

Dynamic Footsteps Audio System

Adding new footwear and terrain types

To add these, three things are needed:

1. The footwear or terrain type needs to exist in the relevant enum for those types - adding this will require a c++ change
2. All the relevant sound cues need to be added to the project
3. Articulation sets need to be created - this is what maps the sound cues to their correct terrain and footwear types

Adding new terrain and/or footwear types (for those who've never c++ed before)

Step 1

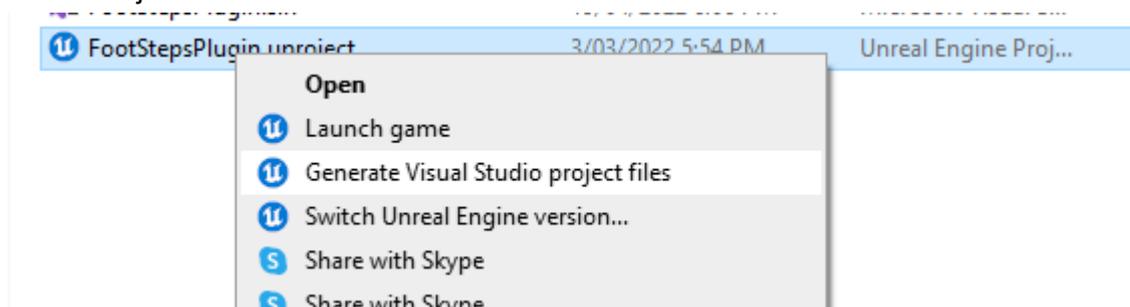
Adding to the enums will require a c++ change, this means you will have to have Visual Studio 2019 (the Community (free) version is fine) installed on your computer.

Step 2

You will also need an Unreal project with c++ enabled and the dynamic footsteps plugin installed as a project plugin. To do this, create an Unreal C++ project, add/unzip the plugin to **[Project Directory]\Plugins\Runtime\DynamicFootsteps**. (note to Steph, you have this already :))

