



# **FME<sup>®</sup> Server Tutorial**

***FME 2014 Edition***



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City of Vancouver

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Others

Forward Sortation Areas: Statistics Canada, 2011 Census Digital Boundary Files, 2013. Reproduced and distributed on an "as is" basis with the permission of Statistics Canada. © This data includes information copied with permission from Canada Post Corporation.

Digital Elevation Model: GeoBase®

Fire Hall Data: Some attribute data adapted from content © 2013 by Wikipedia

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## Introduction



***This tutorial is designed for new users of FME Server***

This tutorial is a basic introduction to using FME Server, either on your own installation or on FME Cloud. In particular it focuses on content that all users of FME Server would be expected to know.

FME Server is a model-driven application. Authoring and publishing these data translation and transformation models (also known as **workspaces**) uses FME Desktop applications; therefore the contents of this tutorial require that you have a basic understanding of FME Desktop. If this is not the case it is recommended that you carry out the FME Desktop Tutorial, before proceeding with these examples.

### FME Version

The tutorial is designed specifically for use with FME<sup>®</sup>Server 2014 and FME<sup>®</sup>Desktop 2014. Some of the functionality described may not be available when used with older FME versions.

### Contents

The basic FME Server tutorial consists of a number of chapters, each with its own topic and set of exercises. Advanced topics - principally techniques specific to a particular scenario - are covered in a separate set of tutorial documents.

#### ***FME Server Basics***

This chapter describes the basic functionality of FME Server and explains the use of the Web Interface.

#### ***Basic Workspace Usage***

This chapter explains how to open an existing workspace model, publish (upload) it to FME Server, and execute it in the FME Server Web User Interface.

#### ***Introduction to Self Serve***

Often administrators need to serve data to both customers outside of their organization (end-users) and internal customers (co-workers). This chapter demonstrates how FME Server services can be used for this purpose.

### ***Using Parameters with FME Server***

This chapter explains how to give control of FME Server translations to the end-user, through FME Workbench functionality known as Published Parameters.

### ***Getting Started with Real Time***

FME Server can be set up to handle notifications as an event-driven system. This chapter demonstrates how such a system might be implemented.

### ***Getting Started with Automation***

Automation is a common requirement for FME Server installations that are used to do data processing. This chapter covers the basics of setting up automated translations on FME Server.

## Software Requirements

There are a number of software requirements for users of this tutorial.

### ***FME Server – Public Installation***

A private installation of FME Server is not a requirement for use of this tutorial.

For your convenience a public installation of FME Server, utilizing FME Cloud, has been made available at [fmecloud.com](http://fmecloud.com), for use by anyone following this tutorial.

To use the instance on [fmecloud.com](http://fmecloud.com) you should ensure you can connect to, and see the login page for: <http://server-tutorial-safe-software.fmecloud.com/>



*Be aware that any tutorial repositories, workspaces or related data will be removed regularly from [fmecloud.com](http://fmecloud.com).*

*If you want to keep any work or data from this tutorial, please also save it to your own system!*

### **FME Server – Private Installation**

Of course, you are welcome to use your own private installation of FME Server instead, provided the following requirements are met:

- You are using FME Server 2014, and it has been properly installed and tested.

For installation information please see the FME Server Administrators guide available on our website: [FME Server Administrator's Guide \(HTML\)](#)

- You have installed the FME Server Samples and Template Workspaces.

This can be done from the Windows start menu:

**Start > All Programs > FME Server > Install > Add Sample Workspaces > Add Template Workspaces**

When using your own FME Server installation, rather than [fmecloud.com](http://fmecloud.com), there will be some obvious differences.

- Browser URLs will be specific to your own system:

**http://<HostName>:<portNumber>/fmeserver**

- The connection parameters from FME Workbench will be specific to your own system.
- You will need to create the Tutorial repository when you publish your first workspace.



*The author user is a default user installed with FME Server. If the default users and roles have been changed, you need to ask your own FME Server Administrator for a user name and password.*





### FME Desktop

FME Desktop is used as the authoring environment for FME Server and is therefore a requirement for this tutorial.

If you do not have a licensed copy of FME Desktop, you can request a trial copy [from our website](#).

### Google Earth

Google Earth is not strictly a requirement for this tutorial, but is useful for viewing some of the exercise output.

### FME Sample Dataset

Carrying out the exercises in this tutorial requires a set of data available from the Safe Software web site.

The sample dataset can be obtained from <http://www.safe.com/fmedata>.

There are two datasets available. One is a full dataset with nearly 500mb of example data. The other is a 100mb subset specifically for the FME Desktop and Server tutorials.

The Tutorials dataset is all you need to complete the exercises in this document; however the Full dataset has a wider range of formats and data types that you may find useful to experiment with.

Download your chosen set of FME sample data and extract the contents.

Where possible, choose the root folder of the C:\ drive to extract the data.

The data will be automatically extracted into a folder called FMEData2014.

Name	Date modified	Type
apps	07/01/2014 2:52 PM	File folder
Drivers	24/08/2012 1:34 PM	File folder
FMEData2014	19/09/2013 12:08 PM	File folder
TEMP	12/09/2012 5:17 AM	File folder
Users	05/04/2013 11:13 AM	File folder
Windows	31/12/2013 7:27 PM	File folder



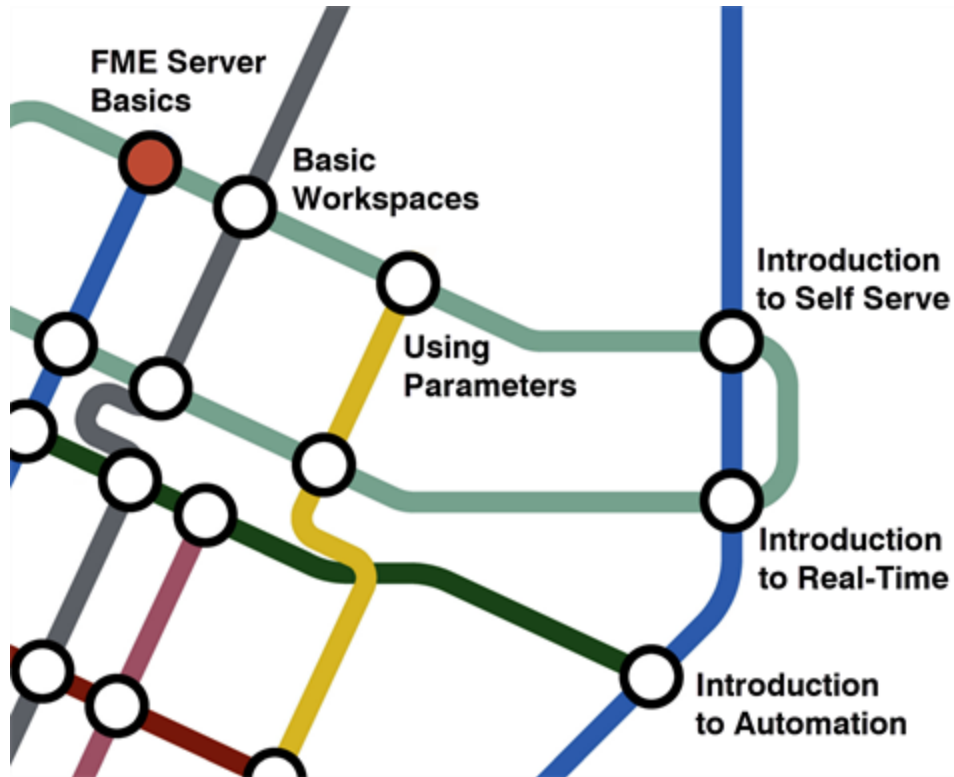
*Choosing a different location than C:\ will not prevent you from using this tutorial, but predefined translations within the FMEData folder will require editing to locate the data.*

Completed versions of the workspaces used in this tutorial can be found here:  
*C:\FMEData\Workspaces\ServerTutorial.*

## What's Next?

### First Step

Now that you know something about this tutorial, and the pre-requisites required to follow it, your first step is to proceed to the next chapter, [FME Server Basics](#).



### Getting Help

FME Workbench includes extensive, context-sensitive help. For assistance with a tool or format, click the item and then press F1 to open the help system.

### Further Resources

Below is a list of other technical resources to help you make the most of FME and FME Server.

### Sales

To obtain an evaluation copy or for sales enquiries, please contact your Safe Software Account Manager or [sales@safe.com](mailto:sales@safe.com).

## **Training**

Safe Software offers a number of training courses in FME Workbench and FME Server. For more information, see our website at <http://www.safe.com/training>.

## **Documentation**

The FME Server Administrator's Guide is available with every FME Server installation and online at our website: [FME Server Administrator's Guide \(HTML\)](#).

## **Technical Resources**

Many other resources for FME Desktop and Server can be located at <http://fmepedia.safe.com>.

## **Support**

If you need assistance with the tutorial or have any other technical questions about FME Server, please feel free to contact the FME support team through the contact form on their web site at: [www.safe.com/support](http://www.safe.com/support).

## FME Server Basics



***This chapter describes the basic functionality of FME® Server from a user's point of view, and explains the use of the Web User Interface.***

### What is FME Server?

FME Server is a model-driven Spatial ETL application for translating and transforming spatial data over a network. It allows organizations to read, restructure, and distribute their data across the widest range of spatial data formats; and so offers a flexible, cost-effective approach to meeting the ever-increasing demands for spatial data access.

FME Cloud is an instance of FME Server that is hosted on a pre-configured Amazon virtual computer. It is available as a pay-as-you-go product that is simple to implement and easy to use.

In particular, the tasks that can be carried out by FME Server include the following:

- Large-scale data processing
- Self-serve data streaming and distribution
- Data upload and validation
- Real time alerts and notifications
- Automated data transformation and distribution

In the chapters that follow, you can explore most of the functionality, and work through examples designed to help you become familiar with FME Server.

## **Interacting with FME Server**

Users interact with FME Server through client applications. There are many pre-existing applications – from both Safe Software and other sources – that can act as clients for FME Server.

### ***FME Server Clients***

The FME Server product itself offers a number of clients capable of interacting with the core server. These clients include:

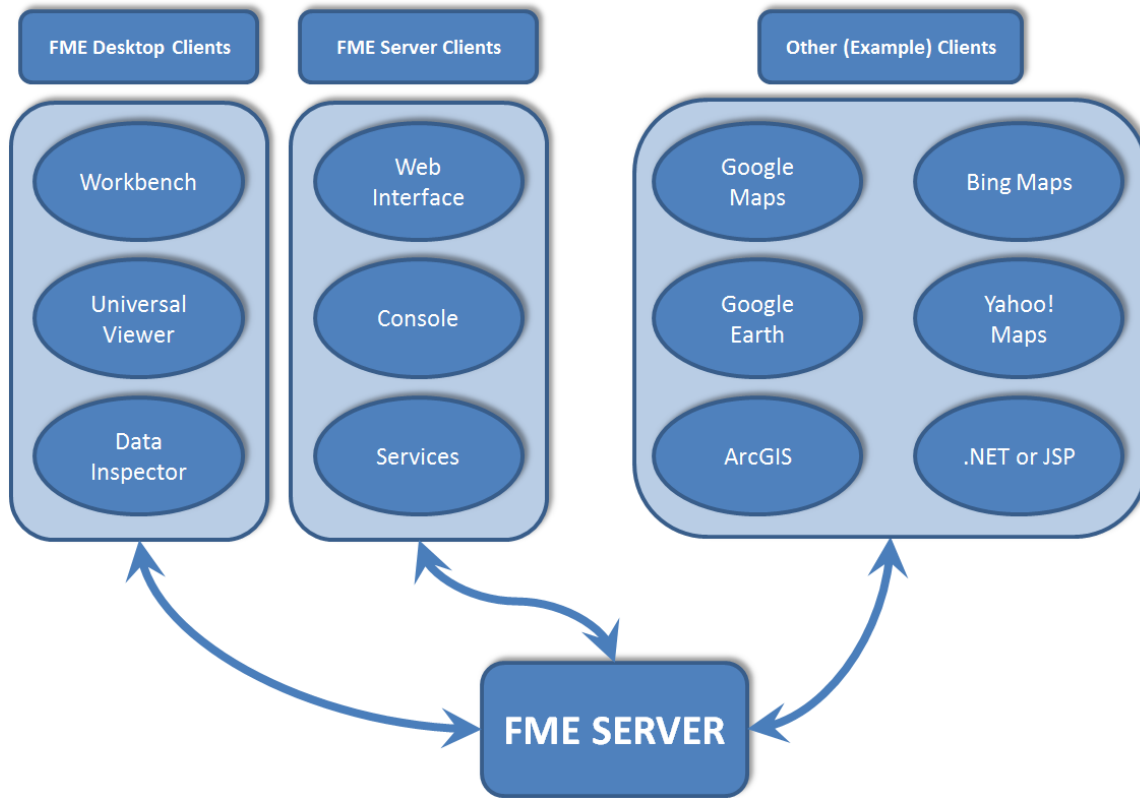
- FME Server Web Interface
- FME Server Services
- FME Server Console

### ***FME Desktop Clients***

Safe Software clients available as part of FME Desktop include:

- FME Workbench
- FME Data Inspector

However, with FME Server you are not limited to FME clients, or even the other clients shown in the following illustration. You can create your own with one of the available APIs.



Working through this tutorial, will help you learn how to use these clients to interact with FME Server.

## Typical FME Server Workflow

FME Server is easier to understand when you divide its use into two different roles: author and end-user. The author generates the solution models (workspaces) through which the end-user (typically coworkers or customers) access, upload, or process spatial data.

The typical workflow is as follows:

- An author uses FME Desktop to create workspaces to translate and transform data in a specific way
- The author publishes the workspaces to FME Server, and sets them up for use under a particular set of services. A custom web page may be built around the service(s).
- End users are provided with a web page or URL to access that service, and define parameters for it (this may or may not include uploading data)
- The workspaces run and the results are returned to the end user

For example:

- An author has created a workspace to read data from a spatial database, to reproject it to a different coordinate system, and to write it out.
- The workspace has been published to FME Server, and identified as a Data Download service.
- The end user accesses the Data Download service through a web page in which they define the required coordinate system and/or format of the output dataset.
- The workspace runs on FME Server. The user is presented with a URL through which to download the data in their chosen output.

This workflow is consistent, and the techniques used identical, whether or not you are using your own installation of FME Server, or an instance that is running under FME Cloud.



## FME Server Web Interface

FME Server ships with a comprehensive web interface. This interface can be used to carry out all the administrative and functional tasks required of FME Server; including running or scheduling tasks, managing security settings, and setting up notifications and alerts.



### Exercise 1.a: FME Server Web Interface

Exercise 1.a: Exploring the Web Interface	
<b>Scenario</b>	FME Server author, administrator, or end-user
<b>Data</b>	N/A
<b>Overall Goal</b>	Explore the FME Server web interface.
<b>Demonstrates</b>	Using the FME Server Web Interface

Follow these steps to use the default FME Server web interface to download some data from a Data Download service.

