

IN THIS ISSUE

Spatial ETL: "T" for Transformation	2
FME Server at Landcare Research	4
An Interview with SevenCs Developers	5
Build Your Raster Expertise	5
A Tribute to Curt Carlsson	6
FME Worldwide User Conference	6
FME 2008 Sneak Peek	7
FME Self Study Modules	7
Safe Certifies Top FME Experts	8
Spotlight on Robert McMillin	8



■ WINTER 2007

Founders' Perspective

A Journey of Discovery

Does time ever fly! When we released our last issue of the *Safe Insider*, FME® 2007 had just made its debut. Now, six months later, we're back with another issue that's packed with lots of interesting news and FME tips.

This issue of the *Safe Insider* highlights the tremendous diversity of transformations our users are achieving with FME.

In the last few months we've logged many air miles to complete a travel itinerary that has included user conferences and customer meetings in Germany, Sweden and Australia. Our travels have been filled with new discoveries that we've learned directly from you, our users. Many of you have snapped up FME 2007's new raster ETL capability and have obtained impressive results. We've also been amazed by the diversity of data transformations you've achieved with FME. You've proved,

many times over, that FME is much more than a format conversion tool!

Our global journey has certainly been insightful. Now, with this issue of the *Safe Insider*, we hope to both inspire and equip you for your own journey of discovery into the deeper capabilities of FME. First, by showcasing a variety of transformations that other users have achieved with FME. Then, by offering new resources and tips that will help you unlock more of FME's potential.

As we look to the year ahead, we have many exciting things in store for you. With FME 2008, we'll be taking spatial ETL to a whole new dimension, with first-time support for a number of 3D formats. FME 2008 will also mark the transition of FME's spatial ETL technology from the desktop to the enterprise, with the unveiling of FME Server. Plus, on March 6 & 7, we're hosting our second FME Worldwide User Conference here in Vancouver. We hope you'll join us to share your latest discoveries with FME. We look forward to meeting you in 2008!

The Not-So-Secret FME Server

We were supposed to keep it under wraps for a little longer, but in the end, we just couldn't resist giving you a glimpse at the upcoming FME Server. It's not the full story behind the server's extensive capabilities, but if you read on, you'll learn some of its secrets. And you'll discover why Landcare Research of New Zealand chose FME Server as the back-end data extraction and transformation platform for their Geospatial Data Integration Portal. The story starts on page 4...



*Safe Software
Co-founders:
Don Murray
and Dale Lutz*

Spatial ETL: Don't Miss the "T" for Transformation

If you use FME for format to format conversion only, it's time to take a closer look at it. Once you begin to explore the possibilities of FME's spatial ETL capability, you'll understand why the "T" in spatial ETL stands for transformation and not just translation. There's simply no limit to the data transformations you can achieve with FME!

We've worked hard to ensure FME's powerful transformation capability is coupled with superior usability. FME Workbench's graphical interface makes it easy to transform data in a myriad of different ways, and even move data between very different data models. Designing the data transformation workflow is just a matter of selecting from an extensive toolkit of "prepackaged"

data transformations, specifying any required parameters, and then connecting the transformers together on the FME Workbench canvas.

On these two pages, we feature three quick snapshots of FME's data transformation capability in action in the real world. Each describes a useful task that can be accomplished using only a small number of FME transformers. We hope they'll inspire you to explore FME's data transformation capabilities further. If you can do this much with just a handful of transformers, imagine what you could achieve with fifteen, thirty, or one hundred transformers in a single data workflow!

Creating Feature Geometry from AIXM Data

The Aeronautical Information Exchange Model (AIXM) is one of the more complex data exchange models currently in use. But according to PIXEL SOFTEK of Bangalore, even AIXM can be easily manipulated with FME. In a recent demonstration for a prospective customer, PIXEL SOFTEK used a simple combination of FME transformers to show how FME can be used to manage some of the intricacies of AIXM datasets.

AIXM is based on the Aeronautical Information Conceptual Model (AICM) - a detailed model that describes all the entities, attributes, relationships and rules associated with providing information about aeronautical entities such as airport runway patterns, airspace and flight procedure legs. One of the issues users face when working with AIXM is joining together several AIXM features to form complete AICM entities. Generating feature geometries can also be a challenge; since AIXM is XML-based, feature geometries are not specified in the dataset.

