

FME[®] Server Tutorial



Safe Software Inc. makes no warranty either expressed or implied, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose regarding these materials, and makes such materials available solely on an "as-is" basis.

In no event shall Safe Software Inc. be liable to anyone for special, collateral, incidental, or consequential damages in connection with or arising out of purchase or use of these materials. The sole and exclusive liability of Safe Software Inc., regardless of the form or action, shall not exceed the purchase price of the materials described herein.

This manual describes the functionality and use of the software at the time of publication. The software described herein, and the descriptions themselves, are subject to change without notice.

Copyright

© 1998 – 2009 Safe Software Inc. All rights are reserved.

Revisions

Every effort has been made to ensure the accuracy of this document. Safe Software Inc. regrets any errors and omissions that may occur and would appreciate being informed of any errors found. Safe Software Inc. will correct any such errors and omissions in a subsequent version, as feasible. Please contact us at:

Safe Software Inc.
Suite 2017, 7445 – 132nd Street
Surrey, BC
Canada
V3W1J8

www.safe.com

Safe Software Inc. assumes no responsibility for any errors in this document or their consequences, and reserves the right to make improvements and changes to this document without notice.

Trademarks

FME[®] and SpatialDirect[®] are registered trademarks of Safe Software Inc.

All brand or product names mentioned herein may be trademarks or registered trademarks of their respective holders and should be noted as such.

Documentation Information

Document Name: FME Server Tutorial
Version: FME Server 2010
Updated: June 2010

Contents

- Chapter 1 Getting Started..... 1**
 - Prerequisites and assumptions..... 1
 - Previous experience 1
 - Software requirements 1
 - To start FME Server 2
 - To change the port 2
 - Enabling installed services 2
 - To enable installed services..... 2
 - Installing sample and template workspaces 2
 - To add sample workspaces 3
 - To add template workspaces 3
 - Getting help..... 3

- Chapter 2 FME Server Basics 4**
 - What’s FME Server? 4
 - Interacting with FME Server 4
 - How FME Server uses source and destination datasets 5
 - Source datasets 5
 - Destination datasets 5
 - Making data accessible 6
 - Downloading the training data 6
 - Navigating the User Home page..... 6
 - Making parameters available to FME Server users 8
 - Published parameters..... 8
 - Publishing a workspace that contains a published parameter..... 9

- Chapter 3 Delivering Data to Your Users 12**
 - Scenario and example 12
 - Data uploads from an author’s perspective 14
 - When to upload as an author 14

- Chapter 4 Letting your Users Upload File-based Datasets 15**
 - Uploading data as a user15
 - When to use upload as a user.....15
 - Scenario and example16

- Chapter 5 Creating a KML Network Link Service 18**
 - About data streaming services.....18
 - What formats can be streamed?18
 - How does the KML Network Link service work?19
 - Creating a KML Network Link service19
 - Bounding boxes.....19
 - Scenario and example20

- Chapter 6 Managing the Administration Tasks 22**
 - A few words about security22
 - Opening the Administrator’s Home page23
 - Accessing services23
 - Administering the repositories24
 - Managing repositories and workspaces25
 - Scenario and example25
 - Deleting a repository.....26
 - Managing jobs.....27
 - Scenario and example27

Chapter 1

Getting Started

This tutorial is designed specifically for use with FME[®] Server 2010 and FME Desktop 2010. Some of the functionality described may not be available when used with older FME versions.

Before you begin, you can see several FME Server examples located at [fmepedia](#).

Prerequisites and assumptions

You need to meet a number of prerequisites before working through this document.

Previous experience

It is assumed that you have a basic understanding of FME Workbench before you proceed with this tutorial.

Software requirements

It is assumed that you have installed the following software:

- a web server
- a servlet engine
- Google Earth
- FME Server and FME Desktop on the same computer
- FME Desktop is an additional product and is required to perform this tutorial. You can download it from www.safe.com.
- For specific instructions about installing FME Desktop, see the [FME Installation and Licensing Manual](#).
- FME requires administrative privileges to install. This may require assistance from your system administrator.

For specific instructions, see Chapter 2 *Before You Begin* in the [FME Server Administrator's Guide](#).

FME Server, your web server, and a servlet engine must be started before you continue.

To start FME Server

1. Click **Start > Run**.
2. Enter **services.msc**.
3. Click **OK**.
4. On the Services window, right-click **FME Server** service and select **Start**.
5. If you're using Apache Tomcat, start it by right-clicking the **Apache Tomcat** service and selecting **Start**.

To change the port

It's assumed that your FME Server is configured to serve web pages through port 80.

If this is not the case, you need to adjust the URLs in this tutorial to match your environment.

For example, if your servlet engine listens on port 8080, then you need to change:

```
http://<Host>/fmeserver/
```

to:

```
http://<Host>:8080/fmeserver/
```

Enabling installed services

If any services were installed, you need to enable them so they're known to the FME Server repository. When enabled, these services are available to Workbench and from the User Home page.

To enable installed services

1. Ensure that FME Server is started and running as recently described under the heading "To start FME Server".
2. Click **Start > All Programs > FME Server > Install > Enable Installed Services**.

Installing sample and template workspaces

Adding these workspaces to your FME Server repository makes them available:

- for configuring and running from the Web User Interface
- to FME Workbench for further editing as required

The sample workspaces operate on sample data included with FME Server. The template workspaces are used as starting points when you develop your own workspaces.

To work with this tutorial, ensure you've installed both the sample and template workspaces.

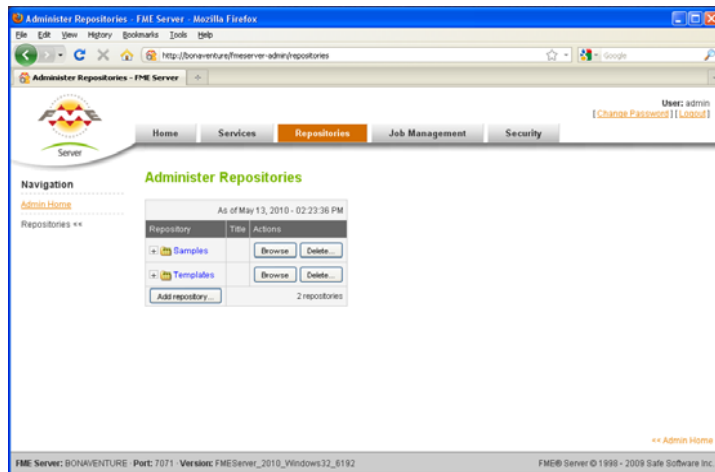
To add sample workspaces

1. Ensure that FME Server is started and running as recently described under the heading "To start FME Server" on page 1.
2. Click **Start > All Programs > FME Server > Install > Add Sample Workspaces** to add the sample workspaces associated with each web service.

To add template workspaces

1. Ensure that FME Server is started and running as recently described under the heading "To start FME Server" on page 1.
2. Click **Start > All Programs > FME Server > Install > Add Template Workspaces** to add the template workspaces.

When you open the Administration Home page, these added workspaces are available to you from the **Administer Repositories** page, shown next.



Getting help

FME products include extensive, context-sensitive help. If you require assistance with a tool or format, select the item and press **F1** to open the help system.

If you have questions regarding licensing or installation, please e-mail us at support@safe.com.

Chapter 2

FME Server Basics

This chapter describes the basic functionality of FME® Server, including how to use the Web User Interface. Starting with this interface lets you follow this tutorial from your user’s viewpoint.

What’s FME Server?

FME Server is an enterprise solution for deploying FME within an organization. FME Server lets you perform a wide array of FME-related tasks, including the following:

- Data distribution
- Live data streams
- Remotely run workspace translations
- Upload and validation
- Centralized data transformation

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.

For users who enabled security during their installation process, the information in this chapter reflects that choice.

Interacting with FME Server

Safe Software Inc. offers a number of clients you can use with FME Server, which include:

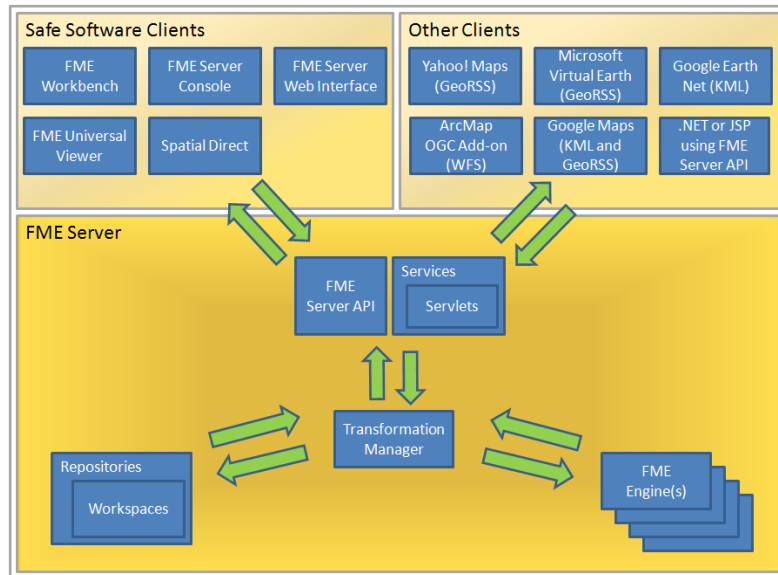
- FME Server Services
- FME Server Console
- Any application that uses the FME Server API

Safe Software clients that are available for FME Desktop include:

- FME Universal Viewer
- FME Workbench

One of FME Server’s great features is that you aren’t limited to the clients listed in the following illustration. You can create your own clients with one of the available APIs or use other clients. For example, Google Earth takes advantage of FME Server’s built-in Data Streaming service to request KML data.

