Introduction
This document is designed to help users meet the requirements for FME Certified Professional accreditation.

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General Guidelines

At Safe Software we take our Certification Program very seriously; our Certified Professionals are often the first contact a prospective client has with our organization.

For this reason, and also to ensure our Certified Professionals get the maximum value and meaning from this designation, we require evidence of very high standards in our applicants.

When reviewing an application we look at a number of factors.

Not every factor has to be perfect, and some of these might overlap, but to us these are the basic signs that a user is entitled to be granted the award of Certified FME Professional.

Training
We expect Certified Professionals to have taken an FME training course in the recent past. This course should have been an "official" training course, led by an existing certified FME trainer.

Experience
We expect Certified Professionals to have a number of years experience in practical FME use.

Contemporary Knowledge
We expect Certified Professionals to have a thorough and up-to-date knowledge of FME.

Current Technology
We expect Certified Professionals to use the latest and most relevant technologies available within FME.

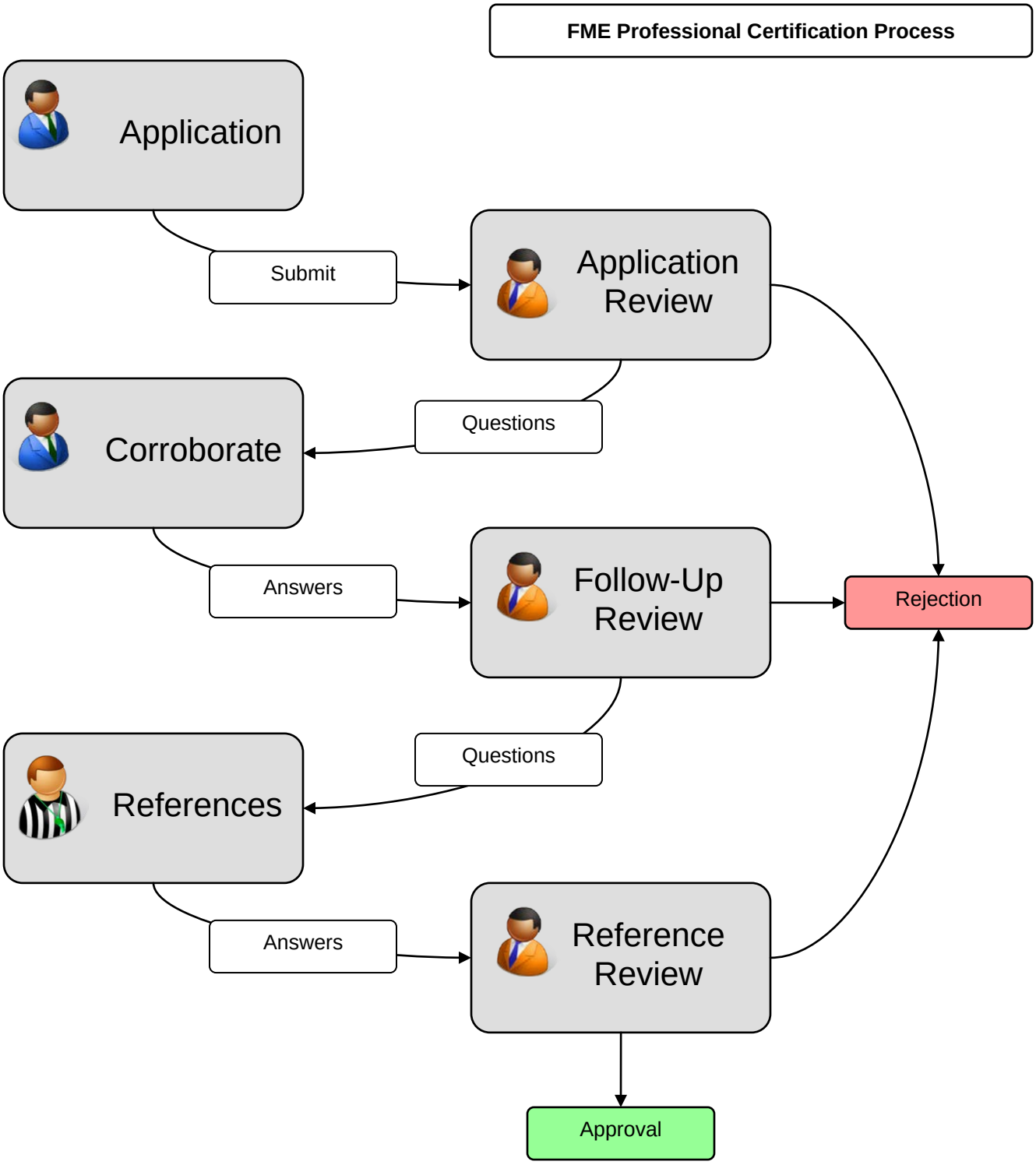
Capability
We expect Certified Professionals to show evidence of tackling large-scale and/or complex projects.

