

FSL Manager Documentation

Client Integration Manual

Content

1. Content	2
1. Document history	4
2. Introduction	5
2.1. Objective of the document	5
2.2. Product Description	5
2.3. Environments	6
2.4. Authentication & Encryption	6
3. Interfaces	6
3.1. Basic information	6
3.2. Configuration and helper interfaces	6
3.2.1. Language list	7
3.2.2. Investor type list	8
3.2.3. Investor country list	9
3.2.4. Page list	10
3.2.5. Evaluated pages list	11
3.2.6. Evaluated parameter combinations	11
3.3. Data interfaces	13
3.3.1. Product list	13
3.3.2. Product list (language code dependent)	14
3.3.3. Product data	15
3.3.4. Product list (language code dependent)	16
3.3.5. Documents	17
3.3.6. Translations	18
3.3.7. Historic price data	19
3.3.8. Historic price data (language code dependent)	20
3.3.9. Page content list (HTML and JavaScript)	21
3.3.10. Allocation data	22
3.3.11. Allocation data (language code dependent)	23
3.4. Tool Interfaces	24
3.4.1. Performance Calculator	25

3.4.2.	Deposit Development Calculator	26
3.4.3.	Dynamic Portfolio Calculator	27

1. Document history

Version	Date	By	Comment
2017-5	15-11-2017	Daniel Bauer	Transfer of the web based documentation
2018-1	09-01-2018	Daniel Bauer	Updated for release 2018-1
2018-2	24-04-2018	Team	Updated for release 2018-2
2018-3	06-08-2018	Team	Updated for release 2018-3
2018-3.5	15-11-2019	Team	Updated for release 2018-3.5
2020-1.3	13-11-2020	Team	Updated for release 2020-1.3
2021-1	09.01.2022	Team	Updated for release 2021-1

2. Introduction

2.1. Objective of the document

This document is meant to be a comprehensive manual for the integration of the SaaS-Software FSL Manager (provided by cleversoft) into any content management system or tool. It provides an overview of the interfaces that need to be called in order to retrieve the desired data. The user instructions for using the FSL Manager User-Interface can be found in another document.

2.2. Product Description

The FSL Manager (Fig. 1) is a highly scalable, cloud-based web application which provides APIs to integrate fund-related data, html pages, translations, documents etc. into customer websites or tools. FSL Manager is a very flexible software that allows the client to create, change or delete configurations as well as html templates and so on. These changes result in immediate changes of the provided interfaces.

