



**Team Rocket**

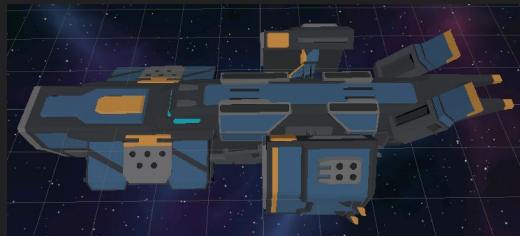
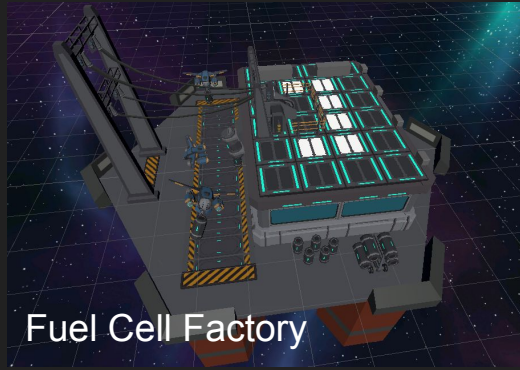
Alexander Müller, Maximilian Mayer, Jan-Philipp Fahlbusch, Lukas Goll

beyond

reach

### 3. Milestone Interim Report

# Buildings



Prebuilt spaceship

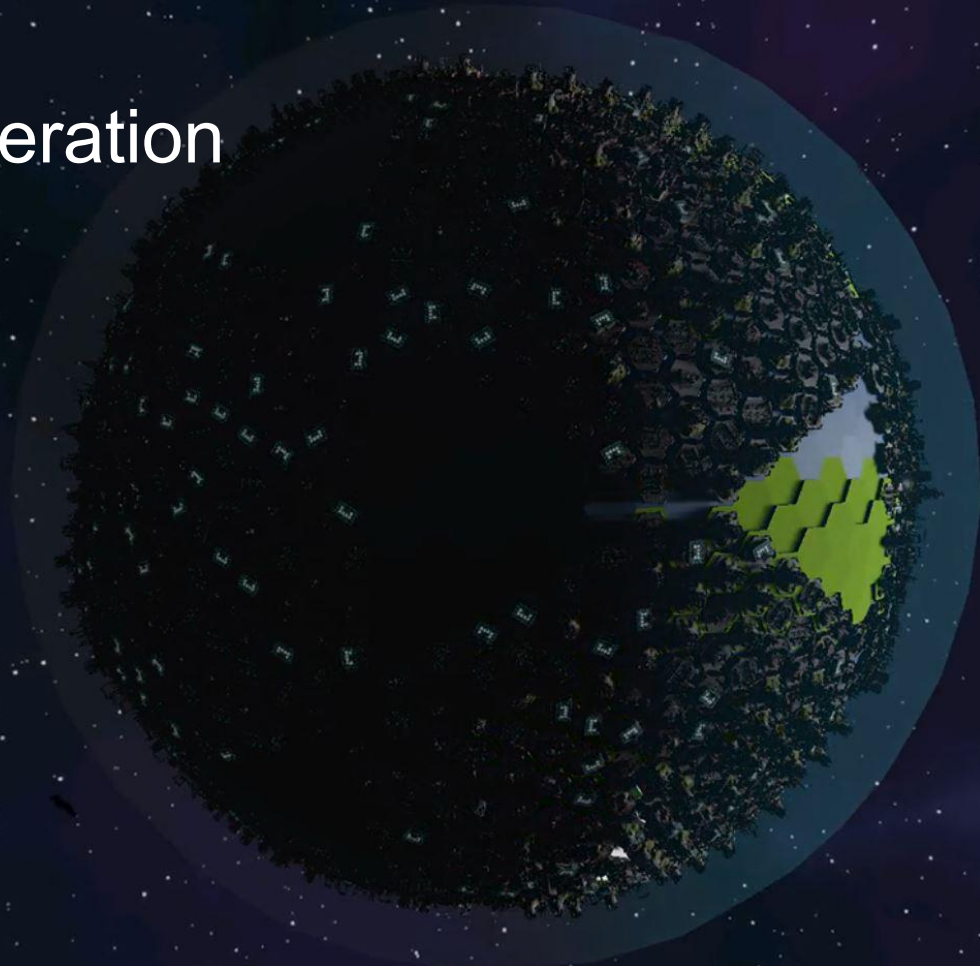


Steelworks

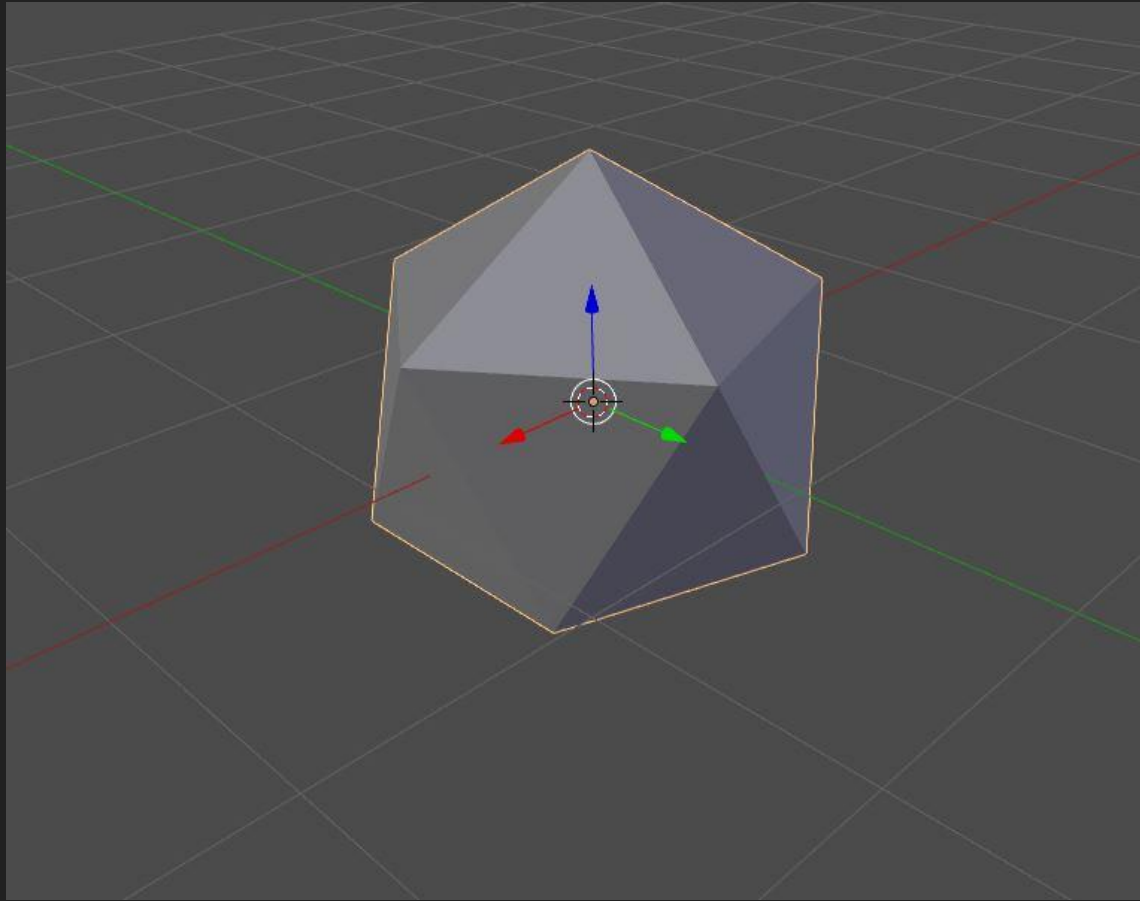


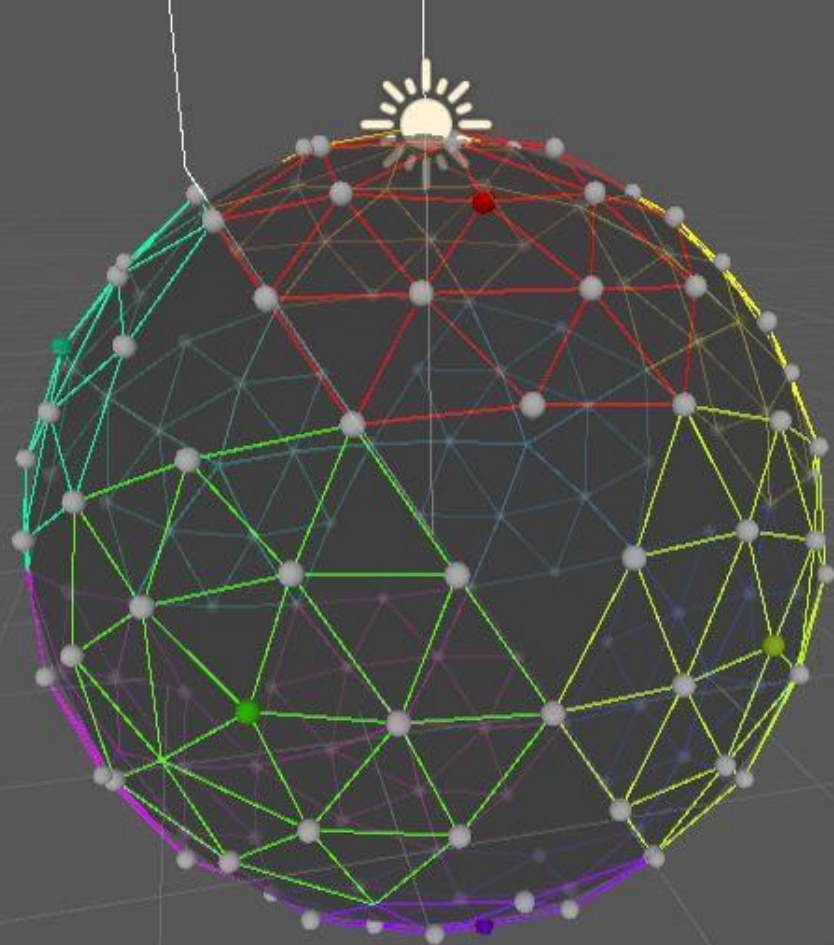
