



FUSION REGISTRY

Dynamic Data Attributes

FUSION REGISTRY VERSION 9

Dynamic Data Attributes

This guide describes how Fusion Registry can generate dynamic data attributes, based on other reported data in the dataset. The main use case this support is dynamic generation of `SERIES_TITLE`.

Contents

| | | |
|-----|--|---|
| 1 | Overview | 2 |
| 1.1 | Feature Description..... | 2 |
| 1.2 | Supported Use Case | 2 |
| 1.3 | Since Version..... | 2 |
| 2 | How to define an Attribute as Dynamic..... | 3 |
| 2.1 | Via the User Interface | 3 |
| 2.2 | Via the SDMX-ML | 4 |
| 3 | Behaviour..... | 5 |
| 3.1 | Data Validation..... | 5 |
| 3.2 | Data Load | 5 |
| 3.3 | Data Queries | 5 |
| 3.4 | Structure Queries..... | 5 |

1 Overview

1.1 Feature Description

Many datasets share common attributes, some obtain their content from pre-defined Codelists, for example Observation Confidentiality (F=Free,C=Confidential). Some allow numerical content, for example Pre-Break Values. Some allow free text content, for example Series Title.

This new feature supports Attributes with Dynamic content, where the attribute allows text content, however the text is not in the underlying dataset, the text is generated on demand at the time the dataset is queried via the SDMX web service.

The dynamic content consists of a mix of fixed text, and variable values, where the variables are placeholders for data reported against other Dimensions or Attributes.

For example, a series may contain a dimension for Country, and another for Currency. A Dynamic attribute may wish to use the reported country and currency values in the text, so one series would have an attribute stating 'The currency for Germany is Euros' whereas another series for UK data would state 'The currency for the United Kingdom is Pound Sterling'.

Furthermore, a dynamic attribute may wish to report the text in French or English, depending on the query request locale.

This feature enables attribute text to dynamically generated in the requested locale at query time, for any output format supported by Fusion Registry.

1.2 Supported Use Case

A common use case is to generate content for the Series Title Attribute. However this requirement can be used to generate dynamic text for any number of Series or Observation level Attributes for a Data Structure Definition.

1.3 Since Version

This feature was added in version 9.2.28 of the Fusion Registry Enterprise Edition

2 How to define an Attribute as Dynamic

2.1 Via the User Interface

Login to the Fusion Registry and navigate to the Data Structures page. Create a new, or edit and existing Data Structure. Navigate to step 3 of the Data Structure Definition Wizard. Click the 'Change' button next to the Attribute that you wish to make dynamic.

| Pos | ID | Component Type | Allowable Content |
|-----|--------------|-----------------|---|
| 1 | SEX | Dimension | METATECH:CL_SEX(1.0) change |
| 2 | INDICATOR | Dimension | METATECH:CL_INDICATOR(1.0) change |
| 3 | REF_AREA | Dimension | METATECH:CL_REF_AREA(1.0) change |
| 4 | TIME_PERIOD | Dimension | ObservationalTimePeriod change |
| N/A | OBS_VALUE | Primary Measure | Double change |
| N/A | OBS_CONF | Attribute | String (UTF-8) change |
| N/A | UNIT | Attribute | String change |
| N/A | SERIES_TITLE | Attribute | String change |

Figure 1 showing step 3 of the Data Structure Definition Wizard

Ensure the content type is set to non-enumerated, this should show a switch to toggle for Dynamic= True or False. Switch Dynamic to True. Then there will be a table to enter the language (2 character ISO code) and Text for the dynamic attribute. More rows can be added for additional languages by clicking the Add Row button.

Change allowable content for: 'SERIES_TITLE'

Data Type and Restrictions

Dynamic True

| Lang | Text |
|------|--|
| en | The currency for \${COUNTRY.name} is \${CURRENCY.name} |
| fr | La devise pour \${COUNTRY.name} est \${CURRENCY.name} |

[Add Row](#) [Remove Row](#)

Figure 2 showing the Dynamic form, allowing Dynamic text to be added for multiple languages

Variables, which reference other Dimensions or Attributes of the Data Structure, may be added using the \${ID} notation, for example \${CURRENCY}. By default if the Dimension or Attribute is coded, the variable will be replaced with the Id of the reported Code. To use the code name or description, postfix the id with either .name or .desc respectively, for example \${CURRENCY.name}. For coded variables, the code name or description will be resolved in the same language as the requested dataset. If no language is specified, or if the specified language can not be found for the code, 'en' will be defaulted. In the case that there is no 'en' label, the first available language for the

code will be used. In the case description is used, and there is no description, the variable will be replaced with an empty string.