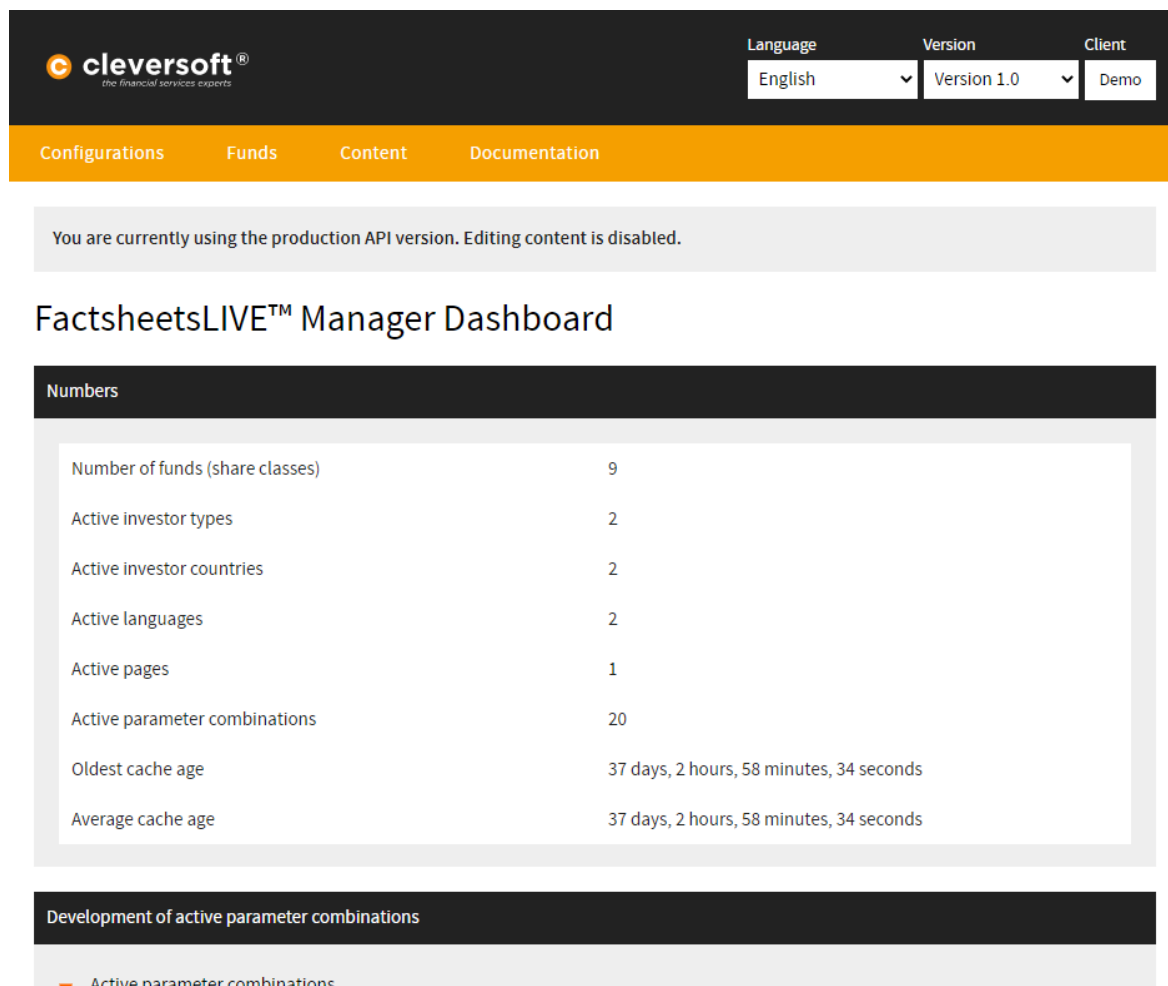


Figure 1: FSL Manager Dashboard

2.3. Environments

There are two independent environments available. These environments are called Staging (User Acceptance Testing) and Production. Both environments are completely separated in all components except for the virtualization level.

The following table provides an overview of the available environments and where they can be found:

Environment	Url	Purpose
Production	https://fsl-framework.factsheetslive.com/fslmanager/	Creation and delivery of content, both for staging and production versions
Staging	https://fsl-framework.stg.factsheetslive.com/fslmanager/	Test & Acceptance of new features/changes for planned releases.

2.4. Authentication & Encryption

FSL Manager uses HTTP Basic Authentication to limit access solely to users with login credentials. This measure ensures that every customer can see only his own funds, settings etc.

To make this approach and every other connection with the FSL Manager secure, all connections are SSL encrypted.

3. Interfaces

3.1. Basic information

FSL Manager provides data for attached CMS Systems and tools using HTTP interfaces with JSON format. All data must be cached on the client side. The data is typically refreshed twice a day on defined times. An ad hoc request of the API while loading a frontend is therefore undesired. Simultaneous requests are not allowed.

The APIs are split up into two categories. "Configuration and helper" interfaces which mainly provide configurations on the one hand and "data" interfaces that contain evaluated daily data.

3.2. Configuration and helper interfaces

Configuration Interfaces provide very basic configuration Information that typically do not change very often. Helper interfaces help pulling complete data sets from the interfaces.

3.2.1. Language list

This list contains all languages configured within FSL Manager.

Call

```
/api/languageList/
```

Response schema

```
{
  "<languageCode>": {
    "code": "<languageCode>",
    "name": "<languageName>"
  },
  ...
}
```

Response example

```
{
  "en": {
    "code": "en",
    "name": "English"
  },
  "de": {
    "code": "de",
    "name": "German"
  }
}
```

3.2.2. Investor type list

This list contains all investor types configured within the FSL Manager.

Call

```
/api/investorTypeList/
```

Response schema

```
{  
  "<investorTypeCode>": {  
    "code": "<investorTypeCode>",  
    "name": "<investorTypeName>"  
  },  
  ...  
}
```

Response example

```
{  
  "private": {  
    "code": "private",  
    "name": "Private investor"  
  },  
  "professional": {  
    "code": "professional",  
    "name": "Professional investor"  
  }  
}
```


3.2.3. Investor country list

This list contains all investor countries configured within the FSL Manager. It also contains the available languages and investor types for each country.

Call

```
/api/investorCountryList/
```

Response schema

```
{
  "<investorCountryCode>": {
    "code": "<investorCountryCode>",
    "name": "<investorCountryName>",
    "availableLanguages": {
      "<languageCode>": true,
      ...
    },
    "availableInvestorTypes": {
      "<investorTypeCode>": true,
      ...
    }
  },
  ...
}
```

Response example

```
{
  "en": {
    "code": "en",
    "name": "England",
    "availableLanguages": {
      "en": true,
      "de": true
    },
    "availableInvestorTypes": {
      "private": true
    }
  }
}
```

3.2.4. Page list

This list contains all pages configured within FSL Manager and the API-patterns to call them. A page is a html template like a data table or a fund portfolio overview.

