

The Derivatives Service Bureau (DSB)

REST Rules of Engagement

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Preface

Change History

Date	Change	Version	Author	Revision Details
Changes from earlier versions suppressed				
19/03/2020	Amendments	3.08	Mark Bautista	Updated the links for DSB UAT Product Definition.pdf
23/06/2020	Amendments	3.09	Lace Francisco	Updated section 2.1 with Operation Hours and updated the DSB Enterprise offering statements. Added DSB Notification Subscription
01/08/2020	Amendments	3.10	Jennicy Milambiling	Updated the path to access the .records files in the DSB's End of Day File Download service in section 3.7
01/01/2021	Additions	4.0	Yuval Cohen	Updated for Unique Product Identifier (UPI)
10/02/2021	Amendments	4.01	Andy Hughes	Corrected heading titles
7/09/2022	Merge	4.02	Yuval Cohen	Merge: Merge with version 3.5.1 changes to obtain normalized and de-normalized schema from version 3.5.1 changes for basic authentication from version 3.5.2
12/12/2022	Amendments	4.03	Yuval Cohen	Non-backwardly compatible changes to GET /schemas API Explain how to retrieve Alternative Underlying Identifiers for UPI records
11/04/2023	Clarifications	4.04	Yuval Cohen	Correct file-download paths Clarifications based on internal review
28/05/2023	Amendments	4.05	Leslie Ropero	Updated Section 2.1 with new subscribe link
06/06/2023	Amendments	4.06	Alexandra Gamboa	Corrected Search Record by Attributes syntax for both UPI and ISIN workflow
07/09/2023	Additions and Amendments	4.07	Alexandra Gamboa	Updated the DSB-Token Information in Section 2.1 Corrected the File-Download Path for UPI Delta Files
09/13/2024	Amendments	4.08	Earnest Perez	Updated the Optional Services link to Ancillary Services (https://www.anna-dsb.com/ancillary-services/) in Section 3.1.

1 Introduction

1.1 Document Purpose

This specification defines the implementation of the Representational State Transfer (REST or RESTful) Web Service by the Derivatives Service Bureau (DSB) Limited for determining the ISIN for a financial instrument and the Unique Product Identifier (UPI) for a financial product. In doing so it aims to provide a comprehensive reference guide to any institutions who wish to automate the usage of the DSB REST API Web service.

1.2 Document Structure

This document contains the following sections:

Section Number	Title	Description
Section 1	Introduction	A brief introduction to this document providing background to the purpose of the document and the DSB REST API Web service.
Section 2	Site Preparation	Provides details of the REST API implementation and the tasks that are required to use the service.
Section 3	REST API methods	Provides details of the methods and workflows that are supported by the DSB.
Section 4	REST API methods Reference	Contains the definitions of the methods that are supported by the DSB REST API service including possible arguments and expected response codes.
Section 5	Methods samples	Some sample methods that illustrate the possible contents of the methods as well as their response.

1.3 Intended Audience

Anyone with an interest in creating or querying ISINs for financial OTC derivatives instruments and/or UPIs for financial products using an automated REST API web service.

1.4 Scope

This document focuses on the use of the DSB REST API to define and query for ISINs for OTC derivative financial products and/or UPI for financial products.

1.5 Contact Information

Please direct your questions on the REST API via email technical.support@anna-dsb.com

1.6 Functional Summary

The DSB REST API provides a near real time service to determine ISINs for OTC derivative financial instruments and UPIs for financial products. Each financial instrument and product supported by the DSB service is defined by a unique set of attributes verified by industry.

1.7 Activity Diagrams Summary

The following three diagrams illustrate, the DSB REST API Web service

1.7.1 DSB REST API Web service for UPI only

The following diagram illustrates, the DSB REST API Web service for UPI only

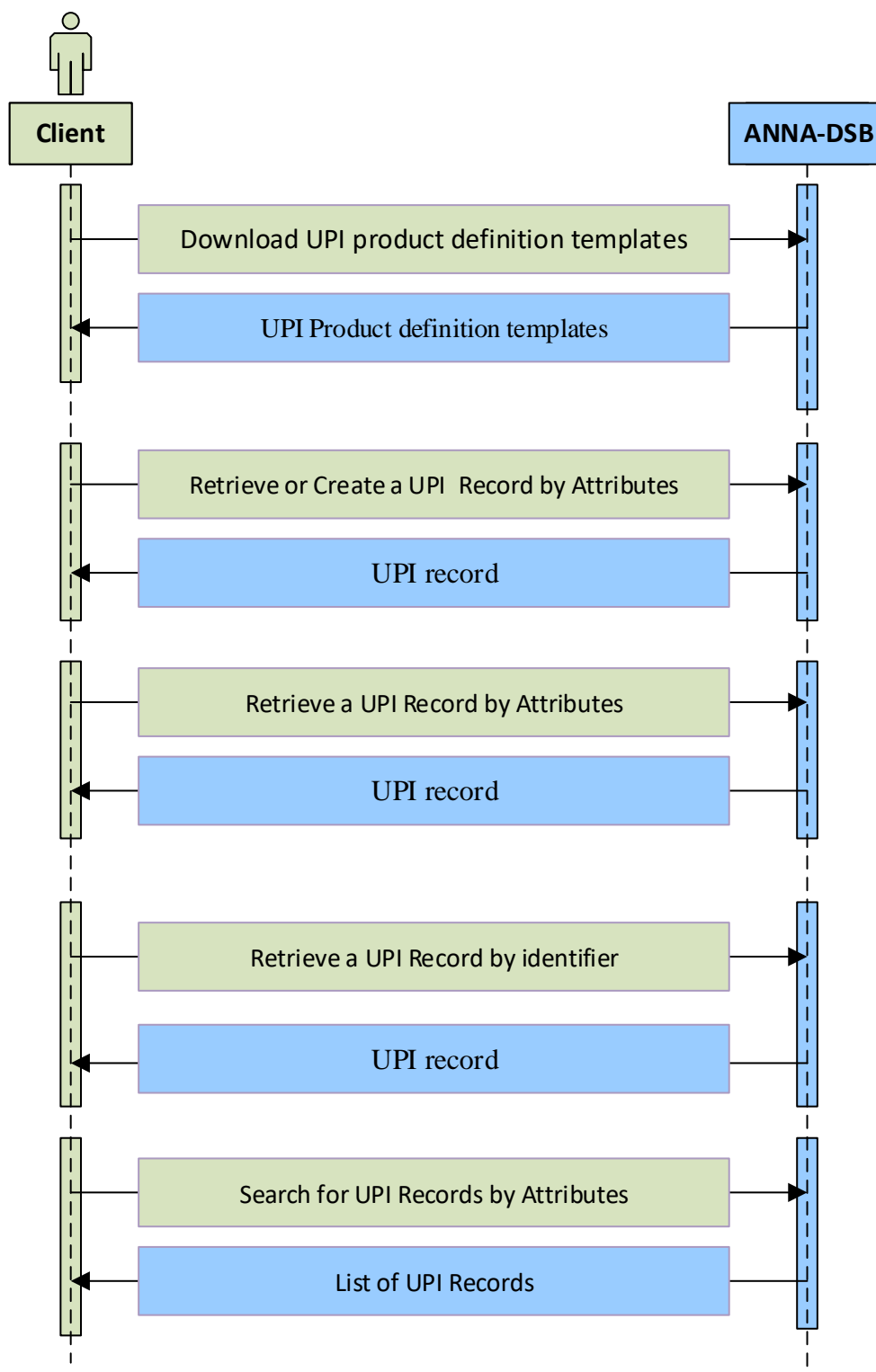


Diagram 1: UPI (only) Activity Diagram

1.7.2 DSB REST API Web service for single record (ISIN or UPI)

The following diagram illustrates, the DSB REST API Web service for ISIN and/or UPI, where a single record (ISIN or UPI is returned):

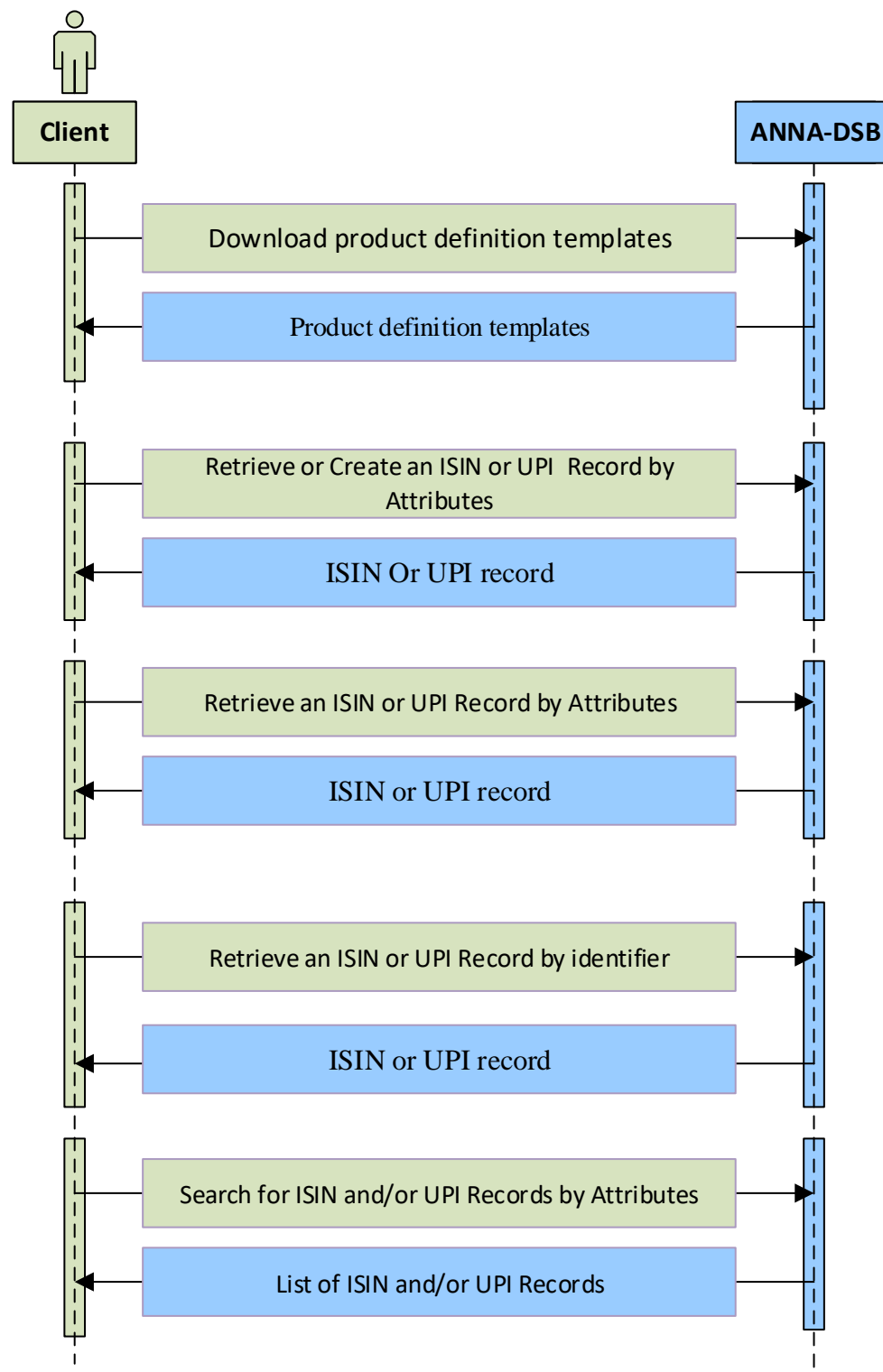


Diagram 2: Activity Diagram: Single ISIN or UPI

1.7.3 DSB REST API Web service for combined ISIN and its UPI Parent.

The following diagram illustrates, the DSB REST API Web service for ISIN and UPI, where both the ISIN and its parent records are returned.

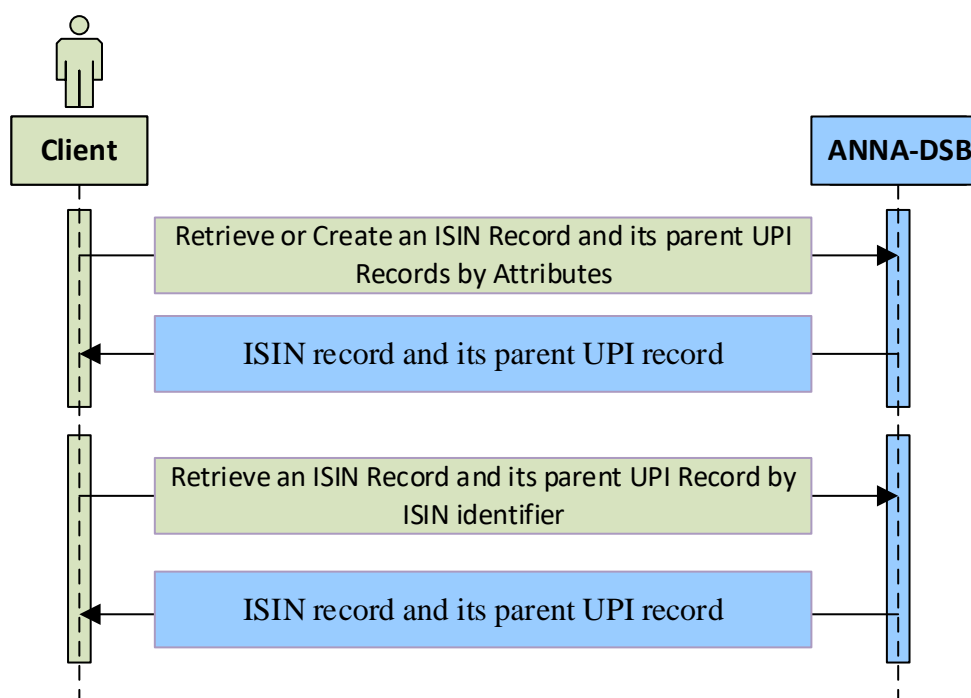


Diagram 3: Activity Diagram: Combined ISIN and UPI

2 Site Preparation

2.1 Introduction

The following preparation is required to use the DSB REST API Web Service:

- Users should follow and adhere to the [REST architectural constraints](#)¹ called RESTful APIs.
- Web service methods are transmitted over the internet using HTTPS (HTTP secure over SSL) protocol through port 443
- DSB operations will provide authentication parameters: username and password
 - Users should attach basic authentication parameters to each of the REST methods' header according to [RFC-7617](#) having:
 key = "Authorization"
 value = Basic base64(username + ":" + password)
 The username and password are concatenated with a colon separator and encoded in base64

For instance: If the user wishes to send the user-id "Aladdin" and password "open sesame", it would use the following header field:

Authorization: Basic QWxhZGRpbjpvGVuIHNIc2FtZQ==

- Users should obtain and attach 'DSB-Token' to all their REST API calls. The token can be obtained through the Client Onboarding and Support Platform (COSP), or for users that do not have access to COSP, by emailing Technical.support@anna-dsb.com.