Shipyards

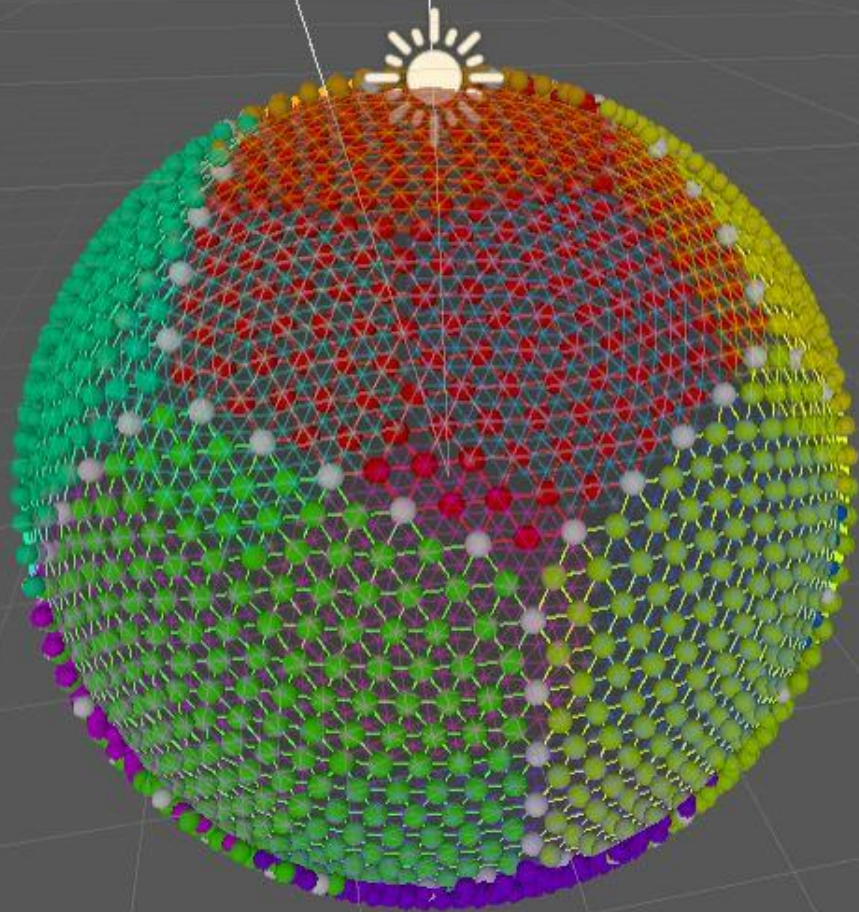
# Planet Generation



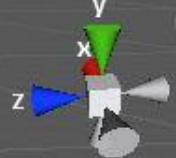
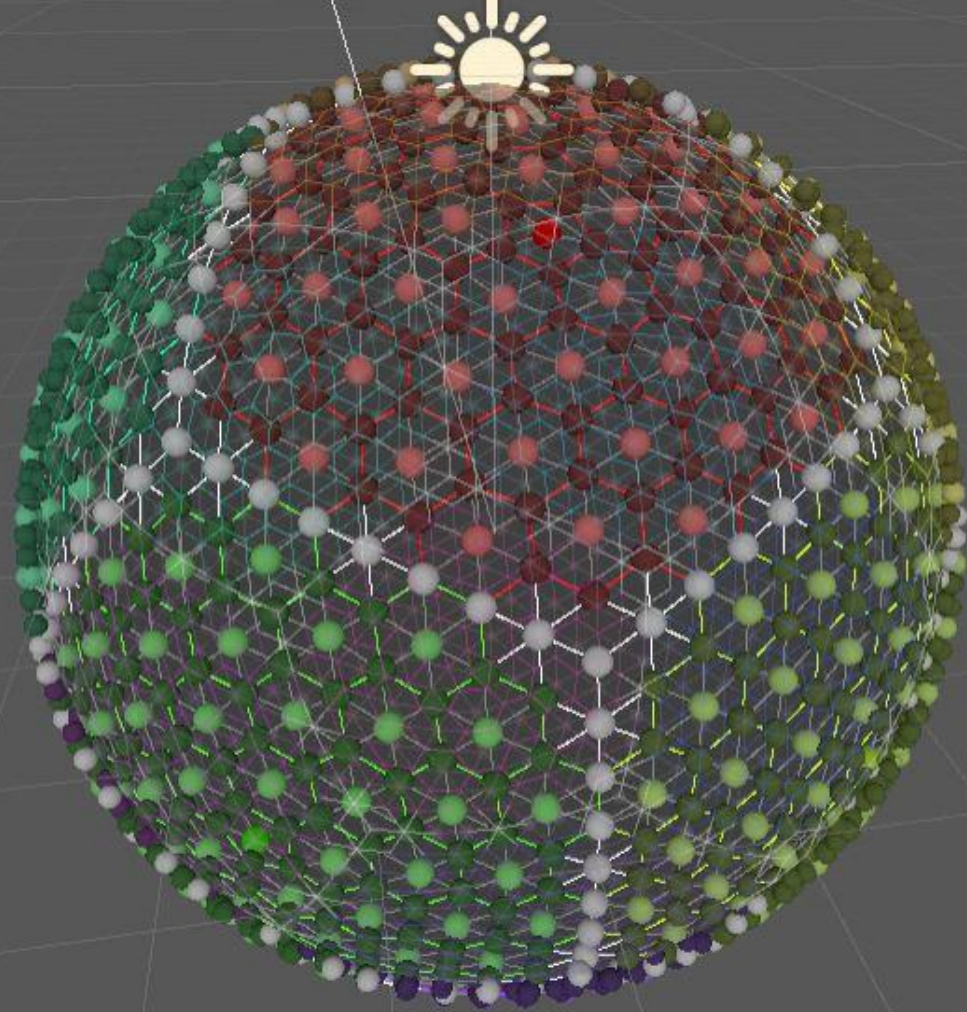
WORK IN PROGRESS  
EDITOR RUNTIME  
709420



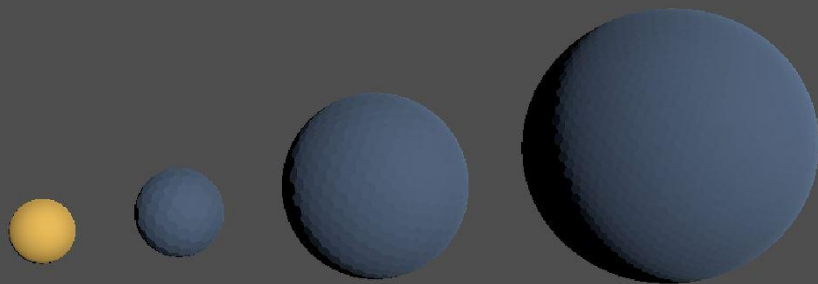




← Persp



← Persp



WORK IN PROGRESS  
EDITOR RUNTIME  
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Iron Ore: 0