1) In your web browser, enter the address <http://server-tutorial-safe-software.fmecloud.com>.

This will open the web interface login screen for the FME Server being used. Bookmark this web address, since you will use this link quite often.



*If you are using your own FME Server, please read [FME Server – Private Installation](#) in the previous chapter.*

*If you are connecting to the internet using a proxy and you are having trouble connecting, contact Support at [www.safe.com/support](http://www.safe.com/support).*

2) In the User Login dialog, enter a username and password as follows:

**User name:** Tutorial  
**Password:** TruthAndBeauty

Click the Login button.

3) Examine the user interface. Notice that the bottom-left corner shows which version and build of FME Server is being used by this instance:

```
Host: localhost
Port: 7071
FME Server 2014 - Build
14174 - linux-x84
```

```
FME © Server © 1994 -
2013
Safe Software Inc.
```

Also notice a section of the interface that shows how many engines are running:

### Engines

**Engine1** (Build 14174) is running on host ip-10-73-189-162

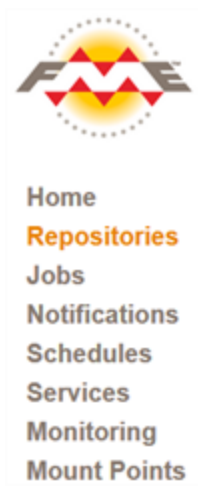
**Engine2** (Build 14174) is running on host ip-10-73-189-162

**Engine3** (Build 14174) is running on host ip-10-73-189-162

**Engine4** (Build 14174) is running on host ip-10-73-189-162







**4)** Let's look first at the system's repositories. Check the list of items on the left-hand menu (this list will vary depending on what permissions you have) and click the link labelled Repositories. This will open a page that shows a list of the available FME Server repositories.

A repository is a method for storing and categorizing workspaces. It holds a number of workspaces in the same way that a folder holds a number of files. In this case there will be a repository for Samples, one for Utilities, and one named Tutorial.





- Home
- Repositories**
- Jobs
- Notifications
- Schedules
- Services
- Monitoring
- Mount Points

**5)** Click on the Samples repository. A list of workspaces in that repository is shown. These are workspaces that have been loaded into FME Server and are available to run.


Quick Filter		
Name	Type	Last Updated
<b>austinApartments.fmw</b> City of Austin: Apartments and other (ACAD 2 KML)		2012-11-26 07:51:13
<b>austinDownload.fmw</b> City of Austin: Data Download		2012-12-17 04:12:41
<b>austinWFS.fmw</b> City of Austin: Shape to GML (WFS)		2012-11-26 08:20:54
<b>austinWMS.fmw</b> City of Austin: Shape to Image (WMS)		2012-11-26 08:59:28
<b>earthquakesextrusion.fmw</b> Earthquakes: GeoJSON to KML Diagrams		2013-05-13 08:18:55
<b>easyTranslator.fmw</b> Generic format translator		2012-11-30 10:27:19

6) Now click on the Jobs entry on the menu. This tool shows you a list of jobs that have been run on the system, as well as jobs that are currently queued or currently running.

Completed								
Queued								
Running								
Remove   Remove All								
<input type="checkbox"/>	Id	Status	Engine	Time Started	Time Finished	Priority	Repository	Workspace
<input type="checkbox"/>	2	 SUCCESS	Engine1 on ip-10-73-189-162	2013-10-17 12:16:29	2013-10-17 12:16:30	100	Samples	austinDownload.fmw
<input type="checkbox"/>	1	 SUCCESS	Engine1 on ip-10-73-189-162	2013-10-17 12:16:22	2013-10-17 12:16:27	100	Samples	austinDownload.fmw

Page size: 100 | Page 1 of 1 | Displaying 1 - 2 of 2

Jobs and Repositories are the two main menu items that you will use for basic FME Server use and administration.

 **Congratulations!**

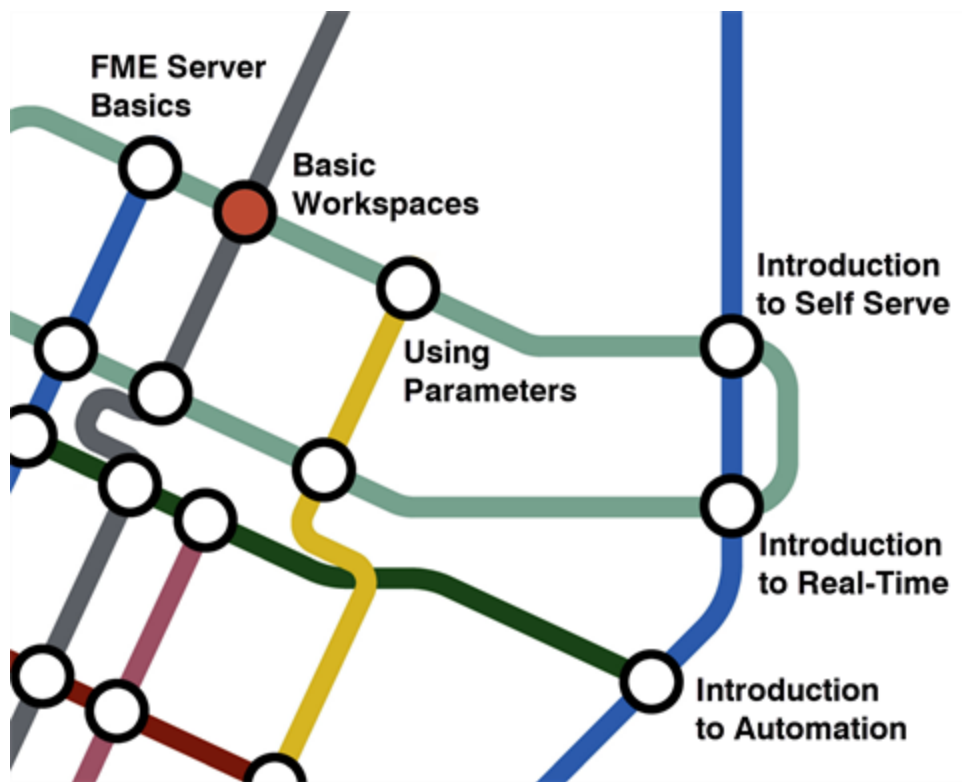
- You have now logged in and used the web interface on FME Server.
- Later chapters cover how to use the functionality contained within these menus.

## Conclusion



### Next Step

Now that you have completed this chapter, your next step in the FME learning program is to continue to the next chapter, [Basic FME Workspaces](#).



### Getting Help

FME Workbench includes extensive, context-sensitive help. For assistance with a tool or format, click the item and then press F1 to open the help system.

### Further Resources

Below is a list of other technical resources to help you make the most of FME and FME Server.

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## Basic FME Workspaces



FME Server is a model-driven Spatial ETL application. The models - aka workspaces - are created using a desktop application called FME Workbench.

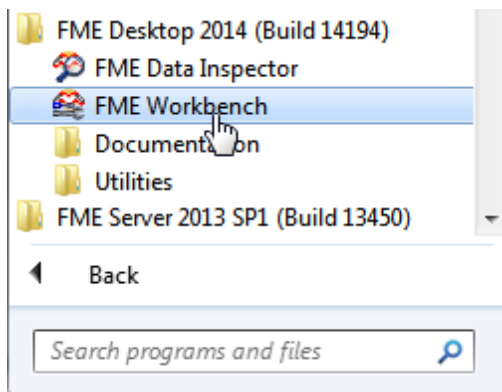
This chapter of the tutorial demonstrates how to use FME Workbench to open and publish a workspace to FME Server, and how to run that workspace through the FME Server web interface.

## Exercise 2.a: Basic Workspace Usage

Exercise 2.a: Basic Workspace Usage	
Scenario	FME Server Author
Data	City Parks and Cycle Path Data (PostGIS Database)
Overall Goal	Open an existing workspace that translates data. Publish it to FME Server. Run the workspace.
Demonstrates	Basic workspace usage with FME Server

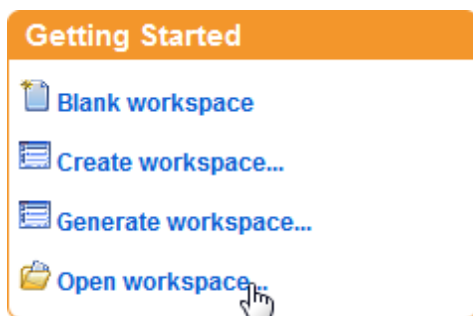
### 1) Start FME Workbench

From the Windows Start Menu, select **Start > All Programs > FME Desktop > FME Workbench**.



### 2) Open Workspace

In the Getting Started section of the Workbench Start page, click on the option to Open Workspace.





Browse to and select the workspace *C:\FMEData\Workspaces\ServerTutorial\Exercise2-Begin.fmw*.

Examine the workspace. A workspace is a graphical representation of an FME data translation. This one is designed to read a table of parks and a table of cycle routes from a PostGIS database, process them, and write the data back to two new PostGIS tables.

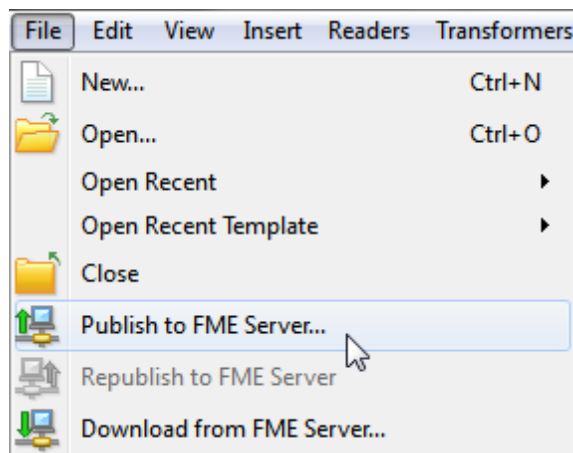
As a Spatial ETL tool, FME permits transformation (T) between reading and writing data. This workspace transforms the data by dividing it into parks with and without off-leash dog runs. It also calculates the area (in square metres) of each park and the length (in metres) of bicycle path that runs through it.

NB: For more information on this workspace and how it was generated, refer to the FME Desktop Tutorial document.

### 3) Publish to FME Server

Let's publish this workspace to FME Server.

Click **File > Publish** to FME Server on the Workbench menubar:

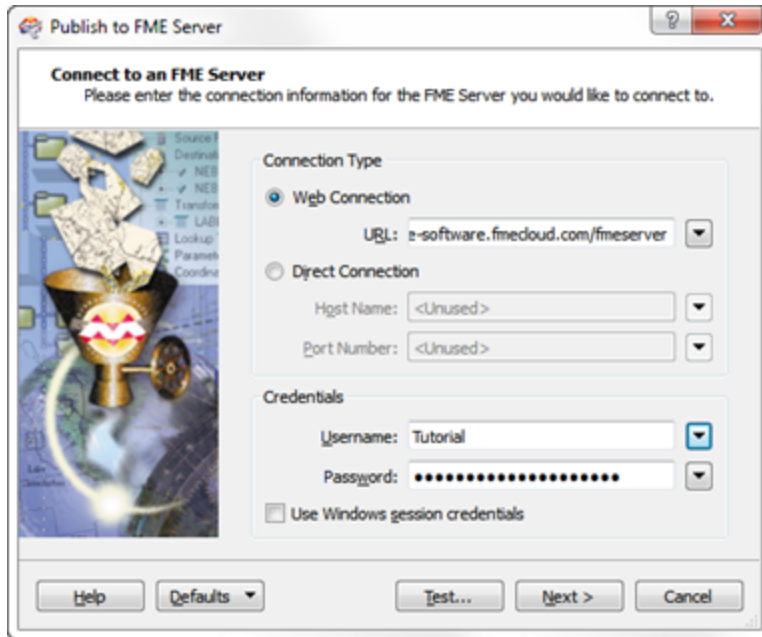


When prompted in the publishing wizard, select a Web Connection and enter the URL:

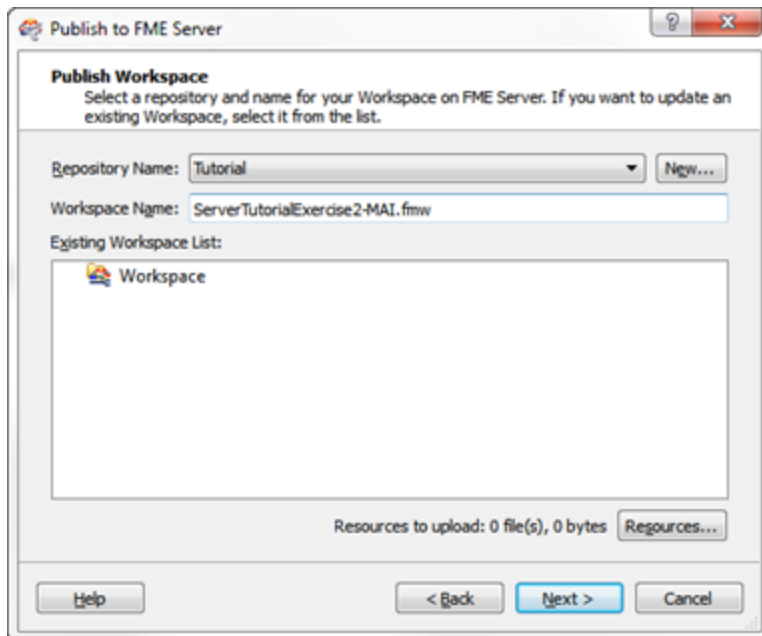
*<http://server-tutorial-safe-software.fmecloud.com/fmeserver>*

Enter the username and password as previously used to log in to the FME Server web interface:

**User name:** Tutorial  
**Password:** TruthAndBeauty



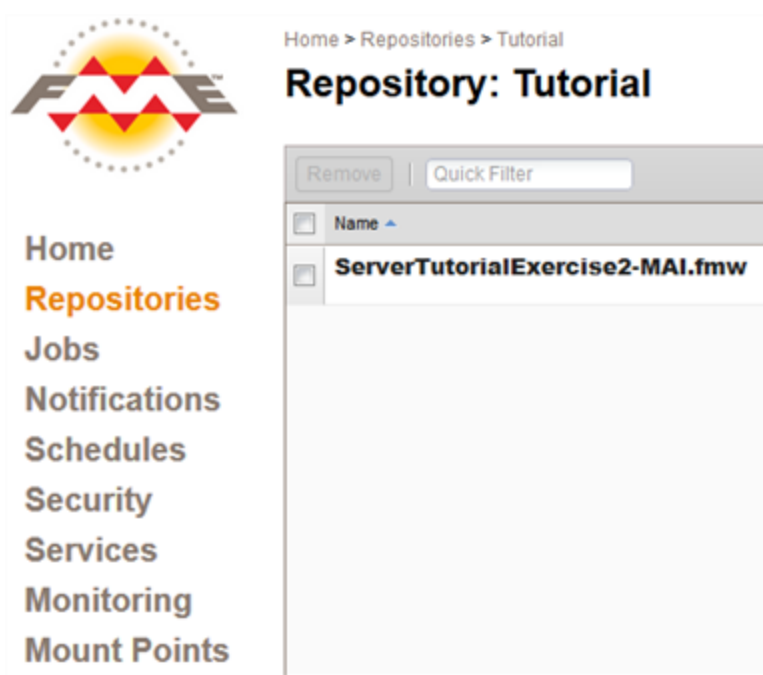
Click the Next button. Next select the Tutorial repository in which to store the workspace. Rename the workspace to something suitable - maybe something with your name to avoid clashing with other users.