Please add the token to the header as follows:

key = "DSB-Token"
 value = <token>

The token increases the number of Rest API calls that are processed within each minute, from a single call to 60 calls.

DSB Web Service responds with HTTP status code 429 (too many requests) when a client exceeds the rate limit.

Users are expected to treat the token as a password and never share it.

- Users should make any network/firewall configuration changes required to enable connectivity to the base DSB websites (below) over port 443

In the event that you are unable to configure your firewall or proxy via DNS aliases using the shared DSB Service stack, a separate DSB Enterprise offering is available that allows individual IP whitelisting. Please visit the [Ancillary Services](#)². Any network firewall/proxy configuration changes to enable connectivity to the above DSB Service stack should be made via the DNS hostnames indicated above as the IP addresses of these sites are dynamic.

¹ https://en.wikipedia.org/wiki/Representational_state_transfer#Architectural_constraints

² <https://www.anna-dsb.com/ancillary-services/>

- The default Base URL for REST methods (except file-download – see below) are:
 - Production environment: <https://prod.anna-dsb.com/api>
 - UAT environment: <https://uat.anna-dsb.com/api>
- The default Base URL for **file-download** REST methods are:
 - Production environment: <https://prod.anna-dsb.com>
 - UAT environment: <https://uat.anna-dsb.com>
- The response to all methods in the REST API contains “responseCode” which follows the [HTTP status codes](#)³.
 - In case of either client errors (4XX) or Server errors (5XX) the response will contain indicative (human readable) “message”.
- The DSB Web Service scheduled weekly maintenance periods can be found on the [Operating Hours and Holidays](#)⁴ page. This is subject to change due to releases which may be required to be performed via early maintenance. Users are notified of any changes via a DSB notification. During the maintenance hours, all REST methods are expected to be responded to with HTTP status code 503 (Service unavailable).
- Common HTTP status codes:
 - 200: OK, Success.
 - 401: Unauthorized
 - 429: too many request [The user has sent too many requests in a given amount of time. Intended for use with rate-limiting schemes]
 - 503: Service unavailable: [The server is currently unavailable because it is down for maintenance]

Additional HTTP status codes are listed in section 4.
- To stay up to date with the latest from the DSB, subscribe to receive DSB notifications at <https://www.anna-dsb.com/dsb-notifications-and-updates/>.

³ https://en.wikipedia.org/wiki/List_of_HTTP_status_codes

⁴ <https://www.anna-dsb.com/operating-hours-and-holidays/>

2.2 JSON Product Definitions Representation as JSON Schema

2.2.1 Product Definitions

The DSB Product Committee defines the set of Product Definitions for all OTC derivatives in scope and any future changes or additions will be made under the advisement of the Product Committee. Each Product Definition can be identified by:

- Asset Class
- Instrument Type
- Product (Use case)
- Level

Further information about Product Definitions is available on the [DSB website](#)⁵.

2.2.2 JSON and JSON Schema

JSON is a text format that is completely language independent but uses conventions that are familiar to programmers of the C-family of languages, including C, C++, C#, Java, JavaScript, Perl, Python, and many others. JSON Schema describe existing data format in a clear, human and machine-readable documentation and provides complete structural validation which is useful to validate the client submitted data.

JSON standards are available in [ECMA-404](#)⁶ as well as in [RFC-7159](#)⁷.

JSON Schema standards are available in: [JSON-SCHEMA-04](#)⁸

2.2.3 Product Definition as JSON Schema

The Product Definitions are formatted in a machine-readable format in a set of JSON schema files, which are made available by the DSB system. Users are expected to use these JSON schema when requesting an ISIN and/or a UPI via the RESTful API.

For each Product Definition there are two JSON schema files:

1	File: Request schema file Description: a schema that defines the attributes in order to request a new ISIN Naming Convention: Request.<AssetClass>.<InstrumentType>.<Product>.<Level>.json Example of a name: Request.Rate.Swap.Fixed_Float.InstRefDataReporting.json
2	File: Record schema file Description: a schema that defines the attributes in the ISIN Record which is returned from the DSB Naming Convention: <AssetClass>.<InstrumentType>.<Product>.<Level>.<Version>.json Example of a name: Rate.Swap.Fixed_Float.InstRefDataReporting.V1.json

The example for the name above is for a Product Definition where:

- Asset Class = Rate
- Instrument Type = Swap
- Product (Use Case) = Fixed_Float
- Level = InstRefDataReporting

⁵ <https://www.anna-dsb.com/products/>

⁶ <http://www.ecma-international.org/publications/standards/Ecma-404.htm>

⁷ <https://tools.ietf.org/html/rfc7159>

⁸ <https://tools.ietf.org/html/draft-zyp-json-schema-04>

The (Template) Version is added for backwards compatibility to the record file only

- Template Version = V1

2.2.4 Using JSON Schema

This subsection lists some of the main tasks and procedures to interact with the DSB system

1. User needs to obtain the up-to-date JSON schema
 - I. Users can download JSON schema using REST API (see [Obtain JSON schemas](#))
 - II. JSON schema are available to download from <https://prod.anna-dsb.com/file-download/>
 - III. JSON schema are also available through GitHub in: <https://github.com/ANNA-DSB/Product-Definitions>
2. To request for a new UPI or ISIN, user needs to:
 - I. Select a 'Request' JSON schema which matches their needs. Each Request JSON Schema can be uniquely identified by four attributes:
 - Asset Class
 - Instrument Type
 - Product (Use Case)
 - Level
 - II. Format the required product or instrument and supply its attributes as a valid *JSON request for a product or an instrument record* based on the Request JSON Schema
 - III. Embed the *JSON request for an instrument record* within a POST /records (see [Request the UPI or ISIN for a financial instrument](#)) method
3. In case the responseCode is successful (200) the response contains a *JSON instrument record*
4. To parse the *JSON instrument record*, the user needs to:
 - I. Extract the TemplateVersion attribute and Header which contains:
 - Asset Class
 - Instrument Type
 - Product (Use Case)
 - Level
 - II. Select the relevant JSON record schema that matches above attribute
 - III. Continue to parse additional attributes in the *JSON instrument record* as it must be a valid record based on the schema found above

2.3 MiFiD II Data (ToTV)

The DSB provides access to a composite instruments records that are available in [FiRDS reference data](#)⁹ or in [FiRDS transparency data](#)¹⁰

The business requirements as well as the methodology to create and update these records are available in: <https://github.com/ANNA-DSB/ToTV-uToTV>

The ToTV records are reported as JSON records based on the JSON schema that is available in: <https://github.com/ANNA-DSB/ToTV-uToTV>

The ToTV records contain:

- The entire ISIN record, if such is available in the DSB
- All the reference data that was reported in FiRDS aggregated by MIC
- The transparency thresholds like pre-trade and post-trade 'large in scale' (LIS) and 'instrument size specific' (SSTI) and others.
- Derived flags like the ToTV and uToTV flag.
- The last modified date of the record

Users can indicate in the REST API if they would like to receive DSB ISIN records or ToTV records.

⁹ <https://www.esma.europa.eu/document/firds-reference-data-reporting-instructions>

¹⁰ https://www.esma.europa.eu/sites/default/files/library/2016-1523_firds_transparency_reporting_instructions.pdf

3 REST API Workflows

3.1 Introduction

This section looks at the workflows that are supported by DSB REST API.

All the workflows implement HTTP based RESTful methods that adhere to the REST architectural constraints. The methods are detailed in [Section 4](#) below.

The HTTP Status codes in the response adhere to the standard HTTP/1.1 ([RFC 7231](#)¹¹).

3.2 Workflows summary

The following table summarizes the workflows and the methods that they use and the most significant arguments for the workflow.

	Workflow	Method	Arguments
UPI Only	Obtain JSON schemas for UPIs	GET /schemas GET /schemas	names&level=UPI schemaName
	Retrieve or Create UPI Record by Attributes	POST /records	<UPI request record>
	Retrieve UPI Record by Attributes	POST /records	create=false
	Retrieve UPI Record by UPI	GET /records/	<UPI>
	Search for UPI Records by Attributes	GET /search	query=...&level=...
	Download historical UPI records	GET /file-download	/upi/...
ISIN Only	Obtain JSON schemas for ISINs	GET /schemas GET /schemas	names&level=InstRefDataReporting schemaName
	Retrieve or Create ISIN Record by Attributes	POST /records	<ISIN request record>
	Retrieve ISIN Record by Attributes	POST /records	create=false
	Retrieve ISIN Record by ISIN	GET /records/	<ISIN>
	Search for ISIN Records by Attributes	GET /search	query=...&level=...
	Download historical ISIN records	GET /file-download	/isin/...
ISIN and its UPI parent	Obtain JSON schemas	GET /schemas GET /schemas	names schemaName
	Retrieve or Create ISIN Record and its Parent UPI Record by Attributes	POST /records	
	Retrieve ISIN Record and its Parent UPI Record by Attributes	POST /records	create=false
	Retrieve ISIN Record and its Parent UPI record by ISIN	GET /records/	<identifier>
	Search for ISIN and/or UPI Records by Attributes	GET /search	query=...
ToTV	Retrieve TOTV Record by ISIN	GET /records/	totv=true
	Download historical ToTVs	GET /file-download	/totv/ or /totv-v2/

¹¹ <https://tools.ietf.org/html/rfc7231>

3.3 UPI Only Workflows

The workflows in this subsection should be used by users that are only interested in UPIs (and do not require ISIN or TOTV records)

3.3.1 Obtain JSON schemas for UPIs

To obtain the JSON schemas for UPIs a user needs to invoke `GET /schemas?names&level=UPI` which will return the list of schema names. Using each of these names the user may invoke `GET /schemas?schemaName=<NAME>` which will return the JSON schema for that name.

Note: To download more than one schema at a time, the `schemaName` argument accepts wildcards:

- `schemaName=*UPI.*`
- `schemaName=Rates.*.UPI.*`
- `schemaName=*.Swap.UPI.*`

To obtain JSON schema a user needs to be authenticated.

The following diagram illustrates the workflow:

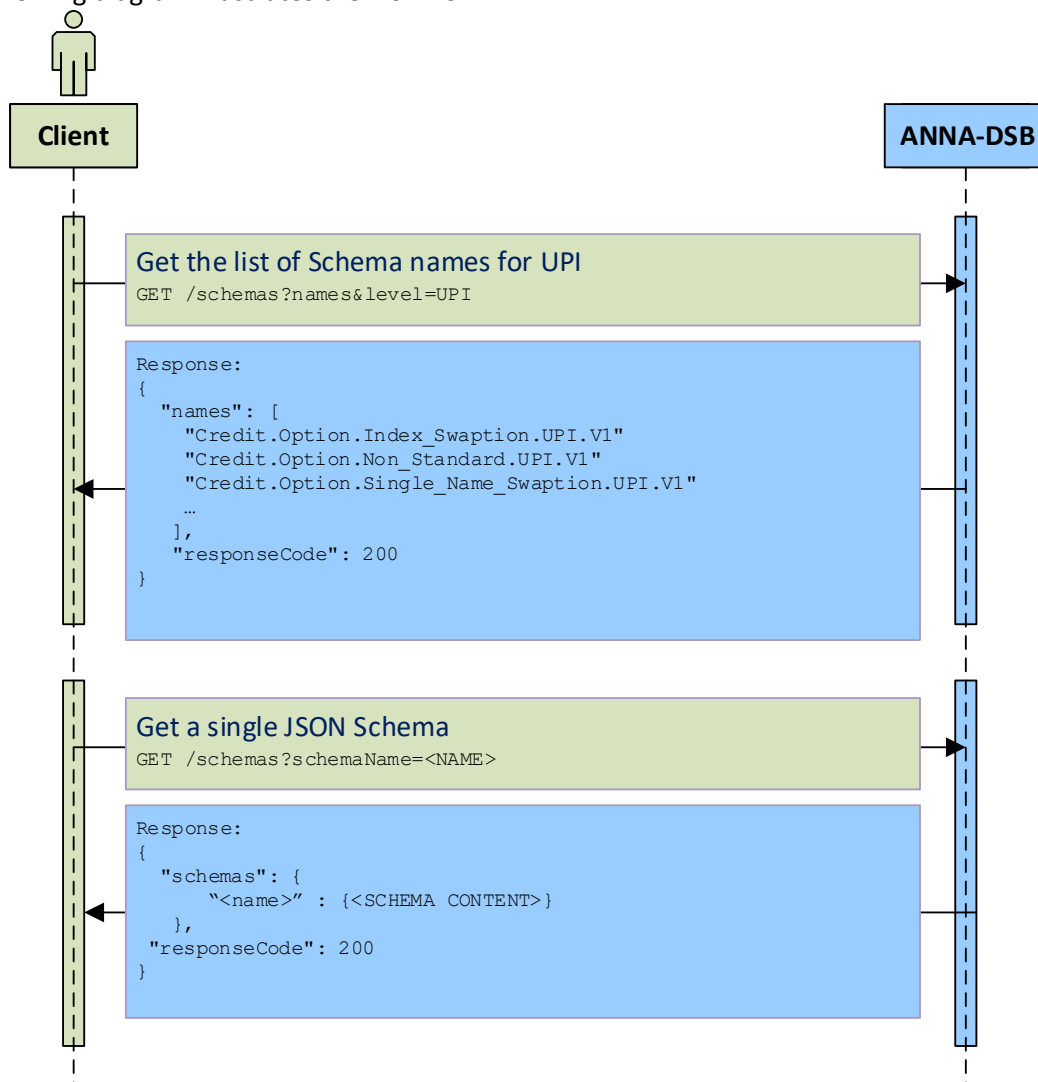


Diagram 4: Obtain JSON schema for UPIs

3.3.2 Retrieve or Create UPI Record by Attributes

The `POST /records` method is used to create the UPI record for a financial product or return the existing record if the UPI record already exists. The financial product is defined by a *JSON request* object provided in the “record” within the body of the request.