Originality
We expect Certified Professionals to be capable of creating solutions that are innovative and clearly exceed the base level of automated translations.

Professionalism
We expect Certified Professionals to be professional in their work, to be organized, and to deliver work within any agreed timeframe.

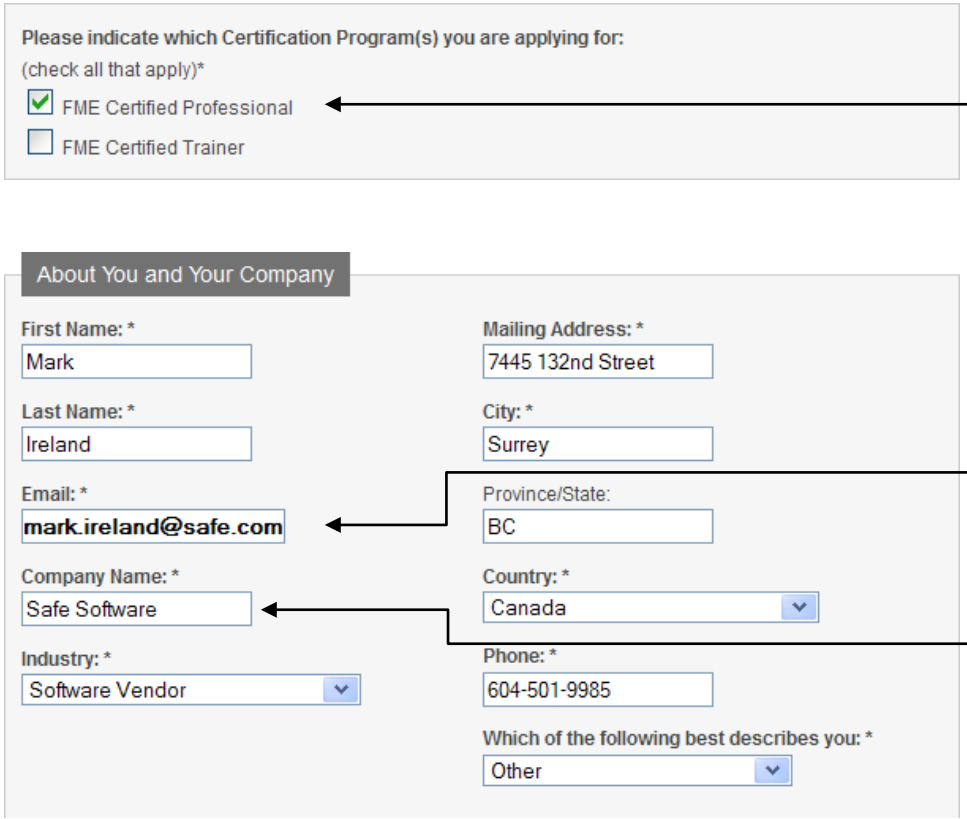
These factors are assessed using information obtained by:

- An application form
- Example projects
- Questions and Answers
- Client references


FME Professional Certification Process
Application
Submit
Application Review
Questions
Corroborate
Answers
Follow-Up Review
Rejection
Questions
References
Answers
Reference Review
Approval

Application Form

This section is designed to help FME users complete the application form for accreditation as an FME Certified Professional.

