetadataType` is returned by the lookup service when the retrieved work is a non-episodic work. `WorkMetadataType` is required when submitting non-episodic work registrations or non-episodic work metadata update requests. `WorkMetadataType` is required when submitting non-episodic work metadata matching requests.

XML example of a single work description:

```xml
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<common:workMetadataType
  xmlns:isan="http://www.isan.org/ISAN/isan"
  xmlns:title="http://www.isan.org/schema/v1.11/common/title"
  xmlns:externalid="http://www.isan.org/schema/v1.11/common/externalid"
  xmlns:common="http://www.isan.org/schema/v1.11/common/common"
  xmlns:participant="http://www.isan.org/schema/v1.11/common/participant"
  xmlns:country="http://www.isan.org/schema/v1.11/common/country">
  <common:status> … </common:status>
  <common:ISAN check2="" version="" check1="" episodeOrPart="" root=""/>
  <common:Type/>
  <common:Kind/>
  <common:ExternalIdList/>
  <common:TitleList/>
  <common:YearOfReference/>
  <common:Duration/>
  <common:ColorKind/>
</common:workMetadataType>
```
JSON example for a single work description:

```json
{
    "@type": "WorkMetadataType",
    "status": {...},
    "isan": {...},
    "type": "",
    "kind": "",
    "externalIdList": {...},
    "titleList": {...},
    "yearOfReference": "",
    "duration": {...},
    "colorKind": "",
    "originalLanguageList": {...},
    "referenceCountryList": {...},
    "participantList": {...},
    "companyList": {...},
    "compositeList": {...}
}
```
2.5 Serial header (series) metadata: SerialHeaderType

The SerialHeaderType element extends ISANDataType, it is defined in the xml schema http://www.isan.org/schema/v1.21/common/serial.xsd.

The element SerialHeaderType defines descriptive metadata for serial headers (series), it includes:
- the work status description inherited from ISANDataType,
- all descriptive information of the serial header such as the titles, the total number of episodes registered in the serial, the total number of seasons registered in the serial, the duration of shortest episode, the duration of longest episode, the year of reference of oldest episode, the year of reference of most recent episode, the most recurring participants, the most recurring production companies.

SerialHeaderType is returned by the lookup service when the retrieved work is a serial header (serie). SerialHeaderType is required when submitting serial headers registrations or serial headers metadata update requests.

XML example of a serial header work description:

```xml
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<serial:serialHeaderType
xmlns:isan="http://www.isan.org/ISAN/isan"
xmlns:title="http://www.isan.org/schema/v1.11/common/title"
xmlns:serial="http://www.isan.org/schema/v1.21/common/serial"
xmlns:externalid="http://www.isan.org/schema/v1.11/common/externalid"
xmlns:common="http://www.isan.org/schema/v1.11/common/common"
xmlns:participant="http://www.isan.org/schema/v1.11/common/participant"
xmlns:country="http://www.isan.org/schema/v1.11/common/country">
  <common:status>...</common:status>
  <serial:SerialHeaderId root=""/>
</serial:serialHeaderType>
```
JSON example of a serial header work description:

```json
{
    "@type": "SerialHeaderType",
    "status": {...},
    "serialHeaderId": {
        "root": ""
    },
    "mainTitles": {...},
    "totalEpisodes": ...
    "totalSeasons": ...
    "minDuration": {...},
    "maxDuration": {...},
    "minYear": "",
    "maxYear": "",
    "mainParticipantList": {...},
    "companyList": {...}
}
```
2.6 Episodic work metadata: EpisodeWorkMetadataType

The EpisodeWorkMetadataType element extends WorkMetadataType, it is defined in the XML schema http://www.isan.org/schema/v1.21/common/serial.xsd.

The element EpisodeWorkMetadataType defines descriptive metadata for episodic works (serial episodes), it includes:

- the work status description inherited from ISANDataType,
- the same descriptive information as non-episodic works such as the work classification (type, code), year of reference, duration, titles, participants, languages, production companies, countries, ....
- specific information for episodic works: season number, episode number, the reference to the serie / serial header (= the root ISAN shared by the ISAN of all episodes of the serie).

EpisodeWorkMetadataType is returned by the lookup service when the retrieved work is an episodic work (serial episode).

EpisodeWorkMetadataType is required when submitting episodic work (serial episode) registrations or episodic work metadata update requests.

XML example of an episode work description:

```xml
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<serial:episodeWorkMetadataType
```
ISAN REST Web Services API

XML example for an episode work description:

```xml
<common:status> ... </common:status>
<common:Type>               </common:Type>
<common:Kind>               </common:Kind>
<common:ExternalIdList>     </common:ExternalIdList>
<common:TitleList>          </common:TitleList>
<common:YearOfReference>    </common:YearOfReference>
<common:Duration>           </common:Duration>
<common:ColorKind>          </common:ColorKind>
<common:OriginalLanguageList> </common:OriginalLanguageList>
<common:ParticipantList>    </common:ParticipantList>
<common:ReferenceCountryList> </common:ReferenceCountryList>
<common:CompanyList>        </common:CompanyList>
<common:CompositeList>      </common:CompositeList>

<serial:EpisodeDetails>
    <serial:SerialHeaderId root=""/>
    <serial:Season>  </serial:Season>
    <serial:Episode> </serial:Episode>
</serial:EpisodeDetails>
</serial:episodeWorkMetadataType>
```

JSON example for an episode work description:

```json
{
    "@type": "EpisodeWorkMetadataType",
    "status": {...
    "isan": {...
    "type": "",
    "kind": "",
    "externalIdList": {...
    "titleList": {...
    "yearOfReference": "",
    "duration": {...
    "colorKind": "",
    "originalLanguageList": {...
    "referenceCountryList": {...
    "participantList": {...
    "companyList": {...
    "compositeList": {...
    "episodeDetails": {
        "serialHeaderId": {...
```
2.7 Versions of works (V-ISAN): VersionType

The VersionType element extends ISANDataType, it is defined in the xml schema http://www.isan.org/schema/v1.11/common/version.xsd.

The element VersionType defines descriptive metadata for versions of works, it includes:
- the work status description inherited from ISANDataType,
- all descriptive information of the version of the work such as the kind of version and relationship with parent work, a descriptive name, version titles, running time, languages, color format, image dimension, image definition, image aspect ratio, media of fixation, digital container format, countries of distribution, distribution channel, distribution platform, ratings, content alerts, external identifiers, etc...

VersionType is returned by the lookup service when the retrieved work is a version of work. VersionType is required when submitting version registrations or version metadata update requests.

XML example of a version description:
ISAN REST Web Services API

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<version:versionType
xmlns:isan="http://www.isan.org/ISAN/isan"
xmllns:title="http://www.isan.org/schema/v1.11/common/title"
xmllns:externalid="http://www.isan.org/schema/v1.11/common/externalid"
xmllns:common="http://www.isan.org/schema/v1.11/common/common"
xmllns:participant="http://www.isan.org/schema/v1.11/common/participant"
xmllns:country="http://www.isan.org/schema/v1.11/common/country"
xmllns:version="http://www.isan.org/schema/v1.11/common/version">

<common:status> ... </common:status>

<version:V-ISAN ="" version="" check1="" episodeOrPart="" root="">
<version:ParentWork ="" version="" check1="" episodeOrPart="" root=""
<version:Relations>
<version:DescriptiveName>
<version:Titles>
<version:RunningTime>
<version:ReferenceDate>
<version:SpokenLanguages>
<version:WrittenLanguages>
<version:SubtitleLanguages>
<version:ColorFormat>
<version:ImageDimension>
<version:ImageDefinition>
<version:ImageAspectRatio>
<version:DistributionCountries>
<version:DitributionChannel>
<version:DitributionPlatform>
<version:MediaFixation>
<version:ContainerFormat>
<version:Ratings>
<version:ContentAlerts>
<version:ExternalIds>
<version:Composites>
</version:VersionType>

JSON example for a version description:

```json
{
    "@type": "VersionType",
    "status": {
        "v-isan": {
            ...
        },
        "parentWork": {
            ...
        },
        "relations": {
            ...
        },
        "descriptiveName": {
            "": {
            ...
        },
        "titles": {
            ...
        },
        "runningTime": {
            ...
        },
        "referenceDate": {
            ...
        },
        "spokenLanguages": {
            ...
        }
    }
}
```
"writtenLanguages": {...},
"subtitleLanguages": {...},
"colorFormat": " ",
"imageDimension": " ",
"imageDefinition": " ",
"imageAspectRatio": " ",
"distributionCountries": {...},
"distributionChannel": " ",
"distributionPlatform": " ",
"mediaFixation": " ",
"containerFormat": " ",

"ratings": {...},
"contentAlerts": {...},
"externalIds": {...},
"composites": {...}
3. API AUTHENTICATION

3.1. ISAN API Authorized user

To be able to access the ISAN Rest API, all users must authenticate by using the HTTP Basic authentication method with their ISAN API user account (user.api); otherwise, they will receive a 401 response code (Authorization required).

The required HTTP Authorization header should have the following form:

```
#Request
Authorization: apiSignatureValue
```

Where `apiSignatureValue` is obtained by computing a base 64 encoding of the username and password.

```
apiSignatureValue = Base64 (api_username:api_password)
```

Note: usernames and passwords are case sensitive.

3.2. ISAN System Authorized user

Few API operations require further access rights:

- Lookup or validation of private identifier (idtype=PRIVATE_ID)
- Retrieve full description of a work during lookup
- Register works
- Match works
- Queries

In such cases, the users must authenticate by using their ISAN API user account in addition to their ISAN System user account. This requires the HTTP Authorization header and a custom X-ISAN-Authorization header.

The 2 required headers should have the following form:
#Request
Authorization: apiSignatureValue
X-ISAN-Authorization: ISANUSER isanSignatureValue

Where `apiSignatureValue` is obtained by computing a base 64 encoding of the username and password whereas `isanSignatureValue` is obtained by computing a base 64 encoding of the ISAN username and the MD5 encrypted password:

```plaintext
apiSignatureValue = Base64 (api_username:api_password)
isanSignatureValue = Base64 (isan_username : MD5 (isan_password))
```
4. ID RESOLUTIONS: LOOKUP SERVICE

4.1. Description

The lookup service enables to perform identifier resolutions within the ISAN registry by issuing an HTTP GET request. The primary purpose of the service is to lookup an ISAN for retrieving the descriptive information of the work or version identified with the ISAN. The lookup service can also be used to lookup any “External Identifier” associated to the work or version in the ISAN registry (more than 1 Million cross references), such external IDs can be private identifiers, industry identifiers (AGICOA numbers, IMDB identifiers, EIDR,…), ISO identifiers (ISRC: the soundtrack recording of the AV work, ISWC: a song of the soundtrack, ISBN : the book related to the AV work…).