The input JSON record must contain a “record” component where the financial product request is provided. The input may also contain a “requestContext” which will be echoed back in the response and may help users to identify their request.

The REST API service will first search for an existing UPI that has identical attributes as the record and if such an UPI exists, the result record will contain the UPI.

If such a UPI does not exist, the DSB will allocate a new UPI for this request.

In both cases, provided the request is valid, the resulting record will contain a UPI. The client will not be able to tell if the UPI was just allocated or if it existed prior to this call.

Users that wish to send alternative identifiers of the underlier (e.g. CUSIP, FIGI, or SEDOL instead of ISIN), are required to request permission via the DSB Client Onboarding and Support Platform (DSB COSP). By default, the use of alternative identifiers is forbidden.

Users that wish to retrieve alternative identifiers of the underlier alongside the UPI record (e.g. CUSIP, FIGI or SEDOL instead of ISIN), should:

1. Request permission via the DSB COSP. By default, the use of alternative identifiers is forbidden.
2. Attach a ‘requestContext’ that contains one of:
 - o `"requestContext":{ "AltUnderlyingSource":"CUSIP" }`
 - o `"requestContext":{ "AltUnderlyingSource":"FIGI" }`
 - o `"requestContext":{ "AltUnderlyingSource":"RIC" }`
 - o `"requestContext":{ "AltUnderlyingSource":"SEDOL" }`

Users may only specify a single `AltUnderlyingSource` (during each call).

The `requestContext` may contain additional information which will be echoed back in the response and may help users to identify their request.

If the call is successful and the underlier of the UPI record has the requested alternative underlier identifier(s), the return record will contain the UPI record alongside the alternative underlier identifier(s).

If the call is successful but the underlier of the UPI record does not have the requested alternative underlier identifier(s), the return record will contain only the UPI record. (but will omit the alternative underlier identifier(s) record).

Please note that multiple requests (array) in a single creation of a record is not supported.

The following diagram illustrates the workflow:

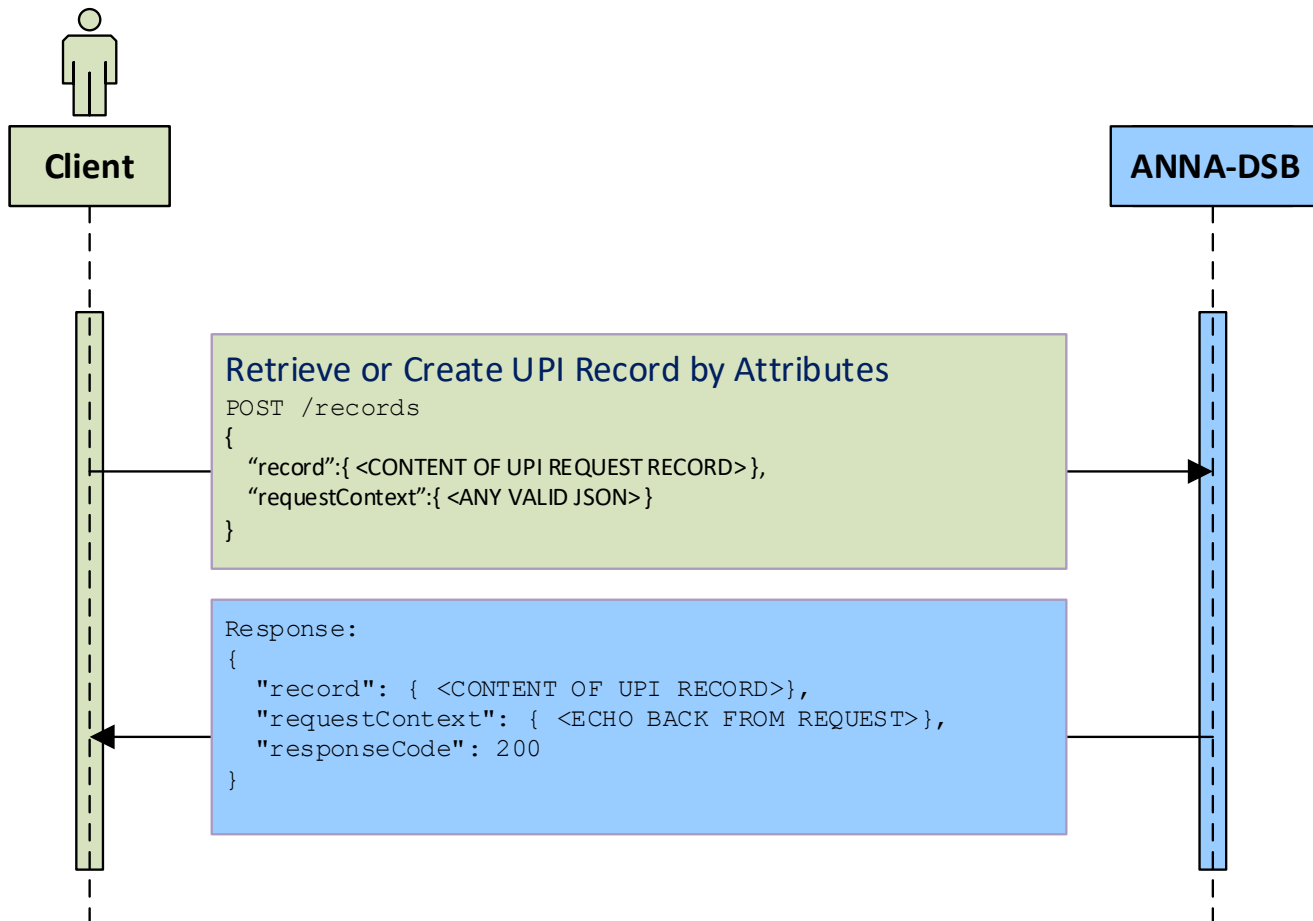


Diagram 5: Retrieve or Create UPI Record by Attributes

3.3.3 Retrieve UPI Record by Attributes

The `POST /records` method that is described in the previous section, can be used with additional parameter: `POST /records?create=false`

The additional parameter: `create=false` guarantees that no new record will be added to the system.

For the input JSON record (and use of alternate identifiers of the UPI underlier) see the previous section.

The REST API service will search for an existing UPI that has identical attributes as the supplied record and if such an UPI exists, the result record will contain the UPI record.

If such an UPI does not exist, the DSB will not allocate a new UPI, instead the system will calculate all derived values and the output record will contain all attributes except the UPI value.

This method can be used to resolve the derived attributes (e.g. CFI code, and FISN) of the record without the need to create the associated UPI.

The following diagram illustrates the workflow:

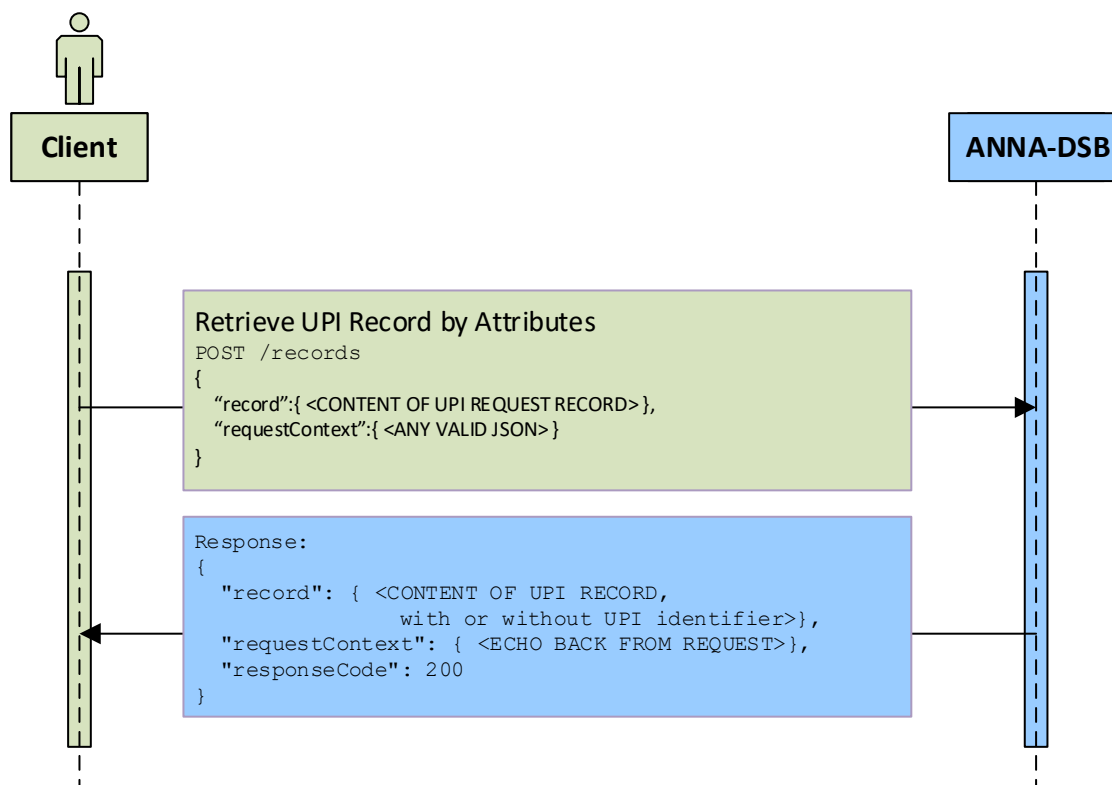


Diagram 6: Retrieve UPI Record by Attributes

3.3.4 Retrieve UPI Record by UPI

The `GET /records/<UPI>` method is used to return the UPI record for an existing UPI identifier. The UPI identifier is specified in `<UPI>`.

Users that wish to retrieve alternative identifiers of the underlier alongside the UPI record (e.g. CUSIP, FIGI or SEDOL instead of ISIN), should:

1. Request permission via the DSB COSP. By default, the use of alternative identifiers is forbidden.
2. Attach a 'requestContext' that contains one of:
 - o `"requestContext":{ "AltUnderlyingSource":"CUSIP" }`
 - o `"requestContext":{ "AltUnderlyingSource":"FIGI" }`
 - o `"requestContext":{ "AltUnderlyingSource":"RIC" }`
 - o `"requestContext":{ "AltUnderlyingSource":"SEDOL" }`

Users may only specify a single `AltUnderlyingSource` (during each call).

The `requestContext` may contain additional information which will be echoed back in the response and may help users to identify their request.

If the call is successful and the underlier of the UPI record has the requested alternative underlier identifier(s), the return record will contain the UPI record alongside the alternative underlier identifier(s).

If the call is successful but the underlier of the UPI record does not have the requested alternative underlier identifier(s), the return record will contain only the UPI record. (but will omit the alternative underlier identifier(s) record).

The following diagram illustrates the workflow:

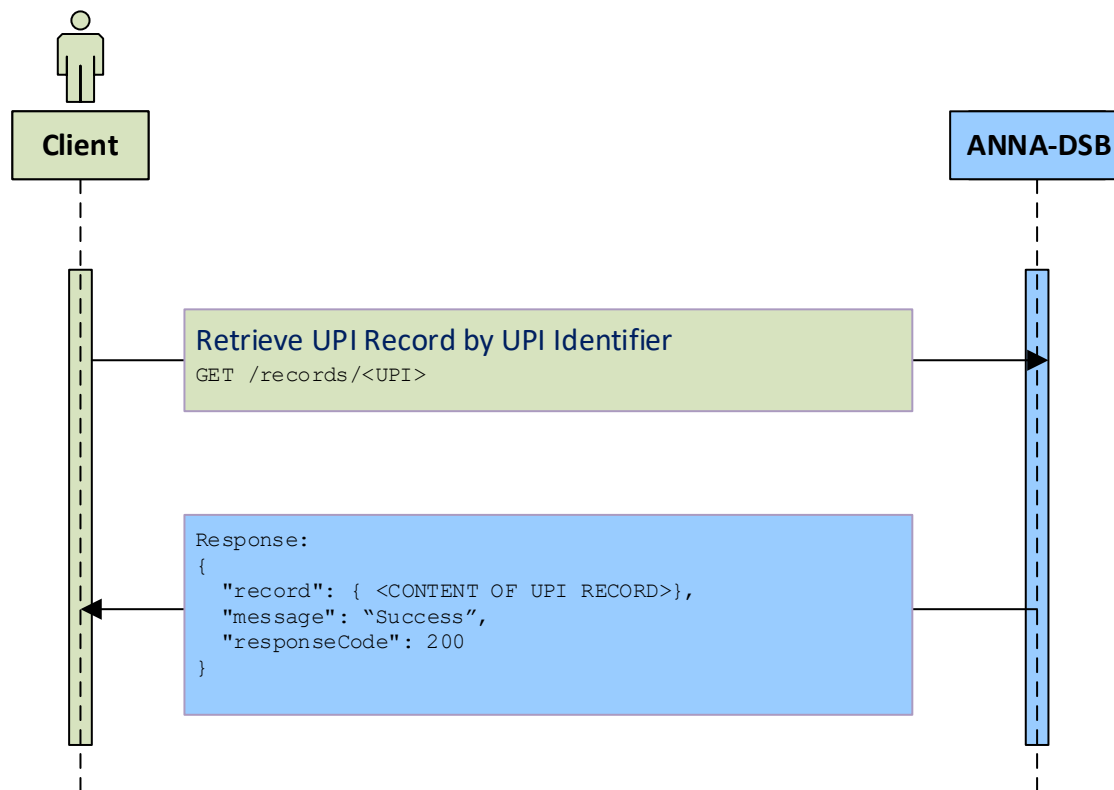


Diagram 7: Retrieve UPI Record by UPI

3.3.5 Search for UPI Records by Attributes

The GET /search?level=UPI method can be used to search for ISIN records that match the supplied criteria.

