



Create Minecraft Worlds

with ArcGIS and the Data Interoperability Extension

Brought to you by:



Safe Software

- Makers of FME & Data Interop -





MINECRAFT

What Geospatial use do have in mind for Minecraft?

- 36% - Urban Planning
- 17% - Disaster planning
- 37% - Community engagement
- 27% - Gaming / time wasting
- 28% - What is this Minecraft thing?

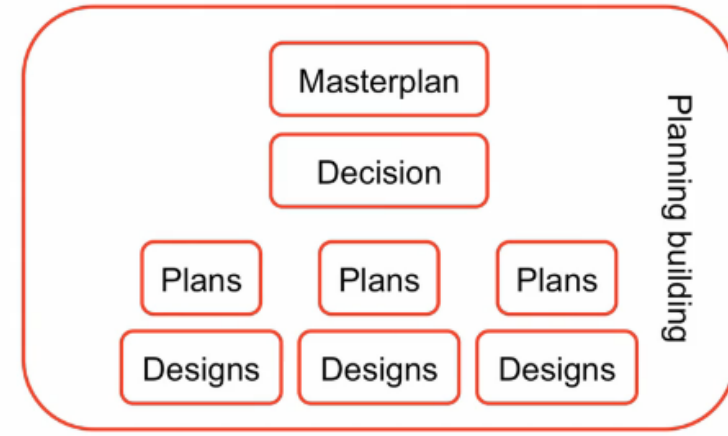
Players are placed in a borderless, randomly generated land with no supplies, directions, or objective. It's up to them to decide what to do. By collecting materials from the world players can 'craft' items and build whatever their minds can imagine.

Blocks



Items





Complex worlds dreamed up by kids and created in Minecraft.

Source: Ulf Masson (SWECO)

A young boy with dark hair, wearing black-rimmed glasses and large black headphones, is seated at a desk. He is wearing a blue polo shirt and is looking intently at a laptop screen. His right hand is on a computer mouse. The background is a blurred indoor setting with a window showing greenery outside.

**A 10 Year Old
City Planner?**

The image features a stylized globe with a glowing blue grid and network lines, symbolizing global connectivity and technology. The globe is set against a dark blue background with a subtle gradient. The grid lines are composed of thin, bright blue lines that form a spherical structure. Overlaid on this grid are several thick, glowing blue lines that represent network connections or data paths. These lines are curved and intersect at various points, creating a complex web of connections. The overall aesthetic is futuristic and digital.

Real-World Value

Education



- Reconstructing historical maps
- Living in a different era
- Simulating natural disasters
- Man's impact on the world (i.e. raising sea levels)
- Problem solving



City Planning & Crowd Sourcing

An aerial view of a city planning simulation. The scene shows a dense urban area with numerous yellow buildings, green spaces, and winding roads. A semi-transparent white box is overlaid on the left side of the image, containing the text 'City Planning & Crowd Sourcing' in a large, black, sans-serif font. The background is a light blue sky, suggesting a clear day.



UNDUGU PLAYGROUND



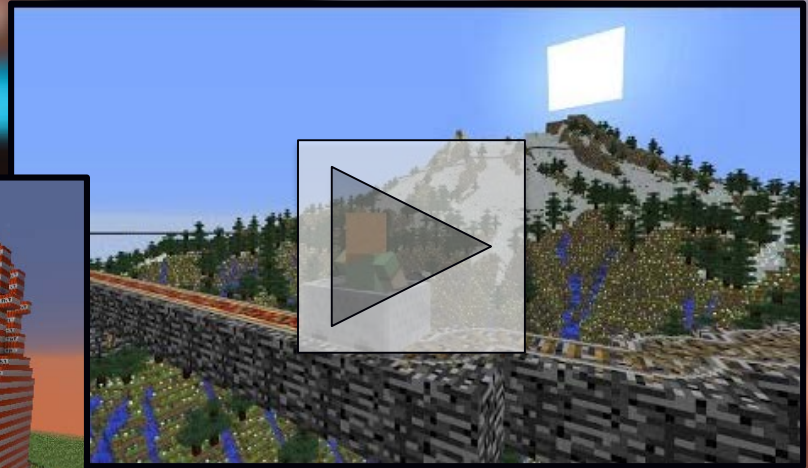
“Block by Block involves young people in the planning of urban public spaces. Minecraft has turned out to be the perfect tool to facilitate this process.”

Source: <http://blockbyblock.org/>



Having Fun

- Live in a new world
- Design mazes and rollercoasters
- Race across city streets
- Make something explode
- Explore caves



Appeal to a wider audience

3 Keys:

Make it **easy**.

Make it **cheap**.

Make it **fun**.