The lookup service accept various standardized formatting of the ISAN identifier, particularly it accept the ISAN URN form as defined in IETF RFC 4246. The lookup service acts therefore as a resolution service for URN representations of ISAN identifiers.

The lookup service is also useful to retrieve anytime the status of a work, this can be particularly useful when registering a work with ISAN (registration service) or matching AV metadata (matching service): in such cases users will lookup the private identifier (e.g. registration token) submitted previously with the registration or matching service.

Finally the lookup service is also useful to validate ISAN identifiers, typically when transmitted in (automated) workflows. The user will therefore use the “status” filter in the request in order to validate the two check digits of the ISAN, but also check if the ISAN exist in the registry and if it is ACTIVE. Indeed, some ISAN can be inactivated (see status) and linked to an active ISAN; when an ISAN is inactive, the lookup service will provide the corresponding active ISAN (see ActiveISAN field).

Users registered as ISAN registrants or ISAN readers within an ISAN registration agency will obtain the complete descriptive metadata from the lookup service. Such users will therefore lookup the ISAN registry using their isanSignatureValue (see ISAN System Authorized user).

If no isanSignatureValue is provided in the ISAN lookup, only a reduced set of metadata is returned enabling limited lookups to users that are not registered as ISAN system users. In such cases only the following metadata is returned:

- the work’s status description,
- the WorkType code, the year of reference, the duration, up to 5 titles, up to 2 participants

In any cases all users need to be ISAN API authorized users and therefore authenticate themselves with their apiSignatureValue (see ISAN System Authorized user).
4.2. Request

### 4.2.1. Syntax

```plaintext
#Request
GET /api/works/id/{filter}?idtype=string
```

### 4.2.2. Parameters

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>id</strong></td>
<td>Identifier to lookup</td>
</tr>
</tbody>
</table>

**Required:** Yes  
**Type:** Path Parameter (String)  
**Valid Values:** The **identifier** parameter can be:

- an ISAN number:
  - xxxx-xxxx-xxxx-xxxx-X-xxxx-xxxx-Y or
  - xxxxxxxxxxxxxxxXxxxxxxxxY (without separators) or
  - xxxxxxxxxxxxxxxxxxxxxxx (without separators or check digits) or
  - xxxx-xxxx-xxxx-xxxx-X (without version part) or
  - xxxxxxxxxxxxxxxX (without version part or separators) or
  - xxxxxxxxxxxxxxx (without version part or separators or check digits) or
  - xxxx-xxxx-xxxx (root ISAN: without episode part or version part or check digits) or
  - xxxxxxxxxxxxxxx (without episode part or version part or separators or check digits)

- An ISAN formatted as an URN ([IETF RFC 4246](https://tools.ietf.org/html/rfc4246))
  - URN: ISAN:xxxxxxxxxxxxxxxxxxxxxxxxY

- Or an external identifier (In such case, **idtype** query parameter will be required to precise the corresponding type)
  See [idtype definition](#)

---

1 If only the root ISAN is looked up, the work information is returned in case of non episodic works (single work), but only the serial header is returned in case of episodic works.
EIDR Example: 10.5240/FD9C-CC5C-27F9-A9B0-C733-M

**Examples:**

GET /api/works/0000-0002-E6D0-0000-H-0000-0000-N
GET /api/works/00000002E6D00000
GET /api/works/URN:ISAN:00000002E6D00000H00000000N

**filter**  
*To retrieve and extract a specific set of metadata*

- **Required:** No
- **Default:** None  
  If not provided, no filter is applied and the metadata description will be obtained
- **Type:** Path Parameter (String)
- **Valid values:**
  - `status`: to validate and retrieve the status of the identifier.
  - `titles`: to return only the titles list associated to the identifier
  - `participants`: to return only the participants list associated to the identifier

*More filter values are expected in future releases of the API*

**Examples:**

GET /api/works/0000-0002-E6D0-0000-H-0000-0000-N/status
GET /api/works/0000-0002-E6D0-0000-H-0000-0000-N/titles
GET /api/works/0000-0002-E6D0-0000-H-0000-0000-N/participants

**idtype**  
*Required if the type of the lookup identifier is not an ISAN or an URN:ISAN*

- **Required:** No  
  If not provided the lookup identifier will be threatened as an ISAN number or URN
- **Default:** None
- **Type:** Query Parameter (String)
- **Valid values:**
  Refer to the following schema to get the list of authorized identifier’s types:
  [http://www.isan.org/schema/v1.11/common/externalid.xsd](http://www.isan.org/schema/v1.11/common/externalid.xsd) (See idType definition)

**Note:** To look up from an idtype=private_id; the custom X-ISAN-Authorization header is required

**Examples:**
4.2.3. Request Headers

<table>
<thead>
<tr>
<th>Header Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authorization</td>
<td>Required for all requests</td>
</tr>
<tr>
<td></td>
<td>For more information refer to Authentication Header - ISAN API authorized user</td>
</tr>
<tr>
<td>X-ISAN-Authorization</td>
<td>Required only to:</td>
</tr>
<tr>
<td></td>
<td>• Lookup or validate a private external identifier (PRIVATE_ID)</td>
</tr>
<tr>
<td></td>
<td>GET /api/works/myPrivateID?idtype=PRIVATE_ID</td>
</tr>
<tr>
<td></td>
<td>GET /api/works/myPrivateID/status?idtype=PRIVATE_ID</td>
</tr>
<tr>
<td></td>
<td>• Retrieve full description of any identifier</td>
</tr>
<tr>
<td></td>
<td>GET /api/works/0000-0002-E6D0-0000-H-0000-0000-N</td>
</tr>
<tr>
<td></td>
<td>For more information refer to Authentication Header - ISAN System authorized user</td>
</tr>
<tr>
<td>Accept</td>
<td>By providing this header, users can choose the format (XML or JSON) of the server's response.</td>
</tr>
<tr>
<td></td>
<td>Accept: application/xml</td>
</tr>
<tr>
<td></td>
<td>Accept : application/json</td>
</tr>
<tr>
<td></td>
<td>By default the server returns XML results.</td>
</tr>
<tr>
<td>If-Modified-Since</td>
<td>Client applications can implement conditional GET by sending If-Modified-Since headers based on the Last-Modified headers from a previous request.</td>
</tr>
<tr>
<td></td>
<td>If the result has not changed since the provided date the server returns HTTP status code 304 (Not Modified) **,</td>
</tr>
<tr>
<td></td>
<td>If the user has not sent an If-Modified-Since header, the service returns the latest copy of the representation included Last-Modified header.</td>
</tr>
<tr>
<td></td>
<td>Examples :</td>
</tr>
</tbody>
</table>

Note that only the registrant of the work is authorized to lookup a work with the private identifier registered in the ISAN Registry.
GET /api/works/0000-0002-E6D0-0000-H-0000-0000-N/titles
Last-Modified: Fri, 02 Sep 2011 01:05:04 GMT

- to retrieve the description of ISAN 0000-0002-E6D0-0000-H-0000-0000-N only if it has been modified since Fri, 02 Sep 2011

**Cache-Control**

By default, expiration caching is implemented. If needed, client applications can keep a representation of a resource retrieved during 7200 seconds.

To force getting the freshest representation from the server include

```
Cache-control: no-cache
```

**Pragma**

Same as above.

To get the freshest representation from the server and to support legacy HTTP 1.0 caches include

```
Pragma: no-cache
```

** Make conditional lookup requests as much as possible to avoid altering performance and latency.**
4.3. Response

4.3.1. Response Headers

<table>
<thead>
<tr>
<th>Headers</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Server response date-time *</td>
</tr>
<tr>
<td>Last-Modified</td>
<td>Last update date-time value of the retrieved identifier *</td>
</tr>
<tr>
<td>Content-Type</td>
<td>Type of representation and character set:</td>
</tr>
<tr>
<td></td>
<td>application/xml; charset=UTF-8 or application/json; charset=UTF-8</td>
</tr>
<tr>
<td>Cache-Control</td>
<td>Expiration life-time (7200 seconds)</td>
</tr>
<tr>
<td>Expires</td>
<td>Expiration date-time value</td>
</tr>
<tr>
<td>Content-Length</td>
<td>Size in bytes of the body of the representation</td>
</tr>
</tbody>
</table>

*All dates are formatting as follow: Fri, 07 Jun 2013 09:14:19 GMT

4.3.2. Response Elements

The Lookup service returns in all cases an `ISANDataType` element.

The return type is specialized depending on the data type of the retrieved work:

<table>
<thead>
<tr>
<th>Return type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>WorkMetadataType</code></td>
<td>When the fetched work is a non-episodic work</td>
</tr>
<tr>
<td><code>SerialHeaderType</code></td>
<td>When the fetched work is a serial header (serial)</td>
</tr>
<tr>
<td><code>EpisodeWorkMetadataType</code></td>
<td>When the fetched work is an episodic work</td>
</tr>
<tr>
<td><code>VersionType</code></td>
<td>When the fetched work is a version of a work</td>
</tr>
<tr>
<td><code>ISANDataType</code></td>
<td>When any errors occurs, the submitted identifier can't be retrieved</td>
</tr>
</tbody>
</table>
4.4. Errors

When an error is caused, the body response will contain an ISANDataType with an error status. For all encountered errors, API implementers should check the description field of the error status to get further details on possible causes.

