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Statistics

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## Technical information on the new survey documents

### As of November 2014

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## 1. Introduction

The Swiss National Bank (SNB) is introducing a new data model from November 2015, which will enable it to structure survey data on banking statistics along subject-specific lines. This change will improve access to data for internal and external users and create data-processing synergies.

The new data model will be introduced alongside other changes already being made in conjunction with [the revision of the Bank Accounting Guidelines \(BAG\)](#). Subject-specific keys are at the heart of the new data model. In practice, this means that the keys of the individual positions to be surveyed are no longer coordinates-based, i.e. determined by their position (rows and columns) in the form, but by their subject-specific meaning.

In order to ensure efficient data processing, the data surveys and the new data model will be put on a new technical footing. This will entail changes to the methods used to report statistical data: the SNB can define these changes as per Art. 10 of the National Bank Ordinance (NBO).

For the time being, the changes will only apply to those surveys that must be fundamentally overhauled due to the BAG revision. The technical formats used to date shall continue to apply to surveys subject to only minimal BAG revision-related modifications and to all other surveys. However, the SNB ultimately plans to transfer all surveys to the new format in a gradual transition process. This document provides details on these new features.

Further information available at [→ www.snb.ch, Statistics/Revision BAG/Changes in reporting/Background](http://www.snb.ch/Statistics/Revision%20BAG/Changes%20in%20reporting/Background).

## 2. New XML schemata

The SNB will now provide survey-specific schemata. A new data model that represents the technical content of a survey is at the heart of the XML schemata. The keys of the individual positions are no longer determined by their forms, rows and columns, but on the basis of their subject-specific meaning, e.g. balance sheet, assets, liquid assets, domestic, Swiss francs, using the key BIL.AKT.FMI{I, CHF}.

Further information is available at [→ www.snb.ch, Statistics/Revision BAG/Changes in reporting/New subject-specific data model](http://www.snb.ch/Statistics/Revision%20BAG/Changes%20in%20reporting/New%20subject-specific%20data%20model).

The new features are summarised in the table below:

	Old	New
Definition of reporting positions	Définition générique	Generic definition
Scope of definition / validity	The same schema (DTD) for all surveys <sup>1</sup>	Survey-specific XML schemata
Changes	Schema (DTD) unchanged since 2008	Scheme change upon adjustments in the survey
Structure of reporting positions	Form, row, column	Structure of positions according to subject-specific criteria e.g. BIL.AKT.FMI for balance sheet, assets, liquid assets Additional breakdowns are possible, e.g. domestic, foreign ('I' or 'A') and currency ('CHF', 'EUR' and 'USD')
Descriptions in the schema	None	Meaning/definition of subject-specific keys contained in the schema
XML schema specification	DTD <sup>2</sup>	XML schema standard <sup>3</sup>
Sample report extract	<pre>&lt;observations&gt;   &lt;numberOfObservations&gt;1  &lt;/numberOfObservations&gt;   &lt;obs&gt;     &lt;x&gt;1&lt;/x&gt;     &lt;y&gt;1&lt;/y&gt;     &lt;o&gt;2.0&lt;/o&gt;   &lt;/obs&gt; &lt;/observations&gt;</pre>	<pre>&lt;Observations&gt;   &lt;BIL.AKT.FMI&gt;     &lt;I.CHF&gt;2.0&lt;/I.CHF&gt;   &lt;/BIL.AKT.FMI&gt; &lt;/Observations&gt;</pre>
Reports for several surveys in one XML file	Yes	No

<sup>1</sup> [http://www.snb.ch/n/mmr/reference/statpub\\_coll\\_xmlspec/source](http://www.snb.ch/n/mmr/reference/statpub_coll_xmlspec/source)

<sup>2</sup> <http://www.w3.org/TR/REC-xml/#dt-doctype>

<sup>3</sup> <http://www.w3.org/2001/XMLSchema>

### 3. XML report

The SNB provides the relevant XML schemata for all surveys. The structure of the XML schemata – which is the same for all surveys – is broken down into two areas:

- Meta data: This data identifies the reporting institution's report; meta data is static for all XML schemata and identical for all surveys.

```
<ReportName>MONA_U</ReportName>  
<SubjectId>xxxxxx</SubjectId>  
<ReferDate>yyyy-MM-dd</ReferDate>  
<Version>3.1</Version>  
<Revision>0</Revision>  
<Language>de</Language>
```

The reporting institution must indicate the identification code (SubjectId) and the reference date (ReferDate) in yyyy-MM-dd format (e.g. 2014-12-31). All other data is control information for processing reports and may not be altered, as per the requirements set out in the XML schema.

