

Article

← [FME Desktop \(/S/Topic/0TO4Q000000QL9uWAG/Fme-...\)](#)

How to use an Esri Template Geodatabase

🕒 Jun 9, 2022 • Knowledge

Product Type

FME Desktop

FME Version

2022.0

Tutorial: [Tutorial: Geodatabase Transformations \(https://community.safe.com/s/article/tutorial-getting-started-with-complex-geodatabase\)](https://community.safe.com/s/article/tutorial-getting-started-with-complex-geodatabase) | **Next:** [Working with Geodatabase Domains: Writing a Coded Domain \(https://community.safe.com/s/article/working-with-geodatabase-domains\)](https://community.safe.com/s/article/working-with-geodatabase-domains)

Introduction

This article will show you how to use an Esri template in FME. While FME has the ability to create most attributes of a geodatabase, it is strongly recommended to use the native client ArcGIS to do so. The demo will demonstrate how domains and subtypes created inside ArcGIS can be applied to features using FME. By creating 'The Geodatabase structure' inside of ArcGIS, the user ensures the most efficient method of migrating or updating data is followed, requiring minimal modifications.

What is an Esri Template

An Esri template is a file that can be used to map FME output to a desired schema or structure. The template can either be an XML Workspace Document or a file geodatabase (.gdb). This template will allow FME to create the geodatabase structure with a complete schema of the template, this includes subtypes, domains, relationships, network information, and annotation symbols.

How to Use an Esri Template

As stated above, there are two types of Esri templates: a file geodatabase (.gdb) or an XML Workspace document. A geodatabase file is a geodatabase with a pre-defined structure, this can either contain data or not. An XML Workspace document is a simple XML document that contains the definitions of the originating geodatabase. This document contains the schema and possibly the data. When FME uses an XML workspace document, it will only import the schema regardless if the data is attached to the document or not.

How to Create an Esri Template

ArcGIS Desktop

In order to create an XML Workspace document, you have to open view the geodatabase in Catalog view (either ArcCatalog or ArcMap will work, or ArcGIS Pro) and right-click the geodatabase > export > XML Workspace Document (export the schema only). This allows the user to determine if the XML document will contain the schema, or the schema and data.

ArcGIS Pro

For ArcGIS Pro, the process for creating an XML Workspace Document differs slightly. Rather than being able to right-click and export a document, a tool is required. This can be found under Analysis Tab > Tools > Toolboxes tab > Data Management Tools > Distributed Geodatabase > Export XML Workspace Document. By filling out the parameters, a template will be created. Note: FME will not use the data from an XML Workspace Document. If you plan to use an XML Workspace Document for schema purposes only, please ensure Export Options is set to Schema Only.

Why Use an Esri Template

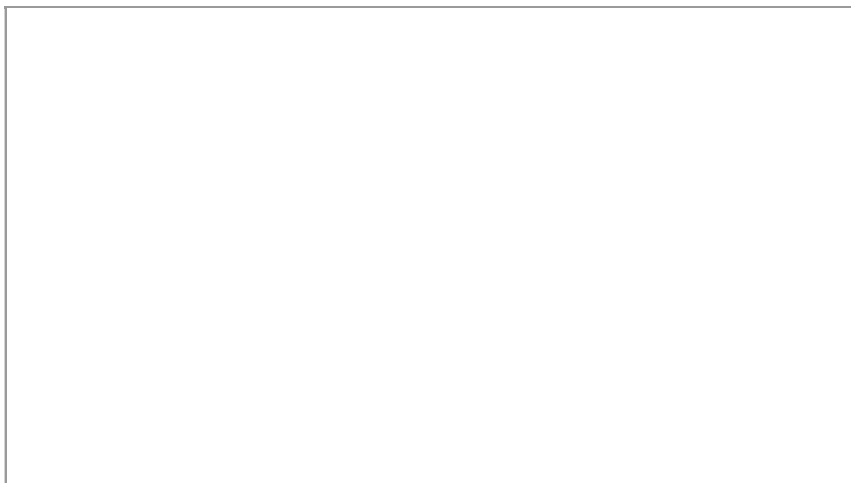
The main reason to use a template is for simplicity. While the geodatabase structure can be created in FME, it requires more upkeep between translations. If you want to create a geodatabase output using a predefined schema, using an XML Workspace Document or a copy of a file geodatabase is the easiest method of doing so.