Steel Beam: 0

Fuel: 0

Fuel Cell: 0

Hull Plates: 0



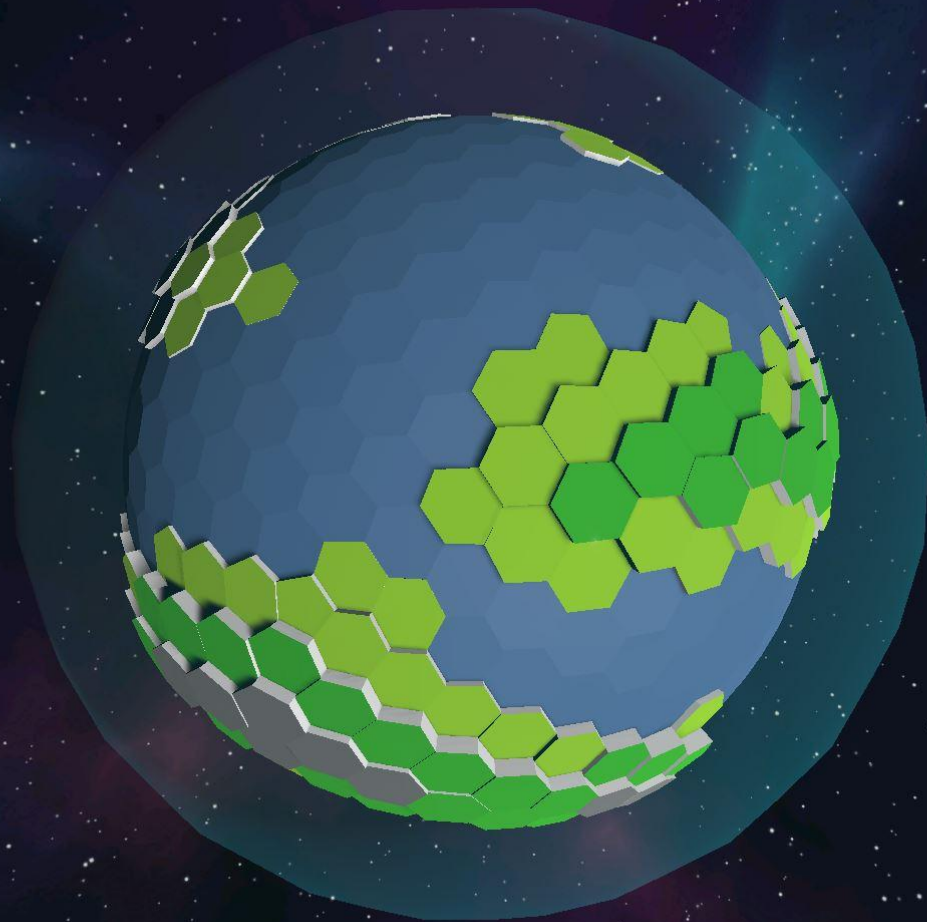
Trade Route  
Menu



WORK IN PROGRESS

EDITOR RUNTIME

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WORK IN PROGRESS

EDITOR RUNTIME

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Hierarchy

Create

PlanetGenerationTestscene

- Main Camera
- Directional Light
- SolarSystem
  - Sun
  - Planet0
  - Planet1
    - Sector0
    - Sector1
      - Ring0
        - Center
        - Ring1
        - Ring2**
        - Ring3
        - Ring4
      - Sector2
      - Sector3
      - Sector4
      - Sector5
      - Sector6
      - Sector7
      - Sector8
      - Sector9
      - Sector10
      - Sector11
      - Sector12

- DontDestroyOnLoad
- [Debug Updater]
- Tools.Input.EventSystem
- Tools.Debug.Watermark
- Tools.Debug.UI

Project

Console

Create

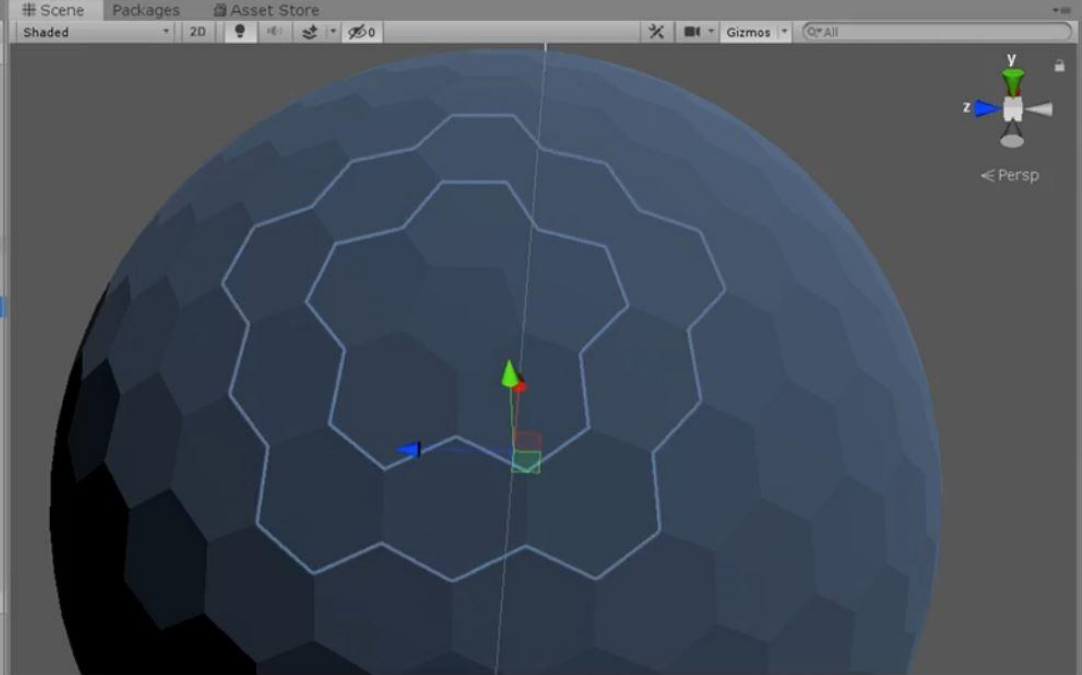
Favorites

Assets

- Audio
- Editor Default Resources
- Models
- Personal
  - Alex
    - PlanetGeneration
    - RenderingTestEnviro
    - Jan
    - Lukas
    - Maxi
    - Prefabs

Assets > Personal > Alex > PlanetGeneration

- Field
- Planet
- PlanetFactory
- PlanetGenerationTestscene
- PlanetMaterial
- Point
- Ring
- Sector
- SolarSystem
- SolarSystem
- Sun
- Sun
- Triangle



