WEBINAR

FME 101: A Beginner's Guide to Data Integration for AEC Professionals



FME®

Meet the Presenters

Safe Software



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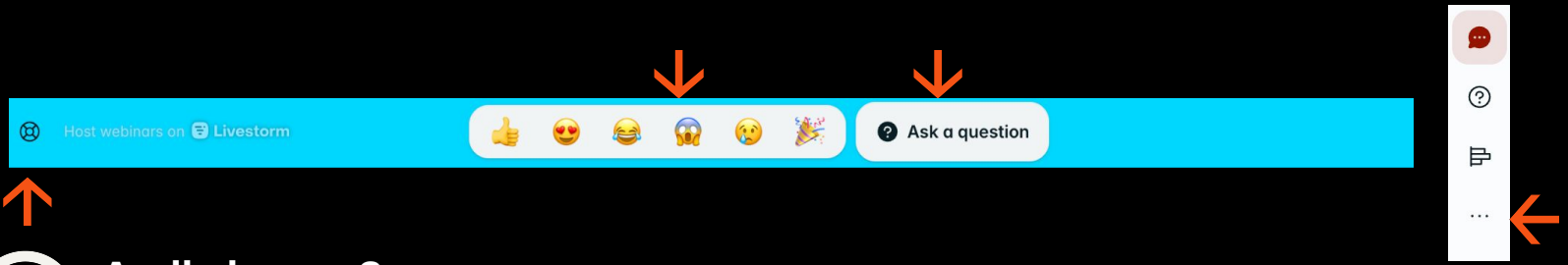


Pierre Koelich

Technical Support Specialist, FME Form

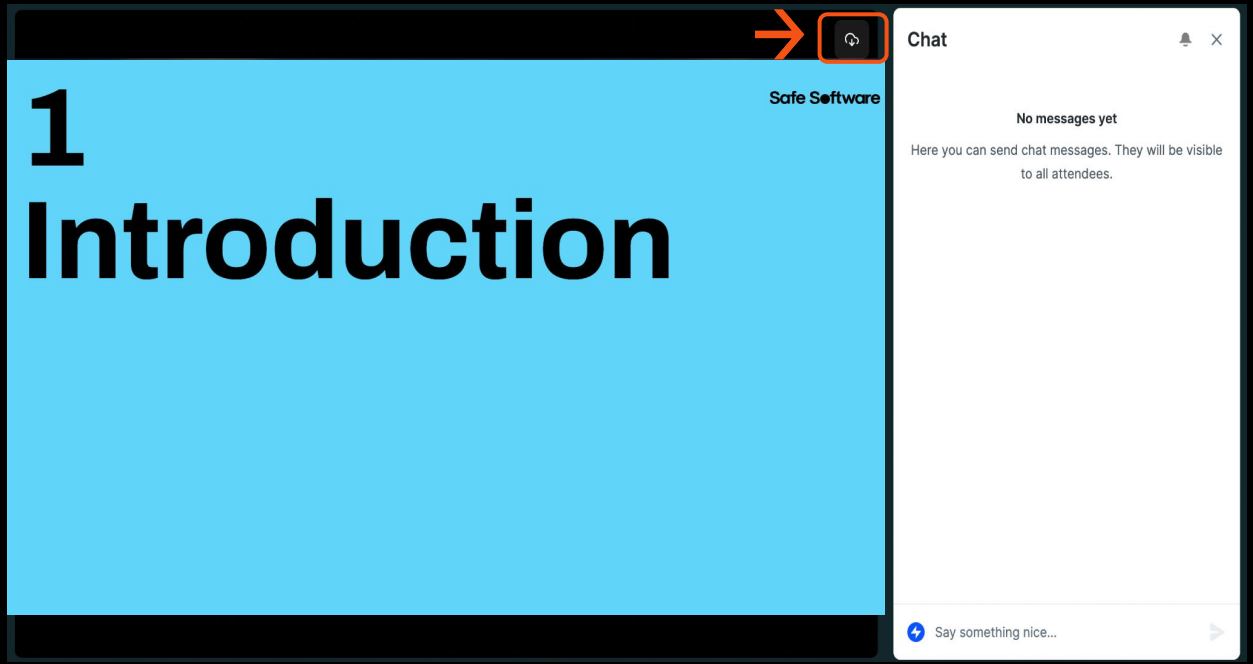
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2. Click **download** button

Agenda

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1. Introduction
2. Seeing it in FME
3. Introducing Civil Elements
4. What about BIM Data
5. Putting into Practice
6. Conclusion
7. Resources & Next Steps
8. Q&A



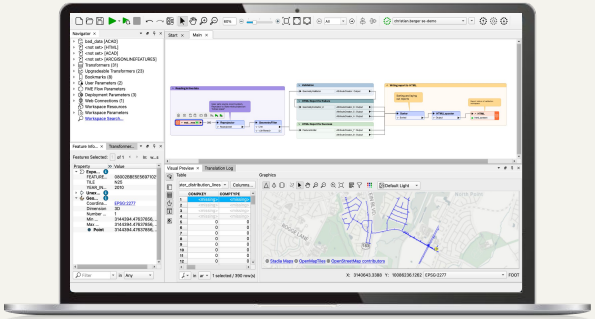
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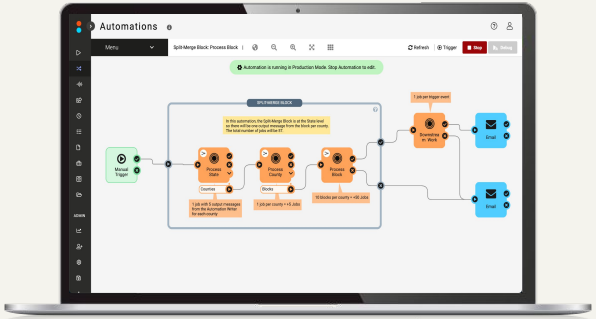
1 Introduction

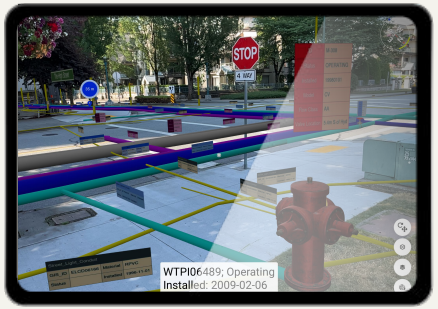
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FME Enterprise Integration Platform

The only All-Data, Any-AI Platform.