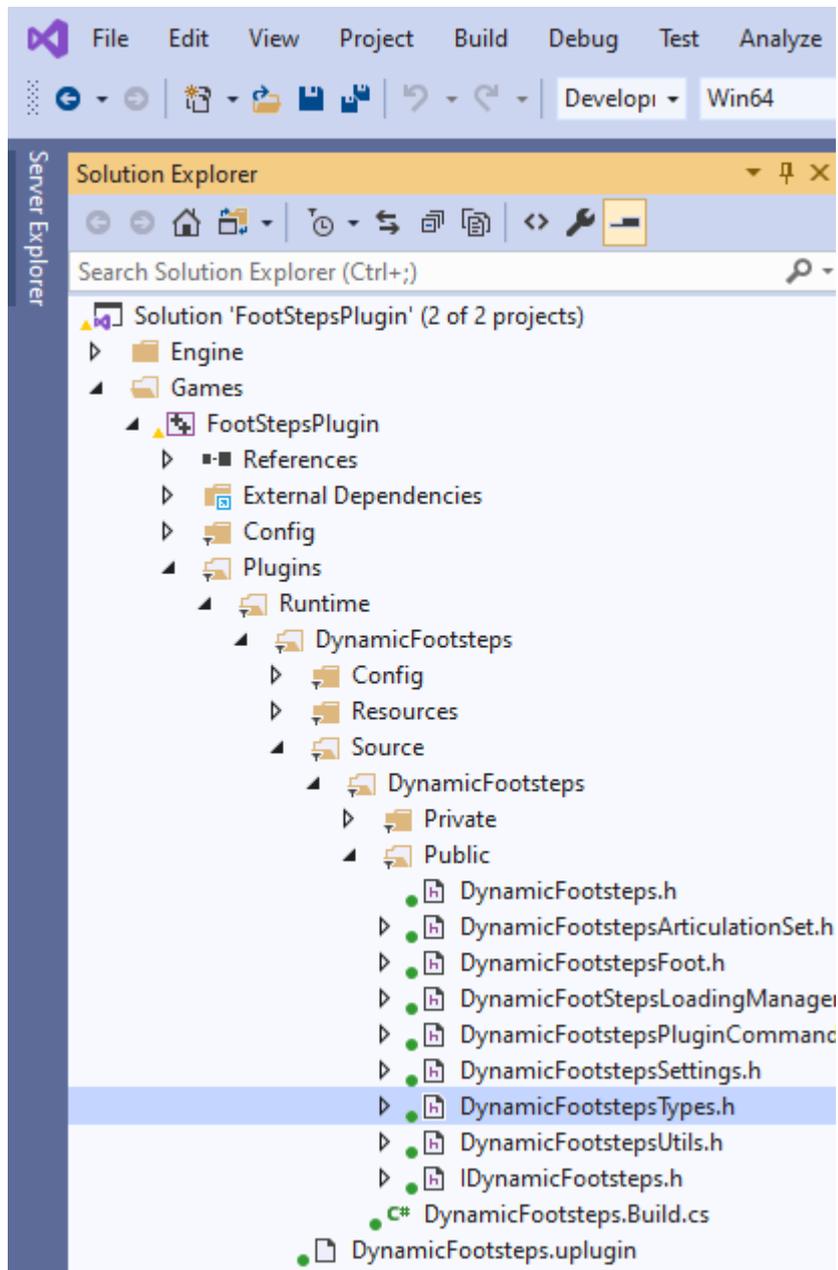
Step 2

You will need to create a Visual Studio project. This can be generated from the Unreal project. To Do this, right click on your project's .uproject file, and select "Generate Visual Studio Project Files"



Step 3

You will now have a Visual Studio solution (.sln) file in the same directory as your uproject file. Double click it to open in Visual Studio. In that program, find the Solution explorer tab and navigate to **Games\[Your Project Name]\Plugins\Runtime\DynamicFootsteps\Source\DynamicFootsteps\Public\DynamicFootstepsTypes.h** and double click to open it.



Step 4

To add a new terrain type

Scroll to the line "enum class EDFASTerrain : uint8". Below this is the list of footwear types.

```

ENUM(BlueprintType, Meta = (Bitflags))
enum class EDFASTerrain : uint8
{
    DirtHard    UMETA(DisplayName = "Hard Dirt"),
    DirtSoft    UMETA(DisplayName = "Soft Dirt", Hidden),

    WaterShallow    UMETA(DisplayName = "Shallow Water"),
    WaterKneeHigh   UMETA(DisplayName = "Knee High Water"),

    MetalPlate    UMETA(DisplayName = "Plate Metal", Hidden),
    MetalGrid     UMETA(DisplayName = "Metal Grid"),
    GravelCourse  UMETA(DisplayName = "Course gravel"),
    GravelFine    UMETA(DisplayName = "Fine Gravel", Hidden),
    Bitumen       UMETA(DisplayName = "Road Bitumen"),
    WoodFloor     UMETA(DisplayName = "Wood floor").
}

```

You'll see that there are existing types with the keyword "Hidden" next to them. These are types that we have planned for future releases. If you don't want to wait and are making your own one of these, just remove the "Hidden" keyword and its preceding comma, rather than adding a new value.

Otherwise, add your new value at the end of the list (but above "Count" as this is a special value that needs to go at the end). For correct formatting, copy the first value and change the names, as below. The enum value (given first) should not have spaces or punctuation.

```

enum class EDFASTerrain : uint8
{
    Snow        UMETA(DisplayName = "Snow"),
    GrassLong   UMETA(DisplayName = "Long grass"),
    GrassShort  UMETA(DisplayName = "Short grass"),
    Mud         UMETA(DisplayName = "Wet Mud", Hidden),
    Rock        UMETA(DisplayName = "Rock", Hidden),
    Leaves      UMETA(DisplayName = "Leaves"),
    MyNewTerrainType  UMETA(DisplayName = "My new terrain type"),

    Count      UMETA(DisplayName = "Count", Hidden)
};

```

To add a new footwear type

Scroll to the line "enum class EDFASFootwear : uint8". Below this is the list of footwear types.

```

UENUM(BlueprintType, Meta = (Bitflags))
enum class EDFASFootwear : uint8
{
    BootCombat    UMETA(DisplayName = "Combat Boot"),
    Sneaker        UMETA(DisplayName = "Sneaker"),
    BareFoot       UMETA(DisplayName = "Bare Foot", Hidden),
    ShoeFormal     UMETA(DisplayName = "Formal Shoe", Hidden),
    HighHeel       UMETA(DisplayName = "High Heel", Hidden),
    SandalLeather  UMETA(DisplayName = "Leather sandal", Hidden),
    BootMetal      UMETA(DisplayName = "Metal armour boot", Hidden),
    FlipFlop       UMETA(DisplayName = "Flip Flop", Hidden),

    Count         UMETA(DisplayName = "Count", Hidden)
};

```

You'll see that there are existing types with the keyword "Hidden" next to them. These are types that we have planned for future releases. If you don't want to wait and are making your own one of these, just remove the "Hidden" keyword and its preceding comma, rather than adding a new value.