The user must specify the following arguments:

- query: (i.e. a query string). Please refer to DSB Search Query Syntax document.
- pageSize: which is the maximum number of results that are returned in each page
- pageNum: see explanation below
- requestContext: a valid JSON record that may help to identify the query

To retrieve the first 100 records, the user should specify:

- "pageSize" : 100
- "pageNum" : 1

To retrieve the next 100 records, the user should invoke the GET /search/ method again, with the same query but using:

- "pageSize" : 100
- "pageNum" : 2

A valid response contains all the above arguments (in a JSON record) together with:

- Records: which contains the result UPI records
- totalResults: The number of total records that matches the query criteria
- responseCode: Matches the HTTP status code

Users that wish to retrieve alternative identifiers of the underlier alongside the UPI records (e.g. CUSIP, FIGI or SEDOL instead of ISIN), should:

1. Request permission via the DSB COSP . By default, the use of alternative identifiers is forbidden.
2. Attach a 'requestContext' that contains one of:
 - "requestContext":{ "AltUnderlyingSource":"CUSIP" }
 - "requestContext":{ "AltUnderlyingSource":"FIGI" }
 - "requestContext":{ "AltUnderlyingSource":"RIC" }
 - "requestContext":{ "AltUnderlyingSource":"SEDOL" }

Users may only specify a single AltUnderlyingSource (during each call).

The requestContext may contain additional information which will be echoed back in the response and may help users to identify their request.

If the call is successful, UPI records that have alternative underliers identifiers (that match the request) will contain a UPI record alongside the alternative underlier identifier(s).

The following diagram illustrates the workflow:

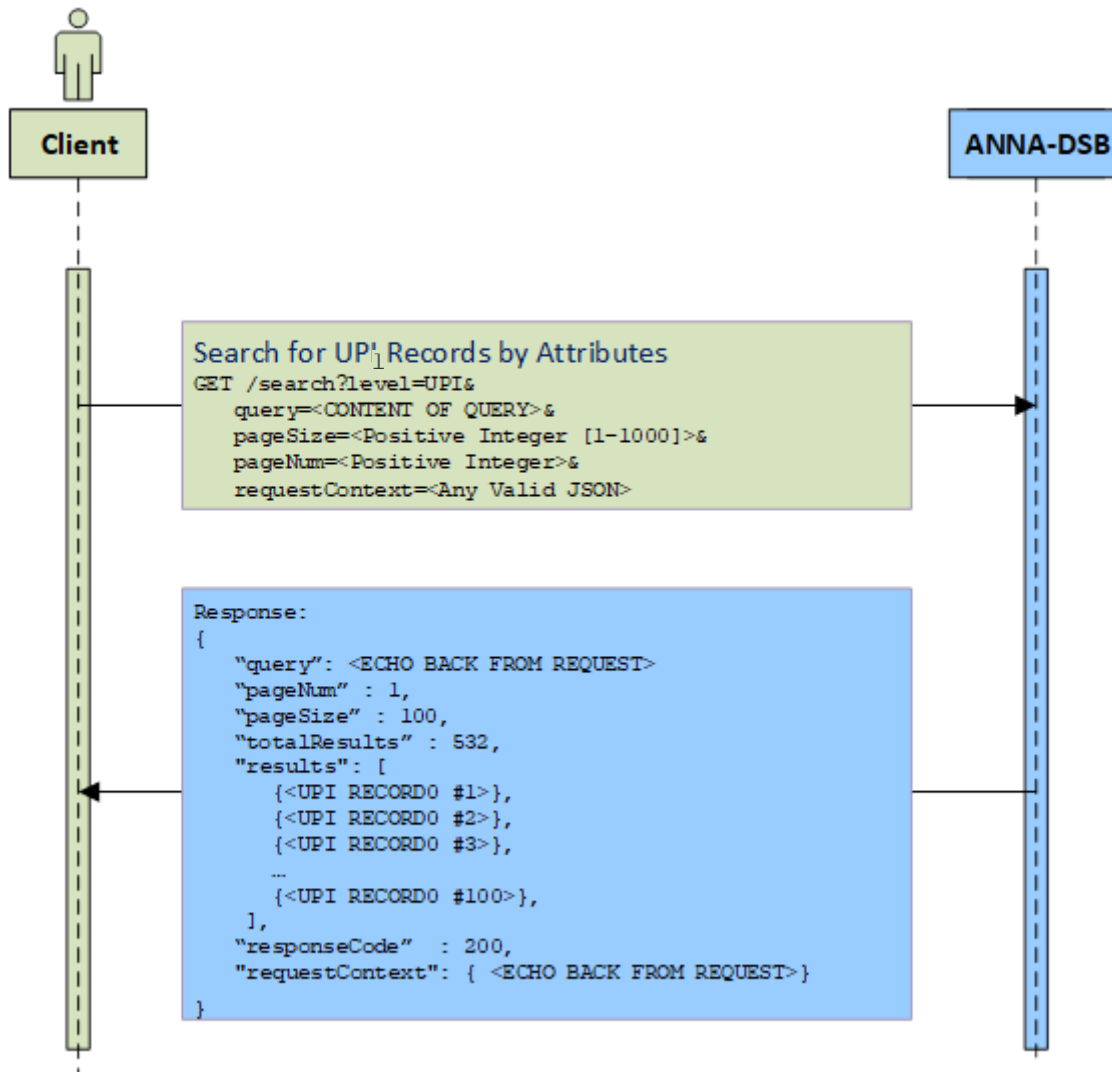


Diagram 8: Search for UPI Records by Attributes

3.3.6 Download historical UPI records

The GET `/file-download/Records/OTC-Products/Delta/UPI/<YYYY>/<YYYYMMDD>/<ASSET-CLASS>/<ASSET-CLASS>-<YYYYMMDD>.records` method is used to download historical UPI records.

The `<YYYY>` refers to the year and `<YYYYMMDD>` stands for a valid date when UPI records were allocated or updated.

`<ASSET-CLASS>` is one of:

- Credit
- Commodities
- Equity
- Foreign_Exchange
- Rates
- Other

The response contains UPI records separated by newline (`'\n'`) that were either allocated or modified on the `YYYYMMDD` date. Each record is a valid JSON UPI record.

For further information, please refer the DSB file-download user guide.

3.3.7 Download historical UPI records with Alternative Underlier Identifiers

Users that wish to download historical UPI records with Alternative Underlier Identifier(s) should:

1. Request permission via the DSB COSP. By default, the use of alternative identifiers is forbidden.
2. Use one of the methods:
 - GET /file-download/Records/OTC-Products/Delta/UPI/CUSIP/<YYYY>/<YYYYMMDD>/<ASSET-CLASS>/<ASSET-CLASS>-<YYYYMMDD>.records
 - GET /file-download/Records/OTC-Products/Delta/UPI/FIGI/<YYYY>/<YYYYMMDD>/<ASSET-CLASS>/<ASSET-CLASS>-<YYYYMMDD>.records
 - GET /file-download/Records/OTC-Products/Delta/UPI/RIC/<YYYY>/<YYYYMMDD>/<ASSET-CLASS>/<ASSET-CLASS>-<YYYYMMDD>.records
 - GET /file-download/Records/OTC-Products/Delta/UPI/SEDOL/<YYYY>/<YYYYMMDD>/<ASSET-CLASS>/<ASSET-CLASS>-<YYYYMMDD>.records

For further information, please refer the DSB file-download user guide.

3.4 ISIN ONLY Workflows

The workflows in this subsection should be used by users that are interested in ISINs (and do not involve UPI or TOTV records). Note that each ISIN record includes its parent UPI identifier, but the UPI record is not available by these methods.

3.4.1 Obtain JSON schemas for ISINs

To obtain the JSON schemas for ISINs user needs to invoke `GET /schemas?names&level=InstRefDataReporting` that will return the list of schema names. Using each of these names the user may invoke `GET /schemas?schemaName=<NAME>` that will return the JSON schema for that name.

Note: To download more than one schema at a time, the `schemaName` argument accepts wildcards:

- `schemaName=*.InstRefDataReporting.*`
- `schemaName=Rates.*.InstRefDataReporting.*`
- `schemaName=*.Swap.InstRefDataReporting.*`

To obtain JSON schema a user needs to be authenticated.
 The following diagram illustrates the workflow:

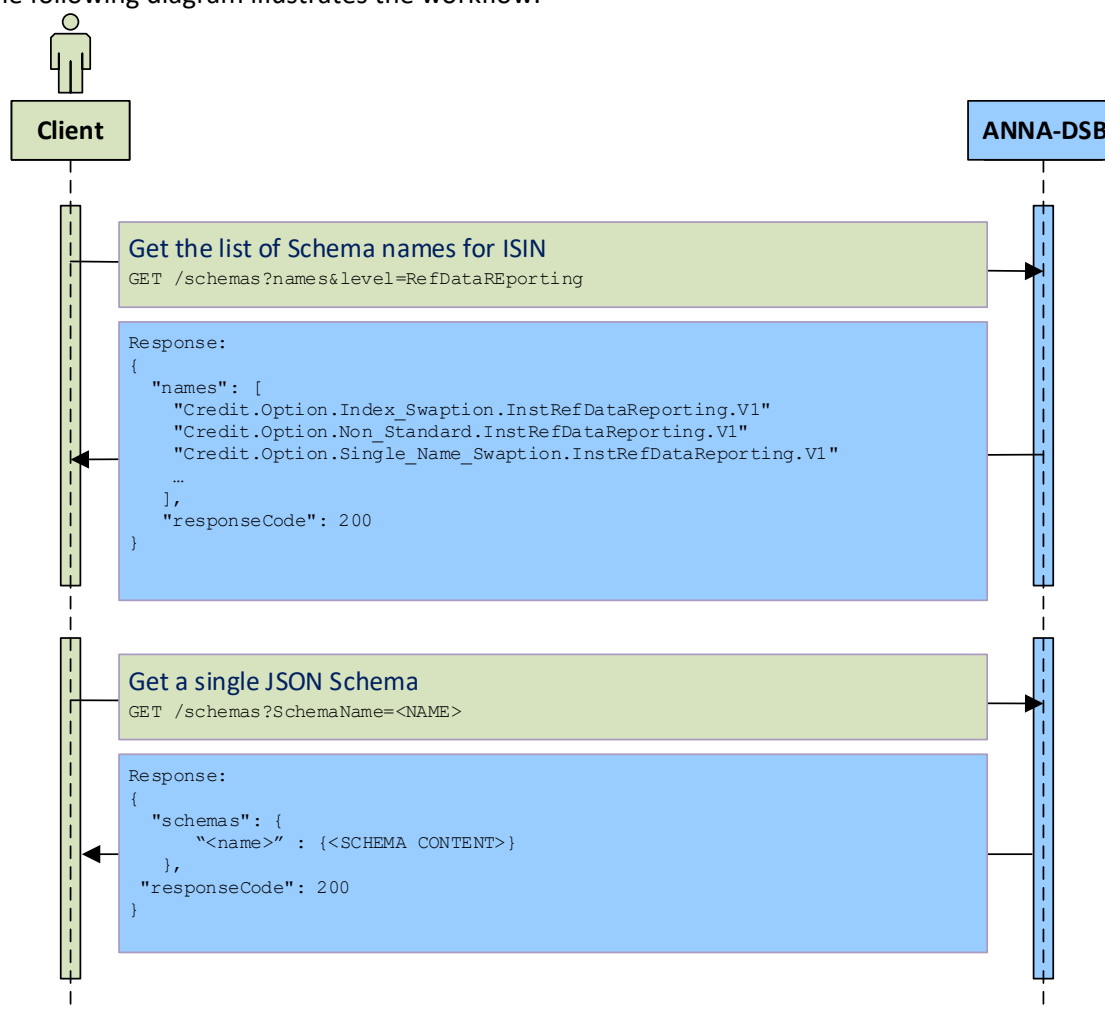


Diagram 9: Obtain JSON schema for ISINs

3.4.2 Retrieve or Create ISIN Record by Attributes

The `POST /records` method is used to create the ISIN record for a financial instrument or return the existing record if the ISIN record already exists. The financial instrument is defined by a *JSON instrument request* object provided in the “record” within the body of the request.

The input JSON record must contain a “record” component where the financial instrument is provided. The input may also contain a “requestContext” which will be echoed back in the response and may help users to identify their request.

The REST API service will first search for an existing ISIN that has identical attributes as the record and if such an ISIN exists, the result record will contain the ISIN.

If such a ISIN does not exist, the DSB will allocate a new ISIN for this request.

In both cases, provided the request is valid, the resulting record will contain a ISIN. The client will not be able to tell if the ISIN was just allocated or if it existed prior to this call.

Please note that multiple requests (array) in a single creation of a record is not supported.