This method also ensures that the workspace does not have to be modified extensively to apply updates to the output. This is because the process for creating and applying domains in FME differs. In order to create [domains \(https://community.safe.com/s/article/working-with-geodatabase-domains\)](https://community.safe.com/s/article/working-with-geodatabase-domains) or [subtypes \(https://community.safe.com/s/article/working-with-geodatabase-subtypes\)](https://community.safe.com/s/article/working-with-geodatabase-subtypes) with FME, attribute parameters are set as the type domain/subtype_codes. This method works for the initial translation of data, meaning the translation where the output is created for the first time. All proceeding translations to that same output would require the workspace to be altered. Rather than having the data type set as coded_domain/range_domain or subtype_codes, the type would need to be altered to the default fields corresponding data type, for example, 'char' or 'double'. Once the geodatabase has been created, the workspace would need to be altered to apply all future updates.

Requirements

The Esri Geodatabase (File Geodb) reader/writer used in the following example requires that a licensed version of ArcGIS be available to the user. For more information on required ArcGIS license levels, please see [Required ArcGIS License Types for FME Geodatabase Formats \(https://community.safe.com/s/article/required-arcgis-license-types-for-fme-geodatabase\)](https://community.safe.com/s/article/required-arcgis-license-types-for-fme-geodatabase).

Video



Source

For this example, we will be looking at the City of Vancouver Water and Sewer infrastructure. The data we will be focusing on consists of Control Valves, Hydrants, and different classifications of Watermains (Abandoned, DFPS, Distribution, and Transmissions mains). The domains we will be looking at are the Mains Materials, Diameter, Life Cycle Status, and Lining features. The domains and their possible values for each are as follows:

Domain Name: wDomainMainMaterials

| | | | |
|---------------------------|---------------------|-------------------|------------|
| Ductile Iron | Cast Iron | Wood | Galvanized |
| High Density Polyethylene | Poly Vinyl Chloride | Asbestos Concrete | Concrete |
| Steel | Clay | Copper | Unknown |
| Other | | | |

Domain Name: wDomainMainDiameter

| | | | | | | | |
|------|------|------|------|------|------|------|-----|
| 20 | 25 | 30 | 40 | 50 | 65 | 75 | 100 |
| 150 | 200 | 250 | 300 | 350 | 400 | 500 | 550 |
| 600 | 675 | 700 | 750 | 775 | 800 | 850 | 900 |
| 1000 | 1050 | 1200 | 1350 | 1500 | 1800 | 1900 | |