Otherwise, add you new value at the end of the list (but above "Count" as this is a special value that needs to go at the end). For correct formatting, copy the first value and change the names, as below. The enum value (given first) should not have spaces or punctuation.

```

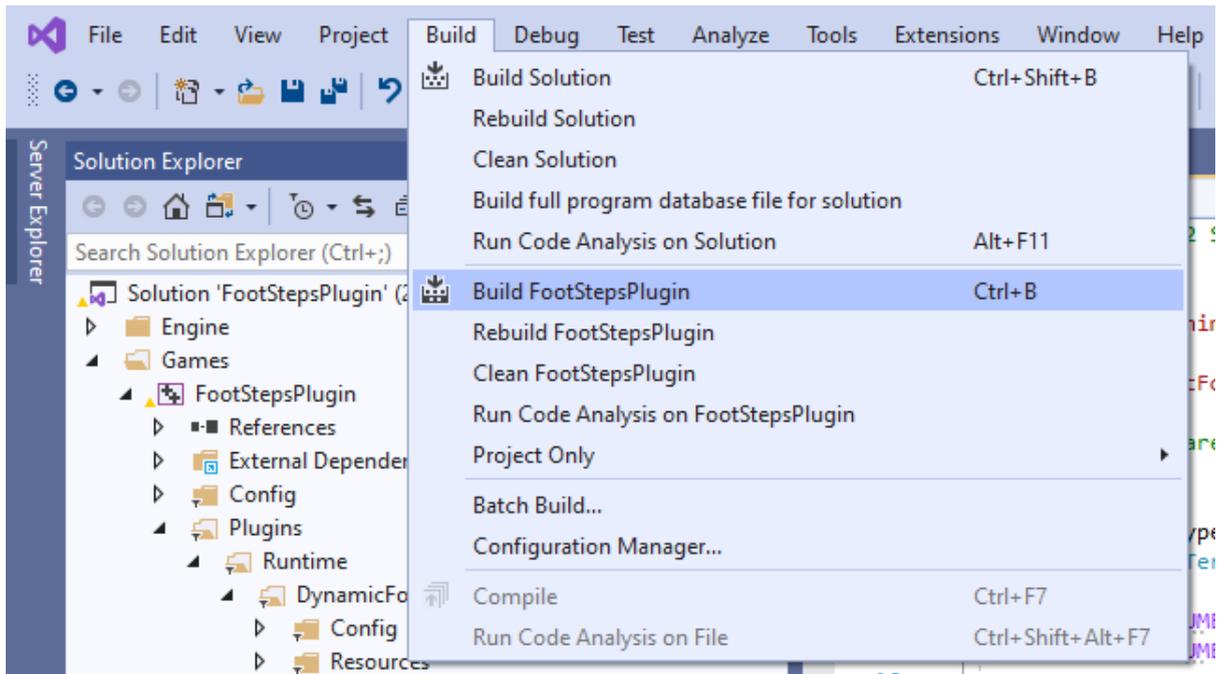
UENUM(BlueprintType, Meta = (Bitflags))
enum class EDFASFootwear : uint8
{
    BootCombat    UMETA(DisplayName = "Combat Boot"),
    Sneaker        UMETA(DisplayName = "Sneaker"),
    BareFoot       UMETA(DisplayName = "Bare Foot", Hidden),
    ShoeFormal     UMETA(DisplayName = "Formal Shoe", Hidden),
    HighHeel       UMETA(DisplayName = "High Heel", Hidden),
    SandalLeather  UMETA(DisplayName = "Leather sandal", Hidden),
    BootMetal      UMETA(DisplayName = "Metal armour boot", Hidden),
    FlipFlop       UMETA(DisplayName = "Flip Flop", Hidden),
    NyNewFootwearType  UMETA(DisplayName = "My new type"),

    Count         UMETA(DisplayName = "Count", Hidden)
};

```

Step 5

Your value has been added, you just need to compile the code. The official Unreal documentation has more information on this. You should be able to just select Build {your project] from the Build menu (or else ctrl+B is the shortcut). Note: Do not have your project open in Unreal when doing this.