MINECRAFT

A young man with a short haircut, wearing a purple and black plaid shirt, is leaning forward and looking intently at a screen. In the background, other people are visible, including a man in a blue shirt. The word "MINECRAFT" is written in a 3D, blocky font at the bottom of the image.

blog.safe.com

Norway Minecraft Project Paves the Way to Open Data in the Cloud



How to turn reality into blocks

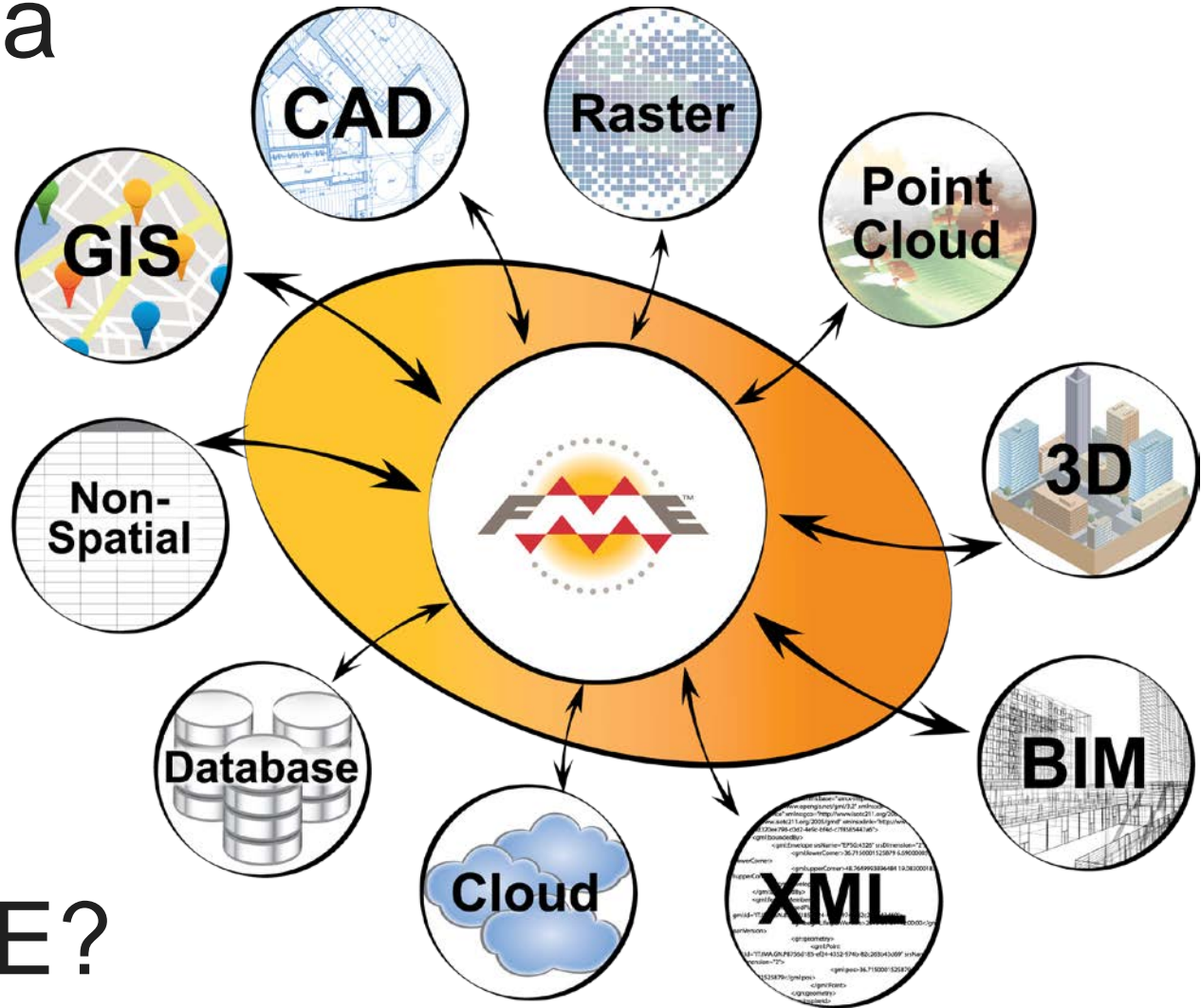
The technical part.



What is Data Interop?



What is FME?



MapTextLabellerVancouverRapidTransitGeneric (C:\data\Skytrain.fmw) - FME Workbench

File Edit View Insert Readers Transformers Writers Inspection Tools Help

100%

Navigator

- rapid_transit_stations/Vancouver/...
- Transformers
- Bookmarks
- User Parameters
 - Published Parameters
 - Private Parameters
- Workspace Resources
- Workspace Parameters
- Workspace Properties
- Workspace Search

Transformer Gallery

- All (460)
- Categorized
- Embedded Transformers
- FME Store
- Recent (10)
- Search Results

Diagram description:

- Input: Skytrain lines (rapid_...t_line)
- Process: MapTextStyler (Style skytrain lines) → Bufferer (Buffered) → TestFilter (Colorify: This section colors each skytrain line individually) → FeatureColorSetter (Colored) → FeatureC...Setter_1 (Colored) → FeatureC...Setter_2 (Colored) → Colored
- Input: Skytrain stations (rapid_...ations)
- Process: MapTextStyler (Style skytrain stations) → MapTextLabeller (TransitLine, rapid_tr...stations, Connect Input, TransitLine_TXT, TransitLine_UNL) → Annotations → 2DEllipseReplacer (Output, Ellipse) → Stations (Replace points with ellipses (station symbols))