The following table lists the possible errors that can be generated:

<table>
<thead>
<tr>
<th>HTTP CODE</th>
<th>Description</th>
</tr>
</thead>
</table>
| 401, UNAUTHORIZED | ERROR: THIS OPERATION Requires AUTHENTICATION  
Applies if no valid Authorization header have been submitted or  
If X-ISAN-Authorization header is missing or is invalid |
| 401, UNAUTHORIZED | ERROR: USER IS BLOCKED OR CLIENT ACCOUNT IS INACTIVE  
Applies for X-ISAN-Authorization header verification, if the user account is blocked or inactive |
| 400, BAD REQUEST | ERROR: MALFORMED ISAN NUMBER : INCORRECT CHECK DIGIT 1  
Applies if the submitted ISAN number is not valid due to incorrect check 1 digit |
| 400, BAD REQUEST | ERROR: MALFORMED ISAN NUMBER : INCORRECT CHECK DIGIT 2  
Applies if the submitted ISAN number is not valid due to incorrect check 2 digit |
| 400, BAD REQUEST | ERROR: MALFORMED ISAN NUMBER  
Applies if the submitted ISAN number is not valid due to other reasons |
| 400, BAD REQUEST | ERROR: EXTERNALIDTYPE VALUE (%1) IS INCORRECT  
Applies if the submitted query parameter idtype does not exist |
| 404, NOT FOUND | ERROR : VISAN LOOKUP NOT YET IMPLEMENTED  
Applies if the submitted identifier is a V-ISAN. (This version of the API does not support version lookup) |
| 404, NOT FOUND | ERROR: NO WORK FOUND - PLEASE CHECK THE PROVIDED IDENTIFIER  
Applies if the submitted identifier has not been retrieved in the registry |
| 500, INTERNAL SERVER ERROR | ERROR: AN UNEXPECTED ERROR OCCURED - PLEASE CONTACT sysadmin@isan.org  
Applies for any other different reasons than previously listed |
4.5. Notes

- Lookup an INACTIVE ISAN retrieves the metadata of the corresponding ACTIVE work.
  - The work’s status element will provide the following details:
    - The Description field will be INACTIVE
    - And the ActiveISAN field will give the ISAN number of the corresponding ACTIVE work

- Lookup an INDEV ISAN (in development ISAN) returns only the status.
  Only the registrant of the INDEV ISAN is authorized to obtain further information. In such event the custom X-ISAN-Authorization header need to be set.

4.6. Examples of possible requests

**Lookup a Serial Header Identifier (root ISAN)**

```xml
#Request
GET /api/works/0000-0002-3B9F HTTP/ 1.1
Host: www.isan.org
Authorization: YXBpdXNlcjphcGlwYXNzd29yZQ==

#Response
HTTP/ 1.1 200 OK
Content-Type: application/xml; charset=UTF-8
Last-Modified: Fri, 13 Nov 2009 12:02:36 GMT

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<serial:serialHeaderType xmlns:isan="http://www.isan.org/ISAN/isan"
xmlns:title="http://www.isan.org/schema/v1.11/common/title"
xmlns:serial="http://www.isan.org/schema/v1.11/common/serial"
xmlns:externalid="http://www.isan.org/schema/v1.11/common/externalid"
xmlns:common="http://www.isan.org/schema/v1.11/common/common"
xmlns:participant="http://www.isan.org/schema/v1.11/common/participant"
xmlns:country="http://www.isan.org/schema/v1.11/common/country">
  <common:status>
    <common:DataType>SERIAL_HEADER_TYPE</common:DataType>
    <common:ISAN root="0000-0002-3B9F"/>
    <common:WorkStatus>ACTIVE</common:WorkStatus>
  </common:status>
</serial:serialHeaderType>
```
<serial:SerialHeaderId root="0000-0002-3B9F"/>
<serial:MainTitles>
  <title:TitleDetail>
    <title:Title>Braquo</title:Title>
    <title:Language>
      <language:LanguageLabel>French</language:LanguageLabel>
      <language:LanguageCode>
        <language:CodingSystem>ISO639_2</language:CodingSystem>
      </language:LanguageCode>
    </title:Language>
    <title:TitleKind>ORIGINAL</title:TitleKind>
  </title:TitleDetail>
</serial:MainTitles>
<serial:TotalEpisodes>11</serial:TotalEpisodes>
<serial:TotalSeasons>0</serial:TotalSeasons>
<serial:MinDuration>
  <common:TimeUnit>MIN</common:TimeUnit>
  <common:TimeValue>45</common:TimeValue>
</serial:MinDuration>
<serial:MaxDuration>
  <common:TimeUnit>MIN</common:TimeUnit>
  <common:TimeValue>144</common:TimeValue>
</serial:MaxDuration>
<serial:MinYear>2009</serial:MinYear>
<serial:MaxYear>2009</serial:MaxYear>
<serial:MainParticipantList>
  <participant:Participant>
    <participant:FirstName>Frédéric</participant:FirstName>
    <participant:LastName>Schoendoerffer</participant:LastName>
    <participant:RoleCode>DIR</participant:RoleCode>
  </participant:Participant>
  <participant:Participant>
    <participant:FirstName>Karole</participant:FirstName>
    <participant:LastName>Rocher</participant:LastName>
    <participant:RoleCode>ACT</participant:RoleCode>
  </participant:Participant>
</serial:MainParticipantList>
<serial:CompanyList>
  <common:Company>
    <common:CompanyKind>PRO</common:CompanyKind>
    <common:CompanyName>R.T.B.F.</common:CompanyName>
  </common:Company>
  <common:Company>
    <common:CompanyKind>PRO</common:CompanyKind>
    <common:CompanyName>Capa Drama</common:CompanyName>
  </common:Company>
  <common:Company>
    <common:CompanyKind>PRO</common:CompanyKind>
    <common:CompanyName>Marathon</common:CompanyName>
  </common:Company>
</serial:CompanyList>
Validate an ISAN number:

**#Request**
GET /api/works/0000-0002-E6D0-0000-H-0000-0000-N/status HTTP/ 1.1
Host: www.isan.org
Authorization: YXBpdXNlcjphcGlwYXNzd29yZA==

**#Response**
HTTP/ 1.1 200 OK
Content-Type: application/xml; charset=UTF-8
Last-Modified: Fri, 02 Sep 2011 01:05:04 GMT

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<common:workMetadataType xmlns:isan="http://www.isan.org/ISAN/isan"
xmlns:serial="http://www.isan.org/schema/v1.21/common/serial"
xmlns:title="http://www.isan.org/schema/v1.11/common/title"
xmlns:externalid="http://www.isan.org/schema/v1.11/common/externalid"
xmlns:common="http://www.isan.org/schema/v1.11/common/common"
xmlns:participant="http://www.isan.org/schema/v1.11/common/participant"
xmlns:country="http://www.isan.org/schema/v1.11/common/country">
  <common:status>
    <common:DataType>WORK_METADATA_TYPE</common:DataType>
    <common:ISAN check2="N" version="0000-0000" check1="H"
      episodeOrPart="0000" root="0000-0002-E6D0"/>
    <common:WorkStatus>ACTIVE</common:WorkStatus>
  </common:status>
</common:workMetadataType>

Lookup an ISAN and retrieve titles only

**#Request**
GET /api/works/0000-0002-3B9F-0001/titles HTTP/ 1.1
Host: www.isan.org
Authorization: YXBpdXNlcjphcGlwYXNzd29yZA==

**#Response**
HTTP/ 1.1 200 OK
Content-Type: application/xml; charset=UTF-8
Last-Modified: Fri, 02 Sep 2011 01:05:04 GMT
Lookup an ISAN and retrieve participants only

#Request
GET /api/works/0000-0002-E6D0-0000-H-0000-0000-N/participants HTTP/ 1.1
Host: www.isan.org
Authorization: YXBpdXNlcjphcGlwYXNzd29yZA==

#Response
HTTP/ 1.1 200 OK
Content-Type: application/xml; charset = UTF-8
Last-Modified: Fri, 02 Sep 2011 01:05:04 GMT

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<serial:episodeWorkMetadataType
xmlns:isan="http://www.isan.org/ISAN/isan"
xmlns:title="http://www.isan.org/schema/v1.11/common/title"
xmlns:serial="http://www.isan.org/schema/v1.21/common/serial"
xmlns:externalid="http://www.isan.org/schema/v1.11/common/externalid"
xmlns:common="http://www.isan.org/schema/v1.11/common/common"
xmlns:participant="http://www.isan.org/schema/v1.11/common/participant"
xmlns:country="http://www.isan.org/schema/v1.11/common/country">

<common:TitleList>
  <title:TitleDetail>
    <title:Title>Max</title:Title>
    <title:Language>
      <language:LanguageLabel>French</language:LanguageLabel>
      <language:LanguageCode>
        <language:CodingSystem>ISO639_2</language:CodingSystem>
      </language:LanguageCode>
    </title:Language>
    <title:TitleKind>ORIGINAL</title:TitleKind>
  </title:TitleDetail>
</common:TitleList>
</serial:episodeWorkMetadataType>
Lookup an external identifier with JSON results

#Request
GET /api/works/90750-0?idtype=AGICOA HTTP/ 1.1
Host: www.isan.org
Authorization: YXBpdXNlcjphcGlwYXNzd29yZA==
Accept: application/json

#Response
HTTP/ 1.1 200 OK
Content-Type: application/json; charset = UTF-8
Last-Modified: Mon, 09 Aug 2004 16:36:47 GMT

{ "@type": "WorkMetadataType",
 "status": { 
 "dataType": "WORK_METADATA_TYPE",
 "description": "ACTIVE",
 "isan": { 
 "root": "0000-0000-086E",
 "episodeOrPart": "0000",
 "check1": "8",
 "version": "0000-0000",
 "check2": "D"
 },
 },
 "isan": { 
 "root": "0000-0000-086E",
 "episodeOrPart": "0000",
 "check1": "8",
 "version": "0000-0000",
 "check2": "D"
 },
}
Lookup an ISAN and retrieve full metadata description with JSON Results

#Request
GET /api/works/0000-0002-E6D0-0000-H-0000-0000-N HTTP/ 1.1
Host: www.isan.org
Authorization: YXBpdXNlcjphcGlwYXNzd29yZA==
X-ISAN-Authorization: ISANUSER
aXNhbnVzZXI62Dk3ZTg0MGQ4NGQ4MmU4YWYxY2MwNzExYTEzYjBkZWU=
Accept: application/json

#Response
HTTP/ 1.1 200 OK
Last-Modified: Fri, 02 Sep 2011 01:05:04 GMT
Content-Type: application/json; charset=UTF-8