Adding new terrain and/or footwear types (for those who know how to c++ in Unreal)

Values will need to be added to the enums EDFASTerrain (for terrain) and EDFASFootwear (for footwear). These can be found in

DynamicFootsteps\Source\DynamicFootsteps\Public\DynamicFootstepsTypes.h

New values should be added to the end, before "Count".

```
UENUM(BlueprintType, Meta = (Bitflags))
enum class EDFASFootwear : uint8
{
    BootCombat    UMETA(DisplayName = "Combat Boot"),
    Sneaker       UMETA(DisplayName = "Sneaker"),
    BareFoot      UMETA(DisplayName = "Bare Foot", Hidden),
    ShoeFormal   UMETA(DisplayName = "Formal Shoe", Hidden),
    HighHeel     UMETA(DisplayName = "High Heel", Hidden),
    SandalLeather UMETA(DisplayName = "Leather sandal", Hidden),
    BootMetal    UMETA(DisplayName = "Metal armour boot", Hidden),
    FlipFlop     UMETA(DisplayName = "Flip Flop", Hidden),
    MyNewFootwearType UMETA(DisplayName = "My new type"),

    Count        UMETA(DisplayName = "Count", Hidden)
};
```

Values with the hidden meta tag are planned for future releases. This tag can be removed if this is the value you want to add yourself.

Then compile and the new values should be good for the next stage.

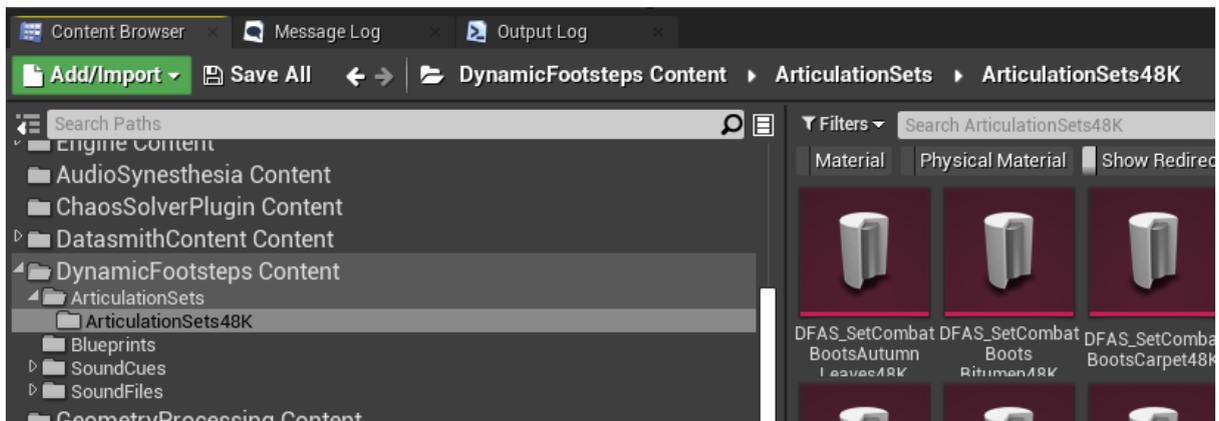
Adding new articulation sets

This part is done within the Unreal project. Basically you need to create an articulation set asset, then update the master look up to be aware of the new asset.