Again click the Next button. The final step is to register what services to record the workspace against. For now, simply leave Job Submitter selected and click Publish. The workspace is published to the FME Server.

#### 4) Run Workspace

In your web browser, enter the address *http://server-tutorial-safe-software.fmecloud.com* and log in with the same credentials as before. Use the menu options to browse to the Tutorial repository. Here you should find your workspace ready to run.





Click on the workspace. Then click on the option to Run it:

Home > Repositories > Tutorial > ServerTutorialExercise2-MAI.fmw

### Registered Services

#### Job Submitter

-  Configure
-  Run

The translation will now run. The data will be read from a PostGIS database, transformed, and then written back to two new tables.

Home > Repositories > Tutorial > Exercise2-Begin.fmw > fmejobsubmitter > Configure > Run

## Exercise2-Begin.fmw

FME Server Exercise 2 - Begin

### Success

Translation Successful

Job Id: 6

Number of Features Written: 92

Time Elapsed: 2 seconds

[View Log](#)

[Download Log](#)



### ***Congratulations! You have now:***

- *Opened and viewed an FME workspace*
- *Published the workspace to FME Server*
- *Run the workspace on FME Server*

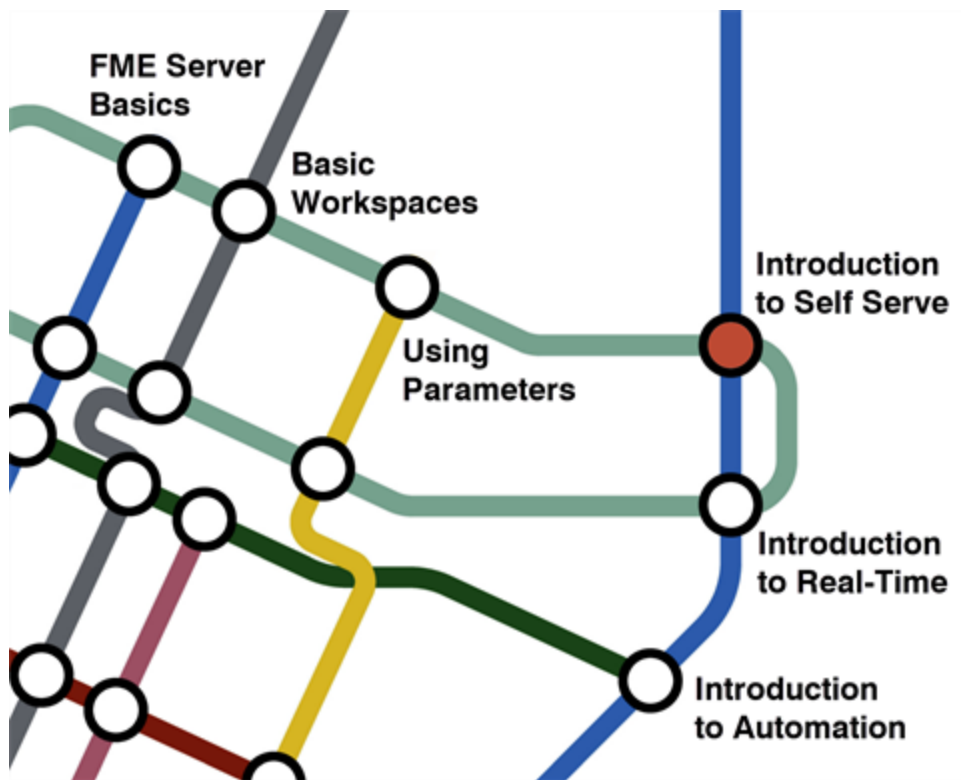
## Conclusion



***This chapter is part of a larger tutorial document.***

## Next Step

Now that you have completed this chapter, your next step in the FME learning program is to continue to the next chapter, [Introduction to Self-Serve](#).



## Getting Help

FME Workbench includes extensive, context-sensitive help. For assistance with a tool or format, click the item and then press F1 to open the help system.

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## Introduction to Self-Serve



***The FME Server Data Download service is ideal for delivering data to your end-users.***

### Self-Serve

Often administrators provide access to data to both customers outside of their organization (end-users) and internal customers (co-workers). The FME Server Data Download service is ideal for letting users serve themselves with data.

A self-serve application is easily achieved by registering a workspace with the Data Download service, as it is being published to FME Server.

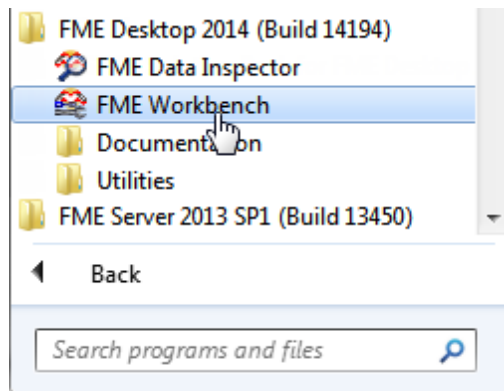
### Exercise 3.a: Self-Serve and the Data Download Service

Exercise 3.a: Self-Serve and the Data Download Service	
<b>Scenario</b>	FME Server Author
<b>Data</b>	Fire Halls (GML - Geographic Markup Language)
<b>Overall Goal</b>	Create a workspace for use in a Data Download service, so that users can help themselves to data
<b>Demonstrates</b>	Data Download service for Self-Serve Solutions

In this exercise, imagine that you are a GIS technician working for a city planning department. You often get asked for the location of fire halls in Google Earth (KML) format and you want your users to be able to help themselves to this data using FME Server.

1) Start FME Workbench.

From the Windows Start Menu, select **Start > All Programs > FME Desktop > FME Workbench**.



FME Workbench will now start up and the Start screen will open.

2) Open Workspace.

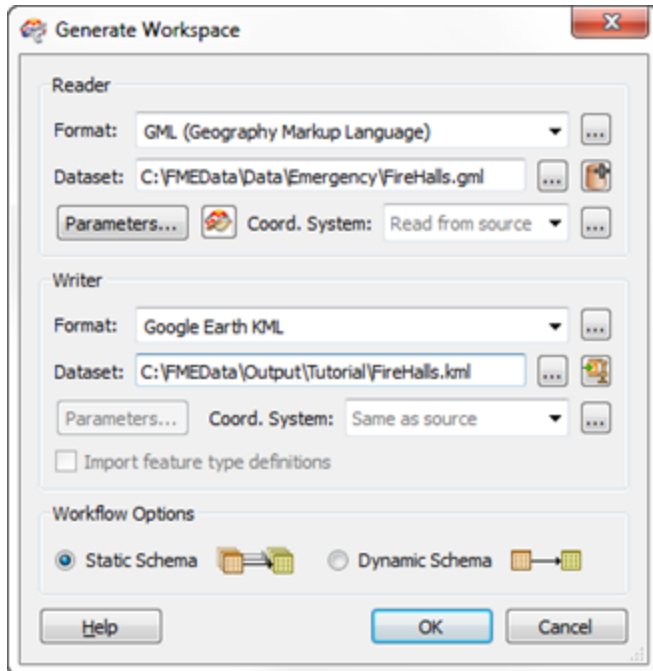
In the Getting Started section of the Workbench Start page, click on the option to Generate Workspace.



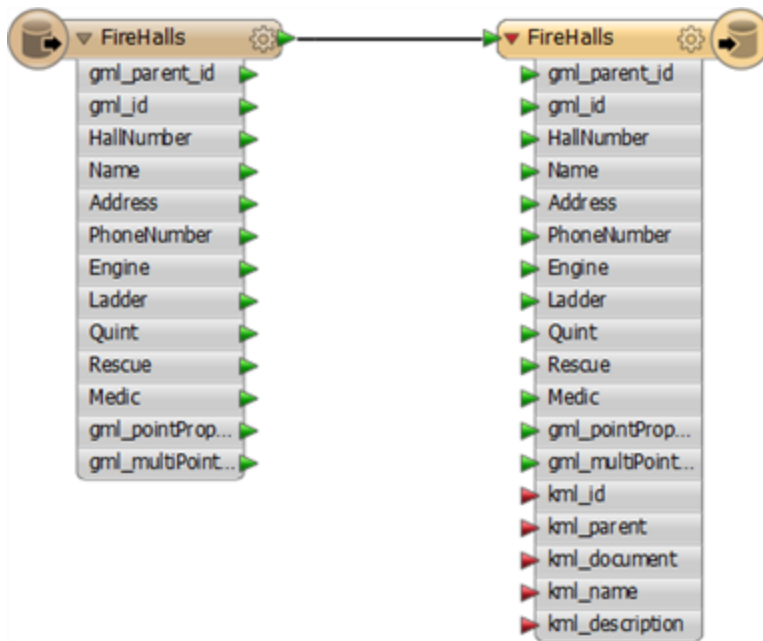


The Generate Workspace dialog will open. When it does fill in the fields as follows:

- Reader Format:** GML (Geography Markup Language)
- Reader Dataset:** C:\FMEData\Data\Emergency\FireHalls.gml
- Writer Format:** Google Earth KML
- Writer Dataset:** C:\FMEData\Output\Tutorial\FireHalls.kml



Click OK to accept these parameters and create the workspace.

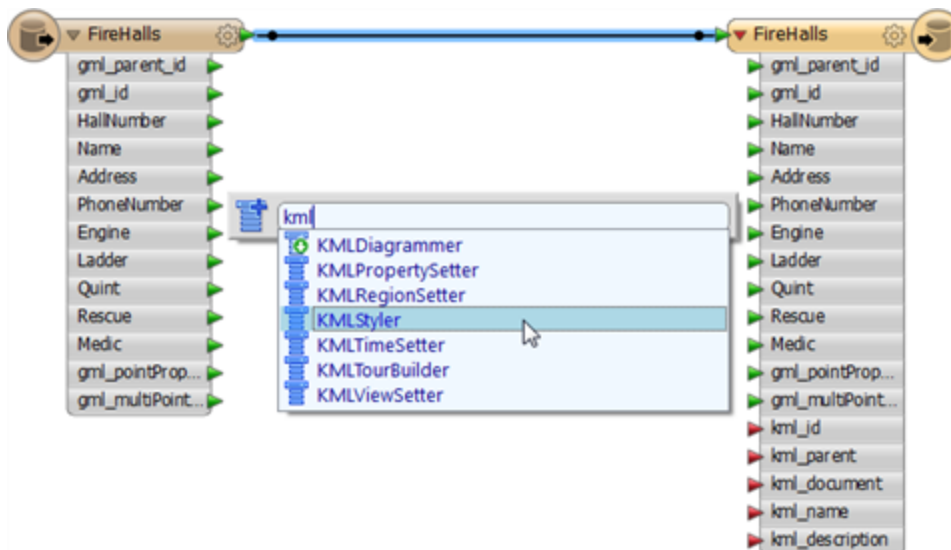


**3) Add Transformer.**

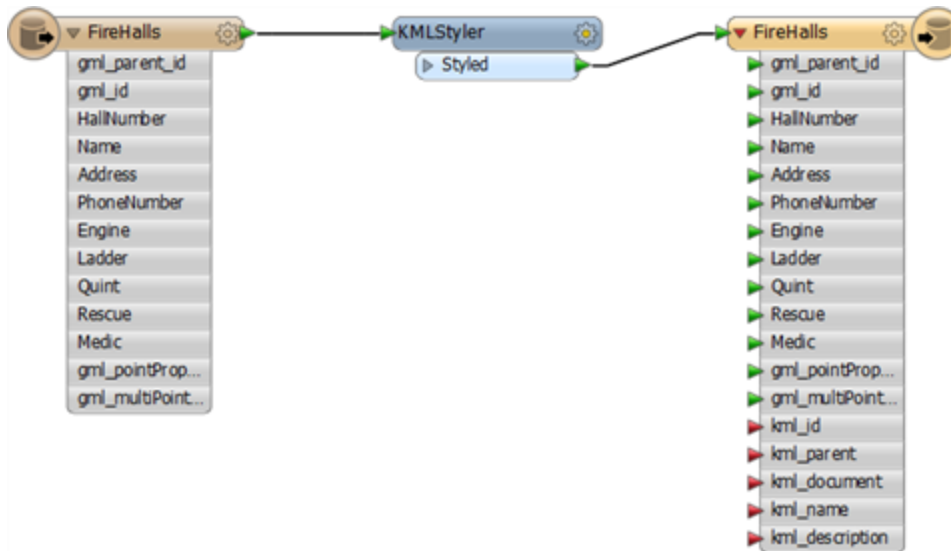
Now let's add a transformer to style our output data.

Click on the connection between the Reader and Writer objects in the Workbench canvas (we call these objects "Feature Types").

Start typing the word KMLStyler, the name of the transformer we wish to use. As you type the list of matching transformers becomes shorter until this one is visible. Click on KMLStyler to accept it.

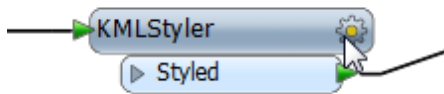


This will cause a KMLStyler to be added to the workspace:



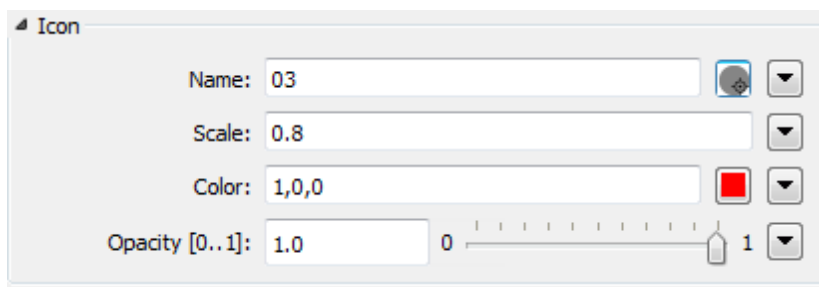
#### 4) Set Transformer Parameters

All transformers have a set of parameters that can be set. To check and set the parameters for this transformer, click on the cog icon:



The Fire Hall features are all point geometries, meaning you should expand the Icon section of the parameters dialog.

