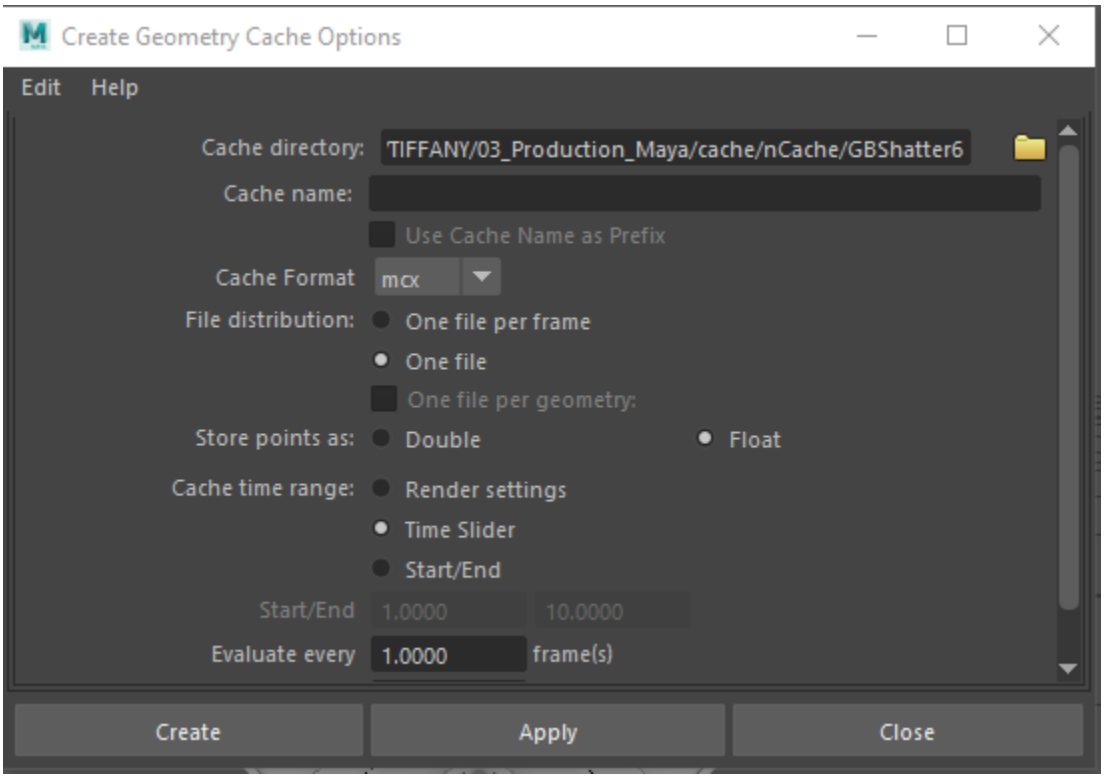
Geometry Cache

A geometry cache is a file or series of files that sore an objects vertex data to speed up playback (and I think it can speed up render due to the scene loading in quicker). Geometry caching can be used for many reasons, the main one being caching out the rigs when animation is complete. This is important to do when you get to effects so the effect artist can scrub and not worry about the rigs bogging down the scene. Because I used geometry caching for effects, that's what ill be covering. I used the bullet solver to shatter an object and ran a simulation, I then geometry cached the simulation (important to do because it gives a consistent result), and then slowed down the cache using the scale feature to create our slo-mo heart shatter. After that I blended two caches, one normal speed and one slowed down to give a nice cinematic look.

So first things first is adding in your shatter effect and running the bullet solver. I'm not going to cover this in depth because it could be a paper on it's own and there's plenty of videos on Youtube. If you aren't doing a shatter but want a slow-mo object falling or whatever just animated your object at normal speed for this step.

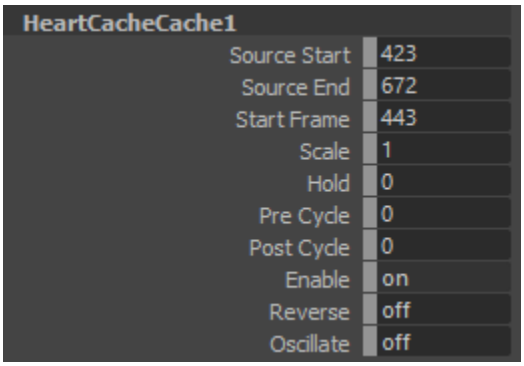
Once it's good to go, select your geometry, select the FX drop down menu, go to Cache > Geometry Cache > Create new Cache (option box).



You will see this window, the Cache directory is where it will store the cache, the cache name is the file name (use your teams naming convention here), format is just the file type (I prefer mcx), file distribution is whether or not you want to do one file or a file per frame. This selection is actually fairly important, if you plan on switching out frames later one file per frame is preferred because you can manually edit and replace each frame's files. Store points as is just the data type of each, float is more accurate but has higher file sizes. Cache time range is fairly straight forward, but it's good to only cache out whatever is animated, only cache whats necessary to be optimal. Evaluate every is probably the MOST important setting, this is how often the cache will pull points of data. If you're doing slo-mo you want to evaluate every some value less than one. I usually evaluate every .1 frames, so I can slow down by 10 and it won't jitter. Its probably better to over evaluate than under but you will end up with much larger files.

Once you cache you will be given an mcx AND an xml. This is important. Keep both files in the same directory. Once you create the cache it will automatically put it on the geo. But *if you move the file around computers you will HAVE to re import the cache*. To do this you will go to Cache > Geometry Cache > import cache… and then locate the XML file. There may be a way to localize the link but I haven't discovered it so I just re import every time I move the file.

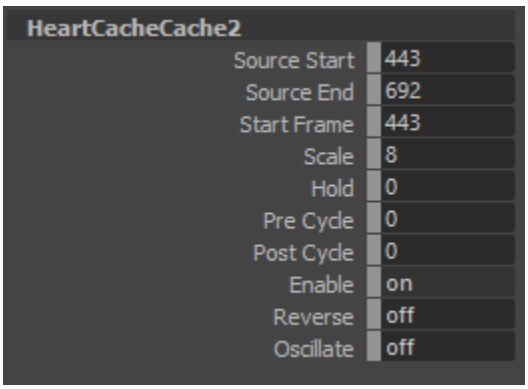
In your channel box you will see this drop down with these settings (your frame range will be different)



Here's where you can change the scale to slow down your object. And you're DONE!

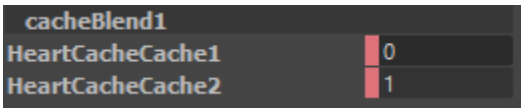
BUT, lets talk about blending slow mo and real time.

RE import the same exact cache, the same way.



You will see a second drop down for your cache, here you can change the scale (recommended don't exceed 10 due to your sample rate). Keep in mind if you scale your effect you will most likely need to change the start frame. This is because youre extending the overall frames so it moves the first frame. Here I shifted mine by 20 frames (the source start setting).

ONE last setting.



This drop down will also appear after your second cache is added. There's no exact scence to this but you can key each value to blend between your regular speed and your slo mo.

That's it! Good luck