The following diagram illustrates the workflow:

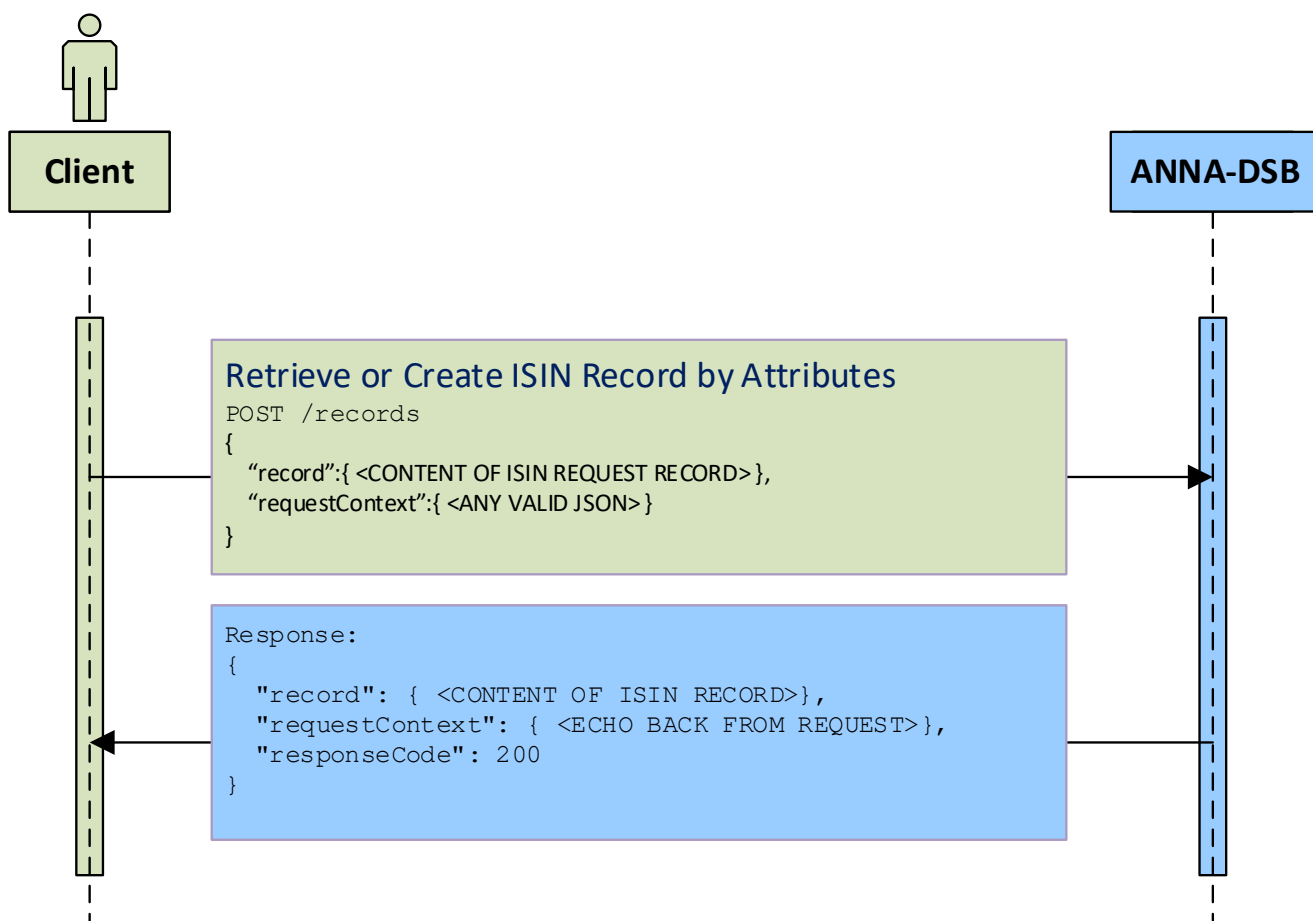


Diagram 10: Retrieve or Create ISIN Record by Attributes

3.4.3 Retrieve ISIN Record by Attributes

The `POST /records` method that is described in the previous section, can be used with additional parameter: `POST /records?create=false`

The additional parameter: `create=false` guarantees that no new record will be added to the system.

For the input JSON record see the previous section.

The REST API service will search for an existing ISIN that has identical attributes as the supplied record and if such an ISIN exists, the result record will contain the ISIN record.

If such an ISIN does not exist, the DSB will not allocate a new ISIN, instead the system will calculate all derived values and the output record will contain all attributes except the ISIN value.

This method can be used to determine the derived attributes (e.g. CFI code, and FISN) of the record without the need to create the associated ISIN.

The following diagram illustrates the workflow:



Diagram 11: Retrieve ISIN Record by Attributes

3.4.4 Retrieve ISIN Record by ISIN

The GET /records/<ISIN> method is used to return the ISIN record for an existing ISIN identifier. The ISIN identifier is specified in <ISIN>.

The following diagram illustrates the workflow:

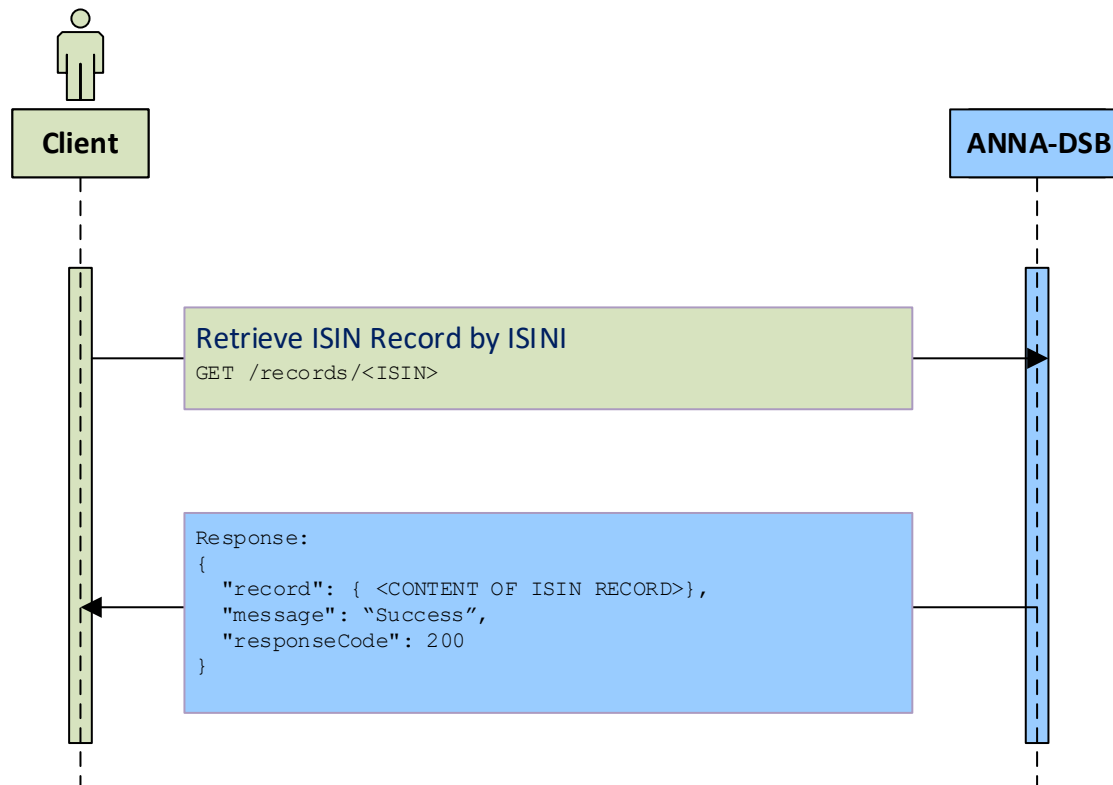


Diagram 12: Retrieve ISIN Record by ISIN

3.4.5 Search for ISIN Records by Attributes

The GET /search?level=InstRefDataReporting method can be used to search for ISIN records that match the supplied criteria.

The user must specify the following arguments:

- query: (i.e. a query string). Please refer to [DSB Search Guide](#).
- pageSize: which is the maximum number of results that are returned in each page
- pageNum: see explanation below
- requestContext: a valid JSON record that may help to identify the query

To retrieve the first 100 records, the user should specify:

- "pageSize" : 100
- "pageNum" : 1

To retrieve the next 100 records, the user should invoke the GET /search/ method again, with the same query but using:

- "pageSize" : 100
- "pageNum" : 2

A valid response contains all the above arguments (in a JSON record) together with:

- Records: which contains the result ISIN records
- totalResults: The number of total records that matches the query criteria
- responseCode: Matches the HTTP status code

The following diagram illustrates the workflow:

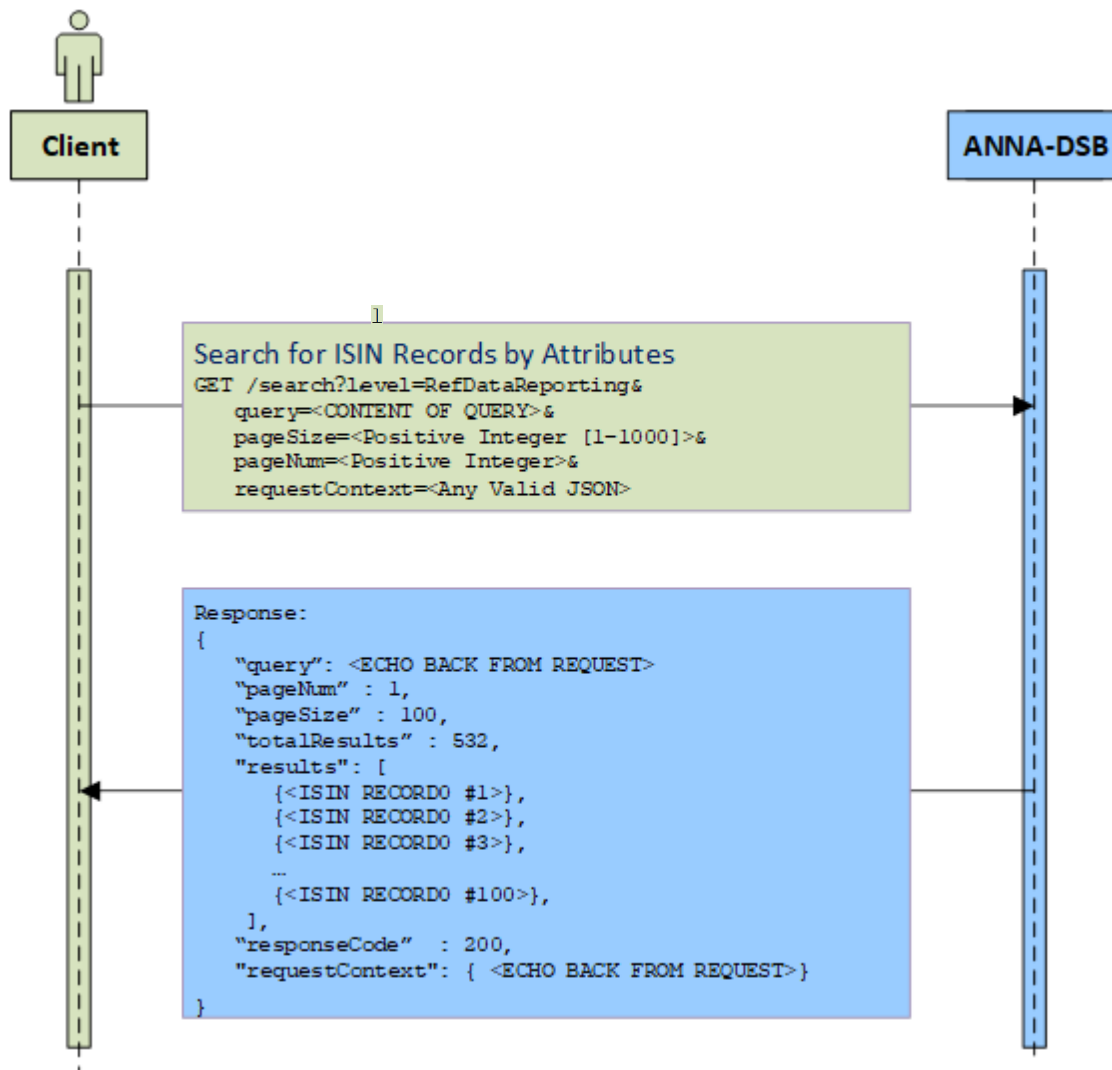


Diagram 13: Search for ISIN Records by Attributes

3.4.6 Download historical ISIN records

The `GET /file-download/Records/OTC-Products/Delta/ISIN/<YYYY>/<YYYYMMDD>/<ASSET-CLASS>/<ASSET-CLASS>-<YYYYMMDD>.records` method is used to download historical ISIN records.

The `<YYYY>` refers to the year and `<YYYYMMDD>` stands for a valid date when ISIN records were allocated or updated.

`<ASSET-CLASS>` is one of:

- Credit
- Commodities
- Equity
- Foreign_Exchange
- Rates
- Other

The response contains ISIN records separated by newline (`'\n'`) that were either allocated or modified on the `YYYYMMDD` date. Each record is a valid JSON ISIN record.

For further information, please refer the DSB file-download user guide.

3.5 ISIN and its Parent UPI Workflows

The workflows in this subsection should be used by users that are interested in ISINs and their parent UPI. Note that each ISIN record includes its parent UPI identifier, and the UPI record is also available by these workflows.

3.5.1 Obtain JSON schemas

To obtain the JSON schemas for both ISINs and UPIs user needs to invoke `GET /schemas?names` that will return the list of all schema names. Using each of these names the user may invoke `GET /schemas?schemaName=<NAME>` that will return the JSON schema for that name.

Note: To download more than one schema at a time, the `schemaName` argument accepts wildcards:

- `schemaName=*`
- `schemaName=Rates.*`
- `schemaName=*.Swap.*`

To obtain JSON schema a user needs to be authenticated.

User may add the flag: `internalizeRefs` to the query

(i.e.: `GET /schemas?schemaName=<NAME>&internalizeRefs`) that will return a “denormalised” schema where some of the definitions exists in external schema.

Note: `internalizeRefs` flag is supported temporarily for legacy (backward compatibility) reasons. The DSB intends to stop supporting this flag. The DSB recommends not to use this flag.

The following diagram illustrates the workflow:

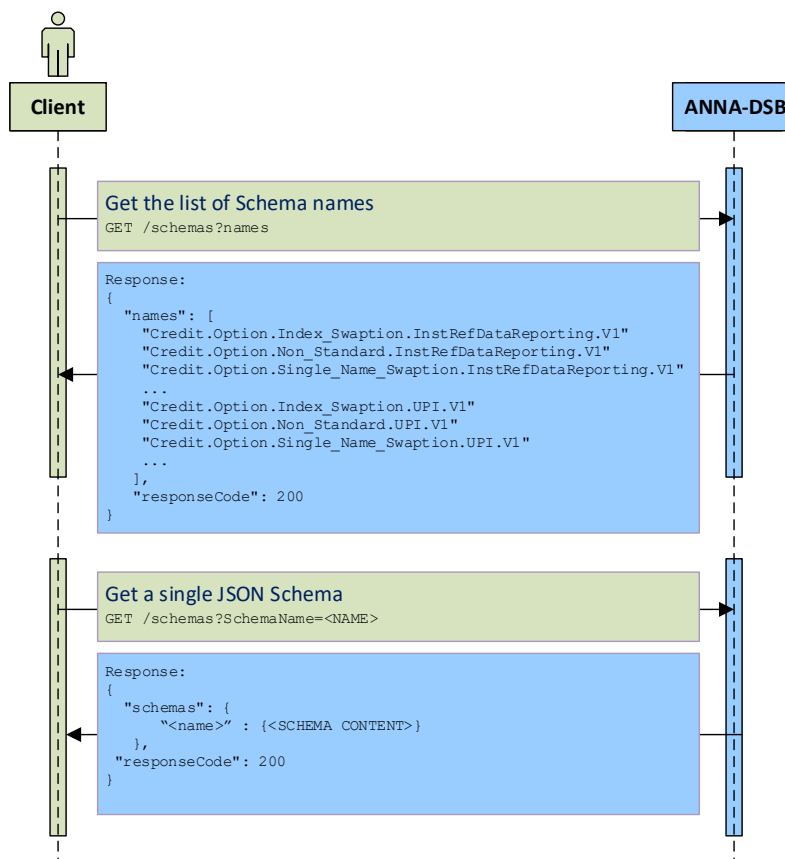


Diagram 14: Obtain JSON schema

3.5.2 Retrieve or Create ISIN Record and its Parent UPI Record by Attributes

The `POST /records&parents=true` method is used to create an ISIN record for financial instrument and its parent UPI record; If either of the (ISIN or its parent UPI) records already exist, this method returns the existing record(s).

