

# SDMX 3.0 web services cheat sheet, v2.0.0

Data queries: <a href="https://host/data/context/agency/id/version/key?c&amp;updatedAfter&amp;firstNObservations&amp;lastNObservations&amp;attributes&amp;measures&amp;dimensionAtObservation&amp;includeHistory&amp;offset&amp;limit&amp;sort&amp;asOf&amp;reportingYearStartDate">https://host/data/context/agency/id/version/key?c&amp;updatedAfter&amp;firstNObservations&amp;lastNObservations&amp;attributes&amp;measures&amp;dimensionAtObservation&amp;includeHistory&amp;offset&amp;limit&amp;sort&amp;asOf&amp;reportingYearStartDate</a>		Default	Multi
<b>context</b>	The context of data retrieval: <b>datastructure</b> , <b>dataflow</b> , <b>provisionagreement</b>	*	Y
<b>agency</b>	Agency maintaining the artefact (e.g., <b>BIS</b> )	*	Y
<b>id</b>	Context ID (e.g., <b>CBS</b> )	*	Y
<b>version</b>	Artefact version (e.g., <b>1.0.0</b> )	*	Y
<b>key</b>	Key of the series to be returned (e.g., <b>D.NOK.EUR.SP00.A</b> ). Wildcarding supported (e.g., <b>D.*.EUR.SP00.A</b> ).	*	Y
<b>c</b>	Filter by component values (e.g., <b>c[REF_AREA]=CH</b> ) with support for operators (e.g., <b>c[TIME_PERIOD]=ge:2000</b> )		Y
<b>updatedAfter</b>	Retrieves what changed since supplied timestamp. Must be percent-encoded (e.g., <b>2009-05-15T14%3A15%3A00%2B01%3A00</b> )		N
<b>firstNObservations</b>	Maximum number of observations starting from the first observation		N
<b>lastNObservations</b>	Maximum number of observations counting back from the most recent observation		N
<b>dimensionAtObservation</b>	Id of the dimension at the observation level		N
<b>attributes</b>	The attributes to be returned: <b>dsd</b> , <b>msd</b> , <b>dataset</b> , <b>series</b> , <b>obs</b> , <b>all</b> , <b>none</b> , {attribute_id}	<b>dsd</b>	Y
<b>measures</b>	The measures to be returned: <b>all</b> , <b>none</b> , {measure_id}	<b>all</b>	Y
<b>includeHistory</b>	Whether to return vintages	<b>false</b>	N
<b>offset</b>	The number of observations (or series keys) to skip before beginning to return observations (or series keys)	<b>0</b>	N
<b>limit</b>	The maximum number of observations (or series keys) to be returned		N
<b>sort</b>	The order in which the data must be returned (e.g., <b>TIME_PERIOD:desc</b> )		N
<b>asOf</b>	Retrieve the data as they were at the specified point in time		N
<b>reportingYearStartDate</b>	Define the starting date of a non-Gregorian calendar year (e.g. <b>--04-01</b> for a fiscal year starting on the 1 <sup>st</sup> of April)		N
Data validity queries: <a href="https://host/schema/context/agency/id/version?dimensionAtObservation&amp;deletion&amp;asOf">https://host/schema/context/agency/id/version?dimensionAtObservation&amp;deletion&amp;asOf</a>		Default	Multi
<b>context</b>	The context of data retrieval: <b>datastructure</b> , <b>dataflow</b> , <b>provisionagreement</b>		N
<b>agency</b>	Agency maintaining the artefact (e.g., <b>ECB</b> )		N
<b>artefact</b>	Artefact ID (e.g., <b>EXR</b> )		N
<b>version</b>	Artefact version (e.g., <b>1.0.0</b> )	<b>~</b>	N
<b>dimensionAtObservation</b>	Id of the dimension at the observation level		N
<b>deletion</b>	Whether the schema will be used to validate deletion messages	<b>false</b>	N
<b>asOf</b>	Retrieve the schema as it was at the specified point in time		