The following illustration represents how you interact with FME Server.



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

FME Workbench is a component of the FME Desktop suite of products. Using Workbench, you can author and edit your data conversion workspaces, and then publish them to FME Server.

From FME Server you can use various services to deliver the published workspaces to your coworkers and to your customers.

How FME Server uses source and destination datasets

Source datasets

It's important to understand that when you push a workspace up to FME Server, that workspace still needs to have access to the source data.

If your source data is file-based, then FME Server must be able to find this data. This caveat also applies to databases. If your data is stored on a different server you need to use network paths to let FME Server access the data.

Microsoft's Universal Naming Convention (UNC)—that is, \\<Host>\SharedFolder\Resource—specifies a common syntax to describe the location of a network resource. This method is the best way to define shared directories or mapped drives for your source data in Windows. For more information see "Making data accessible" on page 6.

If you want your end-users to be able to alter the location of the source data, you must publish the parameter or end-users cannot change it. For more information, see "Making parameters available to FME Server users" on page 8.

Destination datasets

A destination dataset path is relative to FME Server. Again, for Windows users assigning a UNC path is the best way to define a shared folder to which FME Server can write.

It's important to remember that when the destination dataset path is published, your end-users can change it.

Destination datasets are only of concern when you're using the Job Submitter service. Services override the

destination data directories and place the data according to the rules defined within that service; for example, Data Download.

Making data accessible

One of the most important aspects to remember when you create workspaces for FME Server is that the datasets you use with a workspace must be accessible from the computer that's running FME Server.

There are two ways to achieve this and both require that you share the directories that contain the data. Do one of the following to make your data accessible:

- Use a standard drive-mapping convention on each computer and reference the datasets on these drives.
- Reference the datasets using UNC pathnames.

The second option is preferred because it avoids the problems that can occur when a computer uses a non-standard, drive-mapping convention.

Downloading the training data

You need the FME training data, which you can download from the Safe Software FTP site.

1. Browse to <ftp://ftp.safe.com/fme/training/>.
2. Click FME_Training_Data_v2010.zip.
3. Unzip it at the root of the [C] drive.

You now have a directory called C:\FMEData\ that contains sample data and workspaces.

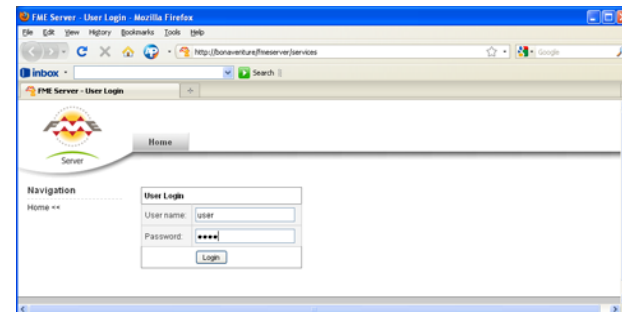
Navigating the User Home page

This tutorial focuses on administrators looking at FME Server from their user's perspective as a starting point.

The FME Server Web User Interface opens an easy-to-use User Home web page from which your users can run the workspaces you deliver to them.

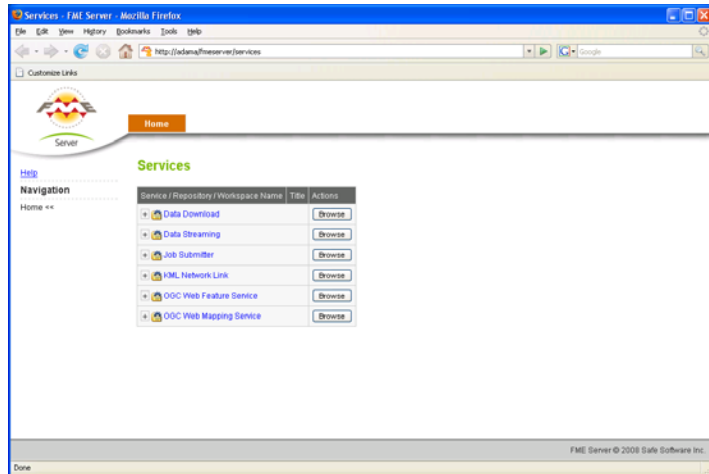
Workspaces are authored by a GIS specialist or created by an administrator. The administrator uploads the workspace to a service using the Admin Home page and your users open the User Home page to run the workspace.

1. Open the FME Server User Home page in one of the following ways:
 - From the Admin Home page, click the **User Home** link.
 - Open a browser and enter the following web address:
`http://<Host>/fmeserver`
 - Click **Start > All Programs > FME Server > Web User Interface**.
2. On the User Login dialog, enter your **User name** and **Password**; for example, type **user** for both (shown next).

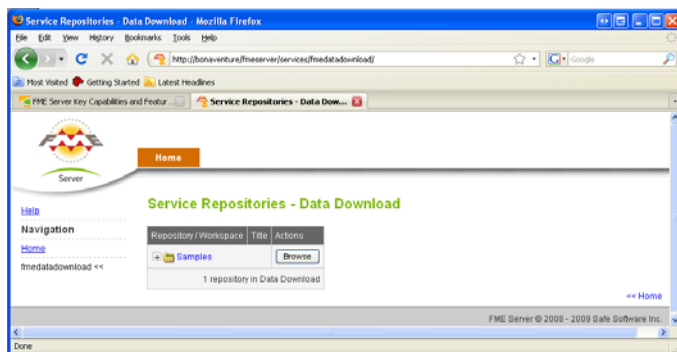


Click the **Login** button.

The User Home page opens showing a list of available services. From this page, your users can run workspaces from any of the services with which the workspaces are registered.

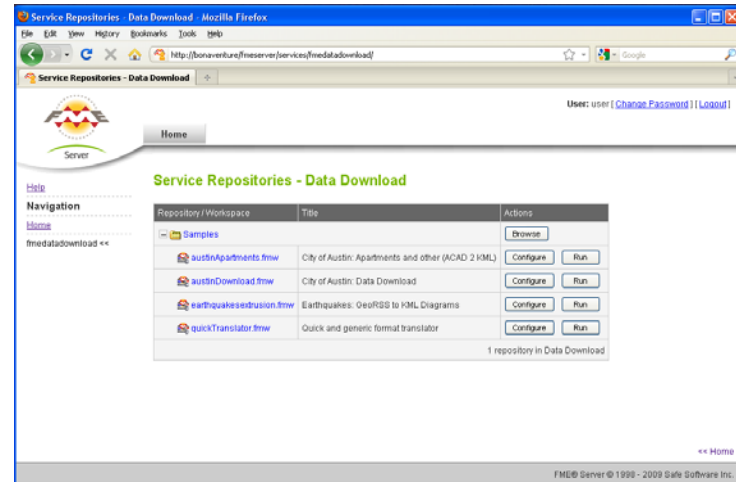


- 3. Click or expand the **Data Download** service, or click the **Browse** button, to view the repositories associated with this service. In this case, you see the **Samples** repository, shown next.

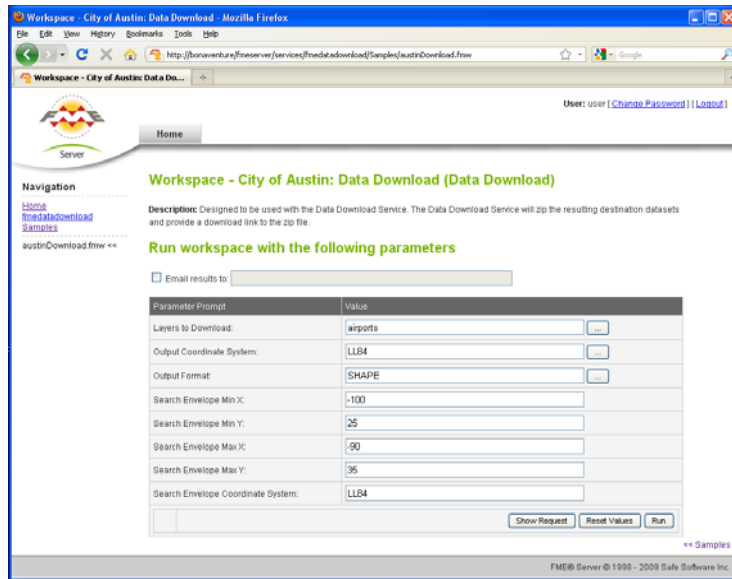


A repository is a method for categorizing workspaces. It holds a number of workspaces in the same way that a folder holds a number of files.