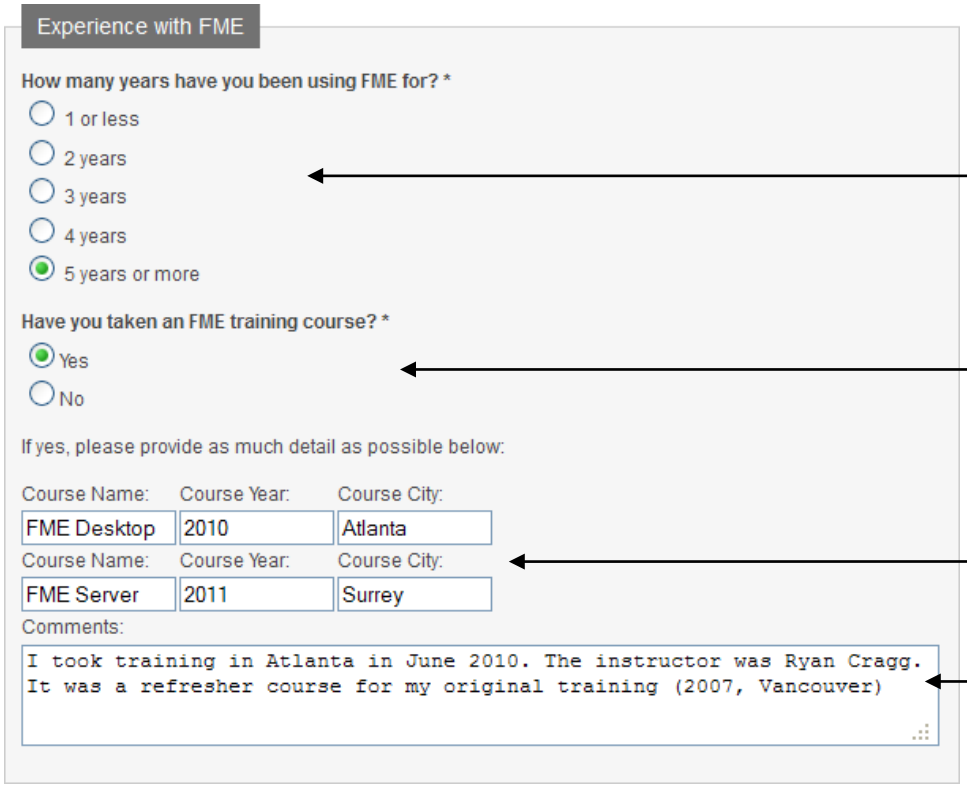


Obviously, tick the FME Certified Professional box!

The usual roles of an FME professional and FME trainer require different skill sets. It's not uncommon for one person to hold both certifications, but it's rare that someone would want to apply for both simultaneously!

The most important contact detail is your email address, as all correspondence will be sent to there.

Certification applies to an individual, not a company; company name is used to help us locate you in our customer database, and to list your employee on our web site (if you wish)



An FME Certified Professional is expected to have a number of year's practical experience with FME.

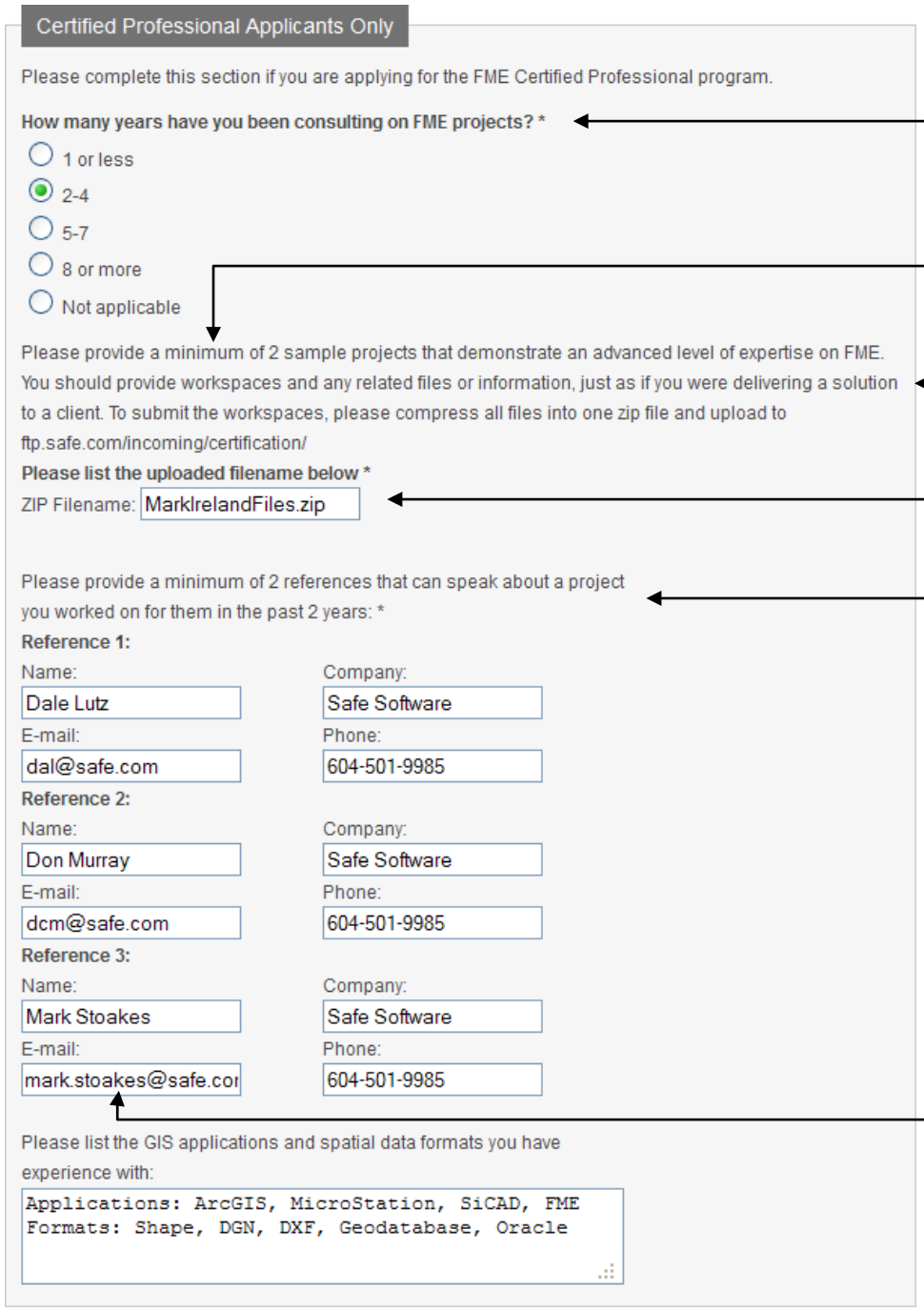
Generally, more experience is better, but not an absolute requirement; so applicants with less experience can still pass if their work is of sufficient quality.

