

GLEIF Data Consumer's Quick Guide

This guide serves as a summary of the data and interfaces that GLEIF provides and how they were affected by the new CDF versions introduced on **March 1st 2022**. It includes concrete technical instructions and examples to help you make your automated systems compatible with the new CDF formats.


Be sure to read the "**How To Use This Guide**" section before delving into the details.

This document focuses on technical changes to the data formats published by GLEIF relevant for automated data processing to be capable of processing the new CDF formats. We omit details about deprecated fields/values, new Enum values and state transition rules relevant for interpreting the data correctly. Be sure to check the extensive information about the latest CDF formats published on the GLEIF website: [Current Versions](#).

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How To Use This Guide

- Be sure to check the section "[XML: Golden Copy & Concatenated Files](#)" to get an overview of relevant technical changes introduced by the new formats
- Check the table of contents and read the sections corresponding to the GLEIF data sources you use
- Pay special attention to the " **Instructions**" provided at the beginning of most sections to understand the minimal adjustments you should make to your systems to be able to consume the latest CDF files

XML: Golden Copy & Concatenated Files

The new formats only introduced new optional fields and Enum values. This means the new XML schemas also validate historical files published prior to March 1st 2022. But validation could fail if you attempt to validate a file in the new version with an old XML schema. Furthermore, your automated data processing tools need to be able to deal with the new fields and Enum values introduced.

Instructions:

- Use the new XML Schemas (they also work on the historical files), in case you run XML schema validators against any published XML files
- Ignore unexpected fields and values or add support for them

New XML schemas:

CDF Version	XML Schema
LEI CDF 3.1	2021-03-04_lei-cdf-v3-1.xsd
RR CDF 2.1	2021-03-04_rr-cdf-v2-1.xsd
Reporting Exceptions format 2.1	2021-07-20_reporting-exceptions-format-v2-1.xsd

The GLEIF Concatenated files and Golden Copy files are both be published in the new formats and all information about the XML changes apply to both and took effect on **March 1st 2022**.

LEI CDF 3.1

The LEI CDF 3.1 format introduced new (optional) fields and additional Enum values for the fields `EntityCategory` , `EntityStatus` , `RegistrationStatus` .

Instructions:

- Use the new XML Schemas (they also work on the historical files), in case you run XML schema validators against any published XML files
- Ignore unexpected new fields or add support for them
- In case you use any of previously existing XML fields with new enums, ignore unexpected Enums or add support for them

In the following, we show all new (optional) XML elements introduced in LEI CDF 3.1. Additional details on deprecations and new Enum fields are omitted and can be found on the website:

- [Release Notes / Change Log](#)
- [Diagram with highlighted changes](#)

New XML Elements:

- The concatenated file now contains the GLEIF LEI code in the LEIData header:
`lei:LEIData/lei:LEIHeader/lei:Originator`
- New optional `EntitySubCategory` element
- New optional `LegalEntityEvents` container element
- New optional `EntityCreationDate` element
- Existing `SuccessorEntity` container element can now occur multiple times

Below snippet highlights the new (optional) fields that the new LEI CDF 3.1 format introduced. Check the [Supporting Documents](#) page for example files for GLEIF Concatenated files and Golden Copy files. Or go directly to the official download pages for the [Concatenated files](#) and [Golden Copy files](#), which are published in the new formats since March 1st 2022.

```
<?xml version="1.0" encoding="UTF-8"?>
<lei:LEIData xmlns:gleif="http://www.gleif.org/concatenated-file/header-extension/2.0" xmlns:lei="
  <lei:LEIHeader>
    <lei:ContentDate>2022-03-01T09:00:00+00:00</lei:ContentDate>
+   <lei:Originator>506700GE1G29325QX363</lei:Originator>
    <lei:FileContent>GLEIF_FULL_PUBLISHED</lei:FileContent>
    <lei:RecordCount>1</lei:RecordCount>
    <lei:Extension>
      <gleif:Sources>
        <!-- ... -->
      </gleif:Sources>
    </lei:Extension>
  </lei:LEIHeader>
  <lei:LEIRecords>
    <lei:LEIRecord xmlns:lei="http://www.gleif.org/data/schema/leidata/2016">
      <lei:LEI>506700GE1G29325QX363</lei:LEI>
      <lei:Entity>
        <!-- ... -->
        <lei:LegalJurisdiction>DE</lei:LegalJurisdiction>
        <lei:EntityCategory>GENERAL</lei:EntityCategory>
+       <lei:EntitySubCategory>CENTRAL_GOVERNMENT</lei:EntitySubCategory>
        <!-- ... -->
+       <lei:EntityCreationDate>2020-06-30T00:00:00.000+02:00</lei:EntityCreationDate>
        <lei:SuccessorEntity><!-- ... --></lei:SuccessorEntity>
+       <lei:SuccessorEntity><!-- ... --></lei:SuccessorEntity>
+       <lei:SuccessorEntity><!-- ... --></lei:SuccessorEntity>
        <!-- ... -->
+       <lei:LegalEntityEvents>
+       <!-- ... -->
+       </lei:LegalEntityEvents>
      </lei:Entity>
    </lei:LEIRecord>
  </lei:LEIRecords>
</lei:LEIData>
```