{
   "@type": "WorkMetadataType",
   "status": {
      "dataType": "WORK_METADATA_TYPE",
      "workStatus": "ACTIVE",
      "isan": {
         "root": "0000-0001-187D",
         "episodeOrPart": "0000",
         "check1": "H",
         "version": "0000-0000",
         "check2": "N"
      }
   },
   "isan": {
      "root": "0000-0001-187D",
      "episodeOrPart": "0000",
      "check1": "H",
      "version": "0000-0000",
      "check2": "N"
   },
   "type": "DO",
   "kind": "L",
   "externalIdList": {
      "externalIds": [
         "java.util.ArrayList",
         {
            "code": "AGICOA",
            "id": "114210-1"
         }
      ]
   },
   "titleList": {
      "titleDetails": [
         "java.util.ArrayList",
         {
            "title": "Artisti dei laghi in Bohemia",
            "language": {
               "languageLabel": "Italian",
               "languageCode": {
                  "codingSystem": "ISO_639_2",
                  "iso6392Code": "ITA"
               }
            }
         }
      ]
   }
}
},
  "titleKind": "ORIGINAL"
},
{
  "title": "Zu fuss nach Prag",
  "language": {
    "languageLabel": "German",
    "languageCode": {
      "codingSystem": "ISO_639_2",
      "iso6392Code": "GER"
    }
  },
  "titleKind": "ALTERNATE"
},
{
  "title": "Artistes en exil",
  "language": {
    "languageLabel": "French",
    "languageCode": {
      "codingSystem": "ISO_639_2",
      "iso6392Code": "FRE"
    }
  },
  "titleKind": "ALTERNATE"
},
{
  "title": "Vlasi v Cechách",
  "language": {
    "languageLabel": "Czech",
    "languageCode": {
      "codingSystem": "ISO_639_2",
      "iso6392Code": "CZE"
    }
  },
  "titleKind": "ALTERNATE"
}
],
"yearOfReference": "1993",
"duration": {
  "timeUnit": "MIN",
  "timeValue": 90
},
"colorKind": "COLOR",
"originalLanguageList": {
  "originalLanguages": [
    "java.util.ArrayList",
    {
      "languageLabel": "Italian",
      "languageCode": {
        "codingSystem": "ISO_639_2",
        "iso6392Code": "ITA"
      }
    }
  ]
}
"referenceCountryList": {
  "referenceCountries": [
    "java.util.ArrayList",
    [
      {
        "country": {
          "countryLabel": "Switzerland",
          "countryCode": {
            "codingSystem": "ISO_3166_1",
            "iso31661Code": "CH"
          }
        },
        "relatedAction": "PRO"
      }
    ],
  "participantList": {
    "participants": [
      "java.util.ArrayList",
      [
        {
          "firstName": "Jiri",
          "lastName": "Havrda",
          "roleCode": "DIR"
        },
        {
          "firstName": "Leos",
          "lastName": "Sucharipa",
          "roleCode": "ACT"
        },
        {
          "firstName": "Ilja",
          "lastName": "Racek",
          "roleCode": "ACT"
        },
        {
          "firstName": "Zdenek",
          "lastName": "Podhursky",
          "roleCode": "ACT"
        },
        {
          "firstName": "Jan",
          "lastName": "Kacer",
          "roleCode": "ACT"
        },
        {
          "firstName": "Hana",
          "lastName": "Jemelikova",
          "roleCode": "SCI"
        }
      ]
    }
  }
}
{  "firstName": "Jiri",
   "lastName": "Havrda",
   "roleCode": "SCI"
}

"companyList": {
   "companies": [
      "java.util.ArrayList",
      [
         {  "companyKind": "PRO",
             "companyName": "Topic Film Ag"
         },
         {  "companyKind": "PRO",
             "companyName": "Radiotelevisione Svizzera di"
         }
      ]
   ]
},

"compositeList": {
   "isans": [
      "java.util.ArrayList",
      [
         {  "root": "0000-0001-187E",
             "episodeOrPart": "0000",
             "check1": "M",
             "version": "0000-0000",
             "check2": "8"
         },
         {  "root": "0000-0001-187F",
             "episodeOrPart": "0000",
             "check1": "R",
             "version": "0000-0000",
             "check2": "U"
         },
         {  "root": "0000-0001-1880",
             "episodeOrPart": "0000",
             "check1": "0",
             "version": "0000-0000",
             "check2": "3"
         }
      ]
   ]
}
Lookup a V-ISAN (version of a work) and retrieve full metadata description with XML

#Request
GET /api/works/0000-0003-A550-0000-M-0000-0002-4 HTTP/ 1.1
Host: www.isan.org
Authorization: YXBpdXNlclpjcGlwYXNzd29yZA==
X-ISAN-Authorization: ISANUSER
aXNhbnVzXI62Dk3Zg0MGQ4NGQ4MmU4YWYxY2MwNzExYTezYjBkZWU=
Accept: application/xml

#Response
HTTP/ 1.1 200 OK
Last-Modified: Fri, 02 Sep 2011 01:05:04 GMT
Content-Type: application/xml; charset=UTF-8

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<version:VersionType
xmlns:common="http://www.isan.org/schema/v1.11/common/common"
xmlns:isan="http://www.isan.org/ISAN/isan"
xmlns:externalid="http://www.isan.org/schema/v1.11/common/externalid"
xmlns:country="http://www.isan.org/schema/v1.11/common/country"
xmlns:title="http://www.isan.org/schema/v1.11/common/title"
xmlns:version="http://www.isan.org/schema/v1.11/common/version">
  <common:status>
    <common:DataType>VERSION_TYPE</common:DataType>
    <common:WorkStatus>ACTIVE</common:WorkStatus>
  </common:status>
  <version:V-ISAN root="0000-0003-A550" episodeOrPart="0000" check1="M"
version="0000-0002" check2="4"/>
  <version:ParentWork root="0000-0003-A550" episodeOrPart="0000" check1="M"
version="0000-0000" check2="8"/>
  <version:Relations>
    <version:Relation>
      <version:VersionKind>MEDIA</version:VersionKind>
      <version:ParentRelationKind>ISOPTICALDISKOF</version:ParentRelationKind>
    </version:Relation>
    <version:DescriptiveName>Blu-ray disc for Japanese market</version:DescriptiveName>
    <version:Titles>
      <title:TitleDetail>
        <title:Title>12 Years A Slave</title:Title>
        <title:Language>
          <language:LanguageCode>
            <language:CodingSystem>ISO639_2</language:CodingSystem>
          </language:LanguageCode>
        </title:Language>
        <title:TitleKind>ORIGINAL</title:TitleKind>
      </title:TitleDetail>
      <title:TitleDetail>
        <title:Title>12 Years A Slave</title:Title>
        <title:Language>
          <language:LanguageCode>
            <language:CodingSystem>ISO639_2</language:CodingSystem>
          </language:LanguageCode>
        </title:Language>
        <title:TitleKind>ORIGINAL</title:TitleKind>
      </title:TitleDetail>
    </version:Titles>
</version:VersionType>
それでも夜は明ける

それでも夜は明ける

Soredemo Yoha Akeru

Soredemo Yoha Akeru

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それでも夜は明ける
5. ISAN REGISTRATION OR MATCHING SERVICES

5.1. Description

These services allow users to respectively register\(^3\) or match\(^4\) a work by issuing an HTTP POST request. For all registration or matching requests, users must authenticate by using their ISAN API user account in addition to their ISAN System user account. This requires the HTTP Authorization header and the custom X-ISAN-Authorization header.

For more information on authentication, see API AUTHENTICATION.

The registration and matching procedures are asynchronous, therefore after a successful request; the user will receive a “202-ACCEPTED” response indicating that the request will be processed. Users are invited to check for the status at a later time\(^5\), the “Location” HTTP header field of the server response indicates the address for checking the status. Note that the status of a request can also be checked with the Lookup service by performing a resolution of the private identifier (or registration token) provided as “External Identifier” in the registration or matching request.

In case of an unsuccessful registration or matching request (bad requests, invalid XML …) users should check the response message body to get the causes before submitting other requests.

\(^3\) The registration of a work results in the issuance of a new ISAN for that work provided that the work was not yet registered with ISAN.

\(^4\) The matching of a work has for sole purpose to retrieve (if it exist) the ISAN of that work in the ISAN registry, by matching all work metadata with all descriptive information stored in the ISAN registry.

\(^5\) Requests are queued on an ESB and are processed sequentially according to their priorities and the load of the matching engine. The processing time depends therefore on the kind of request and the system load. In most of the cases users can expect that their request is processed in a couple of seconds and less than a minute. Note that registration requests have the priority on matching request. It is also possible that a matching requests is processed after a large bulk registration.
5.2. Request

5.2.1. Syntax

<table>
<thead>
<tr>
<th>#Registration Request</th>
<th>#Matching Request</th>
</tr>
</thead>
<tbody>
<tr>
<td>POST /api/works</td>
<td>POST /api/matchingworks</td>
</tr>
</tbody>
</table>

5.2.2. Parameters

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>action</td>
<td>Indicates which action to perform</td>
</tr>
<tr>
<td></td>
<td><strong>Required:</strong> No If not provided the work is validated</td>
</tr>
<tr>
<td></td>
<td><strong>Type:</strong> Query Parameter (String)</td>
</tr>
<tr>
<td></td>
<td><strong>Valid values:</strong> validation: to validate the descriptive metadata of the work against the ISAN xml schema and for compliance with ISAN data business rules. registration: to register the submitted work (Only for /works endpoint) matching: to match the submitted work (Only for /matchingworks endpoint)</td>
</tr>
</tbody>
</table>

5.2.3. Request Headers

<table>
<thead>
<tr>
<th>Header Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authorization</td>
<td>Required&lt;br&gt;For more information refer to <a href="#">ISAN API Authorized user</a></td>
</tr>
<tr>
<td>X-ISAN-Authorization</td>
<td>Required&lt;br&gt;For more information refer to <a href="#">ISAN System Authorized user</a></td>
</tr>
<tr>
<td>Accept</td>
<td>To specify the format of the server’s response:&lt;br&gt;- application/xml&lt;br&gt;- application/json&lt;br&gt;By default the server returns XML formatted results.</td>
</tr>
<tr>
<td>Content-Type</td>
<td>To specify the format of the request body&lt;br&gt;Can be:&lt;br&gt;- application/xml&lt;br&gt;- application/json</td>
</tr>
</tbody>
</table>
5.3. Response

5.3.1. Response Headers

<table>
<thead>
<tr>
<th>Headers</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Server response date-time</td>
</tr>
<tr>
<td>Content-Type</td>
<td>Type of representation and character set:</td>
</tr>
<tr>
<td></td>
<td>application/xml; charset=UTF-8 or</td>
</tr>
<tr>
<td></td>
<td>application/json; charset=UTF-8</td>
</tr>
<tr>
<td>Location</td>
<td>To retrieve the status of the submitted request (i.e. URL to lookup the resource)</td>
</tr>
</tbody>
</table>

5.3.2. Response Elements

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>StatusListType</td>
<td>If the work is valid and can be loaded, the list will contain one success status. If the work is not valid and can’t be loaded, the list will contains the errors statuses describing the reasons</td>
</tr>
<tr>
<td>(list of StatusType)</td>
<td>See XML Schema: <a href="http://www.isan.org/schema/v1.11/common/common.xsd">http://www.isan.org/schema/v1.11/common/common.xsd</a> Or StatusType Definition</td>
</tr>
</tbody>
</table>

#XML Example:

```xml
<common:statusListType>
  <common:Status></common:Status>
  <common:Status></common:Status>
  ...
</common:statusListType>
```

#JSONExample

```json
{
  "statuses": [
    "java.util.ArrayList",
    {
      "description": ""
    },
    {
      "description": ""
    }
  ]
}
```
5.4. Errors

When an error is caused, the body response will contain a StatusListType containing a list of error status.
For all encountered errors, the API implementer should check the description field of all element of the list to get further details on possible causes.

