

Preview mode. Refresh to see the latest changes.



[FME Support Center](#) / [Data Types and Solutions](#) / [Databases and Data Warehouses](#) / [Esri Geodatabase](#)

Categories



How to use an Esri Template Geodatabase



Liz Sanderson

Updated 11 months ago

FME Version

FME 2022.0

Files



HowToUseAnEsriTemplate.zip

5 MB · [Download](#)



HowToUseAnEsriTemplate_2022.zip

5 MB · [Download](#)



HowToUseAnEsriTemplate.zip

Preview mode. Refresh to see the latest changes.

Introduction

This article will show you how to use an Esri template in FME. While FME can create most attributes of a geodatabase, it is strongly recommended that you 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 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.

If you had a geodatabase document with existing attachments, you would not need to use an Esri template to write additional attachments. The Esri Template is only needed if the attachments and relationships are not in the pre-existing schema

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 of whether 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.

Preview mode. Refresh to see the latest changes.

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 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.

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** or **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 [Comparison of Esri-Based Readers and Writers in FME](#).

Video

Preview mode. Refresh to see the latest changes.

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
----	----	----	----	----	----	----	-----

Preview mode. Refresh to see the latest changes.

600	675	700	750	775	800	850	900
1000	1050	1200	1350	1500	1800	1900	

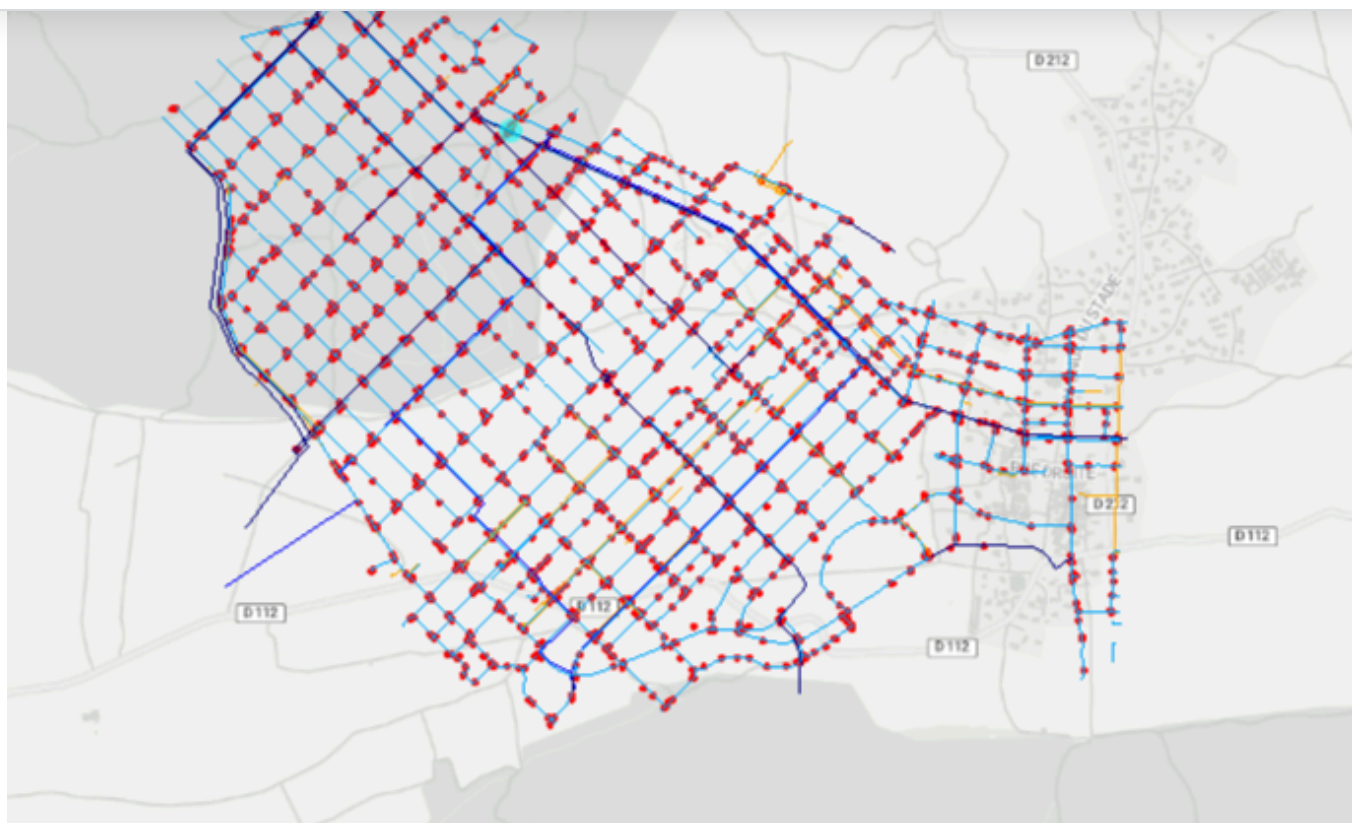
Domain Name: wDomainLifecycleStatus

Proposed	Active
Removed	Abandoned

Domain Name: wDomainLiningMaterial