RR CDF 2.1

The RR CDF 2.1 format does only include additional Enum values for the fields `RelationshipType`, `RelationshipStatus`, `QualifierCategory`.

Instructions:

- Use the new XML Schemas (they also work on the historical files), in case you run XML schema validators against any published XML files
- In case you use any of the affected fields, ignore unexpected Enums or add support for them

Additional details on deprecations and new Enum fields can be found on the website:

- [Release Notes / Change Log](#)
- [Diagram with highlighted changes](#)

Check the [Supporting Documents](#) page for example files for GLEIF Concatenated files and Golden Copy files. Or go directly to the official download pages for the [Concatenated files](#) and [Golden Copy files](#), which are published in the new formats since March 1st 2022.

REPEX CDF 2.1

The Reporting Exceptions format 2.1 format does only include additional Enum values for the `ExceptionReason` field.

Instructions:

- Use the new XML Schemas (they also work on the historical files), in case you run XML schema validators against any published XML files
- In case you use any of the affected fields, ignore unexpected Enums or add support for them

Additional details on deprecations and new Enum fields can be found on the website:

- [Release Notes / Change Log](#)
- [Diagram with highlighted changes](#)

Check the [Supporting Documents](#) page for example files for GLEIF Concatenated files and Golden Copy files. Or go directly to the official download pages for the [Concatenated files](#) and [Golden Copy files](#), which are published in the new formats since March 1st 2022.

Concatenated Files

The concatenated files are still published via the GLEIF website and the API without any changes, except for the new XML formats that need to be expected after March 1st 2022.

Website

Other than the displayed CDF version labels, the Concatenated file download pages remained unchanged.

In case you are processing the files automatically, see the main section "[XML: Golden Copy & Concatenated Files](#)" and corresponding XML CDF type sections for instructions.

XML Files

Instructions:

- Use the new XML Schemas (they also work on the historical files), in case you run XML schema validators against any published XML files
- Ignore unexpected fields and values or add support for them

See the main section "[XML: Golden Copy & Concatenated Files](#)" for a technical summary of the changes introduced in the new version.

See "[Example Files - Concatenated Files \(XML\)](#)" on [Supporting Documents](#) for example files. Or go directly to the official download page for the [Concatenated files](#), which are published in the new formats since March 1st 2022.

Download API

Everything stayed the same and all processes that were using the API before can expect the same URLs and JSON attributes.

Instructions:

- No need to change any API requests or the processing of the JSON responses
- If you use the XML file downloads, ensure to prepare your system by checking the corresponding XML sections above.



To ensure backwards-compatibility of the API with consuming systems, the `lei2` keyword used in the API URLs and JSON response attributes remained; there was no `lei3` introduced. To indicate the CDF version, the API recently introduced a new `cdf_version` field that contains the new version identifiers since March 1st 2022:


`LEI_3_1` , `RR_2_1` , `REPEX_2_1`

The following API request still looks identical since March 1st 2022, with the exception of the `cdf_version` :


