

# **Technical specifications**

## **SHS Group – Version 1.0**

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## 1 Scope

This document describes the technical format for the collection of the SHS Group reporting at BCL.

This document is based on the “Data Exchange Format” document provided by the ECB (European Central Bank) to the NCBs (National Central Banks) for the secondary reporting (i.e. the reporting between the NCBs and the ECB).

The technical format is based on the SMCube methodology and on the format used by the ECB based on SDMX-ML (part of the SDMX 2.1 technical standard).

## 2 Acronyms

DICO	BCL’s extension of the ECB’s Single Data Dictionary (SDD)
NEVS	Null Explanatory Values
RIAD	Register of Institutions and Affiliates Database (ECB register)
SDD	ECB’s Single Data Dictionary
SDMX	Statistical Data and Metadata eXchange <a href="https://sdmx.org/">https://sdmx.org/</a>
SHS	Securities Holdings Statistics
SMCube	Single Multidimensional Metadata Model <a href="https://www.ecb.europa.eu/stats/ecb_statistics/co-operation_and_standards/smcube/html/index.en.html">https://www.ecb.europa.eu/stats/ecb_statistics/co-operation_and_standards/smcube/html/index.en.html</a>

## 3 Introduction

The SHS Group data will be collected quarterly in a single survey. This survey will include the relevant data cubes as defined in the BCL’s extension of the SDD (DICO).

Each message refers to only one Survey/Reporting agent/Reference date.

The table below describes the list of cubes by survey.

Table 1: Cubes by survey

Survey	Cube
BCL2_SHS_SHSG_SCRTY	Entity level data for security with ISIN code – BCL2_SHSG_ISN_ENTTY_C Group level data for security with ISIN code – BCL2_SHSG_ISN_GRP_C Security level data for security with ISIN code – BCL2_SHSG_ISN_SCRTY_C Entity level data for security with other codification than ISIN – BCL2_SHSG_OTHR_ENTTY_C Group level data for security with other codification than ISIN – BCL2_SHSG_OTHR_GRP_C Security level data for security with other codification than ISIN – BCL2_SHSG_OTHR_SCRTY_C

NB: The Reporting agent (cf. BCL2\_SHSG\_ISN\_GRP\_C and BCL2\_SHSG\_OTHR\_GRP\_C cubes) refers to the group and the Observed agent (cf. BCL2\_SHSG\_ISN\_ENTTY\_C and BCL2\_SHSG\_OTHR\_ENTTY\_C cubes) refers to the head of the group and to the subsidiary.

## 4 Message file

### 4.1 File naming convention

[Prefix]\_[Period]\_[ReportingAgentCode]\_[messageID].[ext]

with:

- [Prefix] : SHSGRP
- [Period] : period (format : YYYYMM) – end of the quarter
- [ReportingAgentCode] : RIAD code of the Reporting Agent (published by BCL). The Reporting Agent is referring to the banking group.
- [MessageID] : internal reference number for the message (cf. ID element of the SDMX Header)
- [ext] : xml or zip

#### Examples:

- SHSGRP\_201903\_LUB00999\_20190405-001.xml
- SHSGRP\_201906\_LUB00999\_20190705-001.zip

## 4.2 XML schemas

### Remark:

- All the XML schema files listed below must be located in the same directory.

### 4.2.1 Principal XML schema

- BCL2\_SHS\_SHSG\_SCRTY\_v1\_0.xsd : schema for the BCL2\_SHS\_SHSG\_SCRTY survey.

### 4.2.2 XML schema for the constraints

- LU\_SHS\_CONSTRAINTS\_v1\_0.xsd : schema containing the constraints on the code lists (i.e. subdomain enumerations) from both the ECB Single Data Dictionary (SDD) and its BCL's extension (DICO).

### 4.2.3 XML schema for the data types

- LU\_SHS\_FORMATS\_v1\_0.xsd : schema containing the formats (i.e. facet collections and enumerations) from both the ECB Single Data Dictionary (SDD) and its BCL's extension (DICO).

### 4.2.4 SDMX-ML 2.1 schemas

The XML schema files for SDMX-ML 2.1 can be downloaded from [sdmx.org](http://sdmx.org)

([http://sdmx.org/wp-content/uploads/SDMX\\_2-1-1\\_SECTION\\_3B\\_SDMX\\_ML\\_Schemas\\_Samples\\_201308.zip](http://sdmx.org/wp-content/uploads/SDMX_2-1-1_SECTION_3B_SDMX_ML_Schemas_Samples_201308.zip)).

