

# Entitlement API Specification

## *for Integrators*

### Document Version

2.7 (Dec 2024)

### Audience

Integrators, consumers of the getFTR Entitlement API

### Contributors

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### Document Revision History

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1.0	Oct 24 2019	First version	TSG
2.0	July 2020	Second version	TSG
2.1	July 2021	Introduced permFree	TSG
2.2	Feb 2023	Introduced Redirector Service	TSG
2.3	Jan 2024	Updated documentation for Hybrid API	TSG
2.4	May 2024	Introduced Retraction & Errata	TSG
2.5	Oct 2024	Browser extension compatibility remarks	TSG

2.6	Nov 2024	Authentication & Updates API Information	TSG
2.7	Dec 2024	Updating types description in Retraction & Updates	TSG

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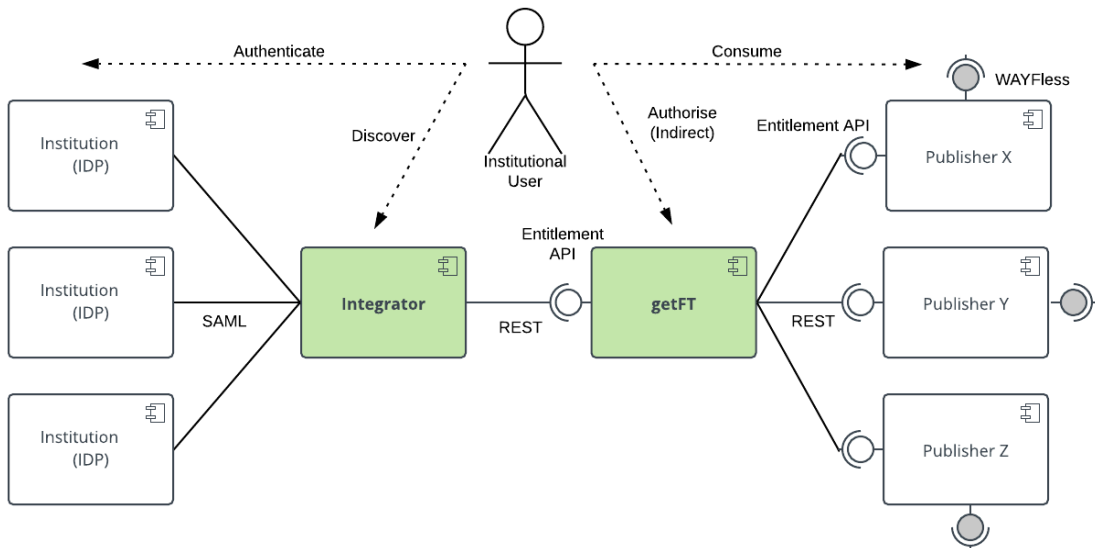
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## Overview

The Entitlement API establishes for a given document (DOI) and user affiliated institution the entitled level of access and appropriate content links, whether that be to the Version of Record or Alternate Version.



For brevity throughout the specification the following acronyms will be used:

Acronym	Definition
DOI	Digital Object Identifier
VoR	Version of Record
AV	Alternate Version
SAML	Security Assertion Markup Language
IdP	SAML Identity Provider
SP	SAML Service Provider

### API version

The current API version is: v2.1

### Endpoint

The URL for the API is: <https://entitlements.prod.getft.io>

Provides capability to establish entitlements for a single Organisation and a list of Documents (DOIs). The Organisation can be identified by a number of ID schemes.

## Request

POST /v2.1/entitlements

```
{
  "org": {
    "ipv4": "...",
    "entityID": "...",
    "ringgoldID": "...",
  },
  "dois": [
    "...",
    "..."
  ]
}
```

Property	Required	Description
<b>org</b>	N	Describes a single Organisation and contains all the IDs available to identify it, with a minimum of at least one. Integrators are encouraged to share all known IDs.
ipv4	N	IPv4 address of the end user (not the Integrator).
ipv6	N	IPv6 address of the end user (not the Integrator).
entityID	N	The entityID of the Organisation's IdP.
openAthensOrgID	N	OpenAthens parameter. entityID must be present.
eduPersonScoped Affiliation	N	Shibboleth <a href="#">parameter</a> . entityID must be present.
ringgoldID	N	The Organisation's <a href="#">Ringgold ID</a> . For future proofing.
gridID	N	The Organisation's <a href="#">Grid ID</a> . For future proofing.
rorID	N	The Organisation's <a href="#">Ror ID</a> . For future proofing.
dois	Y	A list of 1 to 20 document identifiers (DOIs).

