XFRACAS Data Import Guide

Preparing your data for import into XFRACAS

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Before you can import data into XFRACAS, you must first convert it to the required XML structure. This process involves mapping the fields in your data to those in XFRACAS and applying transformations where needed. If you have some database and/or programming skills, you can do this manually; alternatively, you can use off-the-shelf data mapping / ETL software or your own proprietary tool. The effort required to design the appropriate transformation logic will depend on the complexity of your data.

In this guide, we'll look at how to prepare an XML template, and then we'll walk through some typical data mapping scenarios. For the mapping exercise, we'll be using Altova® MapForce with an Excel flat file as the source. Note that MapForce is just one application that allows you to map data from virtually any source; many other solutions are available for this purpose.

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Before you start…

Important resources

First, you should gather the following items and familiarize yourself with them:

- **Documentation**. *XFRACAS XML Import Business Logic* (*.pdf) contains comprehensive information about all XML elements and attributes that are used in XFRACAS. It also outlines the requirements for structuring your data.

- **DTD files**. The DTD folder (e.g., C:\inetpub\wwwroot\XFRACAS\ DTD) on your web server contains a set of files that define the required XML structure for each record type.

- **Example files**. XFRACAS ships with XML and XSLX example files that contain important information for building your templates and importing your data:

    - XFRACASXMLTemplate_PartsExample.xml
    - XFRACASXMLTemplate_SerialIncidentExample.xml
    - XFRACASXMLTemplate_SimpleIncidentExample.xml
    - XFRACASXMLTemplate_UserExample.xml

    - XFRACASImportTemplate_Issues.xlsx (XFRACASImportTemplate_Issues_Example.xlsx)
    - XFRACASImportTemplate_Parts.xlsx (XFRACASImportTemplate_Parts_Example.xlsx)

Process overview

Before starting, you should identify the types of records you plan to import, as well as the detail fields and lookup lists that you want to capture in your data map.

The process for importing data into XFRACAS involves four main steps:

1. **Create an XML template**. You'll use this template to map your data and generate XML output. It defines the elements and attributes that are required for importing data into XFRACAS.

2. **Prepare your XLSX file**. You'll need to make sure your XLSX file conforms to the requirements specified in the example files.

3. **Map your data fields and generate XML output**. In this step, you'll map the fields in your XLSX file to those in the XML template and generate valid XML data that can be imported into XFRACAS.

4. **Import your data**. Once your data is in XML format, you can import it into XFRACAS using one of three methods.

Steps for preparing and importing data

1–Create an XML template

To ensure that your data is structured correctly, you'll need to create an XML template that can be used for data mapping. Although you can build this template manually, it is usually much easier to create one directly from XFRACAS.

Option 1: Build a template manually

If you choose to build a template manually, you'll need to structure it according to the DTD.

```
<!-- Incident -->

<!-- Key -->
<!-- ? = zero or one element(optional) -->
<!-- * = zero to many elements(optional) -->
<!-- + = one to many elements (required) -->
<!-- | = select one or more from the list
 in the order listed (at least one is required) -->

<!ELEMENT Incidents (ExportData?, Resources?, Preferences?, ImportConfiguration?, Incident*) >
<!ELEMENT Incident (IncidentID, Title?, Entity?, Creator, Owner, AssignedProblems?, Type, ASPFieldServiceTech?, OccurrenceDate,
CreatedDate?, LastUpdatedDate?, CloseDate?, ResponseTime?, DownTimeForService?, RepairDurationTime?, CustomerSupportNumber?,
Distributor?, ASP?, TopLevelPart?, ResponsibleParts, Chargeable?, UnderWarranty?, WarrantyOverride?, CustomerRequestedFeedback?,
ServiceResponseDate?, UnitLocation?, Address?, Statuses+, Categories+, SystemStatuses?, ReportTypes+, AudienceRestrictions?,
TimeMetric?, RepairReplaces?, ActualCriticality?, PotentialCriticality?, Criticalities?, TeamMembers?, Actions?, Details?) >
```

Figure 1: Beginning of the incident DTD. Note that the first element is the IncidentID (required) and the last is Details (optional).

Guidelines for building a template

See the Import Logic document for more information.

- You don't need to include elements that will not be used in the import (for example, formatting elements, the `DisplayOrder` or `DetailStep` elements that are nested within a `Detail` element, etc.). However, you must include all of the elements for *required fields* for the record type.

- Make sure values have been assigned for all elements for the fields you wish to include; for example, if a detail does not have a value, don't include that element in the XML.