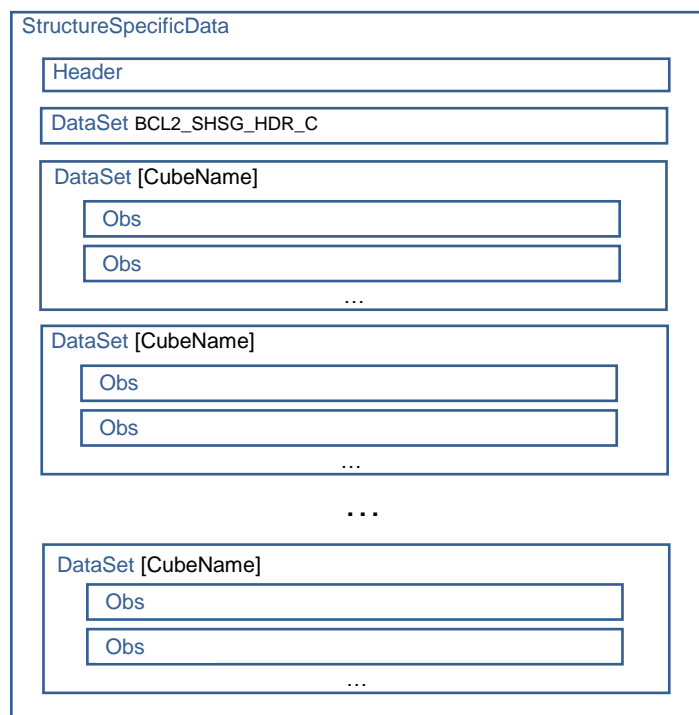
Below is the list of the corresponding XML schema files:

SDMXCommon.xsd	SDMXQueryProvisionAgreement.xsd
SDMXCommonReferences.xsd	SDMXQueryReportingTaxonomy.xsd
SDMXDataGeneric.xsd	SDMXQuerySchema.xsd
SDMXDataGenericBase.xsd	SDMXQueryStructureSet.xsd
SDMXDataGenericTimeSeries.xsd	SDMXQueryStructures.xsd
SDMXDataStructureSpecific.xsd	SDMXRegistry.xsd
SDMXDataStructureSpecificBase.xsd	SDMXRegistryBase.xsd
SDMXDataStructureSpecificTimeSeries.xsd	SDMXRegistryRegistration.xsd
SDMXMessage.xsd	SDMXRegistryStructure.xsd
SDMXMessageFooter.xsd	SDMXRegistrySubscription.xsd
SDMXMetadataGeneric.xsd	SDMXStructure.xsd
SDMXMetadataStructureSpecific.xsd	SDMXStructureBase.xsd
SDMXQuery.xsd	SDMXStructureCategorisation.xsd
SDMXQueryBase.xsd	SDMXStructureCategory.xsd
SDMXQueryCategorisation.xsd	SDMXStructureCodelist.xsd
SDMXQueryCategory.xsd	SDMXStructureConcept.xsd
SDMXQueryCodelist.xsd	SDMXStructureConstraint.xsd
SDMXQueryConcept.xsd	SDMXStructureDataStructure.xsd
SDMXQueryConstraint.xsd	SDMXStructureDataflow.xsd
SDMXQueryData.xsd	SDMXStructureHierarchicalCodelist.xsd
SDMXQueryDataStructure.xsd	SDMXStructureMetadataStructure.xsd
SDMXQueryDataflow.xsd	SDMXStructureMetadataflow.xsd
SDMXQueryHierarchicalCodelist.xsd	SDMXStructureOrganisation.xsd
SDMXQueryMetadata.xsd	SDMXStructureProcess.xsd
SDMXQueryMetadataStructure.xsd	SDMXStructureProvisionAgreement.xsd
SDMXQueryMetadataflow.xsd	SDMXStructureReportingTaxonomy.xsd
SDMXQueryOrganisation.xsd	SDMXStructureStructureSet.xsd
SDMXQueryProcess.xsd	xml.xsd

## 5 Technical format - overview

The Figure 1 depicts the structure of an SHS Group acquisition message.

