

HOW TO MAKE A GARDEN MASTER GUIDE

PART 1: CONCEPTING

PART 1.1: RESEARCHING

To begin making a garden one first needs to decide *which garden to make*. Want to make a wintery mountainous garden? A Tulip Garden? A Magical Pink Garden? *This part is the most fun.*

For Apple Arcade Version: Feel free to be less concerned about endemic and specificity of plants and animals as there are less gardens to be thinking about.

For Free-to-Play Live Version: Be specific with choice of animals/plants/location. Be very specific with endemic-ness to make sure future gardens are not impacted/limited by earlier decisions.

Rules of the Gardens (*follow this as close as possible*):

- 30 Plants
- 6 Animals (includes butterflies)
- Keep terrain flat for simplicity reasons
- Gardens are horizontal (*we do not have vertical gardens or the capabilities for vertical*)
- Gardens and the assets should maintain scale across all gardens.

Other things to keep in mind:

- Think about existing rigs, can one pick animals that might be able to use existing rigs?
- Think about shape and diversity. Consider an idea of layout that might be appealing to what assets have been chosen.
- Plots are an essential part of the Garden design. Make sure to think about utilizing plots when making gardens.
- The more that basic items can be "re-used/re-skinned" the better to maintain style consistency.
- Look at past gardens and past garden documents to get a sense on how to make a garden.
- Try not to have the same plant/animal unlock more than once in the game.

PART 1.2: CONCEPT ART

Once the theme of the Garden is selected, and the names of all 30 plants and 6 animals are selected, it is time for concept art.

- The software that was used previously was photoshop and procreate. In the past the plants, props and animals are all separated in their own files.
- Each asset that is concepted out should either have a legend corresponding to the assets name, or written name next to asset in concept art.
- Turn arounds of each animal is ideal to ensure consistent design of animals and ease of the modeler. Reduces number of revisions.
- It is ok in this phase to re-visit which plants and animals were selected. As the concept artist works out the abstraction of the asset into the Garden Style, the artist might find it does not work. It is ok to switch things around.
- A sketch of the garden layout should be completed in this phase.
- Reference [2d style guide](#) and [animal stylization guide](#) for info on art direction for concept art

PART 1.3 RESEARCH DOC

Once all of the concept art is complete and approved, a research doc should be constructed. Use: [Garden Research Template](#) or equivalent to make the research doc.

Inside the Research Document you will find the following:

-Resources about Garden

- This is where you put in any links to documents, websites, books, resources, build links, PR links, or any other

relevant information that needs to be easily accessible.

-Garden Overview

-Fill out the following: Theme (e.g. *Rainforest*), Subtype (e.g. *brazil, subfloor*), Location (e.g. *Amazon Rainforest Brazil*), Time of Year (e.g. *Spring*), Time of Day (e.g. *Morning*), Weather (e.g. *Raining*), Feeling (e.g. *Lush, dense, humid, fragrant*), Number of Plants (e.g. 30), Number of Animals (e.g. 6).

-If there is any other overview information to be added, add it under the existing slots.

-Garden Layouts:

-Place sketch and any relevant information about the layout of the Garden Space.

- Also where prop concept art is placed.

- Eventually screenshots from unity can be placed as the Garden is complete.

-Notes about Garden:

-Any additional information that doesn't fit in the above categories can go here.

-Plants in Garden:

-Place the concept art of the plants here.

-Underneath the concept art list out the plants that are in the concept art. Add links to information about each plant inside the plant name. See [previous Garden Research](#) docs if this is unclear.

-Animals In Garden:

-Place concept art of Animals here.

-Place turn arounds here.

-Underneath the concept art list out the animals that are in the concept art. Add links to information about each animal inside the animal name. See [previous Garden Research](#) docs if this is unclear.

-Additional Docs // Links

-Anything else at all that did not fit in the above categories can go here.

Upon completing the Research Doc, receive feedback from game director.

Revise document with any notes that are given.

After the Research doc is put together, add to [3D GARDENS INDEX](#).

PART 2: MODELING

Once Research and Concept is finished asset creation begins. Software of choice does not matter as long as assets can be exported as FBX. Garden previously was using Maya LT and Blender.

[5 Modeling tools you need for blender](#)

[Learn Low Poly Modeling](#)

PART 2.1 MODELING PLANTS

Useful information on modeling plants. Plants are very important to ensure the look of Garden Tails and should be followed diligently.