Cement Lined	CENT
Coal Tar	Epoxy

Preview mode. Refresh to see the latest changes.



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.

Preview mode. Refresh to see the latest changes.

► Advanced - Attribute Value Handling

Attribute Actions

Input Attribute	Output Attribute	Value	Type	Action
CLOSED_IND	CLOSED_IND	<Enter value (optional)>	varchar(2)	Do Nothing
SIZE	SIZE	<Enter value (optional)>	varchar(6)	Do Nothing
WATER_SUBSYSTEM	WATER_SUBSYSTEM	<Enter value (optional)>	varchar(13)	Do Nothing
X_OFFSET_DIRECTION	X_OFFSET_DIRECTION	<Enter value (optional)>	varchar(2)	Do Nothing
X_OFFSET_FROM_PROP_LINE_M	X_OFFSET_FROM_PROP_LINE_M	<Enter value (optional)>	number(8,3)	Do Nothing
Y_OFFSET_DIRECTION	Y_OFFSET_DIRECTION	<Enter value (optional)>	varchar(2)	Do Nothing
Y_OFFSET_FROM_PROP_LINE_M	Y_OFFSET_FROM_PROP_LINE_M	<Enter value (optional)>	number(7,2)	Do Nothing
	Enabled	<input type="checkbox"/> True	varchar(200)	Set Value
	LifecycleStatus	<input type="checkbox"/> Active	varchar(200)	Set Value
	LocationDescription	<input type="checkbox"/> @Value(X_OFFSET_DIRECTION) @Value(X_OFFS...	varchar(200)	Set Value
	Diameter	<input type="checkbox"/> 4 Possible Values	varchar(200)	Set Value
	AncillaryRole	<input type="checkbox"/> 3 Possible Values	varchar(200)	Set Value
	Subtype	<input type="checkbox"/> 1	varchar(200)	Set Value
fme_feature_type	fme_feature_type	<Enter value (optional)>	varchar(50)	Do Nothing
<Expose existing attribute>	<Add new attribute>			

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 water main and hydrant features ensures the features are two-dimensional.

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

3. Add a Writer to the Workspace

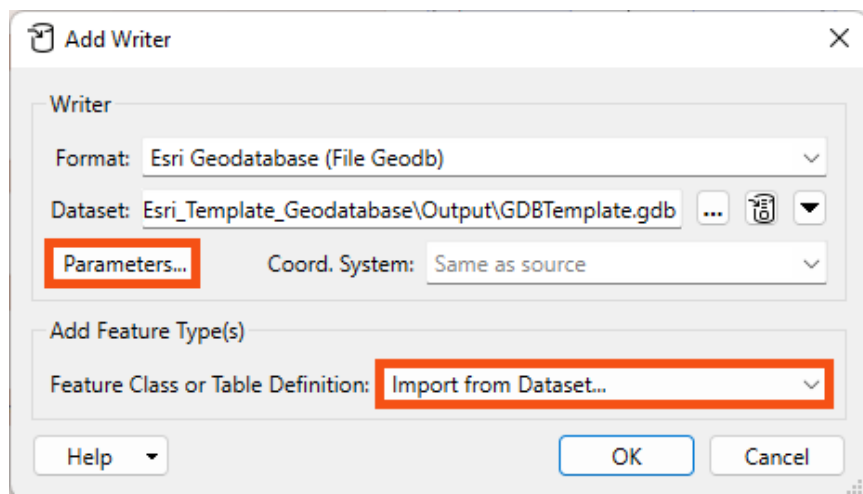
There are two different methods of adding a writer to the canvas to use the correct schema, either an XML Workspace Document or a file geodatabase template.