Training – from a Certified Trainer – is a key factor in gaining professional certification. It shows you are aware of the techniques we regard as FME Best Practice.

An FME Certified Professional is expected to be familiar with the latest FME technology. More recent training shows you are up to date with the latest developments.

By recording your instructor, he/she can be used as an additional reference if required.

Taking refresher courses shows you are serious about keeping your skills and knowledge up to date



Certified Professional Applicants Only

Please complete this section if you are applying for the FME Certified Professional program.

How many years have you been consulting on FME projects? *

- ○ 1 or less
- ◉ 2-4
- ○ 5-7
- ○ 8 or more
- ○ Not applicable

Please provide a minimum of 2 sample projects that demonstrate an advanced level of expertise on FME. You should provide workspaces and any related files or information, just as if you were delivering a solution to a client. To submit the workspaces, please compress all files into one zip file and upload to ftp.safe.com/incoming/certification/

Please list the uploaded filename below *

ZIP Filename: MarkIrelandFiles.zip

Please provide a minimum of 2 references that can speak about a project you worked on for them in the past 2 years: *

Reference 1:

Name:	Company:
Dale Lutz	Safe Software
E-mail:	**Phone:**
dal@safe.com	604-501-9985

Reference 2:

Name:	Company:
Don Murray	Safe Software
E-mail:	**Phone:**
dcm@safe.com	604-501-9985

Reference 3:

Name:	Company:
Mark Stoakes	Safe Software
E-mail:	**Phone:**
mark.stoakes@safe.cor	604-501-9985

Please list the GIS applications and spatial data formats you have experience with:

```
Applications: ArcGIS, MicroStation, SiCAD, FME
Formats: Shape, DGN, DXF, Geodatabase, Oracle
```

This question is important because consulting is the most common role of a Certified FME Professional.

Note that two is a “minimum”, three is preferable.

Also note this asks for “projects” not “workspaces”. See the sample project for more information about what sort of submission meets the requirements here.

Be sure to use your name on any files you upload to our FTP site, so we know whose application they are part of.

Again, two is a minimum, three is preferable.

References from a client or other company carry more weight than references from your own employer.

Email address is, again, the primary means of contact.

Example Project: Documentation

> *This section is designed to help FME users submit a project for consideration as part of the FME Certified Professional accreditation process.*

One of the key components of a project is a project description. Without it, it is very difficult to understand what a project is designed to do and why.

The following is a description to go with the included example project.

Remember, that this is just an example of how a project might be documented. Your own work may be very much different and include different details and information.

Project Name	Bradgate Park Legacy Data
Project Description	Translation and transformation of a GENIO format dataset
Project Date	June 2011
Included Files	The project files include a source dataset, FME workspace, and example output

Detailed Description
A topographic land survey of Bradgate Park, Leicestershire, was undertaken in 1990. The data was processed using an application called MOSS, and the data stored in a text-based format called GENIO.

Because the data now needs to be used in ArcGIS, and because neither MOSS nor any other application capable of reading GENIO data now exists, FME was chosen to read and translate the data into a suitable format such as File Geodatabase.

Source Data

GENIO (GENeralized Input Output) is a text-based format defined by a series of "major options" and "minor options".

Major options are keywords that define the actions to be carried out on incoming data (for example DELETE, CREATE, COPY). These can be largely ignored as the intention is just to extract data.

Minor options can be considered as a header to each feature. They define the structure of the data within the file, the feature type of the data, and other aspects such as dimension and end-of-feature markers.

For example, minor option 001 defines the data structure, and option 080 defines the feature type.

In the snippet below, the 001 option tells us that the following data is composed of two sets of coordinates, each of which has an X and Y coordinate (Floating Point, 15 digits long, 3 decimal places) plus a Z coordinate (9 digits, 3 decimal places).

080 tells us the feature type (WS) and – importantly – that the end-of-feature markers are -1.0

```
001FORMAT(2(2F15.3,F9.3))
080WS                          0.0       0.0     3.0      -1.0      -1.0
        170.036       1750.610 -999.000        173.044       1750.325 -999.000
        176.054       1750.089 -999.000        179.065       1749.928 -999.000
         -1.000          -1.000
```

Proposed Solution

The ideal solution would be a full GENIO reader. However, since the aim is a one-off extraction of data, it is only necessary to do enough work to read the subset of format contained in the dataset.

