

**SDMX-RI** is a generalized service infrastructure that can be re-used partially or completely by any organisation interested in starting [SDMX](#) projects for data exchange.

An organisation can decide to use the SDMX Reference Infrastructure as a whole, can extend the infrastructure adding new modules, can modify some modules, or can integrate some building block within its existing dissemination environment.

The most common SDMX Reference Infrastructure modules and supporting tools are described below.

- **SDMX Query Parser**, which is an XML parsing API implementation for incoming SDMX-ML Query messages. It validates the received SDMX Query with the SDMX-ML Query schema and in the next step translates this Query to the internal SDMX Data Model, returning it to the Web Service Provider.
- **Data Retriever** is another tool of the RI, dedicated to retrieve respective data from dissemination databases. It operates by translating the internal SDMX Data Model Query to an SQL statement which helps requested data to be taken from the dissemination database, using in the process the mapping information from the Mapping Store. It results with an SDMX dataset represented in the internal SDMX Data Model.
- **Structure Retriever** is similar in operation to the module mentioned above, which retrieves the SDMX Data Structures based on an SDMX Structure Query. It translates the query to an SQL statement and takes the SDMX Structural Metadata from the Mapping Store, delivering at the end an SDMX-ML structure message.
- **SDMX Data Generator** is used for creating the responses sent to clients. It translates the (internal Data Model) Data Message to an SDMX-ML Dataset in the requested data format. The Data Structure Definition and the SDMX-ML Dataset message format are the input in this case.

There are two web components of an SDMX Reference Infrastructure: Web Client and Web Service Provider.

- **Web Client** acts as the GUI to interact with the Web Service for the display of Structural Metadata and also for the selection, display and exporting of data. It works as a web interface for creation of basic SDMX queries to expose structural metadata from a Mapping Store and data from dissemination databases. All data and metadata are retrieved using the (SDMX-RI) Web Service. User is able to customize the presentation of the tabular data and download it in various formats (e.g. SDMX-ML, XLS and CSV).

- **Web Service Provider** receives from a Client SDMX (Data or Structure) Query Messages and responds with an SDMX-ML (Data or Structure) message related to the input SDMX Query. It performs “XML Validation” of the received SDMX Query and includes a “Soap Error Handler”. It also operates and controls the information exchange with the other modules.
  
- **Mapping Assistant**, a tool developed by Eurostat, plays an important role in the SDMX Reference Infrastructure. The purpose of this desktop application is to translate “Legacy” Dissemination systems to the “SDMX-World”. Comparing to mentioned above modules, operating “under the hood”, the [Mapping Assistant](#) requires a user interaction.

Additional explanation is available in our [SDMX Reference Infrastructure PowerPoint presentation](#).

The tools are licenced under the terms of the [European Union Public Licence V.1.1](#)

All versions of the tools can be downloaded from [CircaBC repository](#).