Note

If following along with this demo, only select one of the options or delete the writer before following along with the other option.

Preview mode. Refresh to see the latest changes.

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).

Preview mode. Refresh to see the latest changes.

Database Connection

File Geodatabase:

☐ Overwrite Existing Geodatabase

Template File Geodatabase:

☒ Import XML Workspace Document

XML Workspace Document:

Import:

Transaction Type:

Feature Dataset Handling:

Geometry Settings

Simplify Geometry:

Contains Z Values:

Case Conversion

Feature Type Names:

Attribute Names:

Advanced

Help Presets OK Cancel

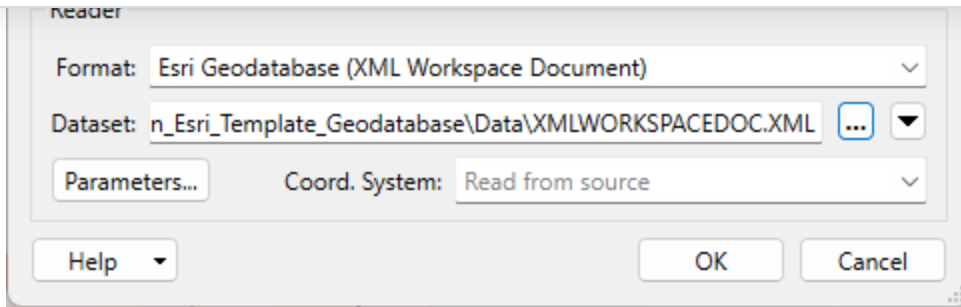
Note

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.

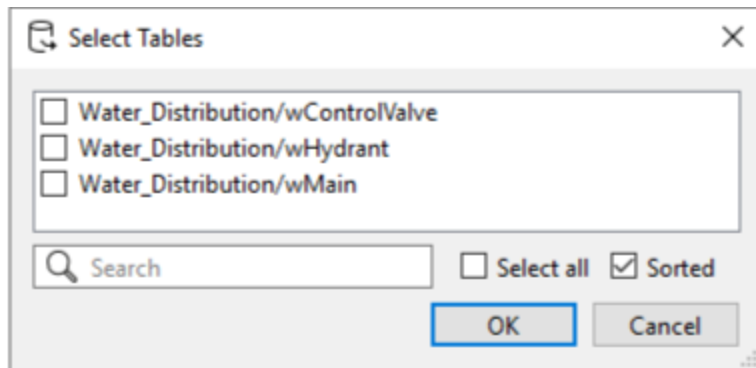
Click OK twice.

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.

Preview mode. Refresh to see the latest changes.

