

SDMX 3.0 RESTful web services cheat sheet, v2.0.0

Structure queries: <https://host/structure/type/agency/id/version/item?detail&references>

| | | Default | Multi |
|-------------------|--|---------|-------|
| type | The type of structure: <code>datastructure</code> , <code>metadatastructure</code> , <code>categoryscheme</code> , <code>conceptscheme</code> , <code>codelist</code> , <code>hierarchy</code> , <code>hierarchyassociation</code> , <code>valuelist</code> , <code>organisationscheme</code> , <code>agency</code> , <code>agency</code> , <code>dataproviderscheme</code> , <code>dataconsumerscheme</code> , <code>organisationunitscheme</code> , <code>dataflow</code> , <code>metadataflow</code> , <code>reportingtaxonomy</code> , <code>provisionagreement</code> , <code>structuremap</code> , <code>representationmap</code> , <code>conceptschememap</code> , <code>categoryschememap</code> , <code>organisationschememap</code> , <code>process</code> , <code>categorisation</code> , <code>dataconstraint</code> , <code>metadataconstraint</code> , <code>structure</code> , <code>transformationscheme</code> , <code>rulesetscheme</code> , <code>userdefinedoperatorscheme</code> , <code>customtypescheme</code> , <code>namepersonalisationscheme</code> , <code>vtlmappingscheme</code> | * | N |
| agency | Agency maintaining the artefact (e.g.: SDMX) | * | Y |
| artefact | Artefact ID (e.g.: CL_FREQ) | * | Y |
| version | Artefact version (e.g.: 1.0.0) | ~ | Y |
| item | ID of the item to be returned. | * | Y |
| detail | Amount of information: <code>allstubs</code> , <code>referencestubs</code> , <code>allcompletestubs</code> , <code>referencecompletestubs</code> , <code>referencepartial</code> , <code>raw</code> , <code>partialraw</code> , <code>full</code> | full | N |
| references | References to be returned: <code>none</code> , <code>parents</code> , <code>parentsandsiblings</code> , <code>ancestors</code> , <code>children</code> , <code>descendants</code> , <code>all</code> , a resource type | none | Y |

Data queries: [https://host/data/context/agency/id/version/key?](https://host/data/context/agency/id/version/key?c&updatedAfter&firstNObservations&lastNObservations&attributes&measures&dimensionAtObservation&includeHistory)

| | | Default | Multi |
|-------------------------------|--|---------|-------|
| context | The context of data retrieval: <code>datastructure</code> , <code>dataflow</code> , <code>provisionagreement</code> | * | Y |
| agency | Agency maintaining the artefact (e.g.: BIS) | * | Y |
| id | Context ID (e.g.: CBS) | * | Y |
| version | Artefact version (e.g.: 1.0.0) | * | Y |
| key | Key of the series to be returned (e.g: D.NOK.EUR.SP00.A). Wildcarding supported (e.g: D.*.EUR.SP00.A). | * | Y |
| c | Filter by component values (e.g. c[REF_AREA]=CH) with support for operators (e.g. c[TIME_PERIOD]=ge:2000) | | Y |
| updatedAfter | Retrieves what changed since supplied timestamp. Must be percent-encoded (e.g.: 2009-05-15T14%3A15%3A00%2B01%3A00) | | N |
| firstNObservations | Maximum number of observations starting from the first observation | | N |
| lastNObservations | Maximum number of observations counting back from the most recent observation | | N |
| dimensionAtObservation | Id of the dimension at the observation level | | N |
| attributes | The attributes to be returned: <code>dsd</code> , <code>msd</code> , <code>dataset</code> , <code>series</code> , <code>obs</code> , <code>all</code> , <code>none</code> , {attribute_id} | dsd | Y |
| measures | The measures to be returned: <code>all</code> , <code>none</code> , {measure_id} | all | Y |
| includeHistory | Whether to return vintages | false | N |

Legend: Mandatory path parameter / Optional path parameter / Query string parameter (all optional)

| Data validity queries: https://host/schema/context/agency/id/version?dimensionAtObservation&explicitMeasure | | Default | Multi |
|--|---|---------|-------|
| context | The context of data retrieval: datastructure , dataflow , provisionagreement | | N |
| agency | Agency maintaining the artefact (e.g.: ECB) | | N |
| artefact | Artefact ID (e.g.: EXR) | | N |
| version | Artefact version (e.g.: 1.0.0) | ~ | N |
| dimensionAtObservation | Id of the dimension at the observation level | | N |