Call

```
/api/pageList/
```

Response schema

```
{
  "<pageCode>": {
    "code": "<pageCode>",
    "name": "<pageName>",
    "url":
"/api/html/page/<pageCode>/<isin>/<investorCountryCode>/<investorTypeCode>/<languageCode>/"
  },
  ...
}
```

Response example

```
{
  "performance": {
    "code": "performance",
    "name": "Performance",
    "url":
"/api/html/page/performance/~isin~/~investorCountryCode~/~investorTypeCode~/~languageCode~/~"
  },
  "portrait": {
    "code": "portrait",
    "name": "Portrait",
    "url": "/api/html/page/portrait/~isin~/~investorCountryCode~/~investorTypeCode~/~languageCode~/~"
  }
}
```

3.2.5. Evaluated pages list

This list is a helper for receiving all available and active page variations.

Call

```
/api/evaluatedPageList/
```

Response schema

```
{
  "<code>": {
    "code": "<code>",
    "Isin": "<isin>",
    "pageCode": "<pageCode>",
    "investorTypeCode": "<investorTypeCode>",
    "investorCountryCode": "<investorCountryCode>",
    "languageCode": "<languageCode>",
    "url": "<url>",
    "lastUpdate": <date>
  },
  ...
}
```

Response example

```
{
  "LU1748855837-chances-and-risks-private-be-en": {
    "code": "LU1748855837-chances-and-risks-private-be-en",
    "Isin": "LU1748855837",
    "pageCode": "chances-and-risks",
    "investorTypeCode": "private",
    "investorCountryCode": "be",
    "languageCode": "en",
    "url": "https://fsl-framework.factsheetslive.com/fslmanager/api/html/page/chances-and-risks/LU1748855837/be/private/en/",
    "lastUpdate": {
      "date": "2018-06-03 15:37:44.000000",
      "timezone_type": 3,
      "timezone": "Europe/Berlin"
    }
  },
}
```

3.2.6. Evaluated parameter combinations

This list is a helper for receiving all available and active parameter combinations. This list is useful for every interface that is being called with a parameter combination of fund, investor type, investor country and language. It only returns active and valid parameter combinations.

Call

```
/api/evaluatedParameterCombinations/
```

Response schema

```
{  
  "<code>": {  
    "code": "<code>",  
    "isin": "<isin>",  
    "investorTypeCode": "<investorTypeCode>",  
    "investorCountryCode": "<investorCountryCode>",  
    "languageCode": "<languageCode>"  
  },  
  ...  
}
```

Response example

```
{  
  "LU1748855837-private-be-en": {  
    "code": "LU1748855837-private-be-en",  
    "isin": "LU1748855837",  
    "investorTypeCode": "private",  
    "investorCountryCode": "be",  
    "languageCode": "en"  
  },  
  ...  
}
```

3.3. Data interfaces

3.3.1. Product list

The productList API returns the list of active funds combined with fund data. The example shows a basic configuration. The interface is very flexible and can be extended with all kind of fund related data.

Call

```
/api/productList/
```

Response schema

```
{
  "<isin>": {
    "isin": "<isin>",
    "name": "<name>",
    "sortingPosition": "<sortingPosition>",
    "authorizations": "<authorizations>",
    "languageCode": "<languageCode>",
    ...
  },
  ...
}
```

Response example

```
{
  "FR0010148981": {
    "isin": "FR0010148981",
    "name": "Carmignac Investissement A EUR Acc",
    "sortingPosition": 1,
    "authorizations": {
      "en": {
        "private": true
      }
    },
    "nav": 1249.17,
    "navDate": "2018-05-31"
  },
  "FR0010135103": {
    "isin": "FR0010135103",
    "name": "Carmignac Patrimo.A EUR Acc",
    "sortingPosition": 2,
    "authorizations": {
```

```
"en": {  
  "private": true  
},  
"nav": 641.95,  
"navDate": "2018-05-31"  
},  
...  
}
```

3.3.2. Product list (language code dependent)

This interface contains the same information like “productList”, but uses the settings of the given language code to format its content.

Call

```
/api/productList/~languageCode~/
```

Response example

```
/api/productList/en/
```

```
{  
  "FR0010148981": {  
    "isin": "FR0010148981",  
    "name": "Carmignac Investissement A EUR Acc",  
    "sortingPosition": 1,  
    "authorizations": {  
      "en": {  
        "private": true  
      }  
    },  
    "nav": "1249,17",  
    "navDate": "31.04.2018"  
  },  
  "FR0010135103": {  
    "isin": "FR0010135103",  
    "name": "Carmignac Patrimo.A EUR Acc",  
    "sortingPosition": 2,  
    "authorizations": {  
      "en": {  
        "private": true  
      }  
    },  
  },  
}
```

```
"nav": "641,95",  
"navDate": "31.04.2018"  
},  
...  
}
```

3.3.3. Product data

The productData API returns the fund data of the requested fund. The example shows a basic configuration. The interface is very flexible and can be extended with all kind of fund related data.

