



WORLD TOUR
2019



Bonus Level

New Data Ventures



PRESENTATION AGENDA

- | | |
|---|------------------|
| 1 | Revit |
| 2 | Indoor mapping |
| 3 | X Reality |
| 4 | Gaming engines |
| 5 | Medical imaging |
| 6 | Machine learning |
| 7 | FME on mobile |

START

Average number of buildings constructed in urban areas daily (2018–2050)*



* All nonresidential and residential buildings (excl. single family homes) in urban areas.

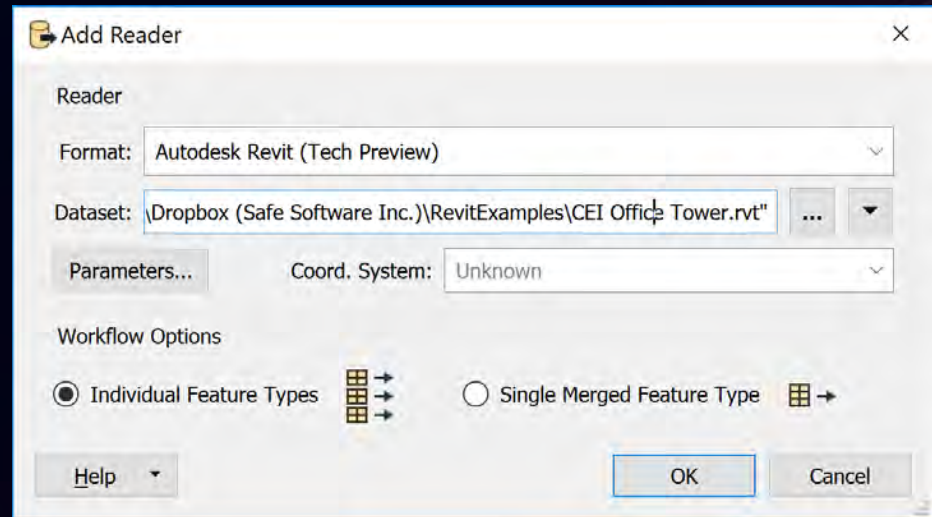
Source: STATISTA

Average number of buildings constructed in urban areas annually (2018–2050)*

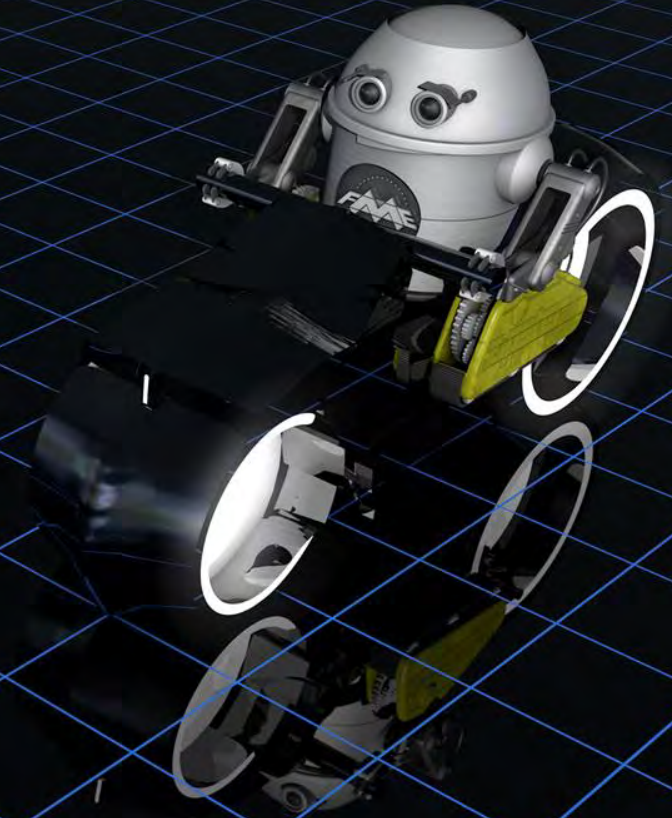


1. One-step Revit integration (*beta*)

Direct Revit reading with no intermediate files

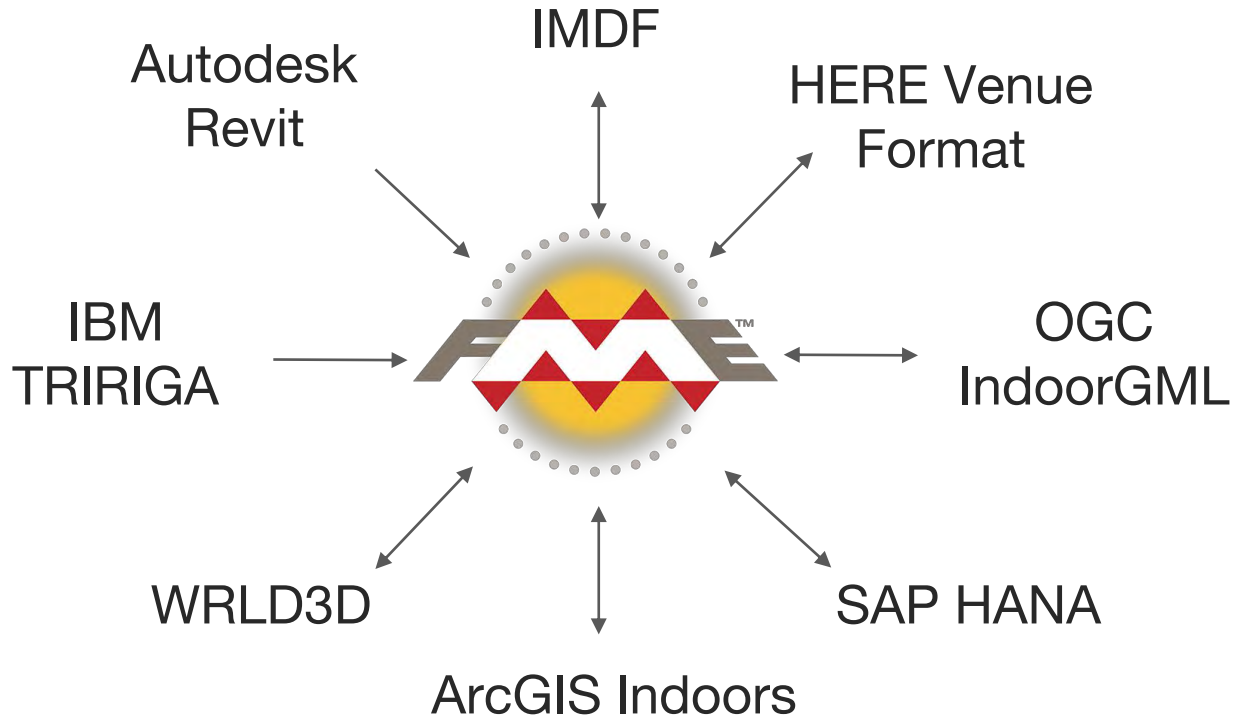


2. Getting your venue into indoor navigation apps

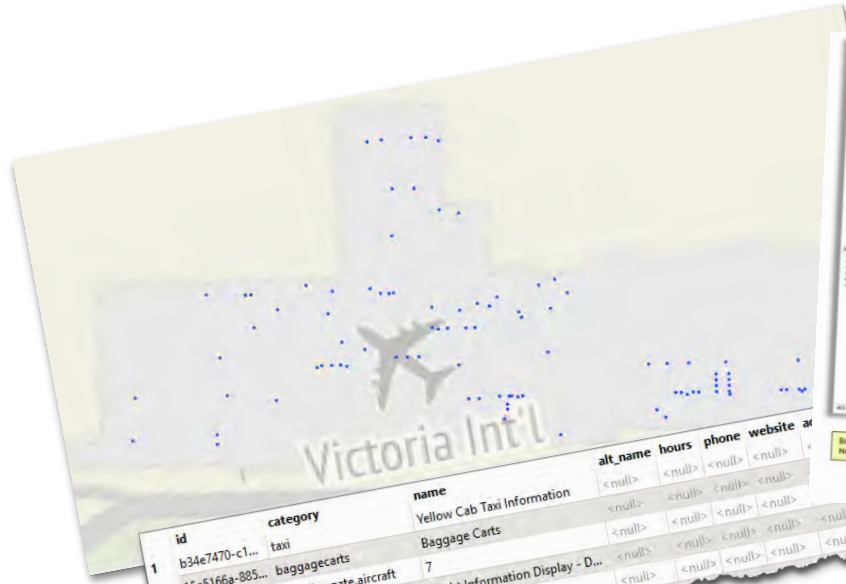