FME Form

Data Movement and transformations *workflows* are built here.

FME Flow

Brings life to FME Form *workflows*.

FME Flow Hosted
Safe Software SaaS Version of FME Flow

FME Realize

Experience data in real world context, in real time.

fme.safe.com/platform

What is AEC Data?

Architecture, Engineering, and Construction

Commonly works with CAD, BIM, & GIS

Feature rich data, multiple standards, & tricky interoperability

Found across wide array of industries. e.g. airports, local governments, etc.

"We just upgraded to the NexGen 911 system and used FME to load in map data, response zones, roadway routing. We used FME in converting legacy CAD data to NexGen compatible data as well, very helpful."

Hanson Michael
San Francisco International Airport



Poll Question

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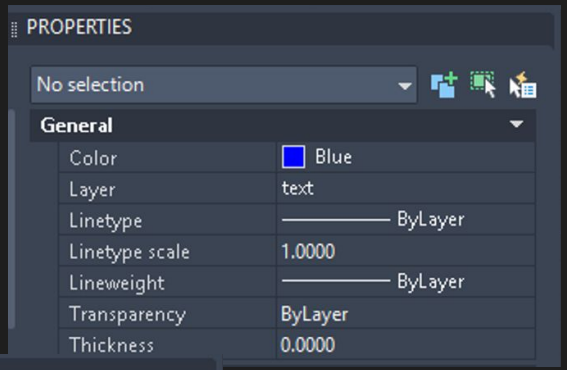
Which formats do you work with?

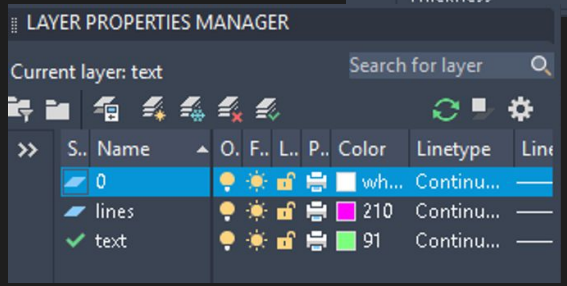
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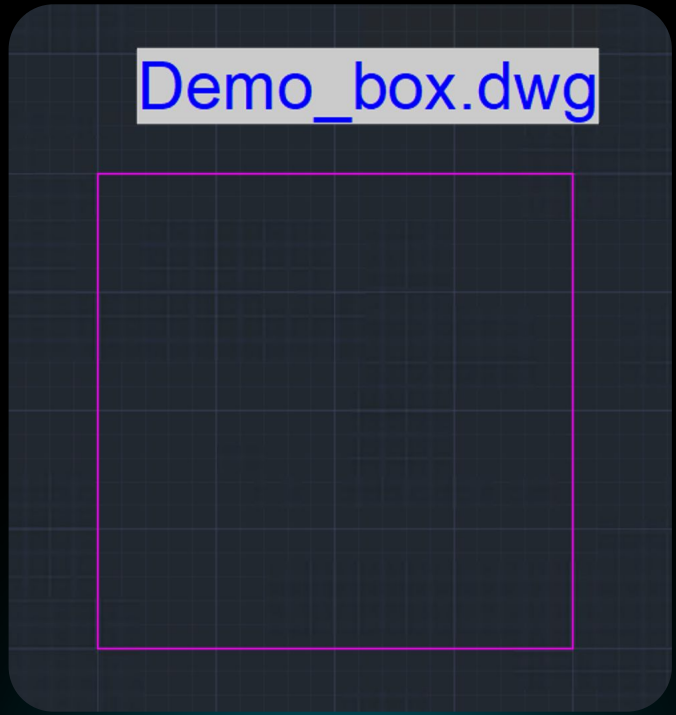
2 Seeing it in FME

