

FME Desktop



REMOVE BARRIERS TO DATA CONVERSION

FME Desktop is a flexible and powerful spatial ETL toolset used by thousands of GIS Professionals worldwide to quickly translate, transform and integrate data.

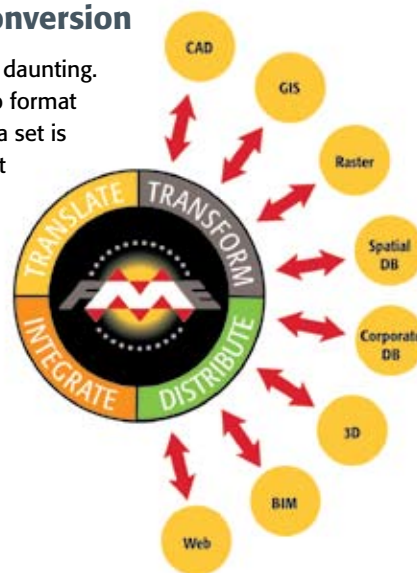
Answering the Need for Better Spatial Data Conversion

Converting spatial data into the precise data model you want can be daunting. The data is scattered in a myriad of systems and databases, format to format translation scripts are time-consuming to write, and the resulting data set is often not structured the way you need it. How much is this inefficient process costing your business?

FME Desktop is an efficient alternative for data conversion.

It helps you get spatial data into the exact format and structure you need, using a fast, simple and straight-forward process. FME Desktop offers a flexible and powerful spatial ETL toolset for:

- Quick data **TRANSLATION** for hundreds of formats
- Flexible data model **TRANSFORMATION**
- Powerful **INTEGRATION** between multiple data types



Spatial ETL

Extract, transform and load location data from and to virtually any format or application.

TRANSLATE Spatial Data Quickly

Format to format data translation doesn't need to be time-consuming. A smart alternative to writing code, FME Desktop makes translating data between multiple formats quick and simple. Just point and click to create graphical data flows which move your data. Two flexible options are available: the Universal Translator for simple conversions and the FME Workbench for more sophisticated translations.

FME Desktop's format support for translation is unrivalled. With reading and writing support for hundreds of GIS, CAD, raster, BIM/3D, database, and web formats, FME Desktop is the only true spatial ETL toolset that can address your data translation requirements – both today and tomorrow.

Top Ten Ways to Use FME

1. Exchange data between CAD and GIS
2. Integrate multiple types of data
3. Perform quality assurance (QA) on spatial data
4. Publish spatial data as KML for Google Earth/Maps
5. Restructure spatial data models and schemas
6. Bring spatial intelligence to traditional IT systems
7. "Spatialize" non-spatial data
8. Replicate data between spatial databases
9. Perform format to format translation
10. Extract data from legacy systems

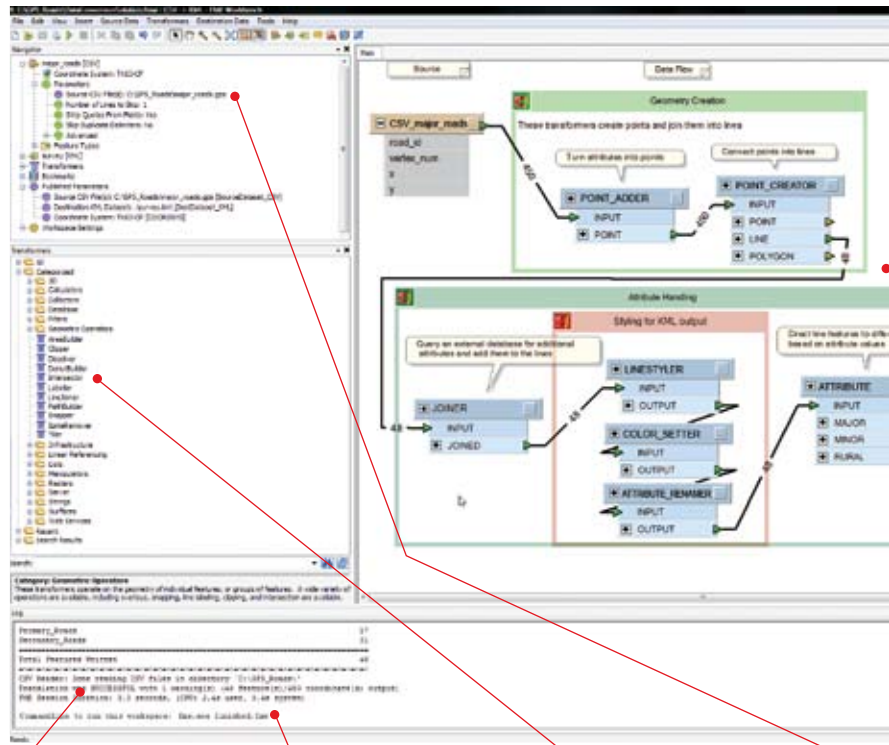
TRANSFORM Data to Meet Precise Data Model Requirements