The following table lists the possible errors that can be generated.

<table>
<thead>
<tr>
<th>HTTP CODE</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>401, UNAUTHORIZED</td>
<td>ERROR: THIS OPERATION REQUIRES AUTHENTICATION Applies if no Authorization header have been submitted or If X-ISAN-Authorization header is missing</td>
</tr>
<tr>
<td>401, UNAUTHORIZED</td>
<td>ERROR: USER IS BLOCKED OR CLIENT ACCOUNT IS INACTIVE Applies for X-ISAN-Authorization header verification, if the user account is blocked</td>
</tr>
<tr>
<td>400, BAD REQUEST</td>
<td>ERROR: MISSING OR INVALID COLOR KIND PROVIDED</td>
</tr>
<tr>
<td>400, BAD REQUEST</td>
<td>ERROR: MISSING OR INVALID DURATION PROVIDED</td>
</tr>
<tr>
<td>400, BAD REQUEST</td>
<td>ERROR: MISSING OR INVALID WORK TYPE PROVIDED</td>
</tr>
<tr>
<td>400, BAD REQUEST</td>
<td>ERROR: MISSING OR INVALID WORK KIND PROVIDED</td>
</tr>
<tr>
<td>400, BAD REQUEST</td>
<td>ERROR: YEAR OF REFERENCE SHOULD BE GREATER THAN 1897 AND LOWER THAN %s</td>
</tr>
<tr>
<td>400, BAD REQUEST</td>
<td>ERROR: YEAR OF FIRST PUBLICATION SHOULD BE GREATER THAN 1897 AND LOWER THAN %s</td>
</tr>
<tr>
<td>400, BAD REQUEST</td>
<td>ERROR: PRIVATE_ID (%s) ALREADY EXISTS IN ISAN DATABASE FOR THIS CLIENT Applies only for registration</td>
</tr>
<tr>
<td>400, BAD REQUEST</td>
<td>ERROR: MISSING OR INVALID ORIGINAL LANGUAGE LIST</td>
</tr>
<tr>
<td>400, BAD REQUEST</td>
<td>ERROR: RFC3066 CODE NOT YET IMPLEMENTED - PLEASE USE ISO639_2 CODE</td>
</tr>
<tr>
<td>400, BAD REQUEST</td>
<td>ERROR: MISSING OR INVALID PARTICIPANT LIST</td>
</tr>
</tbody>
</table>
### 400, BAD REQUEST
- ERROR: DIRECTOR IS MISSING
- ERROR: MISSING OR INVALID PARTICIPANT ROLE COD
- ERROR: MISSING OR INVALID TITLE LIST
- ERROR: AT LEAST ONE ORIGINAL TITLE IS REQUIRED
- ERROR: MISSING OR INVALID TITLE KIND
- ERROR: INVALID COMPOSITE ISAN PROVIDED: %s %s
- ERROR: DUPLICATE COMPOSITE ISANS PROVIDED: %s
- ERROR: THE PROVIDED SH (%s) HAS BEEN INACTIVATED - USE THIS ACTIVE SHID = %s
- ERROR: THE PROVIDED SH (%s) IS A DUPLICATE - USE THIS ACTIVE SHID = %s
- ERROR: MISSING OR INVALID EPISODE DETAILS
- ERROR: SH (%s) HAS NOT BEEN FOUND
- ERROR: INCORRECT SEASON PROVIDED - SHOULD BE A POSITIVE INTEGER
- ERROR: EPISODE NUMBER(%s) ALREADY EXISTS FOR THIS SERIAL
- ERROR: SH MATCHING NOT AVAILABLE, PLEASE CONTACT THE SUPPORT FOR FURTHER INFORMATION
  - Applies only for matching

### 500, INTERNAL SERVER ERROR
- ERROR: AN UNEXPECTED ERROR OCCURED - PLEASE CONTACT sysadmin@isan.org
  - Applies for any other different reasons than previously listed

### 5.5. Examples of use

**Successful single work validation before matching (XML input)**

```xml
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>

#Request
POST /api/matchingworks?action=validation
Host: www.isan.org
Authorization: YXBpdXNlcjphcGlwYXNzd29yZA==
X-ISAN-Authorization: ISANUSERaxXhnvnVzXi6ZdK3iTg0MGQ4NGQ4MmU4YWyxY2MwNZExYTEzYjBkZWU=
Content-Type: application/xml
```
  <common:Type>FF</common:Type>
  <common:Kind>LA</common:Kind>
  <externalid:ExternalIdList>
    <externalid:ExternalId>
      <externalid:Code>PRIVATE_ID</externalid:Code>
      <externalid:Id>TOKEN_001</externalid:Id>
    </externalid:ExternalId>
  </externalid:ExternalIdList>
  <common:TitleList>
    <title:TitleDetail>
      <title:Title>Alvin and the Chipmunks: The Squeakuel</title:Title>
      <title:Language>
        <language:LanguageLabel>English</language:LanguageLabel>
        <language:LanguageCode>
          <language:CodingSystem>ISO639_2</language:CodingSystem>
        </language:LanguageCode>
      </title:Language>
      <title:TitleKind>ORIGINAL</title:TitleKind>
    </title:TitleDetail>
  </common:TitleList>
  <common:YearOfReference>2009</common:YearOfReference>
  <common:YearOfFirstPublication>2009</common:YearOfFirstPublication>
  <common:Duration>
    <common:TimeUnit>MIN</common:TimeUnit>
    <common:TimeValue>90</common:TimeValue>
  </common:Duration>
  <common:ColorKind>COLOR</common:ColorKind>
  <common:OriginalLanguageList>
    <language:OriginalLanguage>
      <language:LanguageLabel>English</language:LanguageLabel>
      <language:LanguageCode>
        <language:CodingSystem>ISO639_2</language:CodingSystem>
      </language:LanguageCode>
    </language:OriginalLanguage>
  </common:OriginalLanguageList>
  <common:ReferenceCountryList>
    <country:ReferenceCountry>
      <country:Country>
        <country:CountryLabel>United States</country:CountryLabel>
        <country:CountryCode>
          <country:CodingSystem>ISO3166_1</country:CodingSystem>
        </country:CountryCode>
        <country:ISO3166_1Code>US</country:ISO3166_1Code>
      </country:Country>
    </country:ReferenceCountry>
  </common:ReferenceCountryList>
</common:workMetadataType>
<country:ReferenceCountry>
</common:ReferenceCountryList>
<common:ParticipantList>
  <participant:Participant>
    <participant:FirstName>Betty</participant:FirstName>
    <participant:LastName>Thomas</participant:LastName>
    <participant:RoleCode>DIR</participant:RoleCode>
  </participant:Participant>
  <participant:Participant>
    <participant:FirstName>Justin</participant:FirstName>
    <participant:LastName>Long</participant:LastName>
    <participant:RoleCode>ACT</participant:RoleCode>
  </participant:Participant>
  <participant:Participant>
    <participant:FirstName>Jason</participant:FirstName>
    <participant:LastName>Lee</participant:LastName>
    <participant:RoleCode>ACT</participant:RoleCode>
  </participant:Participant>
</common:ParticipantList>
</common:workMetadataType>

#Response
HTTP/ 1.1 200 OK
Date: Mon, 10 Feb 2014 16:47:05 GMT
Content-Type:application/xml; charset=UTF-8

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<common:statusListType xmlns:isan="http://www.isan.org/ISAN/isan"
xmlns:title="http://www.isan.org/schema/v1.11/common/title"
xmlns:externalid="http://www.isan.org/schema/v1.11/common/externalid"
xmlns:common="http://www.isan.org/schema/v1.11/common/common"
xmlns:country="http://www.isan.org/schema/v1.11/common/country">
  <common:Status>
    <common:Description>SUCCESS : WORK IS VALID AND CAN BE MATCHED</common:Description>
  </common:Status>
</common:statusListType>

Successful single work matching (JSON input)

#Request
POST /api/matchingworks?action=matching
Host: www.isan.org
Authorization: YXBpdXNlcjphcGlwYXNzd29yZA==
X-ISAN:Authorization: ISANUSER aXNhbnVzXi62Dk3Tq0MGQ4NGQ4MmU4YWyxEvYTEyJyb2ZWU=
Content-Type: application/json
{
    "@type": "WorkMetadataType",
    "type": "FF",
    "kind": "LA",
    "externalIdList": {
        "externalIds": [
            "java.util.ArrayList",
            {
                "code": "PRIVATE_ID",
                "id": "TOKEN_0001"
            }
        ]
    },
    "titleList": {
        "titleDetails": [
            "java.util.ArrayList",
            {
                "title": "Alvin and the Chipmunks: The Squeakuel",
                "language": {
                    "languageLabel": "English",
                    "languageCode": {
                        "codingSystem": "ISO_639_2",
                        "iso6392Code": "ENG"
                    }
                },
                "titleKind": "ORIGINAL"
            }
        ]
    },
    "yearOfReference": "2009",
    "yearOfFirstPublication": "2009",
    "duration": {
        "timeUnit": "MIN",
        "timeValue": 90
    },
    "colorKind": "COLOR",
    "originalLanguageList": {
        "originalLanguages": [
            "java.util.ArrayList",
            {
                "languageLabel": "English",
                "languageCode": {
                    "codingSystem": "ISO_639_2",
                    "iso6392Code": "ENG"
                }
            }
        ]
    }
}

"referenceCountryList": {
  "referenceCountries": [
    "java.util.ArrayList",
    [
      {
        "country": {
          "countryLabel": "United States",
          "countryCode": {
            "codingSystem": "ISO_3166_1",
            "iso31661Code": "US"
          }
        },
        "relatedAction": "PRO"
      }
    ]
  ],
  "participantList": {
    "participants": [
      "java.util.ArrayList",
      [
        {
          "firstName": "Betty",
          "lastName": "Thomas",
          "roleCode": "DIR"
        },
        {
          "firstName": "Justin",
          "lastName": "Long",
          "roleCode": "ACT"
        },
        {
          "firstName": "Jason",
          "lastName": "Lee",
          "roleCode": "ACT"
        }
      ]
    ]
  }
}

