FME®

Terminology

Terms related to the FME platform

Updated: July 2026

Safe Software®

FME Terminology

Terms related to the FME platform

Safe Software

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Document Information

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Intended Audience

The FME Terminology is intended for anyone who uses the FME platform.

FME Terminology

.fme

FME mapping file extension (FME Quick Translator)

.fmw

FME workspace file extension

.fmwt

FME template file extension

A

action

An FME Flow Automations tool for processing messages between triggers and external actions.

attribute mapping

The process of connecting source feature type attributes to destination feature type attributes. This is how FME performs schema mapping.

attribute transformation

The act of restructuring the non-spatial component of an FME feature: the attributes relating to the physical geometry undergo a change that produces a different output.

attribute, FME

An attribute that is generated by FME when a source dataset is read. It contains information about the data that is used internally by FME.
FME attributes are prefixed with "`fme`" (for example, `fme_geometry` or `fme_color`).

attribute, format

Format attributes are internal attributes usually that carry extra information specific to a format. They may be carried from reader to writer if the format is unchanged, and many can be modified or applied using an appropriate styler transformer such as the MapInfoStyler or DWGStyler (and are then carried to the writer).
They are prefixed with the format abbreviation, for example `igds_level` or `autocad_color`.

These attributes are generally not shown by default, but may be exposed.

More rarely, these are used across different formats.

attribute, user

Attributes describe the properties of something.
In FME, features have one or more attributes, consisting of an attribute name and associated value. A park dataset containing multiple parks might have these attributes:

- Name
- Neighborhood
- DogPark

Each individual park has values assigned to these attributes, for example:

- Name Heights Park
- Neighborhood West End
- DogPark Yes

Features may also have additional attributes that are not shown by default (but can be exposed), including format-specific attributes (such as `autocad_block_name`) and internal FME attributes that have various uses (such as `fme_color`).

In FME Form, reader and writer feature types and transformer ports show the user attributes and exposed format and FME attributes on the canvas when expanded.

Reader and writer feature types also show user attributes in the feature type properties dialog, if supported, allowing inspection of names and types for the corresponding features.

FME supports attributes at the geometry level as well as the feature level, where they are called traits.

B

breakpoint

Adding a breakpoint to a workspace connection tells Workbench to inspect the features at that location. Running a workspace with breakpoints is a useful way to debug a workspace.

C

canvas

The canvas is the free-form working space in FME Workbench where users can place readers, writers, transformers, connections, annotations, and more to create a workspace.
FME Flow Automations also provides a canvas to assemble triggers, actions, and external actions into automations.

coordinate system

A mathematical system that describes the position of points in a space.
In the context of FME, that space is often either a 2- or 3-dimensional representation of the Earth. Points are located using coordinates (groups of numbers, typically x,y in a 2D space or x,y,z in 3D), measuring offsets from an arbitrary point of reference - such as the equator, prime meridian, and sea level.

Coordinate systems can use a variety of units for measurement, including degrees (as in latitude and longitude), and units with fixed distances (such as meters, feet, millimeters, and so on). They can also describe position locally (not referenced to the Earth) such as a lot survey referenced to one corner, or a 3D model referenced to its own local origin. When the coordinates are tied to a location relative to Earth, they are considered *georeferenced*.

Many datasets used in FME will have a coordinate system associated with them, and one common task is reprojecting data from one coordinate system to another. There are thousands of coordinate systems, and multiple methods for reprojecting, including custom user-defined coordinate system definitions.

custom format

A custom format is a workspace (reader) that can be used to preprocess data, as if it were a data format on its own. Once created, it will be accessible from the Reader/Writer Gallery.

custom transformer

A custom transformer is a sequence of standard transformers, self-contained and available for use, in the same way as a single transformer, in another workspace. Any sequence of transformers can be converted into a custom transformer.
Users can create workflows and save them as custom transformers for convenience and reuse. Custom transformers can be shared and downloaded from FME Hub.

D

Data Download Service

An FME Flow web service that provides users with the output from a workspace as a downloadable zip file. Typically the service allows users to specify the data layers, format and coordinate system for the download.

data restructuring

See data transformation below.