In this case there are only two different data "formats":

```
001FORMAT(2(2F15.3,F9.3))
001FORMAT(2F15.3,2F9.3,/,11A4)
```

The first of these denotes features as described beforehand.
Of the second, the "/" character denotes a new line, and 11A4 denotes a text string (presumably 11x4=44 characters in length)

So, all data can be treated as the same structure and there is no need to be able to parse the 001 option. All that needs happen is that text strings are treated as a special case.

Because the source data is a text-based format, it is capable of being read by several FME readers such as the Text File reader, CSV reader, or – new for FME2012 – the CAT (Column Aligned Text) format reader.

Since the data structure is the same throughout the file, it can be thought of as Column-Aligned text and read with the new FME2012 CAT reader.

FME Solution

The solution consists of a single workspace. Data is read with the CAT reader.
The parameters dialog lets me define each coordinate value as a separate column.

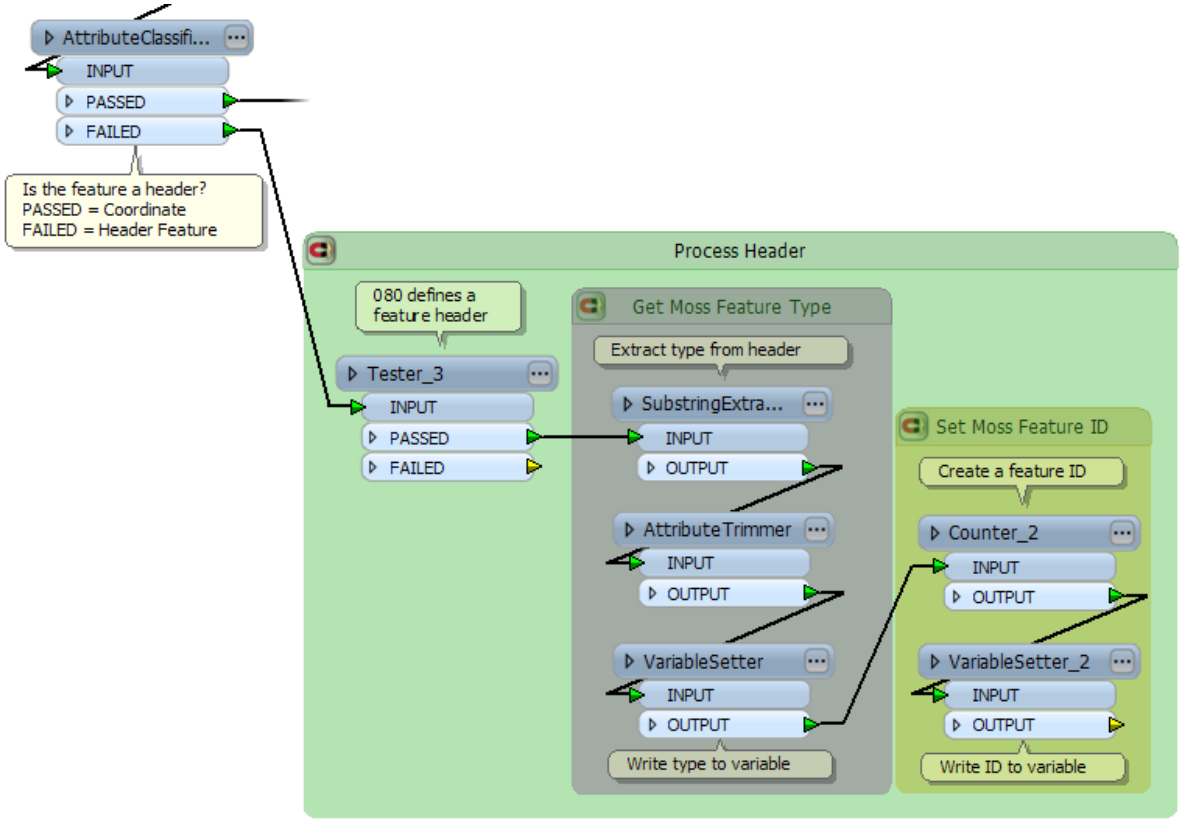
Field Boundaries

Click on the ruler to add, remove or move field boundaries.