PIXEL SOFTEK's demonstration showed how a data transformation workflow created with FME can easily address these challenges. Their example workspace generates both two- and three-dimensional geometries from an AIXM dataset: a polygon representing an airport runway and

three-dimensional geometries representing obstacles at the end of the runway. The final results are written to a KML file for display in Google Earth™.

Creating the runway polygon requires five transformers. First, FME's **SubstringExtractor** transformer retrieves lat/long coordinate values specifying the runway start and end points, as well as runway width, from AIXM XML user attributes on other runway-related features. After converting these values to decimal degrees using the **DecimalDegreesCalculator**, the runway start and end points are plotted with a **3DPointReplacer**. Next, a **PointConnector** connects these points to plot the runway

centerline. Finally, a **Bufferer** creates a polygon of the correct width to depict the runway.

To generate the three-dimensional features representing potential obstacles in the runway approach path, PIXEL SOFTEK's workspace first creates vertical lines from the obstacle features in the AIXM file. A **KMLDiagrammer** then extrudes the obstacles to specific heights using elevation attributes associated with each obstacle. (The **KMLDiagrammer** is a unique, user-defined "custom transformer" created by packaging together a group of standard FME transformers. It is one of several custom transformers created by Dmitri Bagh of Safe Software and available at www.fmepedia.com.)



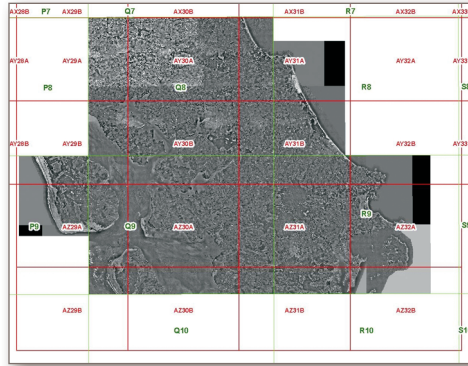
PIXEL SOFTEK's FME workspace requires only a few FME transformers to create a runway feature, as well as 3D obstacle features in KML, from a source dataset in AIXM.

Mosaicking Old and New Aerial Imagery with Different Grid Systems

When GIS consultants Ollivier and Co. of New Zealand learned about the new raster processing capability available in FME 2007, they decided to put FME to the test! Faced with the challenge of creating a single dataset of raster images from two different image series in different projections, Ollivier and Co. saw this as a natural opportunity to exploit FME 2007's ability to incorporate both vector and raster data into a workflow.

Ollivier and Co.'s original dataset consisted of 2.5 metres per pixel orthophotos made publicly available by the New Zealand government. Some areas had been re-photographed and the new orthophotos issued in a new projection and grid. As a result, these regions were represented by a mix of color and monochrome images that had different capture dates and projections, and were tiled in different grid systems. Orthophotos issued prior to 2003, for example, were in NZMG projection in the NZMS260 grid, but orthophotos issued in 2003 and later were in NZTM projection in the NZTopo50 grid.

Using a specific combination of transformers in FME's Workbench application, Ollivier and Co. created a single dataset in one projection that incorporated the latest images available for each region. The FME data transformation workflow first reprojects the older images to NZTM (using FME's **Reprojector** transformer), then mosaics the new and old images together (using the **RasterMosaicker** transformer). Taking advantage of FME's ability to utilize both raster and vector data, the workflow then uses the vector-based grid index in the new NZTM projection (shown in red) to clip the complete image (with the **Clipper** transformer) to the new grid, producing a consistent new dataset. With hundreds of tiles to be processed, Ollivier and Co. describes FME's ability to run the transformation in batch mode as essential to the success of the project.



Original image tiles and grid index in NZMG (green) with the new grid index in NZTM (red) overlaid. In this view, the red grid index in NZTM is offset from the green index by 1000 km.

Generating Oil Production Lease Polygons with FME

In the oil and gas industry, companies must routinely generate maps showing current exploration and drilling leases. But generating tenure maps is not straightforward; the geographic coordinates necessary for correct plotting of land lease boundaries are typically not stored in proprietary databases. Instead, the databases store text-based descriptions of lease areas. These descriptions consist of lists of "cells" of the region-specific grid system used to define oil and gas leases. To build a map feature that identifies the entire land or ocean floor area covered by a given lease, the location of each cell must be obtained from another source, and the cells merged together to create a single polygon. Since this intensive data processing can significantly impact workflow productivity, many companies are seeking efficient processes that are able to generate these features automatically.