- Observation data: This is where observations are queried on the basis of the subject-specific content of a survey. The subject-specific content may change over time. Changes may relate to the subject-specific keys and positions may be added and/or removed. If a change is made, the SNB will provide a new version of the XML schema.

The reporting institution must ensure that reports in the XML delivery format are in line with the corresponding XML schema.<sup>4</sup> The SNB will refuse reports that do not follow this standard.

#### 3.1. Restrictions

An XML file may only contain a report for one survey. Consolidating different reports and/or surveys in one XML file is no longer possible for subject-specific surveys.

#### 3.2. Visualising and checking data

In conjunction with the new Excel survey documents (cf. section 4. ), reports in the XML delivery format may be imported into the corresponding Excel survey documents (cf. section 4.4. ).

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<sup>4</sup> The SNB recommends using a standard XML editor to generate an XML file. These editors make it possible to display the position names as per the XML schema.

## 4. New Excel survey forms

The new Excel survey forms are based on the XLSX file format <sup>5</sup>, which has been the standard since the introduction of Microsoft Office 2007. The XLS file format of Excel 97 is no longer supported for surveys based on the subject-specific model. The new survey forms make use of XML schema <sup>6</sup> functionality in Excel, which was introduced with the XLSX format. The XML schema supplied with Excel is identical to the schema for the XML reports (cf. section 3. ).

The process of filling in survey forms manually will not change significantly as there will only be marginal differences between the Excel survey forms and today's forms. However, the new Excel survey forms do not feature any technically evaluable column and row numbering. Control information is therefore also no longer contained in the survey forms. Excel coordinates in the survey tables are displayed for communication purposes only. The link between Excel coordinate and data point is dynamic and may therefore change over time.

	Old	New
Excel version	Excel 97 and higher	Excel 2007 and higher
Format de fichier Excel	XLS	XLSX
Calculated fields	Available (e.g. for positions with totals)	None
Consistency rules	Supplied with form (worksheet)	- <sup>7</sup>
Link between coordinates and data point	Row and column coordinates for identification of data point, static	Row and column coordinates for simplified communication, dynamic
Control information available	Yes	No
XML schema supplied	No	Data points are linked to supplied XML schema

Report data is now transferred from the Excel report via an XML data export <sup>8</sup>. The mapping of Excel cells onto XML schema elements is defined by an XML schema map tailored to each specific survey<sup>9</sup>.

<sup>5</sup> <http://msdn.microsoft.com/de-ch/office/bb906068.aspx>

<sup>6</sup> <http://office.microsoft.com/de-ch/excel-help/uberblick-uber-xml-in-excel-HA010206396.aspx>

<sup>7</sup> Consistency rules will be supplied when the final Excel survey documents are published.

<sup>8</sup> <http://office.microsoft.com/de-ch/excel-help/exportieren-von-xml-daten-HP010206401.aspx>

<sup>9</sup> See section 9 for details of how to display XML schema maps.

The reporting institution must indicate the identification code and reference date on the ‘Start’ worksheet.

#### 4.1. Restrictions

At the heart of the new Excel survey documents is the associated XML schema and the linkage of the Excel cells with the XML elements in this schema. Manipulating Excel survey documents (e.g. renaming worksheets, inserting or deleting cells, changing the XML schema) can render these linkages with the XML schema unusable or may result in data values being allocated to the wrong positions. Manipulating the XML schema in Excel is therefore not permissible.

Cells containing formulas or references to external data sources can lead to problems during processing operations. The SNB therefore recommends avoiding such constructs when filling in a report. The XML delivery format is available for automating the reporting process (cf. section 6. ).

If any unauthorised modifications are identified or errors detected during processing due to formulas or references, the report will be rejected by the SNB.

