# FCA Financial Instruments Reference Data System

Instructions on access and download of full and delta reference files

July 2020

# **1** Introduction

The FCA Financial Instruments Reference Data System (FCA FIRDS) has been built to replace the European Securities and Markets Authority (ESMA) FIRDS in the UK as part of the FCA's planning for Brexit. The purpose of this document is to provide:

- details on the instrument reference data files that FCA will publish; and
- instructions on how to access these reference files.

The intended audience is the UK and EU market participants which need to make use of the instrument reference data for the purpose of complying with the Markets in Financial Instruments (Amendment) (EU Exit) Regulations 2018 (UK MiFI Regs) and the associated Binding Technical Standards.

The FCA FIRDS files are a consolidation of instrument reference data collected from:

- UK trading venues,
- UK systematic internalisers (SIs), and
- the ESMA FIRDS files containing the EU27 instrument reference data downloaded from ESMA's public website.

Note that the links in this document are not yet live.

References, in this document, as to the timings of when files will be made available may be subject to change: any changes will be communicated to firms.

## 1.1 Acceptable Use

To minimise disruption to the FCA FIRDS service caused by irregular traffic patterns, malicious (e.g. DDOS) or accidental, all requests to both the UI Web Form and the API service will be rate limited. The FCA will use this as a basis to optimise the performance of the system utilising the various tools and techniques that are built into the solution.

Note: the individual file download links will not be subject to throttling as they are served via a separate solution.

# **2** Description of the reference data files generated by the FIRDS

FCA FIRDS makes instrument reference data available in the form of machine-readable files:

a. **Full file**: the full file contains the full instrument reference data received by the FCA before the applicable cut-off time (21:00 CET[1]) and is consolidated with the ESMA EU27 instrument reference data, for all instruments that are still active.

b. **Delta file**: the delta file contains all records of instrument reference data for which a change has occurred (addition, modification, deletion) since the generation of the last set of files, e.g. in the following situations:

  I. An instrument starts to trade on a trading venue: new (ISIN, MIC) - <NewRcrd>

  II. An instrument ceases to trade on a trading venue: the (ISIN, MIC) is terminated - <TermntdRcrd>

  III. A modification has been made in the reference data fields or in the relevant competent authority field for the instrument for instruments that are only traded on EU27 trading venues - <ModfdRcrd>

  IV. Note that in exceptional cases, some of these records may relate to instruments that have been terminated already, e.g. it may be that an ISIN-MIC is reported for the first time at a very late stage, after it has been terminated, or may undergo a correction in its reference data, after it has been terminated. In these cases, the corresponding record will only be available in the Delta file and will not appear in the Full file.

The list of reference data fields published by the system are:

a. Fields described in Tables 1, 2 and 3 of the Annex of onshored Binding Technical Standard (BTS) 23 (*Commission Delegated Regulation (EU) 2017/585 of 14 July 2016 supplementing Regulation (EU) No 600/2014 of the European Parliament and of the Council with regard to regulatory technical standards for the data standards and formats for financial instrument reference data and technical measures in relation to arrangements to be made by the European Securities and Markets Authority and competent authorities*);

b. The RCA field for instrument reference data submitted to FCA FIRDS by UK trading venues and SI will default to GB; for instruments traded on EU27 trading venues only it will be the country code for the relevant RCA;

Given the high volume of data, the Instrument Reference Data records can be split across several files, in particular when the Instrument Reference Data records exceed 500,000 records per file or based on the first letter of the CFI code in the case of the full file.

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[1] The time is expressed as CET as it is defined by the Transaction Reporting regime which remains unmodified in respect of timings and reporting obligations.

# **3** Instructions to download full and delta reference data files from the FCA website

## 3.1 Timing of generation

The files published by the FCA on its website are generated:
   a. on a weekly basis for the Full File – on Saturday morning by 09:00 UTC[2];
   b. on a daily basis for the Delta File – every morning by 09:00 UTC.

## 3.2 XML Format

The reference data files produced by FIRDS are structured as follows:
   a. Encapsulation of a Business Application Header (BAH), and a Payload as per XML Schema head.003.001.01.xsd;
   b. The Business Application Header is generated as per XML Schema head.001.001.01_ESMAUG_1.0.0.xsd;
   c. The payload is generated as per XML Schema auth.017.001.01_ESMAUG_FULINS_1.1.0.xsd for Full Files and auth.036.001.01_ESMAUG_DLTINS_1.1.0.xsd for Delta Files.
   d. Link to XML Schema: https://www.fca.org.uk/markets/market-data-regimes/market-data-reporting-mdp

## 3.3 File Naming Conventions

The full file will follow the following naming convention:

FULINS_<CFI 1st letter>_<Date>_<Key1>of<Key2>.zip;
   a. Where:
      I. <Date> =YYYYMMDD;
      II. <Key1> = The number of the file in the range produced for that day and that CFI 1st letter;
      III. <Key2> = The total number of files produced for that day and that CFI 1st letter.

