SAFE SOFTWARE

Level 2: What's New in FME 2019

FME Desktop

The FME Lizard is on the Move!

But where should its next office be?

FME to the Rescue!

Let’s build a workspace to help the FME Lizard find a new office. (Caveat: the FME Lizard is picky and has very specific needs.)

FME Lizard's New Office: Location Selection Criteria

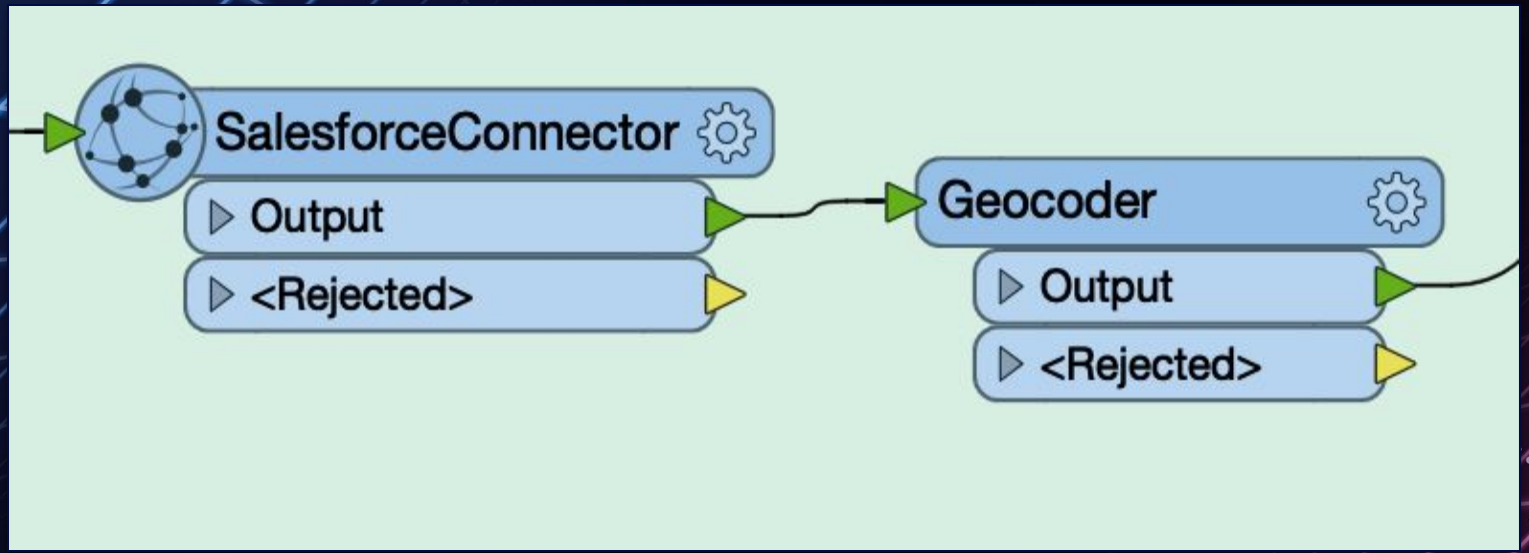
The FME Lizard **likes**:

1. To be near FME users,
2. Things warm and dry,
3. A fresh supply of vegetation, and
4. The FME Zipster.

WORLD TOUR
2019
Our Missions
Mission 1:
Find how many FME Users are in each city
Mission 2:
Determine how warm and dry each city is
Mission 3:
Discover a vegetation index per city
Mission 4:
Measure Zipster visit occurrences per city
Mission 5:
Combine these factors to choose
START

Mission 1

How many FME Users are in each city?


SalesforceConnector
Output
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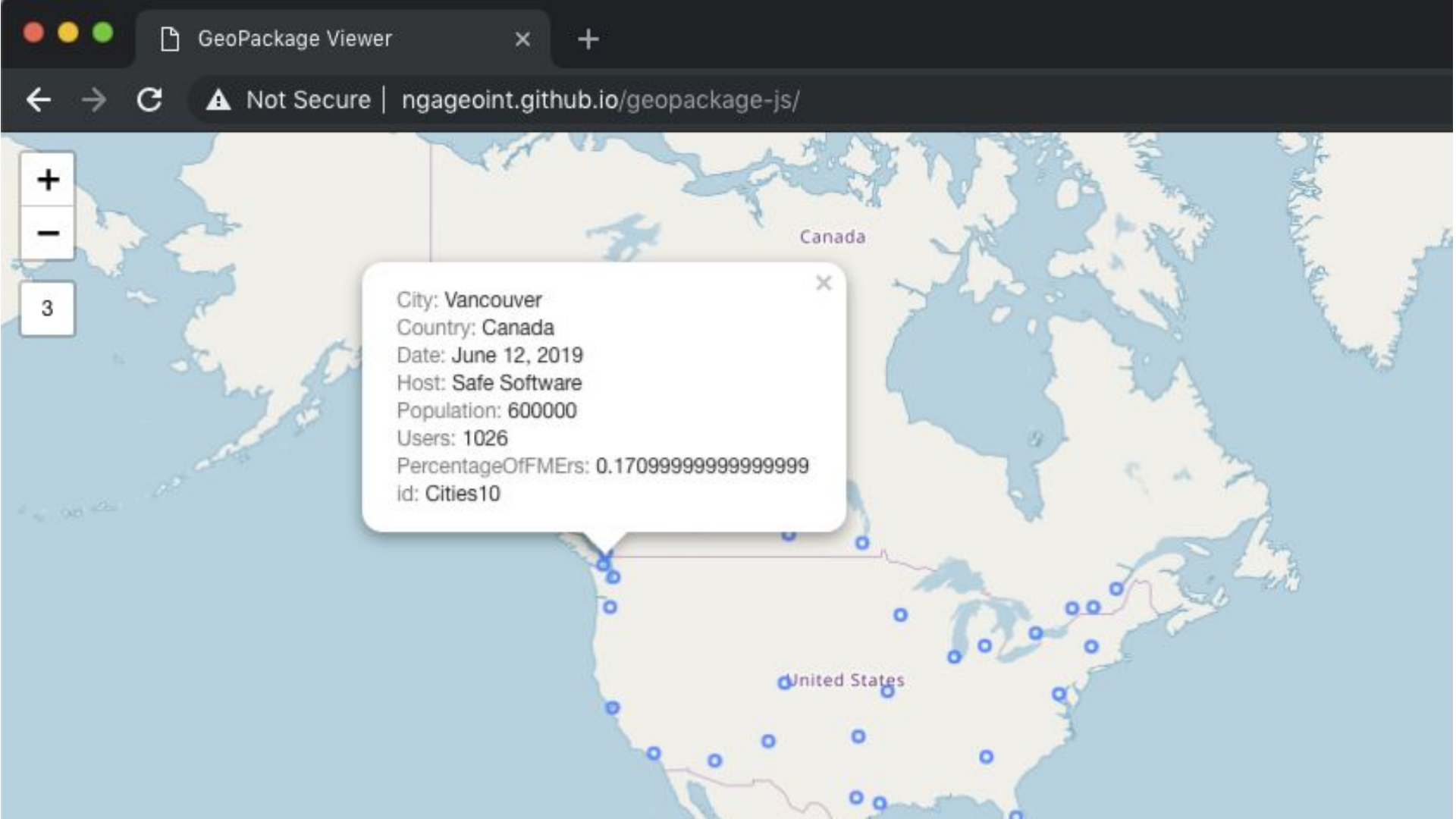
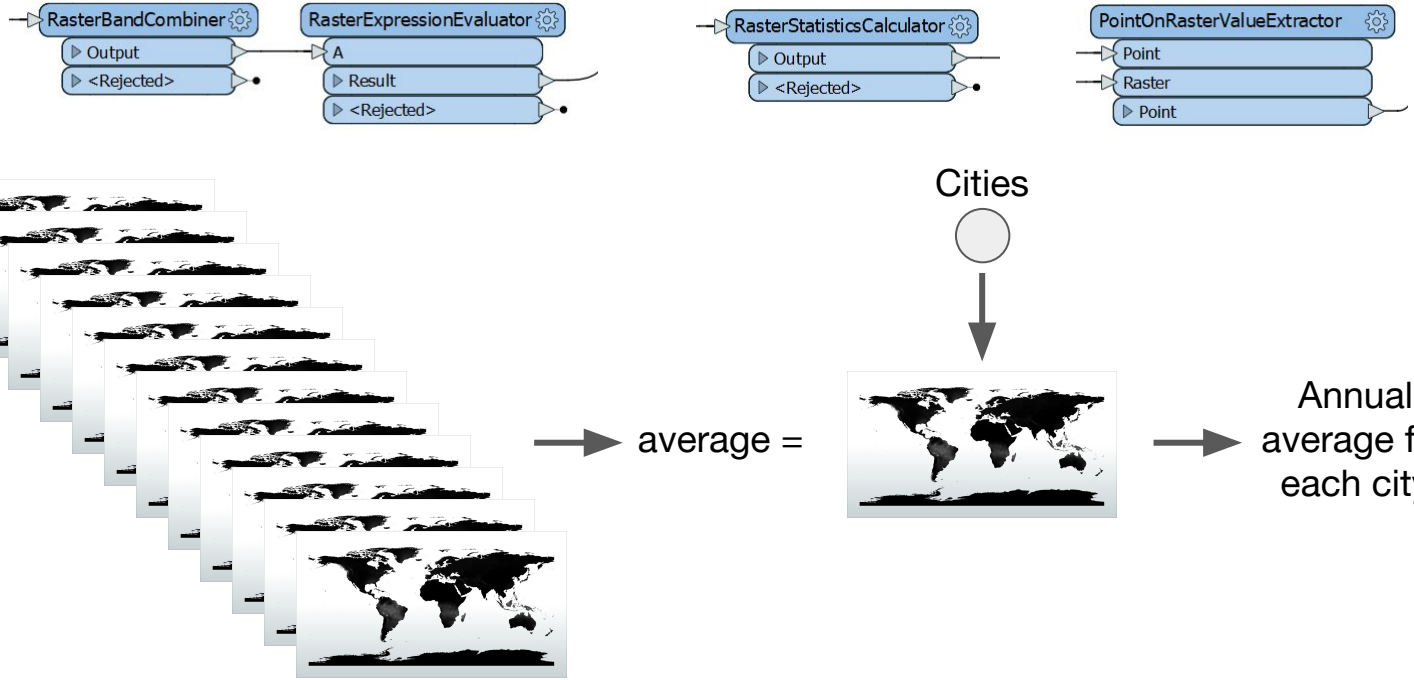
Geocoder
Output
<Rejected>


GeoPackage Viewer
Not Secure | ngageoint.github.io/geopackage-js/
+
−
3
Canada
City: Vancouver
Country: Canada
Date: June 12, 2019
Host: Safe Software
Population: 600000
Users: 1026
PercentageOfFMErs: 0.17099999999999999
id: Cities10
United States

Mission 2

Determine how warm and dry each city is.

Fick, S. E., & Hijmans, R. J. (2017). WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. *International Journal of Climatology, 37*(12), 4302-4315.


RasterBandCombiner
Output
<Rejected>
RasterExpressionEvaluator
A
Result
<Rejected>
RasterStatisticsCalculator
Output
<Rejected>
PointOnRasterValueExtractor
Point
Raster
Point
Cities
average =
Annual average for each city

Precipitation raster

Temperature raster

Warm and dry index

Lizard_Habitat [CSV2] - CSV

Columns...