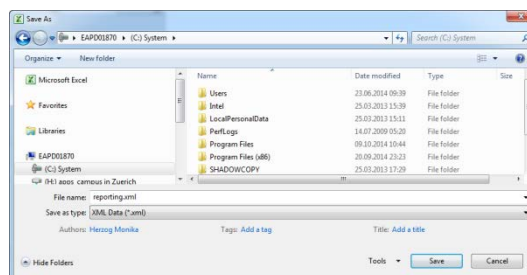
#### 4.2. Sheet protection

All new Excel survey documents are currently supplied with sheet protection (without password). However, in order to ensure efficient processing, the SNB reserves the right to password-protect tables in the Excel survey documents.

#### 4.3. Exporting XML data

The compiled data can be exported as an XML file with the aid of the XML schema supplied in the Excel survey document. An XML file exported in this way is considered a valid XML report for the SNB which can be submitted via the standard channels.

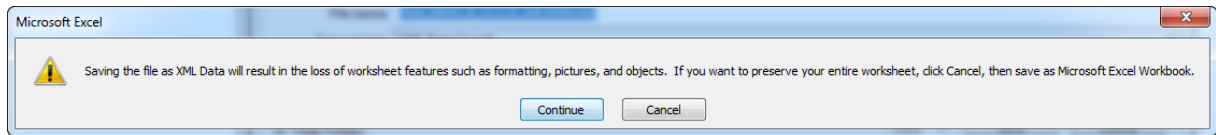
Under ‘save as’ → the contents of the Exel file can be saved in the XML data format<sup>10</sup>.



Screenshot 1: Save as XML file (Excel 2010)

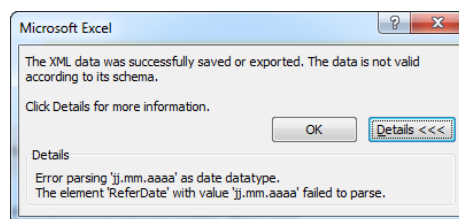
<sup>10</sup> Alternatively, XML data can also be exported via developer tools (cf. Screenshot 4).

The following dialogue box can be ignored and closed by clicking ‘continue’.



Screenshot 2: Dialogue box with note on saving as XML data (Excel 2010)

Details of the identification code and reference date on the ‘Start’ worksheet must be filled in in order for a data export to an XML file to function properly. Otherwise, Excel will generate the following error message during the export.



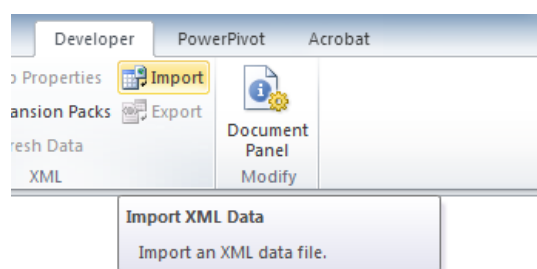
Screenshot 3: Error when saving as an XML file (Excel 2010)

#### 4.4. Importing XML data

An XML report can be imported into the respective Excel survey document for control purposes. This enables the user to verify the observations in the XML report in tabular form.

To ensure an error-free import, it is essential that the versions of both delivery formats are identical (cf. section 5. ).

An XML report is imported into the respective Excel survey document as follows<sup>11</sup>: In the ‘Developer tools’ tab, click on the ‘Import’ button and select the appropriate XML file.<sup>12</sup>



Screenshot 4:

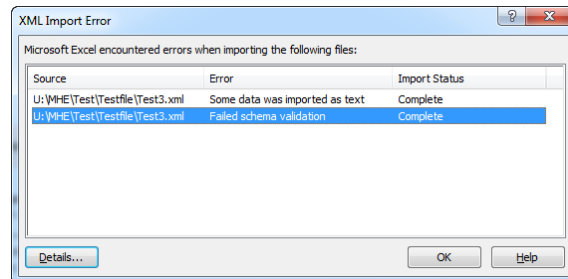
Illustration 1: Importing an XML file (Excel 2010)

After having selected an XML file, the import process will start. Unless errors occurred while importing the file, the data from the XML file will be displayed in Excel.

<sup>11</sup> Sheet protection must be switched off beforehand. Otherwise the ‘Import’ button may be deactivated.

<sup>12</sup> ‘Developer tools’ must be activated (cf. section 7.1. ).