Chevron Canada Resources' Application and Information Management Team, based in Calgary, Alberta, relies on a simple but powerful FME data transformation workflow to quickly extract data from disparate databases to generate the required lease polygons. The entire process is managed by a data transformation workflow within FME Workbench that typically requires only ten FME transformers, six of which perform the

key tasks. As a first step, the **SQLExecutor** transformer extracts the text-based lease descriptions from Chevron's Oracle® database. Data output from the **SQLExecutor** then passes to the **ArcSDEQuerier** transformer, which retrieves latitude and longitude coordinate values for each specified cell from an ESRI® ArcSDE™ database. The **CoordinateSystemSetter** then converts the entire grid to NAD27, and passes the data to the **AreaOnAreaOverlay**, **Dissolver** and **Aggregator**. These transformers merge the cells together to build the final polygon that defines the entire area of the lease. The final result is written back into SDE as a lease layer, ready for direct import into various mapping applications.

Figure 1

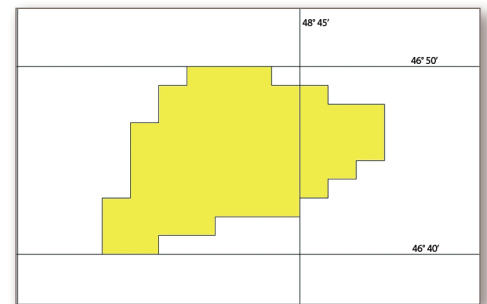
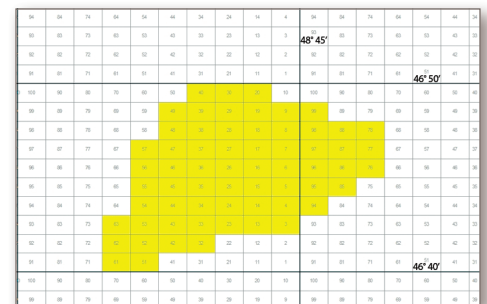


Figure 2



Chevron Canada Resources used FME to generate the final map of their Hibernia oil field lease (Figure 1) from the individual cells of the Federal Permit System survey grid (Figure 2). The Hibernia field is located offshore, approximately 300 km east-southeast of St John's, Newfoundland.

For a handy Quick-Reference Guide that lists all the transformers available in FME 2007, visit www.safe.com/transformers.

FME at Landcare Research: A Sneak Peek at the Power of FME Server

Our upcoming release of FME 2008 will introduce the FME Server - a new server-based spatial ETL processing environment that packs all the processing power and scalability needed for real-time delivery of both raster and vector data from a centralized repository. The success story below reports on some of the benefits of this technology realized by Landcare Research of New Zealand.

The Challenge

Landcare Research is a government-funded environmental research organization that specializes in the sustainable management of New Zealand's land resources. In compliance with their mandate, Landcare Research manages an extensive repository of environmental data for New Zealand, Antarctica and other regions. The inventory includes a number of digital soil maps, as well as land use data from the New Zealand Land Resource Inventory (NZLRI).

In recent years, Landcare Research has faced increasing challenges in attempting to meet growing user demand for access to spatial data. Although clients can view available data layers and query map features via Landcare Research's web-based Geospatial Data Integration Portal, the current portal has no provision for automatic data download. To obtain a dataset covering a given land area, a client must contact Landcare Research staff who then manually extract the required datasets. The results are mailed on a CD, or uploaded to an FTP site. Faced with rising investments of time and staff resources to service data requests, Landcare Research began planning a new configuration for the GIS portal that would allow clients direct, real-time access to data.

The Solution

After evaluating FME Server as an alternative to developing its own custom data transformation service, Landcare Research chose to become early adopters of this powerful new technology. Staff recognized the value of being able to use FME to offer both raster and vector data for automatic download in dozens of different formats and coordinate systems.

Their choice of FME Server was also influenced by the ease and speed with which it could be integrated into the existing architecture of the GIS portal. FME Server offered a variety of different APIs, allowing quick and easy integration with the portal's existing back-end systems - ESRI ArcSDE and Microsoft® SQL Server™ - as well as the web front end user interface technology provided by ESRI® ArcIMS® 9.2.