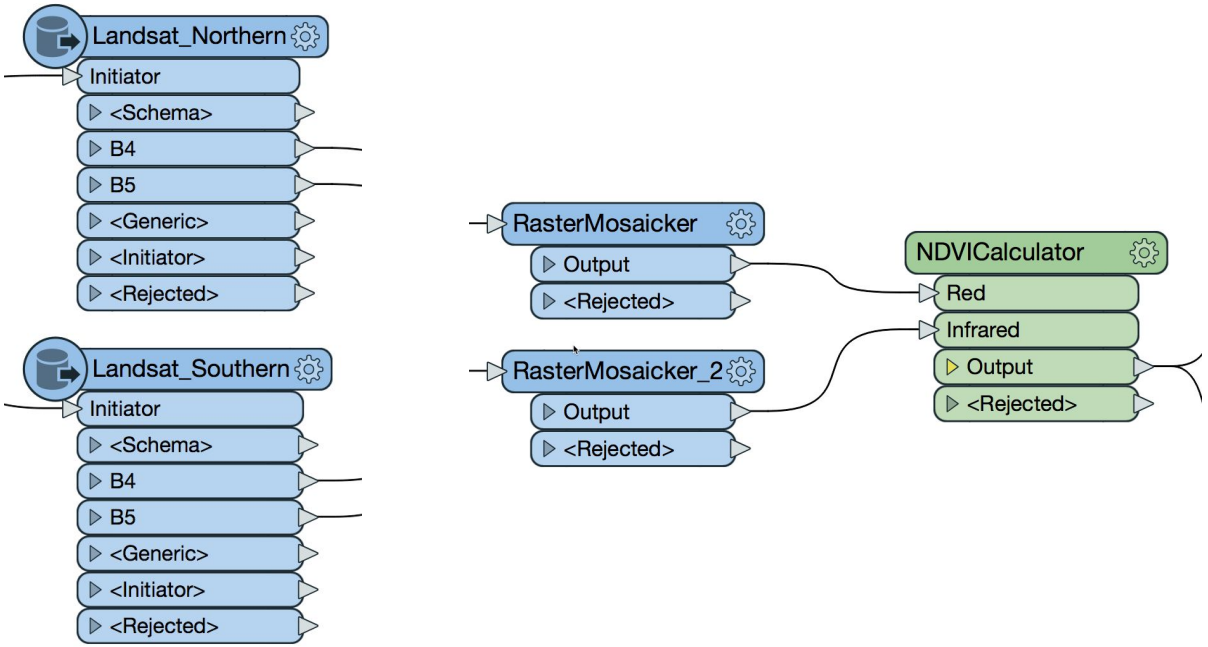
	City	Country	Date	Host	Population	precip_norm	temp_norm	Habitat Index
1	[redacted]							
2	[redacted]							
3	[redacted]							
4	[redacted]							
5	[redacted]							
6	[redacted]							
7	[redacted]							
8	[redacted]							
9	[redacted]							
10	[redacted]							

in any column

75 row(s)

Mission 3

Discover a vegetation index for each city.


Landsat_Northern
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B4
B5
<Generic>
<Initiator>
<Rejected>
Landsat_Southern
Initiator
<Schema>
B4
B5
<Generic>
<Initiator>
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RasterMosaicker
Output
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RasterMosaicker_2
Output
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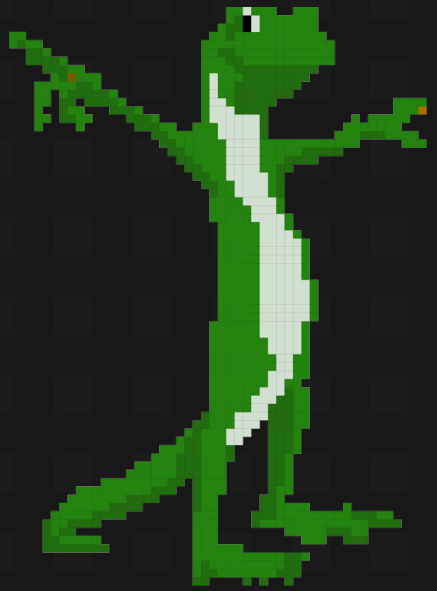
NDVICalculator
Red
Infrared
Output
<Rejected>

1
1



Mission 4

Measure Zipster visit occurrences per city.

NATIONAL UFO REPORTING CENTER

www.ufocenter.com
HOTLINE: 206.722.3000

856.383.4869
bestprintpricing@yahoo.com
GENO ANGELINO
GRAPHIC ART & DESIGN

HD HIGH DEFINITION IMAGERY 1080P

NUFORC LOGO PROOF ©2017

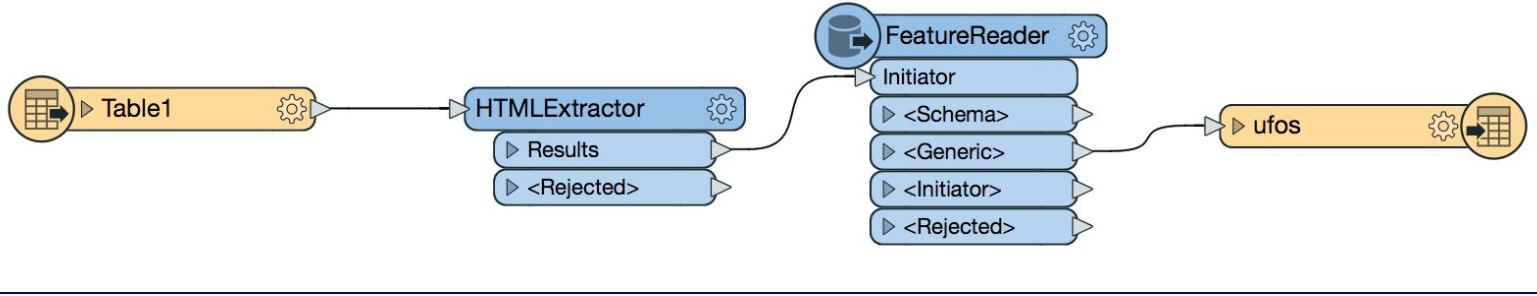


Table1
HTMLExtractor
Results
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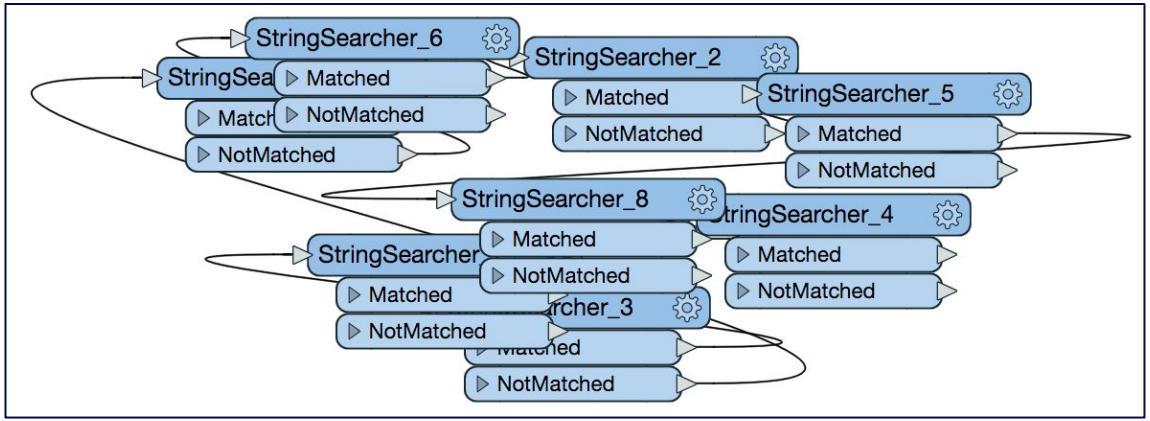
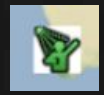
FeatureReader
Initiator
<Schema>
<Generic>
<Initiator>
<Rejected>
ufos


StringSearcher_6
StringSea
Matched
Matc
NotMatched
NotMatched
StringSearcher_2
Matched
NotMatched
StringSearcher_5
Matched
NotMatched
StringSearcher_8
Matched
NotMatched
StringSearcher
Matched
NotMatched
rcher_3
NotMatched
tringSearcher_4
Matched
NotMatched

GREENLAND
ICELAND
FINLAND
RUSSIA
LATVIA
LITHUANIA
BELARUS
UKRAINE
KAZAKHSTAN
MONGOLIA
KYRGYZSTAN
TAJIKISTAN
ARMENIA
CYPRUS
SYRIA
ISRAEL
IRAQ
IRAN
AFGHANISTAN
PAKISTAN
CHINA
KOREA
JAPAN
TAIWAN
INDIA
BANGLADESH
MYANMAR
LAOS
CAMBODIA
PHILIPPINES
BRUNEI
INDONESIA
TIMOR-LESTE
PAPUA NEW GUINEA
SOLOMON ISLANDS
VANUATU
NEW CALEDONIA
AUSTRALIA
SRI LANKA
SAUDI ARABIA
OMAN
YEMEN
TUNISIA
LIBYA
EGYPT
LGERIA
MALI
NIGER
CHAD
SUDAN
ERITREA
DJIBOUTI
ETHIOPIA
SENEGAL
GUINEA
BENIN
LIBERIA
CAMEROON
CONGO (BRAZZAVILLE)
BURUNDI
KENYA
ANGOLA
MALAWI
MOZAMBIQUE
MADAGASCAR
BOTSWANA
LESOTHO
FIJI
CANADA
MEXICO
CUBA
DOMINICAN REPUBLIC
HONDURAS
NICARAGUA
COSTA RICA
PANAMA
VENEZUELA
COLOMBIA
FRENCH GUIANA
ECUADOR
PERU
BRAZIL
BOLIVIA
CHILE
PARAGUAY
URUGUAY
ARGENTINA
FALKLAND ISLANDS

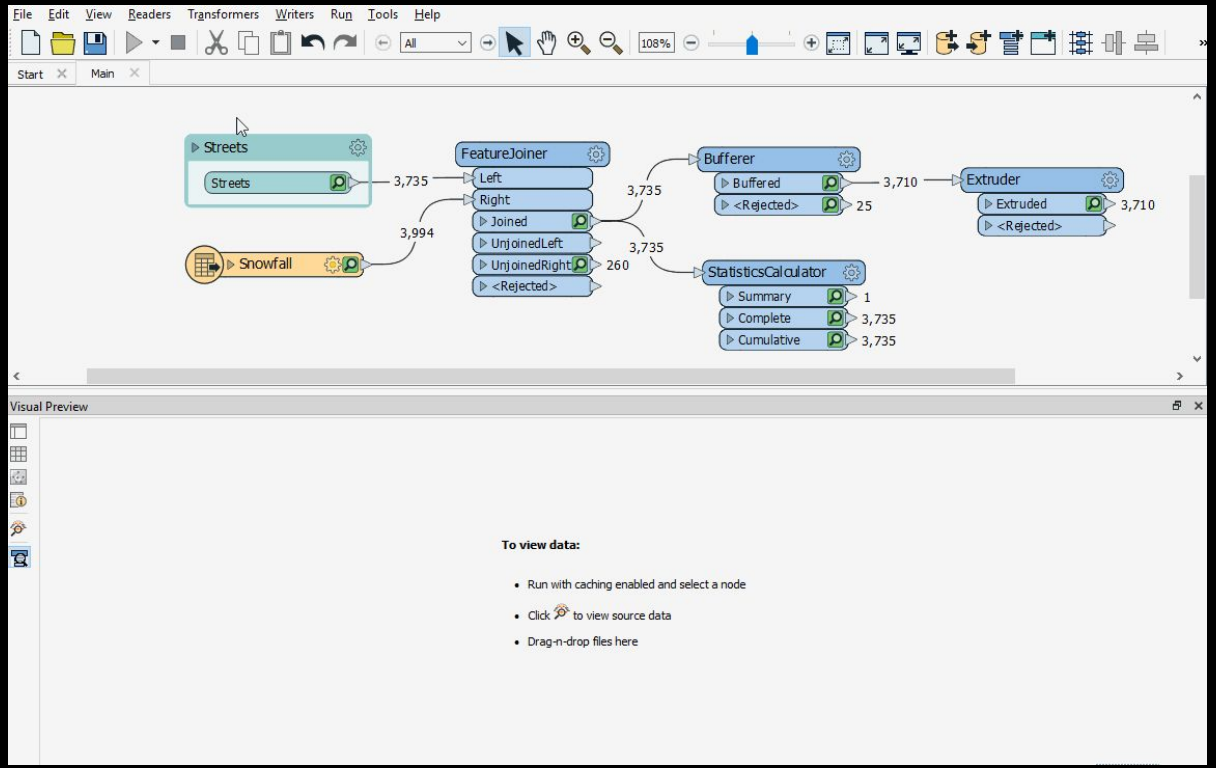


DESKTOP 2019
DESKTOP 2019
SAFE SOFTWARE
USER 1
USER 2
FASTER-EASIER-DARKER
25c
25c
Checkpoint
Over to
Workbench