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Viewing in AutoCAD

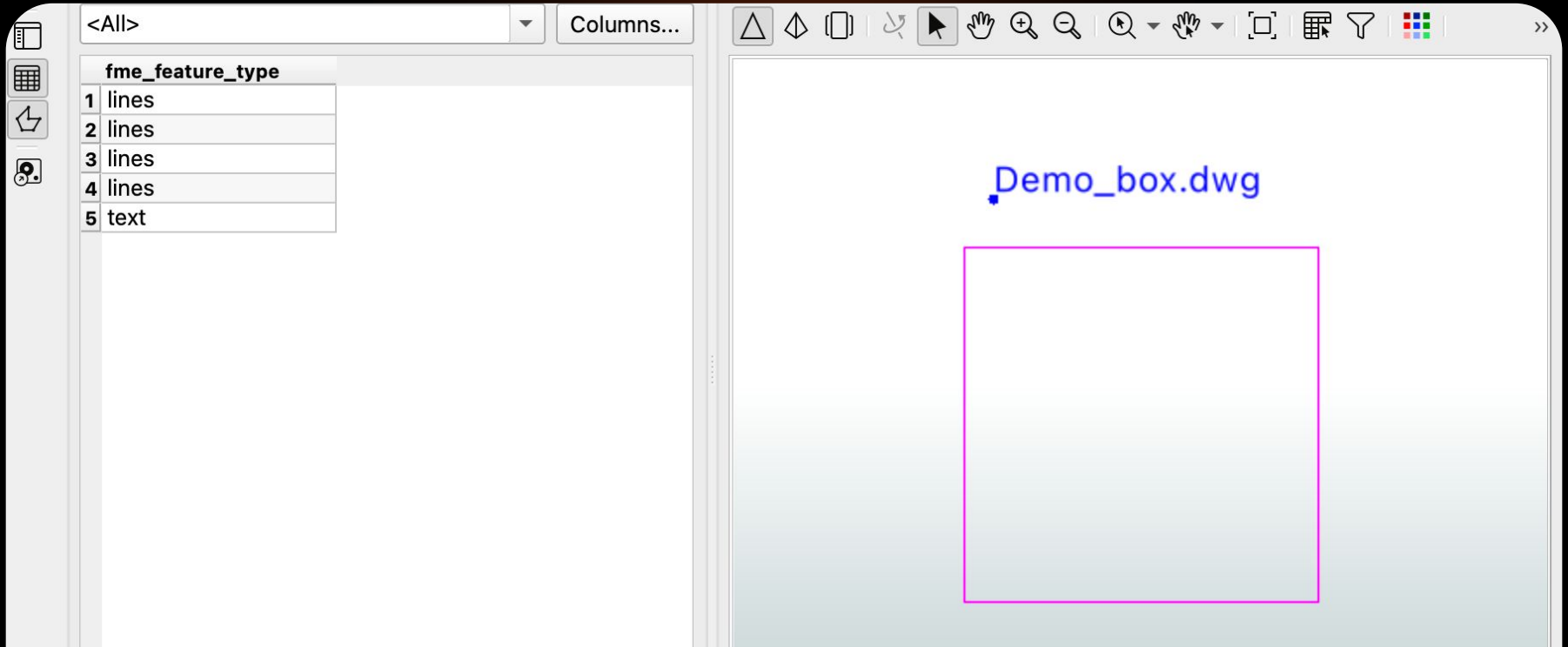






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Viewing in FME: Data Preview

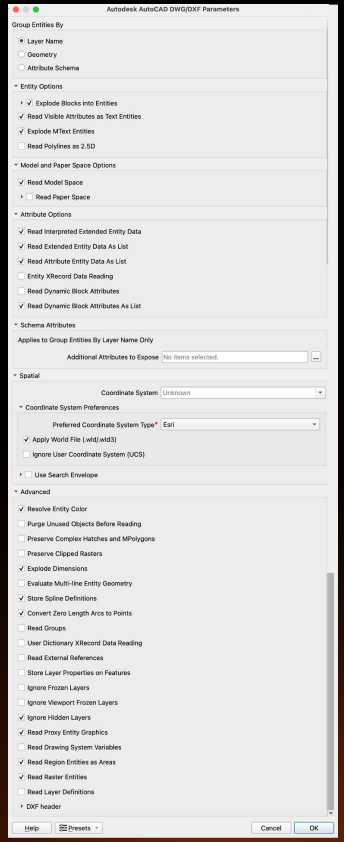


Demo

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Reader Parameters

- Do you know what you are looking for?
  - Explode as little as possible.
  - Read in as much as you can.
  - Read in extended Entity Data
- **Know your data**:
  - does it have blocks, text, and other properties?
  - Check only what you need.
- Coordinate Systems
  - Use Native when possible
- **Performance**: Advanced > Purge Unused Objects Before Reading