Call

```
/api/productData /
```

Response schema

```
{  
  "<isin>": {  
    "isin": "<isin>",  
    "name": "<name>",  
    "sortingPosition": "<sortingPosition>",  
    "authorizations": "<authorizations>",  
    "languageCode": "<languageCode>",  
    ...  
  }  
}
```

Response example

```
{  
  "FR0010148981": {  
    "isin": "FR0010148981",  
    "name": "Carmignac Investissement A EUR Acc",  
    "sortingPosition": 1,  
    "authorizations": {  
      "en": {  
        "private": true  
      }  
    },  
    "nav": 1249.17,  
    "navDate": "2018-05-31"  
  }  
}
```

3.3.4. Product data (language code dependent)

This interface contains the same information like “productData”, but uses the settings of the given language code to format its content.

Call

```
/api/productData/~languageCode~/
```

Response example

```
/api/productData/en/
```

```
{
  "FR0010148981": {
    "isin": "FR0010148981",
    "name": "Carmignac Investissement A EUR Acc",
    "sortingPosition": 1,
    "authorizations": {
      "en": {
        "private": true
      }
    },
    "nav": "1249,17",
    "navDate": "31.04.2018"
  }
}
```


3.3.5. Documents

This interface provides fund-related documents for specific combinations of ISIN, investor country, investor type and language.

Call

```
/api/documents/~isin~/~investorCountryCode~/~investorTypeCode~/~languageCode~/
```

Response example

```
/api/documents/FR0010148981/en/private/en/
```

```
[
  {
    "type": "dailyFactsheet",
    "name": null,
    "pattern": "/documents/dailyFactsheet/FR0010148981/en_EN/",
    "date": "2018-05-30",
    "dateFormatted": "30 May 2018",
    "size": null,
    "archived": false
  },
  {
    "type": "monthEndFactsheet",
    "name": null,
    "pattern": "/documents/monthEndFactsheet/FR0010148981/en_EN/",
    "date": "2018-04-30",
    "dateFormatted": "30 April 2018",
    "size": null,
    "archived": false
  },
  ...
]
```

3.3.6. Translations

This interface provides fund-related translations for specific combinations of ISIN, investor country, investor type and language. These translations are often used on Factsheets as well. The delivered translations differ per client.

Call

```
/api/translations/~isin~/~investorCountryCode~/~investorTypeCode~/~languageCode~/
```

Response example

```
/api/translations/FR0010148981/de/private/de/  
  
{  
  "translation_pa": "p.a.",  
  "translation_performance": "Performance",  
  "translation_since_inception": "since inception",  
  ...  
}
```

3.3.7. Historic price data

This interface shows historic price data information from the start of the fund until the newest price date. It is typically used for exporting price data for end users e.g. in CSV format.

Call

```
/api/historicPriceData/~isin~/
```

Response example

```
/api/historicPriceData/FR0010148981/
```

```
{
  "1989-02-01": {
    "navDate": "1989-02-01",
    "currencyCode": "EUR",
    "issuePrice": null,
    "nav": "81.3400",
    "navChange": null,
    "navChangePercent": null,
    "returnPrice": null,
    "intermediateProfit": null,
    "profitPerShare": null,
    "profitPerShareKstg": null,
    "realEstateProfit": null,
    "tisBel": null
  },
  "1989-02-08": {
    "navDate": "1989-02-08",
    "currencyCode": "EUR",
    "issuePrice": null,
    "nav": "82.8700",
    "navChange": 1.5300000000000011,
    "navChangePercent": 1.880993361199912,
    "returnPrice": null,
    "intermediateProfit": null,
    "profitPerShare": null,
    "profitPerShareKstg": null,
    "realEstateProfit": null,
    "tisBel": null
  }
}
```

3.3.8. Historic price data (language code dependent)

This interface contains the same information like “historicPriceData”, but uses the settings of the given language code to format its content.

Call

```
/api/historicPriceData/~isin~/~languageCode~/
```

Response example

```
/api/historicPriceData/FR0010148981/de/
```

```
{
  "01.02.1989": {
    "navDate": "01.02.1989",
    "currencyCode": "EUR",
    "issuePrice": null,
    "nav": "81,3400",
    "navChange": null,
    "navChangePercent": null,
    "returnPrice": null,
    "intermediateProfit": null,
    "profitPerShare": null,
    "profitPerShareKstg": null,
    "realEstateProfit": null,
    "tisBel": null
  },
  "08.02.1989": {
    "navDate": "08.02.1989",
    "currencyCode": "EUR",
    "issuePrice": null,
    "nav": "82,8700",
    "navChange": "1,53",
    "navChangePercent": "1,88%",
    "returnPrice": null,
    "intermediateProfit": null,
    "profitPerShare": null,
    "profitPerShareKstg": null,
    "realEstateProfit": null,
    "tisBel": null
  }
}
```

3.3.9. Page content (HTML and JavaScript)

This API provides the content of a page (HTML and JavaScript) dependent on the parameters pageCode, ISIN, investorCountryCode, investorTypeCode and languageCode.