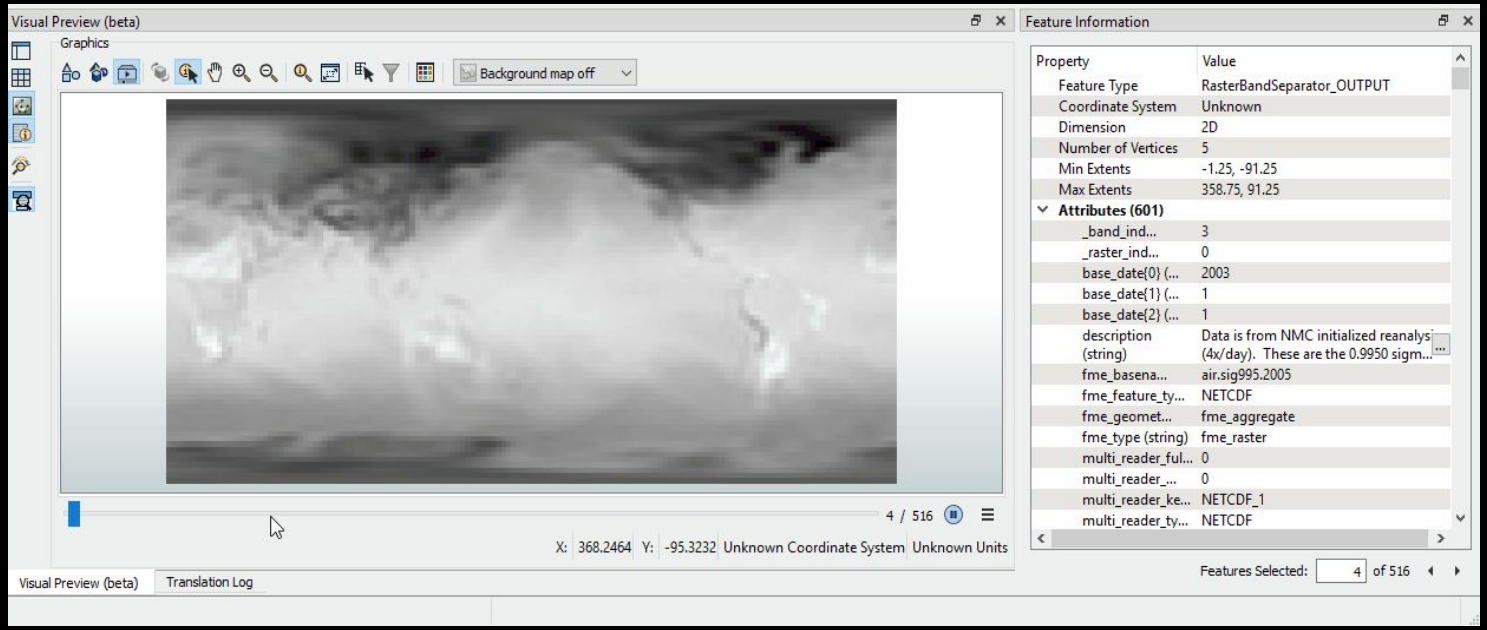
FME 2019
Highlights

Workbench

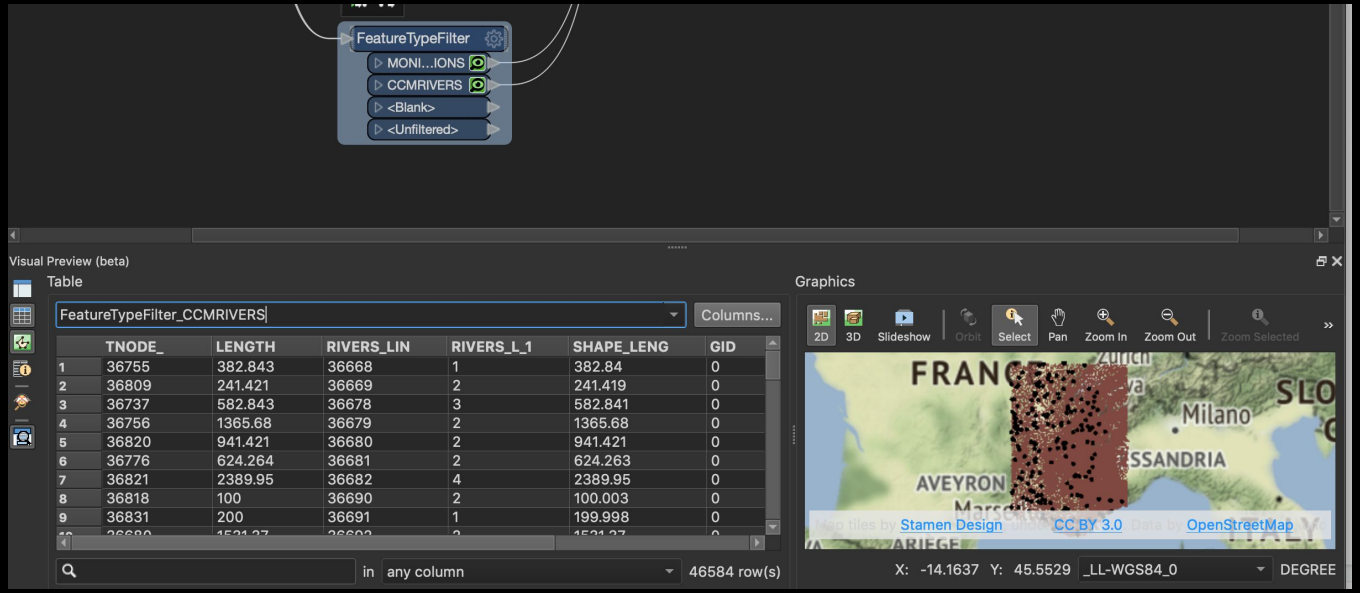
Visual Preview



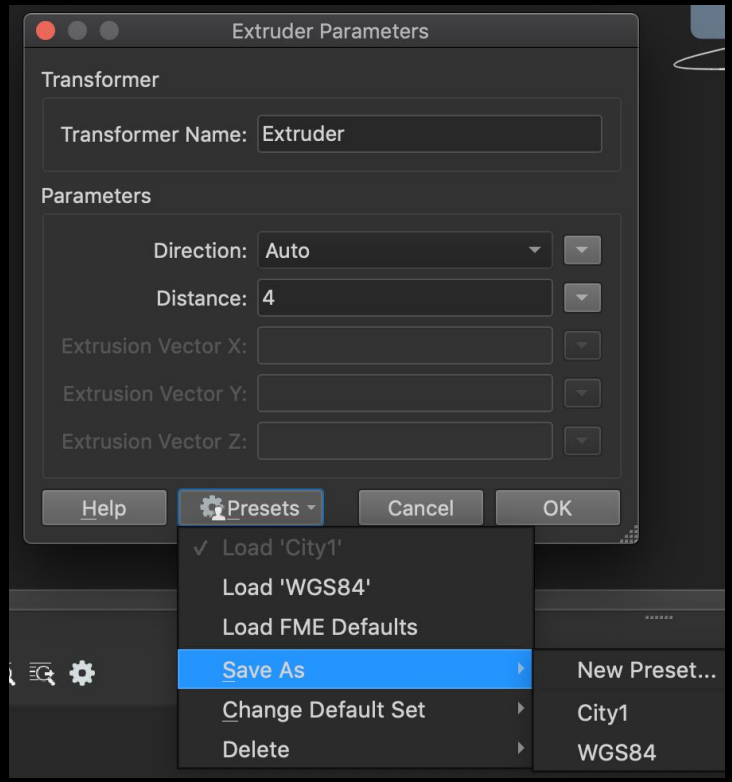
Animate Mode



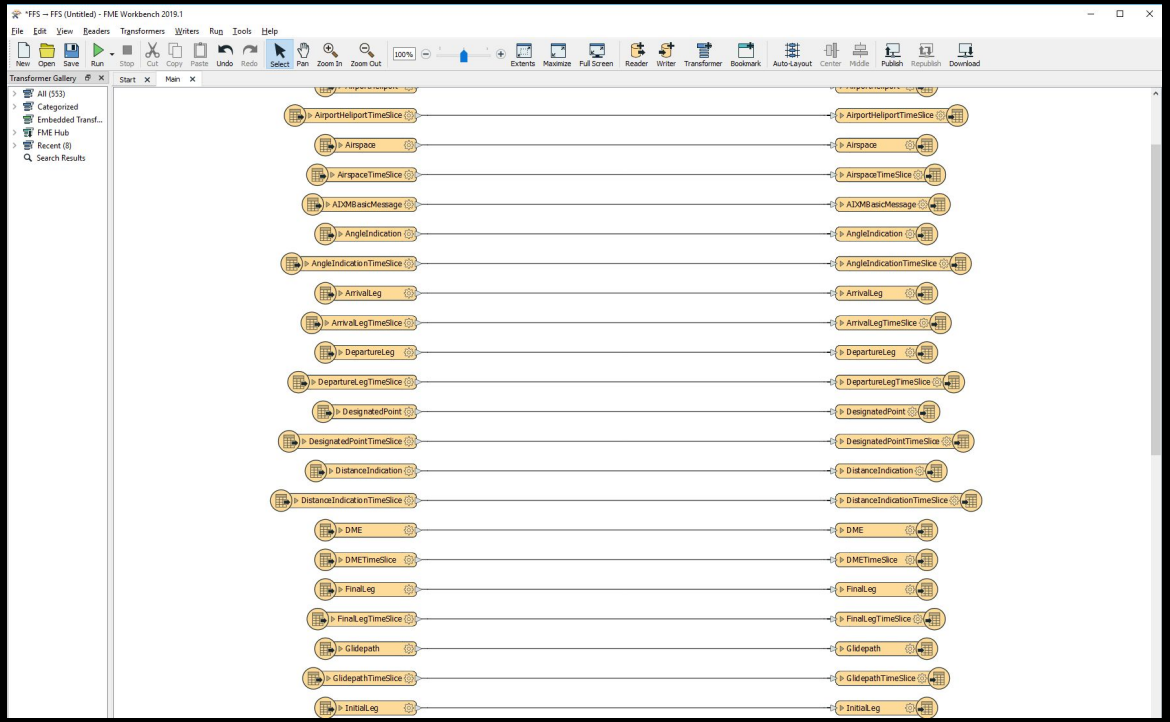
Dark Mode


FeatureTypeFilter
MONI...IONS
CCMRIVERS
<Blank>
<Unfiltered>
Visual Preview (beta)
Table
FeatureTypeFilter_CCMRIVERS
Columns...
TNODE_ LENGTH RIVERS_LIN RIVERS_L_1 SHAPE_LENG GID
1 36755 382.843 36668 1 382.84 0
2 36809 241.421 36669 2 241.419 0
3 36737 582.843 36678 3 582.841 0
4 36756 1365.68 36679 2 1365.68 0
5 36820 941.421 36680 2 941.421 0
6 36776 624.264 36681 2 624.263 0
7 36821 2389.95 36682 4 2389.95 0
8 36818 100 36690 2 100.003 0
9 36831 200 36691 1 199.998 0
in any column
46584 row(s)
Graphics
2D
3D
Slideshow
Orbit
Select
Pan
Zoom In
Zoom Out
Zoom Selected
Milano
AVEYRON
Stamen Design
CC BY 3.0
OpenStreetMap
X: -14.1637 Y: 45.5529
_LL-WGS84_0
DEGREE