Examples:
   a. FULINS_C_20170625_01of01.zip
   b. FULINS_D_20170625_01of02.zip
   c. FULINS_D_20170625_02of02.zip
   d. FULINS_E_20170625_01of02.zip
   e. FULINS_E_20170625_02of02.zip
   f. FULINS_F_20170625_01of01.zip
   g. FULINS_H_20170625_01of01.zip
   h. FULINS_J_20170625_01of01.zip

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[2] ESMA endeavours to publish IRD data to the public 1 hour after making the data available to the EU27 Competent Authorities. FCA FIRDS data will be made publicly available within 1 hour of receiving the ESMA FIRDS Data

The delta file will follow the following naming convention:
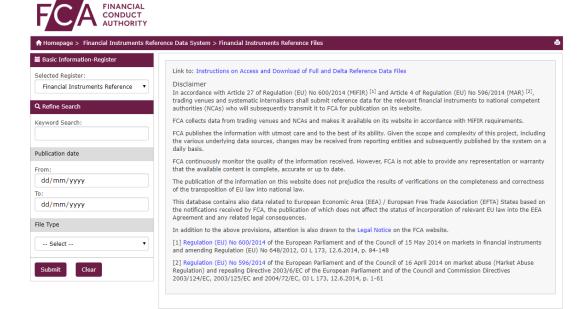
DLTINS_<Date>_<Key1>of<Key2>.zip;
    a. Where:
        I.     <Date> =YYYYMMDD;
        II.    <Key1> = The number of the file within the range produced for that day;
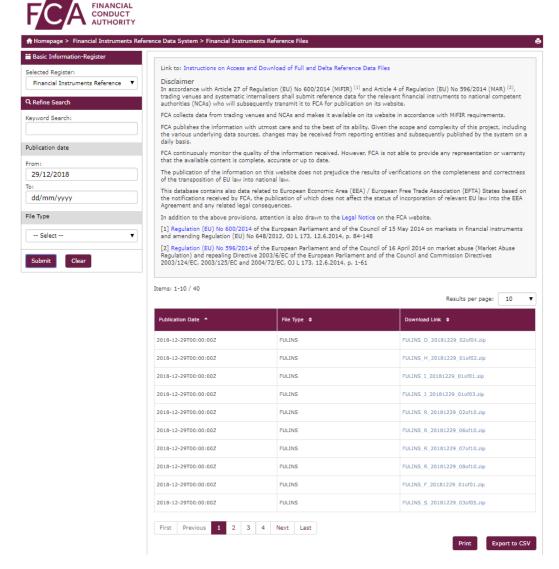        III.   <Key2> = The total number of files produced for that day.

Examples:
    a. DLTINS_20170624_01of01.zip.

## 3.4 Access to the files published (human interface)

Go to https://data.fca.org.uk  select the register "Financial Instruments Reference Data System" then click on "Financial Instruments Reference Files"; or go directly to https://data.fca.org.uk/#/download

Use the Publication Date filter on the left-hand side and click on "Submit" to list all files published within the specified period:



Click on the Download Link for any of the files returned, in order to download the corresponding file.

### 3.5 Access to the files published (machine-to-machine interface)

a. To support automated download of the files, it is possible to list the files published on a specific date by sending an HTTP request.
b. The following HTTP request will return the list of the files published by the FCA:
   a. https://api.data.fca.org.uk/fca_data_firds_files?q=((file_type:FULINS)%20AND%20(publication_date:[2017-10-15%20TO%202017-12-31]))&from=0&size=100&pretty=true
c. The below table explains each aspect of the above query so that it can be modified as required to meet necessary usage requirements.

| Query component | Description |
|---|---|
| q= | This is the general query part of the request and tells the response to return columns for a given result if one exists |
| ((file_type:FULINS)%20 AND%20(publication_date:[2017-10-15%20TO%202017-12-31])) | The filtered query supports the filtering of data. For the filtered query here, the data is filtered by date & file type. Note: both the latest date and earliest date are present and follow the ISO date time format[3]. Change the date to look for files from a different day or range of days. Also change the file type to look the file for different types. |
| from=0 | The starting from index of the hits to return. Defaults to 0 |
| size=100 | The number of results to return. Default is 10 |
| pretty | Formats the JSON response in pretty format |

- The combination of start and row is used to assist cycling over the results when multiple results are returned e.g. more than 100. To read a secondary list (100+) change start to 100 and leave rows as 100. The number of records that the query returns is given by attributes of the resultsFound list.
- The response is a JSON[4] document containing the URL for the IRD files in the "download_link" field.