Game

Display 1 16:9 Scale 1x Maximize On Play Mute Audio VSync Stats Gizmos

Reserved	2615.6 MB
Allocated	1000.0 MB

Min	Avg	Max
11.92 ms	11.92 ms	31.47 ms
11.30 fps	76.37 fps	31.78 fps

16.0

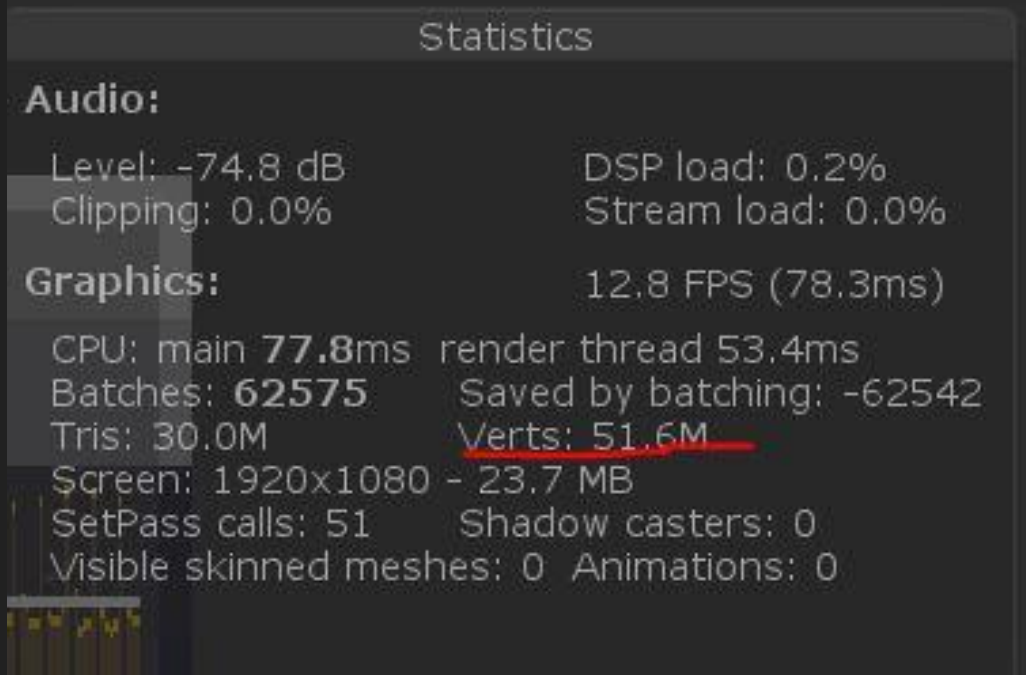
AVG

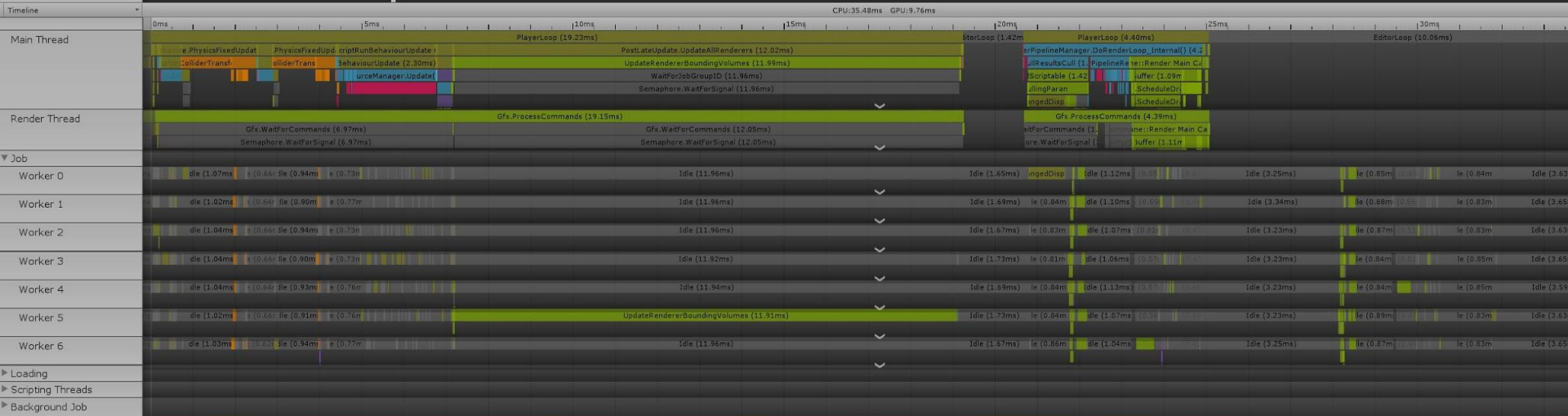
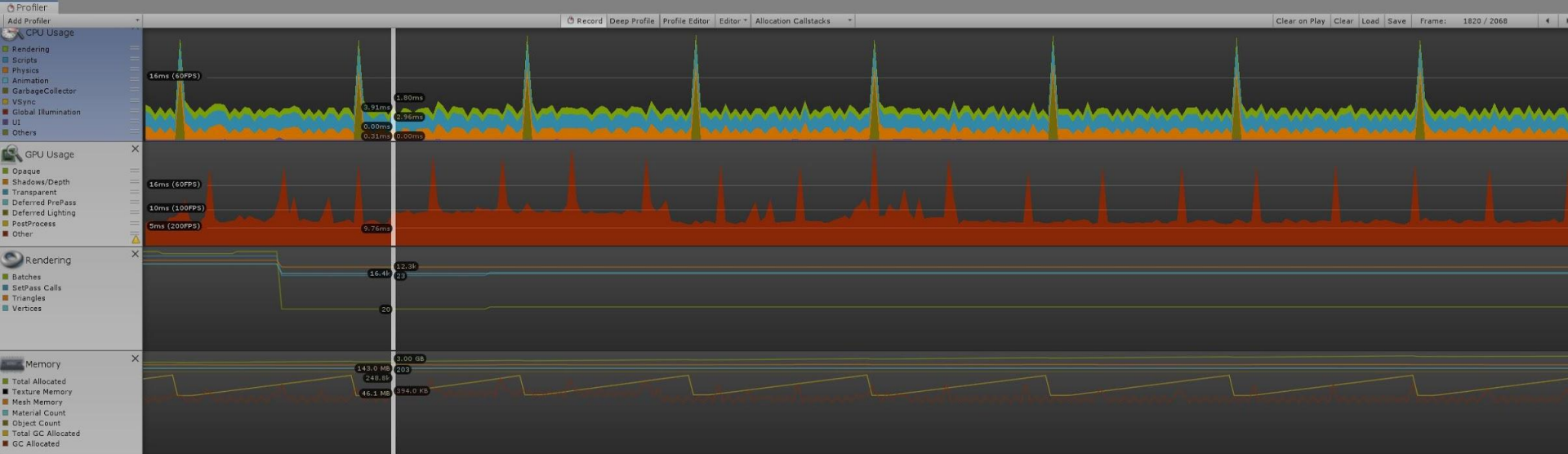
NVIDIA GeForce GTX 1080  
8293a46796765f10bdd3e3bccc704a84  
Desktop | Windows 10 (10.0.0.0) x64  
8079 MB Memory | Computer support: True  
DirectX 11.0 (level 11.1)  
Shader Level 5.0 | Async GPU support: True

Intel(R) Core(TM) i7-6700K CPU @ 4.00GHz  
8 Threads | 32683 MB RAM

Debug Views

# Optimization

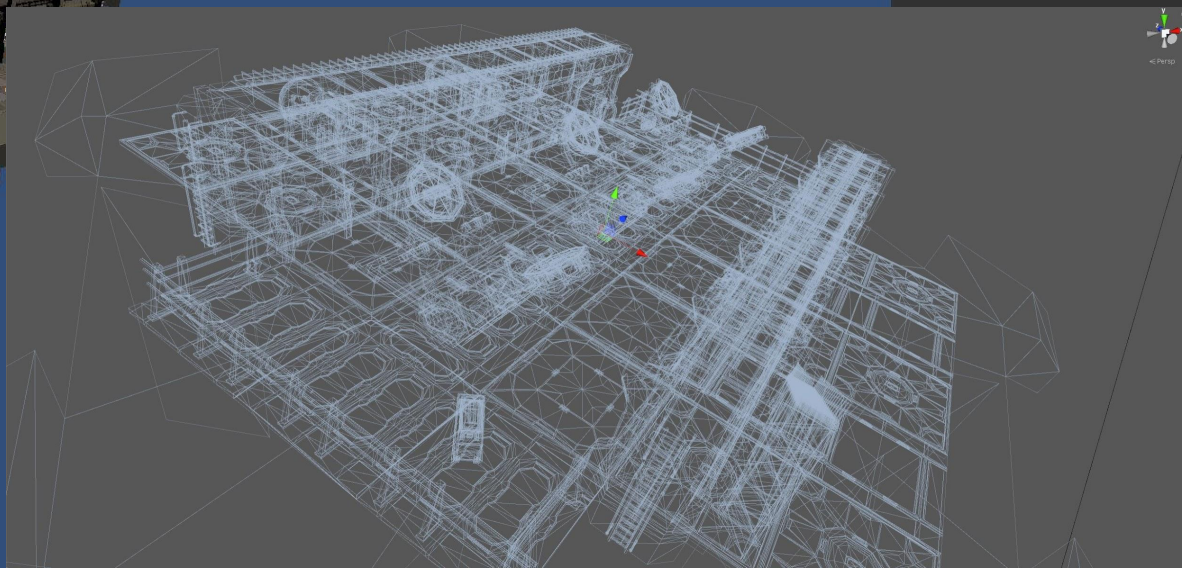
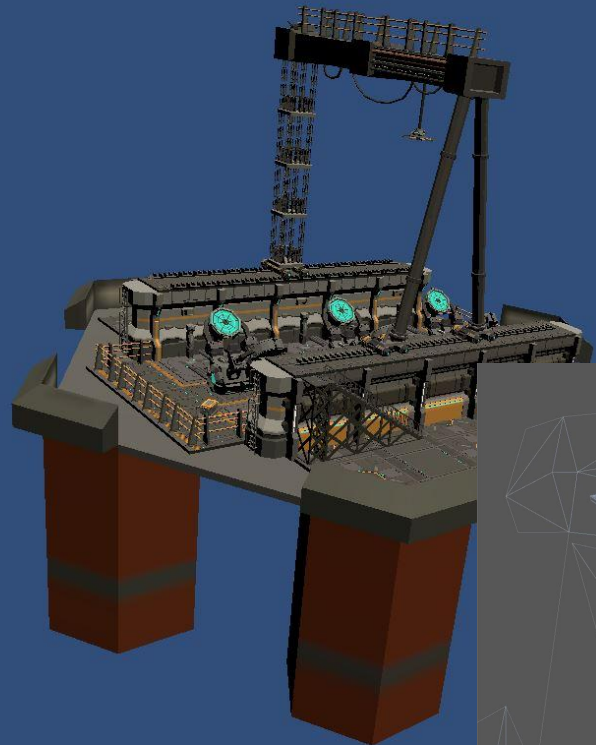