Domain Name: wDomainLifecycleStatus

| | |
|----------|-----------|
| Proposed | Active |
| Removed | Abandoned |

Domain Name: wDomainLiningMaterial

| | |
|--------------|-------|
| Cement Lined | CENT |
| Coal Tar | Epoxy |



Step-by-step Instructions

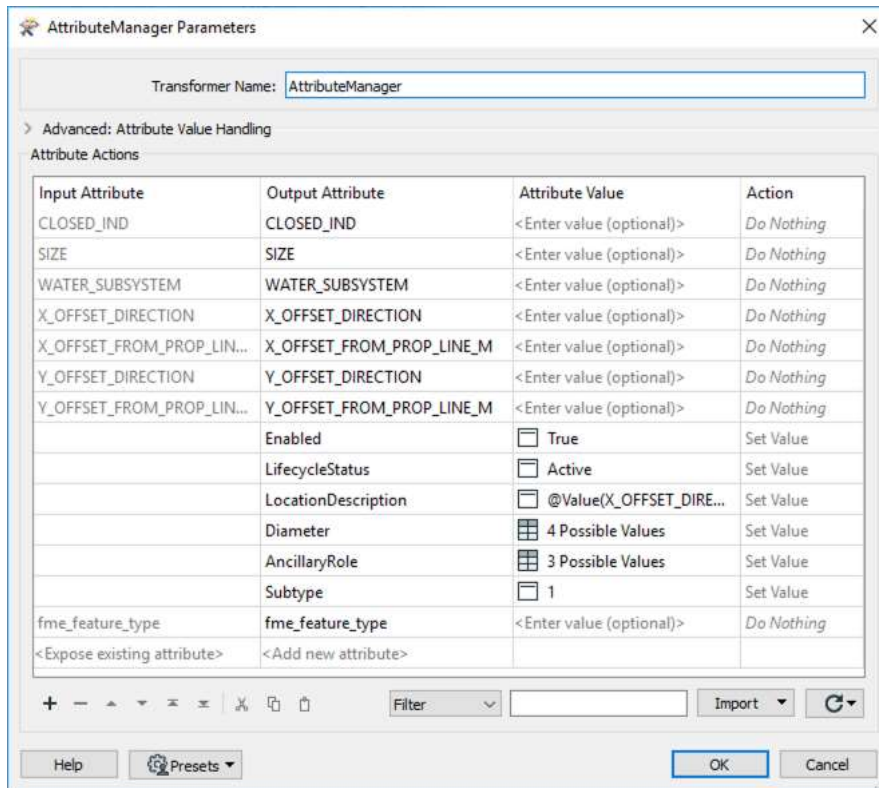
1. Start FME Workbench

Start FME Workbench, in Windows, this is found under Start > All Programs > FME Desktop > FME Workbench. Also download the attached data which can be found under the Files section of this article, if you do not have it already, unzip it.

2. Open Workspace

Open the attached TemplateWorkspaceStart.fmw

Inside the workspace, you will see AttributeManager transformers connected to each of the reader feature types. These are used to correctly map domains to their corresponding reader feature.



This image shows the Control Valve CAD feature, having its attributes mapped to the correct output field and domain definition.

The 2DForcer that is attached to the watermain and hydrant features ensures the features are two-dimensional.

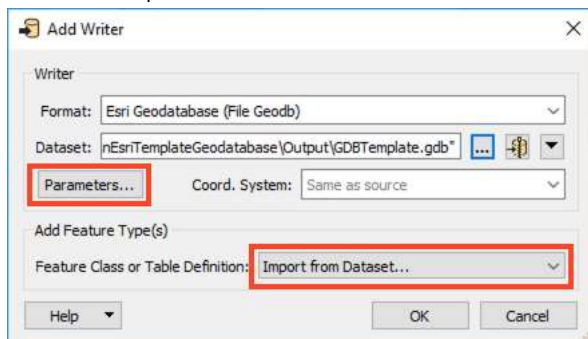
The AttributeValueMapper transformers attached to the watermain features map the corresponding feature to the domains. In this case, the first AttributeValueMapper maps the source values to the correct domain for Materials. The second AttributeValueMapper maps the source values to the correct domain for the Lining attribute.

3. Add a Writer to the Workspace

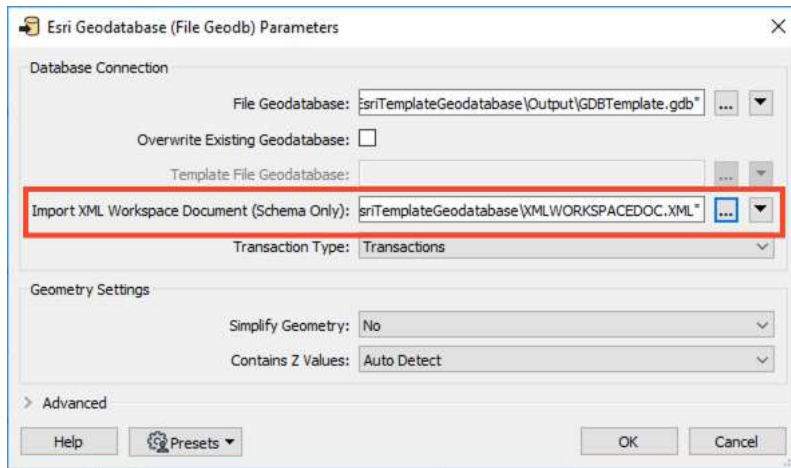
There are two different methods of adding a writer to the canvas to use the correct schema, either an XML Workspace Document or a file geodatabase template. Note if following along with this demo, only select one of the options, or delete the writer before following along with the other option.