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[3] See Appendix A for examples of datetime format

[4] JSON is the only format option available in AWS ElasticSearch

### 3.6  JSON Response Document

The following JSON document represents the response of a query to the FCA FIRDS API returning a single entry.

```json
{
  "took" : 4,
  "timed_out" : false,
  "_shards" : {
    "total" : 5,
    "successful" : 5,
    "skipped" : 0,
    "failed" : 0
  },
  "hits" : {
    "total" : 01,
    "max_score" : null,
    "hits" : [
      {
        "_index" : "fca-firds-downloadfiles",
        "_type" : "_doc",
        "_id" : "100",
        "_score" : null,
        "_source" : {
"download_link":"https://data.fca.org.uk/artefacts/FIRDS/DLTINS_20190216_01of01.zip",
          "file_type" : "DLTINS",
          "file_name" : "DLTINS_20190216_01of28.zip",
          "publication_date" : "2019-02-16",
          "last_refreshed" : "2019-02-18T13:33:46.096Z"
        },
        "sort" : [
          "DLTINS_20190216_01of28.zip"
        ]
      }
    ]
  }
}
```

The following table defines the FCA fields defined in the index.

| Field Name | Description |
|---|---|
| publication_date | The date for which the file has been published. This will be identical to the date part of the file name and will align with the value found in the 'AppHdr/CreDt' of FULINS or DLTINS file. |
| download_link | Fully qualified URL that can be used to download the file. |
| file_type | The type of file. That is, Full file or Delta file. |
| file_name | The file name. |
| last_refreshed | The date the particular entry was added to the index. |

## 3.7 AWS Elastic Search Parameter Support

The underlying Elastic Search Engine supports a wide range of parameters. However, the FCA will support a subset of all relevant parameters which are listed and explained below.

| SN | Parameter Name | Description | Supported | Mandatory |
|----|----------------|-------------|-----------|-----------|
| 1 | q | The query string (maps to the query_string query, see Query String Query for more details). The parameter must follow the syntax as defined under: https://www.elastic.co/guide/en/elasticsearch/reference/6.3/query-dsl-query-string-query.html#query-string-syntax The underlying Elastic Search Schema contains the following 3 searchable fields. Therefore, these are the only 3 fields that can be utilised with the q=* query string search type. 1. **file_type**: Could be one of FULINS, DLTINS or INVINS. Partial values such as F* and *INS* also work. 2. **file_name**: Examples include *.zip, *C* 3. **publication_date**: Date in YYYY-MM-DD Format. For range queries please use YYYY1-MM1-DD1 TO YYYY2-MM2-DD2. 4. Search q Strings can utilise all or any of the 3 above fields Example q=F*. q=file_name:F* q=file_name:FULINS_C_20171015_01of01.zip | Yes | Yes |

| SN | Parameter Name | Description | Supported | Mandatory |
|----|---------------|-------------|-----------|-----------|
| 2 | from | The starting from index of the hits to return. Defaults to 0<br><br>Example -<br><br>q=((file_type:FULINS) AND (publication_date:[2017-10-15 TO 2017-12-31]))&from=0&size=100&pretty=true&sort=publication_date:desc | Yes | Yes |
| 3 | size | The number of hits to return. Defaults to 10<br><br>Example -<br><br>q=((file_type:FULINS) AND (publication_date:[2017-10-15 TO 2017-12-31]))&from=0&size=100&pretty=true&sort=publication_date:desc | Yes | Yes |
| 4 | sort | Sorting to perform. Can either be in the form of fieldName, or fieldName:asc/fieldName:desc. There can be several sort parameters (order is important).<br><br>Example –<br><br>?q=((file_type:FULINS) AND (publication_date:[2017-10-15 TO 2017-12-31]))&from=0&size=100&pretty=true&sort=publication_date:desc | Yes | No |
| 5 | pretty | Pretty Prints the search results<br><br>Example –<br><br>?q=((file_type:FULINS) AND (publication_date:[2017-10-15 TO 2017-12-31]))&from=0&size=100&pretty=true&sort=publication_date:desc | Yes | No |
| 6 | df | The default field to use when no field prefix is defined within the query. Here we have not prefixed the search term, FULINS with any fieldname. So instead of saying ?q=file_type:FULINS we say ?q=FULINS&df=file_type | Yes | No |
| 7 | default_operator | The default operator to be used, can be AND or OR. Defaults to OR. | Yes | No |