- 4. On this web page, expand the **Samples** repository to show the workspaces contained within it, shown next.



In the Samples repository, click the **austinDownload.fmw** workspace link to open a web page where you can configure and run this workspace, shown next.



5. The Data Download service provides your users with a link to a zip file that they can download.

For example, you can indicate that you want to be notified by e-mail message when translations are run.

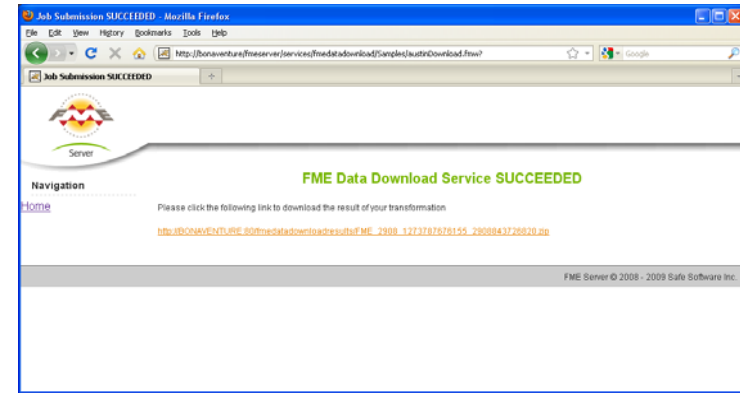
At the **E-mail results to** field, click the checkbox to enable e-mail notification upon successful translation and enter the e-mail address you want to have the results sent to.

Note: This functionality only works if you've provided a valid SMTP mail host when you installed FME Server. For more details, see the *FME Server Administrator's Guide*, Chapter 9, "Configuring Web Services".

6. On the Workspace web page you can specify the values of any published parameters. For the purposes of this step, however, you'll just run the workspace.

Click **Run**.

The translation runs and the next web page reports that it completed successfully (shown next).



See the link on this web page. If you didn't enable e-mail notification (see step 5), you're provided with a link that you click to download the result of your translation.

Making parameters available to FME Server users

Any parameter that authors publish in a workspace is available to their users on the FME Server User Home page.

Published parameters

Settings in FME are called parameters. Most parameters defined on the Workbench Navigator can be set as a published parameter. This ability includes:

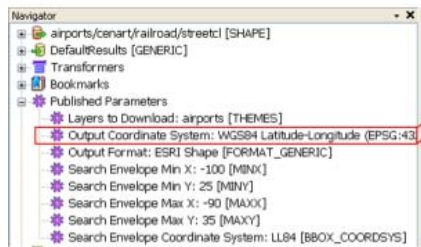
- control parameters at the Reader and Writer levels
- Feature Type parameters
- Transformer parameters
- most Workspace parameters

In workspaces that are intended for FME Server, published parameters help in the following two ways:

- Any FME Server client can query the workspace and determine what parameters are available.
- When your users run a workspace from FME Server, they can set any published parameter. This capability is one of most powerful things about FME Server!

For example, you could publish the destination Coordinate System parameter in Workbench. When your users run this workspace from the User Home page, they see the option to set the Coordinate System and can select the Coordinate System for destination data, shown next.

Published Parameters in Workbench

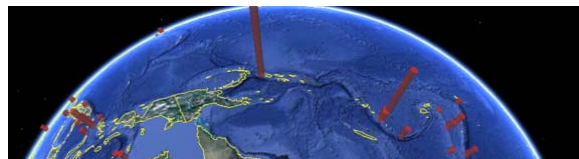


Published Parameters in FME Server

Parameter Prompt	Value
Layers to Download:	airports
Output Coordinate System:	LL84
Output Format:	SHAPE
Search Envelope Min X:	-100
Search Envelope Min Y:	25
Search Envelope Max X:	-90
Search Envelope Max Y:	35
Search Envelope Coordinate System:	LL84

Publishing a workspace that contains a published parameter

In this example, you'll work with an earthquakes extrusion dataset. At the end of this example, you'll view your results in Google Earth and compare them to the representation you began with, which is shown next.



Let's get started.

1. In FME Workbench, open the following workspace for editing:

C:\FMEData\Workspaces\FMEServerWorkspaces\AuthoringWorkspaces\Exercise 3 - Begin.fmw

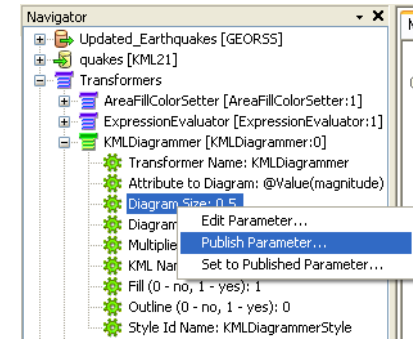
2. Save the workspace as:

<Desktop>\My Workspaces\earthquakesextrusion_3.fmw

3. Publish a Parameter

The workspace uses a custom transformer called *KMLDiagrammer*. The **Diagram Size** parameter controls the diameter of the shape that represents the earthquake.

- Locate the *KMLDiagrammer* transformer on the Navigator by expanding **Transformers > KMLDiagrammer**.
- Right-click the parameter **Diagram Size** and select **Publish Parameter** (right).



On the Navigator, the icon changes from green to purple, which indicates this parameter is published.

4. Now you're going to publish another parameter—**Diagram Shape** (0-circle, 1-square).

On the Navigator in the *KMLDiagrammer* transformer folder, browse to and select the **Diagram Shape** parameter, and publish it.

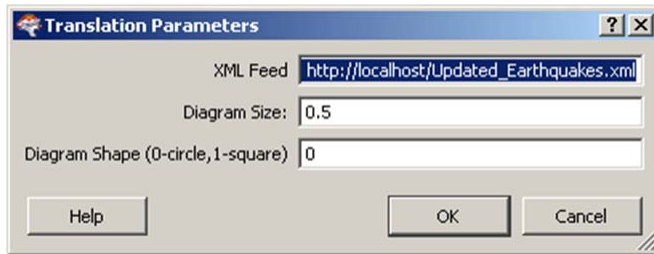
This parameter controls the shape used to represent the magnitude of earthquakes in the KML output.

- 5. Save the workspace.
- 6. Run the workspace

Before publishing your workspace it's considered a best practice to run it from Workbench to see if there are any errors.

Instead of using the default **Run Translation** button, you can view and edit the published parameters by using **Prompt and Run Translation**.

Set the published parameters (shown next) in Workbench by clicking **File > Prompt and Run Translation**, which opens the Translation Parameters dialog.



Click **OK**.

- 7. Publish to FME Server

If everything ran correctly and the correct parameters were published, from the Workbench menu bar select **File > Publish to Server**.

Step through the wizard as instructed in these steps:

- a. Set these connection parameters.

Note: Your values for port number, username, and password may differ.

Host Name: <Host>
Port Number: 7071
Username: author
Password: author

Click **Next**.

- b. Create a new repository

By putting the workspace in your own repository you avoid any potential for overwriting the copy of the workspace in the installed repository. Put all workspaces you create throughout the disaster response (which is the scenario used throughout this tutorial) in this repository.

Repository Name: Click **New** and create a repository called **AustinEarthquake**.

Workspace Name: earthquakesextrusion_3.fmw

- c. Upload the files

You do not need to upload any files, therefore click **Next**.

- d. Register the workspace with a service

In this case, let's just register with the **Job Submitter** service and click **Publish**.

Check the FME Workbench Log window to confirm the workspace was published successfully.

- 8. Run the workspace on FME Server

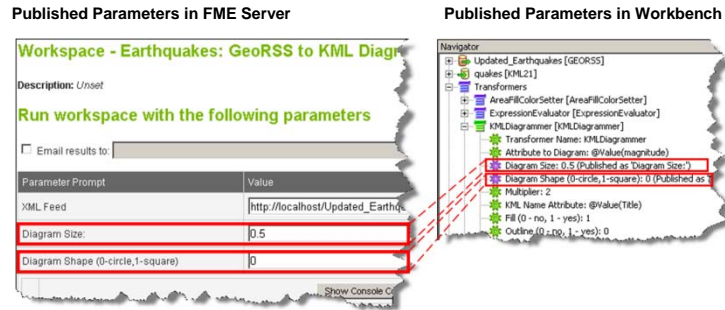
Enter the URL to your FME Server in a web browser: <http://<Host>/fmeserver>

Navigate to:

Job Submitter > AustinEarthquake > earthquakesextrusion_3.fmw >

Click the **Configure** button.