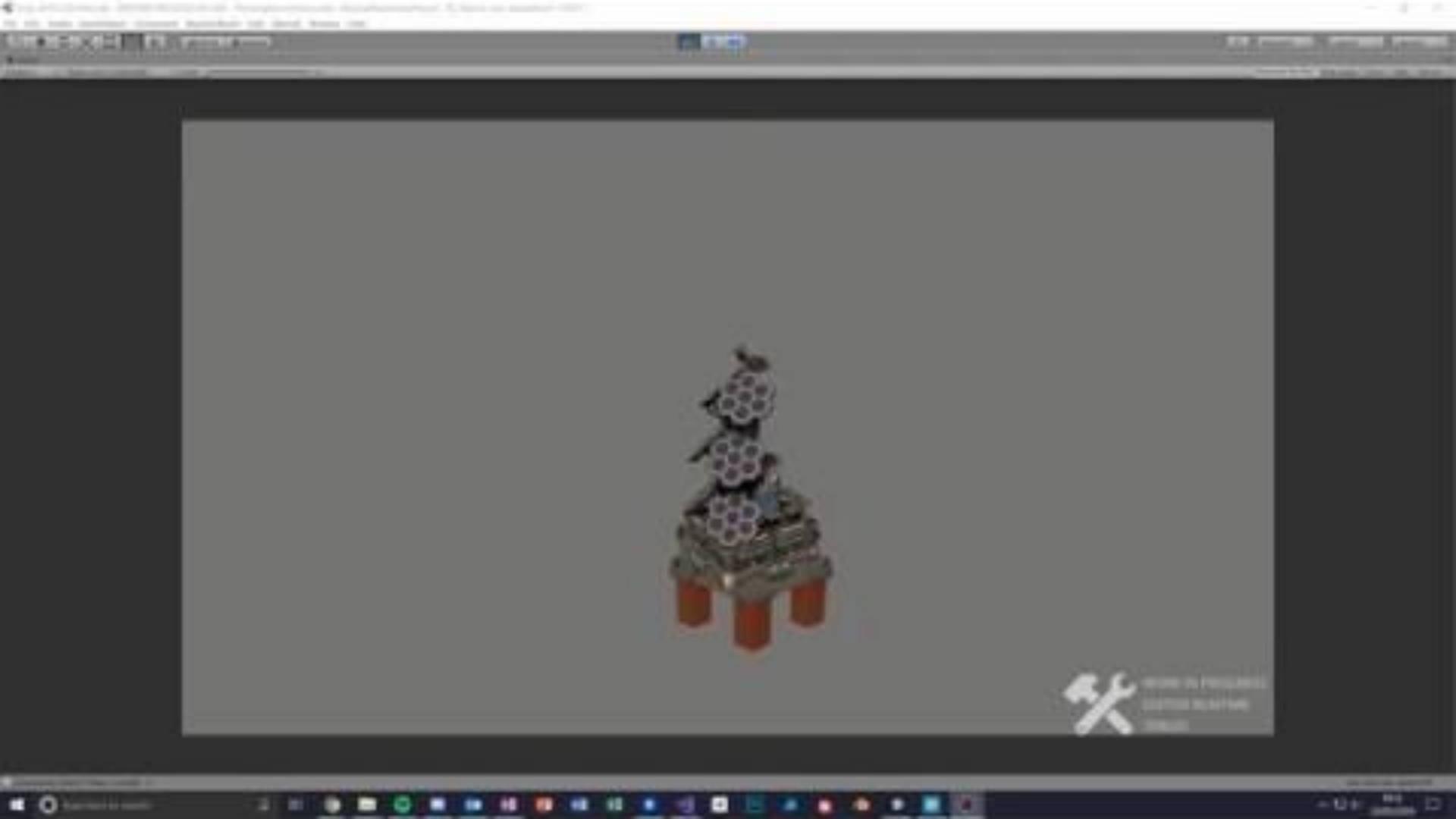


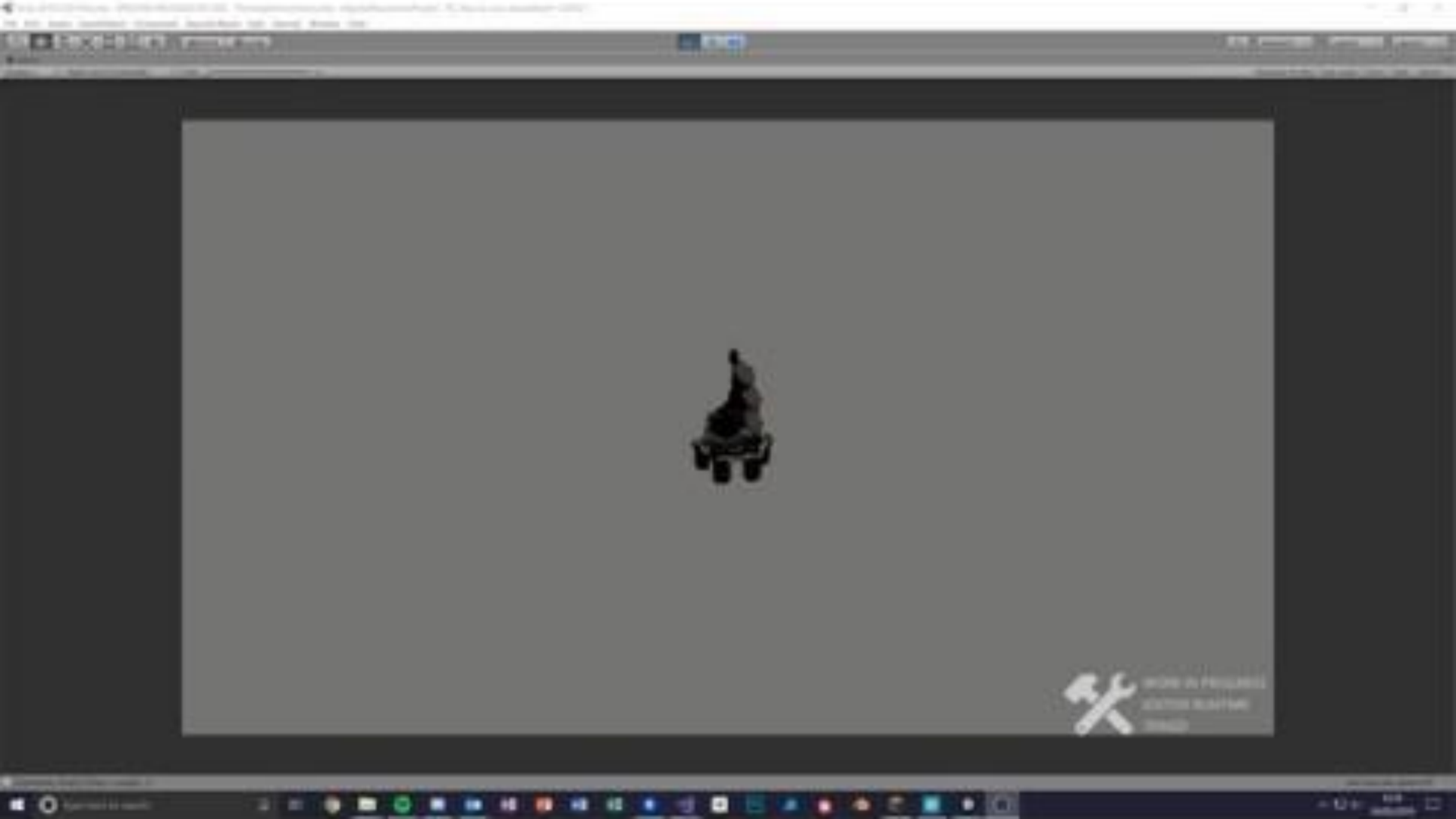
**Audio:**  
Level: -74.8 dB      DSP load: 0.2%  
Clipping: 0.0%      Stream load: 0.0%

**Graphics:**      460.2 FPS (2.2ms)

CPU: main 2.2ms    render thread 0.9ms  
Batches: 312      Saved by batching: -310  
Tris: 142.9k      Verts: 232.8k  
Screen: 1920x1080    ~~2.2ms~~  
SetPass calls: 9    Shadow casters: 0  
Visible skinned meshes: 0    Animations: 0







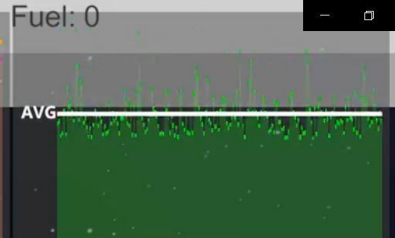
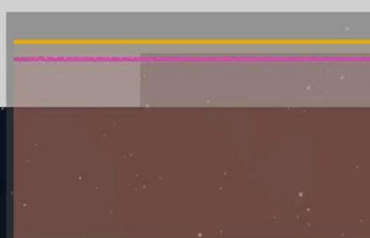


Iron Ore: 0

Steal Beam: 0

Fuel Cell: 0

Hull Plates: 0

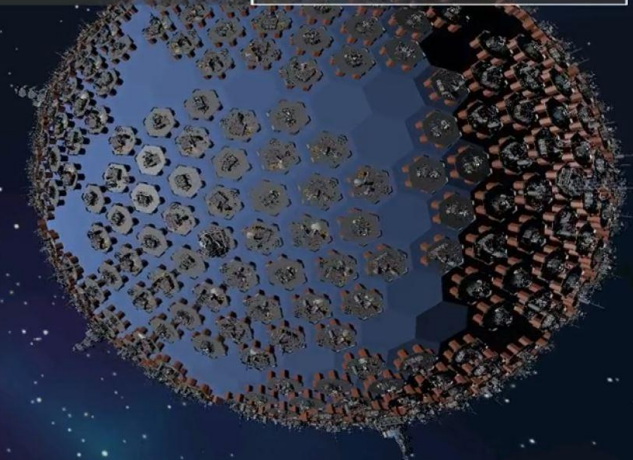


Reserved **385.5 MB**  
 Allocated **389.4 MB**  
 8293a46796765f10bdd3e3bcce704a84  
 Desktop | Windows 10 (10.0.0) 64bit  
 Intel(R) Core(TM) i7-6700K CPU @ 4.00GHz  
 8 Threads | 32683 MB RAM

