safeinsider





IN THIS ISSUE

FME 2007: Now with Raster	2
ME Plug-in SDK	2
The Magic of Curvefitter	3
FME SpatialDirect 2007	3
Arkansas' GeoStor	4
Why Safe Loves the BOM	5
What's New in FME 2007?	6
Reading and Writing Web Feeds	8
Stepping Up Measure Support	8
Workbench Enhancements	9
Save Time with Custom Formats	10

Founders' Perspective Never say never!

FME[®] 2007 is here! We've added well over 2000 enhancements – 3 times more than the last version! And... even though the critics (Dale!) said it would never happen, FME 2007 now does raster! (Yes, Dale admits he was wrong!)

We're thrilled to bring you the new "souped-up" Safe Insider newsletter and are eager to highlight key accomplishments from the past year. We've included raster because no other tool out there approaches the raster ETL problem in an FME-like manner. With major databases starting to support raster, FME is well positioned to be the data loading tool of choice. Now we're proud that we can legitimately claim that FME is the industry's first complete spatial ETL solution!

FME has also evolved in many other ways: from enhancements to FME Workbench and how we support measures, to more vector formats and transformers, to new capabilities like a GeoRSS reader/writer and international character set support, and finally, to a whole host of enhancements for using FME with key 3rd party applications.

It's been a busy year for the development team. We're proud of them and of course, the entire Safe Software team who now number 80 people! We are fortunate to have a talented team made up of people who are passionately focused on delivering great products and service.

On a final note, we'd like to thank you, our users, for your ongoing support of FME. Your feedback, participation in our user conferences, and willingness to share your stories are the main reasons why we can continue delivering high quality, value-add products. Keep it coming!

Safe Software Co-founders: Dale Lutz and Don Murray

What's next?

As we look to the year ahead – it's hard to contain our excitement. The world is finally catching on to the power of spatial data - something we've known for ages. This awareness is largely due to applications such as Google Earth[™], Google Maps[™], and Microsoft[®] Virtual Earth[™]. The lines between traditional and spatial data are blurring. Enterprises are demanding powerful solutions to extract, transform, load and share all types of data. With FME Server, Safe Software is ready for the enterprise. Stay tuned!

Thanks to a great response to our first ever FME Worldwide User Conference in Vancouver, we're hosting it again. Save the date to join us again on March 6 & 7, 2008.

FME 2007: Giving Raster the Vector Treatment

- by Mary Jo Wagner

Spatial extract, transform and load (ETL) tools such as Safe Software's FME have been bringing geospatial business intelligence to myriad organizations for over a decade.

With Safe's FME platform as a core data extraction and transformation tool, businesses and government agencies have had the inherent interoperability to create an invaluable data pipe to spatial information and to share that information across the enterprise in real-time.

Indeed, with its notably versatile Workbench interface, FME has become the de facto facilitator to harnessing the intelligence held within spatial vector information. And now, FME has gone raster.

With FME 2007, GIS and non-professional GIS users who need to use, transform and incorporate raster into their workflow will be able to use all of the lauded features of FME to leverage their raster imagery. In short, customers will be able to give raster the FME vector treatment.

Ready for Raster

Until recently, the geospatial industry has had two distinct raster and vector camps and corresponding sets of tools to store, manage and view the different datasets. This divide developed not from a lack of wanting to converge vector and raster data - the geospatial community has long understood the benefits of raster imagery and how it can add tremendous value to vector layers - but only recently have tools emerged to complement vector data. The industry has made great strides over the last few years to address this need by building tools that work with both raster and vector; both ESRI and Oracle have added raster support to their databases. What has been missing, however, is a true Spatial ETL tool that handles both raster imagery and vector data.

By approaching the raster world with the same successful model the company has applied to the vector world, Safe now offers the geospatial industry a conduit to effectively move and manage raster data. Based on the traditional FME architecture, FME 2007 provides the framework to load, mosaic, clip, reproject and serve a multitude of raster formats from disparate databases. Now users will have the ability to integrate and to easily share gigabytes, even terabytes, of raster imagery through one Spatial ETL tool.

Rendering Raster Support

Mindful of the complexities in trying to develop a Spatial ETL tool to address and generically represent the multitude of existing raster formats, Safe focused on storage, interoperability, preserving information and loading/extracting raster data in and out of databases with the FME 2007 release.

A substantial upgrade, FME 2007 offers users enhanced core raster functionality,

improved raster processing capabilities and support for more than 30 raster formats. Rasters with multiple bands, multiple palettes, no-data values, 8bit and 16bit RGB or RGBA color and numeric interpretations are fully supported and easily manipulated. Users can also select individual bands and palettes for processing and take advantage of logging and viewing capabilities.

FME 2007's geoprocessing tools or "transformers" offer myriad ways to manipulate raster imagery. With these tools, users can create rasters from varied source data such as user input, vector data or surface models, and then resample, reproject, offset, scale, georeference, clip, tile or mosaic any selected data. Indeed, with FME 2007's enhanced data manipulation features, users can create detailed datasets suitable to their specific business need.