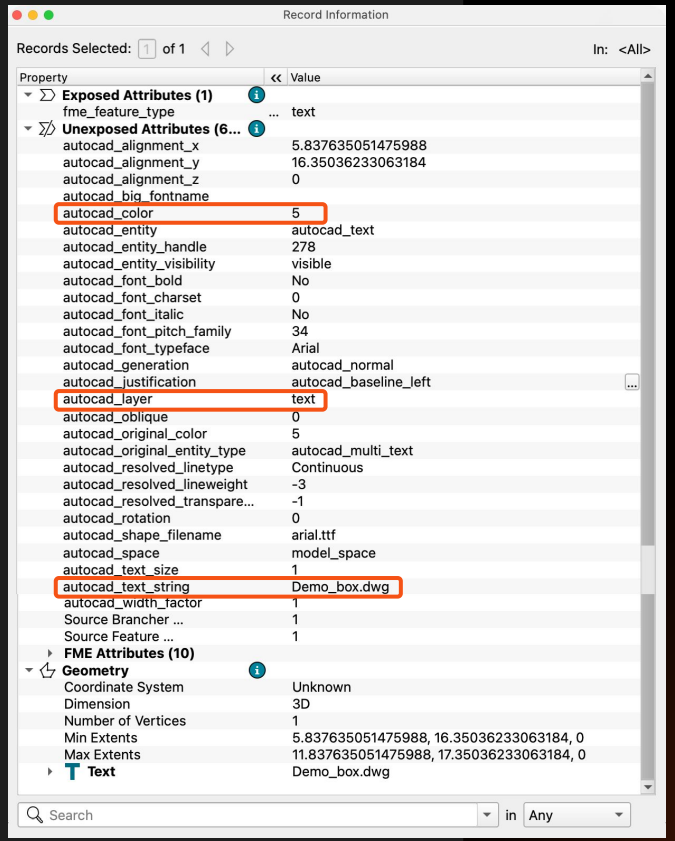


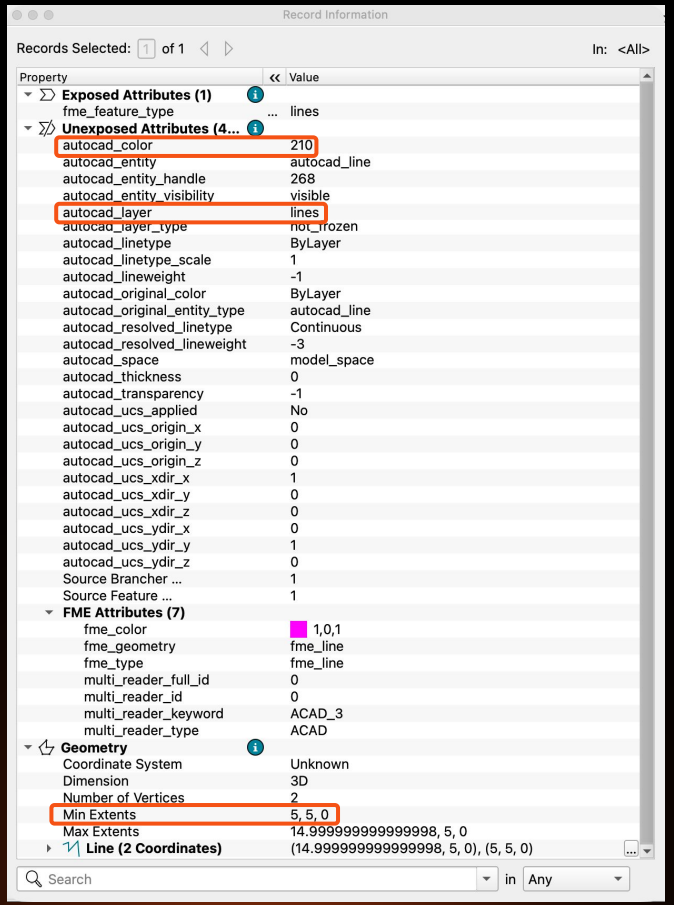
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Record Information

Important attributes are found here:

- Colors
- Layers
- Entity Types
- Geometry
- Text Strings

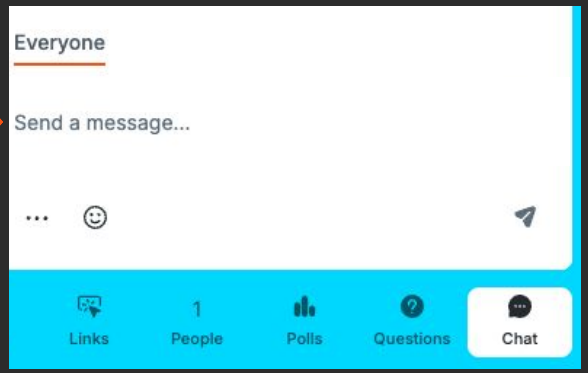




Chat Storm

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What do you find most challenging about working with AEC data?

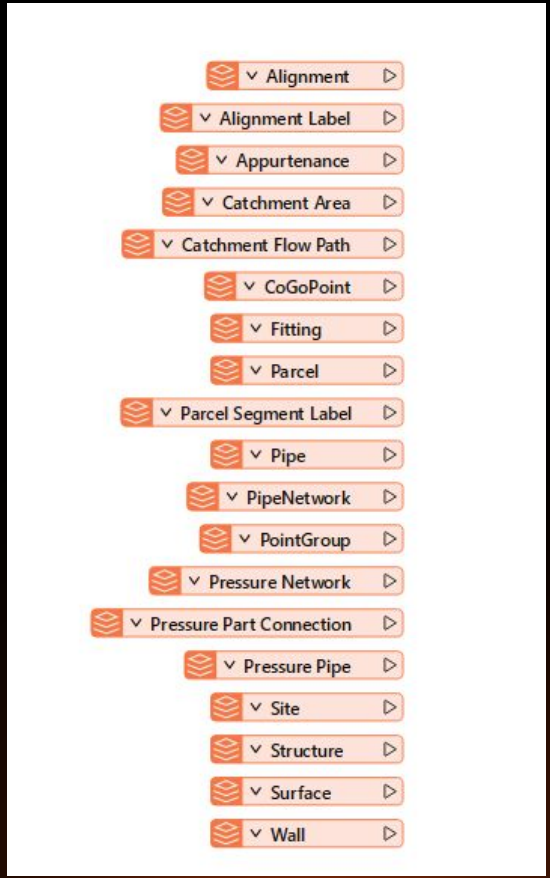


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3 Increasing Complexity

Civil Elements

- FME can also read the specialized objects that model civil engineering projects using the **Civil3D Reader**
- Includes Pipe Networks, Alignments, Surfaces, and many more.
- Exchange formats are also supported:
  - DXF
  - IFC
  - LandXML