Min	Avg	Max
3.14 ms	3.87 ms	6.45 ms
318.45 fps	258.24 fps	155.01 fps

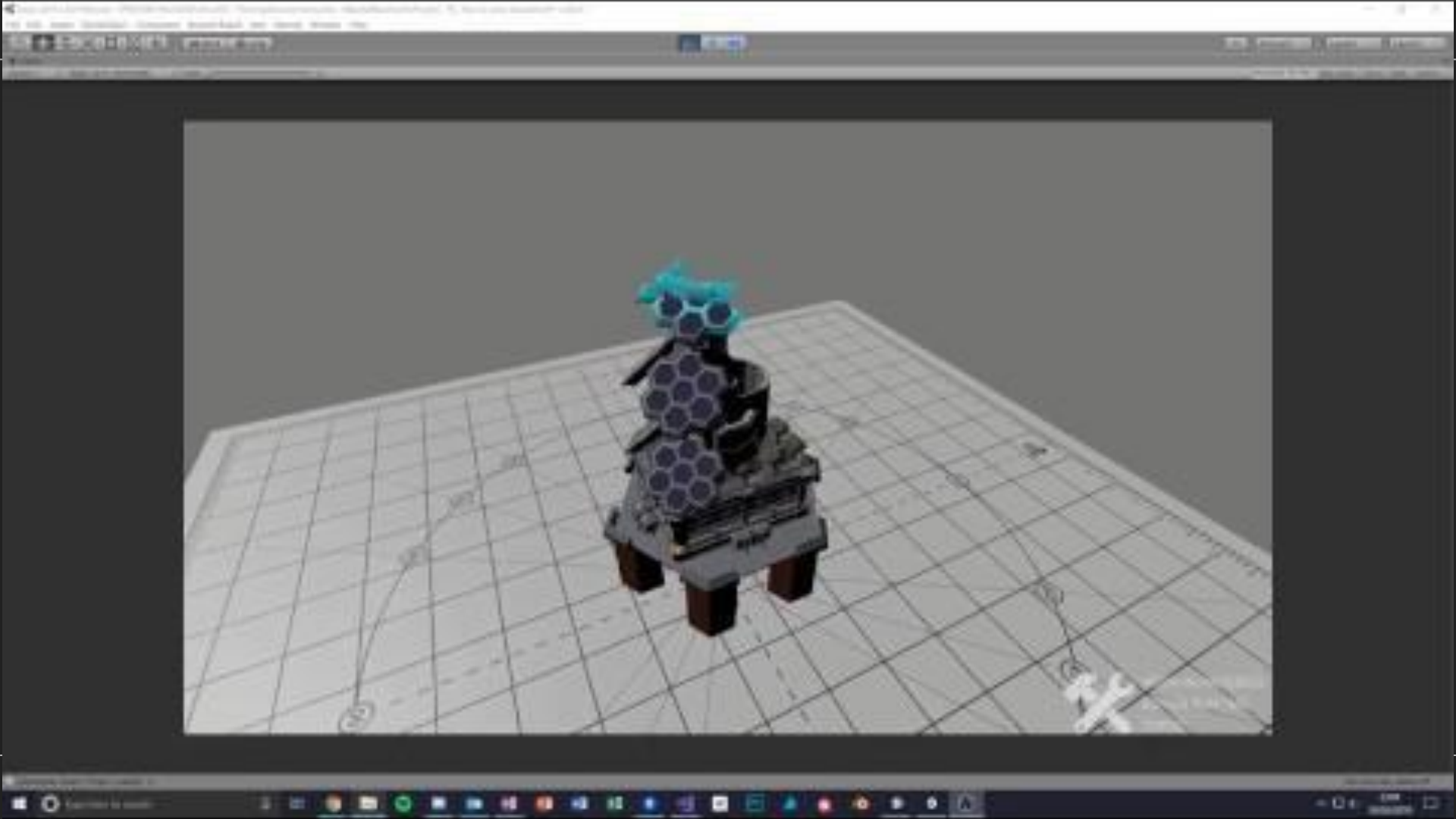
NVIDIA GeForce GTX 1080 | Direct3D 11.0 [level 11.1]  
 8079.MB Memory | Compute support: True  
 Shader Level 5.0 | Async GPU support: True