For organizations that need to combine vector and raster data in their workflows, such as utilities, oil and gas, telecommunications and geointelligence, FME 2007 will provide a complete Spatial ETL system to handle all types of spatial data, giving them the opportunity to adopt a holistic approach to business operations, to streamline business processes and achieve cost transparencies, without sacrificing data integrity.

It's all part of Safe's plan to give raster the FME vector treatment.

News for Developers: FME Plug-in SDK Gets a Facelift

Developing an FME plug-in to read and write your own format just became much easier! We've completely overhauled our FME Plug-in SDK to provide a comprehensive resource for C++ developers. We've also streamlined the process of acquiring a current version of the SDK; the SDK is now included in the FME download (*www.safe*. *com/downloads*). The SDK features a new C++ sample reader/writer plug-in that is based on TFS (Text Feature Store) - a robust new format supported by FME. The sample demonstrates the functionality required for virtually all format types and covers fixed and variable schema reading, single and multichannel writing, settings dialog input, and

coordinate system handling. Complete documentation, including test cases, is provided in the SDK. Visit *www.safe.com/pluginsdk* for details. Stay tuned for news about a certification program for third-party plug-ins and a Java sample reader/writer plug-in.

Smaller and Smoother: The Magic of Curvefitter

When we first announced that FME 2007 would support linestrings with embedded arcs, a blog posting by Jason Birch, Senior Applications Analyst for the City of Nanaimo, BC, described this new capability as "a godsend for anyone that has to deal with CAD data on a regular basis." That's a pretty nice accolade. But wait until you hear about new related functionality that's also available in FME 2007!

We're pleased to announce that FME 2007 offers Curvefitter - a powerful new transformer that builds on FME's support for embedded arcs. FME 2007 extends the benefits of Curvefitter - which was only previously available in other tools for AutoCAD formats - to any FME-supported format that's able to store arcs. Curvefitter smoothes jagged line features and area boundaries, and dramatically reduces the size of CAD and GIS files. When applied to files with many curved or highly convoluted features - such as topological maps showing contour data, or cadastral maps with multiple cul-de-sacs – Curvefitter can reduce file sizes by as much as 80 percent.

Curvefitter's smart linear optimization technology achieves these dramatic file size reductions by eliminating multiple line segments commonly used to depict curves present in real-world features. Guided by a fuzzy logic processor, Curvefitter replaces a series of line segments with the optimal combination of straight lines and embedded arc segments required to create a smooth curving line. The line optimization process is controlled by user-defined tolerances for data file size, line smoothness, and accuracy.

Curvefitter's innovative technology was developed by TCI Software of Oregon (*www.tcicorp.com*). TCI's decision to integrate its technology with FME has allowed Safe Software to advance Curvefitter technology to a new level and offer curvefitting capability for the boundaries of adjacent area features – capability not available in any other product. With the release of FME 2007, this smart linear optimization technology can be applied to any dataset with a "patchwork" of contiguous features, such as maps of vegetation cover, geological formations, soil types, and microclimate zones.

- Curvefitter is available for purchase as an add-on to the Premium level editions of FME 2007.
- For more information on Curvefitter, visit www.safe.com/curvefitter.



Parcel boundaries before and after processing with Curvefitter.

What's New in FME SpatialDirect 2007?

Raster - FME SpatialDirect 2007 is powered by FME 2007, and exploits FME 2007s enhanced raster capability to offer unprecedented options for web-based data delivery. FME SpatialDirect now supports raster data, in addition to vector, and provides the superior speed and processing capability required for clipping and reprojecting raster datasets. (Reprojection of a 30 Mb GeoTIFF file, for example, takes under 2 minutes.) FME SpatialDirect 2007 can be configured to support over 20 raster formats - in addition to 30+ vector formats already available out-of-the-box - and supports translation from one source raster format to a different destination raster format.

QServer - The new QServer architecture is now standard with this release. The QServer uses a database-managed job control mechanism to maintain translation requests. This allows for job recovery following QServer shutdowns and system crashes.

SD Manager - The SpatialDirect Manager client can now be run as a stand-alone application, allowing much faster startup, but users still have the option to run the SD Manager as a browser-based applet. Another efficiency enhancement allows Shape source datasets to be specified as directories, rather than requiring selection of individual files. Restoration of configuration state information from SD Manager Checkpoints following a system failure has also been significantly improved.

Shared Directories - The FME Server configuration file now supports the FME_SHARED_RESOURCE_DIR directive. This allows FME SpatialDirect to access custom formats and other resources from a specified location.

See **page 4** to read a success story featuring the raster and vector data delivery capabilities in FME SpatialDirect 2007.

Customer Success Story:

FME SpatialDirect at Arkansas' GeoStor

FME SpatialDirect Enables GeoStor to Deliver Both Raster and Vector Data

The Arkansas Geographic Information Office (AGIO) maintains GeoStor – the first statewide, enterprise-class geospatial data warehouse available in the United States. First open to the public in January 2001, GeoStor now stores over four terabytes of raster and vector spatial data covering the 75 counties of Arkansas. GeoStor is built over ESRI ArcSDE[®] running atop an Oracle 10*g* database, and offers web-based data search and delivery capability using any standard web browser.