Option 1: XML Workspace Document

Add an Esri Geodatabase (File Geodb) writer to the canvas. Next, select a location and name for the future geodatabase. Set the Feature Class or Table Definition to Import from Dataset. Then click Parameters.

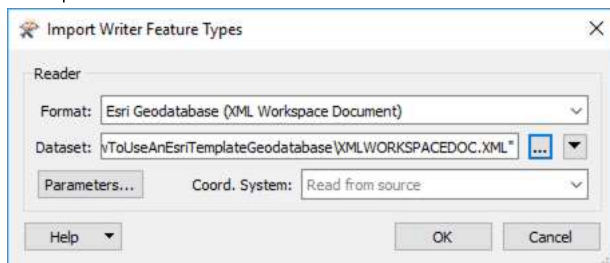


For Import XML Workspace Document (Schema Only), select the XML Workspace document provided (XMLWORKSPACEDOC.XML).

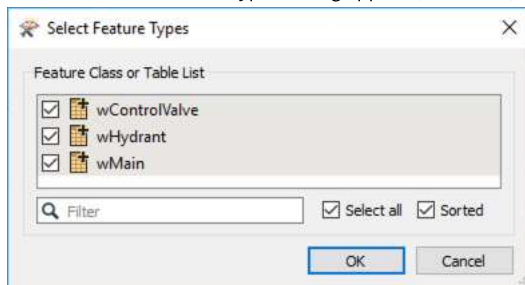


Note: If writing to an existing geodatabase that contains a different schema, you can 'check' the Overwrite Existing Geodatabase option. This option will overwrite and delete both the data and schema of an existing geodatabase if your output geodatabase location contains a geodatabase with the same name. Click OK twice.

When the Import Writer Feature Types Dialog appears, set the format to Esri Geodatabase (XML Workspace Document) and the dataset to the provided XML workspace document. Click OK.

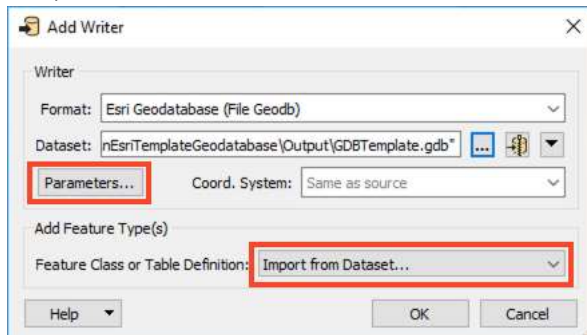


When the Select Feature Types Dialog appears, Select All, then click OK.

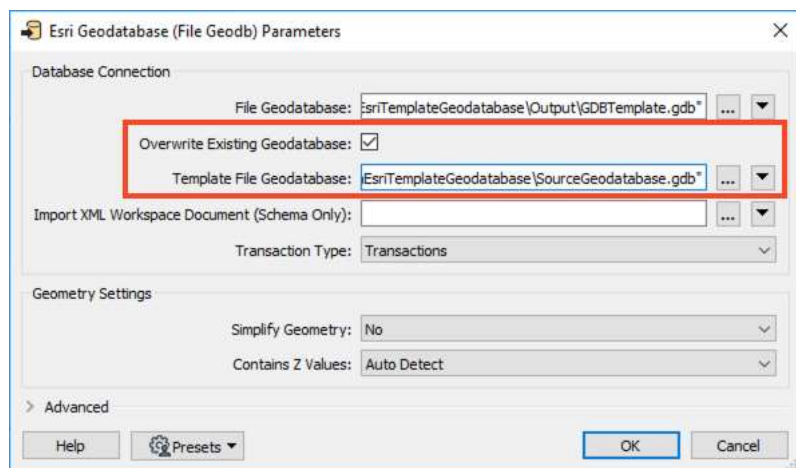


Option 2: .gdb File Template

Add an Esri Geodatabase(File Geodb) writer to the canvas and select a location and name for the future geodatabase. Set the Feature Class or Table Definition to Import from Dataset. Then click Parameters.