If one or more errors occur during the import, a dialogue box detailing the errors will appear. Additional information on the reason for the error can be obtained by clicking on the 'Details' button.



Screenshot 5: Dialogue box with error during XML import (Excel 2010)

Possible reasons for import error(s):

- Error during schema verification: The XML file does not correspond to the specifications defined in the XML schema (e.g. language or date format deviates from yyyy-MM-dd format, etc).
- XML parsing error: Syntax error in XML file.

## 5. Version and revision numbers

In the Excel survey documents, the version and revision numbers can be found in the 'Start' worksheet and in the meta data of the XML schema. Version and revision numbers are checked during processing and are designed to ensure that valid survey documents are used for a given reference date.

Version and revision numbers are specified by the SNB and may not be changed. Reports that do not refer to the survey document valid on a given reference date or whose version information has been manipulated may be rejected by the SNB.

The SNB publishes details of which survey documents are valid for a given time period on its website.

## 6. Automation

The SNB recommends using the XML delivery format to set up automated processes for generating reports. XML is the preferred format for exchanging data between different systems.

The Excel delivery format is suitable for entering data manually or controlling data. The Excel delivery format is not suitable for automating processes.

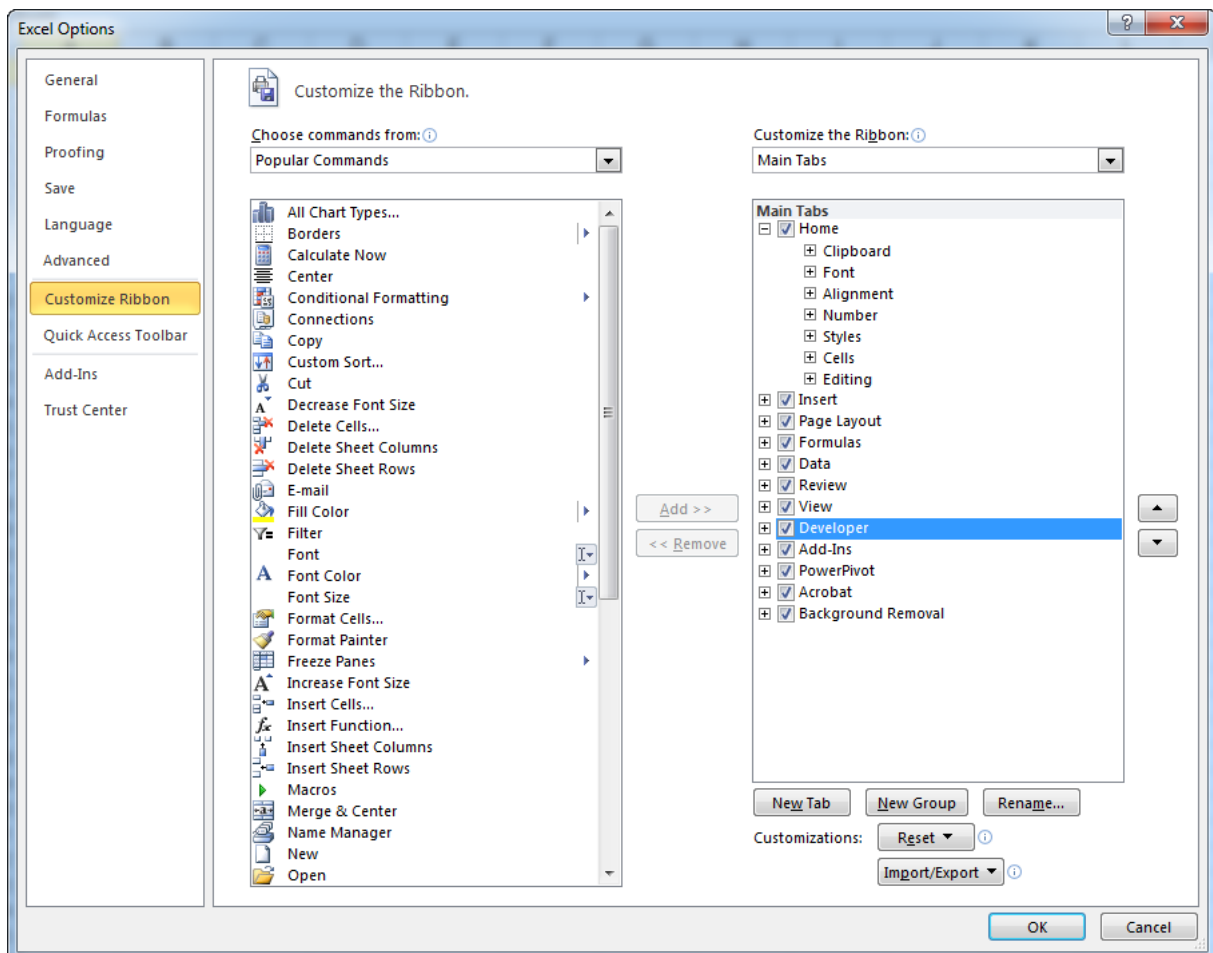
The SNB reserves the right to reject Excel and XML reports that have been damaged due to automation.