| Data availability queries: https://host/availability/context/agency/id/version/key/componentId?c&updatedAfter&references&mode | | Default | Multi |
|--|--|---------|-------|
| context | The context of data retrieval: datastructure , dataflow , provisionagreement | * | N |
| agency | Agency maintaining the artefact (e.g.: ECB) | * | Y |
| artefact | Artefact ID (e.g.: EXR) | * | Y |
| version | Artefact version (e.g.: 1.0.0) | * | Y |
| key | Key of the series to be returned (e.g: D.NOK.EUR.SP00.A). Wildcarding supported (e.g: D.*.EUR.SP00.A). | * | Y |
| componentId | The id of the dimension for which to obtain availability information | * | Y |
| c | Filter by component values (e.g. c[REF_AREA]=CH) with support for operators (e.g. c[TIME_PERIOD]=ge:2000) | | Y |
| updatedAfter | Retrieves what changed since supplied timestamp. Must be percent-encoded (e.g.: 2009-05-15T14%3A15%3A00%2B01%3A00) | | N |
| references | References to be returned: odelist , datastructure , conceptscheme , dataflow , dataproviderscheme , none , all | none | Y |
| mode | The resolution mode: exact , available | exact | N |

| Metadata queries: https://host/metadata/metadataset/provider/id/version?detail or https://host/metadata/metadataflow/agency/id/version/provider?detail or https://host/metadata/structure/type/agency/id/version/provider?detail | | Default | Multi |
|--|---|---------|-------|
| provider | The provider of metadata | * | Y |
| agency | Agency maintaining the artefact (e.g.: ECB) | * | Y |
| id | Artefact ID (e.g.: EXR) | * | Y |
| version | Artefact version (e.g.: 1.0.0) | * | Y |
| type | The structure type (cf. Structure queries) | * | N |
| detail | The amount of information to be returned: full , allstubs | full | N |

Useful HTTP headers

| | |
|-------------------|--|
| If-Modified-Since | Get the data only if something has changed (If-None-Match is an alternative) |
| Accept | Select the desired format |
| Accept-Encoding | Compress the response |
| Accept-Language | Select the desired language |

Supported formats

| | |
|---------------------|---|
| SDMX-ML Data | application/vnd.sdmx.data+xml;version=3.0.0 |
| SDMX-JSON Data | application/vnd.sdmx.data+json;version=2.0.0 |
| SDMX-CSV Data | application/vnd.sdmx.data+csv;version=1.0.0 |
| SDMX-ML Structure | application/vnd.sdmx.structure+xml;version=3.0.0 |
| SDMX-JSON Structure | application/vnd.sdmx.structure+json;version=2.0.0 |
| SDMX-ML Metadata | application/vnd.sdmx.metadata+xml;version=2.0.0 |
| SDMX-JSON Metadata | application/vnd.sdmx.metadata+json;version=2.0.0 |
| SDMX-CSV Metadata | application/vnd.sdmx.metadata+csv;version=2.0.0 |

Period formats

| | |
|----------------|---------------|
| Daily/Business | YYYY-MM-DD |
| Weekly | YYYY-W[01-53] |
| Monthly | YYYY-MM |
| Quarterly | YYYY-Q[1-4] |
| Semi-annual | YYYY-S[1-2] |
| Annual | YYYY |

Useful response codes

| | |
|-------------------------|---|
| 200 (OK) | Life is good |
| 204 (No content) | No results. Mostly harmless, especially if you used <code>updatedAfter</code> |
| 304 (No change) | No change since the timestamp supplied in the If-Modified-Since header |
| 400 (Syntax error) | Your query checking you must |
| 401 (Login needed) | Only available on a need to know basis |
| 406 (Invalid format) | Not a supported format. No worries, SDMX is all you need |
| 413 (Results too large) | You know greed is a sin, right? |
| 414 (URI too long) | Write short sentences |
| 422 (Semantic error) | The syntax of the query is OK but it makes no sense anyway. Tolerated only on April Fools |
| 500 (Server error) | Someone somewhere is having a bad day |
| 501 (Not implemented) | Feature coming soon in a web service near you |
| 503 (Unavailable) | Try again later. |

Special characters

| | |
|---|---|
| * | All |
| + | Latest stable version |
| ~ | Latest version (whether stable, draft or unversioned) |
| , | Or |
| . | Subpart operator |
| + | Multivalues attribute |

Operators for component-based queries

| | |
|----|--------------------------|
| eq | Equal |
| ne | Not equal |
| lt | Less than |
| le | Less than or equal to |
| gt | Greater than |
| ge | Greater than or equal to |
| co | Contains |
| nc | Does not contain |
| sw | Starts with |
| ew | Ends with |
| nd | And |
| or | Or |

Tips and tricks

- **Trust but verify!** Check the identity of the web service by connecting over https.
- **Know your mime type!** Specify the output format you want, using the **HTTP Accept** header. Else, the web service will determine the format and this choice may change over time (for example, when new versions of SDMX are released).
- **Laziness is a virtue!** Don't lose time, resources and bandwidth processing the response if nothing has changed! Use the **updatedAfter** parameter if you can handle deltas, or the **If-Modified-Since** header otherwise.
- **Travel light!** Compress the response, using the **HTTP Accept-Encoding** header.
- **The answer is 42.** Or not. Check the status code of the response. It's not always 200 (or 42).
- **Read The Fine Manual.** Check the SDMX RESTful specification (Section 7): http://sdmx.org/?page_id=10
- **Contact us!** You think a killer feature is missing? Drop us a line at twg@sdmx.org.