

HTTP API Building Blocks

A Proposal for an IETF Working Group

Mark Nottingham, July 2020

**HTTP is used
to build APIs.**

Individual projects and companies are developing and operating HTTP APIs

- Twitter / Mastodon / Facebook
- Amazon Web Services / Linode / Google Cloud / Microsoft Azure
- Stripe / Square / PayPal
- GitHub / Bitbucket / Gitlab
- Fastly / Akamai / Cloudflare / Cloudfront / BunnyCDN
- eBay / Amazon / Shopify
- Telstra / T-Mobile / Orange

GetDataHolderBrands

Get Data Holder Brands from the CDR Register

GET `/api/v1/{industry}/data-holders/brands`

Parameters

Name	In	Type	Required	Description
industry	path	string	true	The industry the participant is retrieving data for (Banking, etc)
updated-since	query	string(date-time)	false	none
page	query	integer(int32)	false	none
page-size	query	integer(int32)	false	none
Authorization	header	string	true	An Authorisation Token as per RFC6750
x-v	header	string	false	The version of the API end point that the CDR Register has responded with

Enumerated Values

Parameter	Value
industry	banking

Responses

Status	Meaning	Description	Schema
200	OK	Success	ResponseRegisterDataHolderBrandList
400	Bad Request	Bad Request	ResponseErrorList
401	Unauthorized	Unauthorized	None
406	Not Acceptable	Not Acceptable	None

Response Headers

Status	Header	Type	Format	Description
200	x-v	string		The version of the API end point that the CDR Register has responded with.

i To perform this operation, you must be authenticated and authorised with the following scope: **cdr-**

Examples

Code samples

```
GET https://<register-base-url>/cdr-register/v1/{industry}/data-ho
Host: <register-base-url>
Accept: application/json
Authorization: Bearer <access-token>
x-v: string
```

Example responses

200 Response

```
{
  "data": [
    {
      "dataHolderBrandId": "string",
      "brandName": "string",
      "industry": "banking",
      "logoUri": "string",
      "legalEntity": {
        "legalEntityId": "string",
        "legalEntityName": "string",
        "logoUri": "string",
        "registrationNumber": "string",
        "registrationDate": "2019-10-24",
        "registeredCountry": "string",
        "abn": "string",
        "acn": "string",
        "arbn": "string",
        "industryCode": "string",
        "organisationType": "SOLE_TRADER"
      }
    }
  ]
}
```

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Search the Largest API Directory on the Web

Filter APIs

 Include Deprecated APIs

Practice is fragmented

so reuse of functionality / code is limited

- How do I link to another API endpoint in JSON?
- What is the right way to page through a large number of results?
- How should I perform rate-limiting?
- What kind of content negotiation should I use?
- How do I version an API? Its formats?
- How do I describe the API to the client?

Will an IETF Working Group Help?

Some limited success

on the Independent Stream and AD-sponsored

- RFC 6570 URI Template
- RFC 6892 The 'describes' Link Relation Type
- RFC 6901 JSON Pointer
- RFC 6902 JSON Patch
- RFC 7807 Problem Details for HTTP APIs
- RFC 8288 Web Linking
- RFC 8594 The Sunset HTTP Header Field
- RFC 8631 Link Relation Types for Web Services

An IETF Working Group to...

- Work on building blocks for HTTP APIs
 - Rather than using the Independent Stream or AD sponsorship
- Serve as a focal point for the HTTP APIs community
 - Building a broad consensus, rather than “picking winners”
- Increase interoperability and reuse / reduce reinvention
- Connect with/between industry, practitioners, users

HTTP APIs Working Group (HTTPAPI)

- 1) HTTP is often for not only Web browsing, but also machine-to-machine communication, often called 'HTTP APIs'. This Working Group will standardise HTTP protocol extensions for use in such cases, with a focus on building blocks for separate or combined use.
- 2) Its output can include:
 - a. Specifications for new HTTP header and/or trailer fields
 - b. Specifications for new message body formats, or conventions for use in them (e.g., patterns of JSON objects)
 - c. Proposals for new HTTP status codes, methods, or other generic extensions, to be considered by the HTTP Working Group
 - d. Best practices and other documentation for HTTP API designers, consumers, implementers, operators, etc.
- 3) Other items are out of scope. In particular, this WG will not take on work items for APIs for specific use cases, and it will not define new HTTP extension points, or new extensions that are likely to be used by Web browsers.
- 4) New work items can be added after a Call for Adoption on the working group mailing list and consultation with the Area Director.
- 5) To be successful, this Working Group will need to have active and broad representation from across the industry -- e.g., API gateway vendors (and other intermediaries), API consultants, API tool vendors, in-house API teams. Therefore, adopted proposals should have public support from multiple implementers and/or deployments before being sent to the IESG.
- 6) This Working Group will need to coordinate closely with the HTTP Working Group.

<https://bit.ly/httpapi-charter>