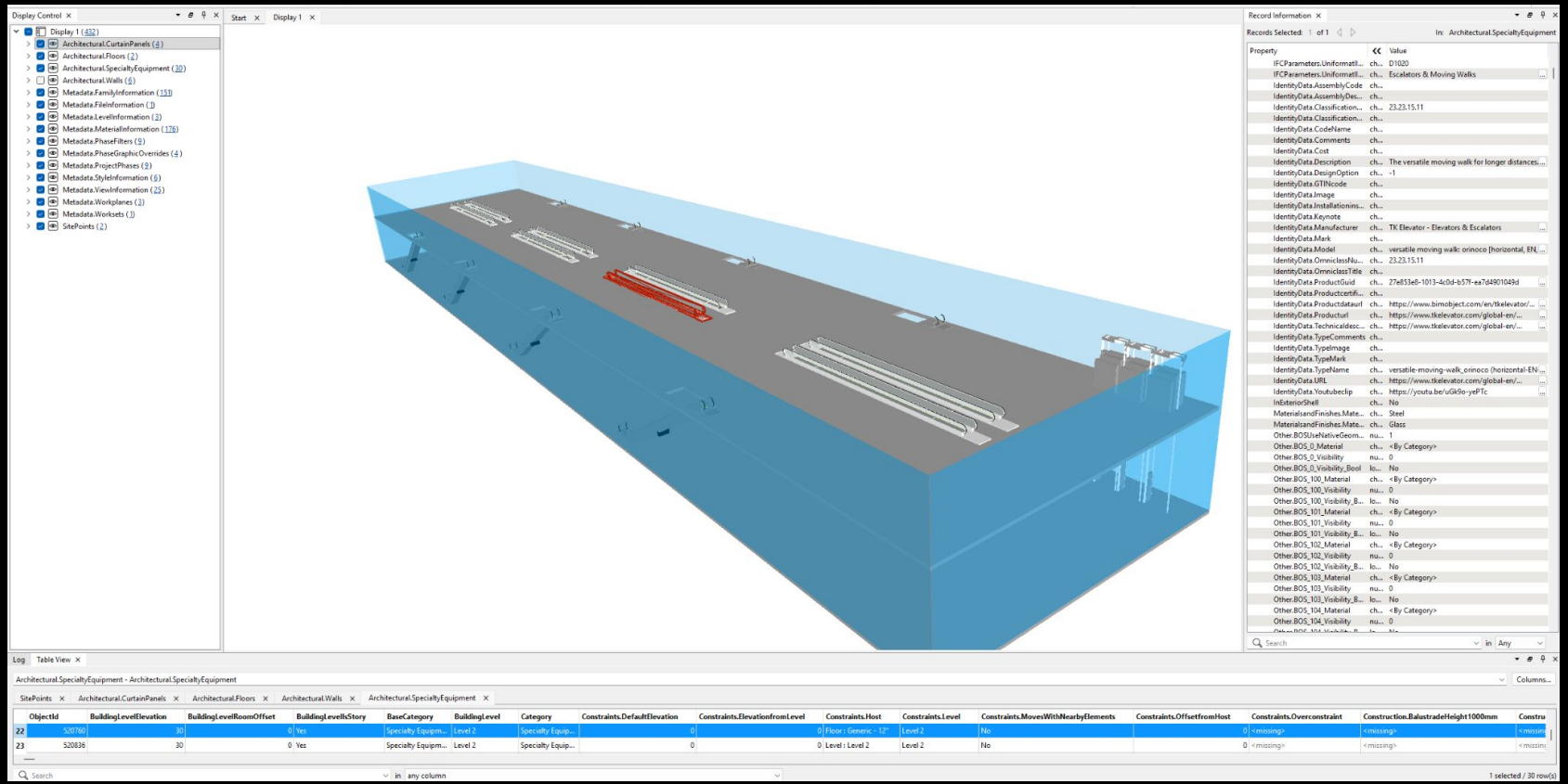
Demo

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4 What about BIM?

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We can work with that too!

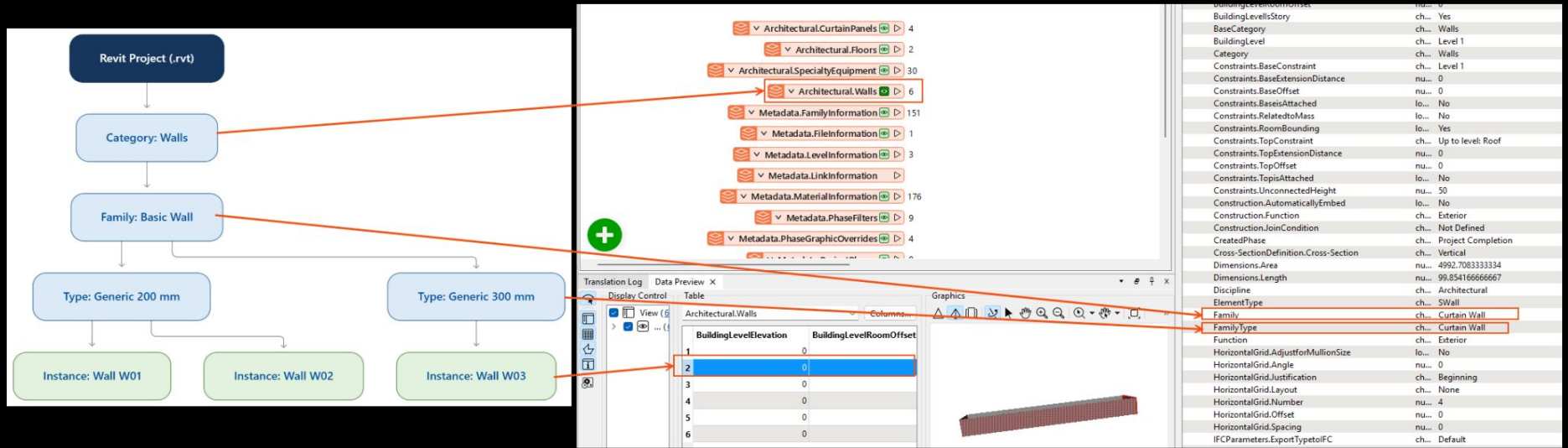


Supported Formats

- ‘True BIM Formats’
  - **Revit(.rvt and .rfa)**
  - **IFC(.ifc)**
  - BIM Collaboration Format(.bcf and .bcfzip)
- BIM-adjacent
  - Navisworks(.nwc,.nwd, and .nwf)
  - Sketchup(.skp)
  - CityGML and CityGML 3(.gml, .xml, .gz)

FME's data model for Revit

- Feature Types are <Discipline>.<Category> and there are additional Metadata feature types.
- Instances are individual features and the type is found in record information.
- Attributes tried to the instance are shown in the record information.
- FME reads in nested attributes with a '.' delimiter: <ParameterSet>.<Parameter>, this also applies to user-defined parameter sets.