## Response

For every document a corresponding Entitlement resource is returned, which establishes the level of entitlement; access type; document type (version of record or alternate); content type and ultimately a link to the actual resource if appropriate.

```
{
  "entitlements": [
    {
      "doi": "...",
      "statusCode": 200,
      "entitled": "yes",
      "accessType": "...",
      "org": {
        "ipv4": "..."
      },
      "vor": [
        {
          "contentType": "...",
          "url": "..."
        }
      ],
      "document": "..."
    }
  ]
}
```

Entitlements is a list of Entitlement resources, where the order of DOIs are preserved from the request.

For a complete set of scenarios refer to the “Entitlement API Scenarios” document.

## Entitlement object

Property	Required	Description
doi	Y	The document identifier
statusCode	Y	Refer to <a href="#">appendix</a>
entitled	Y	yes, no, maybe
accessType	N	open, free, permFree, paid
org	N	In the response, the “org” object contains the <u>actual</u> org ID(s) used to establish entitlement. If present, the org is known <u>and</u> was used to establish the level of entitlement.
vor	N	Version of Record object contains an array of <a href="#">Documents</a>
av	N	Alternate Version object contains an array of <a href="#">Documents</a>
document	Y	The URL for the document’s landing page.
source	N	The origin of the entitlement within our service, this can be used for debugging purposes. Valid values are:  unknown, publisher_not_supported, oa_platform, service_cache, centralised, service_request
updates	N	[Optional, if the feature is enabled for the integrator] Contains the updates to the current doi (if any). It is an array of <a href="#">Update Object</a>

## Document object

Property	Required	Description
contentType	Y	The declared MIME type of the document: <ul style="list-style-type: none"><li>• application/epub+zip</li><li>• text/html</li><li>• application/pdf</li><li>• other</li></ul>
url	Y	A direct URL to the document. Will redirect to an IdP for authentication where appropriate (i.e. a “Smart Link”).

## Update Object

Property	Required	Description
source	Y	The source of the update information. (e.g: retractionwatch, crossref)
updateDoi	Y	The DOI of the document, which holds the updated information about the original document.
updateDate	Y	Update date (e.g.: 2000-01-01)
updateType	Y	The type of the update (e.g: retraction, correction, expression-of-concern, reinstatement) <b>* GetFTR includes update types from CrossRef CrossMark AND RetractionWatch</b>
reasons	N	An array of strings that contain the detailed reasons for the update (if specified by the source)
urls	N	An array of external URLs regarding the update.

## Entitlement truth table

The following truth table captures the legal combinations of VoR and AV in the Entitlement resource:

entitled	accessType	vor	av (alternate vs.)
yes	free permFree open paid	true	false
maybe	paid	true	false
no	N/A	false	true false

## Source field

The source field inside the entitlement response object is primarily used for debugging and investigatory purposes. It indicates the source of the entitlement response on our platform.

- `unknown` - Represents an unknown source. Such that we were unable to retrieve the DOI (ie. it does not exist).



- `publisher_not_supported` - The DOI belongs to a publisher we don't currently support.
- `oa_platform` - The entitlement information was retrieved from the GetFTR OA & Free service.
- `service_cache` - The entitlement information was retrieved from the Cache.
- `centralised` - The entitlement was retrieved from the centralised entitlements API, where publishers have shared entitlements with GetFTR.
- `service_request` - The entitlement information was retrieved by contacting the publisher's API.

## Links & Redirector service

By default, GetFTR collects clickthrough metrics for every link that was returned by the entitlement service. We are doing this to monitor effectiveness and measure the added value of the service.

This service was designed as a privacy-first solution, and we are only storing service level information about the clickthrough, like the integrator, the publisher of the DOI, the time of the click, when the click (or more specifically the redirect) happened. We do not store any data about the user, such as the IP Address, nor the DOI or link that was clicked on.

If you have concerns about this and would like to know more, please contact us.

## GetFTR OA & Free service

When we receive a request for a DOI, we check to determine if it is an OA/Free DOI, using internal checks and logic. If a DOI satisfies one or more of these checks, we skip sending the request to the publisher API and respond on behalf of the publisher. For entitlements that have satisfied one of the following checks, the "source" key is set to `oa_platform`.

- Has a previous publisher response indicated this DOI is OA/Free/Perfrees?
- Does the DOI have one or more licences that we know are OA?
- Is the publisher this DOI belongs to OA only?
- Does the DOI begin with a prefix that the owning publisher has designated as OA?
- Does the DOI belong to an OA Journal?
- Does the DOI belong to a journal registered with DOAJ?

## Retraction & Updates

The GetFTR Entitlement API provides a summary of updates to the Document for every DOI where information is available at Crossref or Retraction Watch.