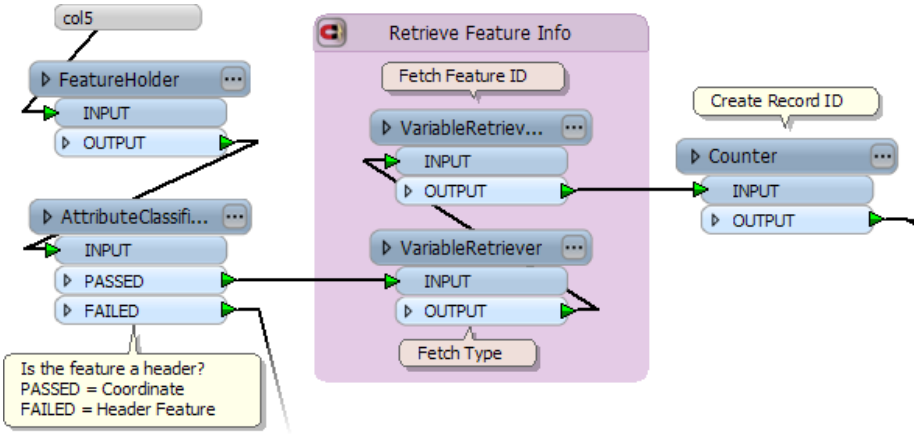
	col0	col1	col2	col3	col4	col5
7	080WS		0.0	0.0 3.0	-1.0 -1.0	
8	170.036	1750.610	-999.000	173.044	1750.325	-999.000
9	176.054	1750.089	-999.000	179.065	1749.928	-999.000
10	182.076	1749.869	-999.000	185.086	1749.940	-999.000
11	186.880	1750.091	-999.000	188.668	1750.326	-999.000

Because each feature is made up of a series of lines, it is necessary to store the current feature type in an FME variable. Subsequent lines of the file that make up the same feature will receive the same feature type by retrieving the value of that variable.

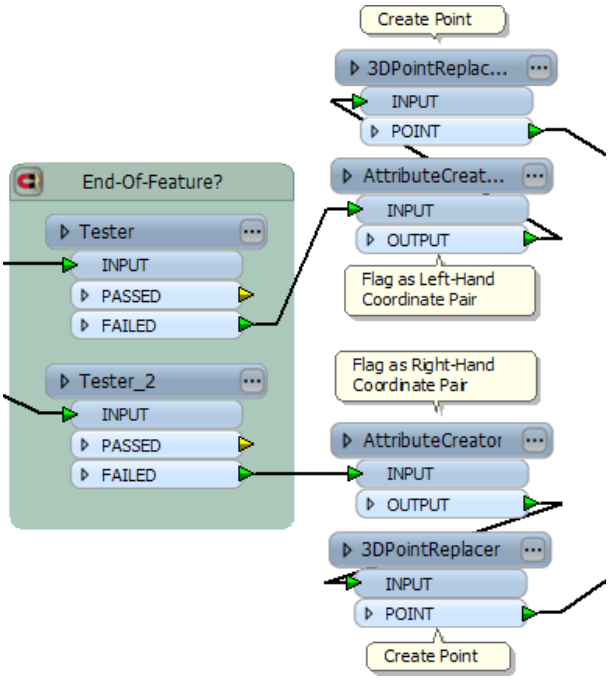
So, the first part of the workspace tests for a header record then – having found one – extracts the feature type, sets a feature ID, and records these to FME variables.



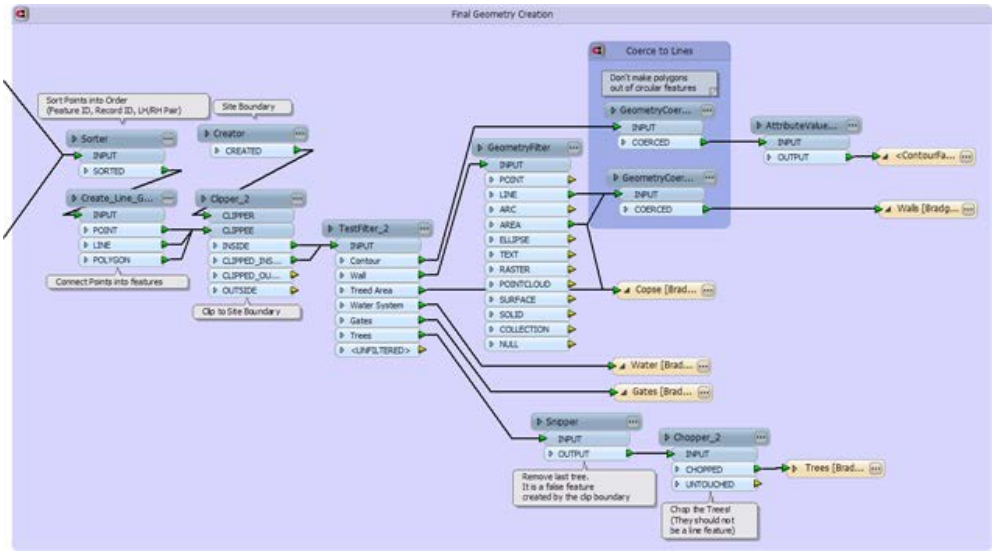
When the next line is a coordinate pair (i.e. not a header) then they retrieve the previously set variables, and create a Record ID (e.g. Feature 22, Record 4):



The next section of workspace checks for the end-of-feature marker, then creates a point for each coordinate pair. Remember, each line has two coordinate pairs on it – one is flagged A and the other B.