Save Parameter **Presets**

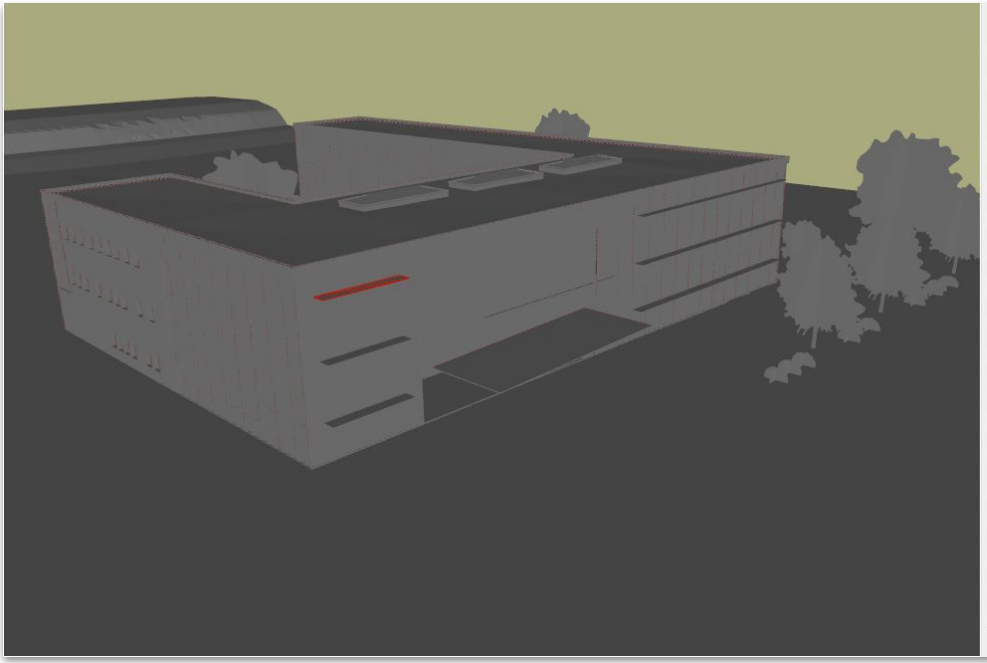


Auto-sized Transformers & Feature Types



New (and improved) Formats

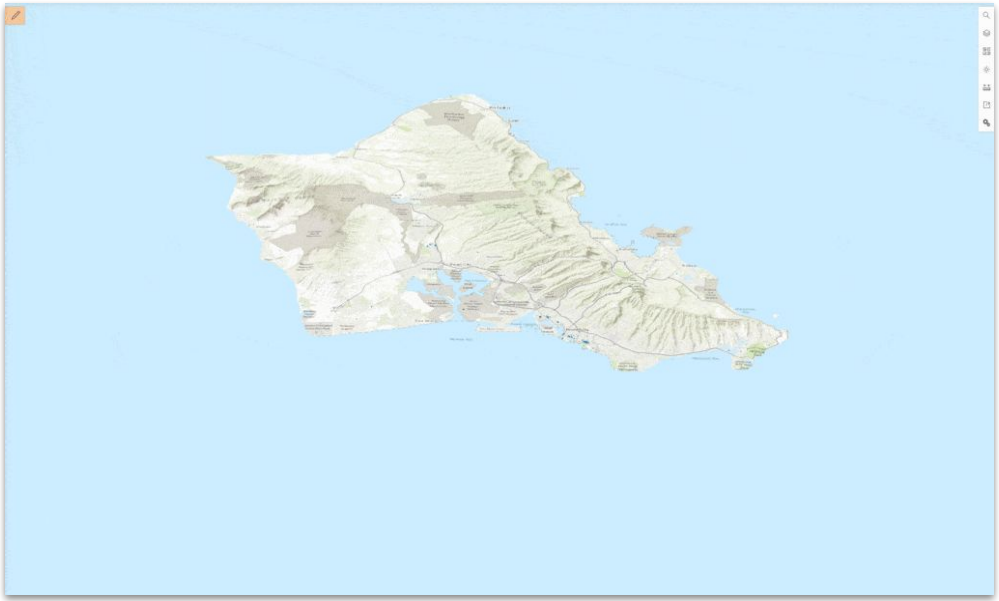
Native Revit Reading

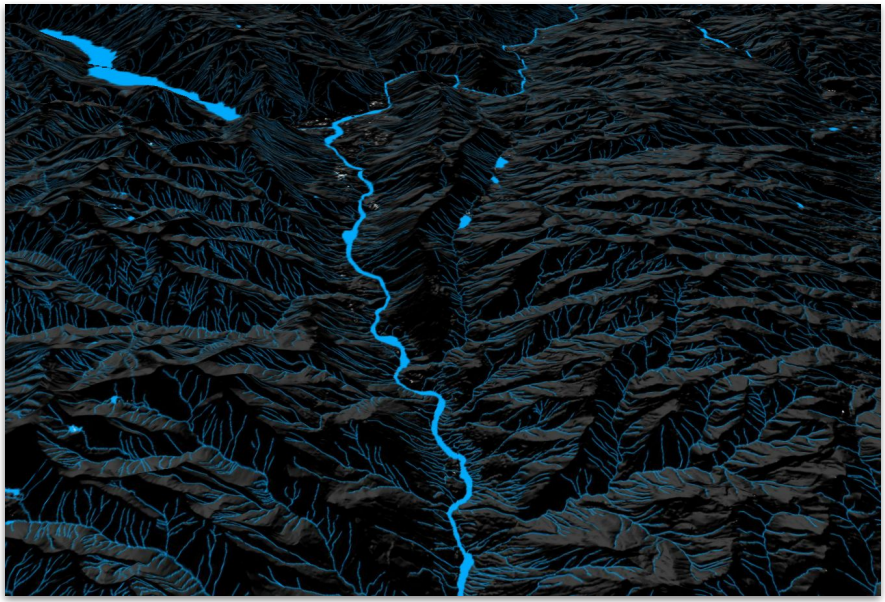


Property	Value
Attributes (39)	
AnalyzesAs (32 bit integer)	3
BaseCategory (string)	Floors
Bottom (64 bit real)	33.25885826771635
BuildingLevel (encoded: UTF-8)	03 - Floor
BuildingLevelElevation (64 bit real)	24.934383202099546
BuildingLevelIsStory (string)	Yes
BuildingLevelRoomOffset (64 bit real)	3.9370078740157473
Category (string)	Floors
CreatedPhase (encoded: UTF-8)	New Construction
Discipline (string)	Architectural
DocUpdate (string)	20190221192333
DocVer (string)	Autodesk Revit 2018 (Build: 20170223_1515(x64))
Dummy (boolean)	No
ElementType (encoded: UTF-8)	Floor
Family (encoded: UTF-8)	Floor
FamilyType (encoded: UTF-8)	Metal Sunscreen
fme_basename (string)	Technical_school-Modern
fme_feature_type (string)	Architectural.Floors
fme_geometry (string)	fme_aggregate
fme_type (string)	fme_solid
Function (string)	Interior
IdentityData.AssemblyCode (encode...	B1010
IdentityData.AssemblyDesc (encode...	Floor Construction
IdentityData.Comments (encoded: UTF-8)	Third floor sunscreen for temperature regulation
IdentityData.Mark (encoded: UTF-8)	G96
IdentityData.Omniclass (encoded: UTF-8)	Floor Construction
IdentityData.OmniclassDesc (encode...	Floor Construction
InExteriorShell (string)	no
Length (64 bit real)	-1e+30
Locked (boolean)	No
Moribund (boolean)	No
multi_reader_full_id (32 bit integer)	0
multi_reader_id (32 bit integer)	0
multi_reader_keyword (string)	REVITNATIVE_1

Features Selected: 1 of 1

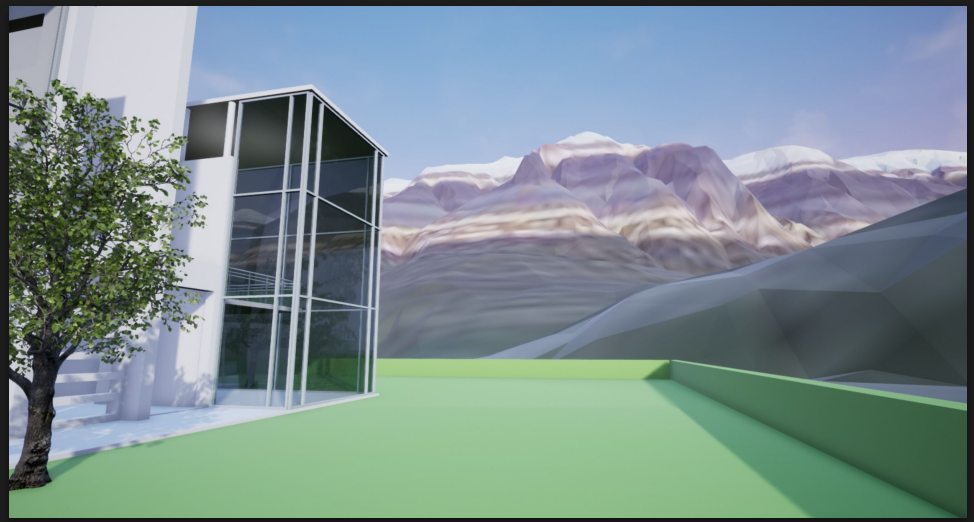
Esri i3s



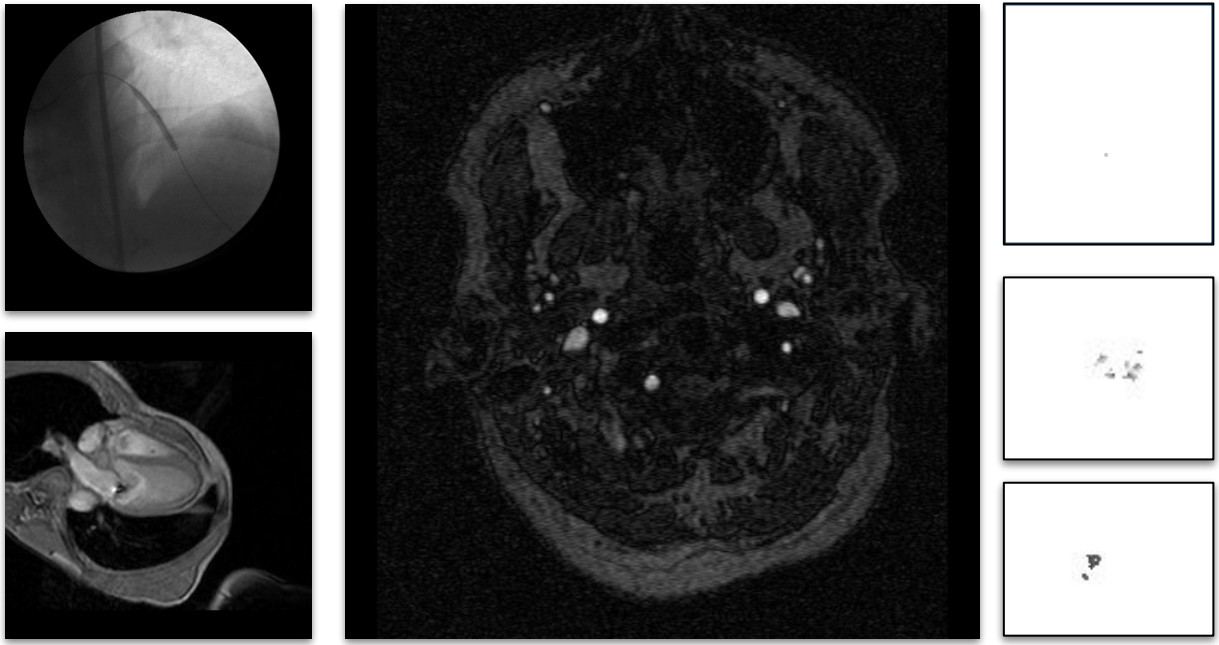


DGN Mesh Reading

Epic Games Unreal Engine
Datasmith Writer



DICOM MRI Reader



TopoJSON

DWML(R)