Setting the parameters and running the translation from within the FME Server User Home page is shown next. The same published parameters are shown for Workbench as well.



Notice how the Configure page has fetched the published parameters in your workspace dynamically, including **Diagram Size** and **Diagram Shape** (0-circle,1-square).

Set the **Diagram Size** to a value of **0.04** and the **Diagram Shape** to a value of **1**.

Run the workspace by clicking the **Run** button.

9. Open the KML file in Google Earth

After the workspace is run, the resulting KML file is placed in the destination directory:

```
C:\FMEData\Output\TrainingModule3\quakes.kml
```

Open this KML file using Google Earth and zoom to the data. Compared to the earthquakes extrusion dataset shown at the beginning of this exercise, you should see a change in the size and shape of the symbols that represent earthquakes.

Caution: In a distributed server environment this path is more likely to be a shared path; for example, UNC in Windows. This enables FME Server to write the files to directories that are not local to the installation.

You've just published a dataset that both your coworkers (internal end-users) and your outside customers (end-users) can change using FME Server.

Chapter 3

Delivering Data to Your Users

Often administrators provide data to both customers outside of their organization (end-users) and internal customers (coworkers). The FME® Server Data Download service works well for delivering data to your end-users; whereas the Job Submitter service is a good one to use for delivering data to your coworkers.

Scenario and example

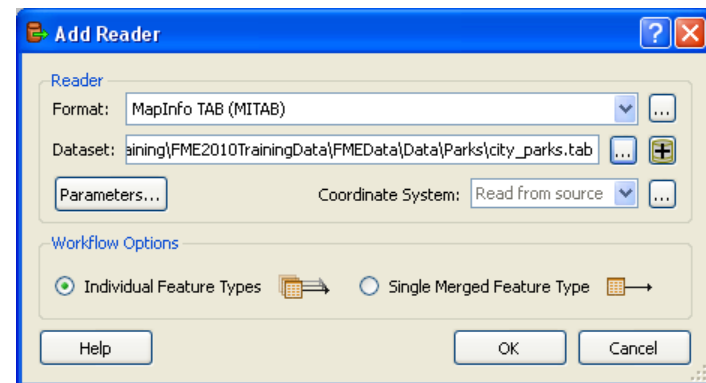
In this example, you start off as a GIS professional who has created and is now publishing a workspace to FME Server.

This workspace lets your users see parks where they can set up emergency centers in an area that's experiencing an earthquake. In this example, the source data is provided by the administrator on a shared network drive.

1. Open the following workspace so you can edit it:
C:\FMEData\Workspaces\FMEServerWorkspaces\Authoring Workspaces\Exercise 5 - Begin.fmw
2. Save the workspace to the following location:
<Desktop>\My Workspaces\earthquakesextrusion_5.fmw

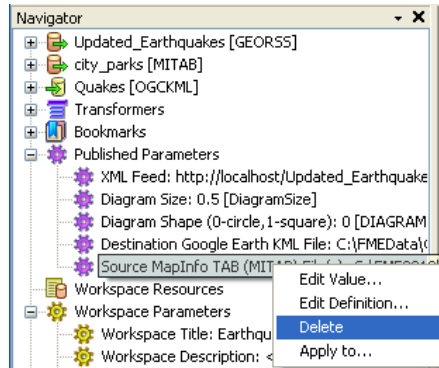
3. Add the Interopolis city parks dataset by selecting **Readers > Add Reader** from the Workbench menu bar. On the Add Reader dialog (shown next), enter the following parameters:

Reader Format: *MapInfo Tab (MITAB)*
Reader Dataset: *C:\FMEData\Data\Parks\city_parks.tab*
Workflow Options: *Individual Feature Types*



Click **OK**.

- Unpublish the source dataset parameter for the Source MapInfo TAB dataset by locating the published parameter on the Navigator and deleting it as follows. On the Navigator, expand **Published Parameters**, right-click the Source MapInfo TAB parameter, and select **Delete** shown next.



- Now you're going to create a new output (KML) feature type.

On the Workbench canvas, right-click the source **city_parks** dataset and select **Duplicate (On Writer)**, shown next.



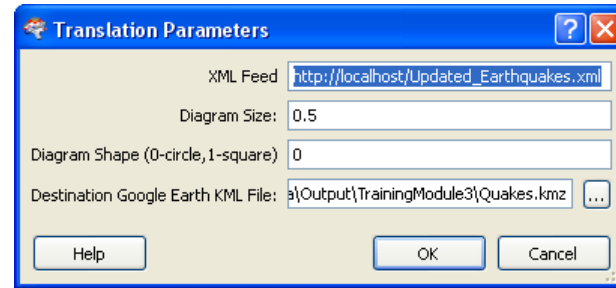
This action creates a new KML (destination) feature type with the schema copied over from the source dataset.

Change the name on the destination feature type to **City Parks**, shown next.



- Save the workspace.

- Run the workspace within Workbench using **File > Prompt and Run Translation**. This action opens the Translation Parameters dialog, shown next.



Click **OK**.

Look on the Navigator. The published parameters should show, whereas the Source MapInfo TAB (MITAB) Files should not show.

- Start the Publish to FME Server wizard and publish this workspace to the Job Submitter service on FME Server following these steps:
 - From Workbench, publish the workspace to FME Server by selecting **File > Publish to FME Server**.

On the Connect to FME Server page set these parameters:

Host Name: <Host>
Port Number: 7071
Username: author
Password: author

Click **Next**.

Note: Your values for port number, username, and password may differ.

On the Publish to FME Server page, set the following parameters.

At the **Repository Name** field, click the **New** button and enter the following:

Repository Name: AustinEarthquake

Back on the Publish to FME Server page continue setting this parameter if it's not already showing:

Workspace Name: *earthquakesextrusion_5.fmw*
Click **Next**.

- b. The Upload Files page opens where you're prompted to upload the source data. Because the data is on the same computer, you don't need to set anything here. Click **Next**.
- c. On the Register Workspace Services page, click the **Data Download** service and clear any others. Click **Publish**.

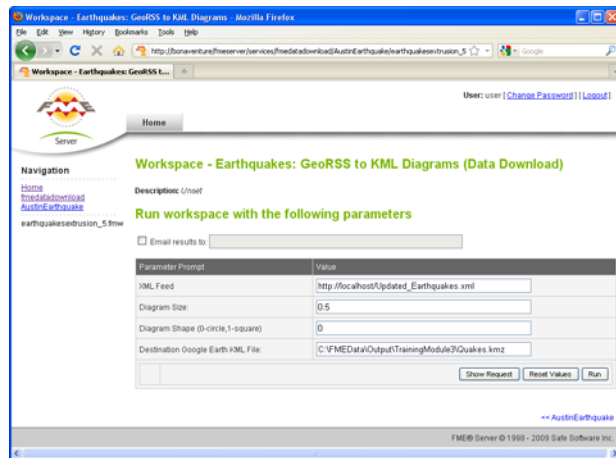
The data is now on FME Server, under the Data Download service.

- 9. Browse to the workspace by opening the FME Server User Home page by using the Windows Start menu shortcut or by entering the following URL in your browser:

`http://<Host>/fmeserver`

Log in using **user** for both the **Username** and **Password**, if appropriate.

Navigate to **Data Download** service > **AustinEarthquake** > **earthquakesextrusion_5.fmw**.



10. Run the workspace.

11. You'll see a link to a zipped file, which you need to unzip.

12. Using Google Earth view the output you just unzipped.

Data uploads from an author's perspective

When a workspace's source dataset is published to FME Server from Workbench, there's an option to upload the source data. This upload functionality is required to ensure that the source data can be made accessible to FME Server if it cannot be placed in a shared directory or on a network drive.

The upload functionality only works for workspaces using file-based sources; that is, not databases.

Any parameter that's published in a workspace is available to your users through FME Server. When your users run a workspace using FME Server, they can set any published parameter.

When to upload as an author

You want to upload as an author when you want to achieve the following results:

- when you don't want your users to upload the source data at the client (such as Workbench)
- when you're not using shared paths for the source datasets, uploading as an author ensures that the data is still accessible when published to FME Server

Note: When you publish a workspace, if the source dataset parameter or any other resource is NOT published, then you receive a prompt to upload the source data using Workbench.

Chapter 4

Letting your Users Upload File-based Datasets

This chapter provides instructions for enabling your users to upload data (file-based datasets) from FME® Server using the User Home page. You can provide this ability to both your coworkers and your end-users.

It's important to remember that when you publish the source dataset parameter, you're putting control of the source dataset with your users.

Uploading data as a user

Giving your users the ability to upload data is extremely powerful. This ability puts the input for the translation under the control of your users.

This capability means that you can let non-technical users upload their own data to FME Server and provide it as an input to a workspace.