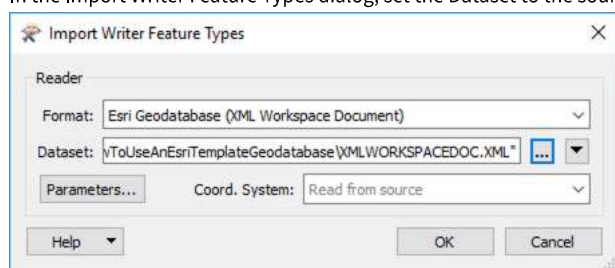


In the parameters dialog, enable Overwrite Existing Geodatabase then set the Template File Geodatabase to SourceGeodatabase.gdb, and click OK twice.

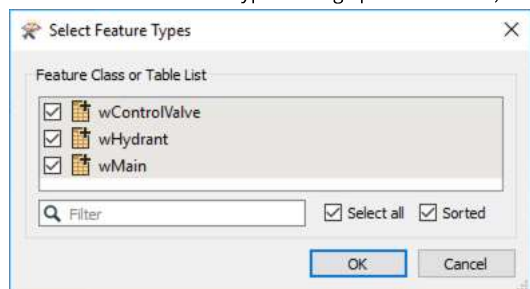


Note: Overwrite Existing Geodatabase must be checked in order to use an existing .gdb file as a template.

In the Import Writer Feature Types dialog, set the Dataset to the source template (SourceGeodatabase.gdb), then click OK.



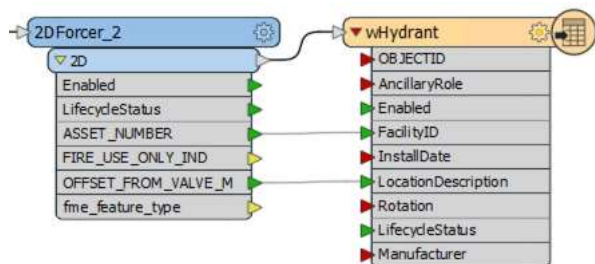
When the Select Feature Types Dialog opens. Select All, and then click OK.



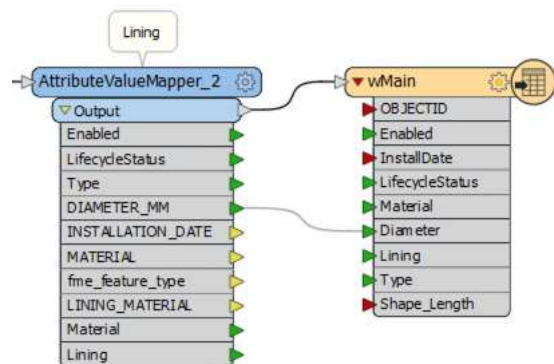
4. Map Input Features to Output Features

Connect the Control Valve flow to the wControlValve output, the Hydrants flow to the wHydrant, and the 4 different main features to the wMain feature.

Now we need to manually map a couple of attributes. Expand the 2DForcer_2 as well as the wHydrant. For the wHydrant feature, manually map ASSET_NUMBER to FacilityID, and OFFSET_FROM_VALVE_M to LocationDescription by clicking and dragging from the arrows.



Then, for the wMain feature, manually map the DIAMETER_MM to Diameter.