Data Streaming Service

An FME Flow service that accepts and runs transformation requests, as specified by a workspace, and returns the results as a data stream.

data transformation

The process of altering the structure, content, or attributes of data to make it usable for your needs.

Data Upload Service

An FME Flow service that allows users to upload source data or other files for running workspaces.

database connections

Database connections provide a convenient and secure way to store and reuse connection parameters, sometimes including login credentials, to a database service.

date

See Standard FME Date/Time Format.

datetime

See Standard FME Date/Time Format.

destination dataset (writer)

The name and location of the workspace output.

difference

See Standard FME Date/Time Format.

duration

See Standard FME Date/Time Format.

E

engine

The component of FME that processes job requests by running workspaces.
FME Engines run under FME Form and FME Flow.

With FME Form, an FME Engine runs locally to support the tasks created by a user in their workflow. There is only ever one engine per FME Form download.

With FME Flow, FME Engines can be run locally or from other machines on a network to support job requests. More than one FME Engine can be used to support large requests.

DO: Engine should always be lowercase unless paired with FME.

engine assignment rule

An FME Flow queue control mechanism that assigns engines to queues based on engine or queue properties.

external action

An FME Flow Automations tool for sending messages to external clients or inside FME Flow.

F

factory

Factories are core-level FME components. They can operate on zero or more FME features, producing zero or more FME features. At the user level, factories are used by transformers.

feature

A feature in FME is an individual item within the translation. Typically a GIS or cartographic feature consists of a geometric representation plus a set of related attributes. FME can restructure either of these components. Features in FME have a flexible, generic representation; they have a basic FME definition that is unrelated to the format from which they originated.

feature-based processing

FME transformers can carry out transformations on either one feature at a time, or on a whole set of features at once. In FME, we call this set of features a "group." By default, the group is ALL features entering the transformer. However, the "Group By" parameter in a transformer can define several groups based on the value of an attribute.

feature count

The feature count display in FME Workbench shows how many features passed through each connection. The display continuously updates as features pass through the workspace.

feature mapping

The process of connecting source feature types to destination feature types.

feature type

A set of related features in a dataset.
Depending on how it is structured, a dataset can contain multiple feature types. For example, an Excel spreadsheet (workbook) can contain one or more worksheets; each of these worksheets is a feature type. For a database, one table is a feature type. For a GIS dataset, any layers that exist in the original dataset (for example, each road, building, or river) would be a separate feature type.

Feature types (along with their associated attributes) are represented as objects on the Workbench canvas. Reader feature types represent the data being read, and writer feature types represent the data being written.

feature type – attributes

See attribute, format on page 12.

feature type – format attributes

See attribute, format on page 12.

feature type – parameters

In Feature Type dialogs, this tab includes the name of the feature type, and other format-specific parameters that apply only to this feature type.

FFS

The FME format shortname for FME Feature Store (FFS) - an FME internal format that is a lossless serialization of FME Features to disk storage.
It is useful for holding data that should persist between FME runs.

See also: FFS Documentation.

FME Cloud (deprecated)

FME Cloud is FME Server hosted in the cloud by Safe Software, where users pay only for the computing resources they use. It's scalable and uses a pay-as-you-go model.

> As of FME 2023 this term is deprecated.

Linux based; hosted on Amazon Web Services. FME Cloud is available in different data centers.

See also: FME Cloud Terms of Use.

FME Data Inspector

A component of FME Form that allows users to view their data for verification and debugging purposes, before, during, and after a translation.
It is an alternative to Visual Preview.

FME Flow

FME Flow is the enterprise automation environment that enables you to run your data integration workflows on a schedule or in response to events or in real-time.

FME Flow enables users to integrate their data automatically and distribute it to any web, desktop, or mobile application. Users can set up event-driven workflows, send notifications to stakeholders, and provide self-serve data integration.

> **Note**
> Formerly known as FME Server.

FME Flow Database

The FME Flow component that stores job and repository data.

FME Flow Hosted

FME Flow Hosted is FME Flow hosted in the cloud by Safe Software, where users pay only for the computing resources they use. It's scalable and uses a pay-as-you-go model.

Linux based; hosted on Amazon Web Services. FME Flow Hosted is available in different data centers.