Log

FME Workbench

Log Help

With FME, write Minecraft from:

- **GIS:** ArcGIS, MapInfo
- **CAD:** AutoCAD, MicroStation
- **BIM:** IFC, Revit, SketchUp
- **Raster formats**
- **Point clouds**
- **Databases:** Oracle, MS SQL Server, **PostgreSQL & PostGIS**
- **XML-based formats:** KML, GML, CityGML
- **Spreadsheets and tabular formats:** Excel, CSV

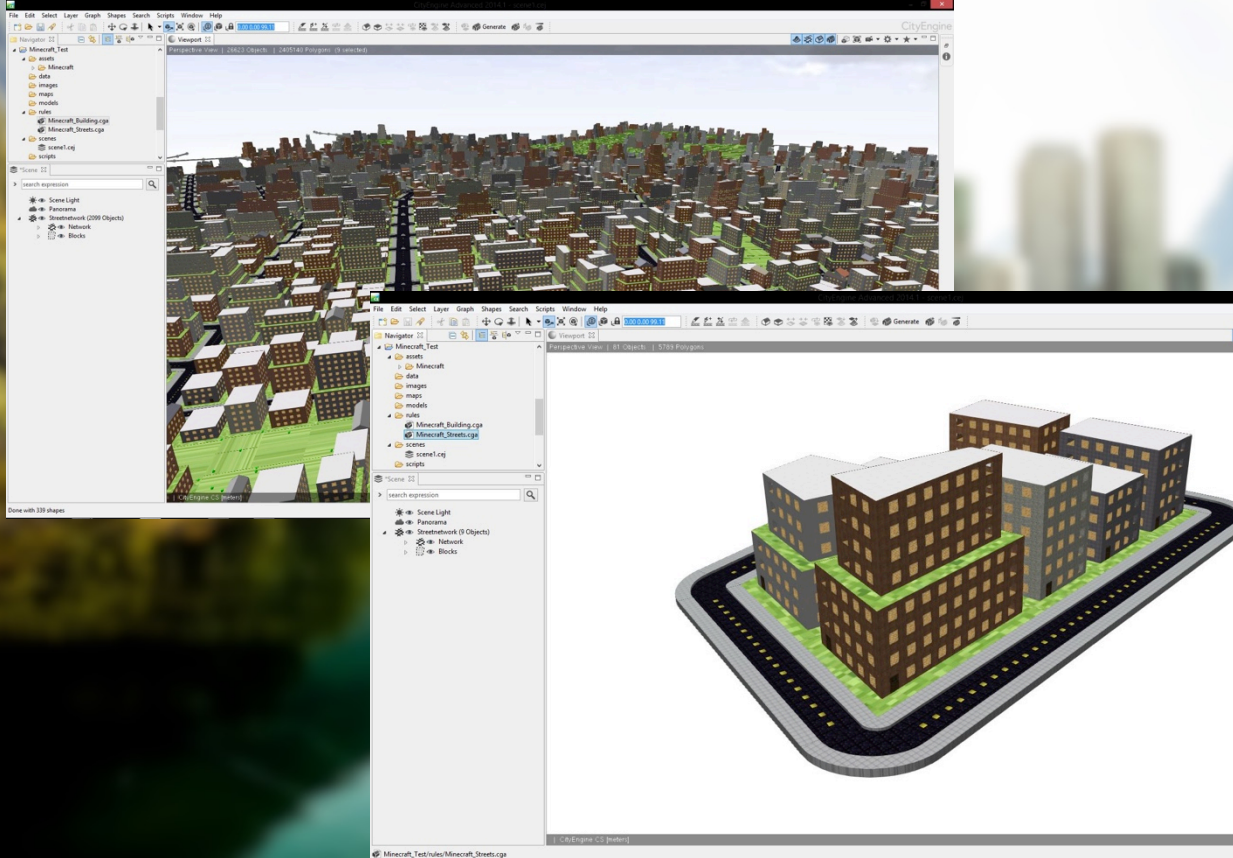
300+ formats

GIS + Rules (CityEngine) to Minecraft



Andrés Nieto Porras

City Engine Results



CGA rules

```
version "2011.1"
```

```
attr HGT = 0  
attr opacitytwit=1  
attr opacityshape=0.6
```

```
##to use for a colorramp  
#attr maxHGT= 1000  
#attr min = 0  
#@Range(0,1)  
#attr colorValue = 1  
#attr x_norm = 1 / (maxHGT - min) * (maxHGT - min)
```

Lot -->

```
##use colorRamp  
#extrude (HGT)  
#color (colorRamp("brownToBlue",x_norm))  
#set (material.opacity, opacity)  
#Volume.
```

```
case HGT < 5 :  
extrude (30)color ("#CACACA")  
set (material.opacity, opacityshape)  
Volume.
```

```
case HGT < 100 :  
extrude (HGT)color ("#A3E8FF")#twitterpalette  
set (material.opacity, opacitytwit)  
Volume.
```

```
case HGT < 300 :  
extrude (HGT)color ("#808080")#twitterpalette
```