| SN | Parameter Name | Description | Supported | Mandatory |
|---|---|---|---|---|
| 8 | analyzer | The analyser name to be used when analysing the query string. | This parameter will be ignored. | |
| 9 | analyze_wildcard | Should wildcard and prefix queries be analysed or not. Defaults to false | This parameter will be ignored. | |
| 10 | batched_reduce_size | The number of shard results that should be reduced at once on the coordinating node. | This parameter will be ignored. | |
| 11 | stored_fields | The selective stored fields of the document to return for each hit, comma delimited | This parameter will be ignored. | |
| 12 | track_scores | When sorting, set to true in order to still track scores and return them as part of each hit. | This parameter will be ignored. | |
| 13 | timeout | A search timeout, bounding the search request to be executed within the specified time value and bail with the hits accumulated up to that point when expired. Defaults to no timeout. | This parameter will be ignored. | |
| 14 | terminate_after | The maximum number of documents to collect for each shard, upon reaching which the query execution will terminate early. If set, the response will have a Boolean field 'terminated_early' to indicate whether the query execution has actually 'terminated_early'. Defaults to no 'terminate_after'. | This parameter will be ignored. | |
| 15 | search_type | The type of the search operation to perform. Can be dfs_query_then_fetch or query_then_fetch. Defaults to query_then_fetch. See Search Type for more details on the different types of search that can be performed. | This parameter will be ignored. | |

| SN | Parameter Name | Description | Supported | Mandatory |
|----|----------------|-------------|-----------|-----------|
| 16 | allow_partial_search_results | Set to false to return an overall failure if the request would produce partial results. Defaults to true, which will allow partial results in the case of timeouts or partial failures. This default can be controlled using the cluster-level setting 'search.default_allow_partial_results' | This parameter will be ignored. | |

# 4 Example Search Response

## 4.1 Example 1

UK FIRDS JSON response for a single file compared to the equivalent ESMA FIRDS response for the same file:

**UK FIRDS JSON Response**

```json
{
  "took" : 8,
  "timed_out" : false,
  "_shards" : {
    "total" : 5,
    "successful" : 5,
    "skipped" : 0,
    "failed" : 0
  },
  "hits" : {
    "total" : 1,
    "max_score" : 1.1823215,
    "hits" : [
      {
        "_index" : "fca-firds-downloadfiles",
        "_type" : "_doc",
        "_id" : "102",
        "_score" : 1.1823215,
        "_source" : {

"download_link":"https://data.fca.org.uk/artefacts/FIRDS/DLTINS_20190216_01of02.z
ip",
        "file_type" : "DLTINS",
        "file_name" : "DLTINS_20190216_01of02.zip",
        "publication_date" : "2019-02-16",
        "last_refreshed" : "2019-02-18T13:33:46.096Z"
      }
    }
    ]
  }
}
```

**ESMA FIRDS JSON Response**

```json
{
  "responseHeader":{
    "status":0,
    "QTime":1,
    "params":{
      "q":"*",
      "indent":"true",
      "start":"0",
      "fq":"file_type:DLTINS  AND  publication_date:[2019-02-16T00:00:00Z  TO  2019-02-
16T23:59:59Z]",
      "rows":"1",
      "wt":"json"}},
  "response":{"numFound":1,"start":0,"docs":[
      {
        "publication_date":"2019-02-16T00:00:00Z",

"download_link":"http://firds.esma.europa.eu/firds/DLTINS_20190216_01of02.zip",
        "file_type":"DLTINS",
        "file_name":"DLTINS_20190216_01of02.zip",
        "id":"16786",
        "published_instrument_file_id":"16786",
        "_root_":16786,
        "_version_":1626143855822766083,
        "timestamp":"2019-02-22T05:00:30.08Z"}]
  }
}
```

### 4.2 Example 2

The following multi-result queries return identical data sets. The query output in the left-hand column was executed against a Test UK FIRDS ElasticSearch service and the query output in the righthand column was executed against the existing ESMA production FIRDS register.