2.1.A Modeling Plant Rules

FLOWERS/GROUND PLANTS



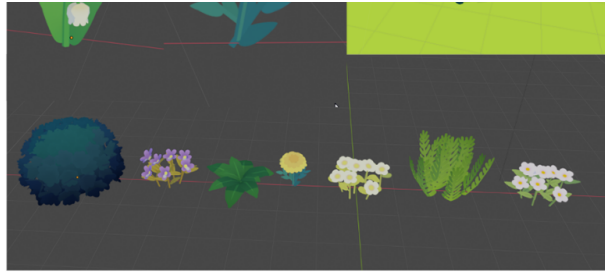
-Low Poly quads with projected flower graphic

-No more than 2 layers of quads on flower

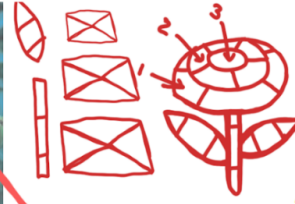
-Plants should be chunky.

-Simplified/Graphic versions of the respective plant.

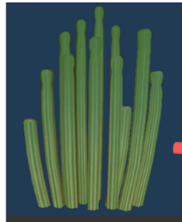
-Flat colors, hard edges between drastic color changes.



- Small Parts of plants don't have detail.
- Shadows are toony and harsh
- everything should be clearly readable zoomed out.
- pivot points of models should always be at the base-center of the object
- Question to ask when finished:
-What's the readability when its small?



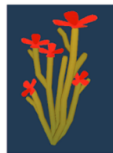
- Focus on large shapes.
- simplify detail
- ask "what can I remove or simplify and still tell the story?"
- must be legible very small
- must look good in a group



- thicken cactus
- reduce number of stems
- thicken detail



- focus on better detail decisions for better story telling
- reduce small detail into larger detail
- flowers grow in groups of 3 (rule of 3's)



- Thicken up thin branches
- simplify the amount of detail



- no large "holes" in plants
- simplify detail for plants being used a lot

HEDGES/TOPIARY



Too detailed in texture.



Texture simple, silhouette is more complicated, this is OK.



-Texture should never be "busy" or too detailed.

-Silhouette and edges of shadows/highlights will be where are the detail lives

-ideally 1 color for the top facing hedge/Topiary, 1 for sides and bottom (one for light, one for shadow)

-Rounder topiaries will have a cut off where the shadow is that has the same texture as the silhouette.

-If flowers/objects live on-top of these, it would follow the same logic as the flower logic. The flower would be graphical in nature, almost billboard like in terms of construction.

-Flowers and topical items will be stylized with exaggerated size

BUSHES



-Textures of bushes should be as simple as possible to reduce the



-too many colors in bush
-too much detail in bush



-too many colors in bush
-too much detail in bush
-too many detail sin flowers (model wise)



-bush is one color, shadow is clean and toon-like but also has detail in it's silhouette.
-Flowers on top are graphic and simple in modeling nature.



-bushes are one color, use the shadow to create depth/roundness
-Flowers are flatter and more graphic in nature.

simple as possible to reduce the amount of noise, let the flowers and silhouette stand out

-any thin "trunks" should be gradient or no texture.

-Flowers on top should be more graphic, exaggerated in size. Simpler in the model, rely more on the texture.

-Fruit should be graphic in nature and also be exaggerated in size.

-Should share toony shading with rest of models.

-leaf shape should be simplified to reduce noise.

TREES



-Shadows should follow form more if possible
-flowers in tree too small (too realistic)



-Shadows follow the form of the tree
-Flowers are exaggerated

-Textures of trees should be simplified and graphic; no small details in textures or model

-If any flower or fruit, nut, etc. Is attached it should be exaggerated in size.

-trunk should be stylized in texture or just a gradient. No small teeny details.

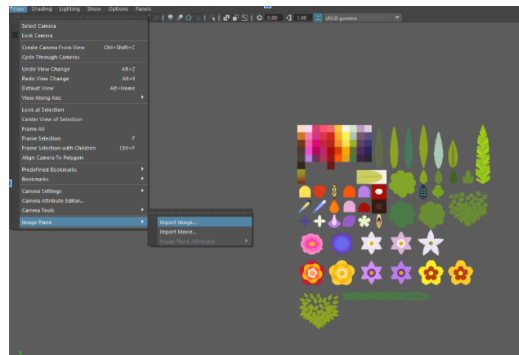
-Size of silhouette should be large and chunky, performance should be considered.