To enable your users to upload data, you need to publish the source dataset parameter in Workbench before you publish it to FME Server.

It's critical that the full source dataset is accessible to FME Server. For example, if your users are uploading a Shape file as the source dataset, they must upload all files that comprise the Shape file—that is, .shp, .shx, .dbf, and .prj files—not just the .shp file. If only a portion of the files are uploaded, the workspace does not run.

When to use upload as a user

There are two main reasons why you want to do this:

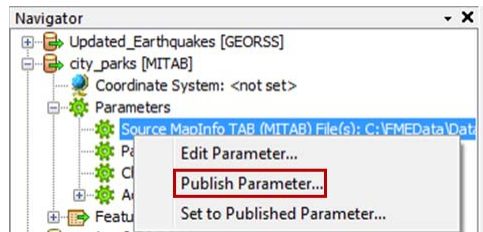
- lets your users upload their data for validation
- if the source dataset is file-based, this allows your users to run the workspace with the most up-to-date dataset without contacting the workspace author

Scenario and example

In this example, you continue your work as a GIS professional. However, now your customer wants to upload their own source data. This capability improves their efficiency because they don't have to rely on your department for the source data.

1. Open the following workspace so you can edit it:
C:\FMEData\Workspaces\FMEServerWorkspaces\Authoring Workspaces\Exercise 5 - Complete.fmw
2. Save the workspace to the following location:
<Desktop>\My Workspaces\earthquakesextrusion_6.fmw
3. Publish the source dataset parameter for the city_parks [MITAB] dataset in Workbench. On the Navigator expand the **Parameters** if needed.

Right-click the **Source MapInfo TAB [MITAB]** dataset and select **Publish Parameter**, shown next.



4. From Workbench, publish the workspace back to FME Server and register it with the Job Submitter service. Use the following connection parameters and repositories for the Publish wizard.

Note: Your values for port number, username, and password may differ from those shown next.

Host Name: <Host>
Port Number: 7071
Username: author
Password: author
Repository Name: AustinEarthquake

Workspace Name: earthquakesextrusion_6.fmw
Service: Job Submitter

Note: This time you don't need to upload the source data because your users are going to do that.

5. Upload the data

The workspace is ready to run on FME Server now.

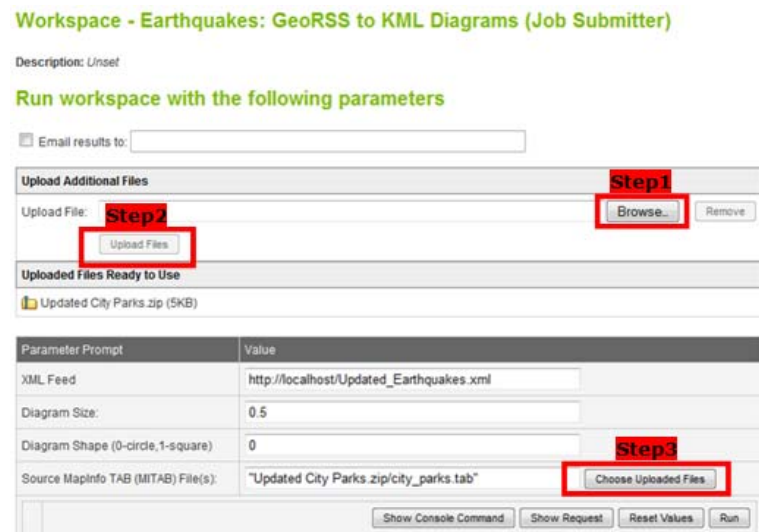
Step back into the role of your emergency services users —to run the workspace they need to upload the source data to FME Server.

Open the User Home page by entering the following URL to FME Server in your browser:

http://<Host>/fmeserver

Navigate to **Job Submitter** service > **AustinEarthquake** > **earthquakesextrusion_6.fmw**.

Click the **Configure** button, which opens the dialog shown next.



Note: The instructions that follow reference the step numbers provided above.

To upload the data, follow these steps:

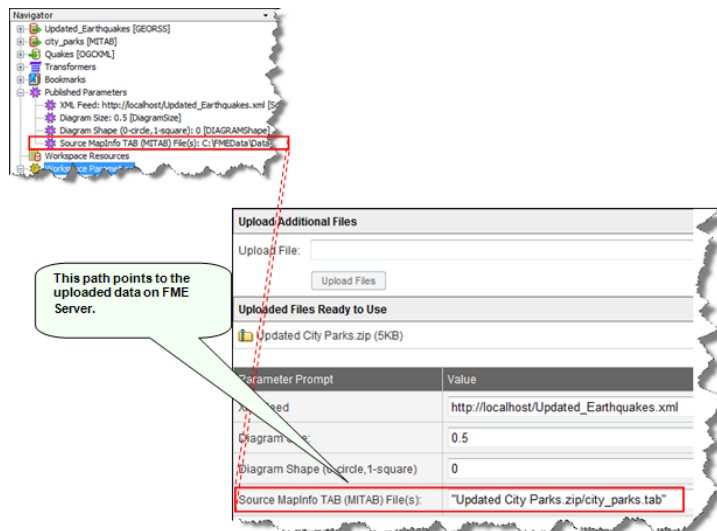
- a. Click the **Browse** button on the Upload Additional Files dialog (Step 1) and browse to the zipped files that contain the city parks data, as follows:

C:\FMEData\Resources\FMEServer\Updated City Parks.zip

- b. Click the **Upload Files** button (Step 2) to upload the data to FME Server using the Data Upload service.
- c. Click the **Choose Uploaded Files** button (Step 3) and select only the city_parks.tab file from the dialog. What's happening here is that you're obtaining the hidden path and associating the value with the source dataset values.

- 6. Now you're ready to run the job because the MapInfo source dataset parameter is populated with a series of relative paths that are pointing to the data you uploaded in the preceding step.

The source dataset's published parameter is visible in Workbench and on the FME Server User Home page, shown next.



Click **Run** to run the workspace with the uploaded data.

- 7. You can use Google Earth to view the resulting KML file:

C:\FMEData\Output\TrainingModule3\Quakes.kmz

Chapter 5

Creating a KML Network Link Service

The information covered in this chapter is a more advanced FME® Server topic.

Before working with the KML Network Link service, you need to understand FME Server's Data Streaming service and what formats you can stream.

Note: You can find several KML examples at [fmepedia](http://fmepedia.com).

About data streaming services

Data streaming services return the results of an FME workspace directly into a supported application.

Data streaming is a slight misnomer in that a data streaming service does not supply a continuous stream of data; it shows the data at a particular point in time.

The main difference between a data streaming and a data download service is that a data download service returns a web page (or XML or JSON format) that contains a link to the data. A data streaming service returns the data itself.

Therefore, when the URL for the service is posted into a client that actively downloads the contents on a regular

basis – as a GeoRSS reader would – then you have a feed, which is significantly different to a regular data download service.

What formats can be streamed?

You can use any workspace that writes a file as an output with the Data Streaming service. If the output file is comprised of more than one file, the service zips the data. For example, the AutoCAD DWG format can be streamed, whereas ESRI Shape is returned in a zipped file.

The most popular formats to stream are those that have a suitable client to read the feed.

Some of the main formats that are output using the data streaming services include:

- RSS
- GeoRSS
- JSON
- GeoJSON
- KML
- PDF

How does the KML Network Link service work?

A KML Network Link service runs an FME Server process that outputs a KMZ file, which is a zipped KML file.

This KML file contains no data other than a network link with a reference to the workspace on FME Server.

Whenever the KML browser opens or updates this network link, it causes the translation to run on FME Server and returns the output data. In this way the results are always as up-to-date as the update interval in Google Earth.

To be precise, in this scenario your users run a translation. Instead of the output being written to a permanent destination dataset, the resulting data is written to a cache.

An example of a KML Network Link file that refreshes every 60 seconds is shown next.