#Response
HTTP/ 1.1 202 Accepted
Date: Mon, 10 Feb 2014 16:47:05 GMT
Location:http://isan.org/api/works/TOKEN_0001/status?idtype=PRIVATE_ID
No Content
Invalid episode work validation before registration (XML input)

#Request
POST /api/works?action=validation
Host: www.isan.org
Authorization: YXBpdXNlcjphcGlwYXNzd29yZA==
X-ISAN-Authorization: ISANUSER aXNhbnVzZXI6Z2dk3ZTg0MGQ4NGQ4MmU4YWYxY2MwNzExYTEzYjBkZWU=
Content-Type: application/xml

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
  <common:Type>SE</common:Type>
  <common:Kind>L</common:Kind>
  <common:ExternalIdList>
    <externalid:ExternalId>
      <externalid:Code>PRIVATE_ID</externalid:Code>
      <externalid:Id>REG_002</externalid:Id>
    </externalid:ExternalId>
  </common:ExternalIdList>
  <common:TitleList>
    <title:TitleList>
      <title:TitleDetail>
        <title:Title>The Smile</title:Title>
        <title:Language>
          <language:LanguageLabel>English</language:LanguageLabel>
          <language:LanguageCode>
            <language:CodingSystem>ISO639_2</language:CodingSystem>
          </language:LanguageCode>
        </title:Language>
        <title:TitleKind>ALTERNATE</title:TitleKind>
      </title:TitleDetail>
    </title:TitleList>
    <common:Duration>
      <common:TimeUnit>MIN</common:TimeUnit>
      <common:TimeValue>60</common:TimeValue>
    </common:Duration>
    <common:ColorKind>COLOR</common:ColorKind>
    <common:OriginalLanguageList>
      <language:OriginalLanguage>
        <language:LanguageLabel>English</language:LanguageLabel>
        <language:LanguageCode>
          <language:CodingSystem>ISO639_2</language:CodingSystem>
        </language:LanguageCode>
      </language:OriginalLanguage>
      <language:OriginalLanguage>
        <language:LanguageLabel>English</language:LanguageLabel>
        <language:LanguageCode>
          <language:CodingSystem>ISO639_2</language:CodingSystem>
        </language:LanguageCode>
      </language:OriginalLanguage>
    </common:OriginalLanguageList>
  </title:TitleList>
</serial:episodeWorkMetadataType>
HTTP/ 1.1 400 Bad Request
Date: Mon, 10 Feb 2014 16:47:05 GMT
Content-Type: application/xml; charset=UTF-8

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<common:statusListType xmlns:isan="http://www.isan.org/ISAN/isan"
xmlns:title="http://www.isan.org/schema/v1.11/common/title"
xmlns:externalid="http://www.isan.org/schema/v1.11/common/externalid"
xmlns:common="http://www.isan.org/schema/v1.11/common/common"
<common:Status>
  <common:Description>ERROR: YEAR OF REFERENCE SHOULD BE GREATER THAN 1897 AND LOWER THAN 2015</common:Description>
</common:Status>
<common:Status>
  <common:Description>ERROR: DIRECTOR IS MISSING</common:Description>
</common:Status>
<common:Status>
  <common:Description>ERROR: AT LEAST ONE ORIGINAL TITLE IS REQUIRED</common:Description>
</common:Status>
<common:Status>
  <common:Description>ERROR: SH (0000-0003-37) HAS NOT BEEN FOUND</common:Description>
</common:Status>
</common:statusListType>
6. ISAN AND V-ISAN UPDATE SERVICE

6.1. Description

This service allows users to update metadata of a work or a version of work by issuing HTTP PUT requests.

For all update requests, users must authenticate by using their ISAN API user account in addition to their ISAN System user account. This requires the HTTP Authorization header and the custom X-ISAN-Authorization header.

For more information on authentication, see API AUTHENTICATION.

The update procedures are asynchronous, therefore after a successful request; the user will receive a “202-ACCEPTED” response indicating that the request will be processed. Users are invited to check for the status at a later time, the “Location” HTTP header field of the server response indicates the address for checking the status. Note that the status of a request can also be checked with the Lookup service by performing a resolution of the private identifier (or registration token) provided as “External Identifier” in the registration or matching request.

In case of an unsuccessful update request (bad requests, invalid data …) users should check the response message body to get the causes before submitting other requests.

Note that only the registrant of a work or version is authorized to update the metadata of the work or version.

---

6 Requests are queued on an ESB and are processed sequentially according to their priorities and the load of the matching engine. The processing time depends therefore on the kind of request and the system load. In most of the cases users can expect that their request is processed in a couple of seconds and less than a minute. Note that registration requests have the priority on matching request. It is also possible that a matching requests is processed after a large bulk registration.
6.2. Request

6.2.1. Syntax

#Update Request
PUT /api/works/{id}

6.2.2. Parameters

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>id</td>
<td>Identifier of the work to be updated</td>
</tr>
</tbody>
</table>

Required: Yes
Path Parameter (String)
The provided identifier parameter should be a root ISAN, an ISAN or V-ISAN number.
It should represent an existing work (episodic, non episodic, series or version)
The metadata to update will be provided in the content body of the request
depending of the type of the work to be updated:

- In case of **non episodic work**: a WorkMetadataType description will be required.
- In case of **episodic work**: an EpisodeWorkMetadataType description will be required
  
  Note:
  Updating the root of an episodic work is not allowed; SerialHeaderId and SerialHeaderRegistrantId information are not editable

- In case of **series**: a SerialHeaderType description will be required
  
  Notes:
  Only titles and external identifiers are editable

- And in case of **version work**: a VersionType description will be required
  
  Notes:
  It’s not allowed to change the parent work of a version; ParentWork is not editable.

*In all cases, not-editable fields will be ignored if provided in the body of the request.*
6.2.3. Request Headers

Same as Registration Request Headers.

6.3. Response

6.3.1. Response Headers

Same as Registration Response Headers.

6.3.2. Response Elements

Same as Registration Response Elements.

6.4. Errors

Same as Registration Errors.

6.5. Examples of use

Update work kind, year and participants of non episodic ISAN 0000-0002-E6D0-0000-H-0000-0000-N (XML input)

```xml
<?xml version="1.0" encoding="UTF-8" standalone="yes"?><common:workMetadataType
 xmlns:isan="http://www.isan.org/ISAN/isan"
 xmlns:serial="http://www.isan.org/schema/v1.21/common/serial"
 xmlns:title="http://www.isan.org/schema/v1.11/common/title"
 xmlns:externalid="http://www.isan.org/schema/v1.11/common/externalid"
```

#Request
PUT /api/works/0000-0002-E6D0-0000-H-0000-0000-N
Host: www.isan.org
Authorization: YXBpdXNlclphcGlwYXNzd29yZA==
X-ISAN-Authorization: ISANUSERaXNhbnVzZXI62Dk3ZTg0MGQ4NGQ4MmU4YWYxY2MwNzExYTEzYjBkZWUE= Content-Type: application/xml
<common:Kind>LA</common:Kind>
<common:YearOfReference>2009</common:YearOfReference>
<common:ParticipantList>
  <participant:Participant>
    <participant:FirstName>Damiane</participant:FirstName>
    <participant:LastName>Lewis</participant:LastName>
    <participant:RoleCode>ACT</participant:RoleCode>
  </participant:Participant>
  <participant:Participant>
    <participant:FirstName>Claire</participant:FirstName>
    <participant:LastName>Danes</participant:LastName>
    <participant:RoleCode>ACT</participant:RoleCode>
  </participant:Participant>
</common:ParticipantList>

#Response
HTTP/1.1 202 Accepted
Date: Mon, 10 Feb 2014 16:47:05 GMT
No content

Update titles of series root ISAN 0000-0002-E6D0 (XML input)

#Request
PUT /api/works/0000-0001-5FD9
Host: www.isan.org
Authorization: YXBpdXNlcjphcGlwYXNzd29yZA==
X-ISAN: Authorization: ISANUSER
aXNhbnVzXllbdk3ZTq0MGQ4NGQ4MmU4Y1wyY2MwNzExYTEzYjBkZWU=
Content-Type: application/xml

<serial:serialHeaderType
xmlns:serial="http://www.isan.org/schema/v1.21/common/serial"
xmlns:common="http://www.isan.org/schema/v1.11/common/common"

<serial:MainTitles>
  <title:TitleDetail>
    <title:Title>Murder She wrote</title:Title>
    <title:Language>
      <language:LanguageLabel>French</language:LanguageLabel>
      <language:LanguageCode>
        <language:CodingSystem>ISO639_2</language:CodingSystem>
      </language:LanguageCode>
    </title:Language>
  </title:TitleDetail>
</serial:MainTitles>
Update duration, season and episode number of episodic ISAN 0000-0001-1766-01D4-W-0000-0000-F (JSON input)

#Request
PUT /api/works/0000-0001-1766-01D4-W-0000-0000-F
Host: www.isan.org
Authorization: YXBpdXNlcjphcGlwYXNzd29yZA==
X-ISAN-Authorization: ISANUSER
aXNhbnVzZXI6Z2tPgw0MGQ4NGQ4MmU4YWyY2MwNzExYTEzYjBkJkZWU=
Content-Type: application/json

{  
  "@type": "EpisodeWorkMetadataType",
  "duration": {  
    "timeUnit": "MIN",
    "timeValue": 94
  },
  "episodeDetails": {  
    "season": "4",
    "episode": "1"
  }
}

#Response
HTTP/ 1.1 202 Accepted
Date: Mon, 10 Feb 2014 16:47:05 GMT
No content
Update descriptive name, subtitle languages, distribution channel and platform of version ISAN 0000-0003-C1EE-0000-Y-0000-0001-7 (JSON input)

#Request
PUT /api/works/0000-0003-C1EE-0000-Y-0000-0001-7
Host: www.isan.org
Authorization: YXBpdXNlcjphcGlwYXNzd29yZA==
X-ISAN-Authorization: ISANUSER aXNhbnVzXZI62Dk3ZTg0MGQ4NGQ4MmU4YWyxY2MwNzExYTEzYjBkZWU=
Content-Type: application/json
{
  "@type": "VersionType",
  "descriptiveName": "Rental Blu-ray disc for Japanese market",
  "subtitleLanguages": {
    "java.util.ArrayList": [
      {
        "languageCode": {
          "codingSystem": "ISO_639_2",
          "iso6392Code": "JPN"
        }
      }
    ]
  }
  "distributionChannel": "HOMEVIDEO",
  "distributionPlatform": "RENTAL"
}

#Response
HTTP/1.1 202 Accepted
Date: Mon, 10 Feb 2014 16:47:05 GMT

No content
7. ISAN SEARCH SERVICE

7.1. Description

The search service allows users to retrieve a subset of data in the ISAN registry by issuing an HTTP GET request. For all search requests, users must authenticate by using their ISAN API user account in addition to their ISAN System user account. This requires the HTTP Authorization header and the custom X-ISAN-Authorization header.