Call

```
/api/html/page/~pageCode~/~isin~/~investorCountryCode~/~investorTypeCode~/~languageCode~/
```

Response schema

```
{  
  "html": "",  
  "js": "",  
  "css": ""  
}
```

Response example

```
/api/html/page/fund-details/FR0010148981/en/private/en/
```

```
{  
  "html": "<h1>Fund details</h1><p>This is a simple fund details example  
page</p><table><thead><tr><th>Column 1</th><th>Column 2</th></tr></thead><tbody><tr><td>Value  
1</td><td>Value 2</td></tr></tbody></table>",  
  "js": "",  
  "css": ""  
}
```

3.3.10. Allocation data

This interface provides allocation data information for a specific fund. Possible categories: holdings, industries, countries, currencies, statistics, assets, ratings, durations.

Call

```
/api/allocationData/~isin~/
```

Response example

```
/api/allocationData/FR0010148981/
```

```
{
  "holdings": {
    "values": [
      {
        "title": "Alphabet Inc",
        "absoluteValue": 0,
        "percentage": 3.57,
        "color": "",
        "sequence": 0
      },
      ...
    ],
    "date": "2019-08-30"
  },
  "industries": {
    "values": [
      {
        "title": "Barmittel",
        "absoluteValue": 0,
        "percentage": 7.27,
        "color": "",
        "sequence": 0
      },
      ...
    ],
    ...
  },
  ...
}
```

3.3.11. Allocation data (language code dependent)

This interface contains the same information like “allocationData”, but uses the settings of the given language code to format its content.

Call

```
/api/allocationData/~isin~/~languageCode~/
```

Response example

```
/api/allocationData/FR0010148981/de/
```

```
{
  "holdings": {
    "values": [
      {
        "title": "Alphabet Inc",
        "absoluteValue": "0,00",
        "percentage": "3,57%",
        "color": "",
        "sequence": 0
      },
      ...
    ],
    "date": "2019-08-30"
  },
  "industries": {
    "values": [
      {
        "title": "Barmittel",
        "absoluteValue": "0,00",
        "percentage": "7,27%",
        "color": "",
        "sequence": 0
      },
      ...
    ],
    ...
  },
  ...
}
```

3.4. Tool Interfaces

All three tools provided by the FSL Manager (Performance Calculator, Deposit Development Calculator and Dynamic Portfolio Calculator) can be accessed via POST requests.

These interfaces are not enabled by default and have to be enabled by cleversoft.

A correct request will result in a JSON response with the fields html, js and css, just like the pages API.

Accessing these tools is also secured and the FSL Manager login credentials are required. Please make sure these login credentials are sent via a server sided wrapper and won't be exposed to the website user.

The following parameters are mandatory for every tool.

General parameters

Identifier	Type	Description	Example value
investorCountryCode	String	Investor country code of the current visitor	"en"
investorTypeCode	String	Investor type code of the current visitor	"private"
languageCode	String	Language code of the current visitor	"en"

3.4.1. Performance Calculator

This interface provides the Performance Calculator. Additionally required parameters for this tool are listed below.

Call

Typ	Request-Type	URL	Return-Type
POST	x-www-form-urlencoded	/api/tools/performanceCalculator/	JSON

Additional parameters

Identifier	Type	Description	Example value
isin	String	ISIN of the fund	"FR0010148981"
frontendload	String	Front-end load of the fund in percent	"5"
startDate	String	Start date of the calculation	"2017-01-01"
endDate	String	End date of the calculation	"2017-12-31"
investmentAmount	String	Investment amount at the beginning	"5000"
recurringInvestmentAmount	String	Amount of the recurring investment	"500"
recurringInvestmentInterval	String	Interval of the recurring investment ("1" = monthly, "2" = quarterly, "3" = half-yearly, "4" = yearly, "5" = bimonthly)	"2"

3.4.2. Deposit Development Calculator

This interface provides the Deposit Development Calculator. Additionally required parameters for this tool are listed below.

Call

Typ	Request-Type	URL	Return-Type
POST	x-www-form-urlencoded	/api/tools/depositDevelopmentCalculator/	JSON

Additional parameters

Identifier	Type	Description	Example value
isin	String	ISIN of the fund	"FR0010148981"
frontendload	String	Front-end load of the fund in percent	"5"
startDate	String	Start date of the calculation	"2017-01-01"
recurringInvestmentAmount	String	Amount of the recurring investment	"500"
recurringInvestmentInterval	String	Interval of the recurring investment ("1" = monthly, "2" = quarterly, "3" = half-yearly, "4" = yearly, "5" = bimonthly)	"2"
oneTimeMovements	Array	Array with additional investments	[{"date": "2017-01-06", "amount": 105000 }, {"date": "2017-03-06", "amount": 5000 }, {"date": "2017-05-06", "amount": -5000]
- date	String	Date of the additional invest	"2017-01-06"
- amount	Number	Amount of the additional invest	105000

3.4.3. Dynamic Portfolio Calculator

This interface provides the Dynamic Portfolio Calculator. Additionally required parameters for this tool are listed below.