Data transformation is critical for success in any data conversion initiative. Getting the results to match your project's requirements doesn't have to be a complicated guessing game. FME Desktop gives you complete flexibility to transform your data into the data model you need. Using its rich data modeling capabilities, you can accurately restructure the schema of your data as it moves from the source to the destination – without losing its semantic information.

FME Desktop includes a gallery of over 300 powerful transformers which offer limitless ways for you to manipulate your spatial data. Common data transformation tasks include:

- Performing geometric operations
- Combining data from multiple sources and types
- Joining database attributes to feature geometry
- Performing attribute operations
- Adjusting feature symbology

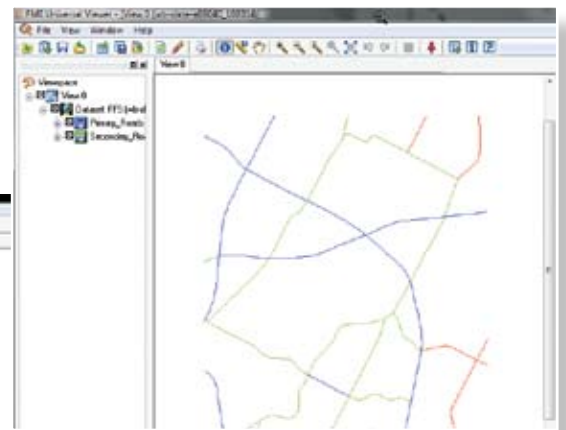
Use the FME Workbench environment to easily translate, transform and integrate any spatial data with simple point and click.



All transformers are accessible within the FME Workbench component, a spatial ETL authoring environment for quickly defining graphical data flows to translate, transform and integrate your data.

Understanding your data is the key to accurate data transformation. FME Desktop also includes a Universal Viewer so you can quickly inspect your data's attributes and geometry – giving you the flexibility to examine your progress before, during and after the transformation process.

Use the Universal Viewer to quickly inspect your spatial data's attributes and geometry throughout the transformation process.



Canvas:
Graphically define data flows (workspaces) to transform data as it moves from source to destination.

Translation Log:
View your translation results, including length of translation and numbers of features processed.

Batch Processing:
Set your spatial ETL data flows (workspaces) to run automatically from a Windows schedule or command line.

Transformer Gallery:
Choose from over 300 transformers to restructure the geometry and attributes of your spatial data.

Coordinate Systems:
Choose via thousands of pre-defined coordinate systems or define your own custom coordinate system.

Format Gallery:
Read and write data in hundreds of formats.

Description	Short Name	Read	Write	Extension	Coord Sys	Type
ESRI Shapefile	SHAPE	Y	Y	.shp	Y	File/Direct
Facet/ZIP	FACET	Y	Y	.zsh	Y	File/Direct
FalconView File	FALCONVIEW	Y	Y	.mxd	Y	File
FDO Provider (AutoCAD File)	FDO_SHAPE	Y	Y		Y	Database
FDO Provider (FME)	FDO_FME	Y	Y		Y	Database
FME Feature Store (FFS)	FFS	Y	Y	.fs	Y	File/Direct
Genesys GeoMap	GENMAP	Y	Y	.gml	Y	File
GeoConcept Map	GEOCONCEPT	Y	Y	.gcm	Y	File/Direct
GEOCONCEPT Map	STRUMAP	Y	Y	.gml	Y	File/Direct
Geographic Data File (GDF)	GDF	Y	Y	.gdf	Y	File/Direct
Geographic Data Management System	SCMS	Y	Y		Y	File
Geography Markup Language (GML)	GML	Y	Y	.gml	Y	File/Direct