For more information on authentication, see API AUTHENTICATION.

The query contains 3 kind of information:

1. Filter: search criteria via query-string parameter
2. Sorting: order criteria via query-string parameter
3. Pagination details to delimit results by page and limit via query-string parameters to manage the amount of data to retrieve per requests.

Note that the search for text (titles, participants...) is NOT case sensitive.

7.2. Request

7.2.1. Syntax

#Request

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

7.2.2. Parameters

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
</table>
| filter | The search criteria string  
Composed of a valid list of one or many search properties and values to perform a multi criteria search. |
The double colon ("::") delimiter separates the property name from the comparison value, enabling the comparison value to contain spaces. The vertical line ("|") delimiter separates the property name/value couples. All free text in the search criteria are handled as a “CONTAINS”.

```
filter=property1::value|property2::value|property3::value.....
```

**Required:** Yes  
**Type:** Query Parameter (String)  
**List of valid property names:**

- **wktype**: work types selection
  - All applicable work types are defined in the following schema  
    [http://www.isan.org/schema/v1.11/common/common.xsd](http://www.isan.org/schema/v1.11/common/common.xsd) (refer to WokTypeType definition)
  - To search multiple work types, add the comma character between each value
    
    **Example to retrieve all works that are either Feature Film or TV Entertainment**
    
    `wktype::FF,TE`
  
  - To exclude a work type from the results, add the underscore character before the value to be excluded
    
    **Example to search works that are not Feature Films**
    ```
    wktype::_FF
    ```
    
    **Example to search works that are neither Feature Films nor TV Entertainment**
    ```
    wktype::_FF,_TE
    ```

    **Note:** If no `wktype` is submitted the search will apply on all work types

- **setype**: serial type selection  
  Possible values are SH (to search only Serial Headers), SE (Episodic works), or SW (non episodic works)

  **Example to search in Serial Headers or Episodic works:**
  ```
  setype::SH,SE
  ```

  If no `setype` are submitted the search will apply on all serial types.

- **title**: title to search  
  Only one title property is allowed.

  **Example to search works where titles contain “Ice Age”**:  
  ```
  title::Ice Age
  ```
<table>
<thead>
<tr>
<th><strong>title</strong>::<strong>Ice Age</strong></th>
</tr>
</thead>
</table>

utors: title of a serial to search

Only one shtitle property is allowed.

- Example to search within all serials where titles contain “Dexter”
  ```
  shtitle::dexter
  ```

<table>
<thead>
<tr>
<th><strong>yor</strong>::<strong>year of reference or range of year of reference selection</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>yor::aYear or yor::[minYear-maxYear]</td>
</tr>
</tbody>
</table>

Only one year or range or year is allowed; min and max year are included in the search

- Example to search works released in 2013
  ```
  yor::2013
  ```

- Example to search works released between 2010 and 2013
  ```
  yor::[2010-2013]
  ```

<table>
<thead>
<tr>
<th><strong>duration</strong>::duration or range of duration in minutes selection.</th>
</tr>
</thead>
<tbody>
<tr>
<td>duration::aDuration or duration::[minDuration-maxDuration]</td>
</tr>
</tbody>
</table>

Only one duration or range of duration is allowed; min and max duration value are included in the search

- Example to search works that have a duration of 60 minutes
  ```
  duration::60
  ```

- Example to search works that have a duration between 50 and 60 minutes.
  ```
  duration::[50-60]
  ```

<table>
<thead>
<tr>
<th><strong>shid</strong>:: Serial header ID selection (= root ISAN shared by all episodes of a serial )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only one shid property is allowed</td>
</tr>
</tbody>
</table>

- Example to search within the serial 0001-2AF4-3305
  ```
  shid:: 0001-2AF4-3305
  ```

**Participant’s roles selection** :

All applicable participant’s roles are defined in the following schema

http://www.isan.org/schema/v1.11/common/participant.xsd (See ParticipantRoleCodeType)

- Example to retrieve all works where Angelina Jolie has participated as an actor
  ```
  act::angelina jolie
  ```
Example to retrieve all works directed by Pedro Almodovar

```plaintext
dir::pedro almodovar
```

**Note**: To search a participant without specifying any roles, use the “any” code

Example to retrieve all works where Clint Eatswood has participated no matter what was his role:

```plaintext
any::clint eastwood
```

Maximum 3 participants properties are allowed

**Examples:**

To retrieve all feature films released on 2013

```plaintext
filter="setype::SW|wktype::FF|yor::2013"
```

To retrieve all documentaries or films where Clint Eastwood has participated

```plaintext
filter="any::Clint Eastwood|wktype::DO,FF"
```

<table>
<thead>
<tr>
<th><strong>sorting</strong></th>
<th>Sort criteria: order in which items in the payload are returned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required:</td>
<td>No</td>
</tr>
<tr>
<td>Default:</td>
<td>Default order is year descending (sorting=-yor)</td>
</tr>
<tr>
<td>Type:</td>
<td>Query Parameter (String)</td>
</tr>
<tr>
<td>Valid values:</td>
<td>See search criteria properties excluding participant's roles, setype and shid properties.</td>
</tr>
</tbody>
</table>

**Notes:**
For each property prefixed with a dash ("-") sort in descending order otherwise sort in ascending order.

```plaintext
Example to sort by year descending and title ascending
sort=-yor|title
```

<table>
<thead>
<tr>
<th><strong>page</strong></th>
<th>To indicate which page of results to retrieve. The page number is zero-based</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required:</td>
<td>No</td>
</tr>
<tr>
<td>Default:</td>
<td>0 (to retrieve the first page of results).</td>
</tr>
<tr>
<td>Type:</td>
<td>Query Parameter (Positive integer)</td>
</tr>
<tr>
<td>-------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td><strong>limit</strong></td>
<td>To indicate the number of results per page.</td>
</tr>
<tr>
<td>Required:</td>
<td>No</td>
</tr>
<tr>
<td>Default:</td>
<td>50</td>
</tr>
<tr>
<td>Type:</td>
<td>Query Parameter (Positive integer)</td>
</tr>
<tr>
<td>Notes:</td>
<td>The maximum number of results per page allowed is 100</td>
</tr>
</tbody>
</table>

Example to retrieve the 10th page of results with 100 results per page:

```
offset=10&limit=100
```

### 7.2.3. Response

#### 7.2.3.1. Response Headers

<table>
<thead>
<tr>
<th>Headers</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Server response date-time *</td>
</tr>
<tr>
<td>Content-Range</td>
<td>Indicate how many items are being returned and how many total items exist.</td>
</tr>
<tr>
<td></td>
<td>Content-Range: items &lt;FIRST&gt;&lt;LAST&gt;/&lt;TOTAL&gt;</td>
</tr>
<tr>
<td></td>
<td>The total number of items is sent only for the first page of results otherwise an asterisk.</td>
</tr>
<tr>
<td></td>
<td>Content-Range: items 1-50/3954 or items 51-100/*</td>
</tr>
<tr>
<td>Content-Type</td>
<td>Type of representation and character set:</td>
</tr>
<tr>
<td></td>
<td>application/xml;charset=UTF-8 or application/json;charset=UTF-8</td>
</tr>
<tr>
<td>Cache-Control</td>
<td>Expiration life-time (7200 seconds)</td>
</tr>
<tr>
<td>Expires</td>
<td>Expiration date-time value</td>
</tr>
</tbody>
</table>
7.2.3.2. Response Elements

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ISANDataListType</strong></td>
<td>Subset of data retrieved</td>
</tr>
<tr>
<td>(array of <strong>ISANDataType</strong>)</td>
<td></td>
</tr>
</tbody>
</table>

**XML Example:**

```
<common:isanDataListType>
  <common:ISANData></common:ISANData>
  <common:ISANData></common:ISANData>
  ...
</common:isanDataListType>
```

**JSON Example**

```
{"
  "isandatas": [
    "java.util.ArrayList",
    [
      {},
      {},
      ...
    ]
  ]
}
```

The following table lists the descriptive metadata returned for each ISANDataType retrieved:

<table>
<thead>
<tr>
<th>Headers</th>
<th>Description</th>
<th>Occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ISAN</strong></td>
<td>ISAN number of the retrieved work</td>
<td>1</td>
</tr>
<tr>
<td><strong>Titles</strong></td>
<td>Matching titles if title property or shtitle property has been specified in the filtering parameter, original titles otherwise</td>
<td>1</td>
</tr>
<tr>
<td><strong>Year of reference</strong></td>
<td>Year of reference of the retrieved work or year of oldest episode in case of serial header</td>
<td>1</td>
</tr>
<tr>
<td><strong>Duration</strong></td>
<td>Duration of the retrieved work. Not available for Serial headers.</td>
<td>0 or 1</td>
</tr>
</tbody>
</table>

*All dates are formatting as follow: Fri, 07 Jun 2013 09:14:19 GMT*
Applies only if `duration` property has been submitted in filtering parameter or in sorting parameter

<table>
<thead>
<tr>
<th>WorkType</th>
<th>Work type’s code</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not available for Serial headers.</td>
</tr>
<tr>
<td></td>
<td>Applies only if <code>wktype</code> property has been submitted in filtering parameter or in sorting parameter</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Participants</th>
<th>Matching participants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not available for Serial headers.</td>
</tr>
<tr>
<td></td>
<td>Applies only if at least one <code>participant’s roles</code> property has been submitted in filtering parameter</td>
</tr>
</tbody>
</table>

To obtain detailed information about a work, users will use the lookup service.

### 7.2.4. Errors

When an error is caused, the body response will contain an error status. For all encountered errors, API implementers should check this error status description to get further details on possible causes.

The following table lists the possible errors that can be generated.