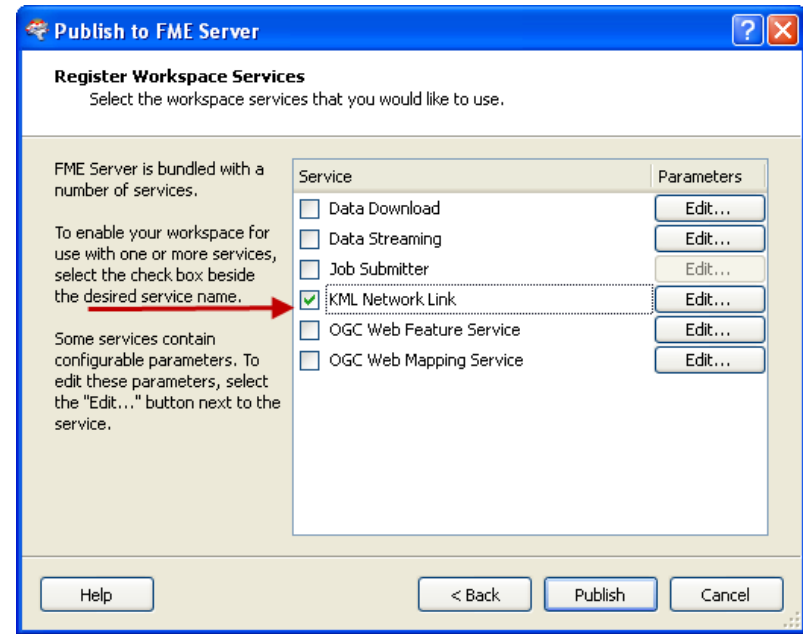
```

- <kml>
- <NetworkLink>
  <name>KML Link Translation: earthquakesextrusion.fmw</name>
  <visibility>0</visibility>
  <description>A KML Link document processed by FME Server</description>
- <Link>
  <viewRefreshMode>onRegion</viewRefreshMode>
  <viewRefreshTime>7</viewRefreshTime>
  <viewFormat>BBOX=[bboxWest],[bboxSouth],[bboxEast],[bboxNorth]</viewFormat>
- <href>
  http://localhost:80/fme/datastreaming/Samples/earthquakesextrusion.fmw?SourceDataset_GEORSS=http%3A%2F%2Fearthquake.usgs.gov%2Fearthquakecatalogs%2Fcatalogs%2Fcatalogs%2Fday-M2.5.xml%3F
  </href>
  <refreshMode>onInterval</refreshMode>
  <refreshInterval>60</refreshInterval>
</Link>
</NetworkLink>
</kml>

```

Creating a KML Network Link service

A workspace becomes available for use as a KML Network Link service when the author checks the **KML Network Link** checkbox in the FME Server Publishing Wizard, shown next.



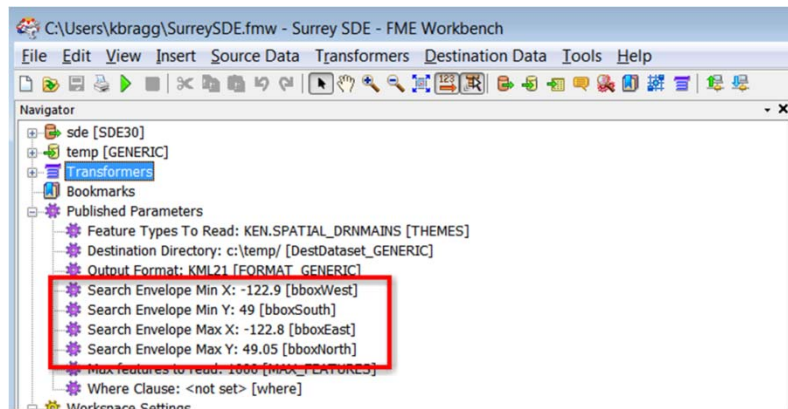
Bounding boxes

To retrieve only the data that's necessary, the service takes the bounding box of the data view in Google Earth and passes it to the workspace as the following set of published parameters:

- bboxWest
- bboxEast
- bboxNorth
- bboxSouth

The KML Network Link service is one of the services that requires the presence of a specific set of parameters in the workspace. Many FME readers—particularly database readers—have search envelope parameters. Therefore, when the workspace author uses the bounding box provided by the service to restrict the spatial extent of the data read, then the whole process becomes more efficient.

For example, if you use the SDE reader, you can publish the SDE **Search Envelope** parameters, shown next—carefully using the specific parameter names—so that only the area of interest is read.



Scenario and example

Let's carry our scenarios from earlier chapters further.

You want to provide a public feed that allows property owners to see which pipes are split. Because the dataset will be updated and you always want the public to be up-to-date, you've decided to produce a KML Network Link.

1. Open the following workspace:

C:\FMEData\Workspaces\FME Server Workspaces\Services\
Exercise 3 - Begin.fmw

2. Save the workspace to:

<Desktop>\My Workspaces\WaterPipesNetworkLink.fmw

3. You're going to update the Writer next.

To prepare the workspace for the KML Network Link service you need to make some small changes. Currently the writer is the Generic Writer, therefore you'll need to change this to the KML Writer.

Add a Google Earth KML Writer—on the Workbench menu bar, click **Writers > Add Writer**.

In the Add Writer dialog, enter the following parameters:

Format: *Google Earth KML*
Dataset: *C:\FMEData\Output\TrainingModule
WaterPipesDamaged.kmz*

Workflow

Options: *Static Schema*

When you receive the prompt that states: "The new dataset has been added. Would you like to add a new feature type to the dataset?", click **No**.

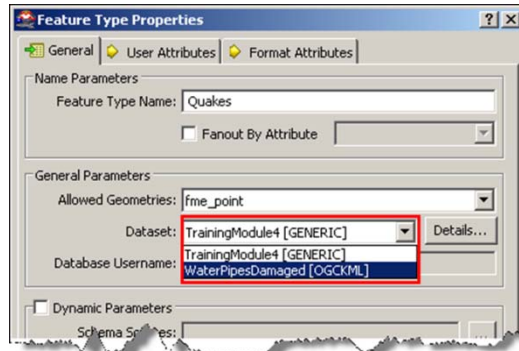
4. Associate feature types

A new KML writer has been added, however no feature types are associated with it. Follow these steps to do so:

- a. Open the Properties dialog for the Water Pipes writer shown next.
- b. Change the **Dataset** value from **TrainingModule4[GENERIC]** to **WaterPipesDamaged[OGCKML]**.

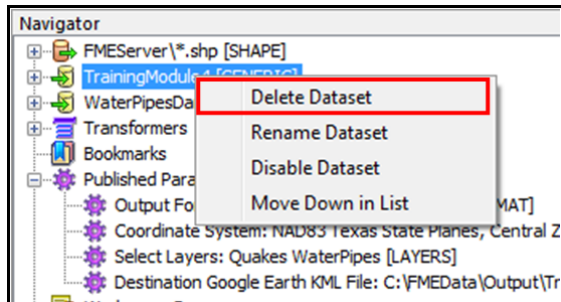


- c. Repeat this for the **Quakes** feature type, shown next.



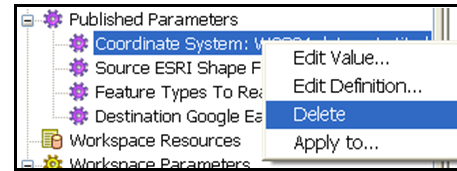
- 5. Now that you've re-associated the Feature types with the KML Writer, the Generic Writer is no longer required so you can delete it.

On the Navigator locate the **TrainingModule4 [GENERIC]** writer, right-click it, and select **Delete Dataset**, shown next.



- 6. The published parameters aren't being used any longer either, so you can remove all of them from the workspace.

Right-click each published parameter and select **Delete**, shown next.



- 7. Save the workspace
- 8. Run the workspace and check the output, which should be located at:
C:\FMEData\Output\TrainingModule4\WaterPipesDamaged.kmz
- 9. Publish to FME Server
 - a. Publish the workspace to the FME Server:
Repository: *AustinEarthquake*
Workspace Name: *WaterPipesNetworkLink.fmw*
Upload: You don't need to upload the data, therefore you can clear the **Upload** checkboxes.
 - b. When you get to the Register Workspace Services page, click **Edit** next to the KML Network Link service. This page lets you set specific parameters for Google Earth from within Workbench.
 - c. Change the **View Refresh Interval** from **60** seconds to **15** seconds. Later you'll see what value this action has changed.
 - d. Ensure that you register the workspace with the **KML Network Link** service only and publish the workspace to FME Server
- 10. Run the workspace from FME Server.
Return to the FME Server User Home page and navigate to the following uploaded workspace:
Services > KML Network Link > AustinEarthquake > WaterPipesNetworkLink.fmw
Click **Configure** and **run** the workspace.
- 11. Open the resulting KML file using Google Earth.

Chapter 6

Managing the Administration Tasks

The administrative tasks that are described briefly in this chapter are accessing services, administering repositories, and managing jobs.

A few words about security

FME[®] Server makes it possible to share your spatial data freely with authorized users, while preventing unauthorized access.

Increasing demand for access to spatial data is matched by the need to ensure that data security remains intact. To meet this demand FME Server provides two security methods:

- **Authorization** – secures all FME Server activities to ensure only authorized users can log in.
- **Access Control** – FME Server administrators can specify exactly who has permission to use and manage their FME Server deployment using a role-based authentication framework.

Note: Additionally, administrators can turn on SSL in FME Server to ensure that communication between web clients and FME Server is encrypted for maximum control.

Each authenticated user can be assigned to roles that are authorized to access specific FME Server resources.

The FME Server Admin Home page has a Security tab that opens the Security web page. All of the configuration related to security can be carried out on this page.