The input JSON record must be a valid request within the “record” component record. In case the request is for a UPI record, only the UPI is returned (but not an ISIN); The input may also contain a “requestContext” which will be echoed back in the response and may help users to identify their request.

The REST API service will first search for an existing record that has identical attributes as the request and if such exists, the result record will contain the record, if the record is an ISIN, its parent UPI record is attached to the result.

If such an ISIN does not exist, the DSB will allocate a new ISIN for this request.

If the Parent UPI does not exist, the DSB will allocate a new UPI for this request. The UPI code is added to the ISIN record in `/ISIN/Parents/UPI` attribute.

If the request is a valid ISIN request, the result contains ISIN record and its parent UPI record.

If the request is a valid UPI request, the result contains only UPI record.

The client will not be able to tell if either the UPI or the ISIN were just allocated or if either of them existed prior to this call.

The following diagram illustrates the workflow:

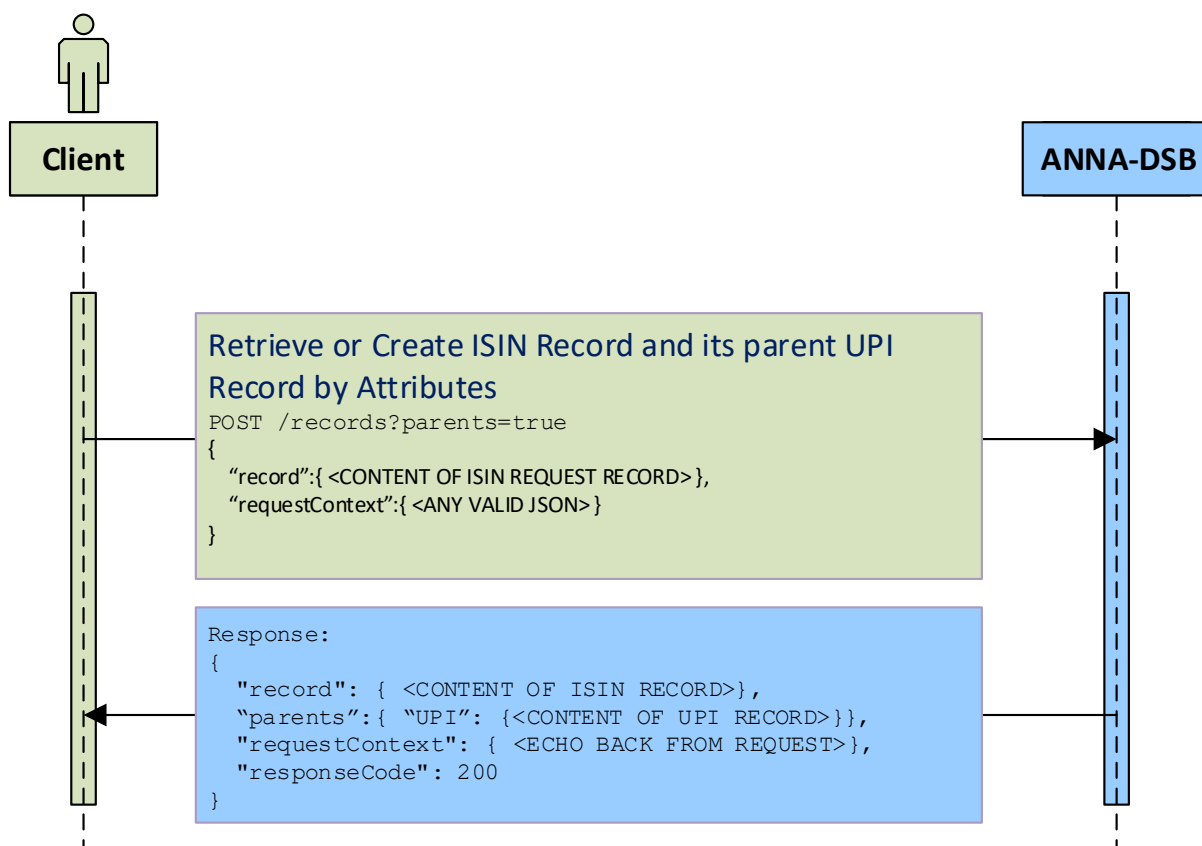


Diagram 15: Retrieve or Create ISIN Record and its Parent UPI Record by Attributes

3.5.3 Retrieve ISIN Record and its Parent UPI Record by Attributes

The POST `/records&parents=true&create=false` method is used to retrieve an ISIN record for financial instrument and its parent UPI record;

The additional parameter: `create=false` guarantees that no new record will be added to the system.

For the input JSON record see the previous section.

The REST API service will first search for an existing record that has identical attributes as the request and if such exists, the result record will contain the record, if the record is an ISIN, its parent UPI record is attached to the result.

If such a record does not exist, the DSB will not allocate a new ISIN, instead the system will calculate all derived values and the output record will contain all attributes except of the identifier (ISIN and/or UPI) value.

If the Parent UPI does not exist, the DSB will not allocate a new UPI for this request. Instead the system will calculate all derived values and the UPI output record will contain all attributes except of the UPI identifier.

The following diagram illustrates the workflow:

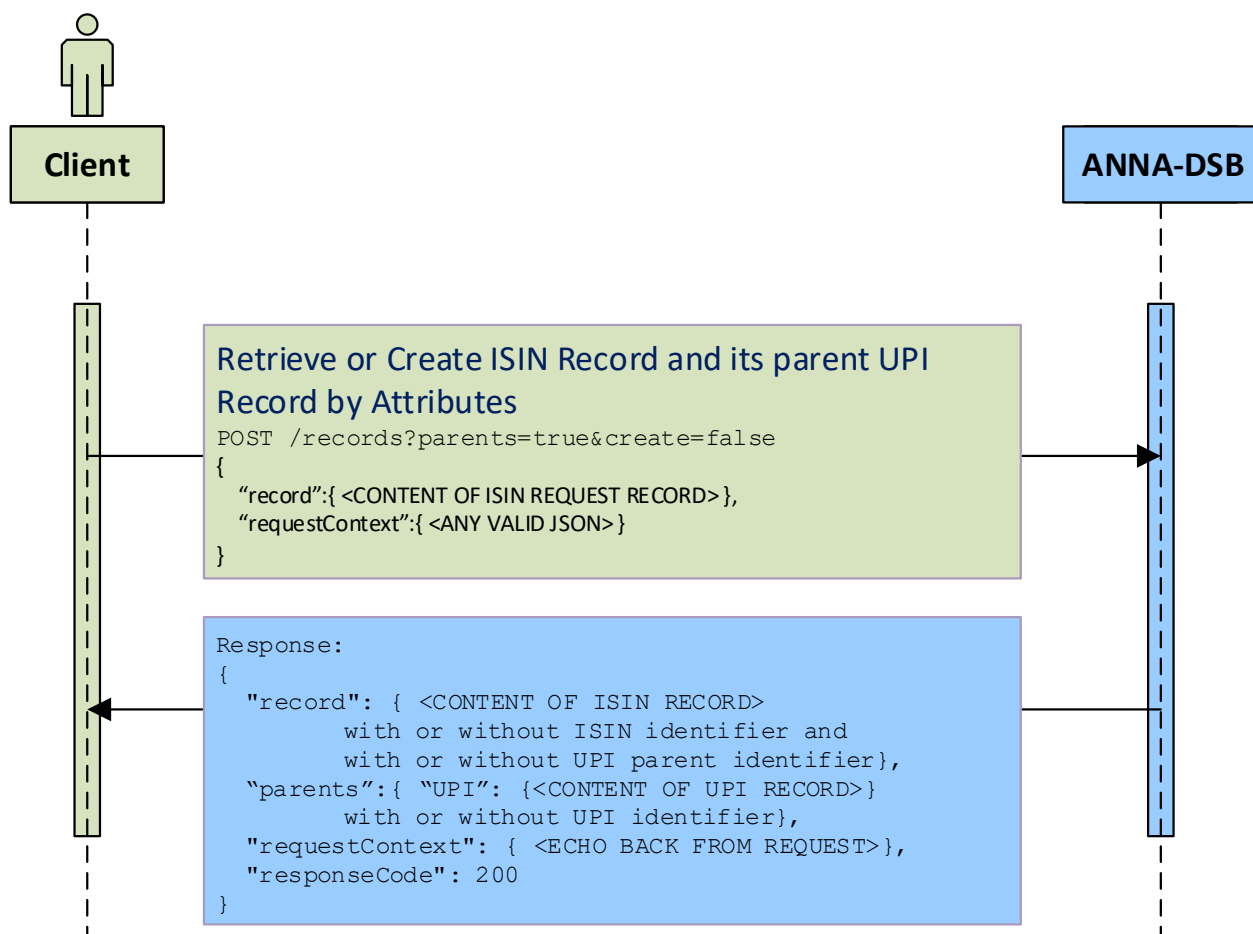


Diagram 16: Retrieve ISIN Record and its Parent UPI Record by Attributes

3.5.4 Retrieve ISIN Record and its Parent UPI record by ISIN

The `GET /records/<ISIN>?Parents=true` method is used to return the ISIN record for an existing ISIN identifier. The ISIN identifier is specified in `<ISIN>`.

The following diagram illustrates the workflow:

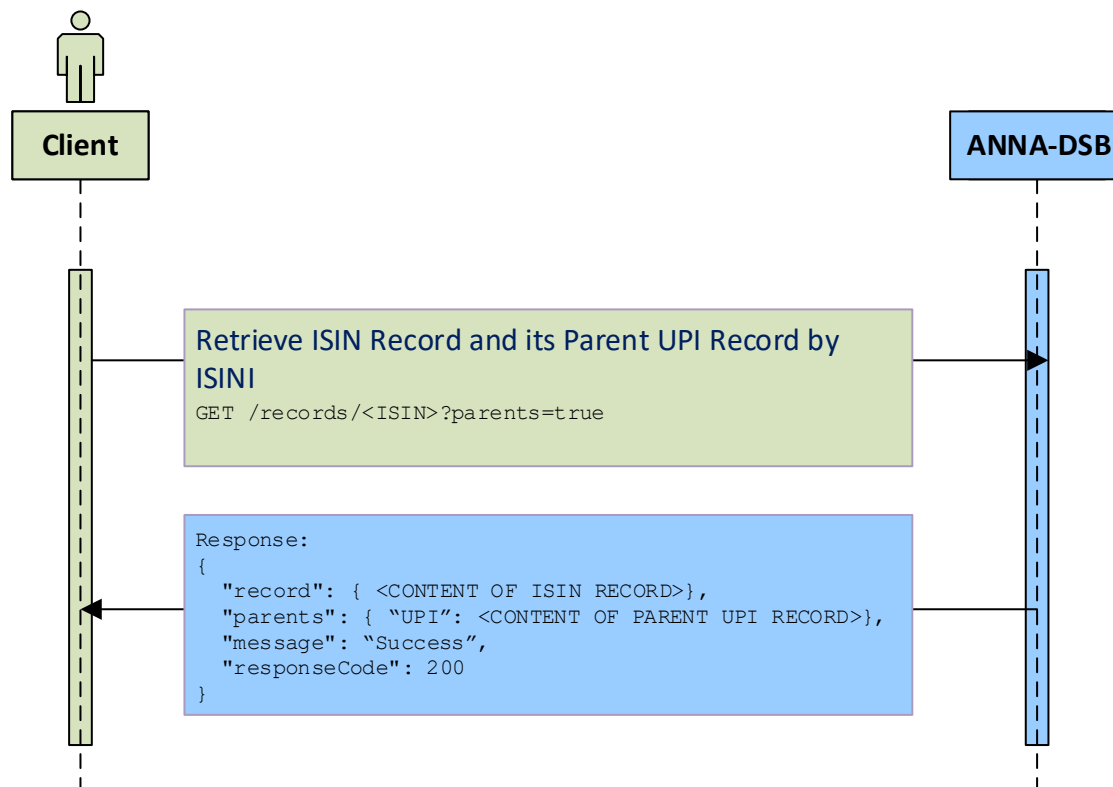


Diagram 17: Retrieve ISIN Record and its Parent UPI record by ISIN

3.5.5 Search for ISIN and/or UPI Records by Attributes

The GET /search method can be used to search for ISIN and/or UPI records that match the supplied criteria.