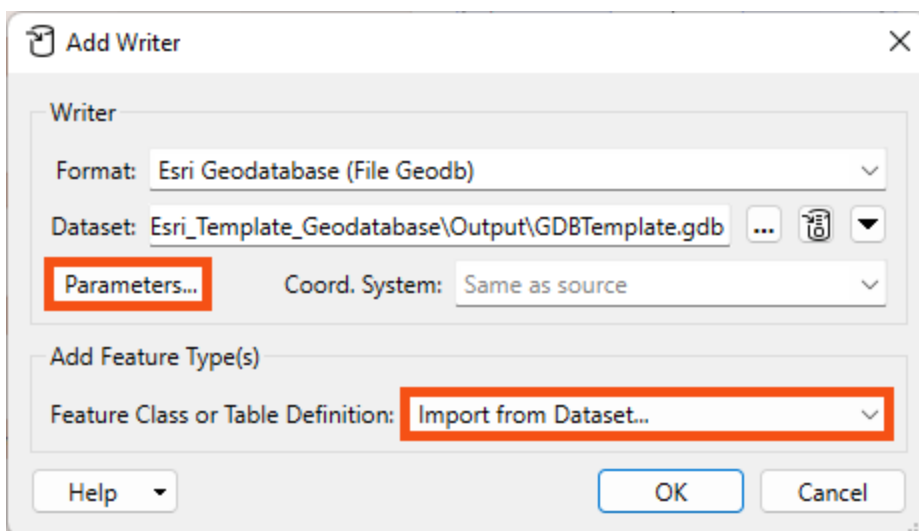


When the Select Feature Types Dialog appears, Select All, then click OK



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.

Preview mode. Refresh to see the latest changes.

Database Connection

File Geodatabase: r_Template_Geodatabase\Output\GDBTemplate.gdb ... ▼

▼ ☒ Overwrite Existing Geodatabase

Template File Geodatabase: plate_Geodatabase\Data\SourceGeodatabase.gdb ... ▼

▼ ☐ Import XML Workspace Document

XML Workspace Document: ... ▼

Import: ▼

Transaction Type: Transactions ▼

Feature Dataset Handling: Write Feature Dataset ▼

Geometry Settings

Simplify Geometry: No ▼

Contains Z Values: Auto Detect ▼

Case Conversion

Feature Type Names: None ▼

Attribute Names: None ▼

► Advanced

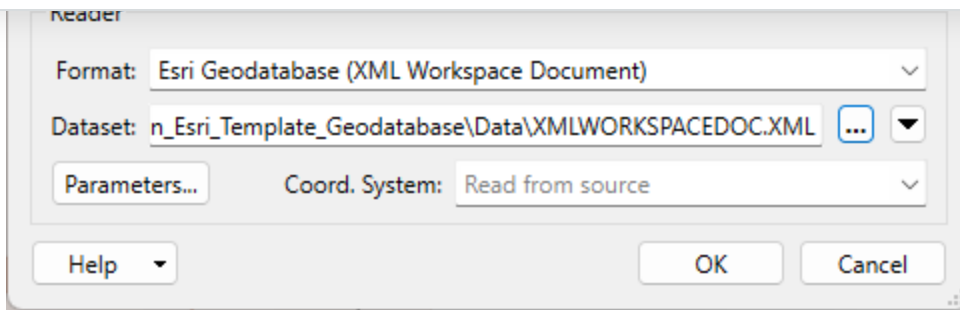
Help Presets ▼ OK Cancel

Note

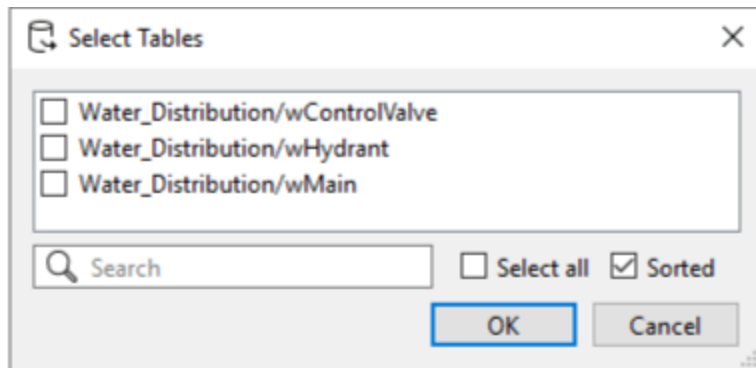
Overwrite Existing Geodatabase must be checked in order to use an existing .gdb file as a template.

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

Preview mode. Refresh to see the latest changes.