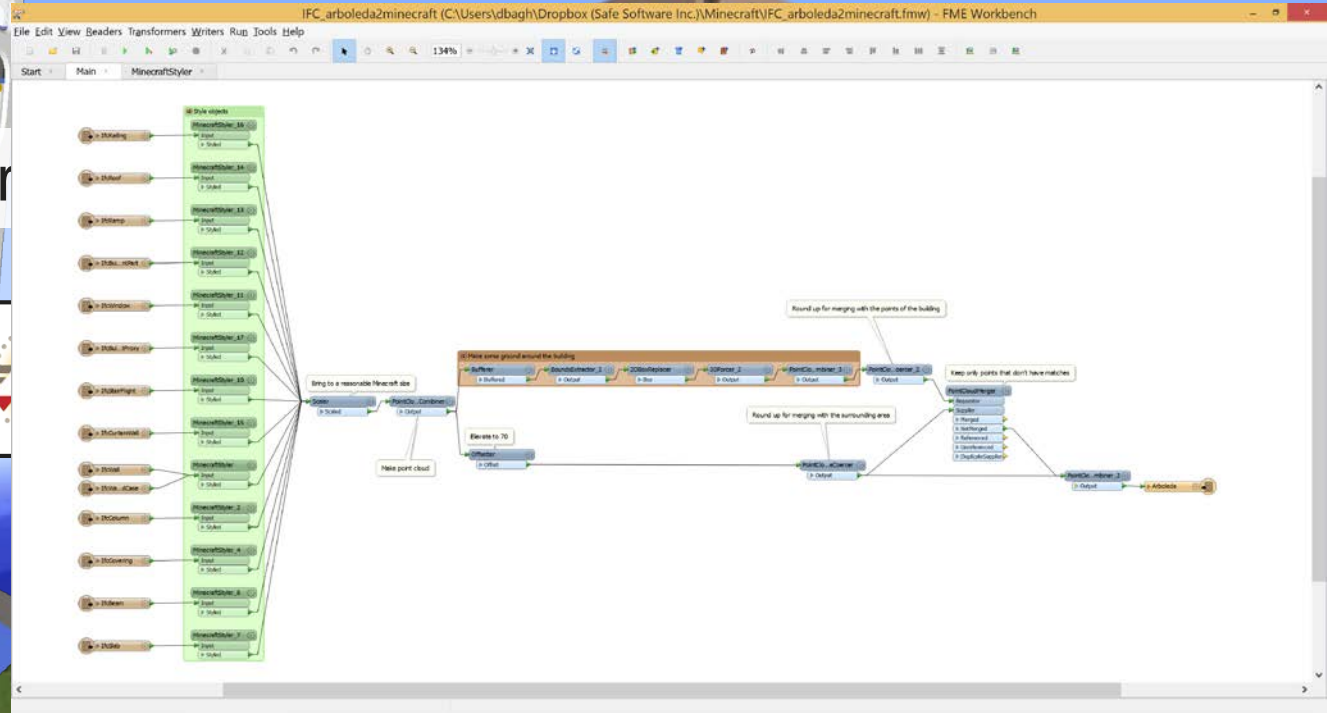


Final Output



BIM to Minecraft
is fun and easy!

Input (Revit or



- Map IFC objects to Minecraft block types
- Convert each IFC object to Point Cloud
- Consider scaling depending on use case
- Watch x/y/z position for multiple building worlds





Output

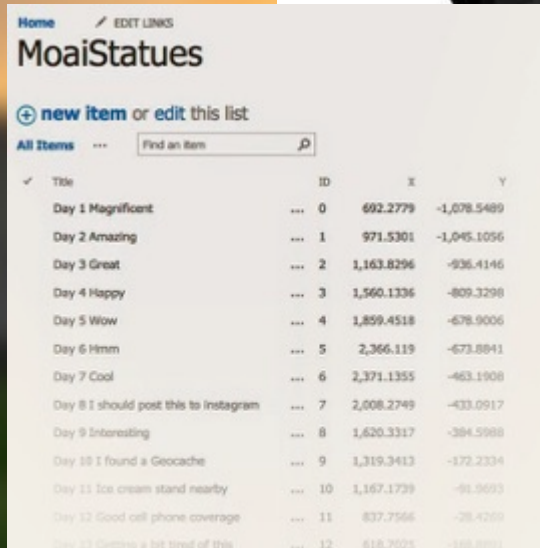
Building Walkthrough

DEM + GPS + 3D to Minecraft (Easter Island)



Source Data

1) Raster DEM
- the island



Home / EDET LINKS

MoaiStatues

[+ new item](#) or [edit this list](#)