<https://leidata.gleif.org/api/v1/concatenated-files/lei2/latest>

```
// https://leidata.gleif.org/api/v1/concatenated-files/lei2/latest
{
  "data": {
    "id": 27012,
    "type": "lei2",
    "content_date": "2022-02-04 09:00:01",
    "record_count": 2064215,
    "cdf_version": "LEI_2.1",
    "file": "https://leidata.gleif.org/api/v1/concatenated-files/lei2/get/27012/zip",
    "filesize": 282149935,
    "signature": "https://leidata.gleif.org/api/v1/concatenated-files/lei2/get/27012/signature",
    "sources": [
      {
        "id": 874986,
        "is_fallback": false,
        "lou_file": {
          "id": 2202510,
          "type": "lei2",
          "uploaded_at": "2022-02-04 08:33:06",
          "originator": "029200067A7K6CH0H586",
          "content_date": "2022-02-04 08:11:28",
          "record_count": 384,
          "cdf_version": "LEI_2.1",
          "file": "https://leidata.gleif.org/api/v1/source-files/lei2/get/2202510/zip",
          "filesize": 44820,
          "signature": "https://leidata.gleif.org/api/v1/source-files/lei2/get/2202510/signature"
        }
      }
    ]
  }
}
// ...
}
```



 Type remains "lei2"


 `cdf_version` will change, according to the `type`:

lei2	: LEI_3_1
rr	: RR_2_1
repex	: REPEX_2_1


 XML file downloads will be in the new formats

Golden Copy

Except for the new (optional) elements and enum values, the Golden Copy files remained the same. The XML and JSON files continue to have the GeoCoding data.

Website

Other than the displayed CDF version labels, the Golden Copy download page will remain unchanged.

In case you are processing the files automatically, see the main section "[XML: Golden Copy & Concatenated Files](#)" and corresponding XML CDF type sections for instructions.

XML Files

See the main section "[XML: Golden Copy & Concatenated Files](#)" for further instructions and technical summary of the changes introduced in the new version.

See "[Example Files - Golden Copy \(XML,JSON, CSV\)](#)" on [Supporting Documents](#) for example files. Or go directly to the official download page for the [Golden Copy files](#), which are published in the new formats since March 1st 2022.

Instructions:

- Use the new XML Schemas (they also work on the historical files), in case you run XML schema validators against any published XML files
- Ignore unexpected fields and values or add support for them

Download API

Everything stayed the same and all processes that use the API can expect the same URLs and JSON attributes.

Instructions:

- No need to change any API requests or the processing of the JSON responses
- If you use the XML file downloads, ensure system can handle the new formats by checking the corresponding XML sections above.
- If you use the CSV/JSON file downloads, ensure to your system can handle the new formats by checking the corresponding Golden Copy CSV/JSON export sections below.

To ensure backwards-compatibility of the API with consuming systems, the `lei2` keyword used in the API URLs and JSON response attributes remained; there was no `lei3` introduced. To indicate the CDF version, the API recently introduced a new `cdf_version` field that will contain the new version identifiers starting March 1st 2022: `LEI_3_1`, `RR_2_1`, `REPEX_2_1`

The following API request still looks identical after March 1st 2022, with the exception of the `cdf_version`:

<https://goldencopy.gleif.org/api/v2/golden-copies/publishes/lei2/latest>


```
// https://goldencopy.gleif.org/api/v2/golden-copies/publishes/lei2/latest
{
  "data": {
    "type": "lei2",
    "publish_date": "2022-02-04 08:00:00",
    "full_file": {
      "csv": {
        "type": "lei2",
        "format": "csv",
        "record_count": 2064015,
        "size": 224993336,
        "size_human_readable": "214.57 MB",
        "delta_type": "GoldenCopy",
        "url": "https://leidata-preview.gleif.org/storage/golden-copy-files/2022/02/04/595268/20220204-0800-gleif-goldencopy-lei2-golden-copy.csv.zip",
        "cdf_version": "LEI_2.1"
      },
      "json": {
        "type": "lei2",
        "format": "json",
        "record_count": 2064015,
        "size": 405228401,
        "size_human_readable": "386.46 MB",
        "delta_type": "GoldenCopy",
        "url": "https://leidata-preview.gleif.org/storage/golden-copy-files/2022/02/04/595257/20220204-0800-gleif-goldencopy-lei2-golden-copy.json.zip",
        "cdf_version": "LEI_2.1"
      },
      "xml": {
        "type": "lei2",
        "format": "xml",
        "record_count": 2064015,
        "size": 435817261,
        "size_human_readable": "415.63 MB",
        "delta_type": "GoldenCopy",
        "url": "https://leidata-preview.gleif.org/storage/golden-copy-files/2022/02/04/595254/20220204-0800-gleif-goldencopy-lei2-golden-copy.xml.zip",
        "cdf_version": "LEI_2.1"
      }
    },
    "delta_files": {
      "IntraDay": { /* ... */ },
      "LastDay": { /* ... */ },
      "LastMonth": { /* ... */ },
      "LastWeek": { /* ... */ }
    }
  }
}
```

