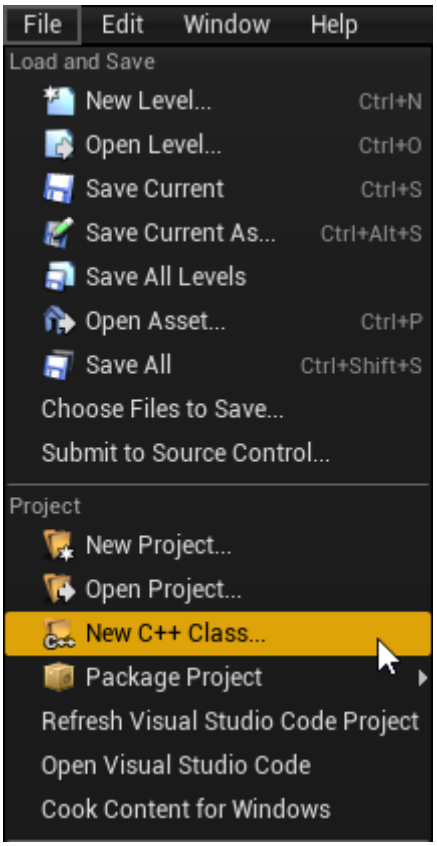
# Mechanical

ECS clearly separates the data and the logic operating on that data. This logic in turn is usually executed on an iterative per-frame basis. Apparatus implements this animation-like functionality via a concept called *Mechanical*. Mechanicals are complex in nature and comprise multiple Mechanics that are executed inside of them.

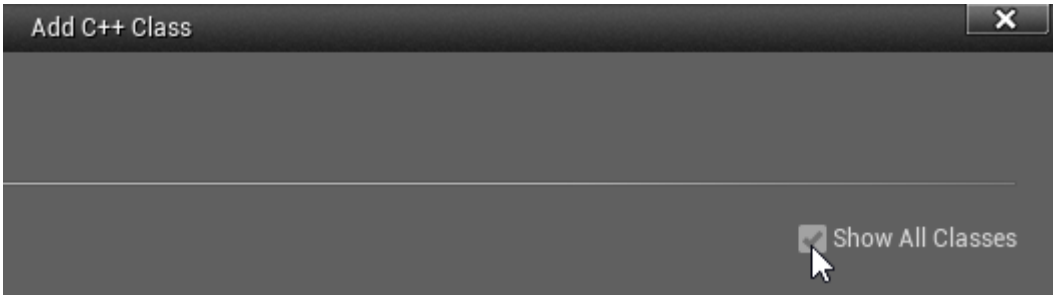
## C++ Workflow

If you’re going the C++ way, creating your Mechanicals goes like this.

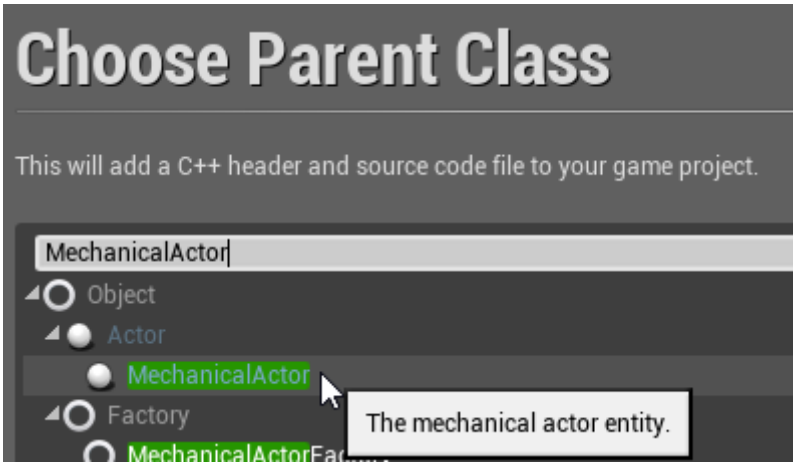
- Open the main UE File menu and choose the “New C++ Class...” option:



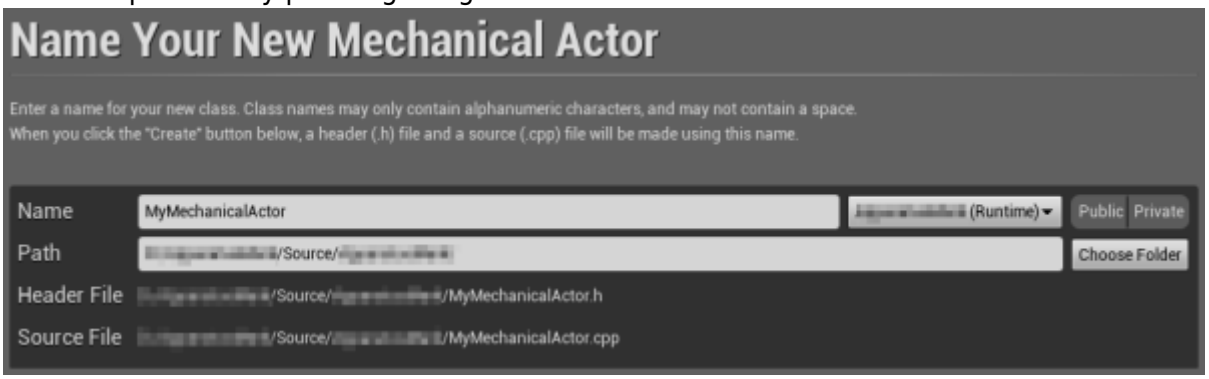

- In the opened window mark the “Show All Classes” checkbox:



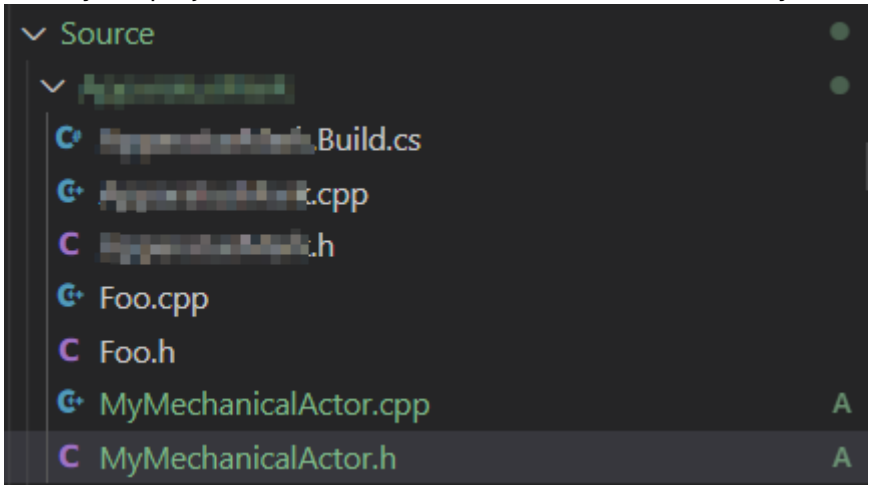

- Now you can select any of the base classes available including the Apparatus ones. Choose the Mechanical Actor as a base class:




- Click “Next” and you should see a name choosing dialog. Adjust the name of the class as needed and proceed by pressing the green “Create Class” button at the bottom:




- The new class gets created as a combo of its header (.h) and a source file (.cpp). All in the Source (sub)folder of your project. You should now see them in the IDE of your choice:




- Note that you may have to recompile the project and/or restart the Editor after that. Don’t be scared by some possible errors here, regenerate the IDE project, rebuild and start again.
- The corresponding file contents should be as:
  - `MyMechanicalActor.h`:<code cpp>

// Fill out your copyright notice in the Description page of Project Settings.

#pragma once

#include “CoreMinimal.h” #include “MechanicalActor.h” #include “MyMechanicalActor.generated.h” UCLASS() class APPARATUSMARK_API AMyMechanicalActor : public AMechanicalActor {

```
GENERATED_BODY()
```

}; </code>

- MyMechanicalActor.cpp:<code cpp>

// Fill out your copyright notice in the Description page of Project Settings.

#include “MyMechanicalActor.h” </code>

- Now you can override one (or multiple) of the Tick methods and implement your actual Mechanics as usually in C++...
  - ... in the header:<code cpp>

void Tick(float DeltaTime) override; </code>

- ... and the source file:<code cpp>

void AMyMechanicalActor::Tick(float DeltaTime) {

```
// Your mechanical code here...
```

} </code>

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