Socrata
(New API)

OGC WCS(R)

Garmin POI
Binary(R)

FME AR(R)

Automatic Decompression

BZ2

TAR

ZIPX*

GZIP

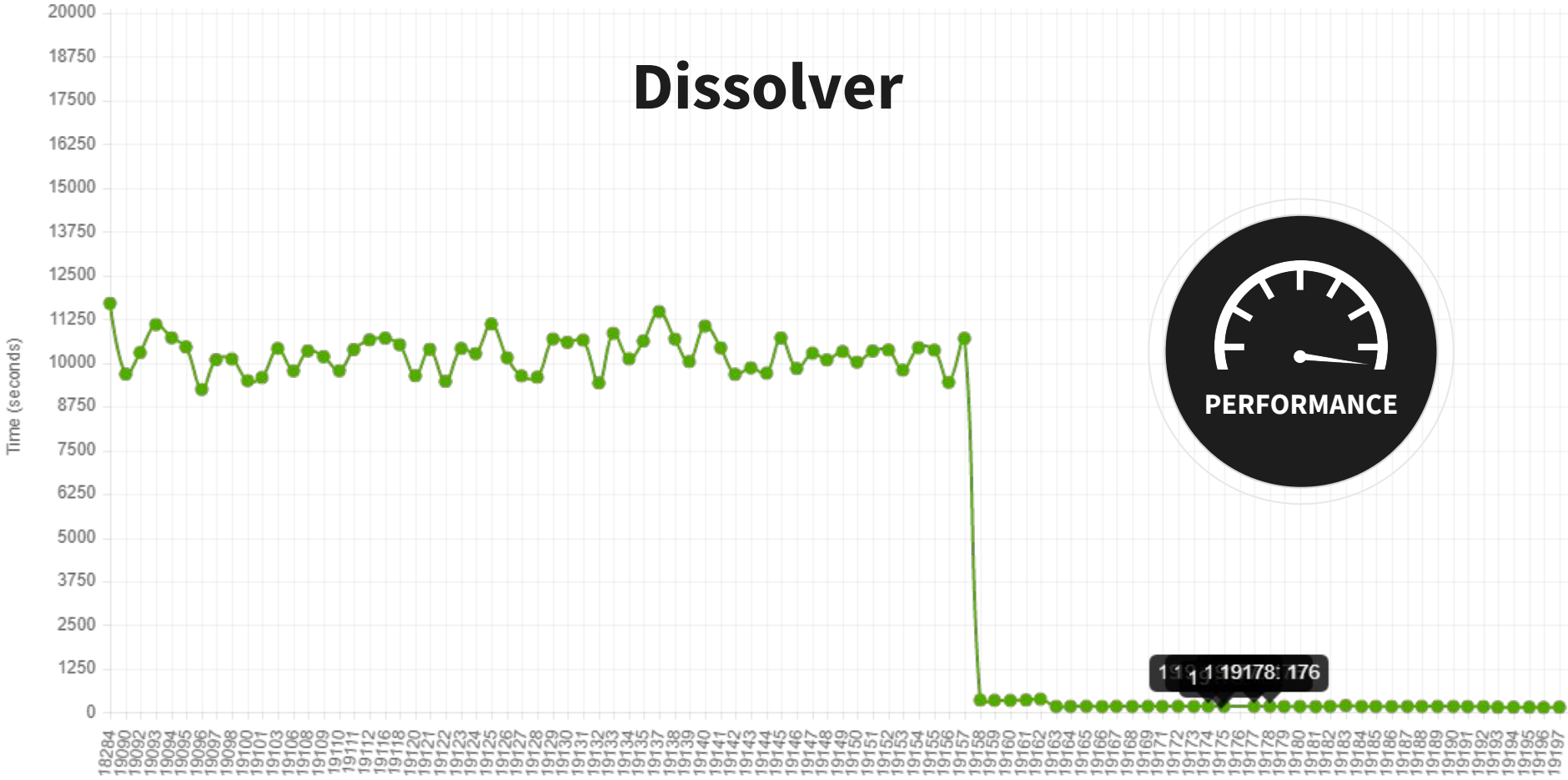
RAR

7zip

ZIP

Performance

Dissolver

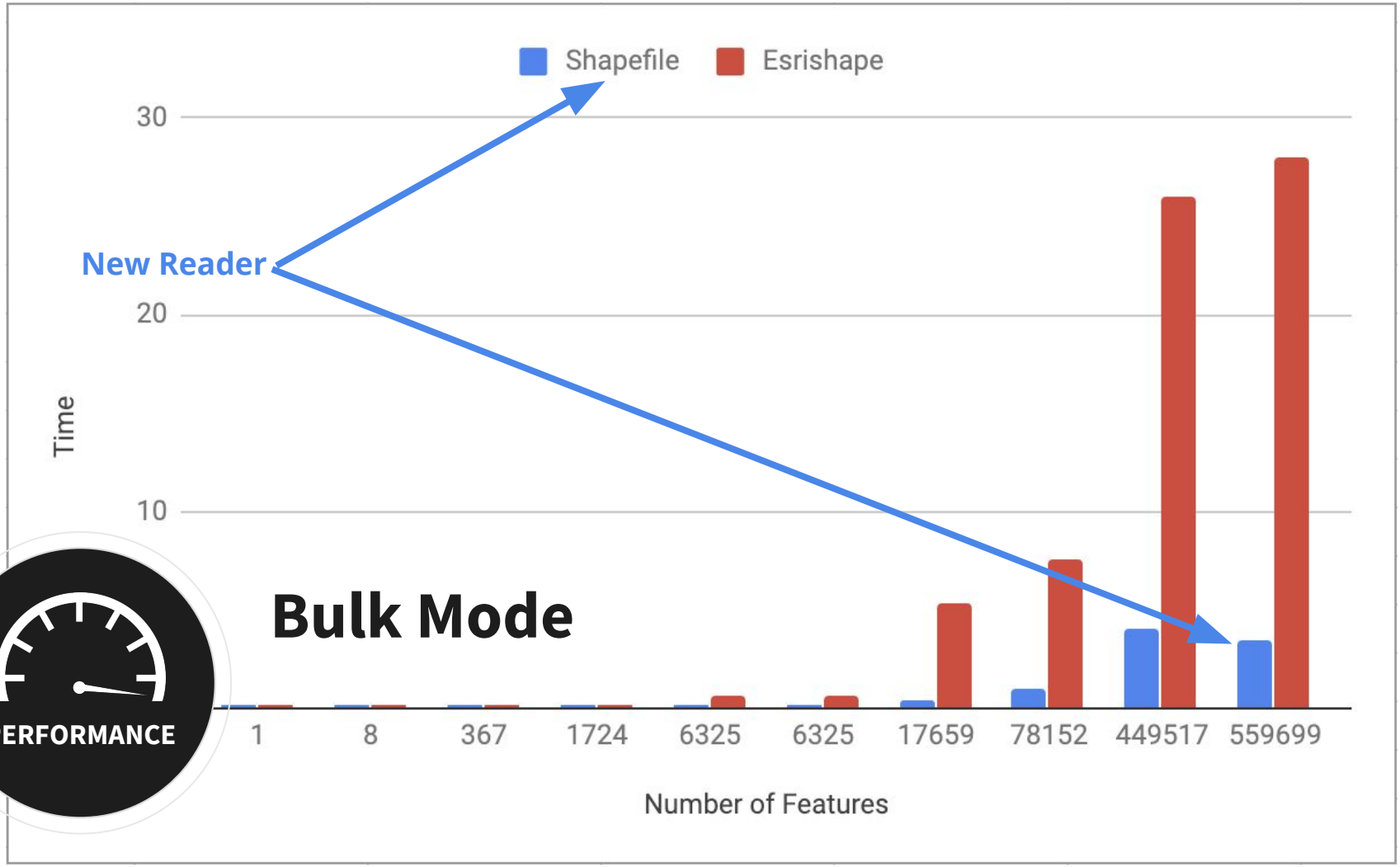

Time (seconds)
20000
18750
17500
16250
15000
13750
12500
11250
10000
8750
7500
6250
5000
3750
2500
1250
0
19178: 176
PERFORMANCE

Dissolver

2 to 76 times faster (depending on the input data)

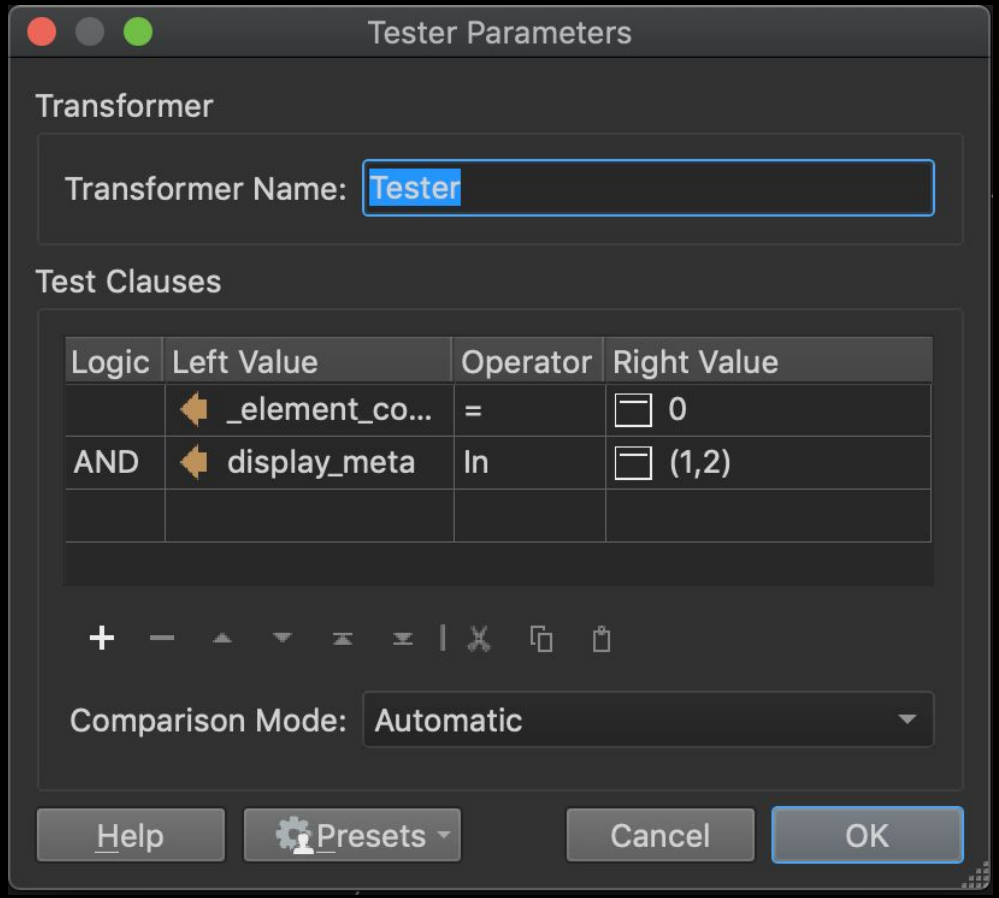
Example: dissolve.fmw
2018.1: 3 hours, 14 minutes, 58 seconds
2019.0: 2 minutes 34 seconds

Another sample:
QGIS 3.4.4 Madeira Dissolver -- 4495 seconds
FME 2019.0 -- 90 seconds -- 50 times faster!!!!