Figure 1 : Structure of an acquisition message



The root tag of the overall acquisition message is <StructureSpecificData>.

Inside the root, the following sections have to be provided:

- One and only one SDMX-ML standard Header which specifies in particular the sender contact information, plus additional usual information necessary to the SDMX technical standard. The Header must be the first section inside the root.
- One and only one technical header DataSet (BCL2\_SHSG\_HDR\_C) which includes all the SHS Group specific attributes necessary to fully qualify the content (the survey, the Reporting agent and the Reference date).

The technical header DataSet must be the second section inside the root and must include one and only one observation.

- One or more DataSet. Each DataSet refers to a SHSGroup cube ([CubeName] in figure 1).

- The order of the DataSets other than the technical header DataSet is irrelevant for the acquisition process.

In turn, each DataSet includes one or more observations, corresponding to the single data records which need to be transmitted.

In practical terms, the different data records in the acquisition message have to be grouped by SHS Group cube.

## 5.1 SDMX Header

The header includes general information about the acquisition message. The following table describes which parts of the standard SDMX header fields are mandatory for SHS purposes.



Table 2: SDMX Header

SDMX Header element name	Intended usage
ID	<p>The submitting Reporting Agent could use this field to store a Reporting Agent internal reference number for the message.</p> <p>The Reporting Agent must ensure that the ID is unique and not reused across different messages submitted by the same Reporting Agent. A message is rejected if its ID is equal to one already transmitted by the same Reporting Agent.</p> <p>According to the SDMX specification this field is a string. Within SHS Group the string length is limited to 255 characters.</p>
Test	Mandatory for SDMX standard. It is ignored by SHS Group
Prepared	Unique timestamp describing the preparation time of the message.
Sender/@id	The RIAD code of the submitting Reporting Agent (published by BCL for Reporting Agent in Luxembourg).
Receiver	Optional for SDMX standard. Its expected value is LU2. In any case it is ignored by SHS Group.
Structure	To be populated with the necessary SDMX dataset structures. Each dataset used in the message must be listed only once.
DataProvider; DataSetaction; DataSetID; Extracted; ReportingBegin; ReportingEnd; EmbargoDate; Source	Ignored by SHS Group

**Example :**

```

<message:Header>
  <message:ID>20181005-001</message:ID>
  <message:Test>>false</message:Test>
  <message:Prepared>2018-10-05T07:22:35</message:Prepared>
  <message:Sender id="LUB00999"/>
  <message:Receiver id="LU2"/>
  <message:Structure structureID="BCL2_SHSG_HDR_C" namespace="BCL2_SHSG_HDR_C"
dimensionAtObservation="AllDimensions">
    <common:Structure>
      <Ref agencyID="BCL2" id="BCL2_SHSG_HDR_C"/>
    </common:Structure>
  </message:Structure>
  <message:Structure structureID="BCL2_SHSG_ISN_ENTTY_C"
namespace="BCL2_SHSG_ISN_ENTTY_C" dimensionAtObservation="AllDimensions">
    <common:Structure>
      <Ref agencyID="BCL2" id="BCL2_SHSG_ISN_ENTTY_C"/>
    </common:Structure>
  </message:Structure>
  <message:Structure structureID="BCL2_SHSG_ISN_GRP_C" namespace="BCL2_SHSG_ISN_GRP_C"
dimensionAtObservation="AllDimensions">
    <common:Structure>
      <Ref agencyID="BCL2" id="BCL2_SHSG_ISN_GRP_C"/>
    </common:Structure>
  </message:Structure>
  <message:Structure structureID="BCL2_SHSG_ISN_SCRTY_C"
namespace="BCL2_SHSG_ISN_SCRTY_C" dimensionAtObservation="AllDimensions">
    <common:Structure>
      <Ref agencyID="BCL2" id="BCL2_SHSG_ISN_SCRTY_C"/>
    </common:Structure>
  </message:Structure>
  <message:Structure structureID="BCL2_SHSG_OTHR_ENTTY_C"
namespace="BCL2_SHSG_OTHR_ENTTY_C" dimensionAtObservation="AllDimensions">
    <common:Structure>
      <Ref agencyID="BCL2" id="BCL2_SHSG_OTHR_ENTTY_C"/>
    </common:Structure>
  </message:Structure>
  <message:Structure structureID="BCL2_SHSG_OTHR_GRP_C" namespace="BCL2_SHSG_OTHR_GRP_C"
dimensionAtObservation="AllDimensions">
    <common:Structure>
      <Ref agencyID="BCL2" id="BCL2_SHSG_OTHR_GRP_C"/>
    </common:Structure>
  </message:Structure>
  <message:Structure structureID="BCL2_SHSG_OTHR_SCRTY_C"
namespace="BCL2_SHSG_OTHR_SCRTY_C" dimensionAtObservation="AllDimensions">
    <common:Structure>
      <Ref agencyID="BCL2" id="BCL2_SHSG_OTHR_SCRTY_C"/>
    </common:Structure>
  </message:Structure>
  <message:DataSetID>BCL2_SHS_SHSG_SCRTY</message:DataSetID>
</message:Header>