The final part of the workspace sorts the point features into order, turns them into the final geometry, and finally writes the output to Geodatabase:



Results

The result of this workspace is a set of data that – while not perfect – can certainly be written to a suitable format and edited until it meets the required standard.

The only part of the data that is not handled properly is text. The features are there, but do not include text strings, and would require manual editing.

Example Project: Workspaces

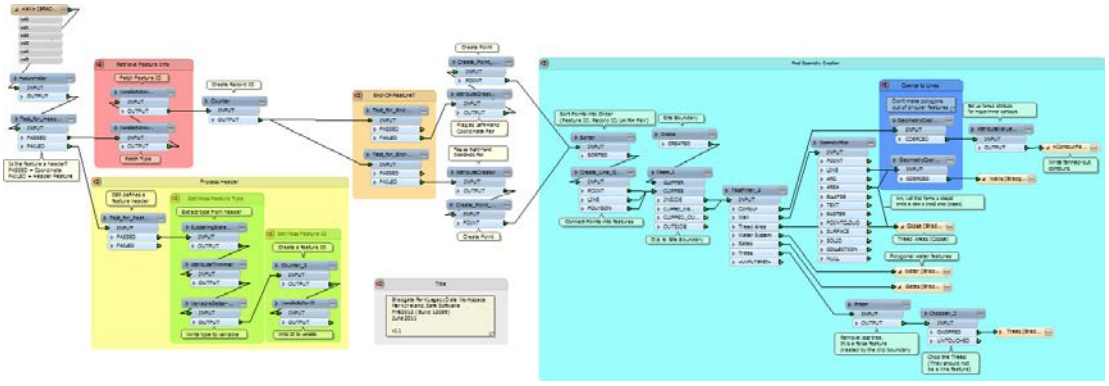
> *This section is designed to help FME users submit a project for consideration as part of the FME Certified Professional accreditation process.*

The most important component of any FME project will be one or more workspaces.

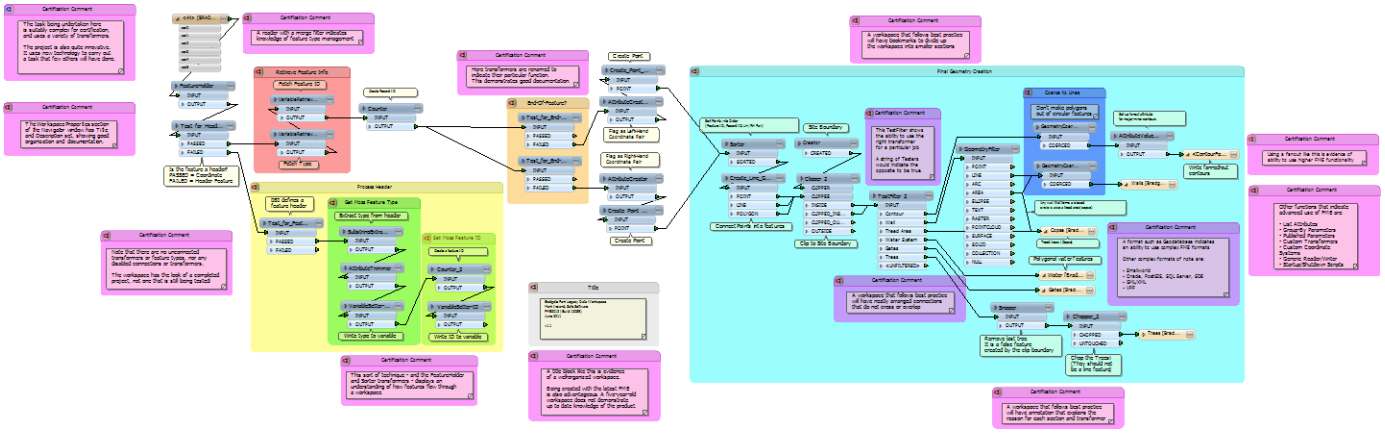
Included with this document are two workspaces.

One workspace is the completed translation for the project as it was submitted. The other is the same workspace with additional comments about what makes it suitable for certification. Studying the comments should help you determine whether your projects are good candidates for certification.

Completed Workspace



Annotated Workspace



Remember, that this is just an example project. Your own work may be very much different and include different files and scripts.

Example Project: Questions and Answers

> *This section is designed to help FME users submit a project for consideration as part of the FME Certified Professional accreditation process.*

After a project is assessed, the applicant is asked a series of questions about the problem and solution. The idea is to clarify any ambiguities in the project and test your knowledge of how the solution operates.