In 2005 the AGIO began designing a new architecture for GeoStor that would incorporate a new data delivery solution. Project specifications required that the new solution work with GeoStor's Portal Toolkit and ArcIMS map viewer application to:

- deliver raster as well as vector data via the web, and
- provide both data types in multiple formats and coordinate systems, as specified by the end user.

After researching the data transformation capability of Safe Software's FME platform, the AGIO chose Safe Software's FME SpatialDirect® product, powered by FME 2007, to provide web-based delivery of GeoStor data.

Extended by FME SpatialDirect, GeoStor 5.0 now offers data in up to eight raster formats and sixteen vector formats, and has the flexibility to deliver this data in multiple coordinate systems. FME SpatialDirect also eliminates post-download processing of the data by "clipping" the area specified by the user from a larger map of the state before compressing the file for delivery. The user is provided with exactly the data they need, and is not required to "stitch together" multiple files or extract data from a larger file. The customizable order form interface and translation results page is also provided by FME SpatialDirect. As an additional feature, FME SpatialDirect provides the AGIO with the option to configure GeoStor to act as a Web Feature Server (WFS), and Web Map Server (WMS).



CeoStor 5.0

LO

1

FME SpatialDirect's ability to handle both raster and vector translations considerably reduced the reconfiguration effort for the AGIO by alleviating the need to work with multiple software products. Another advantage was the ease with which FME SpatialDirect could be configured in terms of scalability and customization. The AGIO has a distributed configuration powered by twelve FME servers, eight of which are dedicated to raster translations. FME SpatialDirect's load distribution mechanism ensures that requests are sent to the appropriate FME server, and sends the translation request into a queue if all FME servers are busy. Customization of FME SpatialDirect enabled GeoStor 5 to deliver a metadata file (in XML format) along with the search results. The metadata is updated on the fly, and reflects the extents, coordinate system, and process steps of the data request.

To read the complete success story, visit www.safe.com/geostor. Check out GeoStor at www.geostor.arkansas.gov/portal.

What the AGIO Is Saying

Irkansas' Official GeoData Clearingh

"Historically, users had to contact numerous agencies to obtain spatial data. These agencies stored spatial data in different data formats, leading to time consuming delays and costly additional data processing. GeoStor 5.0 provides users access to geospatial data the way they need it - in their format and their coordinate system. Having a single, accessible source for all important data layers reduces duplication and data production costs, and allows users to access information with comparatively minimal demands on AGIO staff. FME SpatialDirect 2007 has served as an instrumental GeoStor component, allowing all vector and raster datasets to be stored in a seamless manner, reducing duplicative efforts and saving costs."

www.safe.com

How Safe Learned to Stop Worrying and Love the BOM

Like many developers around the world, we found the prospect of deciphering the mysteries of character encoding systems a little overwhelming. But with FME 2007, we faced up to the challenge: FME is now a lot more savvy about handling Unicode encoded text strings in several "Unicode aware" formats. Users who need to combine source data in multiple nonnative languages will find FME 2007 a substantial improvement.



As a result of this work, we've come to appreciate Unicode's elegant

and unambiguous schemes for encoding characters. Text files encoded in UTF-8, UTF-16, or UTF-32 have a Byte Order Marker (or BOM) at the beginning of the file - a two-byte instruction that indicates that the file is in Unicode and whether the bytes are sequenced in big endian or little endian order. To borrow a phrase from an old Peter Sellers movie, you could say, we've "learned to stop worrying [about international character sets] and love the BOM!"

FME 2007 not only recognizes the Unicode character encoding schemes included in source data for a number of common text file formats, but also preserves this encoding information for each attribute string throughout any transformations that may be applied to the data during processing.

FME's XML writer has always performed well with respect to representing international character sets, but in FME 2007, users will notice considerably improved results when writing out data to KML. Spatial data visualized in Google Earth™ will now display annotations correctly in multiple languages simultaneously, including Chinese, Japanese and Korean.

FME 2007 supports the three main Unicode schemes for encoding character representations: UTF-8, UTF-16 and UTF-32. KML, XML, and GML files are encoded in either UTF-8 or UTF-16. For UTF-16, the specific byte order for reading in the file - as indicated by the Byte Order Marker (BOM) - is automatically detected by FME.

Shape files have a fixed list of encoding schemes available and the scheme used is always indicated in the file; FME will automatically detect this information. Text File and CSV files, however, may not always include information on the encoding scheme in the file. When present, it is specified by the BOM in the file header and is automatically detected. If a BOM is not included in the file, the user must specify the Unicode character encoding scheme as a source data parameter.

Source data in non-Unicode character encodings can be written to a Unicode encoding in any of the supported formats, allowing multiple files that are each written in a single language to be combined into one multi-language dataset.

Get Started with FME – in Spanish!

RTM (Recursos Tecnicos Madrid, S.L.), a Safe Software reseller based in Madrid, Spain, has made it easier for Spanish-speaking FME users to learn the basics of FME. RTM has created Spanish translations of the FME Getting Started manual and the FME tutorial. To obtain your copies, visit RTM's web site at www.rtm.es.

Supported Unicode-aware Formats in FME 2007

- Text File
- •
- •
- ESRI Shape
- . ESRI ArcSDE
- ESRI ArcSDE Raster
- - Enterprise)
- GML

Did You Know...