Indoor Mapping Challenges

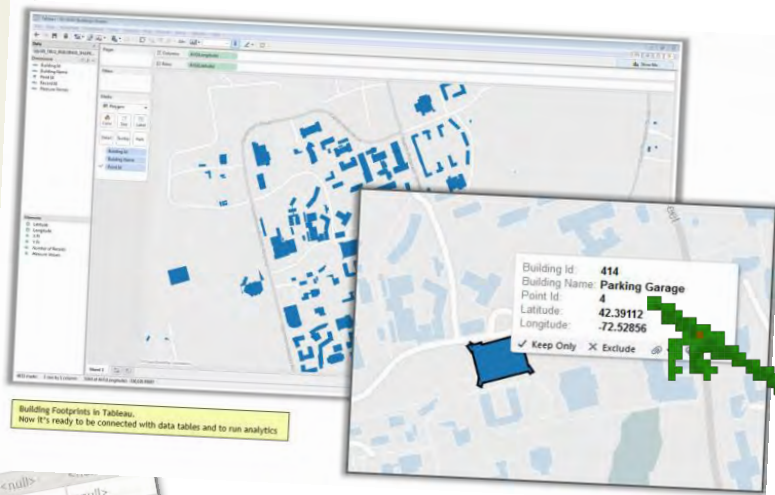
- Must **integrate** multiple sources to produce an indoor map.
 - GeoJSON, Revit, IFC, CAD (Autodesk, Bentley), Civil 3D, Esri Geodatabase, databases, CityGML ...
- Must **transform** inconsistent data.
- Must **comply** with specifications of the indoor format, e.g. IMDF, HERE, ArcGIS Indoors, IndoorGML.
 - Strict data models and explicit spatial relationships.
- Venues constantly change, so maps need to be updated **automatically**.



Venues Using FME to Generate Indoor Maps



id	category	name	alt_name	hours	phone	website	ar
1	b34e7470-c1...	Yellow Cab Taxi Information	<null>	<null>	<null>	<null>	<null>
2	15c5166a-885...	Baggage Carts	<null>	<null>	<null>	<null>	<null>
3	5be7a0bb-0f...	Flight Information Display - D...	<null>	<null>	<null>	<null>	<null>
4	90bdf7f7-48d...	YYJ Airport Shuttle	<null>	<null>	<null>	<null>	<null>
5	a35da997-f06...		<null>	<null>	<null>	<null>	<null>





3. Exploring your data in X Reality

Scenario: Augmented Wayfinding

1. Create floor network dataset.
2. Use the ShortestPathFinder.
3. Write to FMEAR format.
4. Make a webpage that opens the FME AR app.

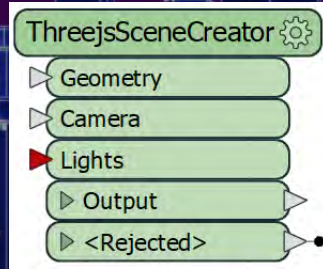


Scenario: Augmented Objects



1. Create/load your floor plan.
2. Change existing objects, e.g. color or texture.
3. Add new objects, e.g. furniture, annotations, action heroes.

Scenario: Virtual Scenes



1. Read a 3D model.
2. Use the [ThreejsSceneCreator](#).
3. Write the scene and host it locally or on the web.
4. Put on your headset and explore!



4. Bringing your data into
gaming engines

Don't just *inspect* your data ...