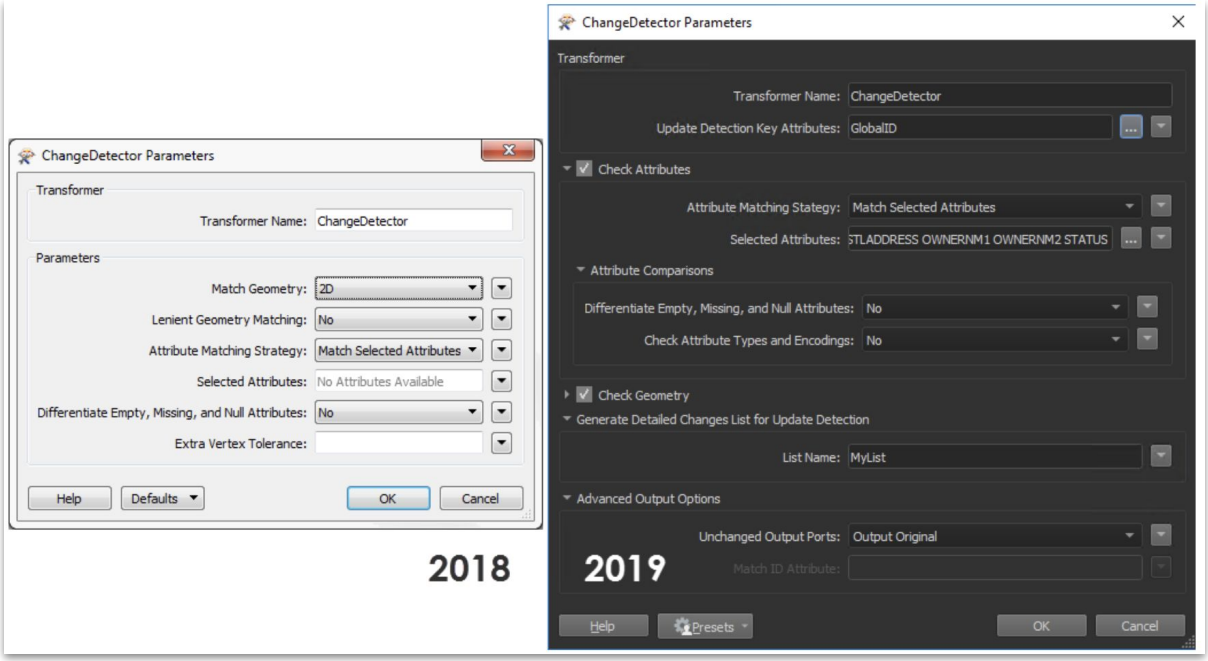

Shapefile
Esrishape
30
20
10
Time
New Reader
Bulk Mode
PERFORMANCE
1
8
367
1724
6325
6325
17659
78152
449517
559699
Number of Features

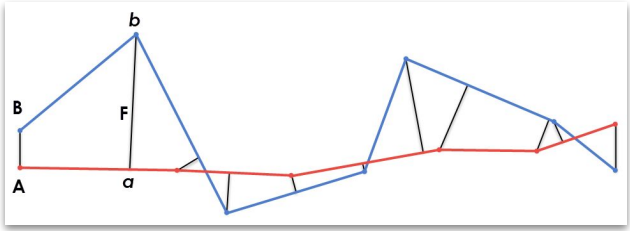
Transformers

Tester
transformer



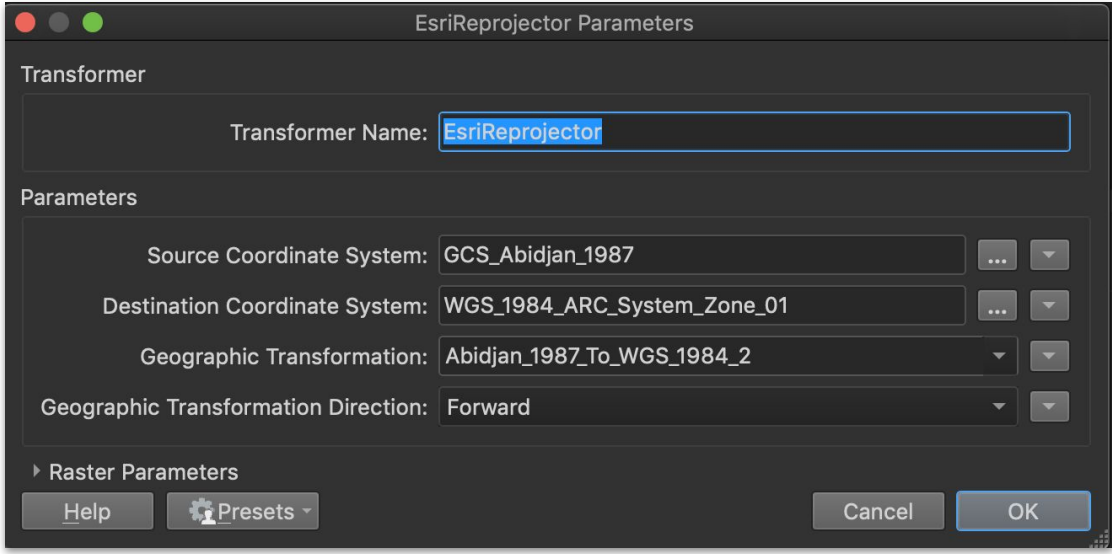
ChangeDetector





EsriReprojector

- Not new, but rewritten to not use ArcObjects
- Bundled on all platforms
- Does not need ArcGIS installed

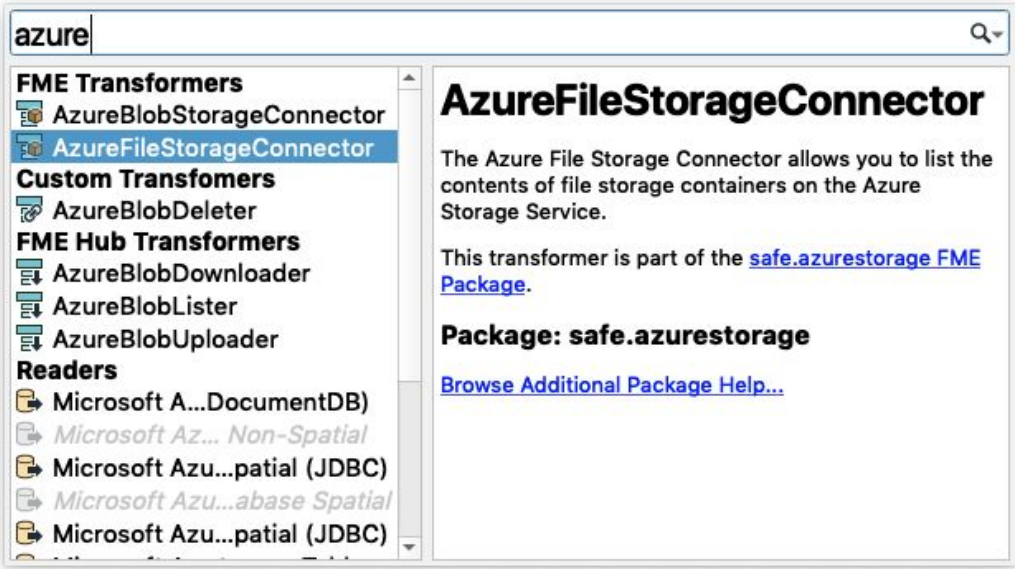


FME Packages

Start using new FME transformers and formats more quickly.

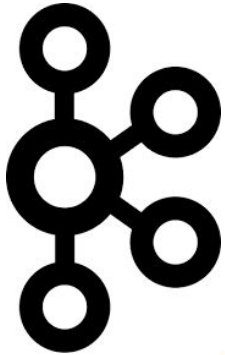
FME Packages

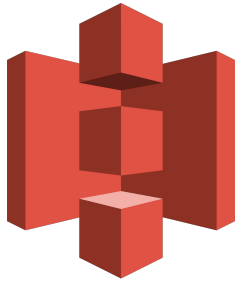
- Available via Quick Add and FME Hub
- Get fixes and new features into your hands within hours, not months.
- Developers can contribute their own content to FME.



New Connectors

- AzureBlobStorageConnector
- AzureFileStorageConnector
- CesiumIonConnector
- CityworksConnector
- GoogleCloudStorageConnector
- S3Connector
- AzureQueueStorageConnector *(coming soon)*
- KafkaConnector *(coming soon)*
- TrelloConnector *(coming soon)*





Cityworks®
Empowering GIS

CESIUMJS™

New Machine Learning Transformers

- RasterObjectDetector
- RasterObjectDetectorTrainer
- NaturalLanguageProcessor

inspector [FFS] - NLPClassifier_LabelledText

	Text	_nlp_label
1	The Lawlors finally got some satisfaction...	English
2	CARTO is a cloud-based location intellig...	English
3	Nous avons visité l'Abbaye en novembre...	French
4	Vous êtes au volant d'une voiture et vou...	French

DESKTOP 2019
DESKTOP 2019
SAFE SOFTWARE
USER 1
USER 2
FASTER-EASIER-DARKER
25c
25c
Checkpoint
Over to FME Server

SAFE SOFTWARE

Level 2: What's New in FME 2019

FME Server

DESKTOP 2019
SAFE SOFTWARE
USER 1
USER 2
FASTER-EASIER-DARKER
SERVER 2019
LEVEL UP!
SAFE SOFTWARE
FASTER-EASIER-DARKER
Connect. Transform. Automate.

