



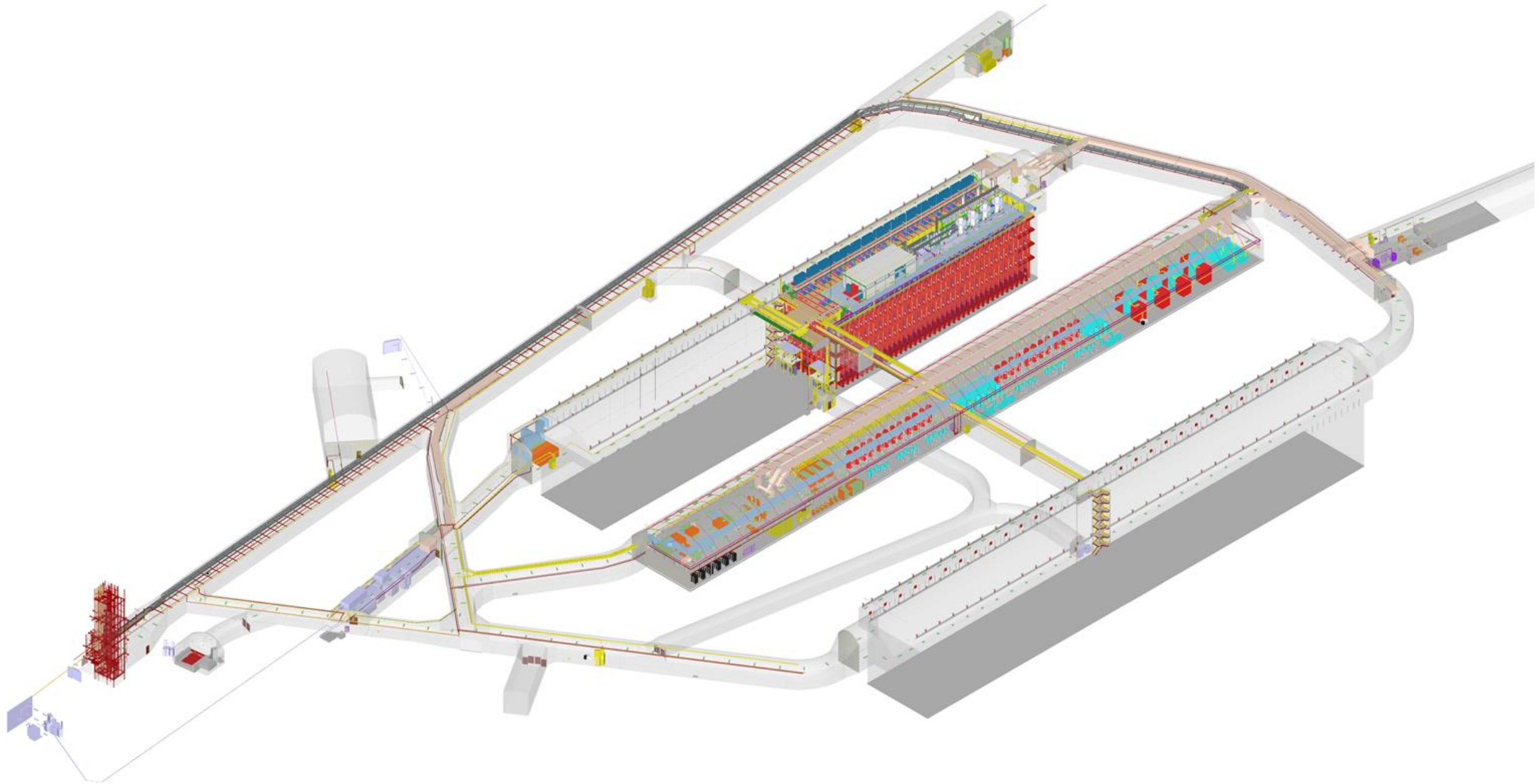
vDUNE Status Report

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12/18/2020



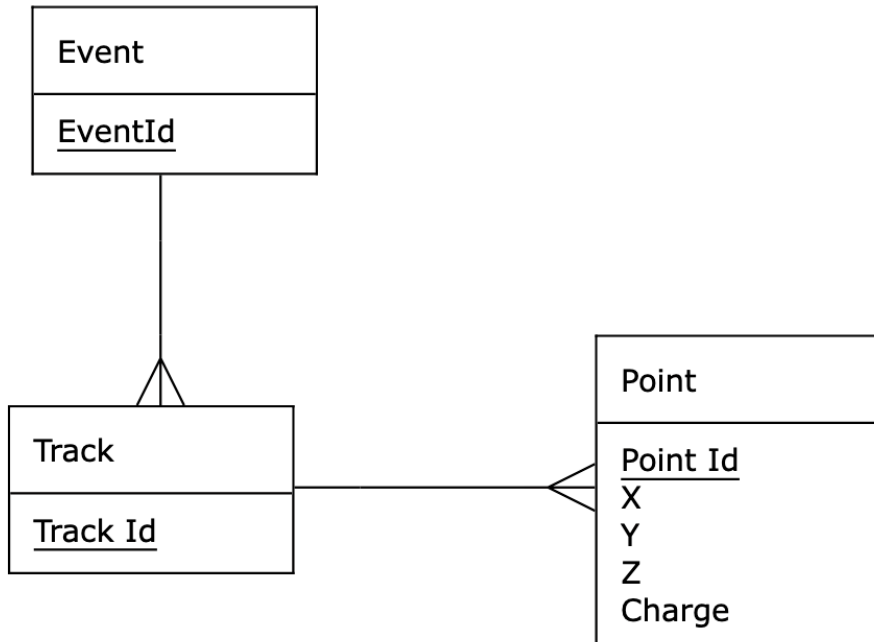


EDMS Complete Assembly Version 7 (2020-11-09): <https://edms.cern.ch/document/2053096/7>

vDUNE Status Report