INTEGRATE Multiple Data Types with Flexibility

Bringing together different types of spatial and non-spatial data doesn't have to be complex. FME Desktop gives you the power to integrate different types of data into a single translation run. Using the FME Workbench component, you can simply point and click to integrate multiple data types from multiple sources, creating a unified data model for your project. For example, you can use FME Desktop to combine vector and raster imagery in a single translation or you can merge CAD files with an attribute database. You can also use FME Desktop to execute SQL queries against spatial database systems, including:

- ESRI® Geodatabase
- Microsoft® SQL Server™ 2008
- MySQL®
- Oracle
- PostGIS

"As our needs and applications have changed over time, there has been one consistency – FME. FME's tremendous flexibility, power and robustness have enabled us to overcome each and every data integration challenge."

Oliver Heimann
GIS Expert
Vodafone D2 GmbH

FME also tightly integrates with many applications to conveniently translate, transform and integrate your spatial data from within a familiar environment. The power of FME can be accessed from the following applications:

- Autodesk AutoCAD® Map3D
- Autodesk MapGuide®
- ESRI ArcGIS®
- Intergraph GeoMedia®
- MapInfo Professional®
- Microsoft® SQL Server Integration Services
- GE Smallworld

In fact, most leading GIS vendors have chosen to integrate core FME capabilities within their own applications to better address their customers' needs for efficient data conversion. For maximum flexibility, applications can be easily configured to access FME functionality using FME Desktop's C++, .NET and Java APIs.

"Safe Software sets the standard for spatial data interoperability, so it was an obvious choice to use their FME technology for ESRI's ArcGIS Data Interoperability and ArcIMS Data Delivery extensions."

Jack Dangermond
President
ESRI

Data Types Supported in FME Desktop

CAD



VECTOR



RASTER



DATABASE



BIM/3D



WEB



DISTRIBUTE Spatial Data Efficiently

FME Desktop is the authoring toolset for FME Server, a scalable processing environment for efficiently distributing spatial data to multiple user communities via the web. Any spatial ETL data flow (workspace) created using FME Desktop can be published to FME Server so users both inside and outside your organization can benefit from on-the-fly data transformation. FME Desktop and FME Server together provide a comprehensive spatial ETL solution for powerful and efficient data translation, transformation, integration and distribution.

To learn more about FME Server, please visit www.safe.com/distribute.

About Safe Software

Safe Software powers the flow of spatial data with its software platform, FME. The recognized standard in spatial ETL (extract, transform and load), FME is the only complete solution for data conversion. It delivers the most extensive format support for data translation and integration, and provides unlimited flexibility in data model transformation and distribution. For more information, visit www.safe.com.

Get Expert FME Service and Support

Whether you need expert technical support, hands-on training, or development and deployment consultation, Safe Software's Professional Services team is here to help. Committed to helping you succeed in learning how to use FME, the team is comprised of individuals chosen for their in-depth knowledge as well as extensive practical experience in information technology and spatial data management.

FME Desktop includes an annual maintenance contract (AMC) so you can take full advantage of your FME investment. AMC gives you access to free technical support and software updates for the first year.

For more information, please visit www.safe.com/fmeservice.

Network with FME Users

Safe Software's user wiki, fmepedia, and Google™ group, FME Talk, offer direct access to technical resources and community assistance. These community sites help ensure that you get the most out of your FME investment. Self-study tutorials are also available.

To access these resources, please visit www.safe.com/community.



Experience FME Firsthand

Thousands of customers worldwide have chosen FME Desktop to power the flow of their spatial data. What will you do?

The best way to experience the benefits of FME Desktop is to try it yourself. Download a free trial by visiting www.safe.com/evaluatefme. To request a personalized web demonstration, email us at sales@safe.com.

Make the Right Choice for You

FME Desktop is available in a variety of editions with flexible floating, fixed (node-locked) and hardware-locked licensing options to meet your specific spatial ETL requirements. Each edition includes three core FME components:

- FME Workbench
- Universal Translator
- Universal Viewer

Choosing the right edition for your needs depends on your data format requirements and the GIS applications you plan to use FME with.