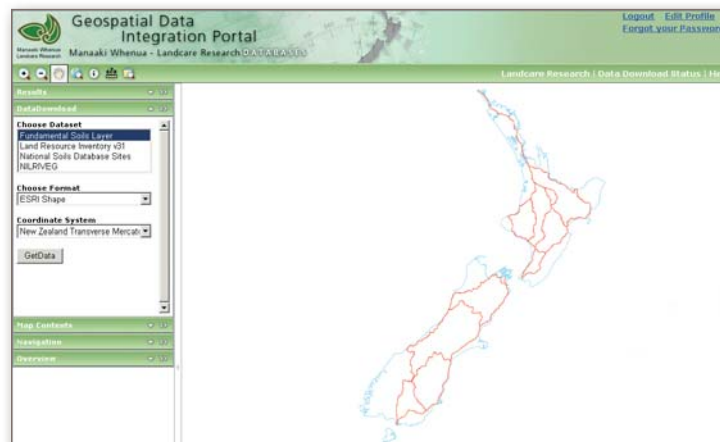
Landcare Research's new portal is expected to be live by the end of the year. After selecting the dataset of interest, the user will be able to download data in one of three different coordinate systems and six different formats – either ESRI Shape, ESRI Coverage, MapInfo MIF/MID, Autodesk AutoCAD DWG/DXF, KML, or MicroStation Design

(IGDS). On receiving the translation request, FME Server clips the required data subset from the larger database and transforms the data to the specified format and coordinate system. Translation results are zipped and made accessible to the user via a link on a download page.

“FME Server provides an extremely flexible platform for automated data delivery. The .NET API available for the FME Server allowed seamless integration into our existing architecture, and the server's internal job request database has also provided a better trail for auditing data usage.”

The Benefits

According to Landcare Research, FME Server has performed extremely well, easily managing larger datasets that include over 100 000 features. Its staff points to the flexibility of FME Server as an outstanding advantage in configuring the current portal, and in allowing for future expansion.



Landcare Research's Geospatial Data Integration Portal gets top marks for usability. After selecting the required dataset, format, and coordinate system from drop-down lists, users can quickly and easily define their area of interest by zooming in on a map of New Zealand.

FME's inherent support for translating data to dozens of formats will allow the number of formats and coordinate systems offered to be easily extended in the future. FME Server also offers Landcare Research extensive data transformation options. And since the data transformation is controlled by a graphical user interface provided by the FME Workbench application, Landcare Research found configuring and editing the data processing workflows was extremely fast. Landcare Research also places a high value on the server's scalability: as demand on the system increases, Landcare Research can upgrade FME Server by simply extending their FME Server license.

To read more on this success story, visit www.safe.com/success.

SevenCs Developers: **The Benefits of Building an FME Plug-in at Safe's Offices**

Last May, Safe had the privilege of hosting Eric Rottmann and Jörn Hauser from SevenCs while they enhanced their S-57 writer plug-in for FME. In this brief interview, we find out what they gained by traveling from Hamburg, Germany, to undertake this work at our offices near Vancouver, BC.

Tell us about SevenCs and S-57.

Eric: SevenCs was one of the earliest pioneers in developing core software for Electronic Chart Display and Information Systems (ECDIS). For larger vessels such as passenger liners, commercial freighters, and military vessels, ECDIS systems provide a much safer alternative to navigation by traditional nautical charts. As an important accompaniment to our EC2007 ECDIS Kernel Software, SevenCs provides a toolkit for creating and updating Electronic Navigational Charts (ENCs) - the data used within ECDIS systems. ENCs themselves must be encoded in S-57, the official standard for ENCs.

What prompted SevenCs to develop an S-57 writer plug-in for FME?

Jörn: In the past, when a client requested that we create an ENC, we often had to use our existing converters within our ENC Toolkit, or find another solution to convert the client's data to one of the four formats that our readers can handle - either ESRI Shape, DXF, NTX or VPF. With every conversion, we would always lose some information. When we discovered FME, we couldn't believe that designing a transformation could be so easy! FME handled every format conversion problem we've ever faced. It's now an integral part of our toolkit, along with other tools that ensure the conversion results comply with the strict standards set for ENCs.