- + Package deployment mechanism established (UnReal Build Tool)
- + Processing event data:
 - ETL Process for Neutrino Data (Qt Framework).
 - Neutrino event data loaded into the vDUNE program.
- + Neutrino events rendered in 3D
- + Cleanroom loaded

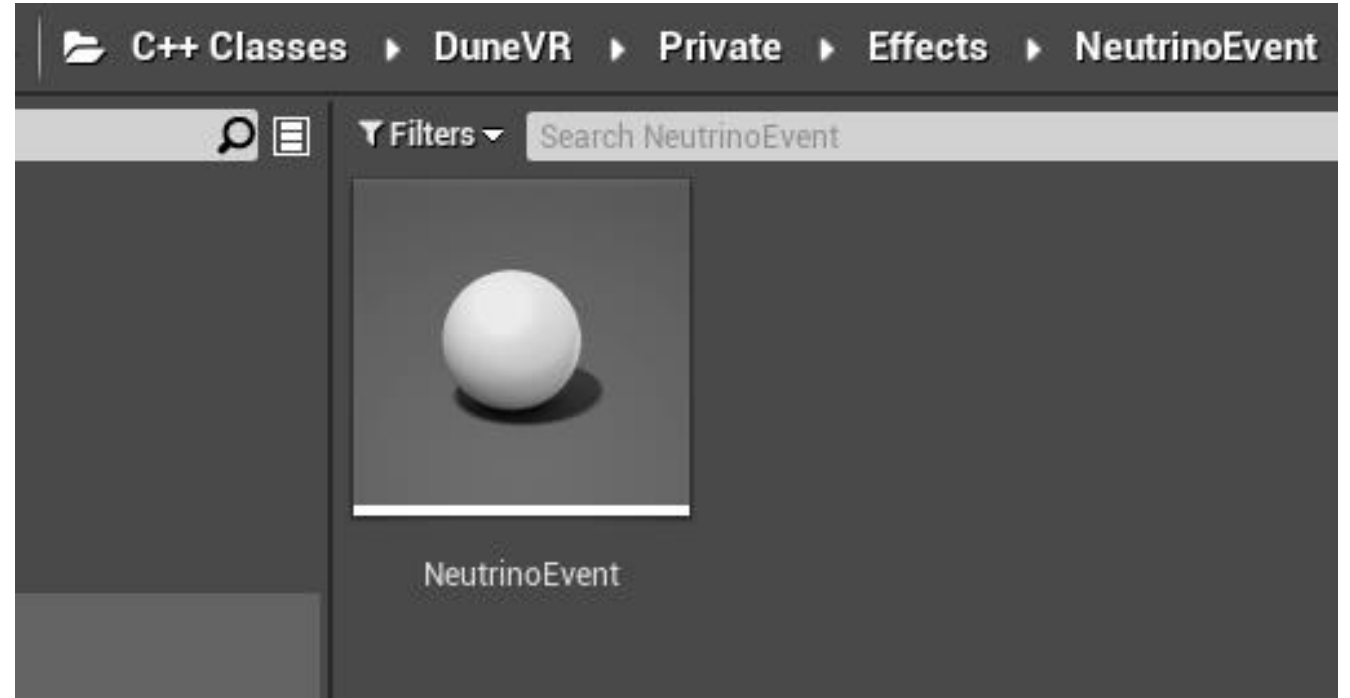
Particle Event Structure (JSON)