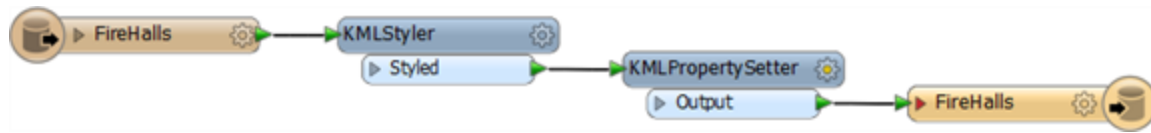
Use the browse button to select icon "03." Set the color to be bright red.



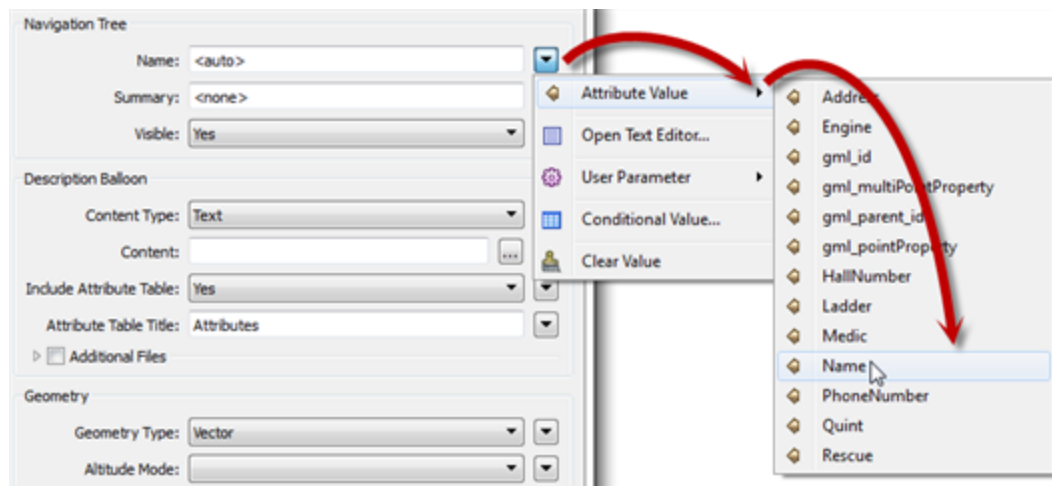
Click OK to accept the parameters and close the dialog.

**5) Add Transformer (Optional).**

As an (optional) task to improve the output, repeat steps 3 and 4, this time inserting a KMLPropertySetter transformer.



This time, for parameters simply click the drop-down arrow next to the Name parameter, choose attribute value, and then choose the attribute "Name."

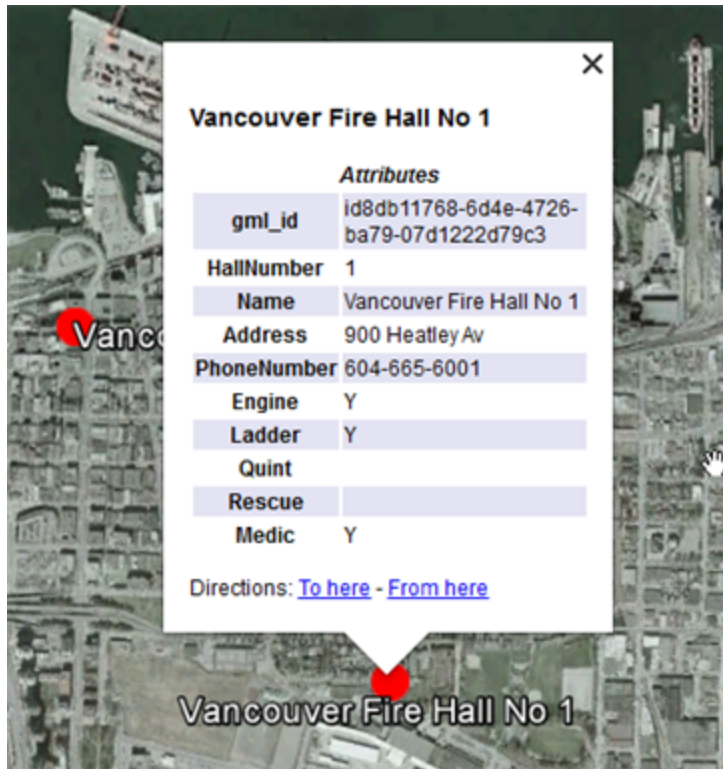


This will cause the name of the fire hall to be used in the Google Earth display.

**6) Save and Test Workspace.**

Click the Save button on the toolbar to save the workspace. Name the workspace as something suitable - maybe something with your name to avoid clashing with other users.

Now click the green run button to run the workspace. Locate the output KML file and open it in Google Earth to ensure it is correct:



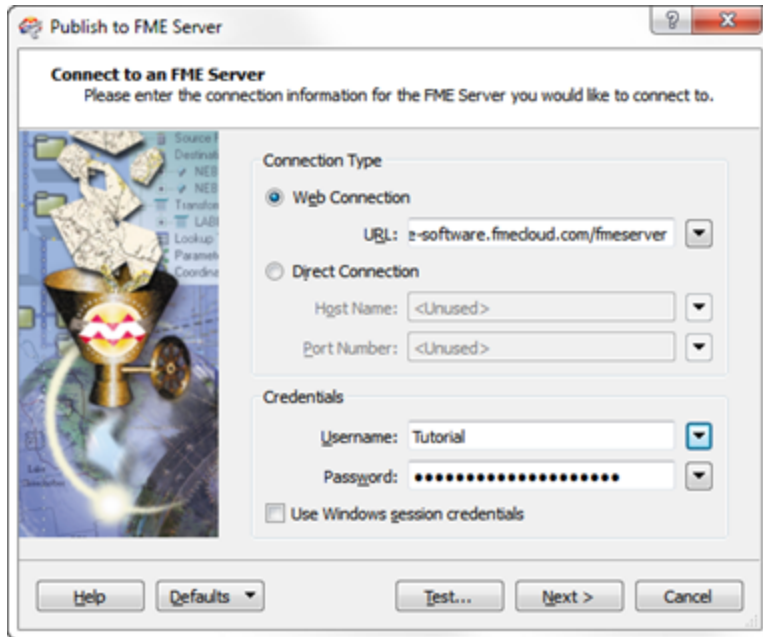
7) Publish to FME Server.

Now let's publish this workspace to FME Server.

Click **File > Publish to FME Server** on the Workbench menubar.

When prompted in the publishing wizard, select a Web Connection and enter the same parameters as before:

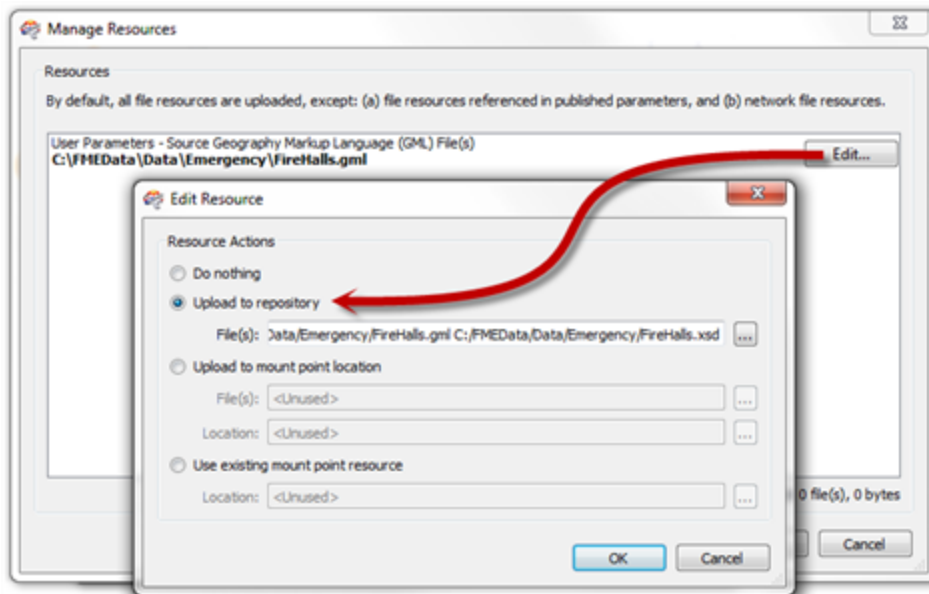
**URL:** <http://server-tutorial-safe-software.fmecloud.com/fmeserver>  
**Username:** Tutorial  
**Password:** TruthAndBeauty



Click the Next button. Next select the Tutorial repository in which to store the workspace.

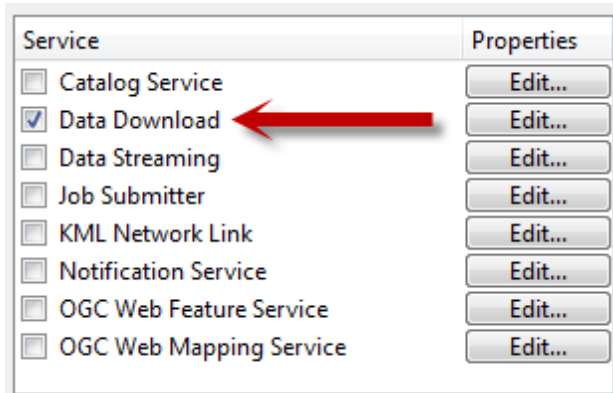
This time, because the data is local, and not on a database on the server itself, we will have to upload the files for the workspace to run. The way we will do this here will make the data private, for use only by this workspace.

Click the button labelled "Resources." In the Resources dialog click the Edit button next to the source data parameter and check the option marked "Upload to Repository."



Click OK, and then OK again to return to the publishing wizard. Then click the Next button.

The final step is to register what services to record the workspace against. This time uncheck Job Submitter and check the box marked Data Download.



Now click the Publish button. The workspace and source dataset are published to the FME Server.

**8) Run Workspace.**

In your web browser, navigate to the tutorial server (<http://server-tutorial-safe-software.fmecloud.com>) and log in with the same credentials as before. Use the menu options to browse to the Tutorial repository. Here you should find your workspace ready to run. As before, click on the workspace, then click on the option to Run it.

The translation will now run. The data will be read from a PostGIS database, transformed, and then written to a zip folder ready for download. A URL to the output will be provided:

**Success**

Translation Successful

Job Id: 9

Number of Features Written: 8

Time Elapsed: 2 seconds

**Data Download URL**

[http://server-tutorial.safe-software.fmecloud.com/fmedatadownload/results/FME\\_07124144\\_1384639210978\\_22614.zip](http://server-tutorial.safe-software.fmecloud.com/fmedatadownload/results/FME_07124144_1384639210978_22614.zip)

[View Log](#)   [Download Log](#)

Click on the link to download the file. Unzip the data and open it in Google Earth to prove it is correct. Now your colleagues will be able to log on to FME Server and download the data as KML whenever they require.



***Congratulations! You have now:***

- *Created an FME workspace to translate and style data*
- *Published the workspace to FME Server with its source dataset*
- *Run the workspace under the FME Server Data Download service*



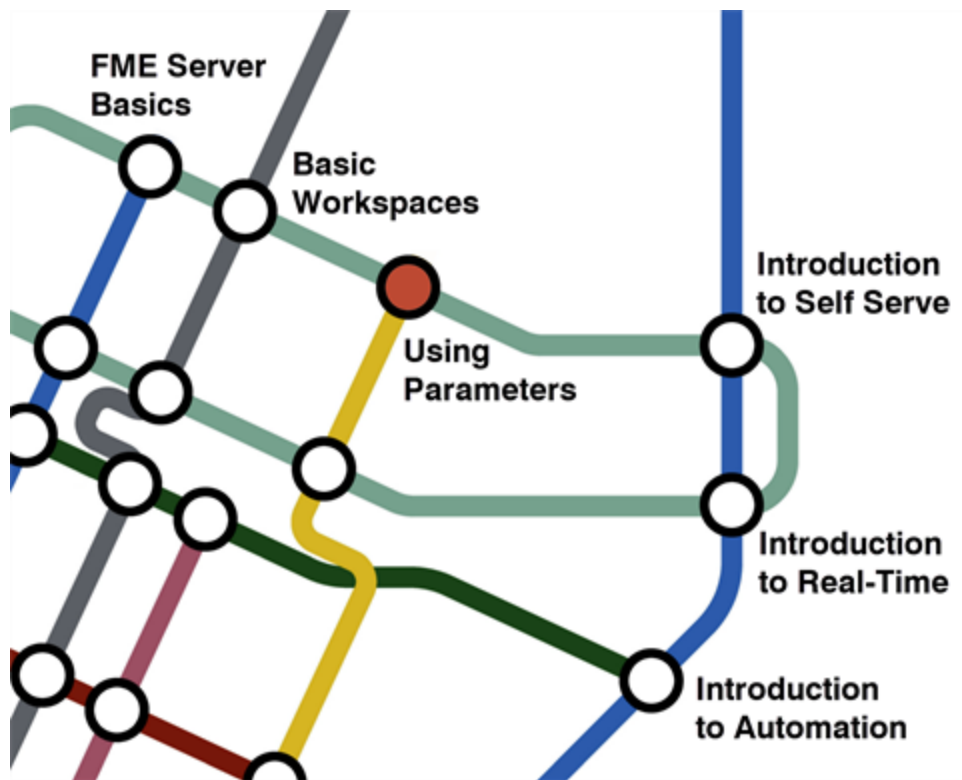
## Conclusion



***This chapter is part of a larger tutorial document.***

## Next Step

Now that you have completed this chapter, your next step in the FME learning program is to continue to the next chapter, [Using Parameters](#).



## Getting Help

FME Workbench includes extensive, context-sensitive help. For assistance with a tool or format, click the item and then press F1 to open the help system.

## Further Resources

Below is a list of other technical resources to help you make the most of FME and FME Server.

**Sales**

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**Documentation**

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**Technical Resources**

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**Support**

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## Using Parameters



***This chapter explains how to give control of translations to the end-user through User Parameters.***

When you author a workspace for FME Server you can give your users as much control over the transformation settings as you want. This is particularly useful for creating a Self-Serve solution.

Settings in FME are called parameters. A parameter that is made available to the end-user to set is called a **User Parameter**.

This is sometimes called publishing a parameter.

### User Parameters

Self-serve solutions commonly make use of Published Parameters, so that the end-user can make decisions on the format and structure of the data they are downloading.

Typical decisions are:

- The layers of data to be downloaded
- The coordinate system of the data
- The format of the data
- The extent of the data

Typically the layers of data to be downloaded are defined by a parameter called Feature Types to Read.

The output coordinate system is defined by the writer coordinate system parameter, linked to a user parameter to present the end-user with a list of useful choices.