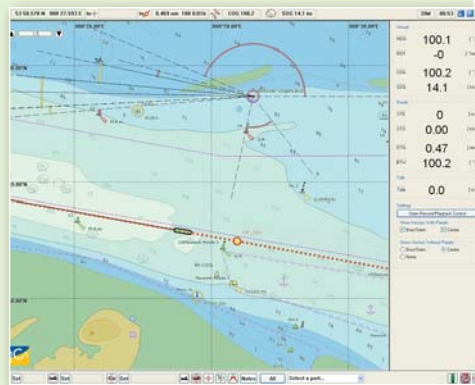


You developed the S-57 writer for FME six months prior to visiting Safe. Why did you decide to make your S-57 writer usability updates at Safe's offices?

Jörn: The first time around, when we initially developed the S-57 writer, we worked from our Hamburg office. But with the time shift between the two countries, we often faced a long delay in receiving answers to our questions. Doing much of the new usability work at Safe's offices was far more efficient.

Would you advise other developers to consider doing their integration work onsite at Safe's offices?

Eric: Absolutely! We gained the advice needed to fast-track our work. We were also able to have in-depth, in-person discussions about future approaches. With Safe, you are on the safe side!



An Electronic Navigation Chart created by SevenCs is shown here displayed in SevenCs' ORCA Master navigation tool.

Build Your Raster Expertise

One of the marquee highlights in FME 2007 is the new raster support. The "cool factor" isn't merely that FME can now perform raster operations or convert data from one raster type to another. What's significant is that for the first time, FME users can combine vector and raster data into a single data flow. This "data fusion" is helping FME users perform a whole new set of spatial ETL operations and take their FME expertise to a new level!

So, how can you too build your raster expertise in FME?

Dmitri's Raster Studio is just the place for you. Available on www.fmepedia.com, an information commons where you can access technical "how to" resources and collaborate with other users, Dmitri's Raster Studio offers several interesting examples of how you can use the raster transformers available in FME 2007 and the FME 2008 beta. For example:

Raster Mosaicking Scenario:

This sophisticated scenario shows how you can use FME 2007 to access imagery from different sources and projections, select the images you need, and mosaic, reproject and re-tile them to a new grid.

VectorOnRasterOverlayer Scenario:

This example illustrates how you can use the FME 2008 beta to add vector features to a raster image.

Rasterization Scenario:

This demonstration highlights how to use the **Rasterizer** transformer in FME 2007 to transform vector data into a raster image, as well as how to perform attribute manipulations.

To access these examples and more, visit Dmitri's Raster Studio at www.fmepedia.com/raster.

A Tribute to Curt Carlsson

Safe Software has benefited tremendously from the efforts of the many "FME evangelists" who have introduced FME to their organizations. But Curt Carlsson holds a unique place in Safe's "hall of fame." At September's FME User Conference in Gävle, Sweden, Safe's founders Don Murray and Dale Lutz paid tribute to this long-time FME enthusiast, who recently retired from his role as a GIS consultant with Metria, the consulting arm of National Land Survey of Sweden (NLS). Back in the early days of Safe, Curt's enthusiasm for FME led to Safe's first sale outside of North America, to NLS, and Curt continued to be a champion for FME across Europe for the remainder of his career.

Don and Dale first met Curt in 1996 at an ESRI User Conference in Palm Springs – an auspicious event for Safe, since it was the first time Safe was exhibiting at a tradeshow. At that time, NLS was facing increasing client demand for access to data in multiple formats. To meet this need, NLS would have to use multiple applications; moreover, many of the datasets would have to be generated manually, since few of the data translations could be run in batch mode. But when Curt saw FME demonstrated, he immediately recognized that this single tool could quickly convert data to all the formats NLS needed. And he instantly endeared himself to Don and Dale by responding to the quoted price for FME with an incredulous, "Is that all?"

Curt instigated other important "firsts" for Safe: the first ever FME training course outside of British Columbia (which took place at NLS), and the first FME user meeting – now a regular event in Sweden and Germany. Curt's hospitality has made visits to Sweden a delight for Don and Dale. "I know Curt will continue to be an ambassador for FME for many years to come," says Dale. "Thanks to Curt, even villagers living on the steppes of Mongolia have seen the power of FME Workbench!"