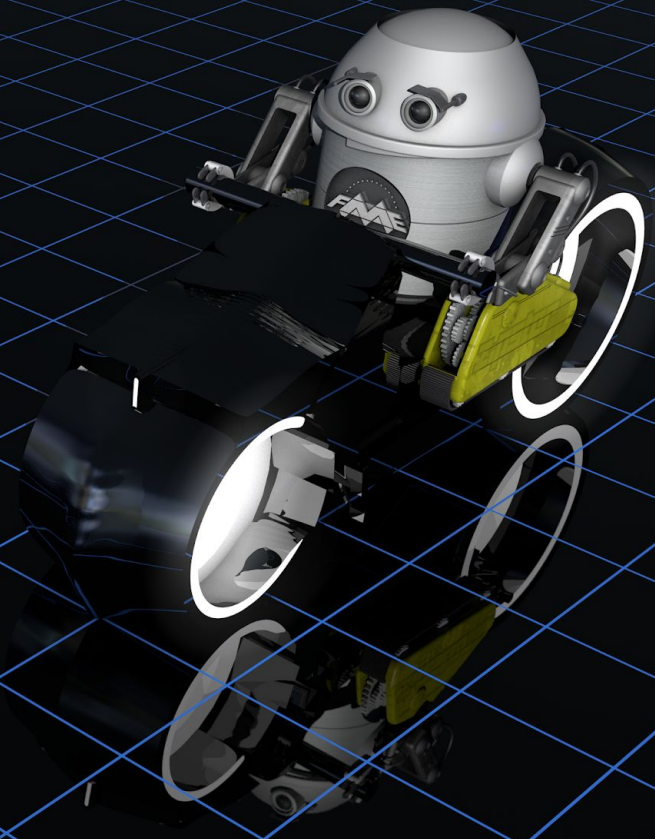
Challenge 1

*“We want to **share** FME workflows with people who don’t have an FME Server account.”*

FME
WORLD TOUR
2019
SAFE SOFTWARE
NEW
FME Server Apps

Challenge 1 - Demo

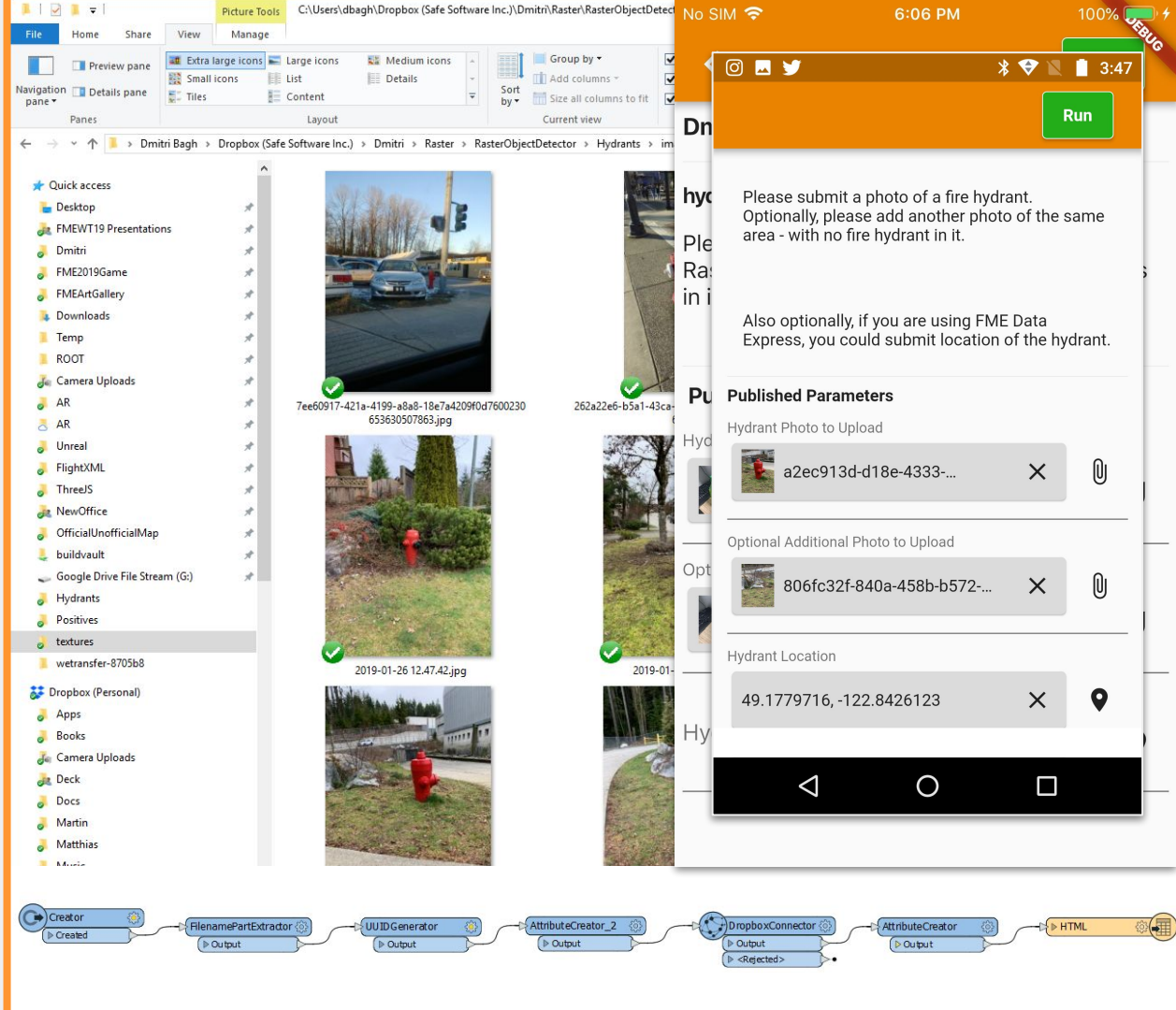
FME Server Apps



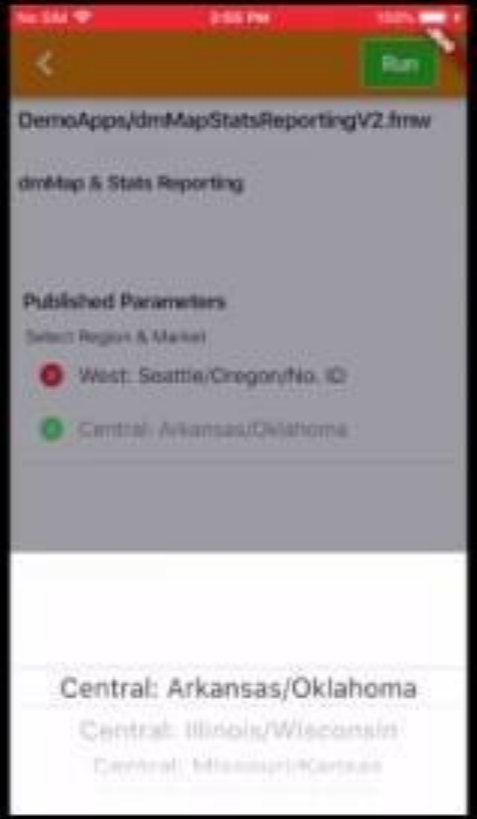
FME Data Express makes Workspaces into Mobile Apps

Run workspaces on your mobile device

- Leverage device info like location and camera.
- Control permissions with tokens.



Workspaces As *Mobile* Apps



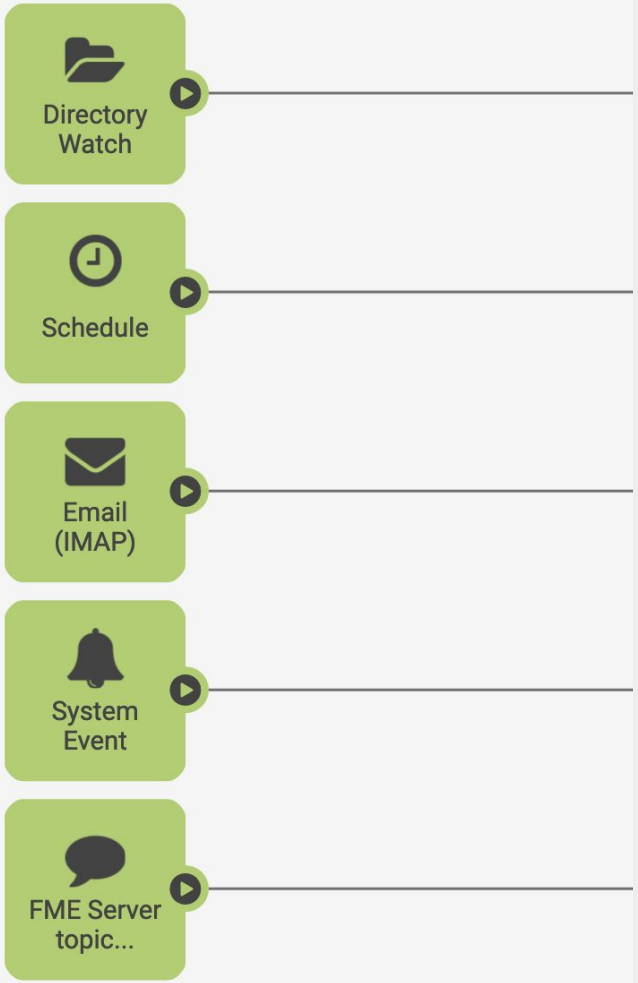
Challenge 2

*“We want to **watch for data** and **run an FME task** whenever new data arrives.”*