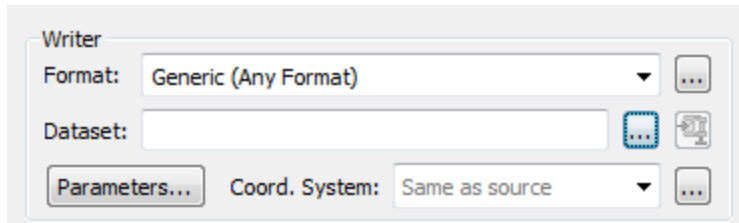
The output format of the data is most efficiently achieved using the Generic Writer.

The extent of the data can be defined by Reader search envelope parameters.

### The Generic Writer

The Generic Writer is an FME writer whose format is not determined until run time.

It has a generic definition in the workspace and a parameter through which to define the chosen format. By publishing that parameter the end-user is able to choose which format of data to write, and hence what format of data is supplied by their data download.



### Exercise 4.a: Self-Serve and Published Parameters

Exercise 4.a: Self-Serve and Published Parameters	
<b>Scenario</b>	FME Server Author
<b>Data</b>	Community Mapping Data (File Geodatabase)
<b>Overall Goal</b>	Create a self-serve solution that lets users pick the contents, format and coordinate system.
<b>Demonstrates</b>	Published Parameters for Self-Serve Solutions

In this exercise, imagine that you are a GIS technician working for a city planning department. You often get asked for Community Mapping data. However, each user wants the data in different formats, so you must create a self-serve solution that lets them customize the output.

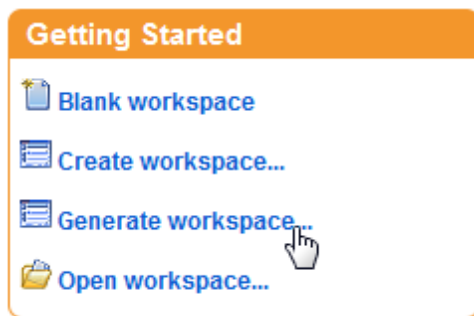
#### 1) Start FME Workbench

From the Windows Start Menu, select **Start > All Programs > FME Desktop > FME Workbench**.

FME Workbench will now start up and the Start screen will open.

#### 2) Open Workspace

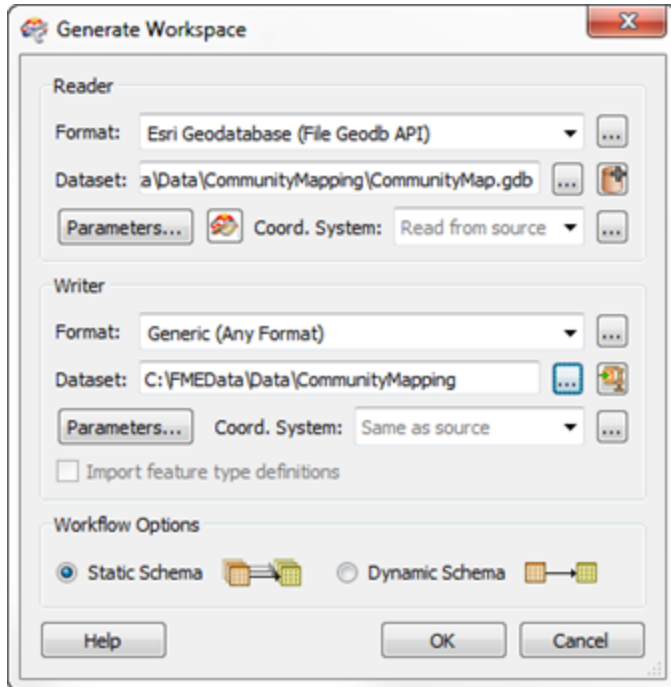
In the Getting Started section of the Workbench Start page, click on the option to Generate Workspace.



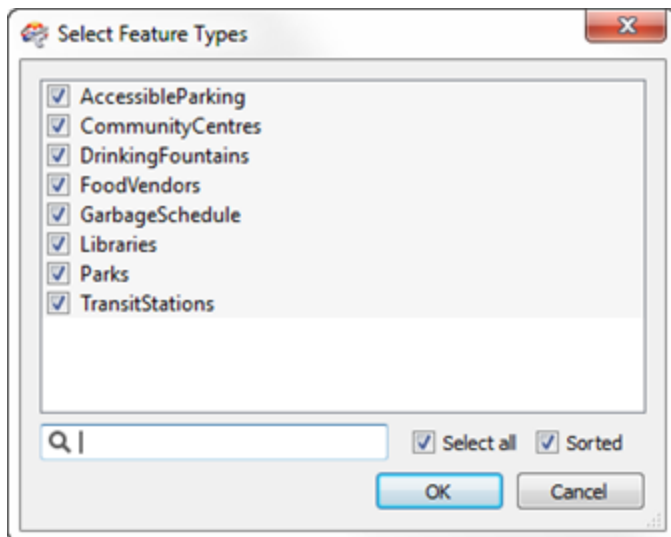
The Generate Workspace dialog will open. When it does fill in the fields as follows:

- Reader Format:** Esri Geodatabase (File Geodb API)
- Reader Dataset:** *C:\FMEData\Data\CommunityMapping\CommunityMap.gdb*
- Writer Format:** Generic (Any Format)
- Writer Dataset:** *C:\FMEData\Data\CommunityMapping*

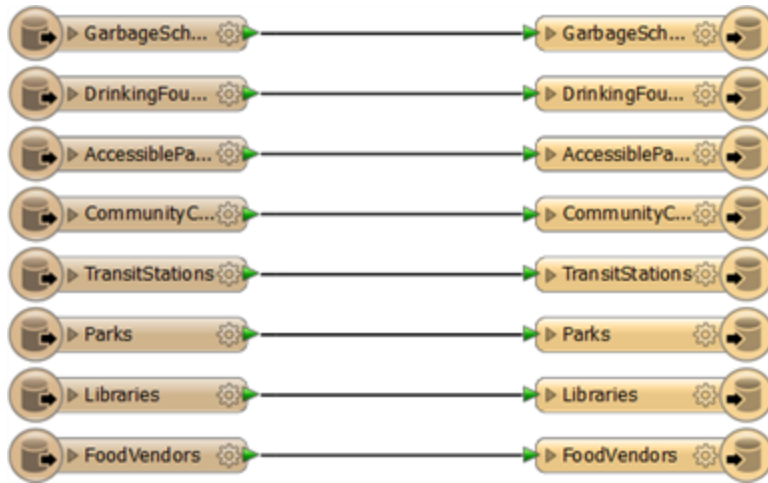
Be sure that the Reader format is the File Geodatabase API version (NOT ArcObjects) else the workspace will not run on FME Server. Click OK to accept these parameters.



You will now be prompted which feature types (layers/tables) should be added to the workspace. Leave all selected and click OK.



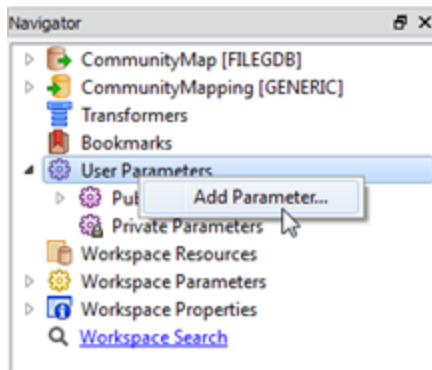
The workspace will now be created:



### 3) Create User Parameter

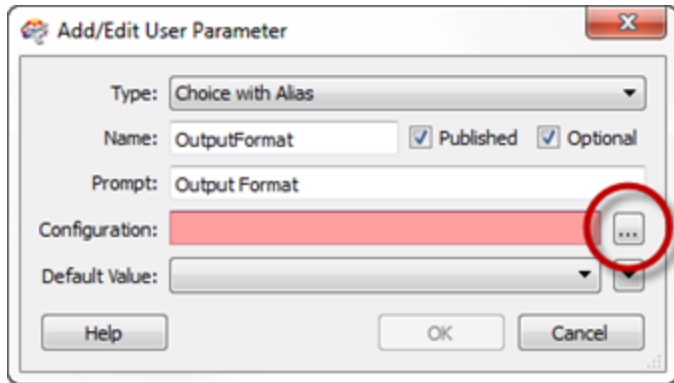
Now let's create a published parameter for the end user to select the output format.

In the Navigator Window (usually the left-hand part of the Workbench dialog) right-click on the section marked User Parameters. Choose the option to Add Parameter.

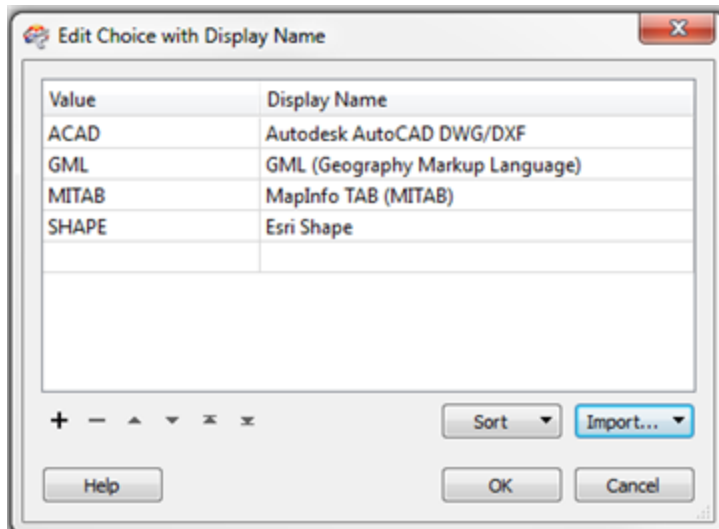


In the dialog that pops up select Choice with Alias as the parameter type.

Enter "OutputFormat" as the parameter name. Enter "Output Format" as the prompt. Then click the button to the right of the Configuration field:



In this dialog we can define which formats we want the user to have access to. Do this by clicking **Import > Writer Format(s)**. In this selection dialog select several formats, such as AutoCAD, Esri Shape, GML, and MapInfo TAB (MITAB). Click OK to close the dialog.



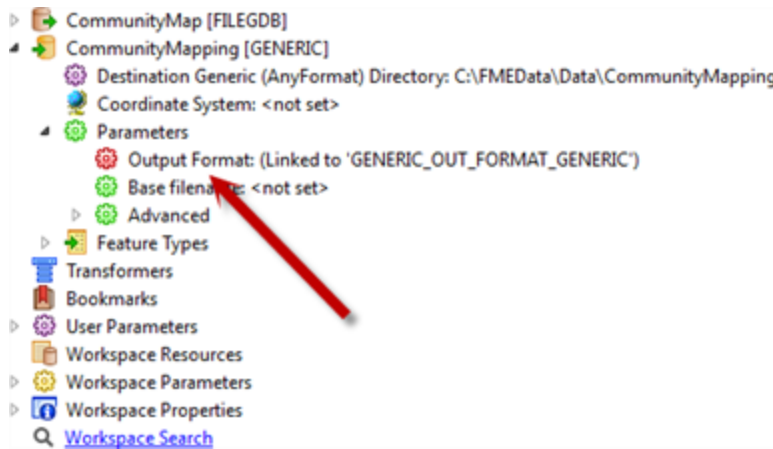
Click OK again and then once more to close all remaining dialogs.

#### 4) Assign User Parameter

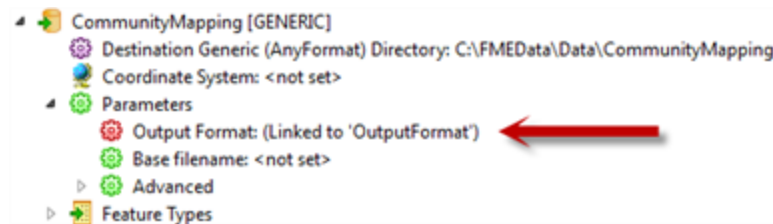
Now we have created a user parameter (i.e. we have a way for the user to make a choice) we must assign this to an existing Writer.

In the Navigator Window again, locate the Generic writer and expand the parameters section. Locate the parameter for Output Format.



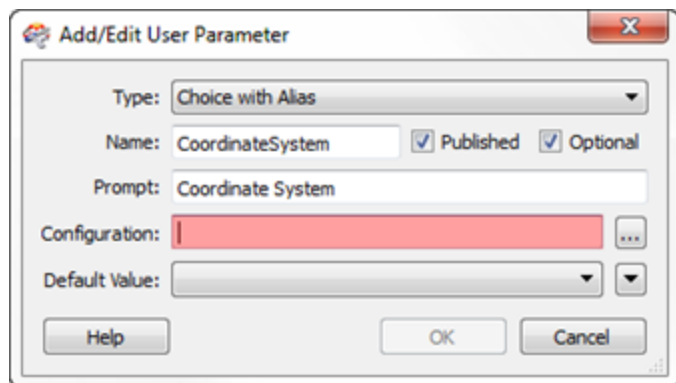


Right-click the Output Format parameter and choose the option to "Link to User Parameter." When prompted select our newly created user parameter (OutputFormat) to link it to. It should now look like this:

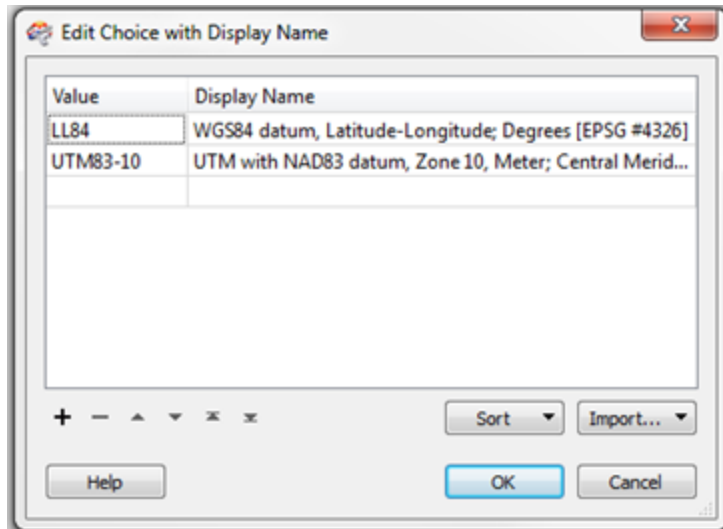


**5) Create User Parameter (Optional)**

As an (optional) task let's give the user the ability to select an output coordinate system. Repeat step #3. This time name the parameter "CoordinateSystem" and prompt for "Coordinate System."



This time, in the configuration dialog, choose to import coordinate systems instead of writer formats. This will give the user the ability to select a coordinate system. Choose some common systems like LL84 and UTM83-10.

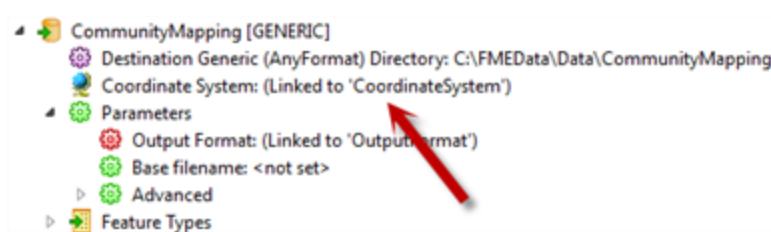


Click OK again until all dialogs are closed..