All Items

Title	ID	X	Y
Day 1 Magnificent	0	692.2779	-1,076.5489
Day 2 Amazing	1	971.5301	-1,045.1056
Day 3 Great	2	1,163.8296	-936.4146
Day 4 Happy	3	1,560.1336	-809.3298
Day 5 Wow	4	1,859.4518	-676.9006
Day 6 Hmm	5	2,366.119	-673.8841
Day 7 Cool	6	2,371.1355	-463.1908
Day 8 I should post this to Instagram	7	2,008.2749	-433.0917
Day 9 Interesting	8	1,620.3317	-384.5988
Day 10 I found a Geocache	9	1,319.3413	-172.2334
Day 11 Ice cream stand nearby	10	1,167.1739	-91.9693
Day 12 Good cell phone coverage	11	837.7566	-38.4219
Day 13 Dropped a lot tired of this	12	618.7025	-189.2893

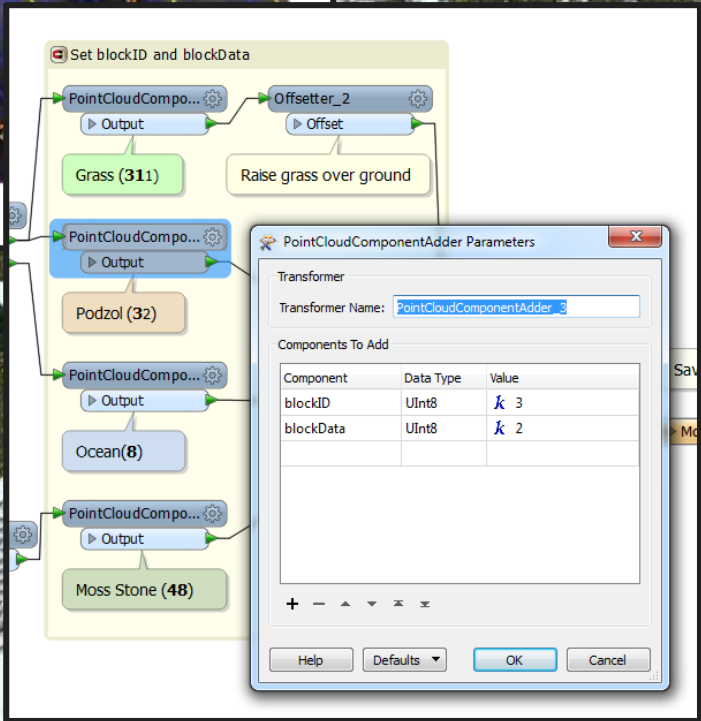
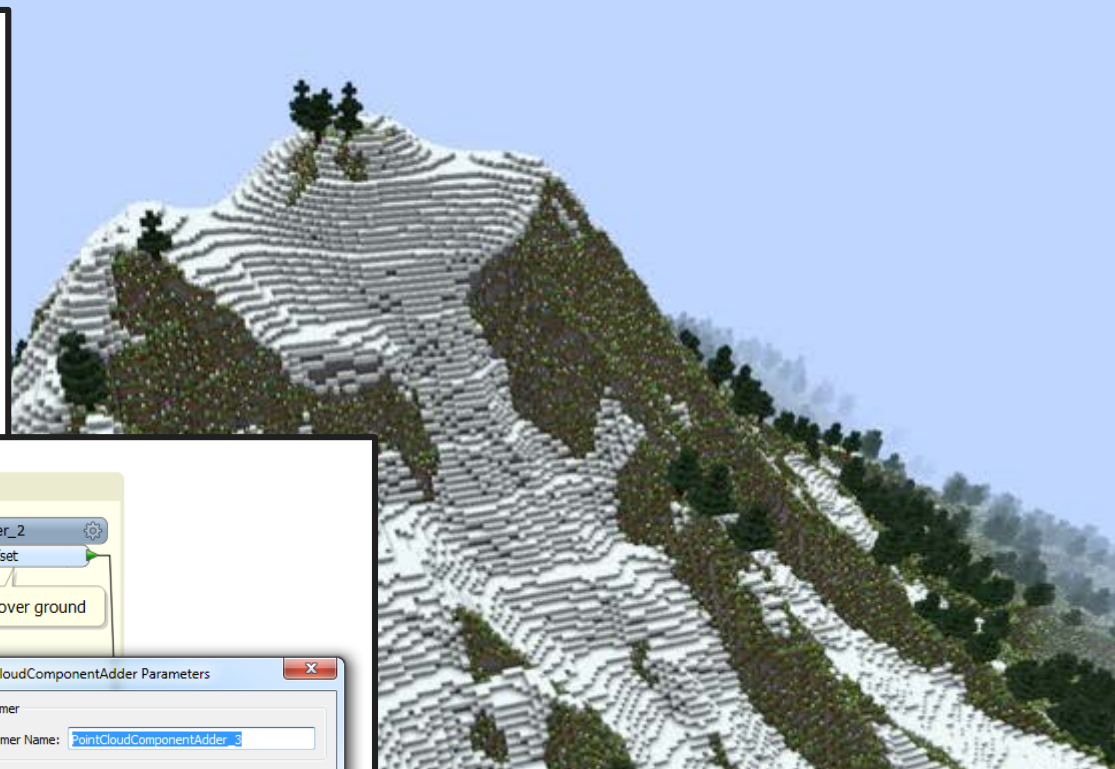
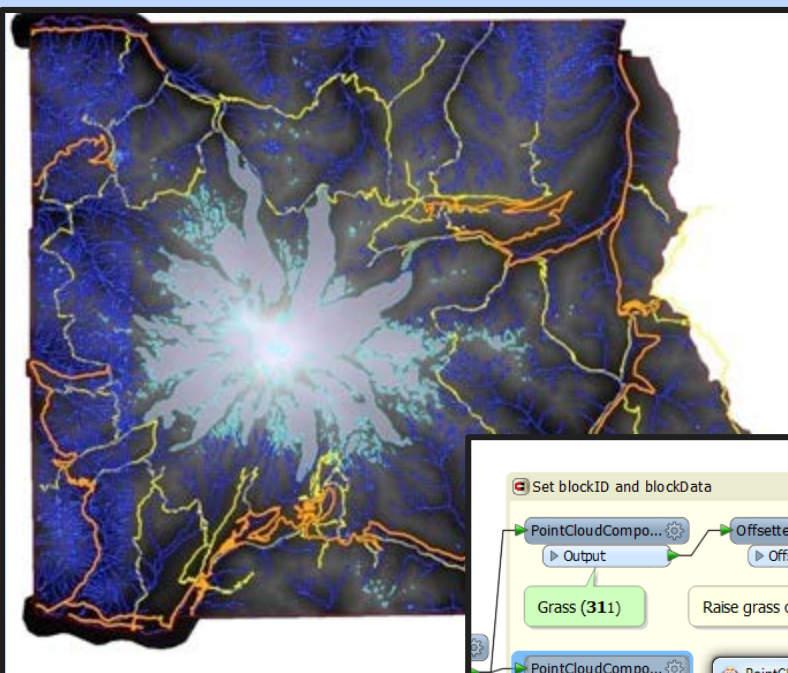
2) OBJ - statues