For an edition comparison and a list of supported formats, please visit www.safe.com/fmeeditions.

"As FME users for over eight years, we've seen first-hand that FME's value comes from more than just the software; it's the whole package. From comprehensive training and flexible software to expert support and consulting services, Safe Software really gets what it takes to help its customers succeed in maximizing their productivity."

Jay Clark
Director, Quality Process Initiatives
Tele Atlas



Supported Formats in FME

FME offers the broadest range of format support in the industry. Whether you are looking to read or write data, FME can support the formats you need.

BIM/3D

- Adobe PDF
- CityGML
- Industry Foundation Class STEP Files (IFC)
- LandXML

GIS/CAD/Database

- 1Spatial Gothic*
- 1Spatial Internal Feature Format (IFF)
- APT
- ASPRS Lidar Data Exchange Format (LAS)
- Additional Military Layers (AML)
- Adobe Flash (SWF)
- Adobe Illustrator EPS
- Aeronautical Information Exchange Model (AIXM)*
- Autodesk AutoCAD DWF
- Autodesk AutoCAD DWG/DXF
- Autodesk AutoCAD Map 3D Object Data
- Autodesk MapGuide SDF
- Autodesk VISION GINA
- B.C. MOEP
- BC MoF Electronic Submission Framework - ABR, FSP, FTA and RESULTS
- Bentley MicroStation Design
- Bentley MicroStation GeoGraphics
- CITS Data Transfer Format (QLF)
- Canadian Council on Geomatics Interchange Format (CCOGIF)*
- Caris NTX
- ComGraphix Data Exchange Format (CGDEF)
- DES
- Danish DSFL
- Danish UFO
- Digital Line Graph (DLG)
- Dutch TOP10 GML
- EDIGÉO
- ESRI ArcGIS Layer
- ESRI ArcGIS Map (.mxd)
- ESRI ArcInfo Coverage
- ESRI ArcInfo Export (E00)
- ESRI ArcInfo Generate
- ESRI ArcSDE
- ESRI Geodatabase (ArcSDE)**
- ESRI Geodatabase (File-based)**

- ESRI Geodatabase (MDB)
- ESRI Geodatabase (XML)
- ESRI PC ArcInfo Coverage
- ESRI Shape**
- Encapsulated PostScript (EPS)
- FDO Providers (AutoCAD Map 3D 2008)
- FDO Providers (FME)
- FME Feature Store (FFS)
- Facet XDR
- FalconView File
- GEODESYS StruMap
- GML (Geography Markup Language)
- GML SF-0 (Geography Markup Language Simple Features Level SF-0 Profile)
- GPS eXchange Format
- Genasys GenaMap
- GeoConcept Map
- GeoTask Server
- Geographic Data Files (GDF)*
- Geographic Data Management System (GDMS)
- German AAA GML Exchange Format (NAS)
- German EDBS EDB*
- German GTI/Restore*
- German Geogrid OVL/ASC*
- Graphic Technologies, Inc. (GTI) GTViewer
- Halliburton GeoGraphix CDF
- IBM DB2 Spatial
- IDRISI Vector Format
- III Open Geospatial Datastore Interface (OGDI)
- ISO8211
- Informatica*
- Intergraph FRAMME Standard Exchange Format (SEF)*
- Intergraph GeoMedia Access Warehouse
- Intergraph GeoMedia SQL Server Warehouse
- Intergraph MGE
- Japanese Profile for Geographic Information Standards (JPGIS)
- KLT Atlas ASCII*
- Land Victoria Incremental Update Format (IUF)
- Landmark Zycor Graphics File (ZGF)
- Landonline
- Leica Independent Data Exchange Format (IDEX)
- MapGuide SDL
- MapInfo MIF/MID
- MapInfo SpatialWare*
- MapInfo TAB (MFAL)
- MapInfo TAB (MITAB)
- Mehrzweckkarte Wien (MZK)*
- Metria AutoKa FF
- Microsoft MapPoint Web XML
- Microsoft SQL Server Spatial
- MultiGen-Paradigm Digital Feature Data (DFD)
- MySQL Spatial
- NEN 3610 (GML)
- NULL (Nothing)
- National Geospatial-Intelligence Agency (NGA) Digital Feature Analysis Data (DFAD)
- NGA GEONet Names Server
- OS (GB) MasterMap
- OS (GB) NTF
- OeNORM A2260*
- Oracle SQL Loader
- Oracle Spatial Object**
- Oracle Spatial Relational
- Osmose FastGate (SMSF)*
- PHOCUS PHODAT
- PenMetrics GRD
- PostGIS
- Regional Geographic Information System (REGIS)
- S-57 (ENC) Hydrographic Data*
- SEG-P1
- SEG-Y*
- SICAD
- SPANS VEH/VEC/TBA*
- STAR-APIC Mercator MCF
- Scalable Vector Graphics (SVG)
- Smallworld 3 and 4
- Spatial Archive and Interchange Format (SAIF)
- Spatial Data Transfer Standard (SDTS)
- Standard Linear Format (SLF)
- Summary Report
- Swedish I2K (Interface 2000)
- Swedish KF85
- Swedish MASIK
- Swiss INTERLIS*
- Tele Atlas MultiNet Interchange format
- Tobin TDRBM II Data Distribution Format
- Trimble JobXML