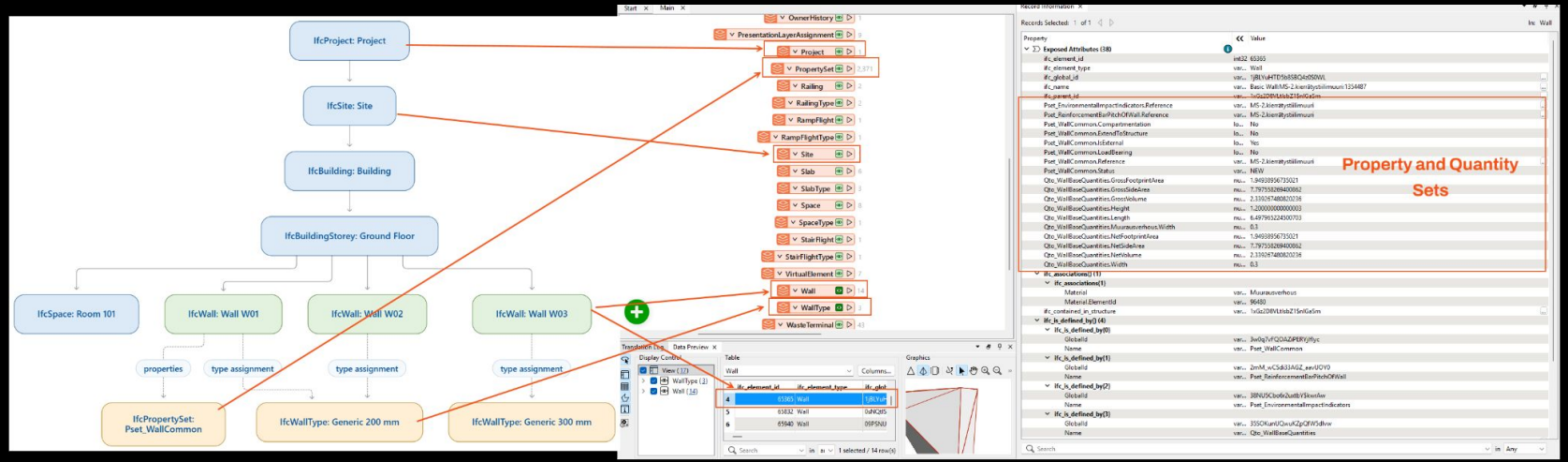


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Demo

FME's data model for IFC

- Feature Types are Element Types(IfcWall), Type Objects(IfcWallType), and Material Definitions(IfcMaterial)
- Attribute Syntax:
  - IFC format attributes prefixed by <ifc>: ifc_global_id, ifc_element_type
    - Ifc_parent_id and ifc_associations
  - Property/Quantity Sets: <setname>.<propertyname>/<quantityname>
    - Contained in IfcPropertySet and IfcElementQuantity - PropertySet in FME
    - Predefined ones are read in and prefixed by by PSet_ and Qto_



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5 Putting It into Practice

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GIS vs CAD: Different Perspectives

GIS users have a feature perspective

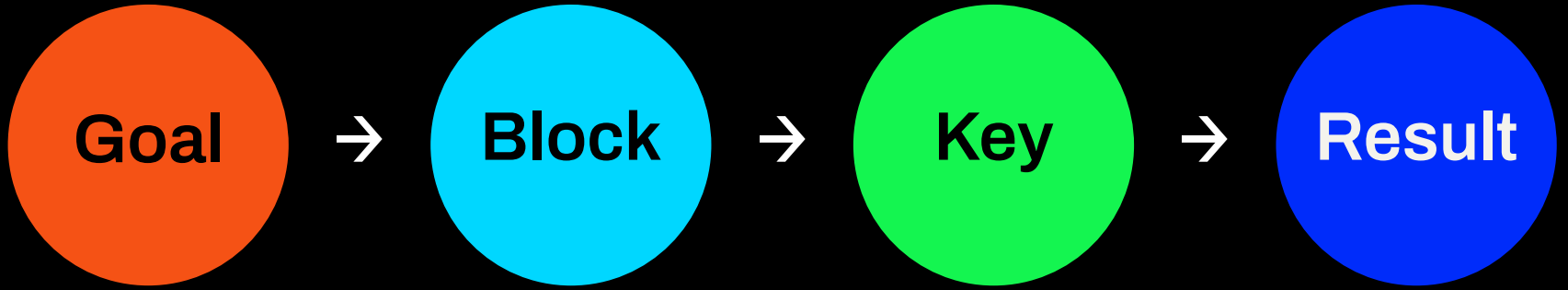
- Attributes and geometry
- Data structure, model
- Relational tables, domains
- Location and Coordinate Systems
- Connectivity and proximity
- Analysis

CAD users have a drawing perspective

- Layers and levels
- Styles and symbology
- Dimensions and labels



GIS to CAD conversion



Convert Geodatabase feature to Microstation

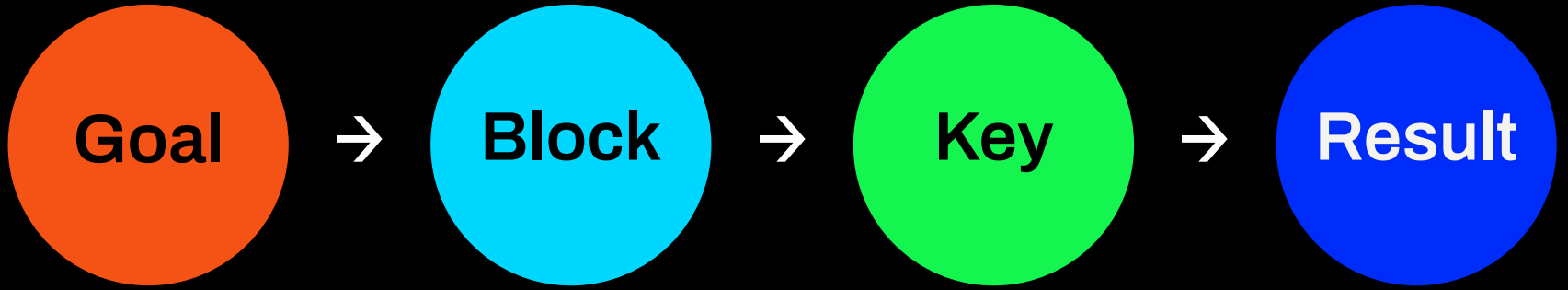
Conversion libraries can be confusing and can be hard to customize