-clipping issues should be monitored and addressed, as well as cut out filter issues.

2.1.B Construction of Plants

2.1.B.a Modeling Leaves & Petals

With Plant construction, a large part of it is following the texture. For Plant modeling **reference Part 3: Texturing first**, ensuring the texture is complete. Follow below on how to create leaves and petals.



Import the texture as an image plane into the front or top view. (reference Part 3: Texturing)

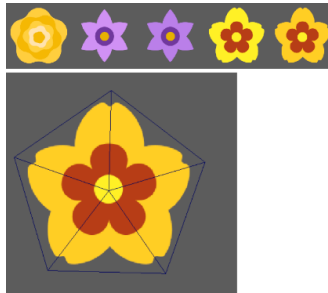
Using the image texture atlas, model the petals and leaves based on the shape of the item. Follow the form of the illustration on the texture. Flat quadrated meshes. (Can use quad draw or create cube, delete all sides but one, then form to fit shape) Follow the illustration as close as possible, less transparent areas the better. Large transparent areas are



resource intensive in engine and also cause shadow issues.

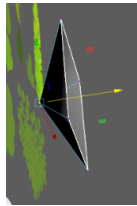
Once the quad is complete, apply planar mapping with the corresponding axis (e.g. Y-axis) Move until the asset is framed in the mesh.

2.1.B.b Modeling Flowers



Flowers follow a similar construction style to leaves and petals. Once again, can chose between quad draw tool or starting with a cylinder, set it to 5 sides and remove everything but the top or bottom. Do not try and draw around the flower and get the exact shape. Poly count is a factor so balancing between poly count and transparent areas is important.

Then Planar Map the mesh. Move UV island around until it fits the texture.



Depending on the flower shape, adding dimension to the flat shape can be a nice touch. Either inverted like shown here, or the other way. Tweak until it looks good.

2.1.B.c Modeling Stems

For larger stems use a cube, sub-divide into an 8 sided shape.

For medium stems use a cube, sub divide it into 6 sided shape.

For tiny stems, just use a 4 sided shape (cube).

If there is wind in the garden sub-divide vertically (or add edge loops) to allow the mesh to bend. 3 for large, 2 for medium, 1 for small.

No angles over 35 degrees in stem bend.

2.1.B.d Modeling Bushes

The Main part of the bush

Model the overall shape of the bush. Add or take away geo as needed. The mesh will be covered with foliage planes, the planes will follow the base shape. Poly count can remain relatively low.

The “trunk” of the bush

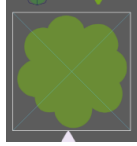
Use an 8 sided “stem”, size it to a bush proportional size. If bush has unique trunk then model following the shape of the trunk.

The foliage

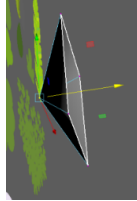
Create a “foliage unit” that can be duplicated and placed over the base mesh.

Use a polygonal plane. Make two diagonal cuts.

UV>Planar the polygonal plane.



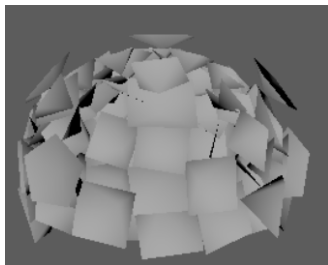
Move the Island to frame the illustrated component for the bush.



Then drag the middle point down a bit to give it some dimension. Should be kind of like a shallow pyramid.

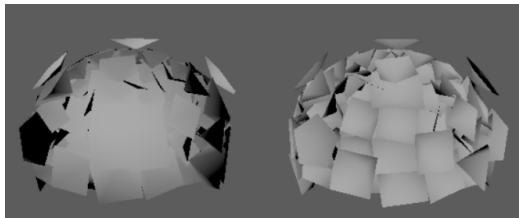
Move the pivot point to the “base” of the foliage plane.

Manually place each plane into place. Can also use plug-ins and snap it to vertices or faces. [Blender Plug-In Idea](#) [Maya Plug-In Idea](#)



Make sure when placing the foliage units that they are placed evenly and do not clip each other too much. To speed this process up if you are doing this manually, place half (one side) and duplicate to the other side. Add any additional to get the finished look.

Bushes already exist in game, and to speed up modeling if the shape of the bush in the concept art matches a bush that is already made, or is similar to, re-using assets is optimal. It speeds up asset creation time.