- U.S. Census Bureau TIGER/GML and TIGER/Line
- U.S. Environmental Protection Agency (EPA) Geospatial Data
- VALIS/ASC*
- Vector Markup Language (VML)
- Vector Product Format (VPF) Coverage
- Vector Product Format Database (VPF_DB)*
- Virtual Reality Modeling Language (VRML)**
- VoxGeo OpenInventor (VOIV)
- XML (Extensible Markup Language)**
- Z-Map (ASCII)
- rmDATA MXF

Non-Spatial

- Comma Separated Value (CSV)
- dBASE (DBF)
- Directory and File Pathnames
- IBM DB2
- Microsoft Access
- Microsoft Excel
- Microsoft SQL Server
- MySQL
- ODBC 2.x/3.x
- Oracle
- Pervasive PSQL
- PostgreSQL
- SQLite
- Tabular Data
- Text File

Raster

- Aircom ENTERPRISE Map Data/ASSET Data*
- ARC Digitized Raster Graphics (ADRG)
- ARC Standard Raster Product (ASRP)
- Canadian Digital Elevation Data (CDED)
- Color Raw Raster
- Compressed ARC Digitized Raster Graphics (CADRG)*
- Digital Map Data Format (DMDF)
- Digital Terrain Elevation Data (DTED)
- ER Mapper ECW
- ERDAS IMAGINE
- ERDAS RAW
- ESRI .hdr RAW Raster

- ESRI ASCII Grid
- ESRI ArcGIS Binary Grid (AIG)
- ESRI ArcSDE Raster
- ESRI ArcSDE Raster Catalog
- ESRI ArcSDE Raster Map Format
- GIF (Graphics Interchange Format)
- GIF Rasterizer
- GeoTIFF (Geo-referenced Tagged Image File Format)
- Golden Software Surfer 6 Binary Grid
- Hierarchical Data Format 4 (HDF4) ASTER and Hyperion
- ITT ENVI .hdr RAW Raster
- JPEG
- Landmark Z-MAP
- LizardTech MrSID
- Marconi PlaNet*
- Microsoft BMP
- NITF (National Imagery Transmission Format)
- Network Common Data Form (netCDF)
- Numeric Raw Raster
- Oracle Spatial GeoRaster
- PCI Geomatics Database File (PCIDSK)
- PNG (Portable Network Graphics)
- PNG Rasterizer
- RADARSAT-2 XML
- TIFF (Tagged Image File Format)
- U.S. Geological Survey Digital Elevation Model (USGSDEM)
- Vertical Mapper Grid (NGrid)
- X11 Pixmap (XPM)

Web

- GeoJSON (Geographic JavaScript Object Notation)
- GeoRSS/RSS Feed
- Google Earth KML (Keyhole Markup Language)
- JSON (JavaScript Object Notation)
- WFS (Web Feature Service)
- WMS (Web Map Service)

* Extra cost plug-in required

**Now with 3D support



Transformer Categories in FME

FME gives you complete flexibility to transform your data into the data model you need. A gallery of over 300 powerful transformers let you accurately restructure the schema of your data as it moves from the source to the destination.