Use FME to split the feature class into layers

Quick easy, customizable, conversion from GIS to CAD

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CAD to GIS and Change Detection



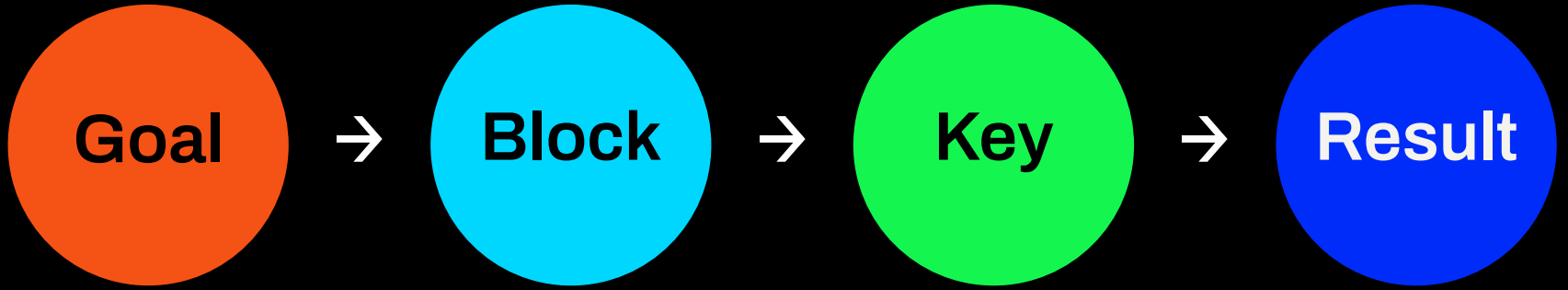
Determine if a new drawing differs from the original dataset

Datasets are large and not every attribute needs to be compared

Use FME to detect changes and catalog them

A new version of the dataset is created and the changes are tracked

Migrating 3D Data



Build a workflow that generates a representation of an IFC file in a geodatabase format

It is difficult to ensure the right information gets loaded into the feature class

Load in and modify the data using FME ensuring only what we need is kept

What was in the IFC file is now represented in Geodatabase format, minus the clutter

6 Conclusion

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Tips and tricks

AEC Data formats typically contain many feature types, minimize clutter by bringing in only what you need - pay close attention to Reader Parameters!

Filter by format attributes for validation

Use georeferenced option whenever possible

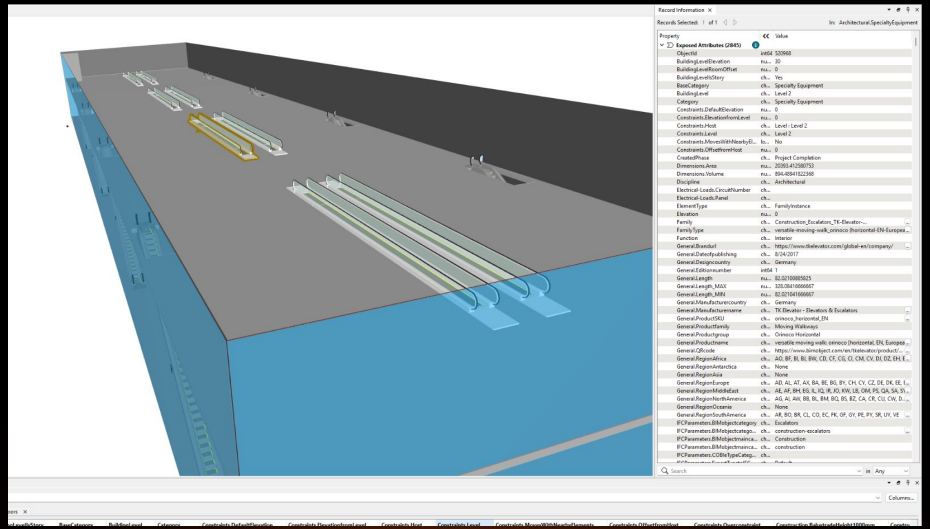


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Try these out in 2026.4!

New and Improved DGN Reader and Writer - Already Available as a Technical Preview

New 3D Data inspector - expect improved highlighting and easier navigation when viewing data in 3D



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Special Interest Groups

- Live Virtual Meetups
- Product Updates
- Insider Industry Insights
- Private Online Community