UK FIRDS AWS Elastic Search Service query:

https://api.data.fca.org.uk/fca_data_firds_files?q=((publication_date:%5b2019-02-16%20TO%202019-02-17%5d))&from=0&size=100&pretty=true&sort=file_name:asc

ESMA FIRDS Solr query:

https://registers.esma.europa.eu/solr/esma_registers_firds_files/select?q=*&fq=publication_date:%5B2019-02-16T00:00:00Z+TO+2019-02-16T23:59:59Z%5D&wt=json&indent=true&start=0&rows=100&sort=file_name%20asc

```
{
  "took" : 0,
  "timed_out" : false,
  "_shards" : {
    "total" : 5,
    "successful" : 5,
    "skipped" : 0,
    "failed" : 0
  },
  "hits" : {
    "total" : 16,
    "max_score" : null,
    "hits" : [
      {
        "_index" : "fca-firds-downloadfiles",
        "_type" : "_doc",
        "_id" : "171",
        "_score" : null,
        "_source" : {
          "publication_date" : "2017-11-18T00:00:00Z",
          "download_link"                                                     :
"https://data.fca.org.uk/artefacts/FIRDS/FULINS_C_20171118_01of01.zip",
          "file_type" : "FULINS",
```

```
{
  "responseHeader":{
    "status":0,
    "QTime":0,
    "params":{
      "q":"*",
      "indent":"true",
      "start":"0",
      "fq":"publication_date:[2017-11-18T00:00:00Z TO 2017-11-18T23:59:59Z]",
      "sort":"file_name asc",
      "rows":"100",
      "wt":"json"}},
  "response":{"numFound":15,"start":0,"docs":[
      {
        "publication_date":"2017-11-18T00:00:00Z",

"download_link":"http://firds.esma.europa.eu/firds/FULINS_C_20171118_01of01.zip",
        "file_type":"FULINS",
        "file_name":"FULINS_C_20171118_01of01.zip",
        "id":"2360",
        "_root_":2360,
        "published_instrument_file_id":"2360",
        "_version_":1621961279350505472,
```

```
      "file_name" : "FULINS_C_20171118_01of01.zip",                                        "timestamp":"2019-01-07T01:00:14.322Z"},
      "last_refreshed" : "2019-01-24T16:00:00Z"                                           {
    },                                                                                       "publication_date":"2017-11-18T00:00:00Z",
    "sort" : [
      "FULINS_C_20171118_01of01.zip"                                     "download_link":"http://firds.esma.europa.eu/firds/FULINS_D_20171118_01of02.zip",
    ]                                                                                         "file_type":"FULINS",
  },                                                                                          "file_name":"FULINS_D_20171118_01of02.zip",
  {                                                                                           "id":"2361",
    "_index" : "fca-firds-downloadfiles",                                                     "_root_":2361,
    "_type" : "_doc",                                                                         "published_instrument_file_id":"2361",
    "_id" : "172",                                                                            "_version_":1621961279351554048,
    "_score" : null,                                                                          "timestamp":"2019-01-07T01:00:14.323Z"},
    "_source" : {                                                                           {
      "publication_date" : "2017-11-18T00:00:00Z",                                            "publication_date":"2017-11-18T00:00:00Z",
      "download_link"                                        :
"https://data.fca.org.uk/artefacts/FIRDS/FULINS_D_20171118_01of02.zip",          "download_link":"http://firds.esma.europa.eu/firds/FULINS_D_20171118_02of02.zip",
      "file_type" : "FULINS",                                                                 "file_type":"FULINS",
      "file_name" : "FULINS_D_20171118_01of02.zip",                                           "file_name":"FULINS_D_20171118_02of02.zip",
      "last_refreshed" : "2019-01-24T16:00:00Z"                                               "id":"2362",
    },                                                                                        "_root_":2362,
    "sort" : [                                                                                "published_instrument_file_id":"2362",
      "FULINS_D_20171118_01of02.zip"                                                          "_version_":1621961279351554049,
    ]                                                                                         "timestamp":"2019-01-07T01:00:14.323Z"},
  },                                                                                         {
  {                                                                                           "publication_date":"2017-11-18T00:00:00Z",
    "_index" : "fca-firds-downloadfiles",
    "_type" : "_doc",                                                               "download_link":"http://firds.esma.europa.eu/firds/FULINS_E_20171118_01of02.zip",
    "_id" : "173",                                                                            "file_type":"FULINS",
    "_score" : null,                                                                          "file_name":"FULINS_E_20171118_01of02.zip",
    "_source" : {                                                                             "id":"2363",
      "publication_date" : "2017-11-18T00:00:00Z",                                            "_root_":2363,
      "download_link"                                        :                                "published_instrument_file_id":"2363",
"https://data.fca.org.uk/artefacts/FIRDS/FULINS_D_20171118_02of02.zip",                       "_version_":1621961279352602624,
      "file_type" : "FULINS",                                                                 "timestamp":"2019-01-07T01:00:14.324Z"},
      "file_name" : "FULINS_D_20171118_02of02.zip",                                          {
      "last_refreshed" : "2019-01-24T16:00:00Z"                                               "publication_date":"2017-11-18T00:00:00Z",
    },
    "sort" : [                                                                       "download_link":"http://firds.esma.europa.eu/firds/FULINS_E_20171118_02of02.zip",
      "FULINS_D_20171118_02of02.zip"                                                          "file_type":"FULINS",
    ]                                                                                         "file_name":"FULINS_E_20171118_02of02.zip",
  },                                                                                          "id":"2364",
  {                                                                                           "_root_":2364,
    "_index" : "fca-firds-downloadfiles",                                                     "published_instrument_file_id":"2364",
    "_type" : "_doc",                                                                         "_version_":1621961279352602625,
```