Call

Typ	Request-Type	URL	Return-Type
POST	x-www-form-urlencoded	/api/tools/dynamicPortfolioCalculator/	JSON

Additional parameters

Identifier	Type	Description	Example value
startDate	String	Start date of the calculation	"2017-01-01"
endDate	String	End date of the calculation	"2017-12-31"
maxYears	String	Maximum investment period in years	"5"
components	Array	Array with the composition of the portfolio	[{"isin": "FR0010148981", "percentage": 0.3 }, {"isin": "FR0010135103", "percentage": 0.4 }, {"isin": "FR0011269588", "percentage": 0.3 }]
- isin	String	ISIN of the fund	"FR0010148981"
- percentage	Number	Percentage of the fund in the portfolio	0.3

3.5. Structured Data

The “Page content”-API can be called in a way that allows to retrieve the HTML data as structured data.

3.5.1. Headlines

Example

```
{
  "type": "h1",
  "attributes": {
    "class": []
  },
  "data": "Headline 1"
}
```

Notes

Possible types are “h1”, “h2”, “h3”, “h4”, “h5” and “h6”.
“data” is a string that can contain HTML.

3.5.2. Paragraph

Example

```
{
  "type": "p",
  "attributes": {
    "class": []
  },
  "data": "This is a Paragraph."
}
```

Notes

“data” is a string that can contain HTML.

3.5.3. Ordered / Unordered List

Example

```
{
  "type": "ol",
  "attributes": {
    "class": []
  }
}
```

```
    },  
    "data": [  
        "This is a",  
        "ordered list."  
    ]  
}
```

Notes

Type can be “ol” for ordered list and “ul” for unordered lists.

“data” is an array of strings that can contain HTML. Each entry represents a list element.

3.5.4. Tables

Example

```
{  
  "type": "table",  
  "attributes": {  
    "class": []  
  },  
  "meta": {  
    "firstRowIsHead": true,  
    "firstColumnIsHead": true  
  },  
  "data": [  
    [  
      "Cell A1",  
      "Cell A2",  
      "Cell A3"  
    ],  
    [  
      "Cell B1",  
      null,  
      "Cell B3"  
    ],  
    [  
      "Cell C1",  
      "Cell C2",  
      "Cell C3"  
    ]  
  ]  
}
```

Notes

Meta entry “firstRowIsHead” indicates whether the first row of the data entry shall be outputted as table header.

Meta entry “firstColumnsHead” indicates whether the first column of each row in the data entry shall be outputted as table header.

If an entry in data is “null” the previous entry has a “colspan” spanning this cell.

Rowspan is currently not supported.

3.5.5. Charts

3.5.5.1. Chart meta information

Charts can contain meta information which is described below.

3.5.5.1.1. type

The field describes the basic type of the chart.

table	The chart shall be rendered as a table.
pieChart	The chart shall be rendered as a pie chart.
barChart	The chart shall be rendered as a bar chart.

3.5.5.1.2. dataType

dataTypes indicate the structure of the “data” objects.

performanceIntervals	
<pre>"2011-ytd": { "start": "2011-01-01", "end": "2011-12-31", "value": 0.03559580186557976, },</pre>	<p>The key identifies the year and month (2000-1 to 2000-12) or the special intervals year-to-date (ytd) and year-to-ultimo (yту)</p> <p>Alternatively, it can contain the named intervals “1y”, “3y”, “5y” or “10y”, “1y-pa”, “3y-pa”, “5y-pa” or “10y-pa” as well as “ytd” and “si” (since inception).</p> <p>start start date of the interval</p> <p>end end date of the interval</p> <p>value the product performance in % of the interval.</p> <p>valueFormatted formatted value</p>
priceSeries	
<pre>"prices": [{ "date": "2021-08-13", "value": 19252.4424, "benchmarkValue": null } // ...]</pre>	<p>date Date of the price value</p> <p>value product price for the given date</p> <p>benchmarkValue benchmark price for the given date</p>
<pre>"dividendDistributions": [{ "date": "2012-12-12",</pre>	<p>date Date of the distribution</p>

"grossPayment": 2.4 },]	grossPayment amount of the distribution
"labels": { "productName": "...", "benchmarkName": "..." }	productName name of the product/fund benchmarkName name of the benchmark
performanceMatrixIntervals	
"intervals": [{ "start": "2016-08-19", "end": "2017-08-19", "value": 0.03526098928541921, "valueScaledWithAgio": 0.03526098928541921, "benchmarkValue": null }, // ...]	start start date of the interval end end date of the interval value the product performance in % of the interval. valueScaledWithAgio same as value but reduced by Agio benchmarkValue the benchmark performance in % of the interval.
"labels": { "valueScaledWithAgio": "...", "value": "...", "valueSimulated": "...", "fundBruttoSimulated": "..", "benchmark": "..." }	
portfolioAllocation	
{ "title": "...", "value": 16307550, "valueFormatted": "3,47%", "percentage": 0.0347, "description": "Wandelanleihen", "color": "" }, // ...	title name of the position value absolute value of the position valueFormatted formatted percentage value percentage percentage of the position description field that can contain extra information color field that can contain a specified color for the position

3.5.5.1.3. dataFlags

An additional flag that provides information about the dataset and can be used for further distinguishing the chart rendering.

calendarYears	The dataset is based on full calendar year intervals.
calendarYearsWithoutCurrent	Same as calendarYears but without the current year.
yearsFromToday	The dataset is based on full one year intervals based on the last available price date.