The user must specify the following arguments:

- query: (i.e. a query string). Please refer to DSB Search Query Syntax document.
- pageSize: which is the maximum number of results that are returned in each page
- pageNum: see explanation below
- requestContext: a valid JSON record that may help to identify the query

To retrieve the first 100 records, the user should specify:

- "pageSize" : 100
- "pageNum" : 1

To retrieve the next 100 records, the user should invoke the GET /search/ method again, with the same query but using:

- "pageSize" : 100
- "pageNum" : 2

A valid response contains all the above arguments (in a JSON record) together with:

- Records: which contains the result records; Each record may be either a UPI or an ISIN record; All records match the search query criteria
- totalResults: The number of total records that matches the query criteria
- responseCode: Matches the HTTP status code

The following diagram illustrates the workflow:

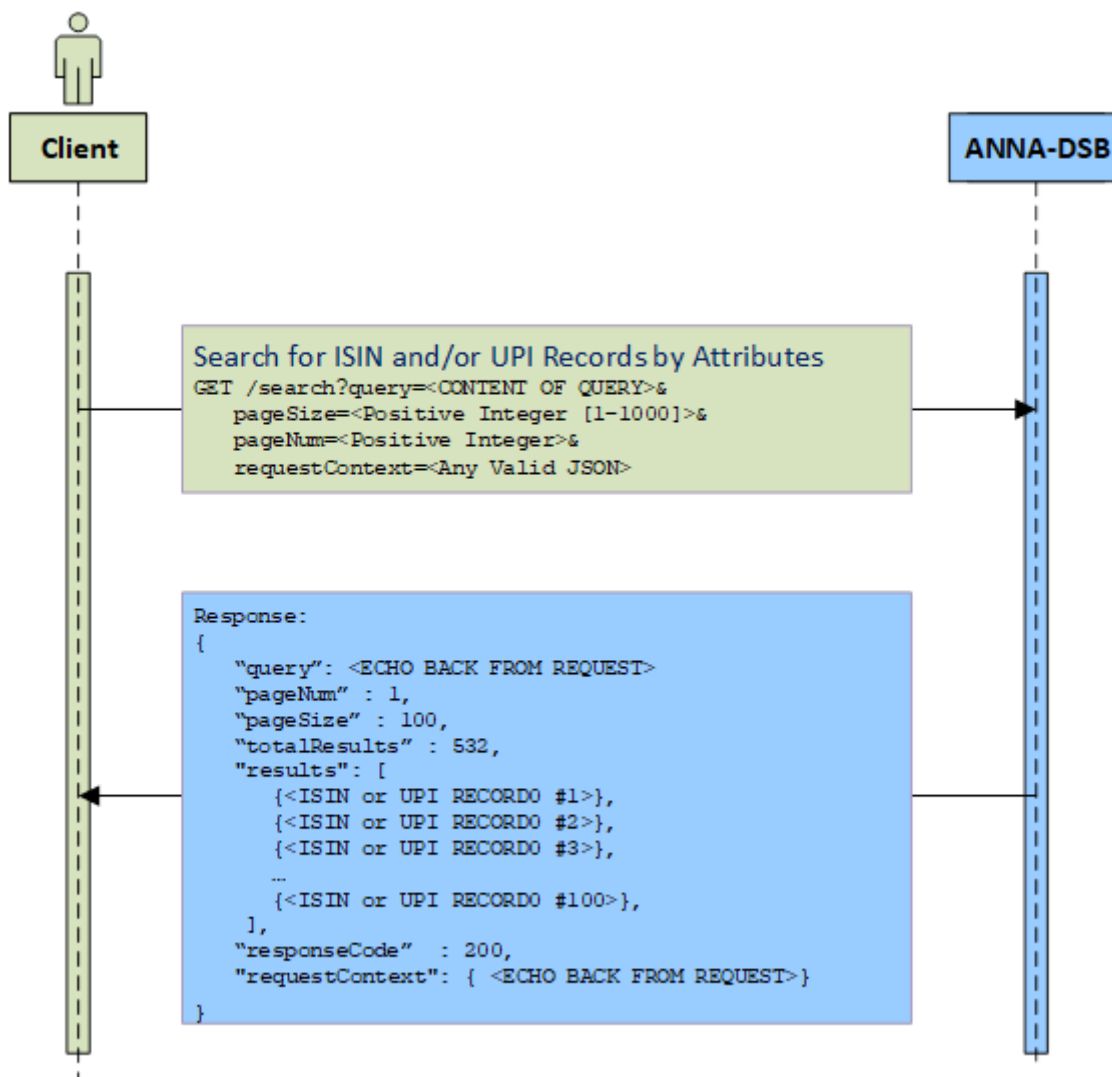


Diagram 18: Search for ISIN Records by Attributes

3.6 TOTV Workflows

The workflows in this subsection should be used by users that are interested in TOTV records.

3.6.1 Retrieve TOTV Record by ISIN

The `GET /records/<ISIN>?totv=true` method is used to return the TOTV version1 record for an existing ISIN identifier. The ISIN identifier is specified in <ISIN>.

The `GET /records/<ISIN>?totv=true&version=2` method is used to return the TOTV version 2 record for an existing ISIN identifier. The ISIN identifier is specified in <ISIN>.

The following diagram illustrates the workflow:

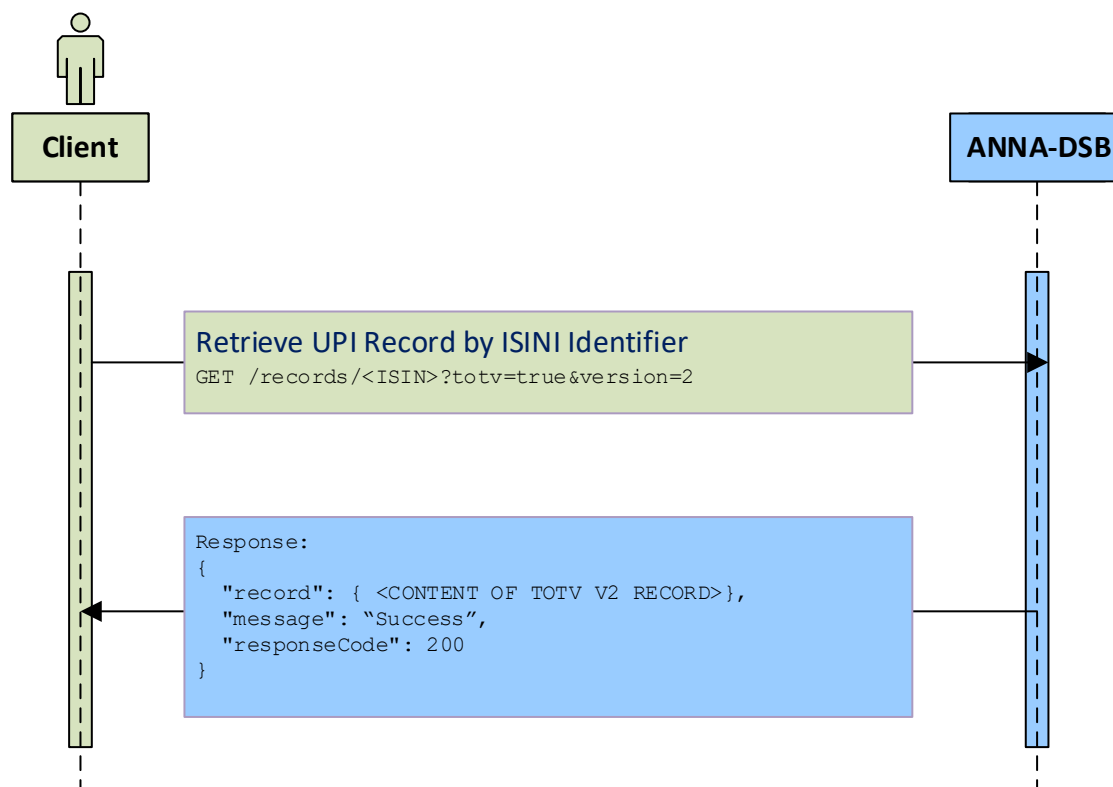


Diagram 19: Retrieve ISIN Record by ISIN

3.6.2 Download historical ToTVs

The GET `/file-download/totv-v2/<YYYYMMDD>/ToTV-<CFI letters>-<YYYYMMDD>.zip` method is used to download historical ToTV.

The `<YYYYMMDD>` stands for a valid date when ToTVs were created.

`<CFI letters>` see Appendix: CFI groups Categories and Groups

The response contains ToTV records separated by newline (`'\n'`) that were either allocated or modified on the `YYYYMMDD` date. Each record is a valid JSON instrument record.

For further information, please refer to the DSB File Download user guide.

4 Methods Reference

4.1 Introduction

This section details the REST API methods that are used by DSB Web service.

4.2 Obtain schema names

Method	Request	Required authorization	
GET	/schemas	✓ Changed recently. This method will require authorization.	
Request arguments			
Argument name	Datatype	Required	Note
names	-	ü	No content
level	String	û	The level serves to filter the returned schema names. If level is presented it must be a valid level: either InstRefDataReporting or UPI
internalizeRefs	Boolean	û	Default to false; Schema may refer to an external referenced schema Note: internalizeRefs flag is supported temporarily for legacy (backward compatibility) reasons. The DSB intends to stop supporting this flag. The DSB recommends not to use this flag.
Response arguments			
Output JSON record components	Datatype	Required	Note
responseCode	Integer	ü	Matches the HTTP status code: success = 200 level does not exist = 404 Error code = 4XX or 5XX
message	String	û	Available only if response code indicates an error Contains indicative error message
names	Array of strings	û	Conditionally required if responseCode=200 Each string indicates a single schema name

4.3 Obtain single schema

Method	Request	Required authorization	
GET	/schemas	✔ Changed recently. This method will require authorization.	
Request arguments			
Argument name	Datatype	Required	Note
schemaName	String	ü	Content is expected to be a valid schema name
Response arguments			
Output JSON record components	Datatype	Required	Note
responseCode	Integer	ü	Matches the HTTP status code: success = 200

			Schema Name does not exist = 404 Error code = 4XX or 5XX
message	String	û	Available only if response code indicates an error Contains indicative error message
schemas	JSON record	û	Conditionally required if responseCode=200 Contains the name of the schema (as key) and the JSON schema as value.

4.4 Retrieve or Create Record by Attributes

Method	Request	Required authorization	
POST	/records	✓	
Request arguments			
Argument name	Datatype	Required	Note
create	Boolean	û	The default is: create=true When create=false, the system will not allocate a new ISIN, and the output will not include ISIN.
parents	Boolean	û	The default is: parents=false When parent=true, the system will return the record and all its parents i.e. if the returned record is an ISIN, then its parent UPI is also returned.
Input JSON record components	Datatype	Required	Note
record	JSON record	ü	Content of an <i>Instrument Request</i> JSON record which is valid to an <i>Instrument Request schema</i>
requestContext	JSON record	û	User may place here any information that will help to identify the request
Response arguments			
Output JSON record components	Datatype	Required	Note
responseCode	Integer	ü	Matches the HTTP status code: success = 200 Authorization failed: 401 Invalid record (invalid per schema): 400 Invalid JSON syntax: 500
message	String	û	Available only if response code indicates an error Contains indicative error message
record	JSON record	û	Available if responseCode=200 Contains a valid <i>instrument JSON record</i> .
parents	JSON record	û	Contains the parents of the record. Available in if all the following condition meet: <div><div>1.</div><div>The request contains: parents=true</div></div> <div><div>2.</div><div>responseCode=200</div></div> <div><div>3.</div><div>The record (above) is an ISIN record</div></div> <div><div>4.</div><div>The record contains parents component with UPI identifier</div></div>

			The only parents of an ISIN record is currently UPI. This may change in the future.
requestContext	JSON record	û	<p>Echo the user input</p> <p>Conditionally required if requestContext was provided and responseCode is one of:</p> <ul style="list-style-type: none"> - 200 (Success) - 400 (invalid record) - 401 (authorization failed) <p>Note: requestContext is not available if responseCode is 500</p>

4.5 Retrieve Record by Identifier

Method	Request	Required authorization	
GET	/records/<Identifier>	✓	
Request arguments			
Argument name	Datatype	Required	Note
parents	Boolean	û	The default is: parents=false When parent=true, the system will return the record and all its parents i.e. if the returned record is an ISIN, then its parent UPI is also returned.
totv	Boolean	û	When totv=false, the returned record is a valid ISIN record. When totv=true, the returned record is a valid ToTV record. The default is: totv=false.
version	Integer	û	When totv=true, this argument determines the version of the record to be returned. The default is: version=1
Response arguments			
Output JSON record components	Datatype	Required	Note
responseCode	Integer	ü	Matches the HTTP status code: success = 200 Authorization failed: 401 No such ISIN: 404 Bad request: 400 (this may happen when: <ul style="list-style-type: none">wrong or unsupported version,parents and totv both trueversion exist but totv = false
message	String	û	Contains indicative error message Contains: “Success” in case responseCode = 200
record	JSON record	û	Conditionally required if responseCode=200 Contains a valid <i>instrument JSON record</i> .
parents	JSON record	û	Contains the parents of the record. Available in if all the following condition meet: <ol style="list-style-type: none">The request contains: parents=trueresponseCode=200The record (above) is an ISIN recordThe record contains parents component with UPI identifier The only parents of an ISIN record is currently UPI. This may change in the future.

4.6 Search for Records by Attributes

Method	Request	Required authorization	
GET	/search	✓	
Request arguments			
Argument name	Datatype	Required	Note
level	String	ü	When Level is presented, only records with matching Level (and matching query criteria) are returned.
query	String	ü	Query string. refer to: DSB Search Query Syntax document.
pageSize	Positive Integer	ü	The maximum number of records that return in each page Default and the maximum values are 1000
pageNum	Positive Integer	ü	The page number Default to 1
requestContext	JSON record	ü	User may place here any information that will help to identify the request
Response arguments			
Output JSON record components	Datatype	Required	Note
responseCode	Integer	ü	Matches the HTTP status code: success = 200 pageSize exceeds maximum = 400 Note: The responseCode does not indicate the case where user is not authorized, instead, in such a case, the totalResults is 0.
message	String	ü	Available only if response code indicates an error Contains indicative error message
totalResults	Integer	ü	Conditionally required if responseCode=200 Indicate the total number of records that match the query
query	String	ü	Echo the user input Conditionally required if responseCode=200
pageSize	Positive Integer	ü	Echo the user input

			Conditionally required if responseCode=200
pageNum	Positive Integer	û	Echo the user input Conditionally required if responseCode=200
records	Array of JSON record	û	Conditionally required if responseCode=200 Contains a valid <i>instrument JSON records</i> that matches the query.
requestContext	JSON record	û	Echo the user input Conditionally required if requestContext was provided and responseCode is 200 (Success)

4.7 Download Historical records (non TOTV)

Method	Request	Required authorization
GET	/file-download/Records/OTC-Products/<Delta or Snapshot><isin or upi>/<YYYYMMDD>/<ASSET-CLASS>/<ASSET-CLASS>-<YYYYMMDD>.records	✓
Request notes		
<p>YYYYMMDD – stands for a valid date</p> <p>Asset Class – is one of:</p> <ul style="list-style-type: none"> • Credit • Commodities • Equity • Foreign_Exchange • Rates <p>The base url for this method is:</p> <ul style="list-style-type: none"> • Production environment: https://prod.anna-dsb.com • UAT environment: https://uat.anna-dsb.com 		
Response notes		
<p>The response is a content of file which contains ISIN records</p> <p>The records are separated by new line</p>		

4.8 Download Historical ToTVs

Method	Request	Required authorization
GET	/file-download/Records/TOTV/<v1 or v2-v2>/<YYYY>/<YYYYMMDD>/ToTV-<CFI letters>-<YYYYMMDD>.zip	✓
Request notes		
<p>YYYY – stands for a valid year</p> <p>YYYYMMDD – stands for a valid date</p> <p>CFI letters see Appendix: CFI groups Categories and Groups</p> <p>The base url for this method is:</p> <ul style="list-style-type: none"> • Production environment: https://prod.anna-dsb.com • UAT environment: https://uat.anna-dsb.com 		
Response notes		
<p>The response is a content of file which contains ToTV records</p> <p>The file is compressed using 'zip' compression.</p> <p>After decompression the file, the TOTV records are separated by new line</p>		

5 REST Methods Samples

5.1 Introduction

This section contains REST method samples.