          "_id" : "174",
          "_score" : null,
          "_source" : {
            "publication_date" : "2017-11-18T00:00:00Z",
            "download_link"                                                                          :
"https://data.fca.org.uk/artefacts/FIRDS/FULINS_E_20171118_01of02.zip",
            "file_type" : "FULINS",
            "file_name" : "FULINS_E_20171118_01of02.zip",
            "last_refreshed" : "2019-01-24T16:00:00Z"
          },
          "sort" : [
            "FULINS_E_20171118_01of02.zip"
          ]
        },
        {
          "_index" : "fca-firds-downloadfiles",
          "_type" : "_doc",
          "_id" : "175",
          "_score" : null,
          "_source" : {
            "publication_date" : "2017-11-18T00:00:00Z",
            "download_link"                                                                          :
"https://data.fca.org.uk/artefacts/FIRDS/FULINS_E_20171118_02of02.zip",
            "file_type" : "FULINS",
            "file_name" : "FULINS_E_20171118_02of02.zip",
            "last_refreshed" : "2019-01-24T16:00:00Z"
          },
          "sort" : [
            "FULINS_E_20171118_02of02.zip"
          ]
        },
        {
          "_index" : "fca-firds-downloadfiles",
          "_type" : "_doc",
          "_id" : "176",
          "_score" : null,
          "_source" : {
            "publication_date" : "2017-11-18T00:00:00Z",
            "download_link"                                                                          :
"https://data.fca.org.uk/artefacts/FIRDS/FULINS_F_20171118_01of01.zip",
            "file_type" : "FULINS",
            "file_name" : "FULINS_F_20171118_01of01.zip",
            "last_refreshed" : "2019-01-24T16:00:00Z"
          },

      "timestamp":"2019-01-07T01:00:14.324Z"},
      {
          "publication_date":"2017-11-18T00:00:00Z",

"download_link":"http://firds.esma.europa.eu/firds/FULINS_F_20171118_01of01.zip",
          "file_type":"FULINS",
          "file_name":"FULINS_F_20171118_01of01.zip",
          "id":"2365",
          "_root_":2365,
          "published_instrument_file_id":"2365",
          "_version_":1621961279352602626,
          "timestamp":"2019-01-07T01:00:14.324Z"},
      {
          "publication_date":"2017-11-18T00:00:00Z",

"download_link":"http://firds.esma.europa.eu/firds/FULINS_J_20171118_01of01.zip",
          "file_type":"FULINS",
          "file_name":"FULINS_J_20171118_01of01.zip",
          "id":"2366",
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          "published_instrument_file_id":"2366",
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          "timestamp":"2019-01-07T01:00:14.324Z"},
      {
          "publication_date":"2017-11-18T00:00:00Z",