3.5.5.1.4. format

decimalSeparator	Decimal separator which shall be used for number formatting.
thousandsSeparator	Thousands separator which shall be used for number formatting.
dateFormat	Date format which shall be used for date formatting.

3.5.5.2. Chart examples

3.5.5.2.1. Performance line chart

```
{
  "type": "chart",
  "attributes": {
    "class": []
  },
  "data": {
    "dividendDistributions": [
      {
        "date": "2012-12-12",
        "grossPayment": 2.4
      },
      {
        "date": "2013-12-12",
        "grossPayment": 1.5663
      },
      {
        "date": "2014-12-12",
        "grossPayment": 1.9617
      },
      // ...
    ],
    "prices": [
      {
        "date": "2008-08-04",
        "value": 1000,
        "benchmarkValue": 159.85
      },
      {
        "date": "2008-08-05",
        "value": 1000,
        "benchmarkValue": 161.05
      },
      {
        "date": "2008-08-06",
        "value": 1000,
        "benchmarkValue": 161.35
      },
      // ...
    ],
    "labels": {
      "productName": "Flossbach von Storch - Global Convertible Bond R",
      "benchmarkName": "Vergleichsindex"
    }
  },
  "meta": {
    "type": "lineChart",
    "dataType": "priceSeries",
    "dataFlags": [],
    "format": {
      "decimalSeparator": ",",
      "thousandsSeparator": ".",
      "dateFormat": "dd.MM.yyyy"
    }
  }
}
```

3.5.5.2.2. Performance bar chart / years from today

```
{
  "type": "chart",
  "attributes": {
    "class": []
  },
  "data": {
    "intervals": [
      {
        "start": "2010-08-23",
        "end": "2011-08-23",
        "value": 0.0029190623617867395,
        "valueFormatted": "0,29%",
        "valueScaledWithAgio": -0.044838988226869825,
        "valueScaledWithAgioFormatted": "-4,48%",
        "benchmarkValue": 0.035158395898187145,
        "benchmarkValueFormatted": "3,52%"
      },
      {
        "start": "2011-08-23",
        "end": "2012-08-23",
        "value": 0.089610160522138,
        "valueFormatted": "8,96%",
        "benchmarkValue": 0.06875405389468714,
        "benchmarkValueFormatted": "6,88%"
      },
      // ...
      {
        "start": "2020-08-23",
        "end": "2021-08-23",
        "value": 0.07892880242916323,
        "valueFormatted": "7,89%",
        "benchmarkValue": 0.11246622361790704,
        "benchmarkValueFormatted": "11,25%"
      }
    ],
    "labels": {
      "value": "Fonds (brutto)",
      "valueScaledWithAgio": "Fonds (netto) unter Berücksichtigung des maximalen Ausgabeaufschlag  
s von&nbsp;5,00 %",
      "benchmarkValue": "Vergleichsindex: Refinitiv Global Focus Hedged Convertible Bond Index (E  
UR)"
    }
  },
  "meta": {
    "type": "barChart",
    "dataType": "performanceIntervals",
    "dataFlags": [
      "yearsFromToday"
    ],
    "format": {
      "decimalSeparator": ",",
      "thousandsSeparator": ".",
      "dateFormat": "dd.MM.yyyy"
    }
  }
}
```

3.5.5.2.3. Performance bar chart / calendar years

```
{
  "type": "chart",
  "attributes": {
    "class": []
  },
  "data": {
    "intervals": [
      {
        "start": "2011-01-01",
        "end": "2011-12-31",
        "value": -0.07282490141790432,
        "valueFormatted": "-7,28%",
        "benchmarkValue": -0.04170928514603933,
        "benchmarkValueFormatted": "-4,17%"
      },
      {
        "start": "2012-01-01",
        "end": "2012-12-31",
        "value": 0.18350230748348584,
        "valueFormatted": "18,35%",
        "benchmarkValue": 0.11041271347248571,
        "benchmarkValueFormatted": "11,04%"
      },
      // ...
      {
        "start": "2021-01-01",
        "end": "2021-08-23",
        "value": 0.022164353696688677,
        "valueFormatted": "2,22%",
        "benchmarkValue": 0.011692833212901599,
        "benchmarkValueFormatted": "1,17%"
      }
    ],
    "labels": {
      "value": "Fonds (brutto)",
      "valueScaledWithAgio": "Fonds (netto) unter Berücksichtigung des maximalen Ausgabeaufschlag  
s von&nbsp;5,00 %",
      "benchmarkValue": "Vergleichsindex: Refinitiv Global Focus Hedged Convertible Bond Index (E  
UR)"
    }
  },
  "meta": {
    "type": "barChart",
    "dataType": "performanceIntervals",
    "dataFlags": [
      "calendarYears"
    ],
    "format": {
      "decimalSeparator": ",",
      "thousandsSeparator": ".",
      "dateFormat": "dd.MM.yyyy"
    }
  }
}
```