The screenshot shows the FME Data Inspector interface. The central view displays a 3D model of a house. To the right, a data table is visible, listing 14 rows of data. The table has columns for 'Glob Name' and 'Descri'. The data in the table is as follows:

	Glob Name	Descri
1	3Y... Pilar rectangula...	<missi
2	3Y... Pilar rectangula...	<missi
3	3Y... Pilar rectangula...	<missi
4	3Y... Pilar rectangula...	<missi
5	3Y... Pilar rectangula...	<missi
6	3Y... Pilar rectangula...	<missi
7	3Y... Pilar rectangula...	<missi
8	3Y... Pilar rectangula...	<missi
9	3Y... Pilar rectangula...	<missi
10	3Y... Pilar rectangula...	<missi
11	3Y... Pilar rectangula...	<missi
12	3Y... Pilar rectangula...	<missi
13	3Y... Pilar rectangula...	<missi
14	3Y... Pilar rectangula...	<missi

At the bottom of the interface, there is a status bar with the text: "Use the zoom out mode to control the camera" on the left, "X: _____ Y: _____ IFC_COORDSYS_0 METER" on the right, and "1117 row(s)" in the center.

... experience it.



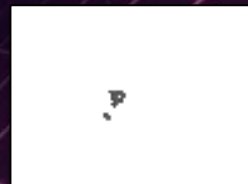
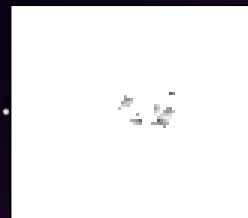
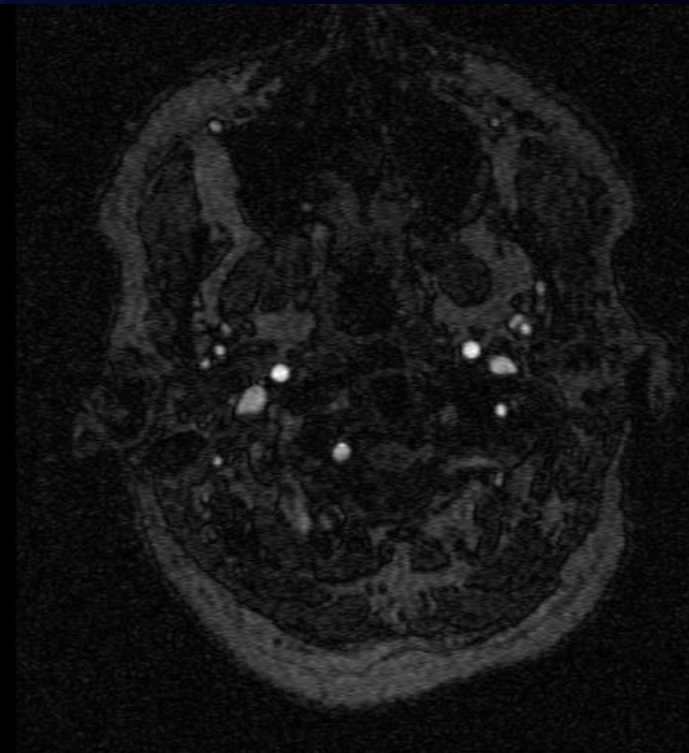
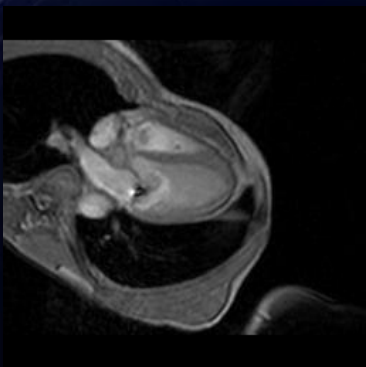
The image features a central white rectangular area containing the text. This central area is flanked by two vertical panels. Each panel depicts a futuristic city skyline at night, rendered in a glowing blue and cyan color palette. The buildings are stylized with sharp lines and some have small windows or lights. The foreground of these panels is a dark blue grid pattern that recedes into the distance, creating a sense of depth. The overall aesthetic is high-tech and digital.