- The order of the elements specified in the DTD is critical and must be maintained; for example, details must always be last in an incident record (see Figure 1).

- You need not include hours, minutes and seconds in date fields; however, if these fields are left blank, XFRACAS will assign a value of 0 to each of these fields (effectively, midnight).

Note: XFRACAS stores dates/times in the UTC/GMT format and assumes that the dates in your XML are already in this format. When a user accesses a record, these dates/times are adjusted for their time zone; therefore, in some cases, the date that the user sees on a "midnight" record may be the day before the one you specified in the XML.

Option 2: Generate an XML template from XFRACAS

You'll need the **Access Data Export** user permission to generate an XML template. When this permission is set to Yes, the **Export** icon will be visible in the ribbon for all record types. For lookup lists, an **Export** button should be visible when you expand the list.

Follow these steps for each type of record you wish to import:

1. Open an existing record (or create a new one) that contains all of the fields you wish to include in your data set.

   - Verify that each of these fields is populated with a value. You'll need to search through the XML markup later to find the IDs for these fields, so it's best if their corresponding values are easy to recognize.

   - Verify that all of the *required* fields for the record are populated with a value. For example, for an incident, these fields include occurrence date, state, creator, responsible part, etc.

2. Click **Export XML** (or the **Export** button, for issues). This should initiate a download of an XML file that contains your data.

   Tip: If the XML file does not download, check the diagnostic log as well as settings for the following system-wide preferences, as specified in the XFRACAS Implementation Guide:
   XFRACAS Server - File System Prefix *and* ***XFRACAS Server - IIS Prefix***.

3. Open the file in Firefox or another application that allows you to see the structured XML.

   - Verify that it follows the "Guidelines for building a template" on page 4.

   - Edit the file as needed. For example, delete any elements that do not have a value. You can also delete the first three nodes (ExportData, Resources and Preferences) since they're not used in the import.

2–Prepare your XLSX source file

In your source Excel worksheet, each row represents a record and each column represents a field that will be mapped to a node in the XML structure.

The XLSX example files provide instructions for data entry.

- Verify that your worksheet conforms to the requirements specified in the example files.
- Verify that your worksheet includes columns for required fields such as the incident occurrence date, state, report type, responsible part, description, etc.

3–Map your data fields and generate XML output

The following example demonstrates one approach for generating XML output from an Excel flat file. We'll be using MapForce, a data mapping tool that features a graphical, drag-and-drop interface and an extensive library of transformation functions. As previously noted, MapForce is just one of many tools that will allow you to map your data and generate XML output; this example is designed to provide you with an understanding of how the data-mapping process works for XFRACAS.

In this exercise, we'll be mapping incident data.

Part 1: Loading and mapping data

1. **Open your source file**. In MapForce, open your source XLSX file. The source component should now appear in the mapping pane.

2. **Load your XLSX data**:

   a. Click the **Select Range of Cells** icon, , next to the Rows node.