NEW
Automations
A simple concept consisting of Triggers and Actions

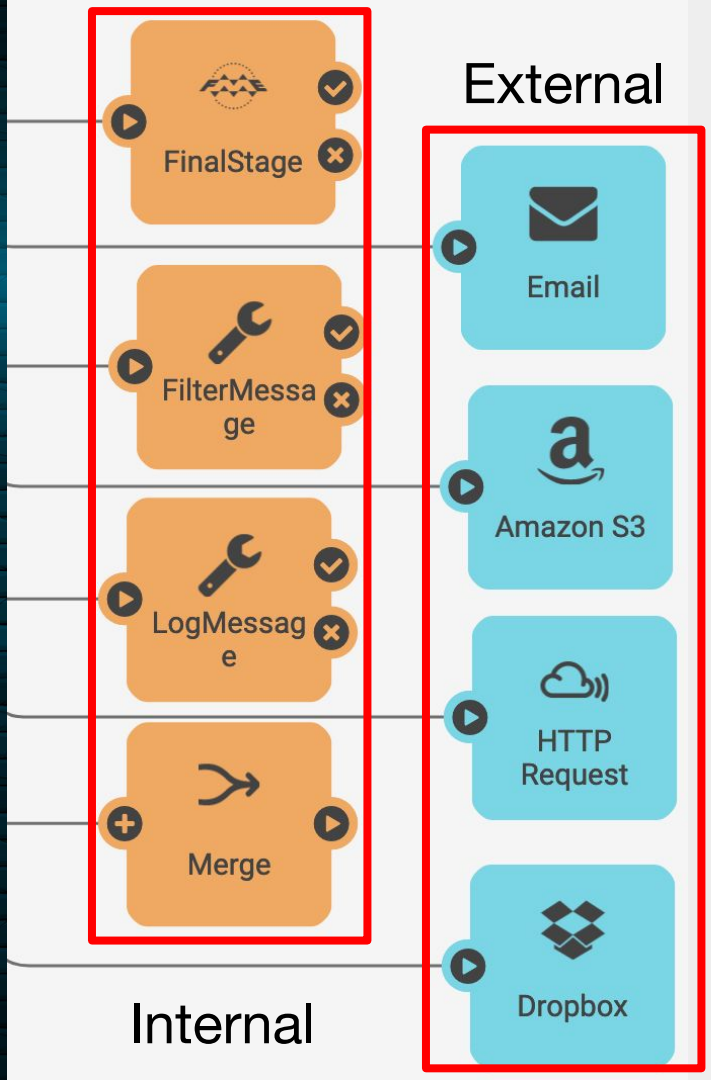
Triggers

Start an automation



Actions

Respond to triggers



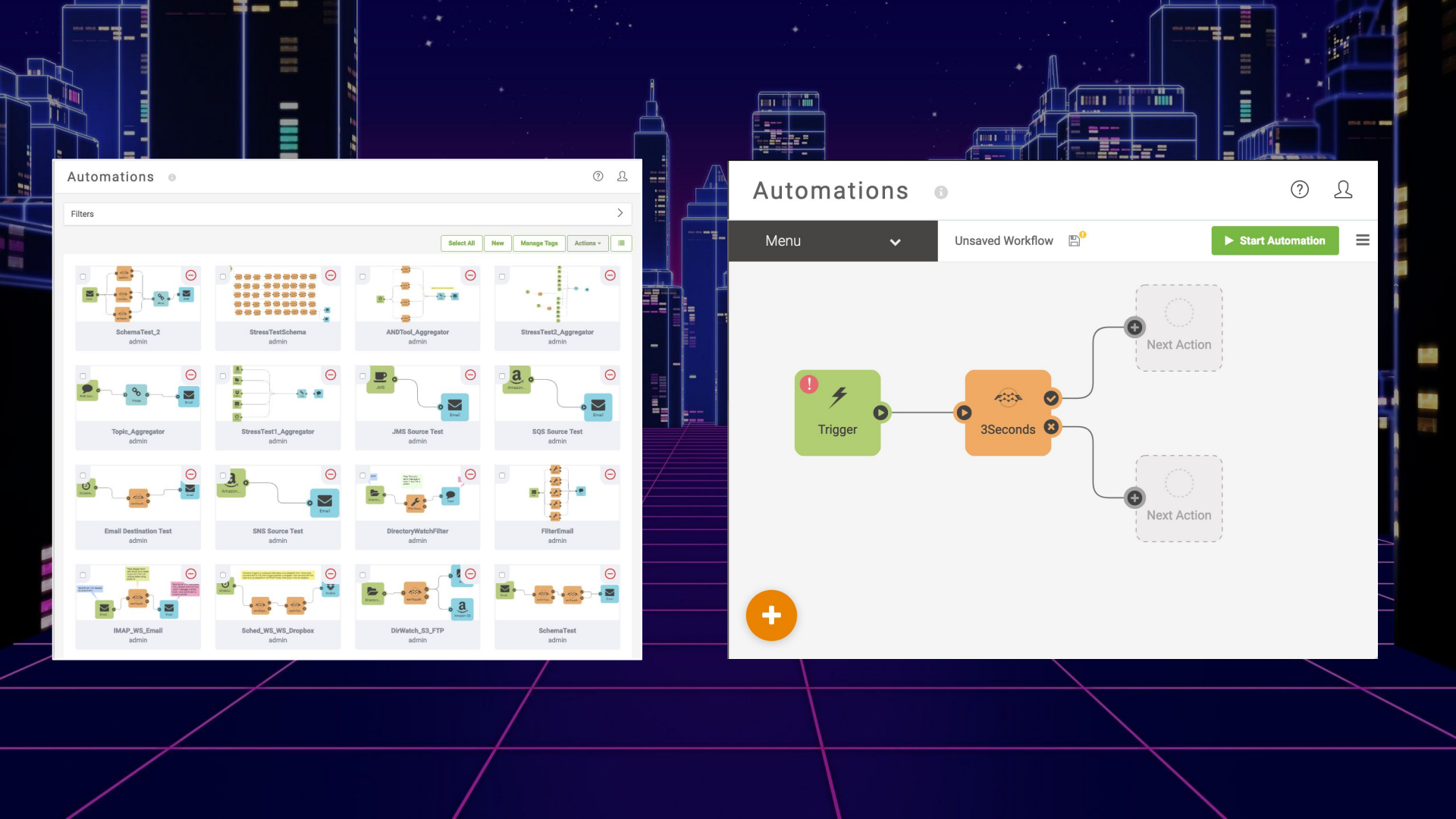
Every Automation has the same pattern:

When

Trigger Occurs

then

Perform Action


Automations
Filters
Select All
New
Manage Tags
Actions
SchemaTest_2
admin
StressTestSchema
admin
ANDTool_Aggregator
admin
StressTest2_Aggregator
admin
Topic_Aggregator
admin
StressTest1_Aggregator
admin
JMS Source Test
admin
SQS Source Test
admin
Email Destination Test
admin
SNS Source Test
admin
DirectoryWatchFilter
admin
FilterEmail
admin
IMAP_WS_Email
admin
Sched_WS_WS_Dropbox
admin
DirWatch_S3_FTP
admin
SchemaTest
admin
Automations
Menu
Unsaved Workflow
Start Automation
Trigger
3Seconds
Next Action
Next Action

Watching for Data

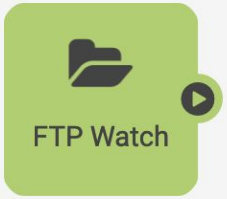
Trigger when data arrives.

Amazon S3 Watch

Triggers when data arrives in location in S3 Bucket

Directory Watch

Triggers when data arrives in File Directory.

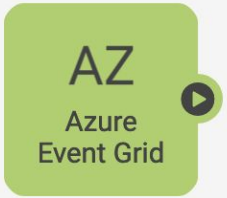


FTP Watch

Triggers when data arrives at location on ftp site

Dropbox Watch

Triggers when data arrives in Dropbox Directory.



Azure Event Grid

Can Trigger when data arrives in Azure Storage

Data Arrival Workflow

When

Trigger Occurs

then

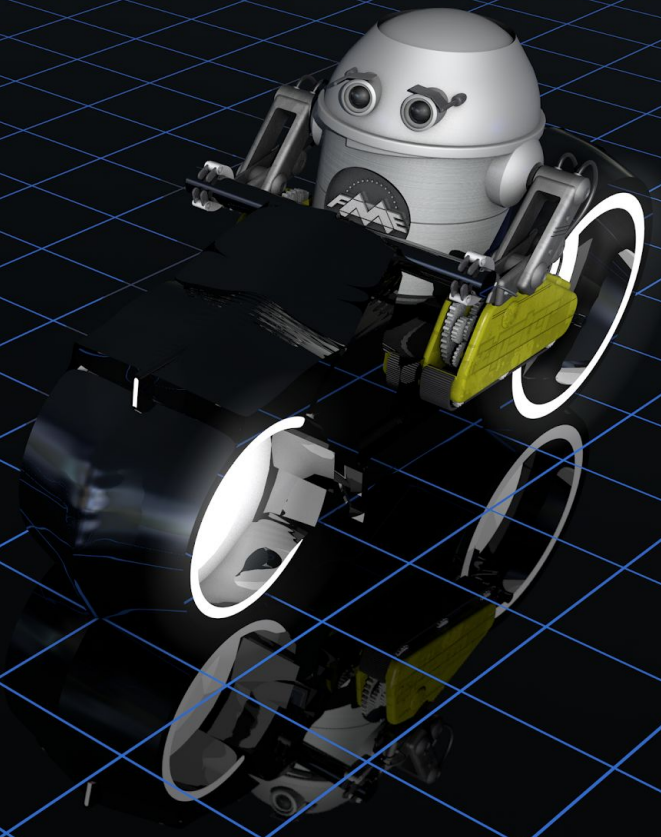
Perform Action

Challenge 3

*“We want to automatically **update** a database overnight. ”*

Scheduling

The most popular automation



Scheduled Automation

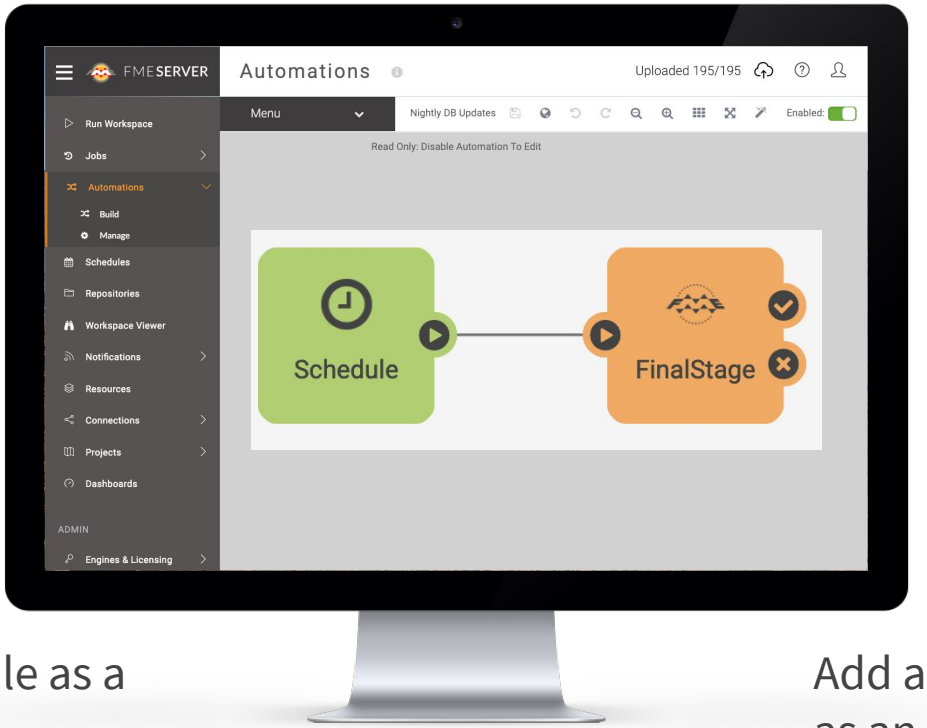
When

Trigger Occurs

then

Perform Action

Schedule the workspace with Automations



Add a Schedule as a *Trigger*

Add a Workspace as an *Action*

Save and start your Automation

Challenge 4

*“As an Administrator, we want to know when a **new user** is created on our system.”*

System Events

Generated by FME Server activities

NEW

System Events

FME Server events made available.

Security

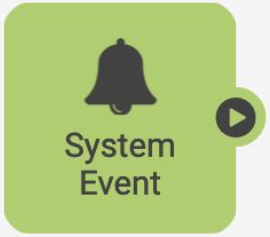
Account Activity:
User create, update, delete

System Info

Warnings and errors
License expiry

Server Status

Server startup
Backup, restore



Server Activity

Repositories and Items:
Create, update, delete
Project export/import

User Creation Notification

When

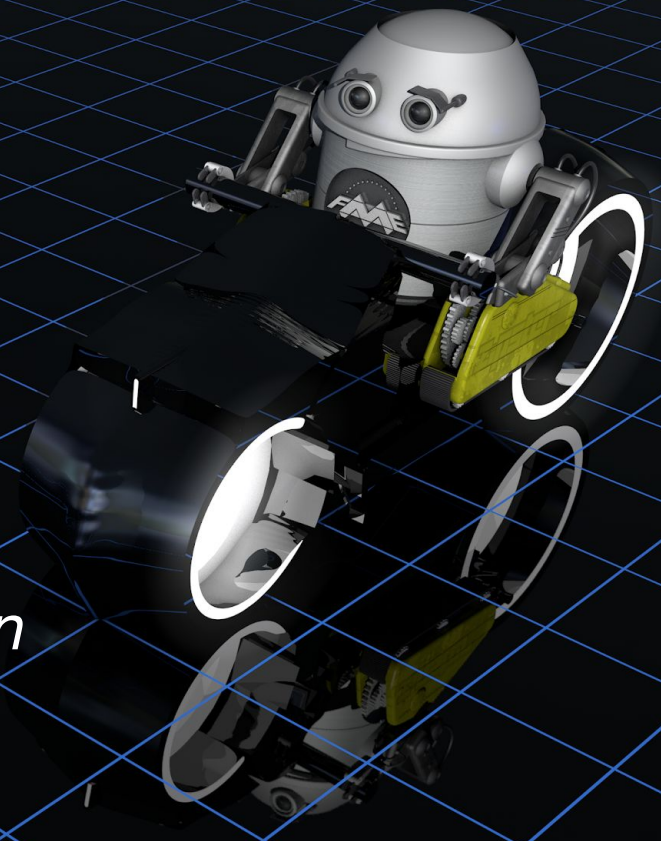
Trigger Occurs

then

Perform Action

System Events & Automations

Bring power to System Administration



FME Server 2019.0

New features we showed

FME Server Apps

Share FME workflows with anyone – no FME Server account required.

Automations

Build multi-step workflows to connect applications with triggers and actions.

System Events

Monitor FME Server events generated based on system activities.

FME Server 2019.0

More new and improved

Job Log Filtering

Filter out warnings, errors, and info.

Token Management

Share exactly what you want with support for multiple tokens.

FME Server Projects on FME Hub

Load and share projects on FME Hub.

Password Security Rules

Specify password complexity.

User Preferences

Experience the same user preferences from browser to browser.

THE END

Questions?