Some of the responses are <truncated>

5.2 Obtain schema names

GET	/schema?names
Response	
<pre>{ "names": ["Credit.Swap.CDX_Risky_Zero_Tranche.InstRefDataReporting.V1", "Credit.Option.iTraxx_Europe_Swaption.InstRefDataReporting.V1", "Credit.Swap.Singapore_Corporate.InstRefDataReporting.V1", "Credit.Swap.Standard_LCDS_Bullet.InstRefDataReporting.V1", <truncated> "Request.Credit.Swap.Asia_Corporate.InstRefDataReporting"], "responseCode": 200 }</pre>	

5.3 Obtain single schema

GET	/schemas?schemaName=<NAME>
GET	/schemas?schemaName=Credit.Swap.Total_Return_Swap.InstRefDataReporting.V1
Response	
<pre>{ "schemas": { "Credit.Swap.Total_Return_Swap.InstRefDataReporting.V1": { "\$schema": "http://json-schema.org/draft-04/schema#", "title": "Credit.Swap.Total_Return_Swap.InstRefDataReporting.V1", "LastModifyDateTime": "2022-05-17T14:49:44", <truncated, the entire content can be found in: https://prod.anna-dsb.com/file-download/json-schema/normalized-isin-product-definitions/products/Credit/Request.Credit.Swap.Total_Return_Swap.InstRefDataReporting.json }, "responseCode": 200 } }</pre>	

5.3.1 Obtain single schema – De-normalised

Note: internalizeRefs flag is supported temporarily for legacy (backward compatibility) reasons. The DSB intends to stop supporting this flag. The DSB recommends not to use this flag.

GET	/schemas?schemaName=<NAME>&internalizeRefs
GET	/schemas?schemaName=Credit.Swap.Total_Return_Swap.InstRefDataReporting.V1&internalizeRefs
Response	<pre>{ "schemas": { "Credit.Swap.Total_Return_Swap.InstRefDataReporting.V1": { "\$schema": "http://json-schema.org/draft-04/schema#", "title": "Credit.Swap.Total_Return_Swap.InstRefDataReporting.V1", <truncated, the entire content can be found in: <a "responsecode":="" >https:="" 200="" a>="" credit="" file-download="" href="https://prod.anna-dsb.com/file-download/json-schema/isin-product-definitions/Credit/Request.Credit.Swap.Total_Return_Swap.InstRefDataReporting.json" isin-product-definitions="" json-schema="" pre="" prod.anna-dsb.com="" request.credit.swap.total_return_swap.instrefdatareporting.json<="" }="" },="" }<=""> </pre>

5.4 Retrieve or Create ISIN Record by Attribute

POST	/records
<pre> POST /records { "record": { "Header": { "AssetClass": "Foreign_Exchange", "InstrumentType": "Forward", "UseCase": "NDF", "Level": "InstRefDataReporting" }, "Attributes": { "NotionalCurrency": "EUR", "ExpiryDate": "2033-06-13", "OtherNotionalCurrency": "USD", "SettlementCurrency": "JMD" } }, "requestContext": { "user": "username@email.com", "requestID": "ID1", "additional information": "blob" } } </pre>	
Response	
<pre> { "record": { "Header": { <truncated> }, "Attributes": { <truncated> }, "ISIN": { "ISIN": "EZ6LSHR0B9D5", "Status": "New", "StatusReason": "", "LastUpdateDateTime": "2017-08-30T11:44:13" <truncated> }, "TemplateVersion": 1, "Derived": { <truncated> } }, "responseCode": 200, "requestContext": { "user": "username@email.com", "requestID": "ID1", "additional information": "blob" } } </pre>	

5.5 Retrieve ISIN Record by Attribute

POST /records

POST /records?create=false

```
{
  "record": {
    "Header": {
      "AssetClass": "Foreign_Exchange",
      "InstrumentType": "Forward",
      "UseCase": "NDF",
      "Level": "InstRefDataReporting"
    },
    "Attributes": {
      "NotionalCurrency": "EUR",
      "ExpiryDate": "2055-06-13",
      "OtherNotionalCurrency": "USD",
      "SettlementCurrency": "JMD"
    }
  },
  "requestContext": {
    "user": "username@email.com",
    "requestID": "ID1",
    "additional information": "blob"
  }
}
```

Response

```
{
  "record": {
    "Header": {
      <truncated>
    },
    "Attributes": {
      <truncated>
    },
    "ISIN": {
      "ISIN": "",
      "Status": "New",
      "StatusReason": "",
      "LastUpdateDateTime": "2017-08-30T11:56:19"
      <truncated>
    },
    "TemplateVersion": 1,
    "Derived": {
      <truncated>
    }
  },
  "responseCode": 200,
  "requestContext": {
    "user": "username@email.com",
    "requestID": "ID1",
    "additional information": "blob"
  }
}
```

5.6 Retrieve ISIN Record by ISIN

GET	/records/<ISIN>
GET /records/EZ000001HT00	
Response	
<pre>{ "record": { "Header": { "AssetClass": "Commodities", "InstrumentType": "Forward", "UseCase": "Commodities_Forward", "Level": "InstRefDataReporting" }, "Attributes": { "NotionalCurrency": "GBP", "ExpiryDate": "24170228", "ReturnPayout": "Forward price of underlying instrument", "DeliveryType": "Cash", "BaseProduct": "AGRI", "TransactionType": "OTHR", "FinalPriceType": "OTHR", "SubProduct": "SOFT", "AdditionalSubProduct": "ROBU" }, "ISIN": { "ISIN": "EZ000001HT00", "Status": "New" }, "TemplateVersion": 1, "Derived": { "Issuer": "NA", "PriceMultiplier": 1, "CommoditiesDerivativesIndicator": "TRUE", "UnderlyingAssetType": "Agriculture", "LongName": "Commodities Forward AGRI ROBU GBP 24170228", "FISN": "NA/Fwd AGRI ROBU GBP 24170228", "CFI": "JTAXFC" } }, "responseCode": 200, "message": "Success" }</pre>	

5.7 Retrieve ToTV Record by ISIN

GET	/records/<ISIN>?totv=true
GET	/records/EZ8JND56HJK5?totv=true
Response	<pre> { "record": { "ToTV-record": { "Header": { "ISIN": "EZ8JND56HJK5", "LastModifiedDate": "2017-10-22", "LastCompletedProcessingDate": "2017-10-30", "CFI-Category": "S", "CFI-Group": "R" }, "DSB-ISIN": { "Header": { "AssetClass": "Rates", "InstrumentType": "Swap", "UseCase": "Fixed_Float", "Level": "InstRefDataReporting" }, "Attributes": { "NotionalCurrency": "USD", "ExpiryDate": "2048-03-21", "ReferenceRate": "USD-LIBOR-BBA", "ReferenceRateTermValue": 3, "ReferenceRateTermUnit": "MNTH", "NotionalSchedule": "Constant", "DeliveryType": "PHYS", "PriceMultiplier": 1 }, "ISIN": { "ISIN": "EZ8JND56HJK5", "Status": "New", "StatusReason": "", "LastUpdateDateTime": "2017-10-22T14:00:40" }, "TemplateVersion": 1, "Derived": { "ISOResponseRate": "LIBO", "CommodityDerivativeIndicator": "FALSE", "UnderlyingAssetType": "Fixed - Floating", "SingleorMultiCurrency": "Single Currency", "IssuerorOperatoroftheTradingVenueIdentifier": "NA", "FullName": "Rates Swap Fixed_Float USD-LIBOR-BBA 3 MNTH 20480321", "ShortName": "NA/Swap Fxd Flt USD 20480321", "ClassificationType": "SRCCSP" }, "Derived": { "ToTV": false, "uToTV": false } } }, "responseCode": 200, } </pre>

```
"message": "Success"  
}
```

5.8 Search for ISIN Records by attributes

Search for Rates instruments that contains Libor

GET	/search
<pre>GET /search?query=LIBOR AND Rates&pageSize=5&pageNum=3&requestContext={"requestID":"ID1"}</pre>	
Response	
<pre>{ "query": "LIBOR AND Rates", "pageNum": 3, "pageSize": 5, "totalResults": 59, "records": [{ <truncated> }, { <truncated> }, { <truncated> }, { <truncated> }, { <truncated> },], "responseCode": 200, "requestContext": { "requestID": "ID1" } }</pre>	

5.9 Search for ToTV Records by attributes

Search for ToTV Record "DE000CN0XBX2"

GET	/search
GET /search?query=DE000CN0XBX2&pageSize=5&pageNum=0&requestContext={"requestID":"ID1"}&totv=true	
Response	
<pre>{ "query": "DE000CN0XBX2", "pageNum": 0, "pageSize": 5, "totalResults": 1, "records": [{ <truncated> },], "responseCode": 200, "requestContext": { "requestID": "ID1" } }</pre>	

5.10 Download Historical ISIN records

GET	/file-download/Records/OTC-Products/Delta/ISIN/<YYYY>/<YYYYMMDD>/<ASSET-CLASS>/<ASSET-CLASS>-<YYYYMMDD>.records
GET	/file-download/Records/OTC-Products/Delta/ISIN/20170403/Rates/Rates-20170403.records
Response	<pre> <truncated> <truncated> <truncated> <truncated> ... <truncated> </pre>

5.11 Download Historical ToTV records

```
GET /file-download/totv/<YYYYMMDD>/ToTV-<CFI letters>-  
    <YYYYMMDD>.zip
```

```
GET /file-download/Records/totv/V1/20180411/ToTV-ST-20180411.zip
```

Response

```
<truncated>  
<truncated>  
<truncated>  
<truncated>  
...  
<truncated>
```

Appendix: CFI groups Categories and Groups

CFI Category	CFI Group	CFI letters
Equities	Common/ordinary shares	ES
Equities	Preferred/preference shares	EP
Equities	Common/ordinary convertible shares	EC
Equities	Preferred/preference convertible shares	EF
Equities	Limited partnership units	EL
Equities	Depository receipts on equities	ED
Equities	Structured instruments	EY
Equities	Others (miscellaneous)	EM
Collective investment vehicles	Standard (vanilla) investment funds/mutual funds	CI
Collective investment vehicles	Hedge funds	CH
Collective investment vehicles	Real estate investment trusts (REIT)	CB
Collective investment vehicles	Exchange traded funds (ETF)	CE
Collective investment vehicles	Pension funds	CS
Collective investment vehicles	Funds of funds	CF
Collective investment vehicles	Private equity funds	CP
Collective investment vehicles	Others (miscellaneous)	CM
Debt instruments	Bonds	DB
Debt instruments	Convertible bonds	DC
Debt instruments	Bonds with warrants attached	DW
Debt instruments	Medium-term notes	DT
Debt instruments	Money market instruments	DY
Debt instruments	Structured instruments (capital protection)	DS
Debt instruments	Structured instruments (without capital protection)	DE
Debt instruments	Mortgage-backed securities	DG
Debt instruments	Asset-backed securities	DA
Debt instruments	Municipal bonds	DN
Debt instruments	Depository receipts on debt instruments	DD
Debt instruments	Others (miscellaneous)	DM
Entitlement (rights)	Allotment (bonus) rights	RA
Entitlement (rights)	Subscription rights	RS
Entitlement (rights)	Purchase rights	RP
Entitlement (rights)	Warrants	RW
Entitlement (rights)	Mini-future certificates, constant leverage certificates	RF
Entitlement (rights)	Depository receipts on entitlements	RD
Entitlement (rights)	Others (miscellaneous)	RM
Listed options	Call options	OC
Listed options	Put options	OP
Listed options	Others (miscellaneous)	OM
Futures	Financial futures	FF
Futures	Commodities futures	FC
Swaps	Rates	SR

Swaps	Commodities	ST
Swaps	Equity	SE
Swaps	Credit	SC
Swaps	Foreign exchange	SF
Swaps	Others (miscellaneous)	SM
Non-listed and complex listed options	Rates	HR
Non-listed and complex listed options	Commodities	HT
Non-listed and complex listed options	Equity	HE
Non-listed and complex listed options	Credit	HC
Non-listed and complex listed options	Foreign exchange	HF
Non-listed and complex listed options	Others (miscellaneous)	HM
Spot	Foreign Exchange	IF
Spot	Commodities	IT
Forwards	Rates	JR
Forwards	Commodities	JT
Forwards	Equity	JE
Forwards	Credit	JC
Forwards	Foreign exchange	JF
Forwards	Others (miscellaneous)	JM
Strategies	Rates	KR
Strategies	Commodities	KT
Strategies	Equity	KE
Strategies	Credit	KC
Strategies	Foreign exchange	KF
Strategies	Mixed assets	KY
Strategies	Others (miscellaneous)	KM
Financing	Loan-lease	LL
Financing	Repurchase agreements	LR
Financing	Securities lending	LS
Referential instruments	Currencies	TC
Referential instruments	Commodities	TT
Referential instruments	Interest rates	TR
Referential instruments	Indices	TI
Referential instruments	Baskets	TB
Referential instruments	Stock dividends	TD
Referential instruments	Others (miscellaneous)	TM
Others (miscellaneous)	Combined instruments	MC
Others (miscellaneous)	Other assets (miscellaneous)	MM

About Derivatives Service Bureau (DSB)

The Association of National Numbering Agencies (“ANNA”), is founding the Derivatives Service Bureau (DSB), for the issuance and maintenance of International Securities Identification Numbers (ISINs) for OTC Derivatives. The DSB will rely on an automated platform capable of allocating ISINs in near real-time.