   b. In the dialog box that appears, select the range of cells (in this case, the entire worksheet), enable the **First row is header with column names** option, and click **OK**.
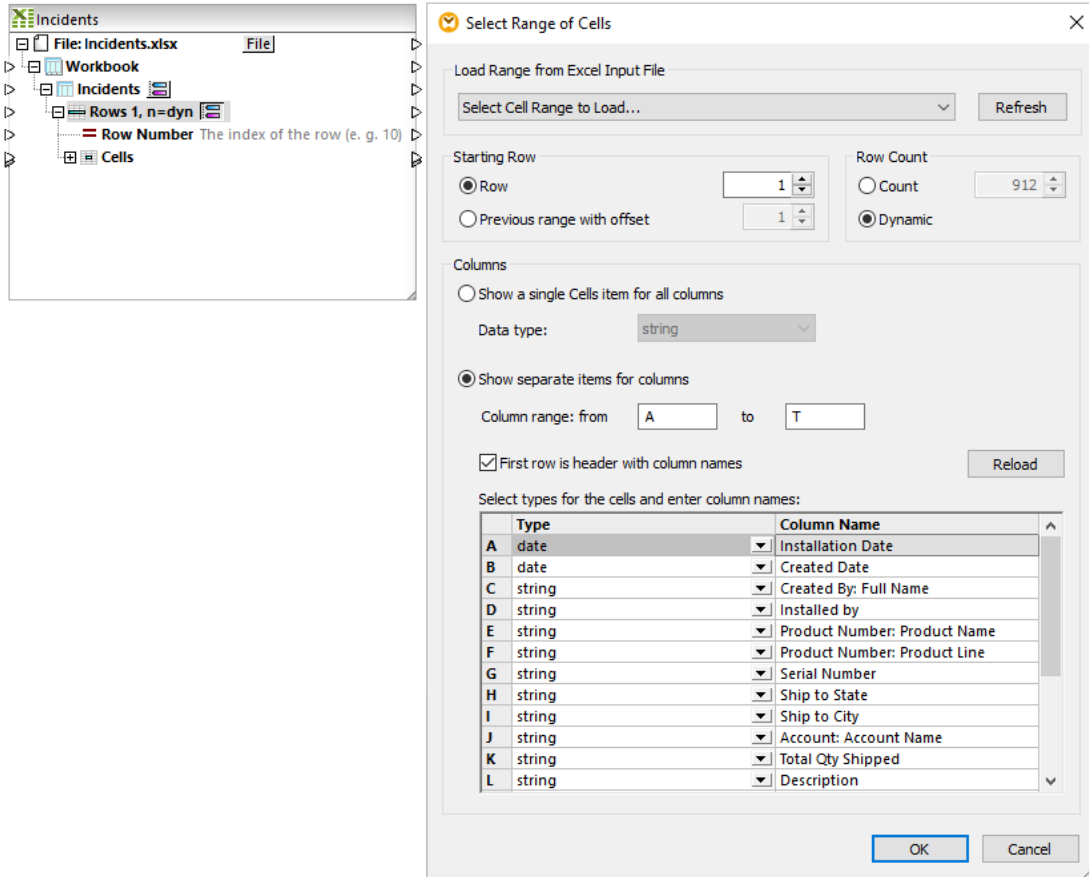
The data structure from your worksheet should now appear in the source component.

3. **Specify a schema**. Click the **Insert XML Schema/File** icon, navigate to the XML file you exported from XFRACAS, and click **Open**. You're now ready to begin mapping.
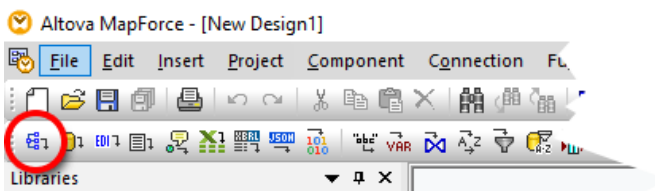
4. **Define the root element**. Drag a connector from the Rows node on the source component (XLSX panel) to the Incidents node on the target component (XML panel).

5. **Map your data**. Continue dragging connectors until you have mapped all of the fields in your source component to nodes in the XML structure, using the data transformation tools in the MapForce library as necessary.

6. **Generate and save your output**:

   a. Click the **Output** tab at the bottom of the screen to generate your XML output.

   b. Click the **Save generated output** icon to save your XML.
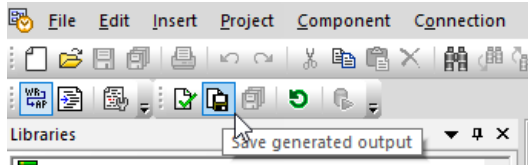
Part 2: Mapping a lookup list

Detail drop-down lists ("lookup lists") are common in XFRACAS. Mapping these lists from an XLSX flat file to an XML structure will require some data transformations.

In this example, we'll map the Code field (column) in our XLSX source to the Description node in our XML target. This will populate the Description node with one of two values ("Open," "Under Review") that correspond to options ("issues") in the **State** drop-down list in an incident record.

Figure 2: Issue schema

In our worksheet, Code has a value of either A or B. If the value is A, we want to populate the Description node with a state of "Open"; otherwise, we want to populate it with "Under Review." To do this, we'll need to compare the value of the string in the Code field (source) to a specified value (A) and pass it to the correct position (1 or 2) in the XML schema (see Figure 2, next page).

The following steps assume that you have completed the exercise in "Part 1: Loading and mapping data" and have MapForce open with your source and target components visible.

Build the transforms

This first set of functions compares the value of the Code string in the source (XLSX) component to the value "A."

1. Click the **Insert XML Schema/File** icon, navigate to your issue schema, and click **Open**.

2. In MapForce's Libraries window, find the **string-compare-ignore-case** function in the **string functions** area and drag it onto the mapping pane.