5. Processing medical imaging

Goal: Identify Brain Tumors

- Can we analyze brain scan data (CT, MRI) to identify brain tumors?
 - Knowing a tumor's location and type would help reduce radiation damage to healthy tissue.
- Manual approach is prone to human error and time consuming.
- Helpful FME capabilities:
 1. Process **huge volumes** of images.
 2. Do **object detection**, which would help isolate a tumor's location.
 3. **Classify** data, which would help identify the tumor subtype.

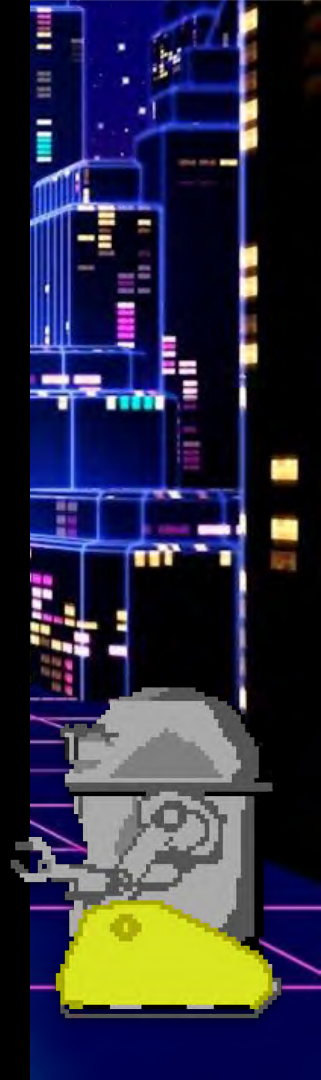
DICOM images in time (left) and space (center/right)



DICOM images for coal mining



6. Artificial intelligence and machine learning

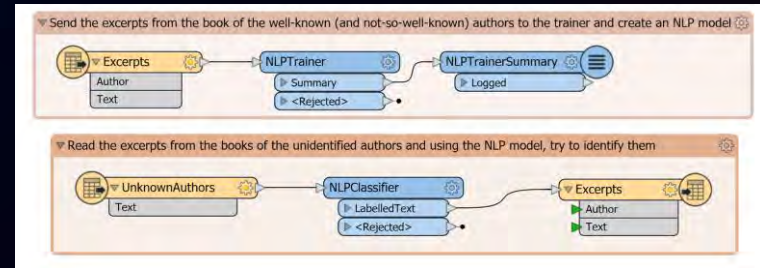


Natural Language Processing

fme.ly/languageDetector

The screenshot shows an Excel spreadsheet with the following data:

Author	Text
King	He unlocked a door and led me through an office that was empty of furniture, although I
Tolkien	He heard the crack of stone, and the murmur of water far off in Morgul Vale; and down av
Dmitri	I slowly circled around the room, watching, listening, thinking. The monotonous noise of a
Tolkien	And with that he bade Halbarad unfurl the great standard which he had brought; and beh
King	They walked back into the world together, wearing the gift that had been given them: just
Dmitri	Summer nights were tender, warm, and velvety black. Winter nights were often crystal cle
Dmitri	Or, if someone is a bit late, the crew can easily wait a few extra minutes — the captain will
Tolkien	The lower part of the long face was covered with a sweeping grey beard, bushy, almost tw
King	It is now generally agreed that the TK phenomenon is a geneticrecessive occurrence — but
Tolkien	Gandalf stood for a moment in thought. 'Maybe,' he muttered. 'Maybe even your foolishhr
Dmitri	On the surface, I saw the arching body of the orca. Splashes of Lego pieces flew in all direc
King	Her mother reached up and pinched her own face. It left a red mark. She looked to Carrie



Language Detector

Enter a fragment in English, French, Spanish, or German

Detect!

FME does not recognize other languages just yet, don't try to drive an awakening mind crazy with Russian or Swahili.