"download_link":"http://firds.esma.europa.eu/firds/FULINS_O_20171118_01of01.zip",
          "file_type":"FULINS",
          "file_name":"FULINS_O_20171118_01of01.zip",
          "id":"2367",
          "_root_":2367,
          "published_instrument_file_id":"2367",
          "_version_":1621961279352602628,
          "timestamp":"2019-01-07T01:00:14.324Z"},
      {
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          "file_type":"FULINS",
          "file_name":"FULINS_R_20171118_01of07.zip",
          "id":"2368",
          "_root_":2368,
          "published_instrument_file_id":"2368",
          "_version_":1621961279352602629,

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        "_type" : "_doc",
        "_id" : "177",
        "_score" : null,
        "_source" : {
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         "download_link"                                    :
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         "file_type" : "FULINS",
         "file_name" : "FULINS_J_20171118_01of01.zip",
         "last_refreshed" : "2019-01-24T16:00:00Z"
        },
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        ]
      },
      {
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        "_type" : "_doc",
        "_id" : "178",
        "_score" : null,
        "_source" : {
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         "file_type" : "FULINS",
         "file_name" : "FULINS_O_20171118_01of01.zip",
         "last_refreshed" : "2019-01-24T16:00:00Z"
        },
        "sort" : [
          "FULINS_O_20171118_01of01.zip"
        ]
      },
      {
        "_index" : "fca-firds-downloadfiles",
        "_type" : "_doc",
        "_id" : "179",
        "_score" : null,
        "_source" : {
```

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          "timestamp":"2019-01-07T01:00:14.324Z"},
        {
          "publication_date":"2017-11-18T00:00:00Z",

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          "file_type":"FULINS",
          "file_name":"FULINS_R_20171118_02of07.zip",
          "id":"2369",
          "_root_":2369,
          "published_instrument_file_id":"2369",
          "_version_":1621961279352602630,
          "timestamp":"2019-01-07T01:00:14.324Z"},
        {
          "publication_date":"2017-11-18T00:00:00Z",

"download_link":"http://firds.esma.europa.eu/firds/FULINS_R_20171118_03of07.zip",
          "file_type":"FULINS",
          "file_name":"FULINS_R_20171118_03of07.zip",
          "id":"2370",
          "_root_":2370,
          "published_instrument_file_id":"2370",
          "_version_":1621961279352602631,
          "timestamp":"2019-01-07T01:00:14.324Z"},
        {
          "publication_date":"2017-11-18T00:00:00Z",

"download_link":"http://firds.esma.europa.eu/firds/FULINS_R_20171118_04of07.zip",
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          "file_name":"FULINS_R_20171118_04of07.zip",
          "id":"2371",
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          "published_instrument_file_id":"2371",
          "_version_":1621961279352602632,
          "timestamp":"2019-01-07T01:00:14.324Z"},
        {
          "publication_date":"2017-11-18T00:00:00Z",

"download_link":"http://firds.esma.europa.eu/firds/FULINS_R_20171118_05of07.zip",
          "file_type":"FULINS",
          "file_name":"FULINS_R_20171118_05of07.zip",
          "id":"2372",
          "_root_":2372,
          "published_instrument_file_id":"2372",
          "_version_":1621961279353651200,
```