Curt Carlsson holding his FME Pioneer award presented by Safe's founders, Dale Lutz and Don Murray, at September's FME User Conference in Gävle, Sweden.

FME Worldwide User Conference:

Enter a New Dimension

Next March, add a whole new dimension in your journey with FME! Join us in beautiful Vancouver, British Columbia, from March 6-7 for the second FME Worldwide User Conference.

As we explore the theme *New Dimensions in Spatial ETL*, you'll gain valuable insights into new developments in the industry and in FME – developments that include 3D geometries and spatial data federation. You'll also have opportunities enhance your FME skills, receive expert technical help, and network with other industry professionals. There's never been a better reason to visit the fabulous city of Vancouver - one of North America's hottest travel destinations and gateway to the acclaimed Whistler/Blackcomb ski resort!

Conference Highlights

We're planning an agenda packed with both informative and entertaining events. Here's a preview of some of the highlights:

- Keynote presentation by Peter Batty, a renowned GIS visionary who has served as CTO at Intergraph and Smallworld
- Technical sessions that include practical insights provided by FME users and "how-to" presentations by Safe staff
- A new "hands-on" track with workshops designed to accelerate your FME skill development
- Personal consultations with our "FME Doctors" who can diagnose your data processing problems and suggest remedies
- Birds of a feather networking sessions where you can join other FME users from around the world to discuss topics of common interest

Stay A Little Longer – and Gain a Lot More

Get additional value from your visit by attending a two-day FME training course on March 3-4 and an Advanced FME Training Course on March 5. Complete details are posted on the conference web page.

As a conference attendee, you can also take advantage of discount travel packages for a two-day excursion to Whistler/Blackcomb ski resort. But you must act now - accommodation at this premier resort fills up quickly at this time of year.

Share Your FME Expertise

The FME Worldwide User Conference is an excellent opportunity for you to showcase your company's innovative applications of FME. Proposals for 40, 20 or 5-minute presentations are being accepted until **November 23, 2007**.

Visit www.safe.com/fmeuc2008 to register today.

FME 2008 Sneak Peek

The Safe development team is just putting the final touches on FME 2008 and, it's full of great functionality! Here's a sneak peek at some of the headlines you'll see next year when we launch FME 2008:

“FME Goes 3 Dimensional”

FME 2008 adds support for 3D Building Information Model (BIM) formats such as IFC and CityGML. To get a glimpse at how you will be able to use FME 2008 to take your projects to the third dimension, check out the preview videos at www.safe.com/3D; these videos showcase FME 2008 working with IFC, and Oracle® Spatial 11g 3D, ESRI Geodatabase, Adobe® Acrobat® and ESRI ArcScene.

“The FME Family Grows”

FME Server will make its long-awaited debut in 2008. Complete with powerful processing capabilities and seamless integration with FME Desktop and web services, FME Server promises to make it easier than ever to share both spatial data and the spatial ETL capabilities of the FME platform. With its scalable, Service Oriented Architecture (SOA), FME Server is built for growth.

FME Desktop is also being updated for FME 2008 so that it works seamlessly with FME

Server. Check out the latest beta of FME Desktop at www.safe.com/beta and the new “Web Services” transformer category in Workbench. These transformers make accessing web pages and web services from within a workspace fast and easy.

“FME Befriends JSON”

FME 2008 expands its ability to read data directly from the web by adding support for both JSON and GeoJSON. Soon FME users will be able to read and write generic JSON objects. They will also be able to read and write geographical data encoded with JSON according to the GeoJSON specification.

“FME Becomes a Raster Master”

Working toward its black belt in raster, FME adds several new transformers in the 2008 release, including:

A **RasterPyramider** that creates a series of pyramid levels for each input raster feature by resampling input rasters to various different resolutions

A **VirtualEarthTiler** that creates a series of image tiles for overlaying in Microsoft® Virtual Earth™ by resampling rasters to various resolutions and then splitting them into tiles.



Safe in the News

From “expanded support for European GIS formats” to “creating a bridge between proprietary and open source systems” and “map features made easy,” Safe is making headlines! You can read the latest press at www.safe.com/pressroom.

New Corporate Brochure

Looking for a better way to explain spatial ETL and FME to your poker buddies? Look no more. We are pleased to unveil our very first corporate brochure. It's a great resource to learn more about spatial ETL, our solutions, and why Safe is so unique. Download your copy at www.safe.com/brochure.pdf.