Raster Object Detection

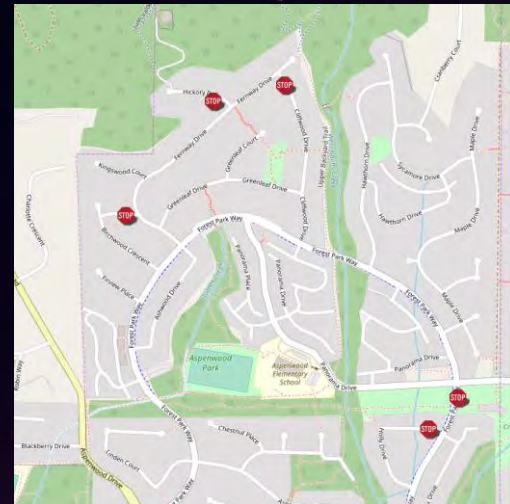

fme.ly/stopSign

Upload an image

Select file to upload

File to Upload No file chosen

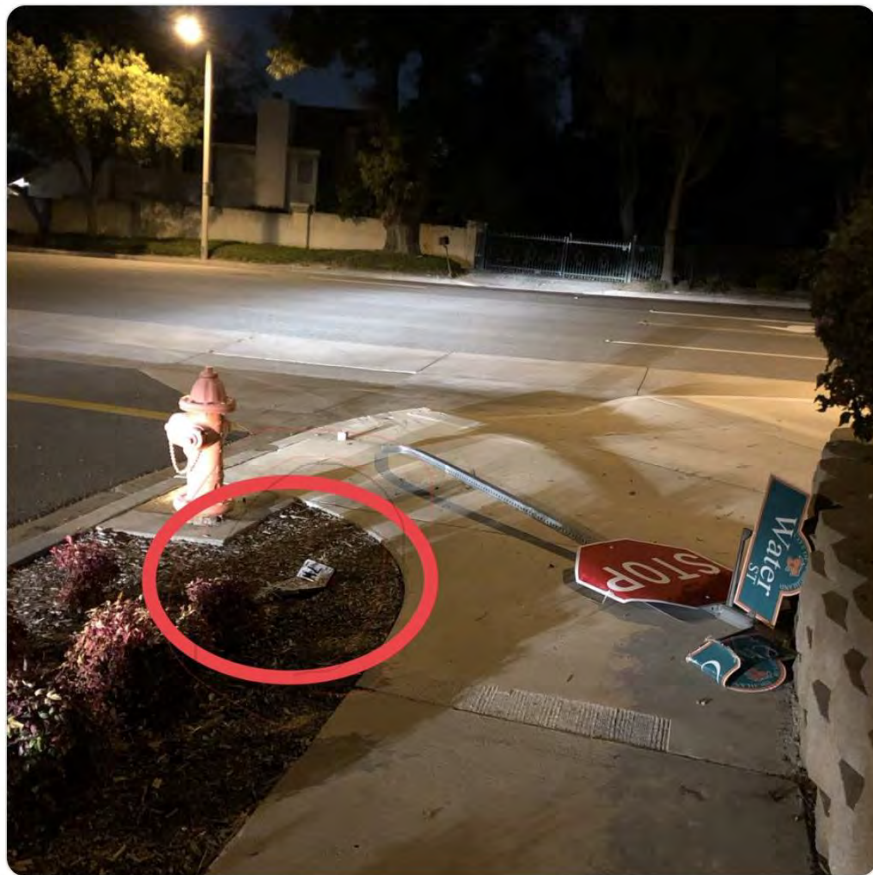
Results





Jeff Shaner @jeffshaner · 9h

To the idiot that just took out the stop sign at intersection of Church & Water Street in Highland, you left your license plate behind! @HighlandPolice @HighlandHaps @sbcountysheriff Lucky you missed the @eastvalleywater fire hydrant. Have a fab rest of your evening.