Annotations in the image:

- Green arrow pointing to `"type": "lei2"`: Type remains 'lei2'
- Green arrow pointing to `"cdf_version": "LEI_2.1"`: 'cdf.version' will change, according to the 'type':
lei2 : LEI_2.1
rr : RR_2.1
repx : REPEX_2.1
- Orange arrow pointing to `url` in the `csv` block: CSV downloads will be in the new format
- Orange arrow pointing to `url` in the `json` block: JSON downloads will be in the new format
- Orange arrow pointing to `url` in the `xml` block: XML downloads will be in the new format

Note that the Golden Copy API is available via two domains `goldencopy.gleif.org` and `leidata-preview.gleif.org` (legacy). This could lead to differing download URLs, but does not pose any problems as the behavior did not change.

Export Formats

JSON

The JSON exports was be extended with the additionally introduced fields, where present. Additionally, the `Entity.SuccessorEntity` field now holds an array of potentially multiple successor entity entries and certain fields are ensured to always be returned as an array.

Instructions:

LEI:

- If you use the `Entity.SuccessorEntity` field, your system must expect an array of objects (the Successor Entity is now a repeatable field)
- If you use the `AdditionalAddressLine` in any of the addresses, your system must expect an array of strings. Since March 1st 2022 this field is always an array, even if only one additional address line is present.
- If you use the `OtherValidationAuthority` field, your system must expect either an array of objects. Since March 1st 2022 this field is always an array.

RR:

- If you use the `RelationshipQualifier` or `RelationshipQuantifier` field, your system must expect an array of objects. Since March 1st 2022 this field is always be an array.

REPEX:

- If you use the `ExceptionReason` or `ExceptionReference` field, your system must expect an array of strings. Since March 1st 2022 this field is always be an array.

For details, see the **JSON Export** section of the document "[\(Breaking\) Changes in Golden Copy Exports](#)" published on the GLEIF website under [Supporting Documents](#).

Example Files:

- Download [LEI 3.1, RR 2.1, REPEX 2.1 JSON Export Example](#)
- See "**Example Files - Golden Copy (XML, JSON, CSV)**" on [Supporting Documents](#)
- Visit the official download page for the [Golden Copy files](#), which are published in the new formats since March 1st 2022.

CSV

Only the CSV export for LEI data changed in structure, due to additional columns that were added and the now-repeating SuccessorEntity field.

Instructions:

- Ensure your system does not rely on the exact order of the columns (e.g. by parsing the CSV into an unordered mapping of column names to values, instead of ordered lists of values)
- If you rely on any `Entity.SuccessorEntity.*` field, ensure to support the indexed 1-5 column names (`Entity.SuccessorEntity.1.*`)

For details, see the **CSV Export** section of the document "[\(Breaking\) Changes in Golden Copy Exports](#)" published on the GLEIF website under [Supporting Documents](#).

Example files:

- Download [LEI 3.1, RR 2.1, REPEX 2.1 CSV Export Example](#)
- See "**Example Files - Golden Copy (XML, JSON, CSV)**" on [Supporting Documents](#)
- Visit the official download page for the [Golden Copy files](#), which are published in the new formats since March 1st 2022.

GLEIF API

Only the `lei-records` API resource structure changed. While existing attributes remained unchanged, new attributes, relationships and filters were added.

Instructions:

- Ignore unexpected JSON fields and values or add support for them
- In case you rely on successor entity information
 - use the new `successorEntities` attribute (plural; array) instead of the deprecated `successorEntity` attribute (singular). The old attribute remains but only contains the first occurrence, in case multiple successors were reported.
 - use the new `successor-entities` relationship (plural; one-to-many) instead of the deprecated `successor-entity` relationship (singular; one-to-one). The old relationship remains but only links the first successor entity occurrence, in case multiple successors were reported.

For details, see the [documentation on GLEIF API Changes here](#) or find it on the GLEIF web page for [Supporting Documents](#).

Example files:

- Download [LEI 3.1 JSON:API response example](#)
- See the "Example Files - GLEIF API Response" on the GLEIF web page about [Supporting Documents](#)
- Visit the official download page for the [Golden Copy files](#), which are published in the new formats since March 1st 2022.