TRANSFORMER TYPE	DESCRIPTION	EXAMPLE OPERATIONS
Geometric Operators	Operate on the geometry of individual features or groups of features	<ul style="list-style-type: none"> ■ building area features ■ overlaying areas ■ clipping ■ dissolving features ■ connecting points in order ■ snapping ■ line labeling ■ line joining ■ intersecting ■ rubbersheeting ■ tiling features ■ computing topology
Strings	Operate on character strings held in FME attributes	<ul style="list-style-type: none"> ■ searching ■ replacing ■ splitting ■ concatenating ■ changing case ■ extracting character encodings
Linear Referencing	Use linear referencing data structures on FME features to create and apply measure-related information held in attributes onto the geometry of FME features	<ul style="list-style-type: none"> ■ calculating measures ■ setting measures on features ■ shortening line features ■ snipping vertices
Surfaces	Operate on data which defines a 2.5D surface	<ul style="list-style-type: none"> ■ generating contours or Digital Elevation Models (DEMs) ■ draping features ■ generating Triangulated Irregular Networks (TINs) ■ modeling surfaces ■ generating Voronoi diagrams
Calculators	Calculate a value and supply it to a new attribute on a feature	<ul style="list-style-type: none"> ■ calculating areas and lengths ■ counting features ■ adding counts as attributes ■ reformatting date or time strings ■ adding results of arithmetic expressions ■ generating points inside areas ■ calculating statistics from attributes ■ determining topological relationships
Collectors	Operate on collections of features to merge their attributes or geometries, have their orders altered, or replace the collection of features with new features	<ul style="list-style-type: none"> ■ aggregating features ■ decomposing aggregates ■ combining attributes ■ finding the closest neighbor ■ creating bounding boxes or convex hulls for multiple features ■ testing for common segments ■ aggregating neighboring features
Database	Extract data from external spatial databases and merge it onto query features; extract attributes from non-spatial databases and join to features	<ul style="list-style-type: none"> ■ querying spatial and non-spatial data in ESRI ArcSDE® and Oracle Spatial ■ joining attributes from non-spatial databases such as Microsoft® Access, Microsoft® Excel®, Microsoft® SQL Server™, MySQL®, PostGIS and SQLite to a feature ■ executing arbitrary SQL statements
Filters	Perform tests on feature geometry and/or attributes and allow the feature to be routed to different destinations, depending on the outcome of the test	<ul style="list-style-type: none"> ■ segregating aggregates from single features ■ routing data based on attribute values or geometry ■ detecting changes in features ■ removing duplicate features ■ detecting matching features ■ sampling to create subsets of input features
Infrastructure	Enable interaction with the underlying FME translation engine facilities	<ul style="list-style-type: none"> ■ adding attributes ■ logging features ■ retrieving URLs ■ setting feature colors ■ calling Python or TCL functionality to create features and assign values to attributes ■ retrieving and setting variables ■ invoking the FME Universal Viewer to view data sets
Lists	Use a list structure to handle multiple values for each attribute	<ul style="list-style-type: none"> ■ creating, exploding and searching attribute lists ■ extracting information from attribute lists
Manipulators	Modify (or manipulate) the geometry or attributes of individual features	<ul style="list-style-type: none"> ■ generalizing area feature boundaries ■ creating buffers around features ■ creating centerlines ■ rounding off coordinate values ■ curvfitting to smooth lines ■ constructing GML documents ■ reprojecting between coordinate systems
Rasters	Create, use or output raster data	<ul style="list-style-type: none"> ■ georeferencing rasters ■ converting vector features to rasters ■ mosaicking multiple rasters into a single raster feature ■ decomposing rasters into point features
Web Services	Access web services via the HTTP protocol	<ul style="list-style-type: none"> ■ sending requests to web services and making results available to the FME infrastructure ■ creating or consuming GeoRSS/RSS/GeoJSON/JSON documents
3D	Create and modify three-dimensional surface and solid geometries	<ul style="list-style-type: none"> ■ supporting CSG (Constructive Solid Geometry) Boolean operations between solids ■ converting the face, donut, or polygon of a feature to extrusion geometry
Workflow	Run FME workspaces either locally or on an FME Server	<ul style="list-style-type: none"> ■ submitting or running jobs on FME Server ■ running FME workspaces locally