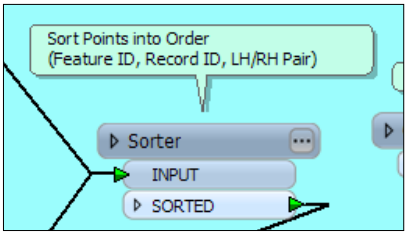
The questions may be related to a particular part of a workspace, or a particular piece of FME functionality; so this questioning is where applicants can really show their understanding of FME.

It helps if you can use the correct terminology for FME. For example, an FME translation is stored as a "workspace" not a "workbench", and the terms "Reader" and "Writer" are now preferred to "Source Dataset" and "Destination Dataset".

The following is a set of sample questions and answers relating to the example project.

Remember, that this is just an example project and questions. You will be asked completely different questions that depend on the nature of your own work.

Question 1
In this section of workspace:



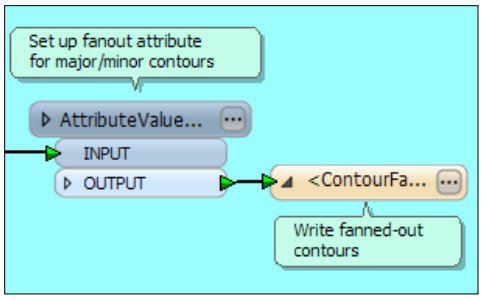
What is the purpose of the Sorter transformer? What action does it have on the flow of features?

Answer
The Sorter transformer is a group-based (or blocking) transformer. It is a point at which features will be held until they are all available for processing.

So at this point we have a complete set of features, each of which is a single point that represents a vertex on a final output feature.

Each point has a feature ID, record ID, and marker as to whether it was the left or right coordinate in the source file. By sorting using these attributes, we order the features so they are connected correctly in the subsequent PointConnector transformer.

Question 2
What is the purpose of the fanout in this part of the workspace?



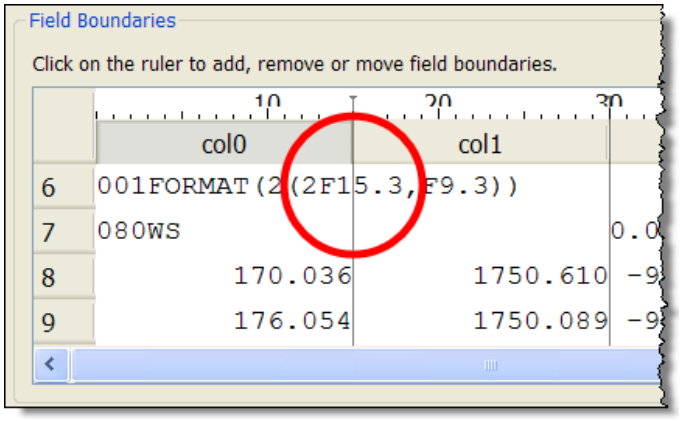
Answer
The idea is to write major (25m) and minor (5m) contours to different tables in the output.

The AttributeValueMapper transformer maps the source feature type (X or Y) to a new attribute that is used to define the required table name (MinorContour or MajorContour).

The feature type fanout uses the new attribute to set the name of the output table.

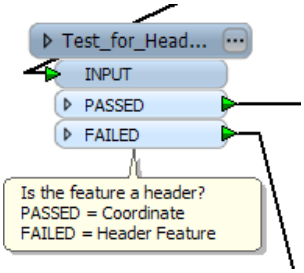
Because there are only two different contour types, it would not have been much more complicated to separate the two types with a Tester, and write them to two pre-defined feature types; however a fanout is the more correct way to deal with this type of scenario, which is why it was used.

Question 3
How does the Column-Aligned-Text reader deal with header lines that are not arranged the same way as the coordinate fields? Are there any problems related to this? How would they be fixed?



Answer
There are no problems because this is a limited reader and assumes that all coordinates are the same structure. This would only be an issue if the workspace were intended to be a full reader of this data format. In that case it would be necessary to read the data with the Text File reader and parse each line individually (which could be done with a Python script and a PythonCaller transformer)

In other words, the CAT reader only works because we make assumptions about the data structure.



Where the workspace deals with headers is an AttributeClassifier transformer. It tests to see whether col0 is a numeric value (i.e. test = Not Header).

If numeric, it is assumed to be a coordinate value, and dispatched to the VariableRetriever transformers to get its header info.

If not, it is assumed to be a header, and dispatched to the VariableSetter transformers to set the header info for subsequent features.

References

This section is designed to help FME users meet the reference requirements for FME Certified Professional accreditation.

References are important to show that you can have a good relationship with clients as a consultant. We will contact your references by email with the following questions:

- Can you confirm the candidate worked for you on the XXXX project in YYYY (year)?
- Did the candidate carry out the work to your satisfaction?
- Was the work delivered on time and well organized?
- Did the candidate demonstrate a good knowledge of the FME product?
- Did the candidate act professionally and ethically at all times?

Client references are preferred to ones from within your own company.