## 7. Annex

### 7.1. Activate 'Developer tools' tab (Excel 2010)

Under → 'File', 'Options', 'Customise Ribbon', 'Main Tabs' click on 'Developer'.

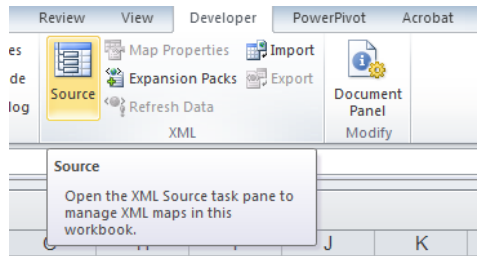


Screenshot 6: Click on 'Developer' tab (Excel 2010)

### 7.2. Display of XML maps (Excel 2010)

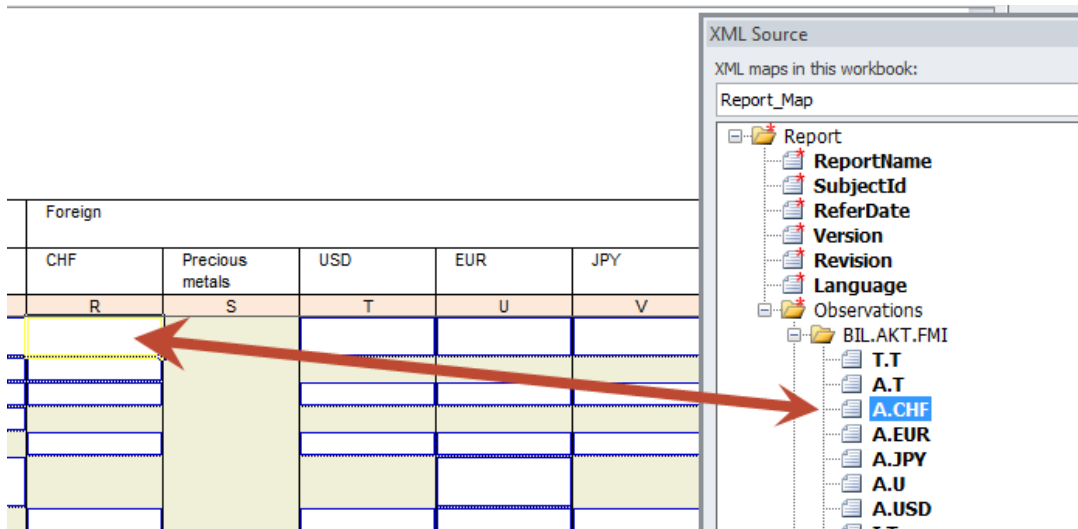
To make it easier to understand precisely how subject-specific content is being rendered in the Excel survey documents, it is possible to display Excel cells in the XML schema elements within Excel.

In the 'Developer'<sup>13</sup> tab you can display the XLM maps by clicking the 'Source' button.



Screenshot 7: Opening XML maps (Excel 2010)

Displaying the XML maps facilitates navigation. If a key is selected in the XML map, the corresponding position in the table or cell will be framed in yellow. Conversely, if a position is selected in the table, the key will be highlighted in blue.



Screenshot 8: Displaying the XML map (Excel 2010)

<sup>13</sup> The 'Developer tools' button must be clicked (cf. section 7.1. ).