Data availability queries: <a href="https://host/availability/context/agency/id/version/key/componentId?c&amp;updatedAfter&amp;references&amp;mode&amp;reportingYearStartDate">https://host/availability/context/agency/id/version/key/componentId?c&amp;updatedAfter&amp;references&amp;mode&amp;reportingYearStartDate</a>		Default	Multi
<b>context</b>	The context of data retrieval: <b>datastructure</b> , <b>dataflow</b> , <b>provisionagreement</b>	*	N
<b>agency</b>	Agency maintaining the artefact (e.g., ECB)	*	Y
<b>artefact</b>	Artefact ID (e.g., EXR)	*	Y
<b>version</b>	Artefact version (e.g., 1.0.0)	*	Y
<b>key</b>	Key of the series to be returned (e.g., D.NOK.EUR.SP00.A). Wildcarding supported (e.g., D.*.EUR.SP00.A).	*	Y
<b>componentId</b>	The id of the dimension for which to obtain availability information	*	Y
<b>c</b>	Filter by component values (e.g., c[REF_AREA]=CH) with support for operators (e.g., c[TIME_PERIOD]=ge:2000)		Y
<b>updatedAfter</b>	Retrieves what changed since supplied timestamp. Must be percent-encoded (e.g., 2009-05-15T14%3A15%3A00%2B01%3A00)		N
<b>references</b>	References to be returned: <b>codelist</b> , <b>datastructure</b> , <b>conceptscheme</b> , <b>dataflow</b> , <b>dataproviderscheme</b> , <b>none</b> , <b>all</b>	none	Y
<b>mode</b>	The resolution mode: <b>exact</b> , <b>available</b>	exact	N
<b>reportingYearStartDate</b>	Define the starting date of a non-Gregorian calendar year (e.g. --04-01 for a fiscal year starting on the 1 <sup>st</sup> of April)		N

Structure queries: <a href="https://host/structure/type/agency/id/version/item?detail&amp;references&amp;asOf">https://host/structure/type/agency/id/version/item?detail&amp;references&amp;asOf</a>		Default	Multi
<b>type</b>	The type of structure: <b>datastructure</b> , <b>metadatastructure</b> , <b>categoryscheme</b> , <b>conceptscheme</b> , <b>codelist</b> , <b>hierarchy</b> , <b>hierarchyassociation</b> , <b>valuelist</b> , <b>agency</b> <b>scheme</b> , <b>dataproviderscheme</b> , <b>dataconsumerscheme</b> , <b>organisationunitscheme</b> , <b>dataflow</b> , <b>metadataflow</b> , <b>reportingtaxonomy</b> , <b>provisionagreement</b> , <b>structuremap</b> , <b>representationmap</b> , <b>conceptschememap</b> , <b>categoryschememap</b> , <b>organisationschememap</b> , <b>reportingtaxonomymap</b> , <b>process</b> , <b>categorisation</b> , <b>dataconstraint</b> , <b>metadataconstraint</b> , <b>structure</b> , <b>transformationscheme</b> , <b>rulesetscheme</b> , <b>userdefinedoperatorscheme</b> , <b>customtypescheme</b> , <b>namepersonalisationscheme</b> , <b>vtlmappingscheme</b>	*	N
<b>agency</b>	Agency maintaining the artefact (e.g., SDMX)	*	Y
<b>id</b>	Artefact ID (e.g., CL_FREQ)	*	Y
<b>version</b>	Artefact version (e.g., 1.0.0)	~	Y
<b>item</b>	ID of the item to be returned.	*	Y
<b>detail</b>	Amount of information: <b>allstubs</b> , <b>referencestubs</b> , <b>allcompletestubs</b> , <b>referencecompletestubs</b> , <b>referencepartial</b> , <b>raw</b> , <b>partialraw</b> , <b>full</b>	full	N
<b>references</b>	References to be returned: <b>none</b> , <b>parents</b> , <b>parentsandsiblings</b> , <b>ancestors</b> , <b>children</b> , <b>descendants</b> , <b>all</b> , <b>a resource type</b>	none	Y
<b>asOf</b>	Retrieve the artefact as it was at the specified point in time		N

Metadata queries:

https://host/metadata/metadataset/provider/id/version?detail&asOf or  
https://host/metadata/metadataflow/agency/id/version/provider?detail&asOf or  
https://host/metadata/structure/type/agency/id/version/provider?detail&asOf

		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
asOf	Retrieve the metadata set as it was at the specified point in time		

## Useful HTTP headers

If-Modified-Since	Get the data only if something has changed ( <b>If-None-Match</b> 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=2.0.0
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 <b>If-Modified-Since</b> 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](http://sdmx.org/?page_id=10)
- **Contact us!** You think a killer feature is missing? Drop us a line at [twg@sdmx.org](mailto:twg@sdmx.org).