NOV 24

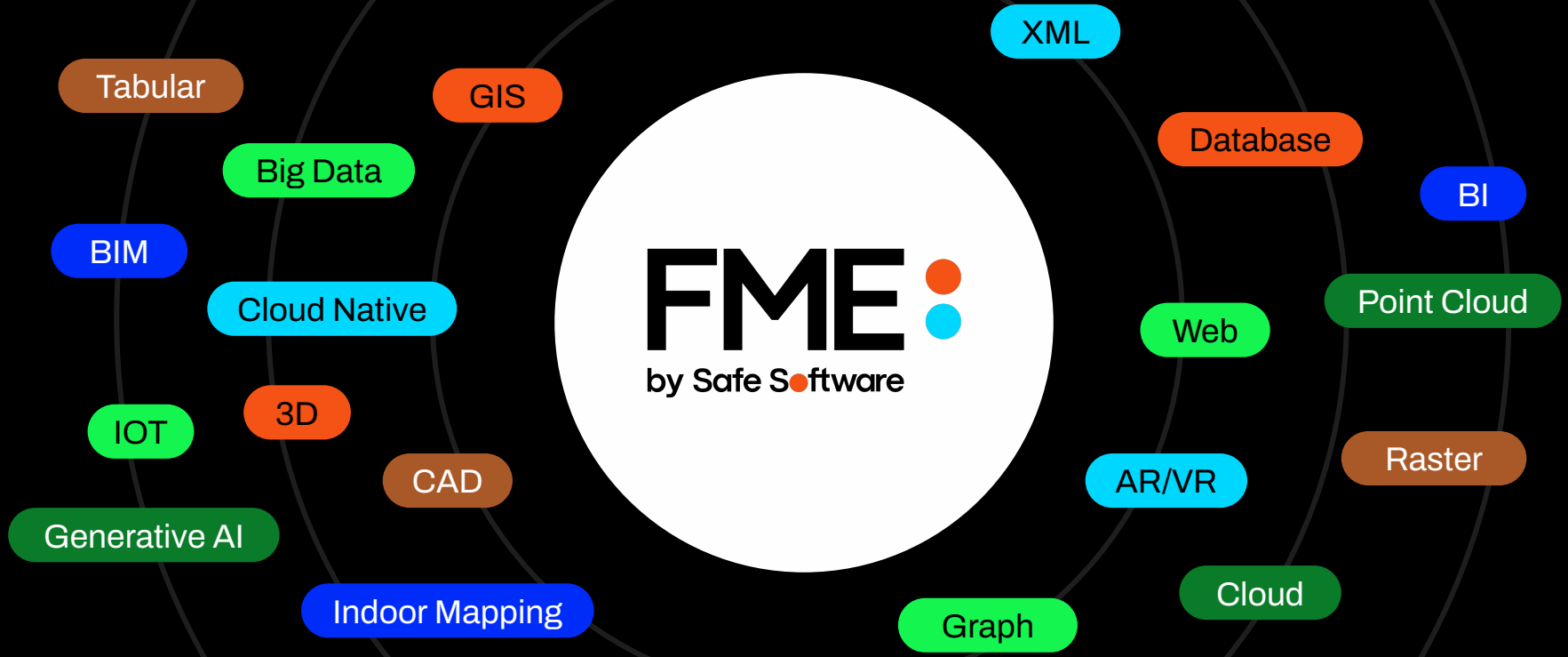


AEC

For architecture, engineering, and construction professionals to connect and collaborate on shared challenges and FME solutions.

Unrivalled Data Support

Safe Software



With 500+ supported data types in FME.



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30+
years of solving data challenges

128
countries with FME customers

25K+
organizations worldwide

30K+
FME Community members

200K+
users worldwide

140+
global partners with FME services

bsi ISO/IEC 27001 Information Security Management CERTIFIED

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Figure 1: Magic Quadrant for Data Integration Tools



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Recognized in the Gartner® Magic Quadrant™ for Data Integration Tools for **six consecutive years** (2020-2025)

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FME is a **Leader for On-Premise Data Integration, Data Virtualization, iPaaS, ETL Tools, and Reverse ETL** in G2's Fall 2026 Reports.













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FME

All Data. Any AI. MCP Ready.

- **All Data Velocities**
  - Batch (ETL, Reverse ETL, ...)
  - Event (BPA, RPA, ...)
  - Stream
- **All Data Locations**
  - Any Cloud
  - On-premises
  - Hybrid
  - Edge
  - Containers
  - Embedded
  - Mixed
- **All Data Types**
  - Unstructured
  - Structured
  - Spatial
  - APIs
  - Web Apps
  - *And More...*
- **Any AI Technology**
  - OpenAI
  - Amazon Bedrock
  - Google Gemini
  - Ollama
  - Deepseek
  - Composite
  - *And More...*

7 Resources

Resources

- GIS to CAD: Convert Parcel Polygons and Lines from Geodatabase to DGN
- Introducing the New DGN Format in FME (Technical Preview)
- Writing Family Instances with the Revit Writer
- Webinar: No-Code Workflows for CAD & 3D Data: Scaling AI-Driven Infrastructure



Resources

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Spatial Data for the Enterprise

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8

Next Steps

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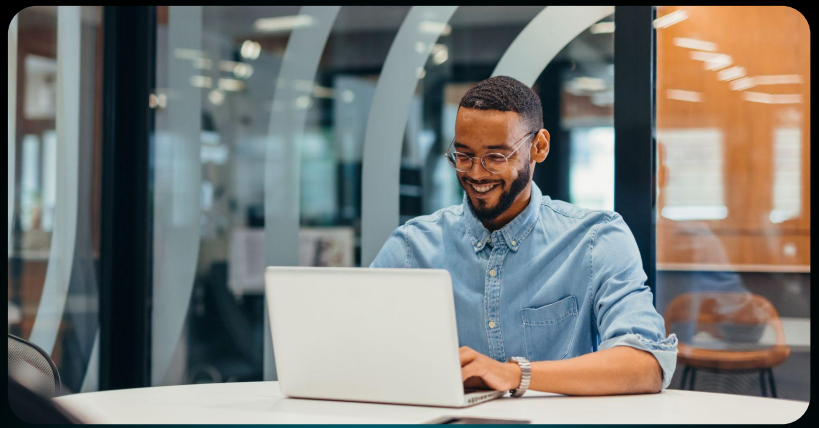
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We'd love to help you get started. Get in touch with us at **info@safe.com**

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9
Q&A

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Thank You

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Recap of Next Steps

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