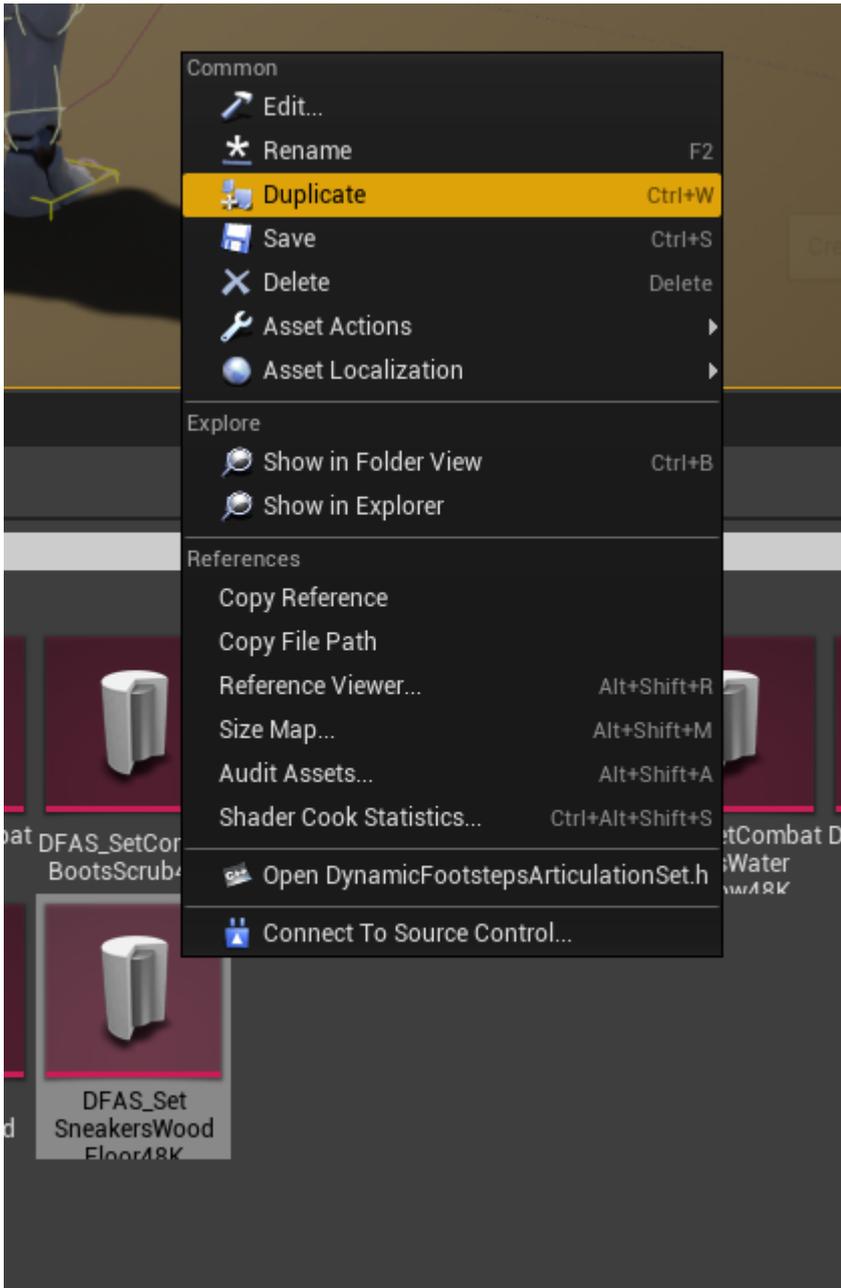
You will need a new articulation set for every combination for terrain and footwear that you have sounds for.