If you have an up-to-date Annual Maintenance Contract (AMC), you can upgrade to FME 2007 at no cost. As an AMC holder, you'll automatically receive your product upgrade CD by mail. Other benefits of keeping your AMC up-to-date include:

- priority technical support
- discounts on consulting services from our **Professional Services team**
- discounts on product training
- full credit for upgrades to another **FME Edition**

To view the full list of AMC program benefits, visit www.safe.com/amc.

KML

XML

GeoRSS

Microsoft Access

Microsoft Excel

Microsoft SQL

- CSV
- dBASE III

- (Personal, File, and
 - Oracle 10q/9i/8i SQLite3

- ESRI Geodatabase MicroStation DGN

What's New in **FME 2007?**

FME 2007 includes over 2100 enhancements that will enable users to streamline workflows and access more spatial data than ever before. New support for 9 raster formats and over 15 vector formats brings the total number of formats supported in FME 2007 to just over 190. FME 2007 also introduces over 50 new transformers, 20 of which are specifically for raster data.

New Formats

Vector Formats

- ASPRS LIDAR Data Exchange Format (LAS) (Reader)
- BC Ministry of Forests ESF - FSP
- ESRI ArcGIS 9.x Layer (Reader)
- FDO Providers
- AutoCAD Map 3D 2008
- Open Source Providers
- Generic Writer
- GeoConcept
- GeoRSS . KML 2.1 .
- Microsoft MapPoint Web XML SDF3
- SOLite 3 .

- Text Feature Store (TFS)
- Fixed Schema
- Variable Schema
- Trimble JobXML (Reader)
- US EPA Geospatial Data XML (Reader)
- VoxelGeo OpenInventor • (Writer - Beta)

New Transformers

ArcMeasureExtractor: Sets the given attributes to the values of a measure.

ArcMeasureSetter: Sets measures on an arc geometry to the values given.

ArcPropertyExtractor: Sets the given attributes to the properties of an arc geometry.

ArcPropertySetter: Sets the properties of an arc geometry to those specified.

ArcSDEGridSnapper: Simulates the ArcSDE conversion on a feature by performing ArcSDE translation, scaling, and coordinate snapping. AttributeExploder: Takes attribute names and turns them into values of a secondary attribute. CoordinateSystemDescriptionConverter: Converts coordinate system strings between representations. Creator: Creates features using the parameters supplied, and sends them into the workspace for processing. Replaces 2DCreator, 3DCreator, ArcCreator, EllipseCreator and NullGeometryCreator. **Curvefitter:** Replaces multiple line segments used to approximate curves with paths containing arcs. EllipsePropertyExtractor: Sets the given attributes to

the properties of an ellipse geometry. EllipsePropertySetter: Sets the properties of an ellipse geometry as specified.

FeatureHolder: Stores incoming features until they have all arrived, and then releases them in their original order.

FMEFunctionCaller: Calls the specified FME Function. GeometryRefiner: Refines the geometry of a feature. GeometryReplacer: Replaces the geometry of each feature with the one defined by the Geometry parameter.

GeometryValidator: Evaluates the simplicity or validity of a geometry feature, and routes the feature according to the outcome of the test(s). GeoRSSFeatureExtractor: Constructs GeoRSS

documents from the input features.

GeoRSSFeatureReplacer: Constructs features from GeoRSS documents/URLs that are stored in an attribute of the input features.

GtransAttributeReprojector: Reprojects attributes holding coordinate values from one coordinate system to another using the Gtrans reprojection library and the specified translation file.

GtransReprojector: Reprojects features using the Gtrans reprojection library and the specified translation file.

LineMeasureExtractor: Creates a list attribute from values in a measure.

LineMeasureSetter: Sets the measures on a line geometry to the values in the given Source Measure List Attribute.

MinimumSpanningCircleReplacer: Replaces the geometry of the feature with a polygon representing its minimum spanning circle.

NeighborColorSetter: Assigns colors to areas in

a coverage such that adjacent areas are colored differently.

OrientationExtractor: Determines the feature's orientation and returns it in the specified Orientation Attribute.

ParameterFetcher: Adds an attribute to the feature, supplying it the value of a parameter.

PartCounter: Returns the number of parts in the geometry.

PathSplitter: Decomposes a path feature into its component segments.



PointMeasureExtractor: Sets the Destination Measure Attribute to the value of the measure named by Source Measure Name.

PointMeasureSetter: Sets the measure on a point geometry to Measure Value.

PointOnRasterOverlayer: Takes in a number of point features and a single reference raster. For each input point feature, a point is created after the reference raster and output.

PythonCreator: Generates FME features using a Python object referenced by the symbol name parameter.

RasterBandCombiner: Creates a single multibanded raster from multiple single banded rasters.

RasterBandNodataSetter: Sets or flags the nodata value of a raster at the band level.

RasterBandPropertiesExtractor: Extracts the band and palette properties of a raster feature and exposes them as attributes.