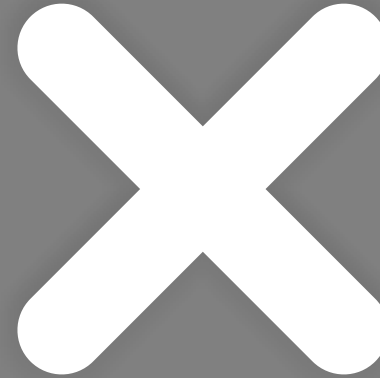
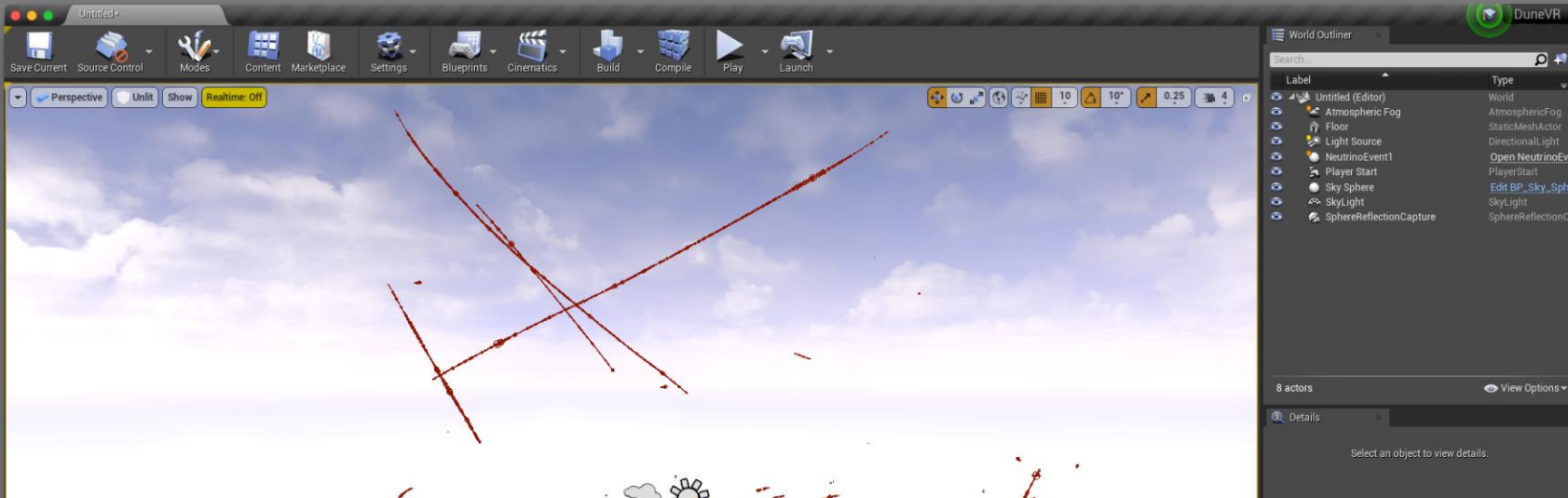


```
information.json
information.json > No Selection
1 {
2   "EventList": [
3     {
4       "Id": 3962,
5       "Tracks": [
6         {
7           "Id": 0,
8           "Points": [
9             {
10              "Charge": 415.1400146484375,
11              "Id": 0,
12              "X": 332.8699951171875,
13              "Y": 308.7460021972656,
14              "Z": 237.98199462890625
15            },
16            {
17              "Charge": 260.49798583984375,
18              "Id": 1,
19              "X": 332.8890075683594,
20              "Y": 308.6629943847656,
21              "Z": 238.13499450683594
22            },
23            {
24              "Charge": 140.98899841308594,
25              "Id": 2,
26              "X": 332.9070129394531,
27              "Y": 308.5710144042969,
28              "Z": 238.26600646972656
29            },
30            {
31              "Charge": 20.520299911499023,
32              "Id": 3,
33              "X": 332.93499755859375,
34              "Y": 308.4280090332031,
35              "Z": 238.47000122070312
36            },
37            {
38              "Charge": 13.657899856567383,
39              "Id": 4,
```