See also: FME Flow Hosted Terms of Use.

> **Note**
> Formerly known as FME Cloud.

FME Form

FME Form is the authoring environment that enables you to create data integration workflows using a visual interface, no coding required.

FME Form provides three applications: FME Workbench, FME Data Inspector, and FME Quick Translator. These programs are where FME workspaces are created and locally run.

Umbrella term for FME applications.

> **Note**
> Formerly known as FME Desktop.

FME Hub

FME Hub provides access to hundreds of free FME tools. It is a web platform where users and Safers can upload and share their custom FME transformers, formats, templates, web connections, and projects.
Hub items can be accessed directly in FME Workbench using the Quick Add tool.

See hub.safe.com.

(Formerly FME Store.)

FME Mobile

FME Mobile lets you browse, view, and run workspaces in your instance of FME Flow or FME Flow Hosted on a mobile device.

> **Note**
> Formerly known as FME Data Express.

FME Objects

FME Objects enables software applications to directly read and write data formats. It's intended for straightforward translations without any transformations in the middle. FME Objects includes data processing functionality such as polygon formation and topology building.

FME Plug-in Builder

The FME Plug-in Builder API is used by developers to create Python-based reader/writer plugins for FME.

FME SDK

The SDK (Software Development Kit) provides access to the FME Objects and FME Plug-in Builder APIs (Application Programming Interface).
It can be optionally installed with the FME Form installer.

See also: Installing the FME Plug-in SDK

FME Server (deprecated)

FME Server is the enterprise automation environment that enables you to run your data integration workflows on a schedule or in response to events or in real-time.

> As of FME 2023, this term is deprecated.

FME Server enables users to integrate their data automatically and distribute it to any web, desktop, or mobile application. Users can set up event-driven workflows, send notifications to stakeholders, and provide self-serve data integration.

FME_HOME

FME installation folder

function

FME functions are core-level FME components. At the user level, functions are used by transformers.

G

gallery app

A customizable web page for accessing FME Flow workspace apps and other links.

group-based processing

FME transformers can carry out transformations on either one feature at a time, or on a whole set of features at once. In FME, we call this set of features a "group." By default, the group is ALL features entering the transformer. However, the "Group By" parameter in a transformer can define several groups based on the value of an attribute.

History (window)

Displays the workspace editing history. It is a form of tree-based undo/redo that allows a user to revisit previous revisions in a workspace.

I

interval

See Standard FME Date/Time Format.

J

job queue

An FME Flow mechanism to distribute jobs to specific FME Engines, and control job priority.

job routing rule

An FME Flow queue control mechanism that defines the criteria a job must meet to qualify for a specific queue.

Job Submitter Service

An FME Flow service that accepts and runs workspace job requests.

K

keyword

A "shortname", or abbreviation, that FME uses internally to identify formats.

KML Network Link Service

An FME Flow service that accepts and carries out transformation requests, as specified by a workspace, and returns the results as a KML Network Link.

L

log (window), translation log

Displays translation results. Information includes:

- ERROR: a problem has caused FME to terminate processing.
- WARN: a minor processing problem. FME will complete the translation, but the output may be adversely affected and should be checked.
- INFORM: a piece of information that may help determine whether their translation has been processed correctly.
- STATS: information on the number of features read from the source and written to the destination datasets.

The log file contains the extension .log and can be found by default where the workspace is saved.

M

mapping file

Before FME Workbench introduced workspaces (in 2001), all translations were performed using mapping files. A mapping file (.fme file) is a series of ASCII commands that FME uses to run an translation. Mapping files can still be run through the FME Quick Translator, using functions and factories (instead of transformers) to process the data.

MCP

Model Context Protocol

N

Navigator

A structured list of objects and parameters that represent and control all of the components on the (workspace) canvas.

notification

A message generated by the FME Flow Notification Service.

Notification Service

An FME Flow service that pushes data to and from FME Flow in the form of messages when an event occurs. See also automations.

null, NULL, Null,

Null simply means that a value for something has not been determined.

It is not a value itself - it is a **state**, the state of *not knowing*.

An attribute can be null, as can an FME parameter. In both cases, it means that "*we don't know, yet, what value this has*." Any data type can be null, including numeric, string, Boolean, and so forth.