3) Sharepoint - statue locations

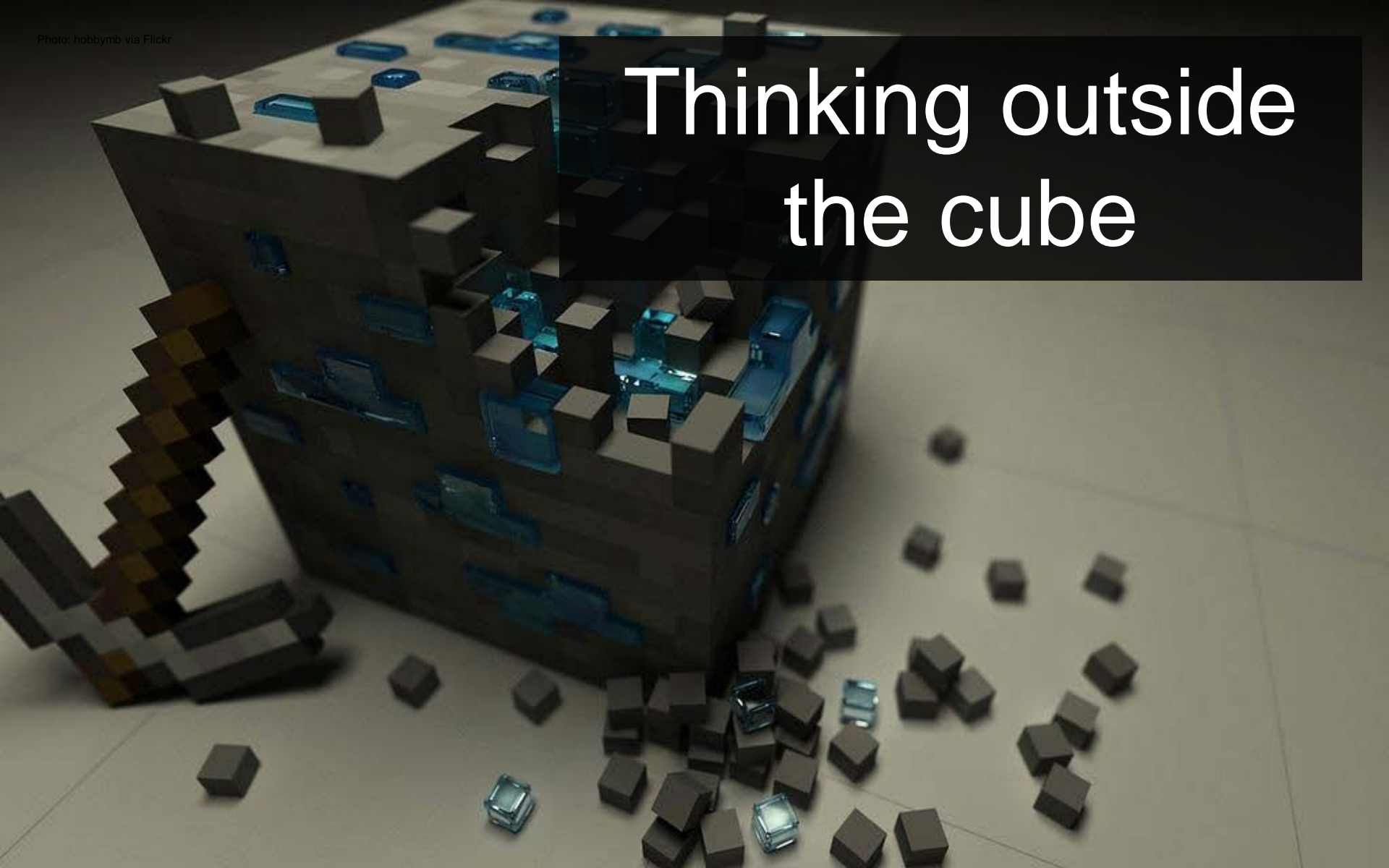
Output

- Set world size
- Set blockID
- Set blockData

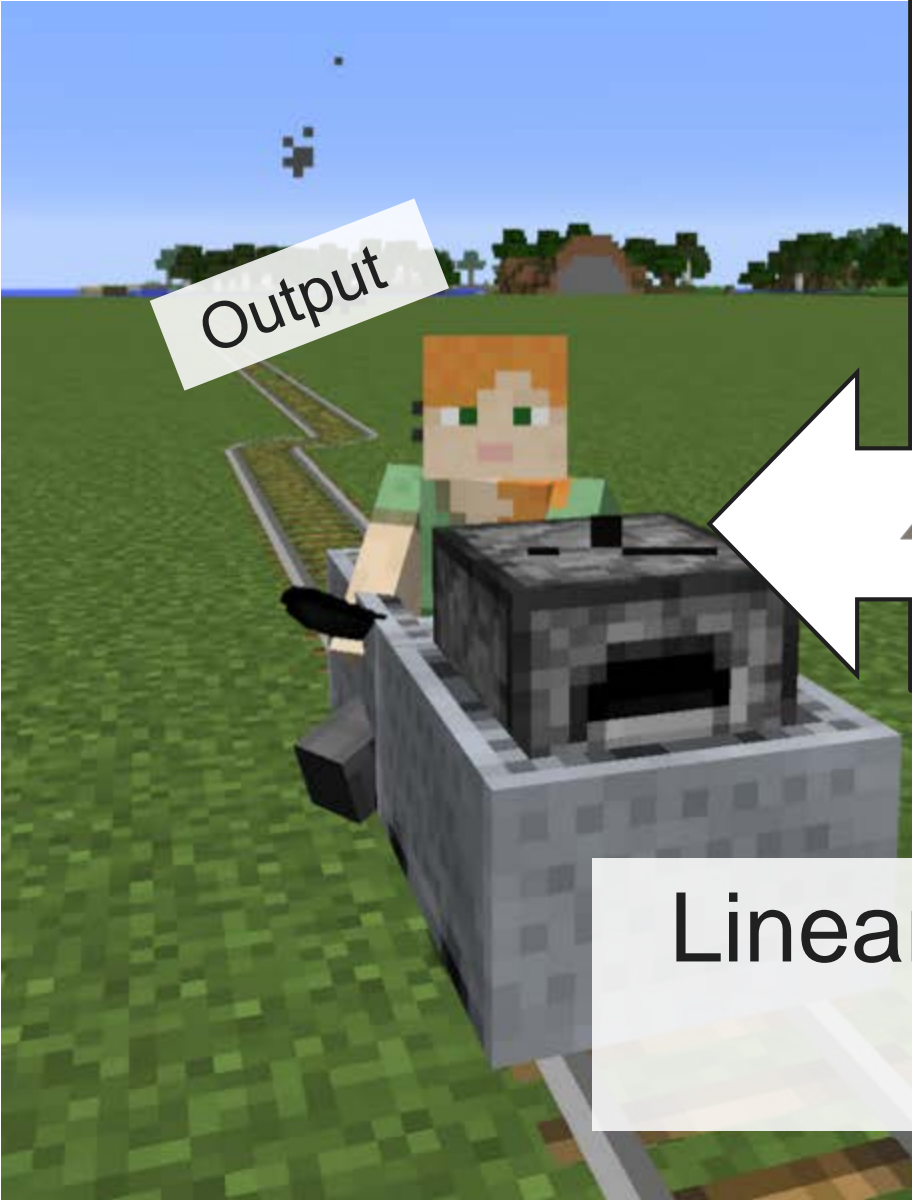




Thinking outside the cube



Output



Feature Information

Features Selected: 1 of 1

Property	Value
Feature Type	rapid_transit_line
Coordinate System	VTM82-10
Dimension	2D
Number of Vertices	90
Min Extents	491223.12344693078, 5452965.300300731
Max Extents	499103.55789874733, 5459490.7874260191
Attributes (4)	
fmc_geometry (string)	fmc_line
fmc_type (string)	fmc_line
LINE (string)	Esso Line
SHAPE_GEOMETRY (string)	shape_arc
IFMLINE (90 Coordinates)	
Closed	No
Coordinates (90)	