3.5.5.2.4. Performance matrix / yearly intervals

```
{
  "type": "chart",
  "attributes": {
    "class": []
  },
  "data": {
    "2011-ytd": {
      "start": "2011-01-01",
      "end": "2011-12-31",
      "value": -0.07282490141790432,
      "valueFormatted": "-7,28%"
    },
    "2011-ytu": {
      "start": "2011-01-01",
      "end": "2011-12-31",
      "value": -0.07282490141790432,
      "valueFormatted": "-7,28%"
    },
    "2011-1": {
      "start": "2011-01-01",
      "end": "2011-01-31",
      "value": 0.0072153704169812816,
      "valueFormatted": "0,72%"
    },
    // ...
  },
  "meta": {
    "type": "table",
    "dataType": "performanceMatrixIntervals",
    "dataFlags": [],
    "format": {
      "decimalSeparator": ",",
      "thousandsSeparator": ".",
      "dateFormat": "dd.MM.yyyy"
    }
  }
},
```

3.5.5.2.5. Performance matrix / fixed intervals

```
{
  "type": "chart",
  "attributes": {
    "class": []
  },
  "data": {
    "1d": {
      "start": "2021-08-19",
      "end": "2021-08-20",
      "value": -0.0020618853279709137,
      "valueFormatted": "-0,21%"
    },
    "1m": {
      "start": "2021-07-20",
      "end": "2021-08-20",
      "value": -0.0024358603940004553,
      "valueFormatted": "-0,24%"
    },
    "3m": {
      "start": "2021-05-20",
      "end": "2021-08-20",
      "value": 0.014159622998590082,
      "valueFormatted": "1,42%"
    },
    // ..
    "10y": {
      "start": "2011-08-20",
      "end": "2021-08-20",
      "value": 0.5591254957257423,
      "valueFormatted": "55,91%"
    },
    "1y-pa": {
      "start": "2020-08-20",
      "end": "2021-08-20",
      "value": 0.07752178352865458,
      "valueFormatted": "7,75%"
    },
    // ..
    "10y-pa": {
      "start": "2011-08-20",
      "end": "2021-08-20",
      "value": 0.045375378706528746,
      "valueFormatted": "4,54%"
    },
    "si": {
      "start": "2008-08-04",
      "end": "2021-08-20",
      "value": 0.7691397,
      "valueFormatted": "76,91%"
    }
  },
  "meta": {
    "type": "table",
    "dataType": "performanceMatrixIntervals",
    "dataFlags": [],
    "format": {
      "decimalSeparator": ",",
      "thousandsSeparator": ".",
      "dateFormat": "dd.MM.yyyy"
    }
  }
}
```

3.5.5.2.6. Performance matrix / fixed intervals

```
{
  "type": "chart",
  "attributes": {
    "class": []
  },
  "data": [
    {
      "title": "Europa",
      "value": 233693283.67,
      "valueFormatted": "233.693.283,67",
      "percentage": 0.6361,
      "percentageFormatted": "63,61%",
      "description": "EUR",
      "color": null
    },
    {
      "title": "Nordamerika",
      "value": 83489420.81,
      "valueFormatted": "83.489.420,81",
      "percentage": 0.2273,
      "percentageFormatted": "22,73%",
      "description": "NAM",
      "color": null
    },
    {
      "title": "Lateinamerika",
      "value": 26710199.42,
      "valueFormatted": "26.710.199,42",
      "percentage": 0.0727,
      "percentageFormatted": "7,27%",
      "description": "LAT",
      "color": null
    },
    {
      "title": "Nahe Osten",
      "value": 12712566.02,
      "valueFormatted": "12.712.566,02",
      "percentage": 0.0346,
      "percentageFormatted": "3,46%",
      "description": "NAO",
      "color": null
    },
    {
      "title": "Asien ex Japan",
      "value": 6259151.73,
      "valueFormatted": "6.259.151,73",
      "percentage": 0.017,
      "percentageFormatted": "1,70%",
      "description": "ASI",
      "color": null
    }
  ],
  "meta": {
    "type": "table",
    "dataType": "portfolioAllocation",
    "dataFlags": [],
    "format": {
      "decimalSeparator": ",",
      "thousandsSeparator": ".",
      "dateFormat": "dd.MM.yyyy"
    }
  }
}
```