GetFTR provides an additional service, Document Status Page, which shows the history of changes to the document in timeline format. To access this page for a specific document add the DOI after the following prefix "https://document-status.getft.io/doi/". For example, the link to the Document Status Page for "10.3389/fenvs.2022.983136" DOI is the following:

<https://document-status.getft.io/doi/10.3389/fenvs.2022.983136>

## Updates API

A separate Updates API is provided for retrieving updates to one or more documents without performing any entitlement checks. The endpoint is available at:

POST /v2.1/updates

```
{
  "dois": [
    "...",
    "..."
  ]
}
```

## Response Body

```
{
  documents: [
    {
      doi: '10.1234/1111',
      statusCode: 200,
      updates: [
        {
          updateDoi: '10.1234/1111',
          source: 'crossref',
          updateType: 'updateType',
          updateDate: 'updateDate',
          reasons: ['reasons'],
          urls: ['urls'],
        },
      ],
    },
  ],
}
```

## Security

### Transport (TLS)

All communications are encrypted over a TLS 1.2, or above, connection. The TLS handshake will exchange server certificates only.

### Integrator Key

All Integrators have a unique, secret API Key, used to authenticate and identify the integrator for rate limiting purposes. Each request must include a X-API-KEY HTTP header, supplied by getFTR.

## Tracing

Each request must include a unique X-REQUEST-ID HTTP header which will be carried forward:

X-REQUEST-ID: 3e5980ba-ceae-4976-a9d4-c7e6ac49a20b (GUID)

## Versioning

### Major Versions

Major version changes result in a breaking change to the interface contract. The major version number (X below) is declared in the path as follows:

/vX/entitlements

The API is at version 2.1 and is reflected in the path as follows:

/v2.1/entitlements

### Minor Versions

Minor version changes result in a non-breaking change (e.g. additional SAML attribute support). The minor version is not reflected in the path.

## Robustness

getFTR will conform completely to the specification, but Integrators must be able to accept input with any non-breaking changes. In other words:

*“Be liberal in what you accept, be conservative in what you send”*

(Postel’s Law, aka [The Robustness Principle](#))

## Status Codes

### Batch Level (HTTP)

The following status codes are returned via the standard HTTP Status Code Header:

Code	Definition	Scenario
200	OK	The request has succeeded
400	Bad request	<ul style="list-style-type: none"><li>• More than 20 DOIs</li><li>• Payload is not valid</li></ul>
401	Unauthorized	<ul style="list-style-type: none"><li>• Integrator is not known</li><li>• Integrator is not authorized</li><li>• Request is a replay</li><li>• Request is over 10 mins old</li></ul>
403	Forbidden	Integrator is blocked
404	Not Found	The endpoint is not known
405	Method Not Allowed	HTTP method is not known
429	Too Many Requests	Request quota exceeded
500	Internal Server Error	The Entitlement API has thrown an error
504	Gateway Timeout	Upstream services timed out

### Item Level (JSON)

The following status codes are returned via the JSON response body:

Code	Definition	Scenario
200	OK	Entitlement determined
403	Forbidden	Access to content is restricted
404	Not Found	Unknown DOI

500	Internal Server Error	Error handling entitlement result
502	Bad Gateway	Publisher API rate limit reached
503	Service Unavailable	Entitlement cannot be checked
504	Gateway Timeout	Entitlement check timed out

## GetFTR Browser Extension compatibility

GetFTR offers a [browser extension](#) which helps users find documents on all websites they visit, and displays buttons that lead to full-text when the user is entitled. When they visit a website that has already integrated with GetFTR, this feature can be detrimental to user experience, as it can result in multiple buttons being displayed for the same document.

To prevent this, integrator websites can (and should) include the following meta tag in their HTML markup's head element, where INTEGRATOR\_ID is replaced with the Integrator ID in lowercase ([can be found on the GetFTR Self-Service Portal](#)):

```
<meta name="getftr-integrator" content="INTEGRATOR_ID">
```

The extension will look for this meta tag and when it's detected, it will disable itself on the website.

## Appendix

### Encoding & Formatting

The following rules apply to Entitlement API request and response structures:

#### Single line JSON

The JSON body response must be single line, with no line feeds or carriage returns.

#### Whitespace

No white space between properties and values in the JSON response.

#### Character Encoding

UTF-8 is the adopted character encoding standard.

## Adopted Standards

The Entitlement API specification adopts a number of open standards and patterns, outlined below:

Standard	Version	Definition
<a href="#">REST</a>	N/A	Representational state transfer pattern.
<a href="#">HMAC</a>	SHA256	Hash algorithm used to digitally sign messages.
<a href="#">HTTPS</a>	N/A	Secure HTTP communications using latest TLS standard. See versions below.
<a href="#">HTTP</a>	2.0	Hypertext Transfer Protocol.
<a href="#">TLS</a>	1.3	Transport Layer Security.
<a href="#">JSON Schema</a>	7	JSON Schema.
<a href="#">URI</a>	RFC 3986	Uniform Resource Identifier.
<a href="#">Unix Time</a>	N/A	Unix Epoch Time.

## HTTP Headers

All adopted HTTP headers are listed here:

Header	Use
X-REQUEST-ID	Used for <a href="#">tracing</a> requests.
X-API-KEY	Used for <a href="#">authentication</a> .