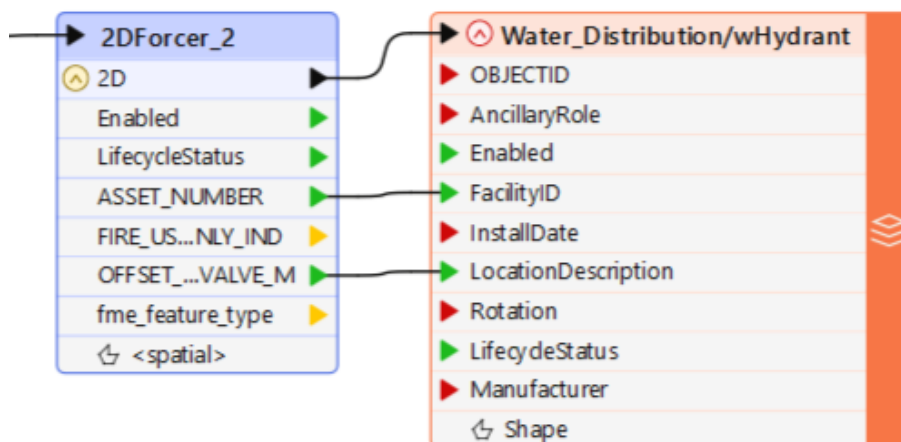
When the Select Feature Types Dialog opens. Select All, and then click OK.



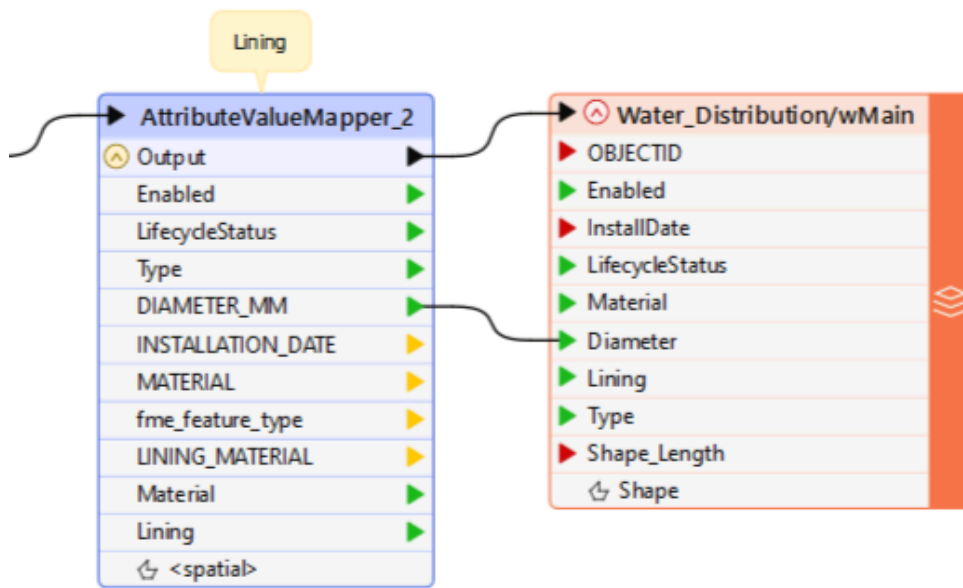
4. Map Input Features to Output Features

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.