ERDAS Raw (Reader) GIF (Writer) HDF4/HDF4-EOS ASTER (Reader)

Raster Formats

- HDF4/HDF4-EOS Hyperion (Reader)
- NITF (Writer)
- PNG (Writer)
- RADARSAT2 (Reader)
- TIFF
 - WMS (Reader): Supports WMS 1.1.0, 1.1.1 and 1.3.0

RasterBandSeparator: Creates multiple single banded rasters from an input multibanded raster. RasterDEMGenerator: Generates a Digital Elevation Model (DEM) represented as raster from the input POINTS, BREAKLINES, and 3D_LINES. RasterGeoreferencer: Georeferences a raster. RasterInterpretationCoercer: Converts the interpretation of selected band(s) or

palette(s) on a raster. Replaces the now deprecated RasterColorModelCoercer and RasterDataTypeCoercer.

www.safe.com



Rasterizer: Converts vector features to rasters. **RasterMosaicker:** Mosaics multiple rasters into one raster. The number of bands and palettes is preserved.

RasterNodataRemover: Removes the nodata flags of all selected bands and all of their palettes. RasterPaletteNodataSetter: Sets or flags the nodata value of a raster at the palette level. RasterPaletteRemover: Removes the selected palette(s) of a raster.

RasterPaletteResolver: Resolves rasters with palettes into rasters without palettes.

RasterPointExtractor: Renamed from GridPointExtractor. Decomposes all input numeric raster features into individual points.

RasterPropertiesExtractor: Extracts the geometry properties of a raster feature and exposes them as attributes.

RasterReader: Reads and outputs raster features from the specified format and dataset.

RasterRGBCreator: Creates a feature with a raster of the specified size with general value using the parameters supplied.

RasterSelector: Selects specific bands and palettes of a raster for subsequent transformer operations. **SummaryReporter:** Writes a summary report of features that enter to a disk file.

TextAdder: Sets the feature's geometry to text with the previous geometry as the text location. TextLocationExtractor: Sets a text feature's geometry to the location of the text.

TextPropertyExtractor: Sets the given attributes to the properties of a text geometry.

TextPropertySetter: Sets the properties of a text geometry to the specified properties.

URLFetcher: Retrieves the contents of the specified URL and stores them in the specified attribute. **VariableSetter:** Creates and sets the specified variable to the specified value.

VariableRetriever: Renamed from

VariableRasterClassifier. Reads the specified variable and puts its value into the specified attribute.

Highlights for Autodesk Users

FME 2007 Autodesk Edition reads and writes AutoCAD 2007 files, and Autodesk's updated SDF3 format. FME 2007 also builds on Safe's tradition of adding value to Autodesk products by introducing the FME FDO Provider. The FME FDO Provider provides AutoCAD Map® 3D 2007 and 2008 with additional direct read ability for over 100 FME-supported formats through new open source Feature Data Objects (FDO) technology. In addition to providing notably more extensive format support than other FDO data sources, the FME FDO Provider is a convenient way to view or import data while transforming the data with FME's Workbench application. Over 270 different data transformations can be applied to data as it is read, eliminating the need to translate the data into DWG or SDF3 or make a copy of the data. Instead, a transformed version of the original data can be viewed directly. Workbench's Custom Format feature can also save users hours of time by automating data preparation tasks. (See article page 10.) FME 2007 also includes numerous enhancements to Autodesk format support, such as better support for hatches. Visit *www.safe.com/autodesk* for more information and an evaluation copy of FME 2007.

Highlights for ESRI Users

FME 2007 ESRI Edition will include, for the first time, support for ArcGIS[®] Engine and Server deployments, and the new File Geodatabase format. Other highlights include improved support for highprecision Enterprise Geodatabase and ArcSDE. FME 2007 is compatible with and extends the ESRI ArcGIS[®] Data Interoperability extension at 9.2. It also includes a beta integration with ESRI's coordinate reprojection engine. Visit *www.safe.com/ESRI* for more information about FME solutions for ESRI users.

Highlights for Informatica Users

The FME Extension for Informatica makes its debut in this release. Historically, organizations have had to use different tools to process their spatial and traditional data. With this extension, PowerCenter users are now able to build a single ETL solution that leverages all their data for their business decision systems. The FME Extension for Informatica brings spatial data to the enterprise. For more information visit www.safe.com/informatica.

Highlights for Microsoft Users

The FME Extension for Microsoft[®] SQL Server[®] Integration Services (SSIS) also makes its debut in this release, making over 190 different spatial data formats directly available to the SSIS environment and providing SSIS users with over 270 data transformation options. For more information and a free trial of the FME Extension for Microsoft SQL Server Integration Services, visit *www.safe. com/microsoft.*

Highlights for Oracle Users

FME 2007 Oracle Edition users will find loading raster data simpler and faster with FME 2007's high-performance Spatial ETL capability. Users will also benefit from enhanced support for reading coordinate systems, as well as new support for arcs included in linear or polygonal features. Visit *www. safe.com/oracle* for information on FME solutions for Oracle users.

For the latest complete list of Formats, Transformers, Factories and Functions, visit *www.safe.com/2007*.

Read and Write Web Feeds with FME 2007

When news reports begin coming in about a natural disaster, such as a wildfire or tornado advancing across a region, hundreds of people immediately wonder who they can call to find out if a friend's or relative's hometown is threatened. If you're an FME user, you may soon be firing up FME instead!