**Debug Views**

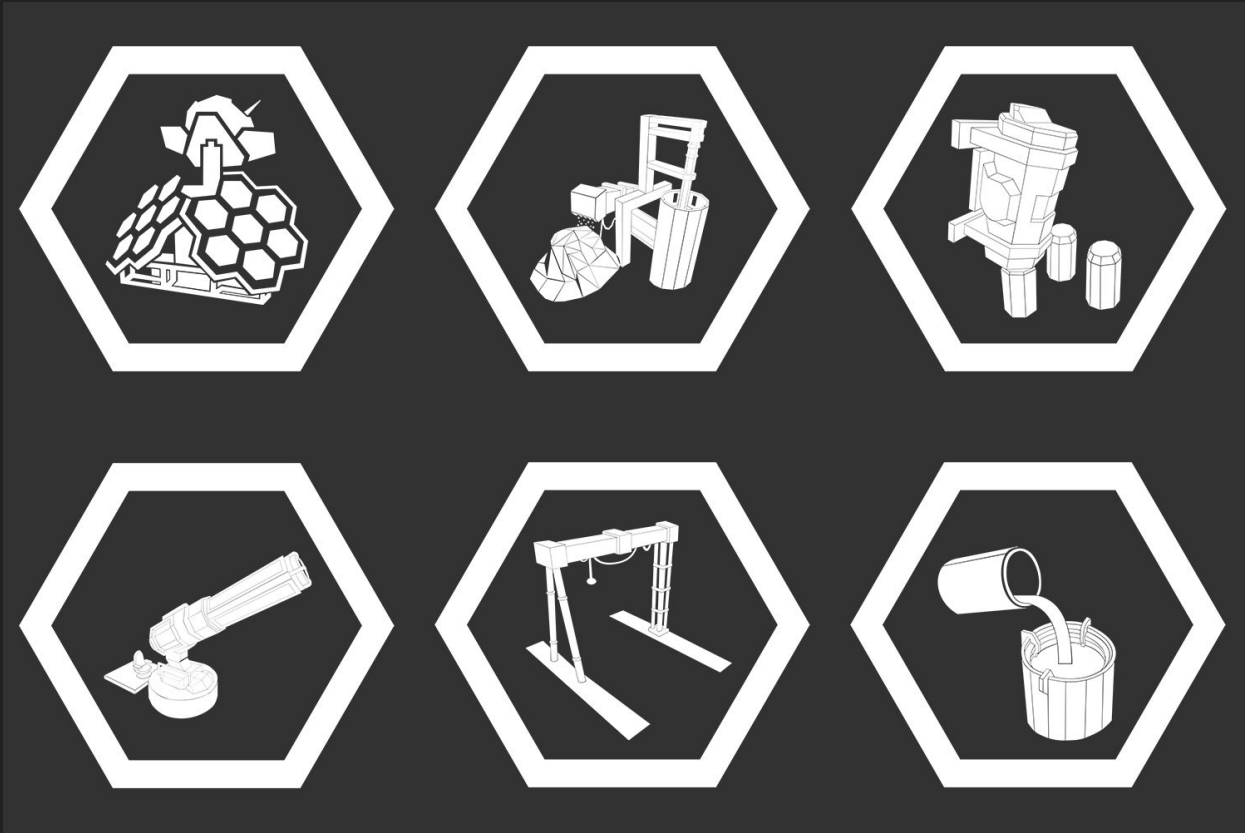


WORK IN PROGRESS  
 DEBUG BUILD  
 709420

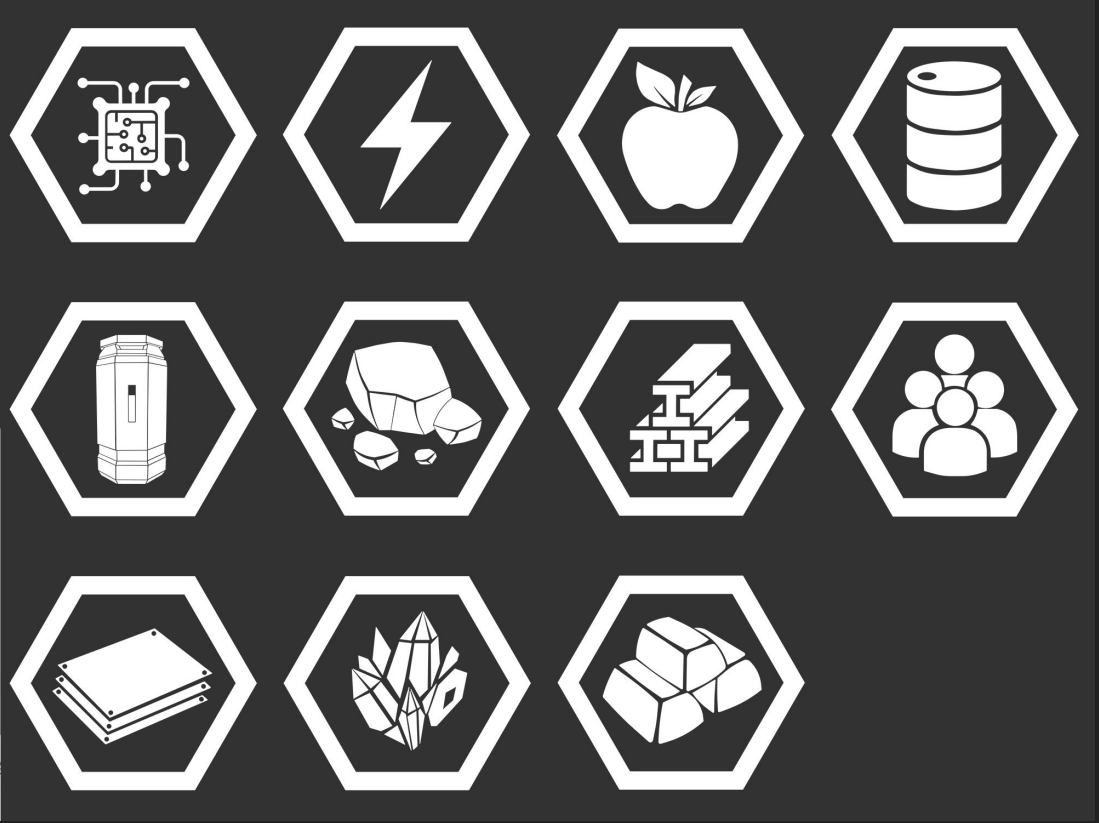
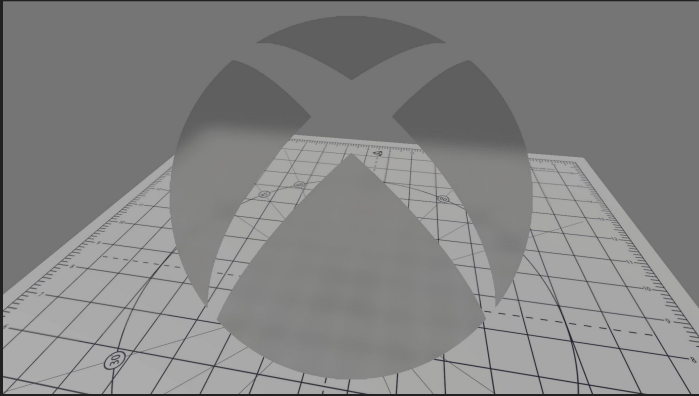
Command



# UI

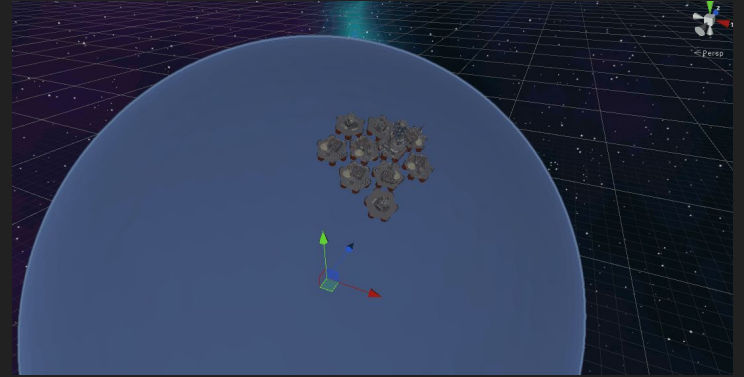


# UI



# AI : Tasks

- Building sequence -> Monument Vessel
- Acquire exotic resources from other planets
  - Settle on new planets
  - Connect planets with trade routes
- React to possible Deadlocks
- Optimize production line / react to supply shortages



# AI Wildcards

## Increase Steel beams

### Sequence:

- Iron ore mine
- Iron ore mine
- Steel works

## Set Trade Route

- Planet Origin
- Load Resources
- Planet Target
- Drop Resources

...

Wildcard

Wildcard

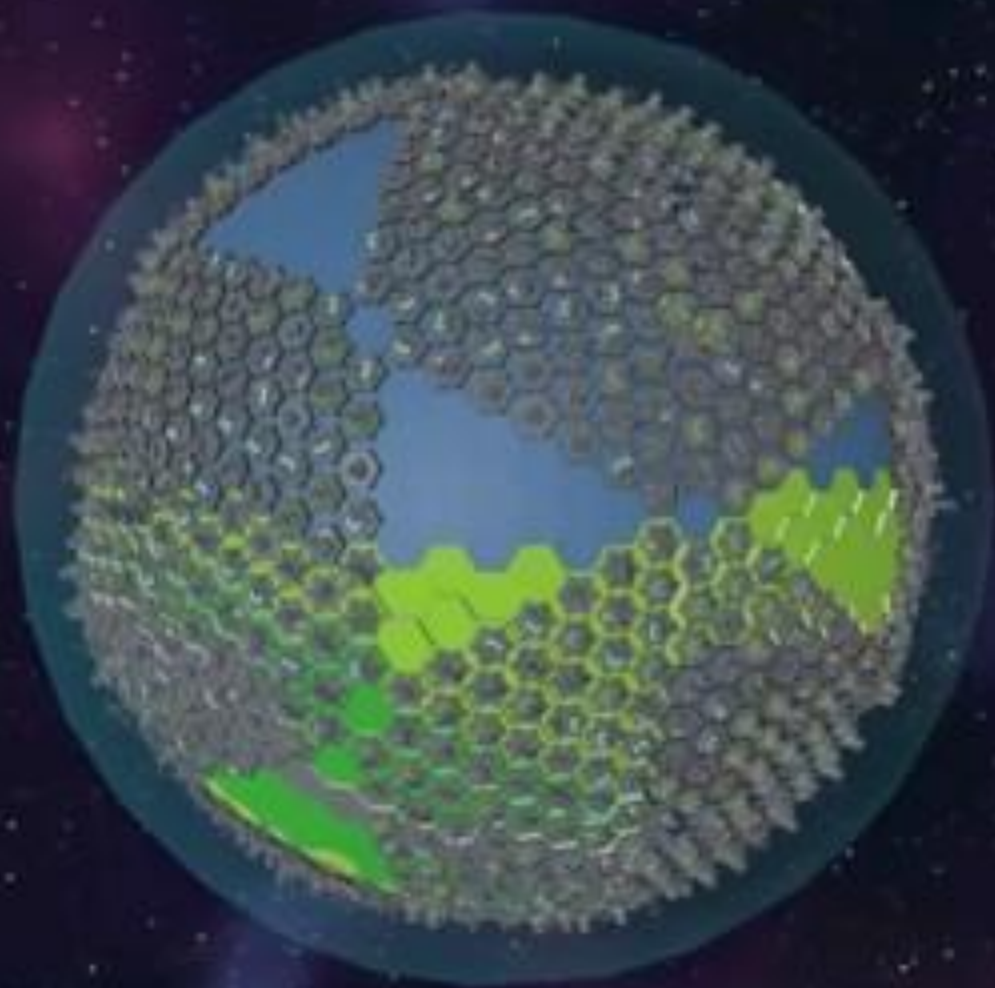
Wildcard

Wildcard

Wildcard

Wildcard

# Prototype Demo



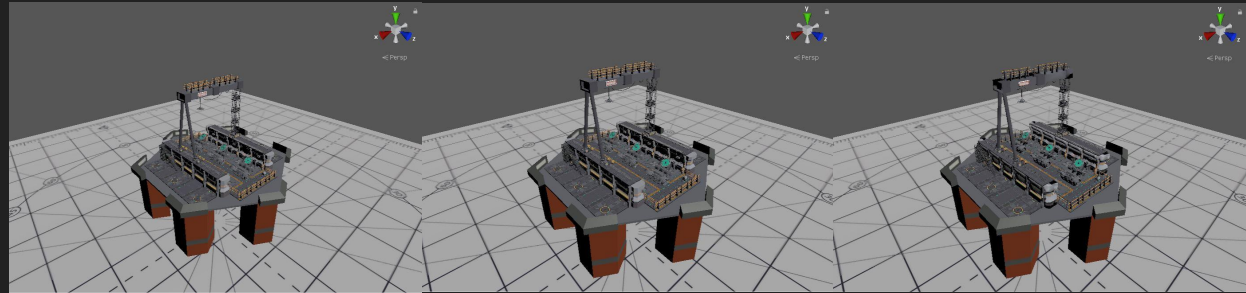
WORK IN PROGRESS  
EDITOR RUNTIME  
709420