Null is not same thing as *missing* or *empty*.

Missing implies that we know the state of something - it should have a value, but it doesn't.

Empty implies that we know that it does not have a value.

See also: Much Ado About Null! , More Ado About Nothing

Usage:

Null is written in a variety of ways, depending on where and how it is referenced. FME uses this convention:

`<null>`

It is most commonly used in reference to attribute and trait values, but also appears in text editors, conditional values, test conditions, and expressions to set null values.

Other text strings such as IFMEText geometry, datasets, and feature type names do not use this convention or store null values.

How to talk about null

These are our basic rules for null in text:

- DO use upper case NULL in code snippets, SQL statements, or when referring to a NULL pointer.
- DO use title case Null when referring to a GUI parameter name or choice, such as the test operator `Attribute Is Null`.
- DO use lower case null in body text, unless it's at the beginning of a sentence.
- DO NOT use "null string" - DO use "empty string."

More Types of Nothing

- **Geometry:** `IFMENull` is a type of FME geometry, where a feature intentionally has zero points and therefore no geometry.
- **NaN (Not a Number):** A numeric value that is undefined or unrepresentable, such as division by zero or the square root of a negative number.
- **Out of bounds:** A numeric value that exceeds the limits of the assigned data type, such as an integer greater than 255 for an 8-bit integer. FME returns null in this case.
- **Nodata:** In raster data, an arbitrary value that represents pixels having no value associated with them.
- **NULL Reader/Writer:** FME's NULL format reader and writer read (or write) nothing, and are generally used for testing purposes.

O

OLI

Operational Land Imager (instrument on board the Landsat 8 satellite)

P

parameter

Any part of a dialog where you can enter or select information (for example, feature type parameters).
Usage:

Use *parameters* - avoid using *settings*.

period

See Standard FME Date/Time Format.

port

A Port is an input or output arrow on an object in FME Workbench. A port on the left of an object is an input port; a port on the right is an output port.

Process Monitor

The component of FME Flow that provides fault tolerance, and ensures that FME Flow Core and Engines are always up an running.

properties

Information about a selected object (for example, Feature Type).

publisher, publication

A component of the FME Flow Notification Service that receives content from clients over a supported protocol, and delivers the content to FME Flow in the form of a notification.

Quick Add

In FME Workbench, an easy way to add transformers, readers, and writers by typing.

R

reader

The component in a workspace that reads a source dataset. A reader reads a single format of data, but can read any number of datasets in that format.

Usage:

Note capitalization:

Specific: <FormatName> *reader* - Add an Esri Shapefile *reader* to the workspace.

General: Add a *reader* to the workspace.

Reader and Writer Gallery

The Workbench dialog that displays FME-supported formats.

reader parameters

Reader Parameters control how FME reads the data. The Reader Parameters button is accessible in the Add Reader and Generate Workspace dialogs. Parameters are visible in the Workbench Navigator after FME generates the workspace.

Repository

A logical container in FME Flow for storing groups of related items, including workspaces, source data, custom formats, custom transformers, and templates.

resource reader

Allows you to insert a reference to a dataset to be used in the workspace. This reader will not perform any actual data reading, except when up-to-date schema is required at runtime.

Resources

A collection of FME Flow files that are used to run and debug workspaces, and perform other administrative tasks, and which can be shared between workspaces across repositories.

REST Service

An FME Flow service that provides an underlying REST-based communication mechanism for client-service applications.

role

A security group to which each user of FME Flow must belong, and which defines the permissions of its users.

Run Until Cancelled

An obsolete FME Server directive to run a job continuously until it is explicitly cancelled - has been replaced by streams.

S

schedule

A task in FME Flow that specifies running a workspace at specific times in the future on a repeating or non-repeating basis.

schema

The structure of a dataset or, more accurately, a formal definition of a dataset's structure. The schema is similar to the term data model; however, FME schema does not generally include data model relationships.

schema editing

Schema editing is the process of altering the destination schema to customize the structure of the output data. For example, renaming an attribute from the source to the destination.

schema mapping

The process of connecting the source schema to the destination schema in a way that ensures the correct Reader feature types are sent to the correct Writer feature types and the correct Reader attributes are sent to the correct Writer attributes

server apps

In FME Flow, a collective term for workspace apps and gallery apps.

shortname

An abbreviation that FME uses internally to identify formats. Format shortnames are visible in the Reader/Writer Gallery.

source dataset (reader)

The name and location of the workspace input.