With the release of FME 2007, FME now includes a reader and writer for GeoRSS - a family of standards used to add location information to RSS and Atom feeds published by many web-based information services. The first of these standards for GeoRSS emerged as recently as 2003, but dozens of sites already offer a wide variety of regularly updated "geo-tagged" information such as recent earthquake occurrences, traffic congestion reports, and information on regional events and exhibitions.

Using FME's GeoRSS reader, users can now read GeoRSS-enabled feeds and use them as they easily as they use any other FME data source. The information in the feed can be integrated with other data and viewed either in FME's Universal Viewer, or in any FMEsupported mapping application. Once the original GeoRSS data has been read and processed by FME, the GeoRSS reader can then

Stepping Up Measure Support

The amount of information that can be linked to linear features gets a huge boost with FME 2007 through significantly improved support for measures. For those not "in the know", a measure records information about an event on a linear real-word feature. A measure may indicate the number of lanes on a specific section of highway, the type of substrate along a given stretch of a stream, or the date crossties were replaced along a section of a railway track.

Earlier versions of FME supported only a single measure type for each feature. Each new value recorded as the measure value changed along the length of the feature was included in a list of comma separated values and expressed in a single attribute called the "measure list." Since there was only an implied relationship between each value in the list and the next vertex or coordinate value in the linear feature, snipping or bisecting a feature to create two new features required careful reconstruction of the measure list.

FME 2007 dramatically improves measure support in two important ways. Firstly, measures are now stored as values at each vertex of a feature. As a result, if a linear feature is snipped into multiple features, each new feature will automatically retain relevant measure values. Secondly, multiple named measures are supported on each feature. A given stretch of highway, for example, may now include measures that indicate not only the number of lanes, but perhaps also the speed limit, average hourly traffic volume, and number of fatalities. be used in update mode to retrieve only new information as it becomes available.

Plus, with FME's GeoRSS writer, FME users can easily publish their own spatially-enabled GeoRSS feeds. The GeoRSS reader and writer can also create and consume traditional (non-spatial) RSS feeds.

For more information about FME support for GeoRSS, visit Safe Software's website at *www.safe.com/georss*.



A GeoRSS feed of earthquake locations was transformed into a KML file in FME's Workbench application and visualized in Google Earth. Earthquake magnitude is indicated by the height of the column.

Users should note that the formats that support measures - namely Shapefiles, Geodatabase formats, ArcSDE and Oracle Spatial - at this point, support only one measure set per feature. Although multiple measure sets can now be used within FME, only a single measure set can be associated with each vertex when writing to these formats.

Our improved support for measures in FME 2007 is the result of extensive updates to the architecture of the FME core platform that enable it to support more complex feature geometries. The foundation of this architecture - the rich geometry model - was incorporated into FME 2006 and further updates are being progressively implemented throughout factories, functions, transformers and relevant formats with each new release of FME.

- For more information on FME's support for measures and linear referencing, consult your Workbench Help menu or check out our online Workbench Help documentation at www.safe.com/docs. Look for How FME Supports Linear Referencing.
- To read a success story summarizing the use of FME to simplify data conversion between linear referencing and segmented data models, visit www.safe.com/linear_referencing.
- For more information on FME's rich geometry model, visit www.fmepedia.com.

Workbench Enhancements in FME 2007

FME's graphical Workbench interface lies at the heart of FME's acclaimed usability. Here's a look at just a few of the Workbench enhancements implemented in FME 2007 to help maximize user efficiency and productivity:

Overview Window: A new Overview Window lets users see their entire workspace at a glance so they can easily navigate to a different region of the workspace. Use View > Windows > Overview to activate the window.

Floating Windows: All panes displayed in the Workbench interface can now float independently of each other, and even independently of the main Workbench window frame itself. Just click on the frame and drag it to a new position – even to your second monitor! Two or more windows docked in the same location on the main Workbench window frame can be arranged either stacked or tabbed. To select your preference, click the down arrow button on the top of each pane.

Customizable Transformer Gallery: Users can create their own folders in the transformer Gallery to store frequently-used transformers

for quick access. Just right-click within the Gallery and choose New Folder. The folders are saved as an external definition so they can be shared with other users.

Incomplete Transformers: This helpful new feature identifies transformers requiring attention. Transformers with incomplete settings now show in red in the Navigation Pane and are grouped together under "Incomplete Transformers". If an attribute is renamed or deleted in one transformer, for instance, other transformers that depend on that attribute will turn red. The Properties button on the transformer(s) displayed in the workspace Canvas will also turn red.

Isolating Transformers: Individual transformers or whole sections and streams of a workspace can now be disconnected and left on the Canvas and the workspace will still run. This is handy functionality for testing parts of the workspace.

Processing Layers: When the source dataset contains more than one layer (feature type), a Select Feature Types dialog (and an advanced setting under each reader) allows users to restrict workspace processing to the selected layers. This setting can be published and used from the command line.

Schema Migration Support: If the structure of the source data changes – for example, an attribute type changes – the workspace can be updated using the Update Feature Type Definitions tool in the Source Data menu.

Python/TCL Editor Dialog: Python and TCL scripts no longer need to be stored in external files; these scripts can now be edited within FME's new editor dialog and also shipped to other users within the FME workspace file. In addition, new Advanced Workspace Settings allow users to define Python and TCL scripts to run before and after a workspace executes.