Self Study Modules: Make Tackling Common Tasks Easy

Do you want to take your FME skills to the next level, but never seem to find the time for training? We're pleased to offer a new skill development resource that should accommodate even the busiest schedule – a package of thirteen self-study modules that will allow you to set your own pace of instruction as you work your way towards proficiency with FME.

Available for download from our website as one complete package, the thirteen modules cover topics that range from foundational concepts to complex data transformations, as well as specific applications of FME. These applications include manipulating rasters, generating KML for use in Google Earth™, and importing and exporting Smallworld data.

Mark Ireland, head of Product Training at Safe Software and the primary author of the modules, describes our motivation for offering these modules for free: “Many of our clients recognize that they are only using a fraction of FME’s capabilities. At the same time though, they don’t have the luxury of attending an in-depth FME training course. Other more experienced users need resource material that helps them accomplish complex data processing tasks. We’ve endeavored to meet the needs of both groups by offering the modules as a tool that they can draw on as needed, or work through step by step as their other work priorities allow.”

Interested readers can download the full set of FME self-study modules from www.safe.com/studymodules.

FME Training Updates

The 2008 FME Training schedule is now posted at www.safe.com/trainingschedule. Plus, for Google Earth enthusiasts, we've added a KML training module to our Extended FME Training course. For more details on this course and others, visit www.safe.com/FMEtraining.

Did You Know?

Did you know Safe Software has a voice in the blogosphere?

Add www.spatial-etl.blogspot.com to your web feed service to keep up-to-date with industry insights provided by Don, Dale and other Safers. You can have your say too, by posting your comments to Safe's blog.

About Safe Software

Established in 1993, Safe Software is the maker of FME, the only true spatial ETL (Extract, Transform and Load) platform that enables organizations to seamlessly extract, translate, transform, integrate and distribute spatial data in over 190 GIS, CAD, raster and database formats. FME is used in over 116 countries by a multitude of industries with spatial/location data assets, including all levels of government, the utilities sector, transportation and resource industries such as mining, oil and gas, and forestry, to name a few.

Safe Certifies Top FME Experts

In the past, we've called them by various names: FME enthusiasts, FME experts, valued players. These are all terms we've used to identify an elite group of FME consultants and trainers who have gained a thorough knowledge of FME's extensive capabilities. This experience is enabling these experts to provide a superior quality of consulting services and FME training.

In recognition of this group's commitment to our products, Safe recently launched its

first ever FME Certification Program. Two designations are available within the program: FME Certified Professional and FME Certified Trainer. To learn more about this program, visit www.safe.com/cert.

More than 50 FME experts across the globe have received accreditation. To assist FME customers in identifying the best FME experts in their market, a list of certified FME trainers and consultants is posted at www.safe.com/cert.

Chief Operating Officer: Robert McMillin Joined Safe in Summer 2007

What is your primary role?

My main focus is to help Safe to keep doing the great things that have made the company so successful. We're facing a period of tremendous growth as the business world develops its appetite for "spatial enablement." We want to keep the unique Safe culture alive, and in a growing organization, this means introducing essential communication, support and business processes.

What did you do before joining Safe?

I was the Director of Professional Services at MDSI Mobile Data Solutions. Prior to that, I worked at MacDonald, Dettwiler and Associates (MDA) as a Photogrammetrist and Quality Assurance Engineer. In fact, Safe co-founder Dale Lutz and I worked together at MDA in 1992.

What is your education background?

I have a Bachelors Degree in Asian Studies and Political Science from Saint Mary's University (Nova Scotia, Canada) and a Diploma in Survey Engineering (Photogrammetry) from the British Columbia Institute of Technology.

What do you do in your free time?

I am a military history enthusiast and an avid collector of military medals and ephemera. I also love classic cars.

What is a fun fact about you?

I grew up in a naval family and was christened on the HMCS Magnificent, Canada's first aircraft carrier. Anyone christened on board had their name engraved inside the ship's bell. The ship is long gone, but the bell and I are still around.



Suite 2017,
7445 - 132nd Street
Surrey, BC Canada

Tel: 604.501.9985
Fax: 604.501.9965

Web: www.safe.com
E-mail: info@safe.com