For more information about managing **Security**, refer to the *FME Server Administrator's Guide*, Chapter 7, *FME Server Web Applications*, under the heading "Applying Security" and Chapter 9, *Configuring FME Server for Security*.

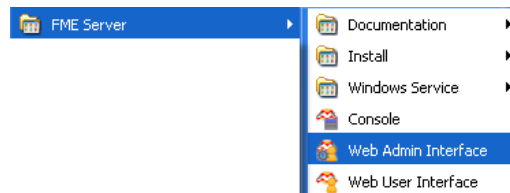
Opening the Administrator's Home page

Accessing the Web Admin Interface opens the Administration (Admin) Home page.

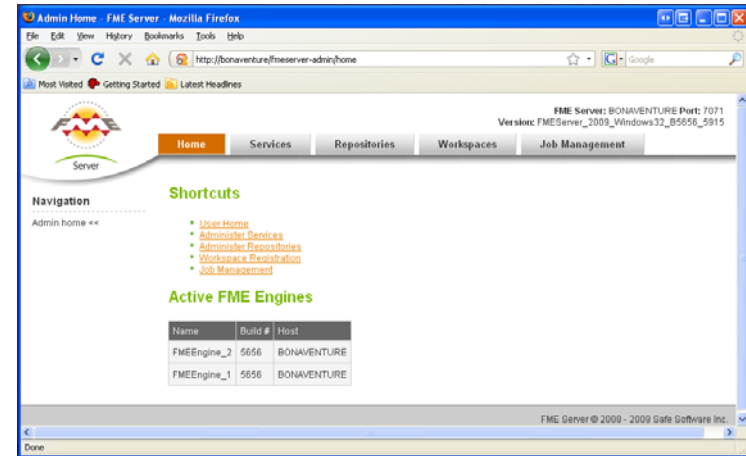
The Admin Home page provides access to the other administrative pages used to manage FME Server. You can either click the appropriate tab or the shortcut link to open these pages.

The Admin Home page holds the repositories and their workspaces stored in them and shows you how many FME Engines are connected to and running on the FME Server core.

1. Do one of the following steps to open the Admin Home page shown next.
 - Enter the following URL into your browser's **Address** field:
`http://<Host>/fmeserver-admin/home`
 - Click **Start > All Programs and select FME Server > Web Admin Interface**, shown next.



2. Because security is enabled, enter **admin** as both your **Username** and your **Password** to log in.



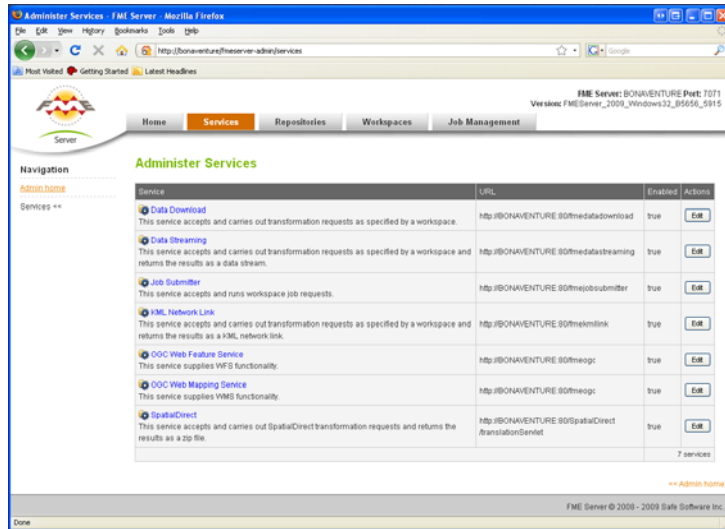
Accessing services

A service is a component that adds extra capabilities to a workspace translation by allowing the request and response to a workspace translation to be generated in a specialized way.

Administrators can change the properties associated with services, which includes editing the name of the service, its description, and the URL. The URL pattern is the property that's changed most often.

In this next example, you're going to change the properties associated with the Data Download service.

1. On the Admin home page, click the **Services** tab to open the Administer Services page, shown next.



Each provided service is listed and described.

2. Click the **Edit** button associated with the **Data Download** service to open the dialog shown next.

Service - Data Download

Service Name:	fmedatadownload
Display Name:	Data Download
Description:	This service accepts and carries out transformation requests as specified by a workspace.
URL Pattern:	http://BONAVENTURE:80/fmedatadownload
<input type="button" value="OK"/> <input type="button" value="Cancel"/>	

3. In the **Display Name** field type **Safe's** in front of the existing name that's associated with this service. In the **Description** field enter a new description of your choosing, similar to that shown next.

Service - Data Download

Service Name:	fmedatadownload
Display Name:	Safe's Data Download
Description:	Allows end users to request a dataset with a number of parameters, generate the resultant datasets via a workspace translation, zip the
URL Pattern:	http://Adama:80/fmedatadownload
<input type="button" value="OK"/> <input type="button" value="Cancel"/>	

When you're satisfied with it, click **OK** and check the web page for your changes.

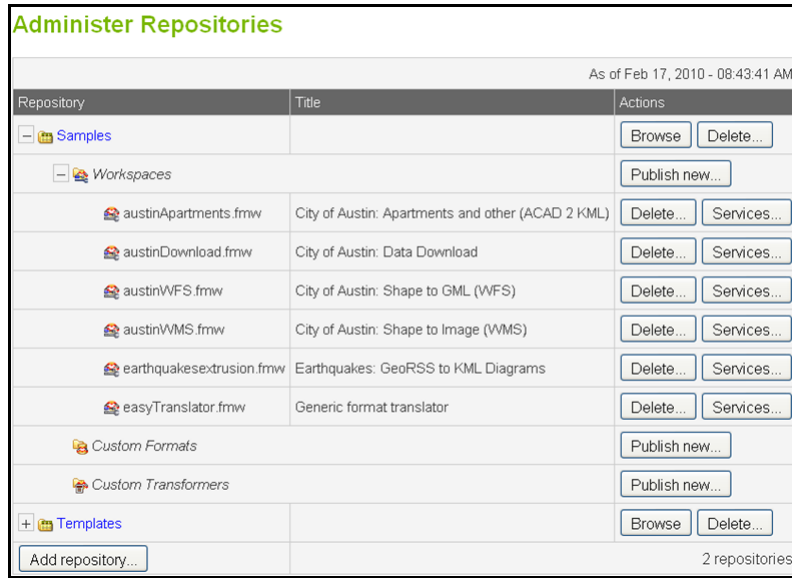
Administering the repositories

From the Administer Repositories page, you can register, or deregister, workspaces against a service and you can delete the workspaces altogether. The only other way to delete workspaces is from the FME Server Console. You cannot delete workspaces from Workbench.

Previously you created a repository and published workspaces to a repository using Workbench. You can use FME Server to perform the following tasks from the Administer Repositories web page (shown next):

- publish a workspace to a repository with additional resources
- delete a workspace from a repository
- register a workspace with a service
- add a new repository to FME Server
- delete a repository from FME Server

- publish a custom format
- publish a custom transformer



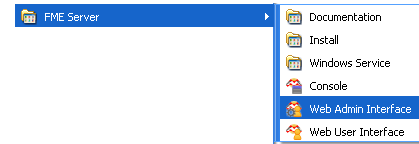
Managing repositories and workspaces

The following example provides information about managing both repositories and workspaces.

Scenario and example

As the GIS person working in your second day of the earthquake disaster (that's the scenario we're using throughout this tutorial), you now become an administrator who creates a new repository and works with it for the rest of this tutorial.

1. If the Admin Home page isn't already opened, navigate to the FME Server Web Admin Interface, shown next.



Log in as follows:

Username: *admin*

Password: *admin*

Note: Your values for **Username** and **Password** may differ from those shown.

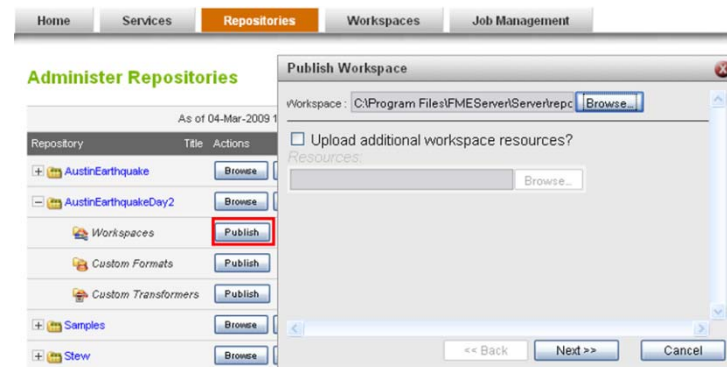
2. To add a repository, click the **Repositories** tab and select **Add Repository**.