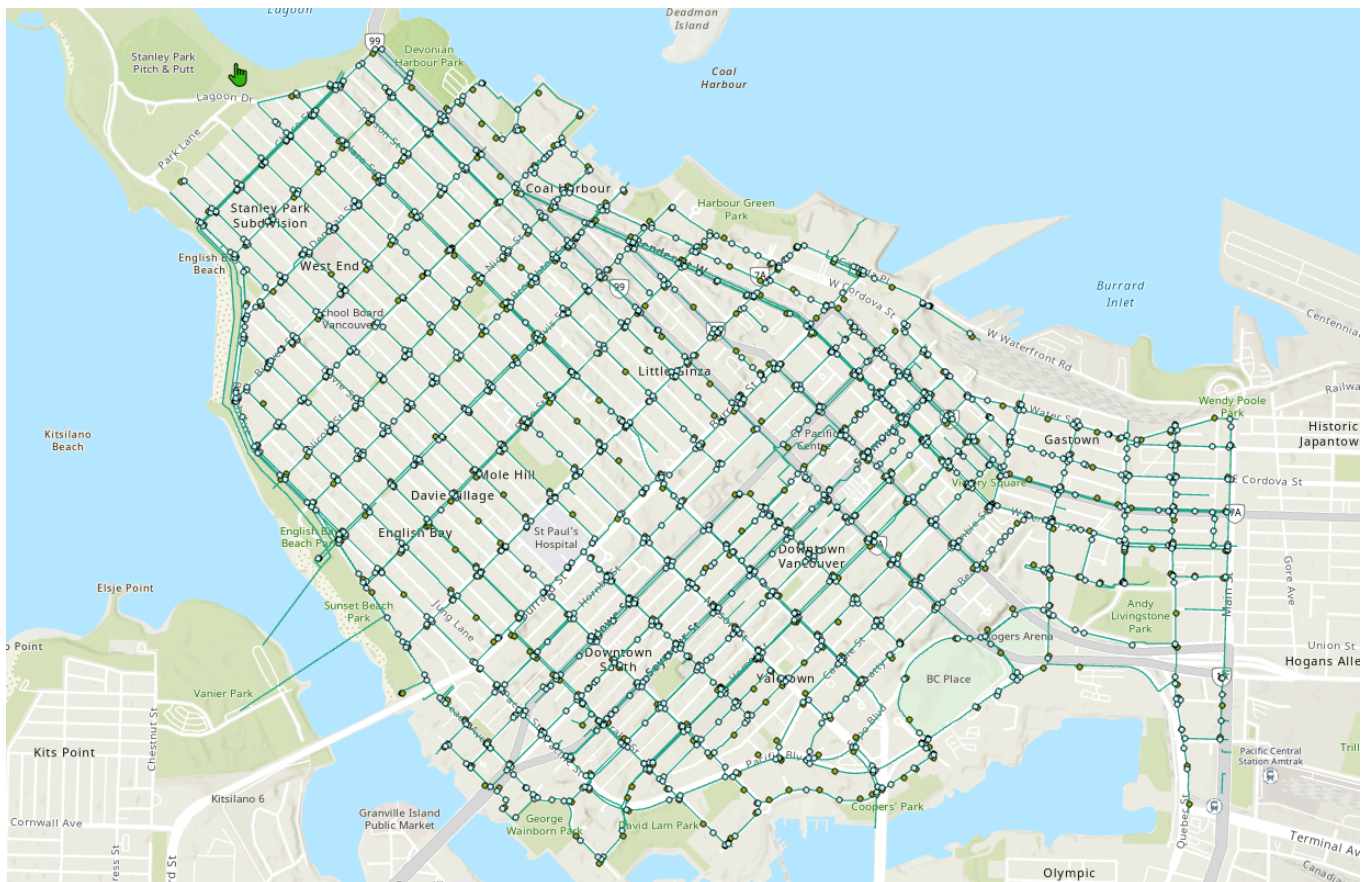


Preview mode. Refresh to see the latest changes.



5. Save and Run the Workspace.

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



Preview mode. Refresh to see the latest changes.

Domain Name	Description	Field Type	Domain Type	Split Policy	Merge Policy	Code	Description
-------------	-------------	------------	-------------	--------------	--------------	------	-------------

A product of



[Company](#) [Products](#) [Giving Back](#) [Careers](#) [Contact](#)

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

Was this article helpful?

✓ Yes

✗ No

Related articles

[Working with Geodatabase Domains: Writing A Coded Domain](#)

[Writing ArcGIS Geodatabase Attachments](#)

[How to Create an ArcGIS Enterprise Portal Web Connection \(OAuth 2.0\)](#)

[Notes on FME and Esri Versions and Compatibility](#)

Preview mode. Refresh to see the latest changes.

Comments

0 comments



Submit

Be the first to write a comment.