```

## 5.2 Technical header dataset

The technical header dataset include common information that applies to the overall acquisition message. This dataset must include one and only one observation occurrence (detail below).

The acquisition message must include one and only one technical dataset occurrence located just after the standard SDMX header section.

### 5.2.1 BCL2\_SHSG\_HDR\_C attributes

The attributes of the observation inside the BCL2\_SHSG\_HDR\_C are the following :

Table 3.1: Technical header dataset BCL2\_SHSG\_HDR\_C

Attribute name	Description
RPRTNG_AGNT_CD	RIAD Code of the Reporting Agent
DT_RFRNC	Reference date of the acquisition message in the format YYYY-MM-DD. The date must mandatorily be an end-of-month.
TYP_RPRTNG	Type of reporting. The allowed value is : BCL2_SHS_SHSG_SCRTY

#### Example:

```

<message:DataSet data:structureRef="BCL2_SHSG_HDR_C"
xsi:type="BCL2_SHS_SHSG_SCRTY:BCL2_SHSG_HDR_C" data:dataScope="DataStructure">
  <Obs RPRTNG_AGNT_CD="LUB00999" DT_RFRNC="2019-03-31" TYP_RPRTNG="BCL2_SHS_SHSG_SCRTY"/>
</message:DataSet>
  
```

### 5.3 DataSet

A DataSet refers to a specific SHS Group cube ([CubeName] in Figure 1).

In turn, each DataSet includes one or more observations, corresponding to the single data record which need to be transmitted.

#### [CubeName]

The cube name must correspond to one of the SHS Group cube ID as described in Table 1.

### 5.4 Observations

The general format of each observation in the DataSet is the following:

```

<Obs FIELD1="value1" FIELD2="value2" ... FIELDn="ValueN">
  
```

The list of FIELDS applicable to Datasets' observations are defined in the Structure Items table of the BCL's extension of the SDD (DICO) and are strictly related to the table structures described in the Regulation.

It is worth noting that the system accepts exclusively the *ungrouped observations* variant of the *StructureSpecificData* format, implying that the variables defined for the cube, if reported in the acquisition file, have to be reported at observation level.

According to the DICO, the fields in a Datasets are classified into dimensions, observation values and attributes. The dimensions are always declared as mandatory; the remaining fields are declared as optional.

Each observation is univocally identified by its key (i.e. the list of pairs field=value for all the fields declared as dimensions in the DICO).

An observation is duplicated in a DataSet if it includes two or more <Obs> tags with the same key.

An observation is duplicated in the Acquisition message if an <Obs> tag with the given key occurs two or more times in different DataSet(s).

The following fields, although included in the DICO cube structure items, are not included in the Observation attributes as they are derived from the corresponding fields included in the technical header cube (BCL2\_SHSG\_HDR\_C) :

- Reporting Agent (RPRTNG\_AGNT\_CD dimension)
- Reference date (DT\_RFRNC dimension)

This choice aims at improving the acquisition process efficiency as (i) observations are less verbose because they avoid two redundant fields and (ii) there is no need to check the consistency between such fields reported on each and every observation and the corresponding header information.

## 6 Annexes

- BCL SHS cube structures : LU\_SHS\_CUBE\_STRUCTURES\_v1\_0.xlsx
- BCL SHS subdomains (constraints) : LU\_SHS\_SUBDOMAINS\_v1\_0.xlsx
- BCL SHS facets (formats) : LU\_SHS\_FACETS\_v1\_0.xlsx
- A version of the SDMX structures exported from DICO (using the mapping between SMCube and SDMX) is available in the “SDMX-structures” directory.