Step 1

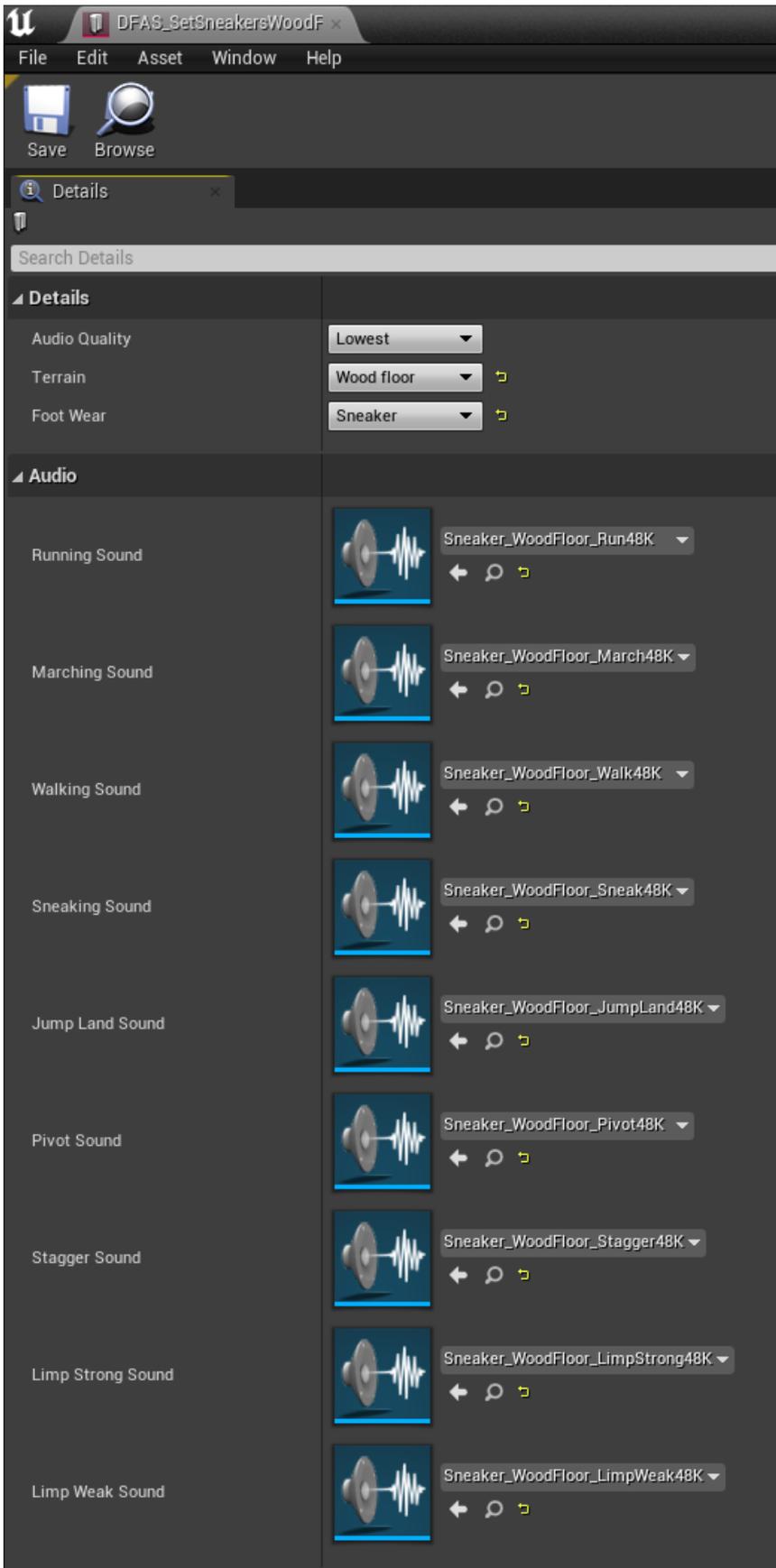
Create a new articulation set. The easiest way is to duplicate an existing one. Existing ones can be found in **DynamicFootsteps Content/ArticulationSets/ArticulationSets48K**



Right click on an existing set and select "Duplicate".



Open the new asset:



The audio quality should be left alone, as we only support one value thus far. The terrain and Footwear values should be updated to reflect the values that these sounds are for.

Under Audio, there is a list of audio cues that you will need. Insert your created sounds here.

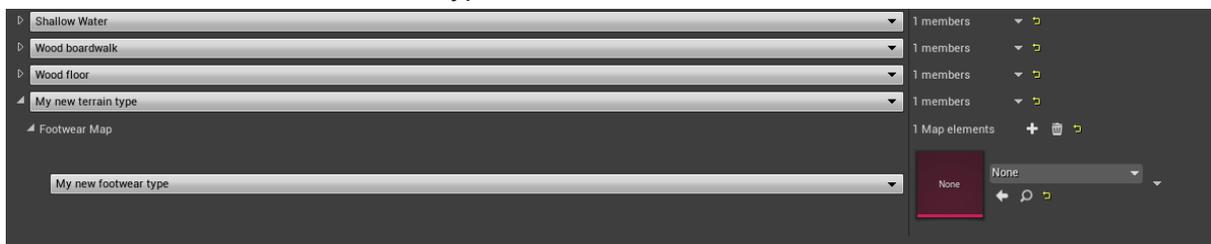
Step 2

Repeat step 1 for every terrain/footwear combination that you are adding

Step 3

Now need to update the master lookup to be aware of our new articulation sets. Open DFAS_ArticulationSetLookup, located in **DynamicFootsteps Content/ArticulationSets**.

Under TerrainMap48k, expand the terrain type you want to add to, or add it if needed. Under that, find and/or add the footwear type.



Add the matching articulation set asset to the empty ("none") box to the right.

Note: there is a super infuriating behaviour of Unreal's UI here - if you have a default value (in our case the hard dirt terrain) in a map already, Unreal will refuse to ever add any more values. It may be necessary to note the values inside the hard dirt type, delete it, then re-add it when you're all done.

Save the look up and your new assets have now been added.