3. Click the **Insert Constant** icon in the MapForce toolbar. In the dialog box that appears, select string and type "A" into the input box.
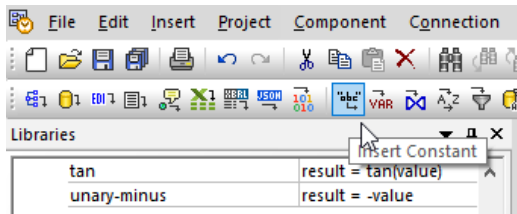
4. Click the **Insert IF-Else Condition** icon in the MapForce toolbar.
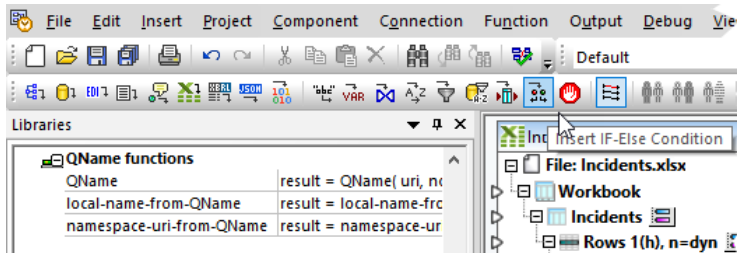
5. Make the following connections:
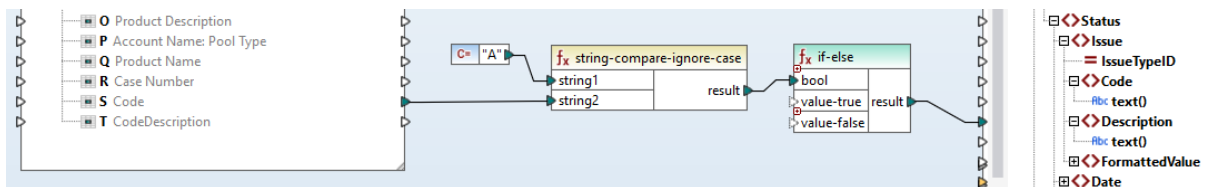
- "Code" in the source component to "string2" in the **string-compare-ignore-case** function.

- "A" (the constant) to "string1" in the **string-compare-ignore-case** function.

- "Result" in the **string-compare-ignore-case** function to "bool" in the **if-else** function.

- "Result" in the **if-else** function to "Description" in the target component.

Map your data and generate XML output

This set of functions identifies the correct position in the XML structure for the data based on the results of the comparison.

1. In MapForce's Libraries window, find the **item-at** function in the **sequence functions** area and drag it onto the mapping pane. Repeat to add a second **item-at** function.

2. Add a constant ("1") and connect it to the position field in the first **item-at** function. Repeat this for the second **item-at** function using a constant with a value of "2."

3. Make the following connections:
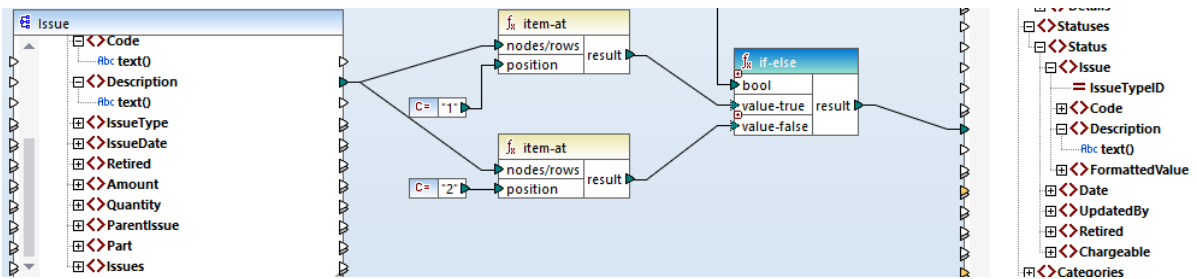
- "1" and "2" (the constants) to "position" in each **item-at** function.
- "Description" in the source component to "nodes/rows" in each **item-at** function.
- "Result" from the first **item-at** function to "value-true" in the first **if-else** function.
- "Result" from the second **item-at** function to "value-true" in the second **if-else** function.

4. Click the **Output** tab at the bottom of the screen to generate your XML output.

5. Click the **Save generated output** icon to save your XML.

4–Import your data

You are now ready to import your XML data into XFRACAS using either the Data Import page, the Data Import Utility (DIU) or the XFRACAS Web Service.

See the Importing and Exporting Data topic in the Admin help for instructions and additional information.

Be sure to consult the example files, which specify the order for importing various record types; this will be key to ensuring that your import succeeds. For example, before you can import incidents, you may need to import users, parts and/or lookup lists—anything that is used within an incident.