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        "file_name" : "FULINS_R_20171118_01of07.zip",
        "last_refreshed" : "2019-01-24T16:00:00Z"
      },
      "sort" : [
        "FULINS_R_20171118_01of07.zip"
      ]
    },
    {
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      "_type" : "_doc",
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      "_score" : null,
      "_source" : {
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        "download_link"                                               :
"https://data.fca.org.uk/artefacts/FIRDS/FULINS_R_20171118_02of07.zip",
        "file_type" : "FULINS",
        "file_name" : "FULINS_R_20171118_02of07.zip",
        "last_refreshed" : "2019-01-24T16:00:00Z"
      },
      "sort" : [
        "FULINS_R_20171118_02of07.zip"
      ]
    },
    {
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      "_type" : "_doc",
      "_id" : "181",
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      "_source" : {
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        "file_type" : "FULINS",
        "file_name" : "FULINS_R_20171118_03of07.zip",
        "last_refreshed" : "2019-01-24T16:00:00Z"
      },
      "sort" : [
        "FULINS_R_20171118_03of07.zip"
      ]
```

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        "id":"2373",
        "_root_":2373,
        "published_instrument_file_id":"2373",
        "_version_":1621961279353651201,
        "timestamp":"2019-01-07T01:00:14.325Z"},
      {
        "publication_date":"2017-11-18T00:00:00Z",

"download_link":"http://firds.esma.europa.eu/firds/FULINS_R_20171118_07of07.zip",
        "file_type":"FULINS",
        "file_name":"FULINS_R_20171118_07of07.zip",
        "id":"2374",
        "_root_":2374,
        "published_instrument_file_id":"2374",
        "_version_":1621961279355748353,
        "timestamp":"2019-01-07T01:00:14.327Z"}]
  }}
```

```
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            "download_link"                                                :
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            "file_type" : "FULINS",
            "file_name" : "FULINS_R_20171118_04of07.zip",
            "last_refreshed" : "2019-01-24T16:00:00Z"
          },
          "sort" : [
            "FULINS_R_20171118_04of07.zip"
          ]
        },
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          "_type" : "_doc",
          "_id" : "183",
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"https://data.fca.org.uk/artefacts/FIRDS/FULINS_R_20171118_05of07.zip",
            "file_type" : "FULINS",
            "file_name" : "FULINS_R_20171118_05of07.zip",
            "last_refreshed" : "2019-01-24T16:00:00Z"
          },
          "sort" : [
            "FULINS_R_20171118_05of07.zip"
          ]
        },
        {
          "_index" : "fca-firds-downloadfiles",
          "_type" : "_doc",
          "_id" : "184",
          "_score" : null,
          "_source" : {
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            "download_link"                                                :
"https://data.fca.org.uk/artefacts/FIRDS/FULINS_R_20171118_06of07.zip",
```

```
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          "file_name" : "FULINS_R_20171118_06of07.zip",
          "last_refreshed" : "2019-01-24T16:00:00Z"
        },
        "sort" : [
          "FULINS_R_20171118_06of07.zip"
        ]
      },
      {
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        "_type" : "_doc",
        "_id" : "185",
        "_score" : null,
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          "download_link"                                                    :
"https://data.fca.org.uk/artefacts/FIRDS/FULINS_R_20171118_07of07.zip",
          "file_type" : "FULINS",
          "file_name" : "FULINS_R_20171118_07of07.zip",
          "last_refreshed" : "2019-01-24T16:00:00Z"
        },
        "sort" : [
          "FULINS_R_20171118_07of07.zip"
        ]
      }
    ]
  }
}
```

# **5** Date Time Format Examples

The formats are as follows: the components shown below must be present, using this exact punctuation. Note that the "T" appears in the string, to indicate the beginning of the time element, as specified in ISO 8601.

```
Year:
   YYYY (eg 1997)
Year and month:
   YYYY-MM (eg 1997-07)
Complete date:
   YYYY-MM-DD (eg 1997-07-16)
Complete date plus hours and minutes:
   YYYY-MM-DDThh:mmTZD (eg 1997-07-16T19:20+01:00)
Complete date plus hours, minutes and seconds:
   YYYY-MM-DDThh:mm:ssTZD (eg 1997-07-16T19:20:30+01:00)
Complete date plus hours, minutes, seconds and a decimal fraction of
 a second
   YYYY-MM-DDThh:mm:ss.sTZD (eg 1997-07-16T19:20:30.45+01:00)
```

## where:

```
YYYY = four-digit year
MM   = two-digit month (01=January, etc.)
DD   = two-digit day of month (01 through 31)
hh   = two digits of hour (00 through 23) (am/pm NOT allowed)
mm   = two digits of minute (00 through 59)
ss   = two digits of second (00 through 59)
s    = one or more digits representing a decimal fraction of a
        second
TZD  = time zone designator (Z or +hh:mm or -hh:mm)
```

# **6** Example Queries

| AWS ElasticSearch Query | Description |
|---|---|
| https://api.data.fca.org.uk/ fca_data_firds_files?q=((file_type:FULINS)%20AND%20(publication_date:%5b2017-10-15%20TO%202017-12-31%5d))&from=0&size=100&pretty=true&sort=file_name:asc | Query for all 'FULINS' files published between 15th October 2017 and 31st December 2017 and sort the results on file name in ascending order |
| https://api.data.fca.org.uk/ fca_data_firds_files?q=file_name:FULINS_D_20181229_02of04.zip&from=0&size=100&pretty=true | Query for file 'FULINS_D_20181229_02of04.zip' |
| https://api.data.fca.org.uk/ fca_data_firds_files?q=*&_source=last_refreshed&from=0&size=1&pretty=true&sort=last_refreshed:desc | Query for last refresh time  Aggregation queries cannot be performed as part of a Query String query. The query shown simply requests all 'last_refreshed' fields, orders them in descending order, and then limits the record return number to 1. |