7. FME on Mobile



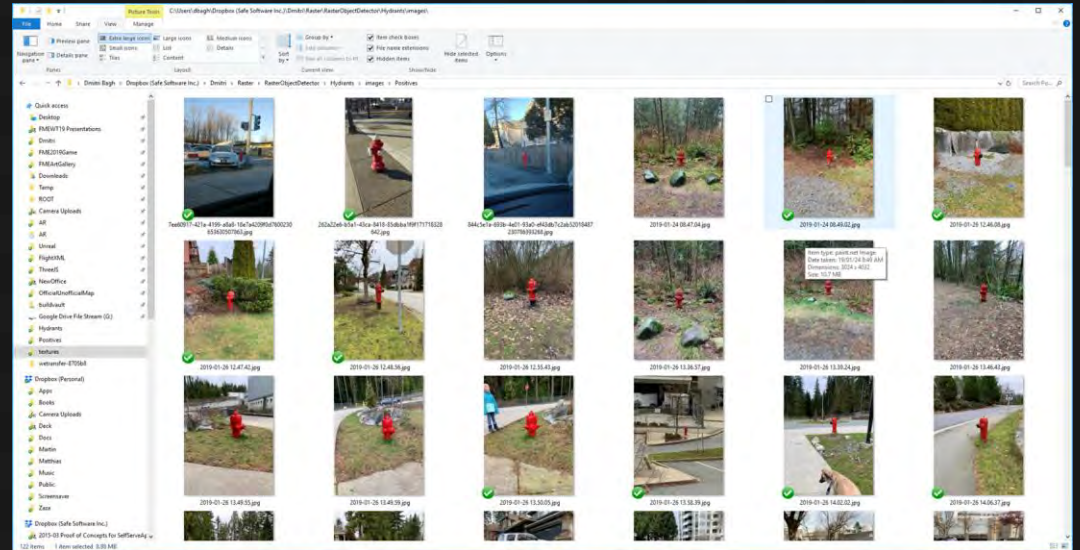
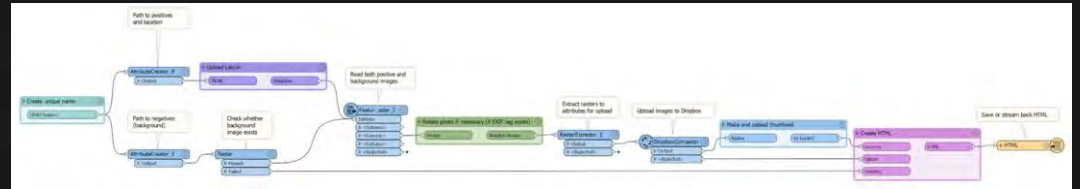
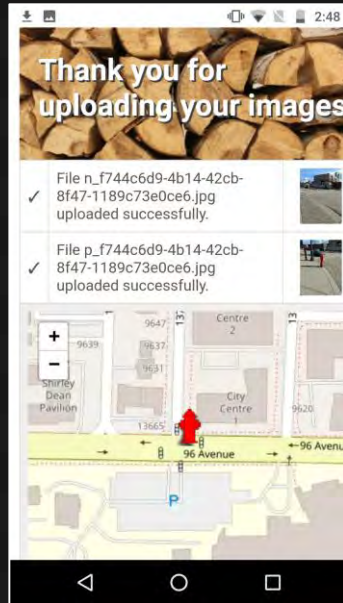
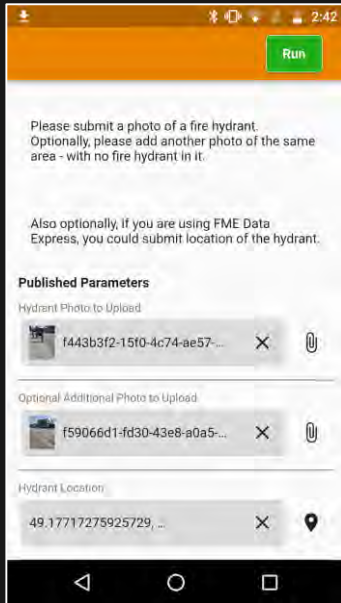
FME Data Express

Making it easy for anyone to run FME Workspaces as apps on their mobile device.

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



Example: Hydrant Collector App





Questions?