Coordinate Dimensions: 2	
0	491872.25152254925, 5459262.8972765179
1	491783.06371653469, 5459316.8383354712
2	491706.90946393384, 5459360.7037543124
3	491652.91546219876, 5459389.4431609921
4	491609.0282733388, 5459415.1573652448
5	491565.14102144538, 5459432.3085798295
6	491524.28052005643, 5459451.4507944142
7	491477.36664375599, 5459463.5606041355
8	491428.9392913156, 5459481.7118187295
9	491383.58876502655, 5459490.7874260191
10	491340.000000000, 5459490.7874260191
11	491297.000000000, 5459490.7874260191
12	491254.000000000, 5459490.7874260191
13	491211.000000000, 5459490.7874260191
14	491168.000000000, 5459490.7874260191
15	491125.000000000, 5459490.7874260191
16	491082.000000000, 5459490.7874260191
17	491039.000000000, 5459490.7874260191
18	490996.000000000, 5459490.7874260191
19	490953.000000000, 5459490.7874260191
20	490910.000000000, 5459490.7874260191
21	491736.12284833496, 5458789.5141478861
22	491835.98928166152, 5458687.882432662
23	491885.01484344156, 5458647.048756089



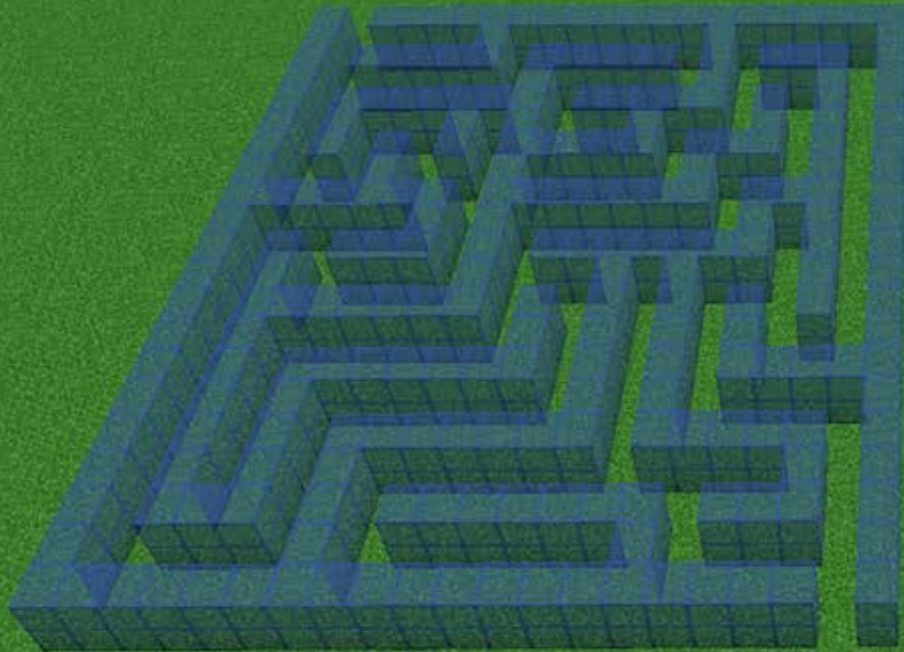
Source

Vancouver Skytrain
Shapefile

Linear Network to Minecraft ([Railway](#))

Maze Runner Generator

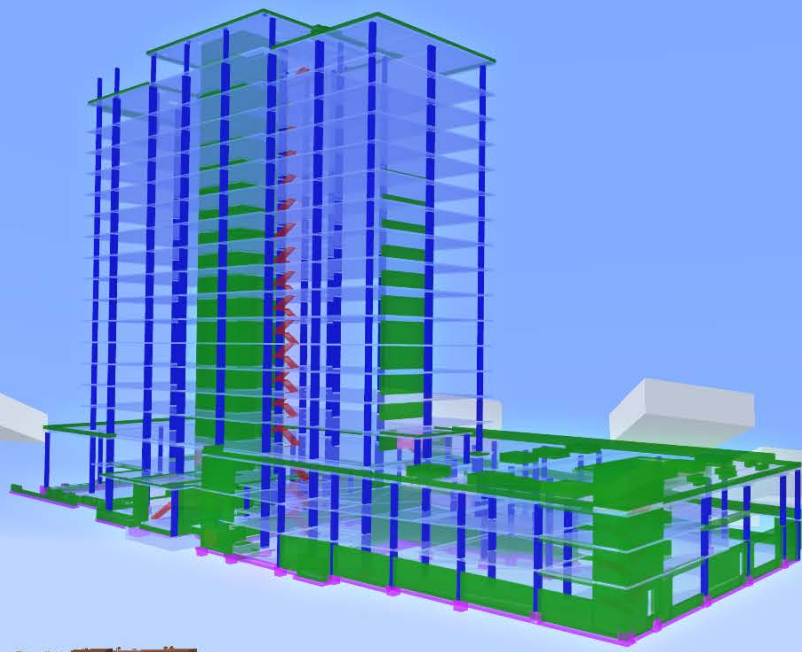
fme.ly/MazeGenerator



How to Make Minecraft Worlds

fme.ly/MinecraftWorlds





Thank you!

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