Creating Neutrino Tracks in Unreal

- + Events can be loaded and constructed at runtime.
- + Events can be read from JSON.





```

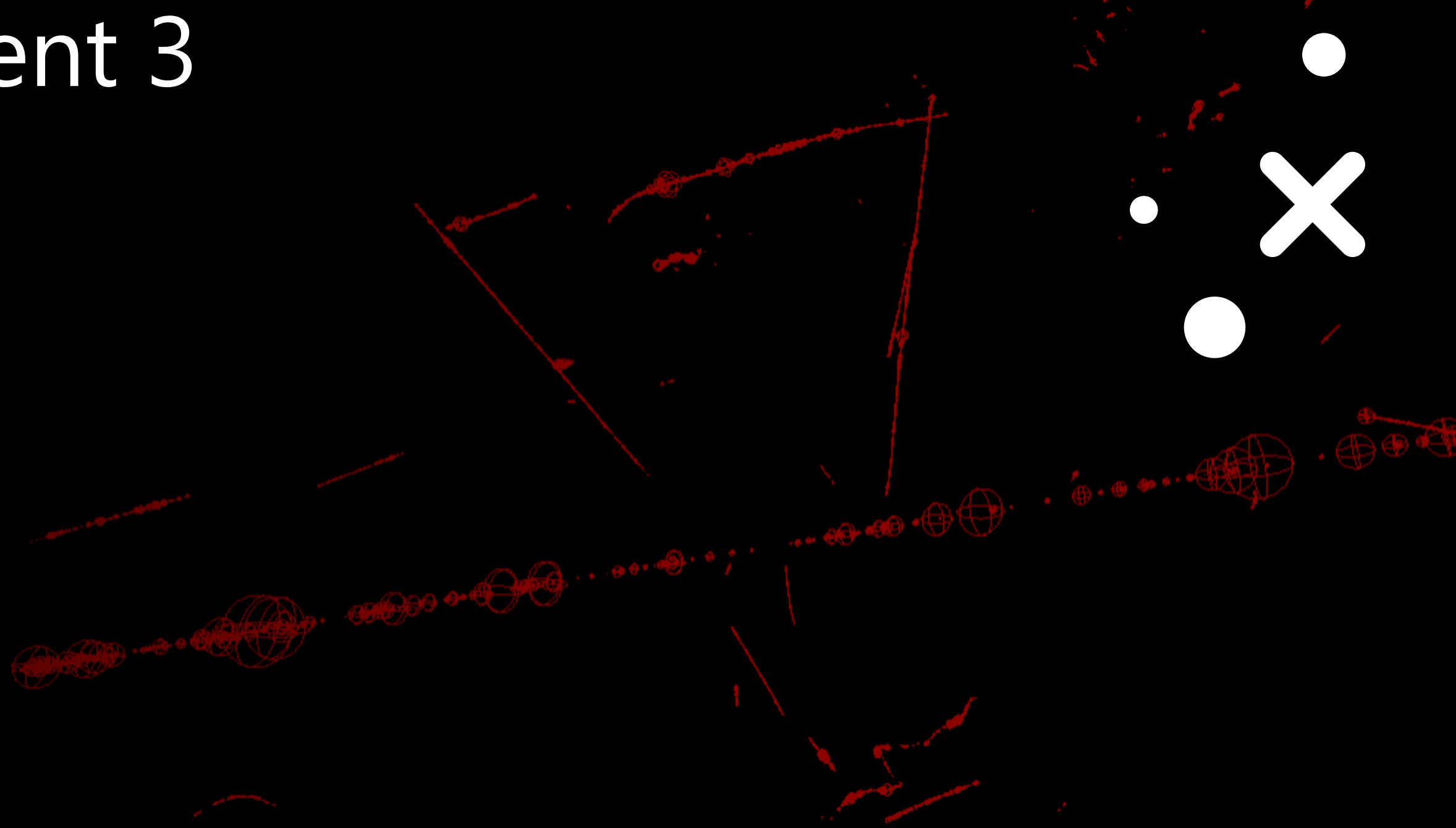
36 FNeutrinoEventList events;
37 FFileHelper::LoadFileToString(FileData, *FilePath);
38
39 UE_LOG(LogTemp, Warning, TEXT("%s"), *FileData);
40
41 if (FJsonObjectConverter::JsonObjectStringToUStruct(FileData, &events, 0, 0))
42 {
43     UE_LOG(LogClass, Warning, TEXT("CONVERTED"));
44     int i = 0;
45     for(auto &track : events.EventList[3].Tracks)
46     {
47         for(auto &point : track.Points) {
48             USphereComponent *sphere = CreateDefaultSubobject<USphereComponent>(
49                 *FString::Printf(TEXT("sphere-%i"), i));
50             sphere->SetRelativeLocation(FVector(point.X, point.Y, point.Z));
51             sphere->InitSphereRadius(point.Charge * 0.001);
52             component_list_.Add(sphere);
53             sphere->AttachToComponent(RootComponent, FAttachmentTransformRules::KeepRelativeTransform);
54             i++;
55         }
56     }
57 }
58 else
59 {
60     UE_LOG(LogClass, Error, TEXT("Failed to convert!"));