### 6) Assign User Parameter (Optional)

If you created the Coordinate System parameter in step #5 it must now be assigned to the appropriate Writer.

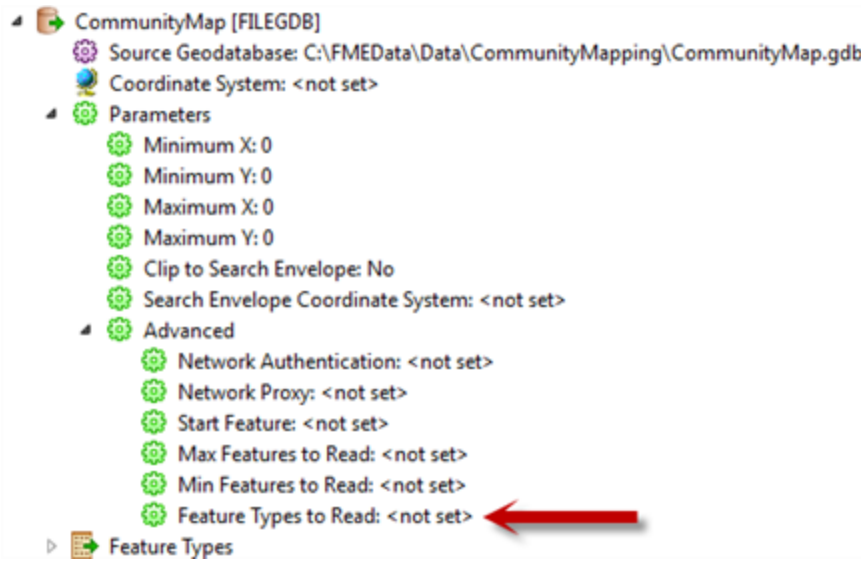
Again locate the Generic writer and expand the parameters. Locate and right-click the parameter for Coordinate System. Select "Link to User Parameter" and when prompted select the newly created "CoordinateSystem" parameter. It should now look like this:



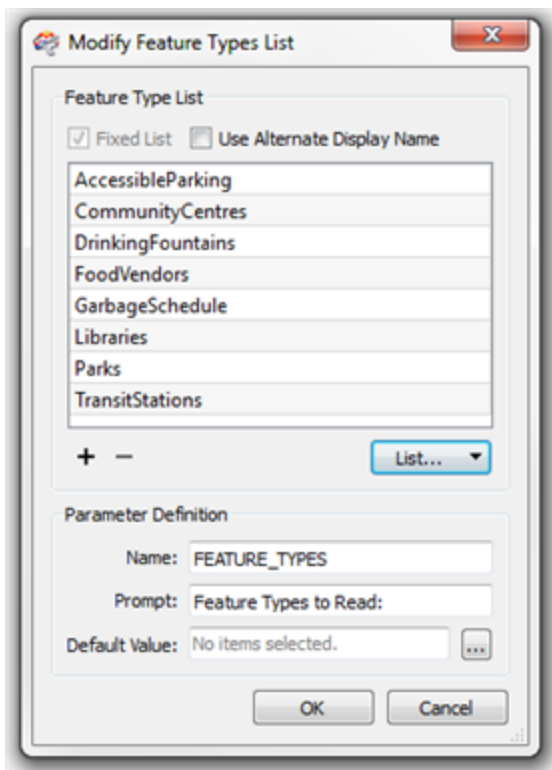
### 7) Create User Parameter

Now let's allow the user to select which feature types (layers/tables) he wants to read from the source data. This has a special parameter that we can set up in a single step.

In the Navigator window locate the Geodatabase Reader and expand its parameters, basic and advanced. Locate the advanced parameter called Feature Types to Read:



Right-click that parameter and choose "Create User Parameter." This opens a dialog in which the list of available tables are defined. This is a special dynamic parameter, so that if the source data changes the list will change too.



Click OK to close the dialog.

### 8) Publish to FME Server

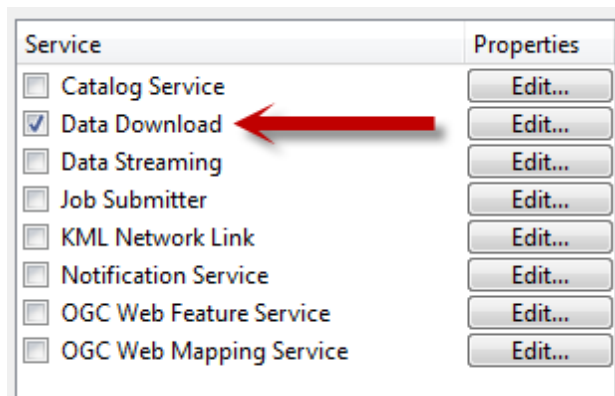
Save the workspace (**File > Save**) and publish the workspace to FME Server (**File > Publish to FME Server**).

When prompted in the publishing wizard enter the same parameters as before:

**URL:** <http://server-tutorial-safe-software.fmecloud.com/fmeserver>  
**Username:** Tutorial  
**Password:** TruthAndBeauty

Click the Next button. Next select the Tutorial repository in which to store the workspace. This time we'll use data that is already stored as a Shared Resource on FME Server, so simply click the Next button to continue.

The final step is to register what services to record the workspace against. Again, uncheck Job Submitter and check the box marked Data Download.



Now click the Publish button. The workspace and source dataset are published to the FME Server.

### 9) Run Workspace

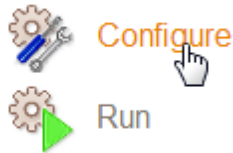
In your web browser, navigate to the tutorial server (<http://server-tutorial-safe-software.fmecloud.com>) and log in with the same credentials as before. Use the menu options to browse to the Tutorial repository. Here you should find your workspace ready to run.

As before, click on the workspace, then click on the Configure option:

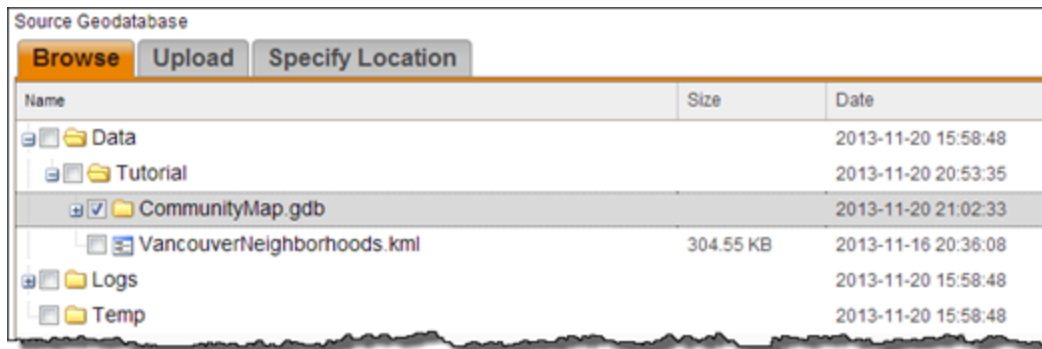
Home > Repositories > Tutorial > Exercise3b-Complete.fmw

## Registered Services

### Data Download



A set of options are now provided. For the source data browse to **Data > Tutorial** and select CommunityMap.gdb.



Below are a number of other parameters. Ignore the destination directory (we'll be doing a data download instead) but use these parameters to select an output format, output coordinate system, and a list of feature types to read:

Destination Generic (AnyFormat) Directory:

Output Format:

Coordinate System:

Feature Types to Read:

FoodVendors  TransitStations  DrinkingFountains

Click the Show Developer Info button. This will display a selection of useful information if you wish to create a custom web page for your end users. This will prevent them having to log in to FME Server through this interface and give them a shortcut to downloading the data.

Show Developer Information

**Direct Url Example**

`http://server-tutorial.safe-software.fmedcloud.com/fmedatadownload/Tutorial/Exercise3b-Complete.fmw?`  
`SourceDataset_FILEGDB=%22%24(FME_MOUNTPOINT_DATA)%2FTutorial%2FCommunityMap.gdb%22&DestDataset_GENERIC=C%3A%5CFMEData%5CData%5CCommunityMapping&OutputFormat=ACAD&CoordinateSystem=UTM83-`  
`10&FEATURE_TYPES=%22FoodVendors%22%20%22TransitStations%22%20%22DrinkingFountains%22&opt_showresult=false&opt_servicemode=sync`

**Form Example**

```
<form method="post" enctype="multipart/form-data" action="/fmeserver/invoke/fmedatadownload/Tutorial/Exercise3b-Complete.fmw">
  <p>
    Custom job request form for "Tutorial/Exercise3b-Complete.fmw" for service "fmedatadownload"
  </p>
  <!-- File upload inputs, replicate the file input lines below for as many as are necessary -->
  <p>
    Upload any files here: <br/>
    <input type="file" name="OPT_FileUpload"> <br/>
    <input type="file" name="OPT_FileUpload"> <br/>
  </p>
</form>
```

Finally, click on the Run Workspace button. Click on the link to download the file. Examine the data to prove it is correct. Now your colleagues will be able to log on to FME Server and download the data as any format they want, whenever they require.

### ***Congratulations! You have now:***

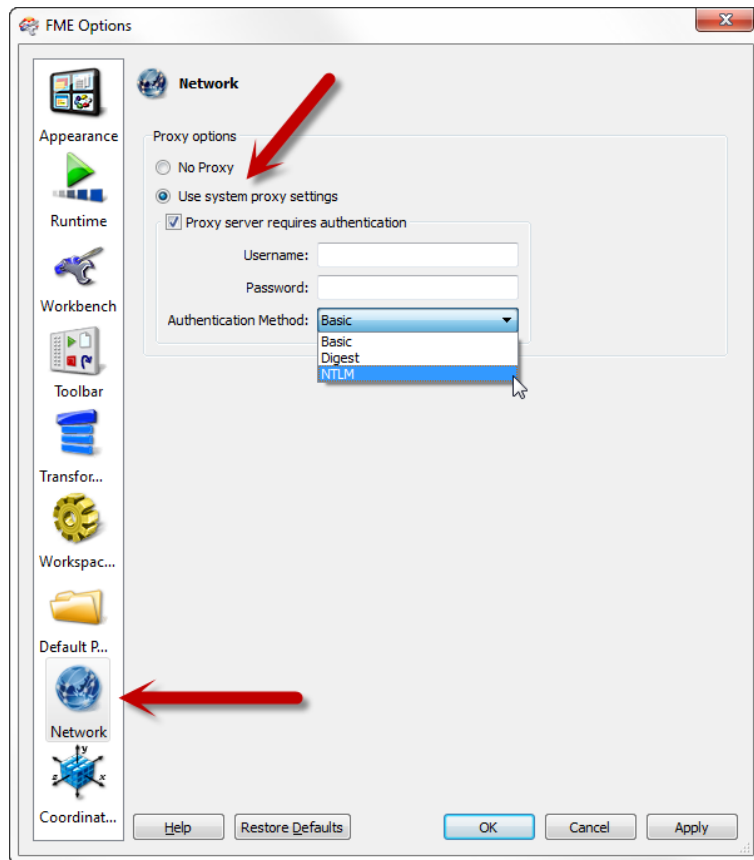
- *Created an FME workspace and created parameters to prompt the end user*
- *Published the workspace to FME Server and used a shared resource dataset*
- *Discovered developer information that can be used to create a custom solution*

## Proxy Settings

Before starting work with FME Workbench, note that users communicating from FME Workbench to FME Server **through a proxy** are required to define a number of settings.

If you are using a proxy connection then carry out the following steps before using Workbench with FME Server.

- 1) Start FME Workbench and select **Tools > FME Options** from the menubar.
- 2) Click on the Network tab.
- 3) Enter details of your proxy setup. Click OK to accept the changes.



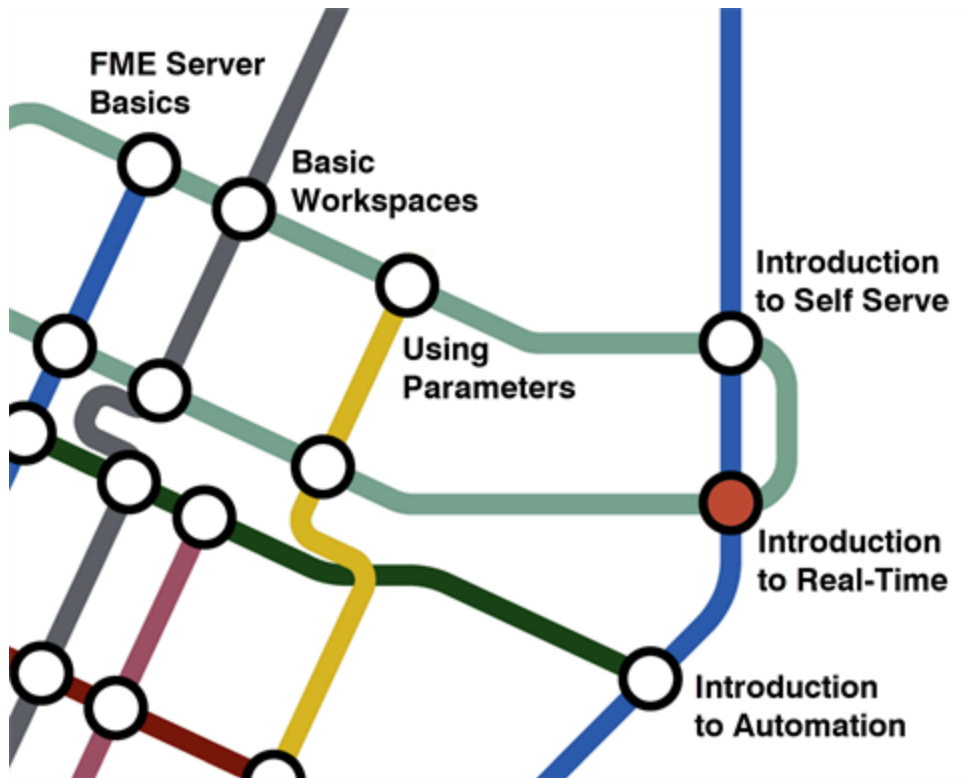
## Conclusion



***This chapter is part of a larger tutorial document.***

## Next Step

Now that you have completed this chapter, your next step in the FME learning program is to continue to the next chapter, [Introduction to Real-Time](#).



## Getting Help

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## Further Resources

Below is a list of other technical resources to help you make the most of FME and FME Server.



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## Getting Started with Real Time



***FME Server can be set up to handle notifications in real time as an event-driven system***

### Notifications

This chapter provides instructions for receiving and sending real-time messages with FME Server.

Incoming messages can be used to trigger a translation, and outgoing messages can be sent in response to a particular state in a translation.