For more information on how to use these and many other new Workbench enhancements in FME 2007, visit *www.safe.com/2007*.

Challenge: Safe Around the World

Safe Software gear sure gets around! We've given away quite a few Safe-branded items over the years and they're starting to show up in exotic locations all over the world. But we're not telling you where – that's for you to guess!

For some fun lunch-time entertainment, why not test your recognition of famous landmarks by taking our Safe Around the World Challenge? The challenge features snapshots of FME gear in undisclosed locations and you'll find it at *www.safe. com/SafeAroundTheWorld.*

You can order your own Safe Software gear at *www.cafepress. com/safesoftware*. Then you can send us your snapshot for the next Safe Around the World Challenge! Or, if you're traveling somewhere really exciting, email us at *aroundworld@safe.com* and tell us where you're headed; we might send you some



Safe Software's Krista Schlesiger Wright wore her FME gear to the big game – guess the name and location of the stadium at **www.safe.com/SafeAroundTheWorld**.

merchandise to include in your snapshot! The Challenge page, *www.safe.com/SafeAroundTheWorld*, includes all the details on what to include with your photo submission.

Safe Software Honors Lars Saxin

The winter of 1997 was a heady time for Don and Dale, Safe Software's co-founders. As the sole employees of a fledgling company, they had just made their first FME sale outside North America – to National Land Survey of Sweden (NLS). After the sale, Dale traveled to Sweden to host the first ever international FME training course, which was sponsored by both NLS and ESRI Sweden (Safe's first European reseller).

One of the course attendees was Lars Saxin, a mapping technologist for the City of Gävle. At that time, the City of Gävle was in the process of moving its maps from a Wang system to ArcSDE. After just 2 days of FME training and a day of one-on-one instruction from Dale, Lars faced the daunting task of recreating the AutoCAD export processes the City used in their old Wang system with the ArcSDE + FME combination. Given the complexity of the exacting output requirements, this represented a challenging assignment for even the most experienced FME user (and in those days, there were few around!). One of the workflows Lars and Dale designed together not only needed to copy symbols representing tombstones across to their precise locations, but also needed to reproduce the symbols in a specific orientation to reflect the compass direction the real-world tombstone faced. After Dale's departure, Lars continued the



data conversion process alone, designing similarly complex FME translations for a multitude of other map features assisted only by email advice from Dale and occasional phone calls. In those early days, FME did not include the graphical interface provided by FME's Workbench application; all Lars' work was done using FME's Universal Translator and mapping file scripts.

With his retirement in September 2006, Lars left a legacy of sophisticated FME mapping files that have saved his colleagues at the City of Gavle countless days of work. To mark the occasion, Safe was honored to provide Lars with an FME Pioneer award – an award that recognizes Lars' long-standing enthusiasm for FME, and celebrates Dale's valued friendship with a quintessential Swedish gentleman.

New Transformer Quick-Reference Guide

When a single draft copy of Safe Software's new Transformer Quick-Reference Guide was leaked from our technical writer's department, both new staff and veteran FME users were soon lining up to beg for their own copy. That's a sure sign that we've developed a handy job aid.

What's the reason behind the new guide's popularity? Primarily, the color graphics - they allow you to see, at-a-glance, how a specific transformer will alter your data. Download your own copy today from *www.safe.com/transformers.*



Colourful images make it easy to understand each transformer's functionality.

Save Time with Custom Formats

Take a lunch break that could save you hours of work – the ultimate power lunch! Just 30 minutes spent exploring FME's Custom Formats has transformed many FME users into enthusiastic fans of this powerful, but often overlooked, functionality.

Sometimes described as a virtual format, a user-defined format, a view, or a skin, Custom Formats allow you to define transformations that are automatically applied to source data as it is read. This can be a huge timesaver if you routinely perform the same transformations on your data.

Custom Formats are often used to resolve schema mismatches between different datasets, and to combine data from multiple sources. Geometric features and attributes stored in different systems, for example, can be joined on-the-fly for direct read into an FME-supported application.

Custom Formats also provide an efficient way to create custom views of a shared

source dataset. For example, a municipality maintains an Oracle Spatial database that contains the city's entire land use and infrastructure data. Various departments can use Custom Formats to obtain their unique views of this data. In this scenario, the Highways Department may use a Custom Format to read only road features and perhaps to also change the line colors of highways and major roads as the data is read into the destination application.

To learn more about Custom Formats and view a multimedia tutorial, visit *www.safe. com/customformats.*

First Worldwide FME User Conference Explores the Possibilities of FME

A beautifully restored heritage building in downtown Vancouver provided a state-ofthe-art venue for Safe's first Worldwide FME User Conference, held in September 2006. For a first ever conference of this kind, it was tremendously encouraging to have 77 participants attend from over 16 countries. Our call for user stories also drew an enthusiastic response, resulting in a diverse array of presentations that underscored just how multi-purpose FME is.

The full conference agenda and slides from the conference presentations are available on our website at *www.safe.com/2006uc*.