```


Event 4



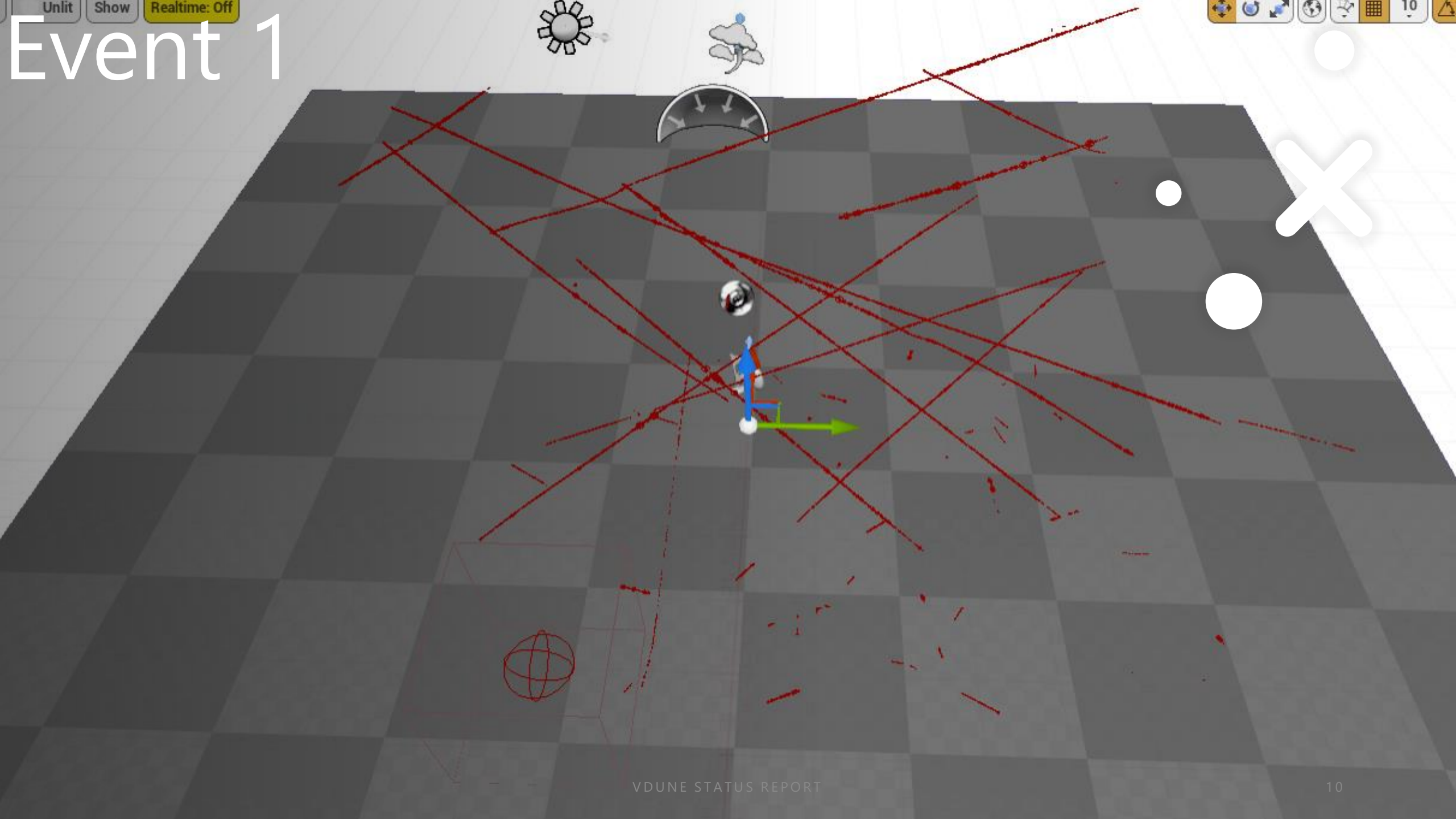
Event 3



Event 2



Event 1



NEEDS TO BE REBUILT (21,748 unbuilt objects)

Health: green Message: no suppress

4045R

ALG

ARM LIFT

Hydraulic Lift

600AJN

Dune Cleanroom