STAC

SpatioTemporal Asset Catalogs (The STAC specification is a common language used to describe geospatial information.)

stream

An FME Flow interface for managing jobs that run continuously.

subscriber

A component of the FME Flow Notification Service that receives notifications from FME Flow, and delivers the content to clients over a supported protocol. See also automation, trigger.

system share

The installation location for FME Flow Repositories and Resources.

T

template

Templates allow you to create a workspace with/from a predesigned format and structure. Both a workspace, and the data required to run it, can be bundled together and shared.
File extension `.fmwt`

temporal value/type

See Standard FME Date/Time Format.

TFS - Text Feature Store

TFS Fixed Schema and TFS Variable Schema are model formats distributed as part of FME's Plug-in Software Development Kit (SDK) to demonstrate how to create reader/writer plug-ins in three programming languages.

time

See Standard FME Date/Time Format.

time to live

An FME Flow directive that specifies how long a job remains in the job queue before it is removed without having run.

timestamp (in log)

FME processing time is the amount of time that FME was actively processing (not how long the workspace took to complete). The absolute start and end times often differ from FME processing time because non-FME processes, such as a database query, add to the absolute time taken without adding to the FME processing time.

TIRS

Thermal Infrared Sensor (instrument on board the Landsat 8 satellite)

Token Service

An FME Flow service that allows users to generate security tokens using an account name and

password.

topic

An FME Flow Notification Service keyword that acts as the recipient of a publisher, or the origin of a subscriber. See also automation.

transformation - Content Transformation

The ability to alter the substance of a dataset. Manipulating a feature's geometry or attribute values is the best example of how FME can transform content.

transformation - Geometric Transformation

The act of restructuring the spatial component of an FME feature: the physical geometry of the feature undergoes some type of change to produce a different output.

transformation - Structural Transformation

Reorganization, or FME's ability to channel data from source to destination in an almost infinite number of arrangements. This includes the ability to merge data, divide data, reorder data, and define custom data structures. Transforming a dataset’s structure requires knowledge of schemas.

transformer

The building blocks used in a workflow in FME Workbench. Each transformer has a specific function. They can be used alone in a simple workspace, or combined to create complex processes.

Usage:

In general use, transformer is lowercase, as in the Tester *transformer*.

Specific transformers are named using CamelCase, as in *PointCloudComponentAdder*.

Transformer Gallery

An FME Workbench window (part of the user interface) that contains the FME transformation tools, and which can also be found on the website.

trigger

An FME Flow Automations tool for receiving messages from external clients or from within FME Flow.

W

Web Application Server

The FME Flow component that runs the FME Flow Web Services, Web User Interface, REST API, and other web clients.

web service connections

Web service connections provide a convenient and secure way to store and reuse connection parameters to a web service.

Web User Interface

Web-based application for administering FME Flow and running workspaces from FME Flow. Also referred to as the Web UI.

workflow, automation

An instance of FME Flow Automations that receives, processes, and sends JSON messages.

workspace

The FME Workbench canvas is where users graphically define a translation. This definition is called a "workspace."
Users can read in data from multiple sources, transform data, and write it out to the data format and/or location of their choice. A workspace can be saved and reused later.

This term is often used incorrectly as a synonym for the words “canvas” or “workflow.”

DON'T: call it a “workbench.”

workspace app

A URL and associated security token that allows FME Flow clients to run workspaces from a web browser.

writer

The component in a translation that writes a destination dataset. A writer writes data in a single data format, according to the format specification.

Usage:

Note capitalization:

Specific: <FormatName> *writer* - Add an Esri Shapefile *writer* to the workspace.

General: Add a *writer* to the workspace.

writer parameters

Writer parameters control how FME writes the data. The Writer Parameters button is accessible in the Add Writer and Generate Workspace dialogs. Parameters are visible in the Workbench Navigator after FME generates the workspace.