Contest Entertains and Inspires – Insults and All

Would you put your FME skills to the test before an audience of over 70 people? Fortunately, four renowned FME users graciously agreed to participate in our FME Idol challenge - a fun event that turned out to be one of the highlights of Safe's inaugural FME Worldwide User Conference held in Vancouver last September. Raghavendran S. (a.k.a. SRG) from India, Hans van der Maarel from the Netherlands, Peter Laulund from Denmark, and British Columbia's own Jason Birch battled it out to see who would be the first to solve one of two challenging assignments.

As if problem-solving before an audience wasn't disconcerting enough, contestants were subjected a barrage of disparaging comments from the judges, in true Idol contest style. Our gloves-off, no-comments-barred judges attempted to distract contestants with comments such as, *With workspaces like that, you should be downgraded to a Base Edition license,* or *Did you take FME training? Were you*

awake? But our contestants were difficult to derail, and in the end both Jason and Peter effectively tied for the title of FME Idol. Both chose the second challenge option, which involved decoding some FME steganography and outputting the results to KML. The first challenge option, attempted by SRG and Hans, involved creating a map showing the hometowns of the conference attendees from a complex input text file of geocoded cities, the attendee city list, and a German/English country map.

If you'd like to test your skills against the FME Idol challenge questions, you'll find the datasets, as well as the final solutions provided by our contestants, on our conference web page at *www.safe.com/* 2006uc. But be warned: all our contestants are power FME users, so the challenges we designed are not easy to solve!

For more conference highlights, visit Safe's blog at *www.spatial-etl.blogspot.com*.

Date Set for Second FME Worldwide User Conference

Attendees at our first ever FME Worldwide User Conference described the event as "an unparalleled learning experience" and "loads of fun". If you missed the first conference, now's the time to plan ahead for the next one. Join us in beautiful Vancouver, Canada for our next Worldwide FME User Conference on **March 6-7**, **2008**. Watch for details on this event to be posted in November at *www.safe.com/2008UC*.

Other Upcoming Events

September 17-18, 2007

FME User Conference, Muenster, Germany

Hosted by Safe Software and con terra *Highlights:*

- choose from a variety of interactive workshops
- listen to "lightning talks" (5 minute technical and customer briefings)
- meet Safe Software founders, Dale Lutz and Don Murray

For conference details, visit

www.fme-anwendertreffen.de.

September 20-21, 2007

FME Swedish User Conference, Gävle, Sweden Hosted by Safe Software, Metria and ESRI S-Group *Highlights:*

- learn from FME experts via a mix of lectures, workshops and fun activities
- interact with long-term FME users from National Land Survey of Sweden and Gävle City
- meet Safe Software founders, Dale Lutz and Don Murray

For conference details, visit www.metria.se

Help Beyond the Help Menu

In addition to the FME Help menu, Safe Software offers two other ways to quickly find answers to your questions:

- Expert advice is available online 24-7 through our online Yahoo![®] group for FME users at *www.safe.com/fmegroup*. Joining this group gives you immediate access to advice provided by Safe's staff and skilled FME users.
- Safe Software maintains an online "encyclopedia of all things FME" at *www.fmepedia.com*. fmepedia provides a wealth of important background information on FME functionality that is continually updated to keep you informed.

This issue of the **Safe Insider** is dedicated to the memory of **D.I. Axel Axmann**, Managing Director and founder of Axmann Geoinformation, Austria.

About Safe Software

Established in 1993, Safe Software is the maker of FME, a powerful 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.

FME Training Update

Safe Software's training course consistently receives excellent reviews from attendees. Whether you're just starting out with FME or already a proficient FME user, making time in your schedule for FME training is always a good investment.

Training manual updates: Past FME training course attendees can access a training manual update that details the new functionality in FME 2007 at *www.safe.com/trainingmanualupdates*.

Mark Stoakes

Manager, Professional Services Joined Safe in 2000

Where did you work prior to joining Safe Software and in what capacity? In the 1990's, I was the manager of Support and Professional Services with LYNX Geosystems Inc. LYNX developed 3D underground and surface mine design software and geostatistical analysis and 3D grid modeling tools. The company had installations in remote places, from northern Canada to South America and southern Africa. These are fun places to visit when you're relatively young and unattached!

What is your education background?

I have a degree in Mining Engineering from Nottingham (as of "Robin Hood" fame) University.

What do you do in your free time?

Apparently, my "free" time is reserved for driving my kids around. When I get a chance to escape, I enjoy skiing, cycling, canoeing and camping.

What is a fun fact about you?

I have rowed in a rickety skiff in a flooding potash mine – not wise to do, since potash is more soluble than salt! Unfortunately, I didn't find a magic ring.

What is the role of Professional Services at Safe? Our role is to help clients achieve the best possible value from our products, in the most productive way. We do this through support, training, solution assistance and project implementation services.

New this summer: A limited number of extended, 3-day courses are now available. These courses provide more in-depth training through a new "advanced" session and an opportunity to discuss your unique data processing challenges one-on-one with an instructor. Look for "Extended FME Training" on our list of upcoming training courses at *www.safe.com/services/training.*

SAFE SOFTWARE

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

FME and SpatialDirect are registered trademarks of Safe Software Inc. All other product names may be trademarks or registered trademarks of their respective owners. Printed in Canada.