# Appendix - LOD



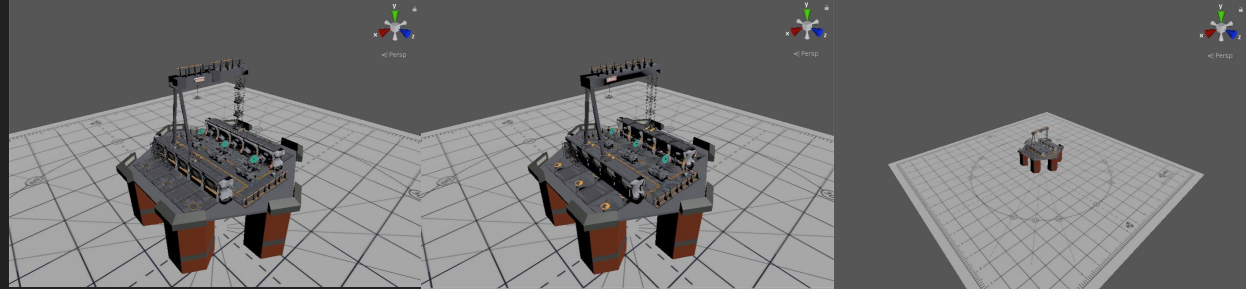
In case you wonder about the high vertex count...



Default Object  
232.4k vertices  
310 objects

LOD 0  
232.4k vertices  
7 objects

LOD 1  
52.1k vertices  
7 objects

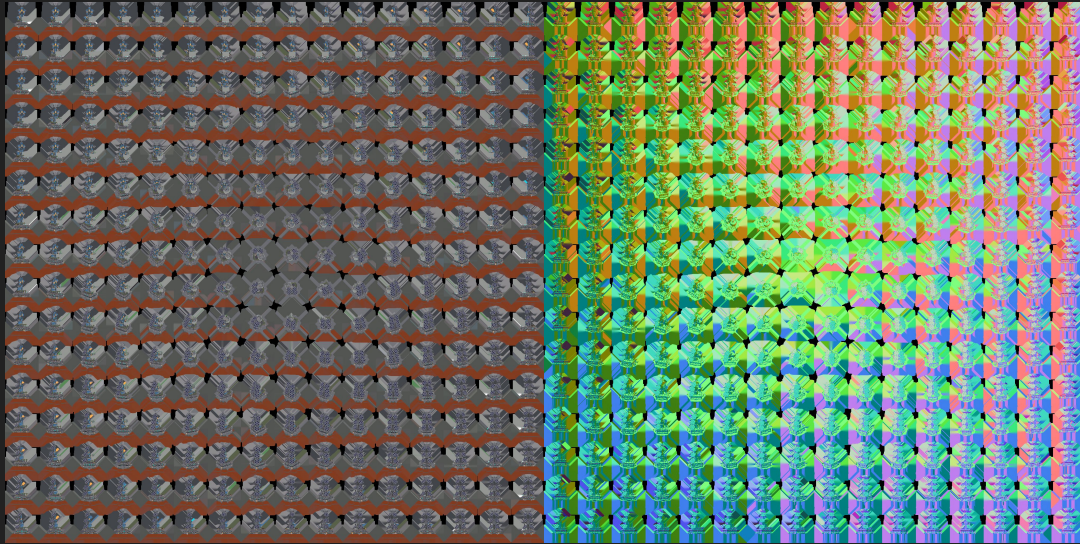


LOD 2  
28.4k vertices  
6 objects

LOD 3  
8.1k vertices  
6 objects

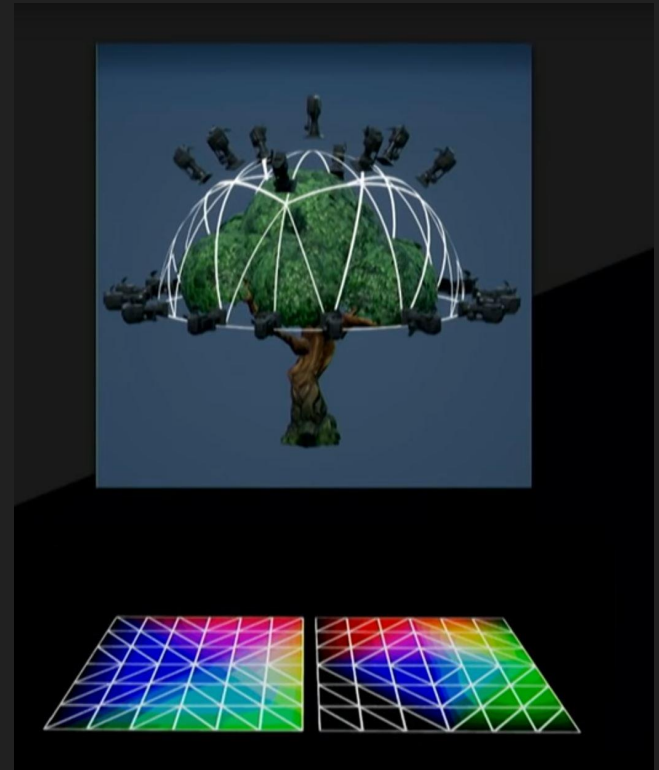
LOD 4  
6 vertices  
1 object

# Appendix - Billboards

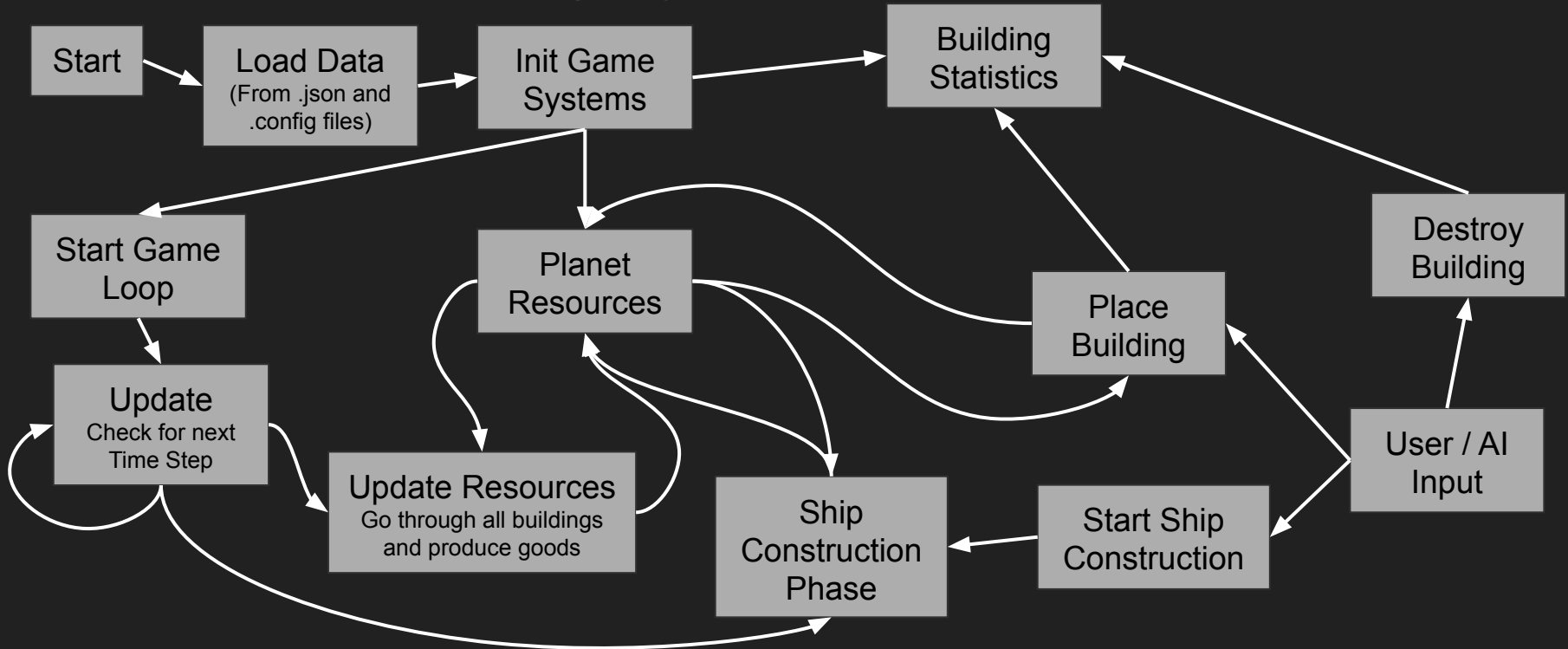


Optimizing UE4 for Fortnite: Battle Royale

<https://www.youtube.com/watch?v=1xiwJukvb60>



# Appendix - Building System



# Appendix - Ship System