Handling messages in this way permits FME Server translations to be triggered by – for example – sensors, which monitor a process and deliver a message once a particular event occurs. FME Server can then manipulate that message spatially (within a workspace) and pass on a notification to a user, for example on a mobile device such as a cellphone.

### Exercise 5.a: Notifications and Real Time Data

Exercise 5.a: Notifications and Real Time Data	
Scenario	FME Server Author
Data	Parks (MapInfo TAB)
Overall Goal	Create a notification system that responds to an email by running a workspace
Demonstrates	Real Time Data Processing with the Notifications Service

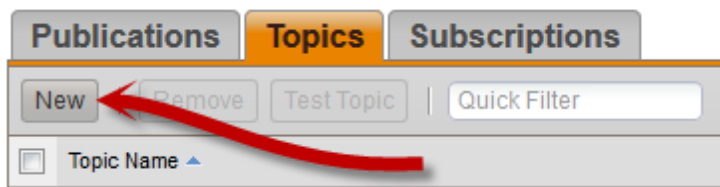
In this exercise, imagine that you are a GIS technician working for a city planning department. You've been asked to set up a service where the public is provided with a list of parks in their neighbourhood. You decide to set this up using the FME Server Notification Service.

#### 1) Create Topics

In your web browser, navigate to the tutorial server (<http://server-tutorial-safe-software.fmecloud.com>) and log in with the same credentials as before.

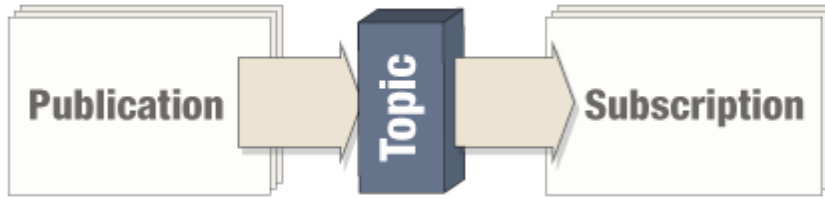
Click on the menu item labelled "Notifications." This opens the parameters for the Notifications Service, at first in the Topics tab.

A topic is a theme or subject of notification. We'll need to create two topics; one for incoming messages and one for outgoing. Click the New button.







Create a topic with the name "<YourName>-Incoming." It's important to use your name to create a unique topic name. Otherwise you'll get alerts from other users' notifications.

## Create a New Topic to Publish or Subscribe to



Topic Name:

Description: 

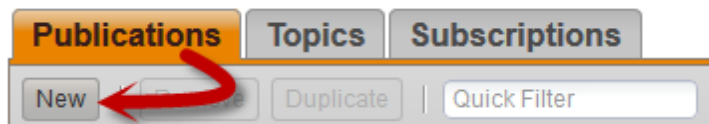
Helvetica Neue | **B** *I* U A<sup>+</sup> A<sup>-</sup>  ab    >>

This topic is for the FME Server tutorial

Click OK to create the topic. Now click the new button again and create a second topic called "<YourName>-Outgoing."

### 2) Create Publication

Click on the Publications tab and then click the New button:



Create a publication called "<YourName>-Publication." The topic to publish to is <YourName>-Incoming and the Protocol is Email. Enter <YourName> as the Email User Name:

## Create a New Publication



Publication Name:

Topics to Publish To:

Protocol:

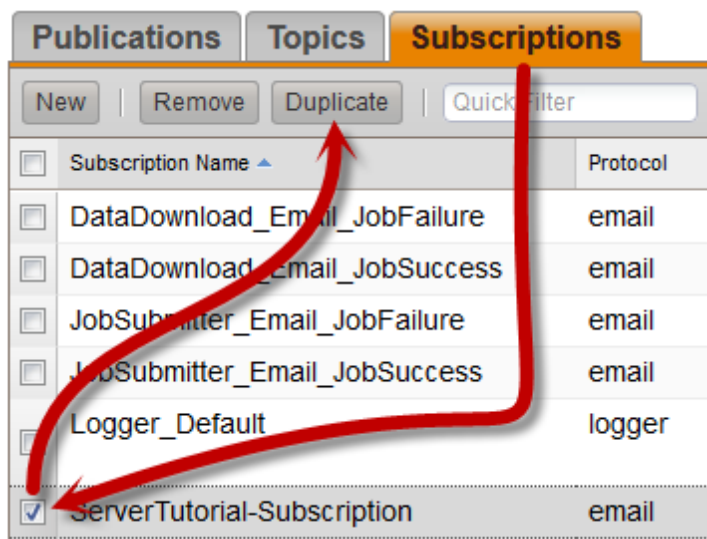
Email User Name:

This means that the topic <YourName>-Incoming will be triggered when you send an email to <YourName>@server-tutorial.safe-software.fmecloud.com.

### 3) Create Subscription

Now click on the Subscriptions tab and locate an existing Subscription called ServerTutorial-Subscription.

Click the check box next to this and then choose the Duplicate button:



This will create a new notification, with all of the existing settings, and just a few to change.

Enter <YourName>-Subscription as the subscription name.

Remove the existing topic, and instead choose <YourName>-Outgoing.

For the Email To, enter your own email address.



Subscription Name:  ←

Topics Subscribed To:    
 ←

Protocol:

SMTP Server:

SMTP Server Port:

SMTP Account:

SMTP Password:

Connection Security:

Email To:  ←

Email Cc:

Email From:

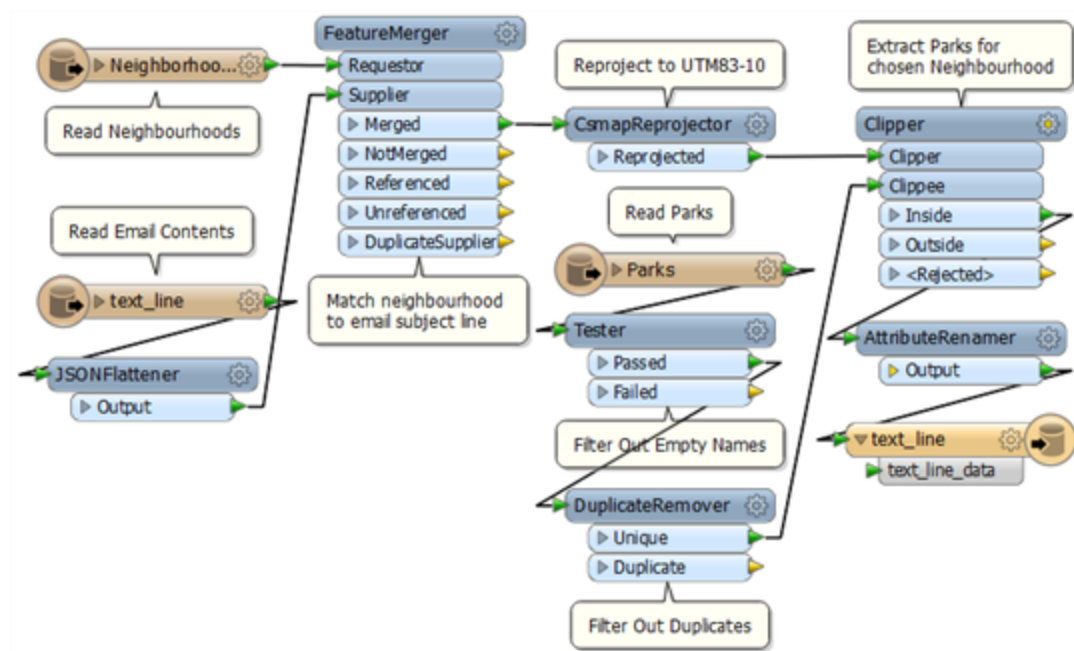
Email Subject:

Email Format:

This means that the topic <YourName>-Outgoing, when triggered, will cause an email to be sent to you.

#### 4) Open Workspace

Start FME Workbench. In the Getting Started section of the Workbench Start page, click on the Open option. Open the workspace *C:\FMEData2014\Workspaces\ServerTutorial\Exercise5a-begin.fmw*.



Notice that this workspace reads an email, and uses the subject line of the email to filter a set of Neighbourhood features. A Clipper transformer is used to determine which parks are located inside (or overlap) the chosen neighbourhood.

#### 5) Publish to FME Server

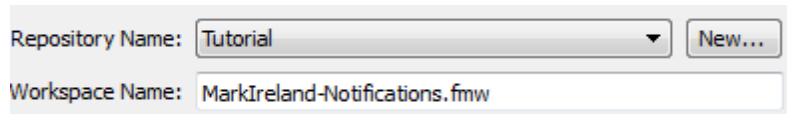
Let's publish the workspace to FME Server, setting it up to interact with the newly created notifications while we do.

Click **File > Publish to FME Server** on the Workbench menubar.

When prompted in the publishing wizard, select a Web Connection and enter the same parameters as before:

- URL:** <http://server-tutorial-safe-software.fmecloud.com/fmeserver>
- User name:** Tutorial
- Password:** TruthAndBeauty

Click the Next button. Next select the Tutorial repository in which to store the workspace. Rename the workspace to <YourName>-Notifications.fmw.



Click the button labelled "Resources." In the Resources dialog click the Edit button next to the Google Earth source data parameter and check the option marked "Upload to Repository"

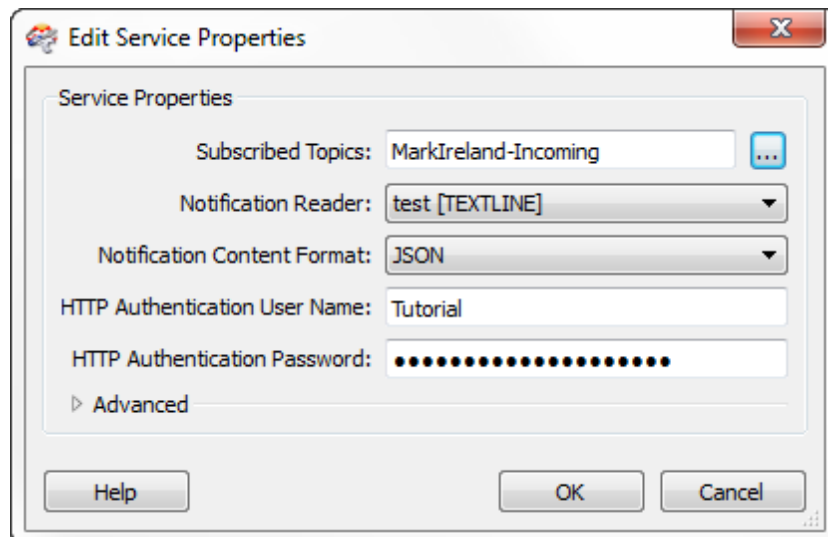
Now click the Edit button for the MapInfo TAB file and check the same option. There is no need to do the same for the Text File, as its content will come from a notification email.

Click OK, and then OK again to return to the publishing wizard. Then click the Next button.

The final step is to register what services to record the workspace against. This time check Job Submitter and Notification Service. Click the Edit button for the Notification Service to open a dialog for editing its parameters.

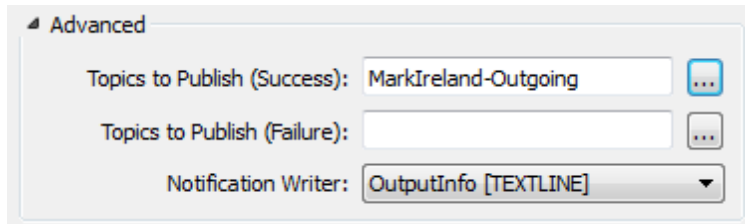
The Subscribed Topic will be <YourName>-Incoming, so that when the topic is triggered by an email, the workspace will run. Set test [TEXTLINE] to be the Notification Reader (i.e. the email content will be sent to that Reader) and leave the Content Format as JSON.

Enter your authentication details as before:



Now open the advanced parameters. Set the Topic to Publish (Success) as <YourName>-Outgoing. Set the Notification Writer to OutputInfo [TEXTLINE].





What this does is tie the workspace into the Notifications. When <YourName>-Incoming is triggered, the workspace will be run to create a list of parks. When it is complete, the <YourName>-Outgoing topic is triggered in order to send out an email.

Click OK and then Publish to finish publishing the workspace to FME Server.

### 6) Monitor Notification

In your web browser, navigate to the tutorial server (<http://server-tutorial-safe-software.fmecloud.com>) and log in with the same credentials as before. Select the menu option Monitoring. Choose the topics <YourName>-Incoming and <YourName>-Outgoing to monitor.

Home > Monitoring

## Topic Monitoring

Stop Monitoring Clear

Topics to Monitor:

× MarkIreland-Incoming × MarkIreland-Outgoing

Total: 0 Shown: 0

Quick Filter

Waiting for Notifications...

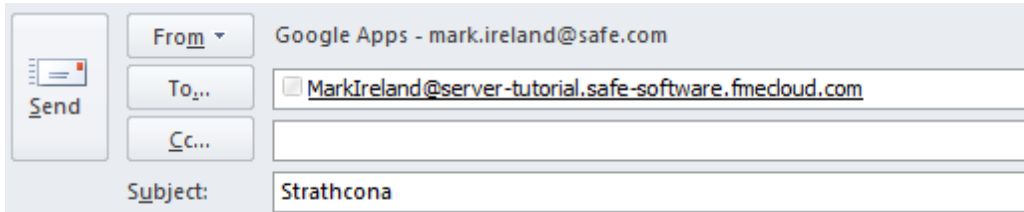
### 7) Run Process

Send an email to <YourName>@server-tutorial.safe-software.fmecloud.com

The Subject line should be the name of a neighbourhood in Vancouver. Possible ones are:

- Kitsilano
- FairviewWest End
- Downtown

- Strathcona
- Mount Pleasant



When the email arrives <YourName>-Publisher triggers the <YourName>-Incoming topic. This is shown in the monitoring page.

```
MarkIreland-Incoming arrived a few seconds ago at 15:40:27
-----
{
  "fns_type": "email_publisher",
  "email_publisher_content_type{1}": "text/html; charset=ISO-8859-1",
  "email_publisher_to": "MarkIreland@server-tutorial.safe-software.fmedcloud.com",
  "email_publisher_content_type{0}": "text/plain; charset=ISO-8859-1",
  "email_publisher_received": "Wed Dec 04 21:40:10 UTC 2013",
  "email_publisher_sent": "Wed Dec 04 21:40:10 UTC 2013",
  "email_publisher_content{1}": "<html><head><meta http-equiv='Content-Type' content='text/html; charset=ISO-8859-1' /></head><body><div style='font-family: sans-serif; font-size: 10pt; margin: 0; padding: 0;' /><div style='border: 1px solid black; padding: 5px;' /><div style='float: left; width: 50%; padding-right: 10px;' /><div style='float: right; width: 45%; padding-left: 10px;' /><div style='clear: both;' /></body></html>
  "email_publisher_content{0}": "\r\n",
  "email_publisher_from": "mark.ireland@safe.com",
  "email_publisher_subject": "Strathcona"
}
```

The uploaded workspace runs (because it was tagged to listen for <YourName>-Incoming) and searches for parks in the neighbourhood specified in the email subject line. When it is complete triggers the <YourName>-Outgoing topic. :

MarkIreland-Outgoing arrived a few seconds ago at 15:40:30


-----  
Thornton Park  
Evans Yard Park  
Strathcona Park  
MacLean Park  
CRAB Park at Portside  
Wendy Poole Park  
Oppenheimer Park

<YourName>-Subscription now starts and sends an email out with the results of the workspace.