Create a new repository using these parameters:

Repository Name: *AustinEarthquakeDay2*

Description: Enter: *"All of the resources related to day 2 of the earthquake"*

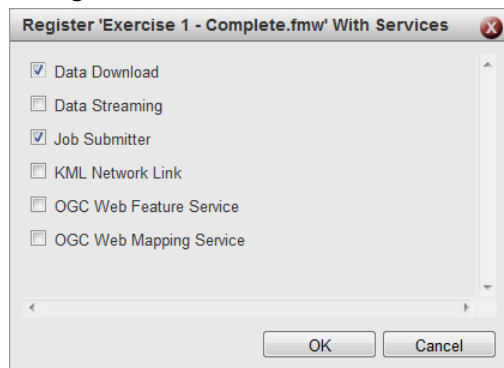
3. Now you want to publish and register the workspace as follows.
 - a. Expand the **AustinEarthquakeDay2** repository and click the **Publish** button next to Workspaces to open the **Publish Workspace** page, shown next.



- b. Click the **Browse** button next to the **Workspace** field and navigate to:
C:\FMEData\Workspaces\FMEServerWorkspaces\
Administration Control Panel \Exercise 1 -
Complete.fmw
 - c. There is a checkbox next to **“Upload additional workspace resources?”**. At this time, you can ignore it.
 - d. You are also prompted to register the workspace with a service. For the time being just register it with the **Job Submitter** service.
 - e. Click **Next** to move through the Publish Workspace pages using the defaults provided and finish the process.
4. Register the workspace with additional services by clicking the **Services** button next to the workspace you just published.

Notice that this workspace is already registered with the Job Submitter service.

To register the workspace with the Data Download service, click the checkbox for **Data Download** from the dialog shown next.

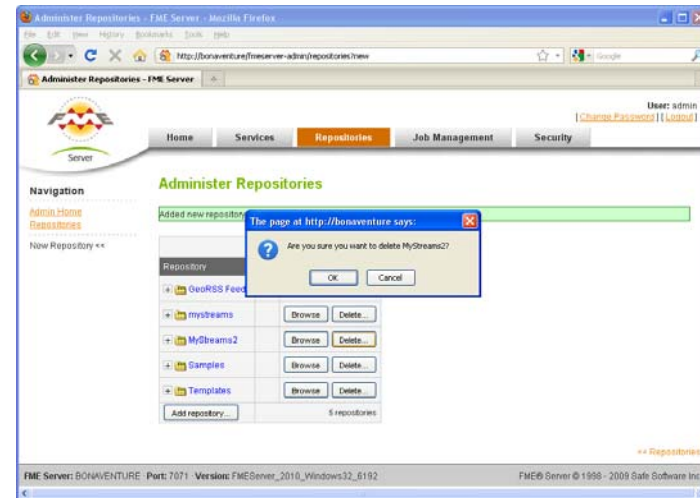


Click **OK**.

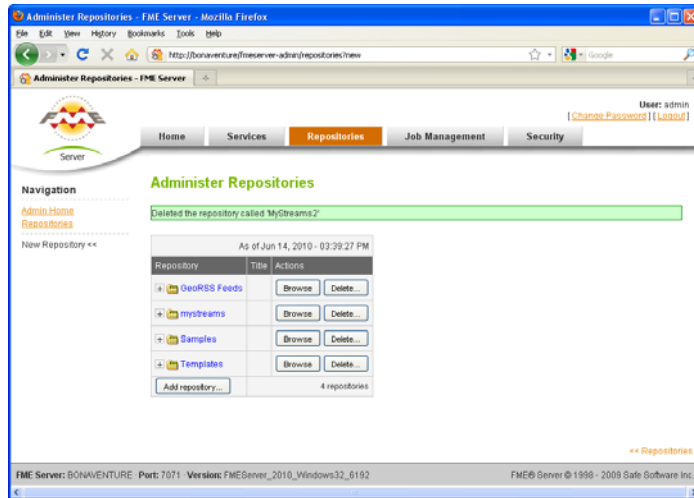
Deleting a repository

Another task administrators perform is to delete a repository.

1. Open the **Admin Home** page.
2. Click the **Repositories** tab.
3. Click the **Delete** button next to the repository you want to delete. In this case, it's MyStreams2, shown next.



- Click **OK** on the confirmation popup dialog to delete this repository.
You're notified that you've deleted the repository, shown next.



Managing jobs

The **Job Management** page lets administrators view jobs that were submitted to FME Server.

Administrators can view the jobs in the following four different ways:

- Running Jobs** – Shows the date, time, and status of the jobs you're running. You can also cancel jobs that are currently running.
- Queued Jobs** – Shows the date, time, and status of the jobs you've queued. You can cancel selected jobs here or you can cancel the entire queue.
- Scheduled Jobs** – Shows the date, time, and status of the jobs you've scheduled to run.

- Job History** – Shows the history for recently run jobs, including:
 - the job's ID
 - whether it ran successfully or not
 - when it was started
 - when it finished
 - what FME Engine it ran on
 - what Workbench file was requested
 You can remove an individual job history or you can purge the entire history

Scenario and example

This example provides you with some practice using the functionality that the Job Management page offers. To do so, you'll use Workbench to submit 200 jobs to FME Server. This means that when you open the Job Management page, jobs are running and queued.

- Open Workbench and create a blank workspace.
- Save the workspace locally to:
<Desktop>\MyWorkspaces\multipleJobSubmit.fmw
- Now you're going to build a workspace as follows.
 - Add a *Creator* transformer and open its Properties dialog. Set the **Number to Create** to **200** and leave all default values.
 - Connect an *FMEServerJobSubmitter* transformer to the *Creator* transformer.
 - Click the Properties button and connect to FME Server using the following parameters:

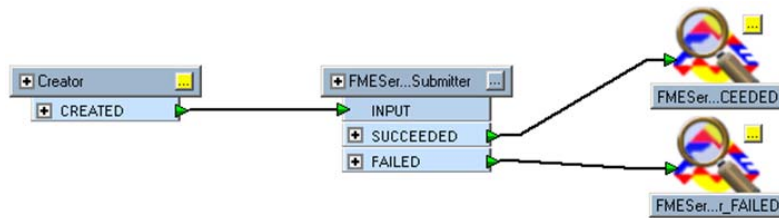
Host Name: <Host>
Port Number: 7071
Username: admin
Password: admin

Note: Your values for port number, username, and password may differ from those shown.

Select Workspace: *austinApartments.fmw* from the **Samples** repository.

Parameters: Leave the default parameter values, except change **Set the Wait for Server Job to Complete** to **No**

- d. Attach *Visualizers* to both ports of the *FMEServerJobSubmitter* transformer, shown next.



- 4. When you run the workspace, the *Creator* transformer creates 200 features.

Each feature that enters the *FMEServerJobSubmitter* transformer sends a request to FME Server and runs the **austinApartments.fmw** workspace.

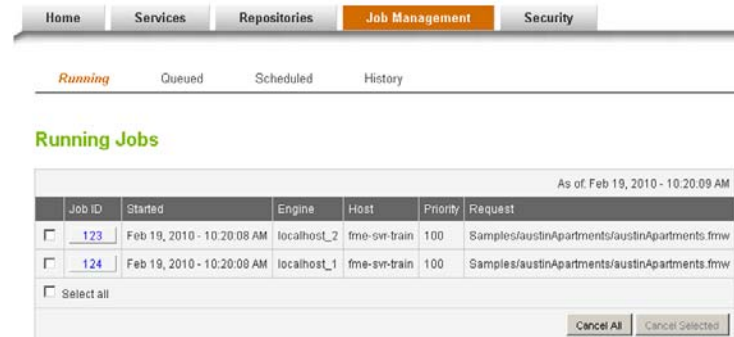
Click the **Run Translation** button in Workbench and 200 features are output to the *Visualizer* that's attached to the SUCCEEDED port.

- 5. Open the FME Server Job Management page
 - a. Navigate to the FME Server Web Admin Interface:
Start > All Programs > FME Server > Web Admin Interface
 - b. Log in using these settings:
Username: *admin*
Password: *admin*
Note: Your values for username and password may differ from those shown.
 - c. On the Admin Home page, click the **Job Management** tab

- 6. View the jobs that are running

On the Job Management page click the **Running** tab.

Because 200 jobs were just submitted to FME Server through Workbench, there should be jobs running. The number of jobs running at any one time is limited by the number of FME Engines you have active, shown next.



Because this instance of FME Server has two FME Engines active, you see only two jobs running at a time.

- 7. It's possible to cancel all running jobs or selected jobs. Attempt to cancel a running job using the **Cancel Selected** button. (You need to select a job before you can cancel it.)
- 8. Similarly, you can view or cancel queued jobs. Click the **Queued** tab under Job Management, select the queued job you want to cancel, and use the **Cancel Selected** button to cancel that job.

This completes the FME Server Tutorial.

You've become familiar with how FME Server and Workbench work together when you're authoring workspaces, the FME Server Web User and Web Admin interfaces, and some of the ways FME Server can make your job and your customers' jobs easier.