<table>
<thead>
<tr>
<th>HTTP CODE</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>401, UNAUTHORIZED</strong></td>
<td>ERROR: THIS OPERATION REQUIRES AUTHENTICATION</td>
</tr>
<tr>
<td></td>
<td>Applies if no Authorization header have been submitted or</td>
</tr>
<tr>
<td></td>
<td>If X-ISAN-Authorization header is missing</td>
</tr>
<tr>
<td><strong>401, UNAUTHORIZED</strong></td>
<td>ERROR: USER IS BLOCKED OR CLIENT ACCOUNT IS INACTIVE</td>
</tr>
<tr>
<td></td>
<td>Applies for X-ISAN-Authorization header verification, if the user account is</td>
</tr>
<tr>
<td></td>
<td>blocked</td>
</tr>
<tr>
<td><strong>400, BAD REQUEST</strong></td>
<td>ERROR: THE NUMBER OF RESULTS PER PAGE CAN'T BE GREATER THAN %s</td>
</tr>
<tr>
<td><strong>400, BAD REQUEST</strong></td>
<td>ERROR: SEARCH CRITERIA CAN'T BE EMPTY - AT LEAST ONE FILTER IS REQUIRED</td>
</tr>
<tr>
<td><strong>400, BAD REQUEST</strong></td>
<td>ERROR: PARAMETER %s IN SEARCH CRITERIA IS INVALID</td>
</tr>
<tr>
<td><strong>400, BAD REQUEST</strong></td>
<td>ERROR: PARAMETER %s IN SORT CRITERIA IS INVALID</td>
</tr>
<tr>
<td><strong>400, BAD REQUEST</strong></td>
<td>ERROR: THE PAGE NUMBER SHOULD BE GREATER THAN 0</td>
</tr>
<tr>
<td><strong>400, BAD REQUEST</strong></td>
<td>ERROR: SH (%s) HAS NOT BEEN FOUND</td>
</tr>
</tbody>
</table>
### 7.2.5. Examples of use

Retrieve all documentaries or films where Clint Eastwood has participated and order results from newest to oldest (XML Output)

```xml
#Request
get /api/works?
  filter=any::Clint Eastwood|wktype::DO,FF&sorting=-yor&page=0&limit=50

Host: www.isan.org
Authorization: X-ISAN-Authentication: ISANUSER
  aXNhbnVzZXI6ZDk3ZTg0MGQ4NGQ4MmU4YWYxY2MwNzExYTEzYjBkZWU=
Accept: application/xml

#Response
HTTP/ 1.1 200 OK
Date: Mon, 10 Feb 2014 16:47:05 GMT
Content-Type: application/xml; charset=UTF-8
Content-Range: items 1-50/65
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<common:isanDataListType xmlns:isan="http://www.isan.org/ISAN/isan"
  xmlns:serial="http://www.isan.org/schema/v1.21/common/serial"
  xmlns:title="http://www.isan.org/schema/v1.11/common/title"
  xmlns:externalid="http://www.isan.org/schema/v1.11/common/externalid"
  xmlns:common="http://www.isan.org/schema/v1.11/common/common"
  xmlns:participant="http://www.isan.org/schema/v1.11/common/participant"
  xmlns:country="http://www.isan.org/schema/v1.11/common/country">
  <common:ISANData xsi:type="common:WorkMetadataType">
    <common:ISAN check2="J" version="0000-0000" check1="6"
      episodeOrPart="0000" root="0000-0000-D1AA"/>
    <common:Type>FF</common:Type>
    <common:TitleList>
      <title:TitleDetail>
        <title:Title>Ambush At Cimarron Pass</title:Title>
        <title:Language>
          <language:LanguageLabel>English</language:LanguageLabel>
          <language:LanguageCode>
            <language:CodingSystem>ISO639_2</language:CodingSystem>
          </language:LanguageCode>
        </title:Language>
      </title:TitleDetail>
    </common:TitleList>
  </common:ISANData>
</common:isanDataListType>
```
<title:TitleKind>ORIGINAL</title:TitleKind>
</title:TitleDetail>
</common:TitleList>
<common:YearOfReference>1958</common:YearOfReference>
<common:ParticipantList>
    <participant:Participant>
        <participant:FirstName>Clint</participant:FirstName>
        <participant:LastName>Eastwood</participant:LastName>
        <participant:RoleCode>ACT</participant:RoleCode>
    </participant:Participant>
</common:ParticipantList>
</common:ISANData>

<common:ISANData xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:type="common:WorkMetadataType">
    <common:ISAN check2="M" version="0000-0000" check1="5"
        episodeOrPart="0000" root="0000-0000-37CB"/>
    <common:Type>FF</common:Type>
    <common:TitleList>
        <title:TitleDetail>
            <title:Title>Hell bent for glory</title:Title>
            <title:Language>
                <language:LanguageLabel>English</language:LanguageLabel>
                <language:CodingSystem>ISO639_2</language:CodingSystem>
            </title:Language>
            <title:TitleKind>ORIGINAL</title:TitleKind>
        </title:TitleDetail>
    </common:TitleList>
    <common:YearOfReference>1958</common:YearOfReference>
    <common:ParticipantList>
        <participant:Participant>
            <participant:FirstName>Clint</participant:FirstName>
            <participant:LastName>Eastwood</participant:LastName>
            <participant:RoleCode>ACT</participant:RoleCode>
        </participant:Participant>
    </common:ParticipantList>
</common:ISANData>

...
Retrieve all works where title contains “ice age” and order results by year of reference (JSON Output)

#Request
GET /api/works?filter=title::ice age&sorting=yor&page=0&limit=50

Host: www.isan.org
Authorization: YXBpdXNlcjphcGlwYXNzd29yZA==
X-ISAN-Authorization: ISANUSER
aXNhbnVzZXRlZEV2ZW50OmUGQXQ4NGQ4MmU4YWyXZ2MwNzExYTEzYjBkZWU=
Accept: application/json

#Response
HTTP/1.1 200 OK
Date: Mon, 10 Feb 2014 16:47:05 GMT
Content-Type: application/json; charset=UTF-8
Content-Range: items 1-22/22

{  
  "isandatas": [
    {
      "@type": "WorkMetadataType",
      "isan": {
        "root": "0000-0000-24FD",
        "episodeOrPart": "0000",
        "check1": "O",
        "version": "0000-0000",
        "check2": "2"
      },
      "type": "FF",
      "titleList": {
        "titleDetails": [
          {
            "title": "Ice age",
            "language": {
              "languageLabel": "English",
              "languageCode": {
                "codingSystem": "ISO_639_2",
                "iso6392Code": "ENG"
              }
            },
            "titleKind": "ORIGINAL"
          }
        ]
      },
      "yearOfReference": "2002"
    }
  ]
}
"@type": "WorkMetadataType",
"isan": {
    "root": "0000-0001-8320",
    "episodeOrPart": "0000",
    "check1": "8",
    "version": "0000-0000",
    "check2": "D"
},
"type": "FF",
"titleList": {
    "titleDetails": [
        "java.util.ArrayList",
        {
            "title": "ICE AGE THE MELTDOWN",
            "language": {
                "languageLabel": "English",
                "languageCode": {
                    "codingSystem": "ISO_639_2",
                    "iso6392Code": "ENG"
                }
            },
            "titleKind": "ORIGINAL"
        }
    ],
    "yearOfReference": "2006"
},
{
    "@type": "WorkMetadataType",
    "isan": {
        "root": "0000-0001-E564",
        "episodeOrPart": "0000",
        "check1": "K",
        "version": "0000-0000",
        "check2": "E"
    },
    "type": "FF",
    "titleList": {
        "titleDetails": [
            "java.util.ArrayList",
            {
                "title": "ICE AGE: DAWN OF THE DINOSAURS",
                "language": {
                    "languageLabel": "English",
                    "languageCode": {
                        "codingSystem": "ISO_639_2",
                        "iso6392Code": "ENG"
                    }
                },
                "titleKind": "ORIGINAL"
            }
        ]
    }
}
null
8 Appendix: Work Status lifecycle

This appendix aims at describing the different status of a work during the registration process.

8.1 Possible Statuses

- **REGISTRATION IN PROGRESS**: when a valid registration request has been submitted and accepted: indicates that the request is queued or is being processed.

- **PENDING**: indicates that the request has been processed but the corresponding work is potentially already registered in the ISAN registry (i.e. it has at least one match within the ISAN registry). In this case, a manual confirmation (pending resolution) is required, this can only be done through the web user interface (web template) at the moment.

- **DUPLICATE**: Indicates that the pending resolution (see PENDING status above) has been performed and the work has been marked as a duplicate. The work is rejected and the existing ISAN is to be used.

- **ACTIVE**: Indicates that the request has been processed: no potential duplicates registration have been found or the pending resolution (see PENDING status above) has been performed and the work has been marked as a new work.

- **WAITING** (Applies only to Serial Headers): indicates that the work has been processed but no episodes have been registered yet.

- **REJECTED**: Indicates that an unexpected error has occurred

- **INACTIVE**: Indicates that the work was a duplicate registration (duplicate ISAN) and it has been inactivated by ISAN-IA.
8.2 Non-episodic (single) works status lifecycle

- User submits a valid single work registration request
- The request is queued or work is being processed
- The work can be inactivated by ISAN-IA during duplicates management; the status will therefore become INACTIVE
- Are there potential duplicates?
  - Yes: PENDING
  - No: ACTIVE

8.3 Serial header status lifecycle

- User submits a valid serial header registration request
- The request is queued or work is being processed
- Are there potential duplicates?
  - Yes: PENDING
  - No: WAITING
- 1st Episode registration request
  - User solves the pending through the web template
  - Is new?
    - Yes: WAITING
    - No: DUPLICATE

The WAITING STATUS WILL CHANGE AFTER THE REGISTRATION OF THE 1ST EPISODE.

The system has encountered an unexpected issue, work can’t be registered
8.4 Serial episode status lifecycle

User submits a valid episode work registration request.

REGISTRATION IN PROGRESS
The request is queued or Work is being processed.

Are there potential duplicates?

ACTIVE
If 1st episode: SH status changes from WAITING to ACTIVE

Is new?

PENDING
If 1st episode: SH status changes from WAITING to PENDING

REJECTED
The system has encountered an unexpected issue, work can’t be registered.

ACTIVE
If 1st episode: SH status changes from WAITING to ACTIVE

DUPLICATE

The work can be inactivated by ISAN-IA during duplicates management. The status will therefore become INACTIVE.

User solves the problem through the web template.

Is new?