2.2 Via the SDMX-ML

To report an Attribute using SDMX, place an Annotation on the Attribute with AnnotationType of FR_DYNAMIC. The AnnotationText contains the text to report, including the variable placeholders as described in the previous section.

```
<str:Attribute id="SERIES_TITLE">
  <com:Annotations>
    <com:Annotation>
      <com:AnnotationType>FR_DYNAMIC</com:AnnotationType>
      <com:AnnotationText xml:lang="en">The currency for ${COUNTRY.name} is ${CURRENCY.name}</com:AnnotationText>
      <com:AnnotationText xml:lang="fr">La devise pour ${COUNTRY.name} est ${CURRENCY.name}</com:AnnotationText>
    </com:Annotation>
  </com:Annotations>
</str:Attribute>
```

Figure 3 showing a Dynamic Attribute defined using FR_DYNAMIC Annotation in SDMX

The Data Structure Definition containing the dynamic attribute should then be loaded into the Fusion Registry using the UI or web services.

The Attribute should not be defined as having Enumerated content, and there should only be one attribute with type FR_DYNAMIC per Attribute.

3 Behaviour

3.1 Data Validation

The Dynamic Attribute is validated according to the underlying TextType. If generated via the User Interface, this will be of type String. If loading content in using SDMX then this could be more restrictive, e.g type Double. Any generated schema and data loaded will be based upon this text type.

However, for Data Load, it is not expected data will be reported against the Attribute, as the content is generated by the server at query time. The Schema and validation though must remain consistent with the Data Structure Definition so external users know what content to expect, and can validate content obtained from the service.

3.2 Data Load

As mentioned in the above section, the default type of a Dynamic attribute is String. This is the least restrictive format, allowing any textual and numerical content – as long as it is valid in XML. However the Data Load process will strip out any data reported against Dynamic Attributes, meaning any reported data against a Dynamic Attribute will NOT be stored by the Fusion Registry.

3.3 Data Queries

When a dataset is queried, the content of the Dynamic attribute will be generated based on the text, and resolved variable values.

The series title will be resolved based on the requested language. If viewing data using a Web Browser, then it is likely the web browser will provide the **Accept-Language** parameter based on the user-settings. If querying via a web service, then the **Accept-Language** or **locale** query parameter can be provided to define the language.

```
<Series COUNTRY="FR" CURRENCY="EUR" INDICATOR="ABC" SERIES_TITLE="The currency for France is Euro" > -- --
|
| <Obs TIME_PERIOD="2000" OBS_VALUE="1" />
| <Obs TIME_PERIOD="2001" OBS_VALUE="2" />
| <Obs TIME_PERIOD="2002" OBS_VALUE="3" />
|
|</Series>
<Series COUNTRY="UK" CURRENCY="GBP" INDICATOR="ABC" SERIES_TITLE="The currency for United Kingdom is Pound Sterling">
|
| <Obs TIME_PERIOD="2000" OBS_VALUE="1" />
| <Obs TIME_PERIOD="2001" OBS_VALUE="2" />
| <Obs TIME_PERIOD="2002" OBS_VALUE="3" />
|
|</Series>
```

Figure 4 showing the resulting dataset

Example

[http://\[sever\]/FusionRegistry/ws/public/sdmxapi/rest/data/DYNAMIC_ATTRIBUTE?locale=fr](http://[sever]/FusionRegistry/ws/public/sdmxapi/rest/data/DYNAMIC_ATTRIBUTE?locale=fr)

3.4 Structure Queries

By default, querying for the Data Structure Definition will not output the FR_DYNAMIC Annotation which is used to store the dynamic information on the Attribute. Use the **includeAllAnnotations** query parameter to ensure this annotation is exported. In addition, if querying via a web browser, which is likely to add its own locale filter, use **the locale=*** query parameter to override the Accept-Language provided by the web browser, ensuring the dynamic text is exported in all languages.

Example:

[http://\[sever\]/FusionRegistry/ws/public/sdmxapi/rest/datastructure/all/DYNAMIC_ATTRIBUTES?includeAllAnnotations=true&locale=*](http://[sever]/FusionRegistry/ws/public/sdmxapi/rest/datastructure/all/DYNAMIC_ATTRIBUTES?includeAllAnnotations=true&locale=*)