### List of Parks

fmeservertutorial@gmail.com

Sent: Wed 04/12/2013 3:41 PM

To:  mark.ireland@safe.com

-----  
Thornton Park  
Evans Yard Park  
Strathcona Park  
MacLean Park  
CRAB Park at Portside  
Wendy Poole Park  
Oppenheimer Park



### ***Congratulations! You have now:***

- *Created FME Server topics to handle incoming and outgoing notifications*
- *Created an FME Server Publisher and Subscriber to trigger topics*
- *Published a workspace to use the Notification Service*
- *Run the workspace by sending an email and received an email in return*

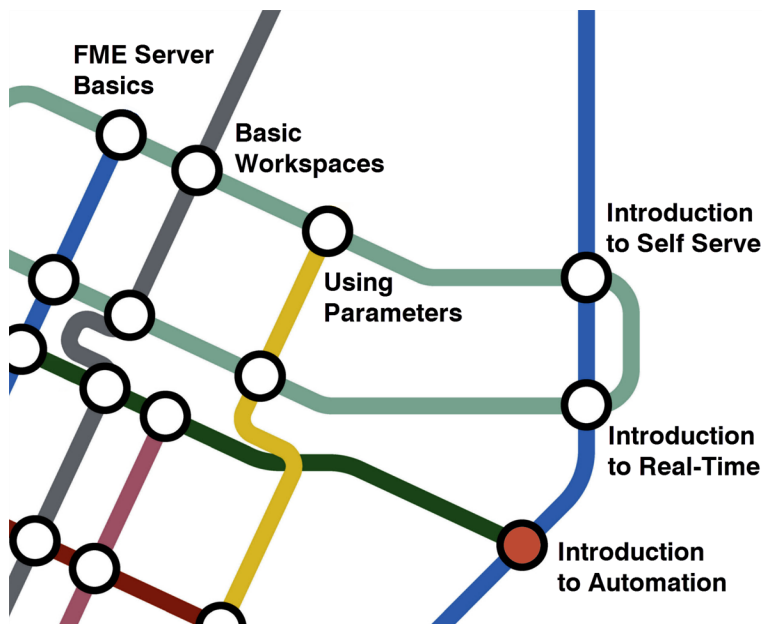
## Conclusion



***This chapter is part of a larger tutorial document.***

## Next Step

Now that you have completed this chapter, your next step in the FME learning program is to continue to the next chapter, [Introduction to Automation](#).



## Getting help

FME Workbench includes extensive, context-sensitive help. For assistance with a tool or format, click the item and then press F1 to open the help system.

## Further Resources

Below is a list of other technical resources to help you make the most of FME and FME Server.

## Sales

To obtain an evaluation copy or for sales enquiries, please contact your Safe Software Account Manager or [sales@safe.com](mailto:sales@safe.com).

## **Training**

Safe Software offers a number of training courses in FME Workbench and FME Server. For more information, see our website at <http://www.safe.com/training>.

## **Documentation**

The FME Server Administrator's Guide is available with every FME Server installation and online at our website: [FME Server Administrator's Guide \(HTML\)](#).

## **Technical Resources**

Many other resources for FME Desktop and Server can be located at <http://fmepedia.safe.com>.

## **Support**

If you need assistance with the tutorial or have any other technical questions about FME Server, please feel free to contact the FME support team through the contact form on their web site at: [www.safe.com/support](http://www.safe.com/support).

## Getting Started with Automation



***FME Server can be set up as an automated system to run translations at set times or in response to a request from FME Desktop***

### Scheduling

This chapter provides instructions for scheduling jobs to be run on FME Server.

Jobs can be scheduled from the FME Server web interface, so that they can be run at a specific time and date. They can be set up to run once or to run multiple times.

Jobs can also be activated directly from within FME Workbench - for example a workspace can be run in Workbench to test for certain conditions and then run a workspace on FME Server in response.

## Exercise 6.a: Workspace Automation

Exercise 6.a: Workspace Automation	
Scenario	FME Server Author
Data	Parks (PostGIS)
Overall Goal	Run a workspace to a set schedule or from within FME Desktop
Demonstrates	Workspace Automation

In this exercise, imagine that you are a GIS technician working for a city planning department.

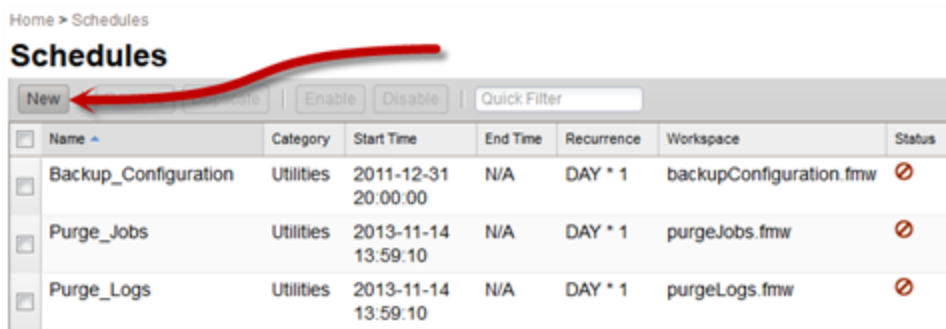
Daily work edits are committed to the database each day at a set time. You've been asked to set up FME Server to automatically process those edits to produce the correct output.

### 1) Create Schedule

In your web browser, navigate to the tutorial server (<http://server-tutorial-safe-software.fmecloud.com>) and log in with the same credentials as before.

Click on the menu item labelled "Schedules." This opens the parameters for the scheduling service.

Click the New button.



Create a schedule with the name "<YourName>-Schedule." It's important to use your name to create a unique name. Select (or enter) Tutorial as the Category. Enter a description if you wish.

Home > Schedules > New Schedule

### Create a New Schedule

**Overview**

Name:

Category:

Description:

Enabled:  true

For the workspace select the Tutorials repository. Select the Exercise2-Begin.fmw workspace. The 'Topics to Publish' part can be left as it is (empty).

**Workspace Executed**

Repository:

Workspace:

**Topics to Publish to**

on Success:

on Failure:

For the Schedule itself, click the check box to run the task immediately. To get a result that can be quickly proved to work, set 'Repeat Unit' as seconds and end 15 as the interval. Uncheck the 'End Date' Never box. In the section provided enter the current date and a time about 3 or 4 minutes into the future:



**Schedule**

Start Date:  Immediately  
2013-12-07 02:00

Repeats:  Interval Based  
 CRON Expression  
 Only Occur Once

Repeat Unit: SECOND

Interval: 15

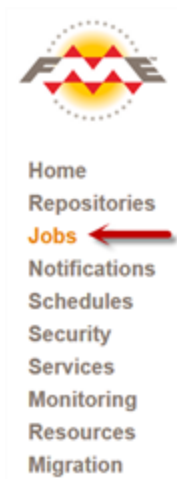
End Date:  Never  
2013-12-06 10:10

Note that this recognize your own local time. Just be sure not to let it run continuously!

Click OK to create the schedule.

## 2) Check Logs

To prove that the workspace is running on schedule, click on the Jobs entry in the menu:



Look under the Completed tab for evidence that the jobs are running successfully:

Home > Jobs

### Jobs

Completed Queued Running

Remove Remove All

id	Status	Engine	Time Started	Time Finished	Priority	Repository	Workspace
42	✓ SUCCESS	Engine4 on ip-10-140-76-194	2013-12-06 10:08:54	2013-12-06 10:08:55	100	Tutorial	Exercise2-Begin.fmw
41	✓ SUCCESS	Engine4 on ip-10-140-76-194	2013-12-06 10:08:39	2013-12-06 10:08:40	100	Tutorial	Exercise2-Begin.fmw
40	✓ SUCCESS	Engine4 on ip-10-140-76-194	2013-12-06 10:08:24	2013-12-06 10:08:26	100	Tutorial	Exercise2-Begin.fmw

**NB:** It's unlikely you'll see a job under the Queued or Running tabs, as the workspace only takes a second to run.

### 3) Check Schedule

Once the schedule is complete the jobs should stop being processed.

Return to the Schedules dialog and you will find that the completed schedule has been removed.

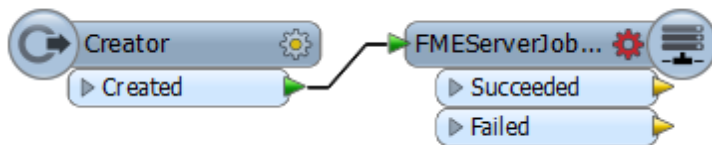
### 4) Create Workspace

Another way to running a workspace on FME Server is via FME Desktop. Taking the same scenario as above, you wonder whether, if database changes are committed via FME Desktop, can that same workspace trigger the FME Server process?

Start FME Workbench. In the Getting Started section of the Workbench Start page, click on the Blank Workspace option. A new (empty) workspace is now created.

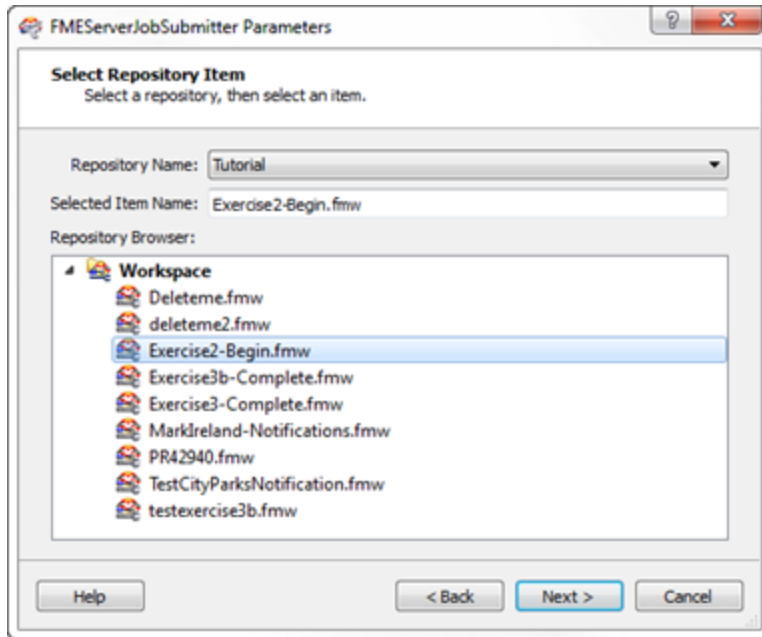
### 5) Add Transformers

Add a Creator transformer to the workspace by typing "**Creator**" on the canvas. Repeat the process to add an FMEServerJobSubmitter transformer.



Open the FMEServerJobSubmitter parameters dialog. Enter your authentication details as if you were publishing the workspace and click Next.

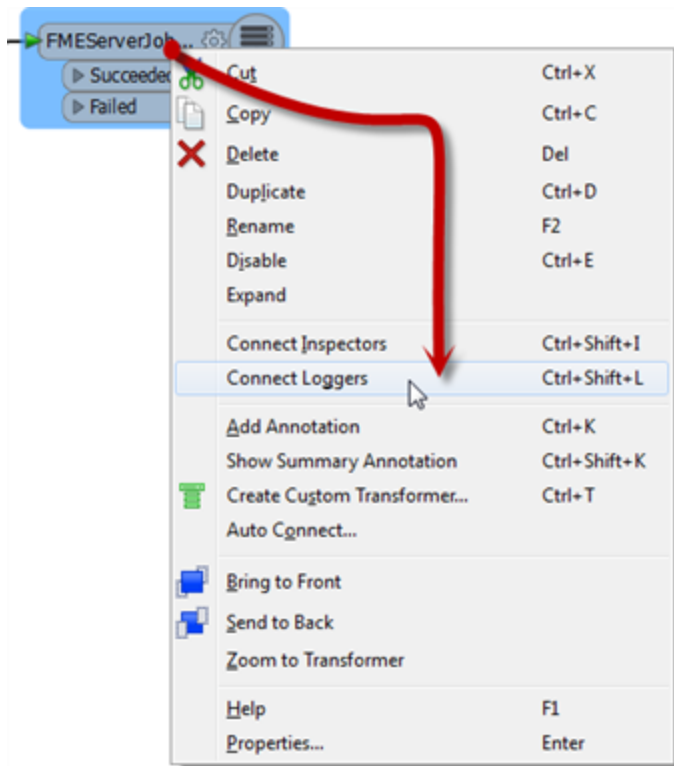
Now select the Tutorials repository. Select the workspace *Exercise2-Begin.fmw*.



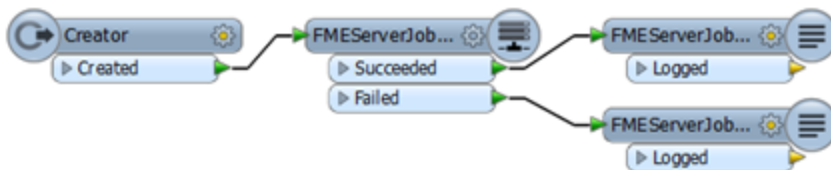
Click Next. A Job Parameters dialog will open up. These can be left as the default values. Click Finish to close the dialog.

## 6) Log Workspace

In the Workbench canvas, right-click on the FMEServerJobSubmitter transformer. Choose the option to Connect Loggers.



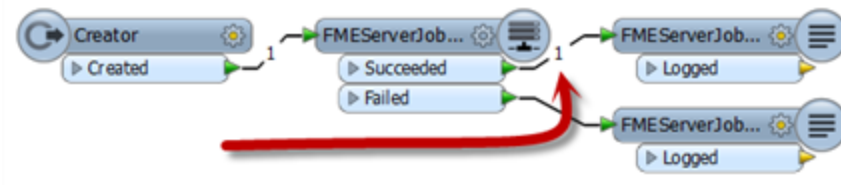
Logger transformers will be added to the workspace.



These will help us track what is happening when the workspace is run.

### 7) Run Workspace

Press the Run button to run the workspace. The workspace will cause the chosen translation to run on FME Server and a feature should emerge from the Succeeded port of the FMEServerJobSubmitter.



In FME Server check the Jobs (Completed) dialog. The workspace that was just run will have an entry in the list.

**Congratulations! You have now:**

- Set up an FME Server schedule and run a workspace with it
- Created an FME workspace to run an FME Server translation