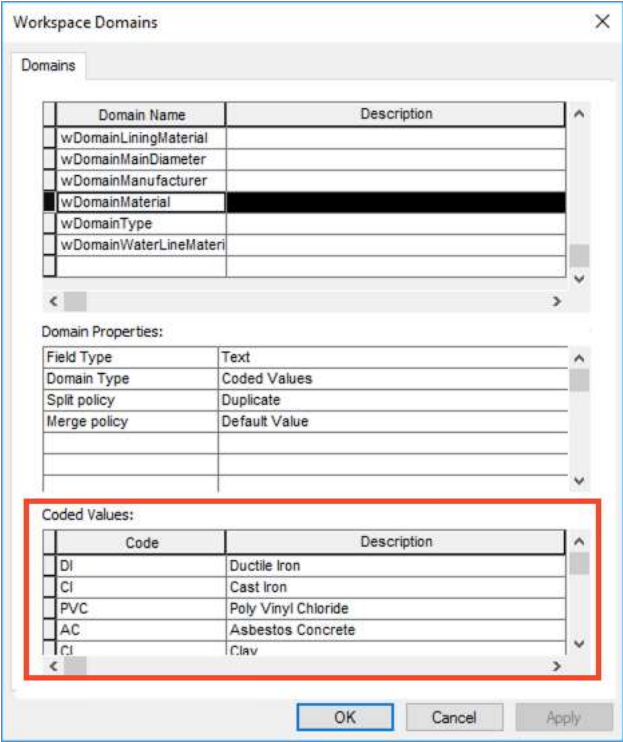


5. Save and Run the Workspace.

Save then workspace and then run it. A new geodatabase will be created complete with the attached schema. View your results using ArcMap.



Check the wMain, wHydrant, and wControlValve features to ensure the domains were followed.



Data Attribution

The data used here originates from data made available by the [City of Vancouver, British Columbia](https://opendata.vancouver.ca/pages/licence/) (<https://opendata.vancouver.ca/pages/licence/>). It contains information licensed under the Open Government License - Vancouver.

Continue to the Next Article: [Working with Geodatabase Domains: Writing a Coded Domain](https://community.safe.com/s/article/working-with-geodatabase-domains) (<https://community.safe.com/s/article/working-with-geodatabase-domains>)

First Published Date

7/29/2020, 12:18 AM

Last Published Date

6/9/2022, 10:23 PM

- Formats and Applicatio...
(/s/topic/OTO4Q000000...
- FME Desktop
(/s/topic/OTO4Q000000...

Sort by:
Latest Posts







Nothing here yet?

Log in to post to this feed.

Follow

Files (2) (/s/relatedlist/ka14Q000000wn4UQAAQ/AttachedContentDocuments)

 **HowToUseAnEsriTemplate_2022**
Jun 9, 2022 • 5.1MB • zip

 **HowToUseAnEsriTemplate_2021.1**
Jun 9, 2022 • 5MB • zip

[View All](#)

[\(/s/relatedlist/ka14Q000000wn4UQAAQ/AttachedContentDocuments\)](/s/relatedlist/ka14Q000000wn4UQAAQ/AttachedContentDocuments)

Related Articles

- Using a Template File when Writing Excel Data (/s/article/using-a-template-file-when-writing-excel-data)
- How to convert Esri Shapefile to Geodatabase (/s/article/how-to-convert-esri-shapefile-to-geodatabase-2)
- How to Read and Translate all Feature Classes from Multiple Esri Geodatabases (/s/article/how-to-read-all-feature-classes-from-multiple-esri)
- How to Convert to Esri Mobile Geodatabase (/s/article/How-to-Convert-to-Esri-Mobile-Geodatabase)
- What is an ESRI .mdf Geodatabase file or Esri Personal SDE Geodatabase? (/s/article/what-is-an-esri-mdf-geodatabase-file-or-esri-perso)

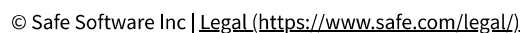


(../s/topic/0TO4Q000000QKiWAG/welcome/bridea/acideasULT_bridea_c/00B4Q000000KwFVUgM/LkoFWpziDYaWQkL78)

Groups

Support (../s/support/)

Register / Log In (/s/login/).



(<https://github.com/StackOfLemons/FreeComfyUI/tree/master/FreeSoftware>)

Safe Software respectfully acknowledges that we live, learn and work on the traditional and unceded territories of the Kwantlen, Katzie, and Semiahmoo First Nations.