The bush at this stage should look like the bush on the right. The normals of this bush are not ideal for the look of garden. In order to get normals that are more suited for the look of garden, reference **2.1.B Leaf Clumps and Normals for Bushy plants, Bushes, hedges, Trees, Etc**

2.1.B.e Trees

Tree tops follow similar construction style as bushes. For the foliage units use 4-5 sided shapes depending on the shape of the textures. Model the base shape to make the overall silhouette of the tree. Trees are the hardest to make.

2.1.B.f Trunk

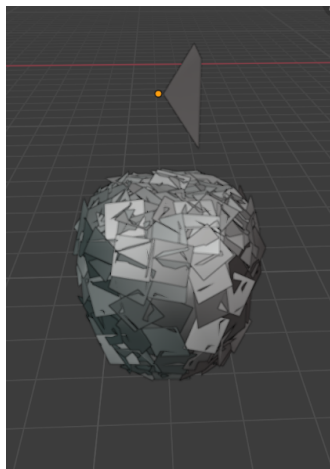
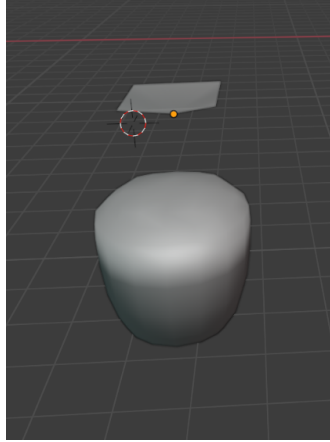
Model how meshes are normally modeled. Follow the silhouette of the concept art, use individual judgement on how to construct.

2.1.B.g Fruits / Sphere like objects

Model how meshes are normally modeled. Follow the silhouette of the concept art, use individual judgement on how to construct.

2.1.B Modeling Leaf Clumps and Normals for Bushy plants, Bushes, hedges, Trees, Etc

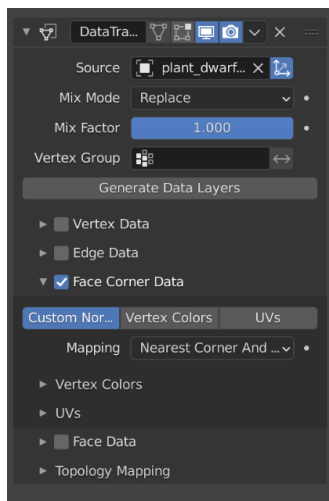
Start with Base Shape (*Bottom*) and Leaf Card (*Top*).



Generate leaf card objects based off of the base objects vertex location.

In Blender: Select the object that you want to duplicate. In the object properties "Parent" dropdown select the object (e.g. circle) on whose vertices you want the duplicates attached. Select that object (circle) now, and in the duplication section select verts. You should immediately see copies appear on the verts of your circle. Both objects remain independently editable. You can add or move verts on the circle and change the mesh of the duplicated object without losing the setup. Randomize each leaf card's rotation and scale. This is our leaf clump object.

[Snap Objects to Mesh Tutorial](#)

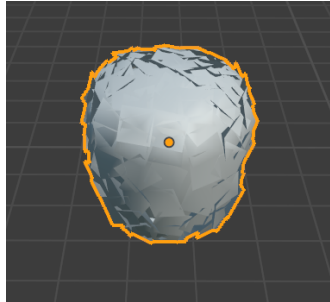
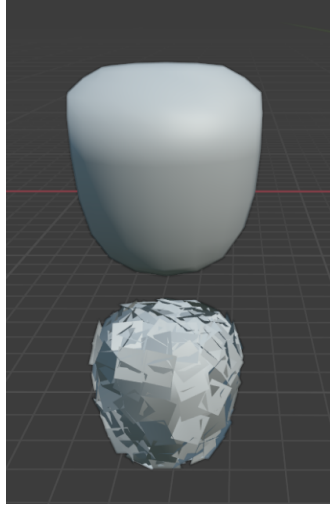


Transfer Normals over from the control object to the leaf clump.

[Video Tutorial](#)

[Video Tutorial 2](#)

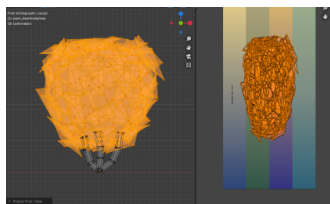
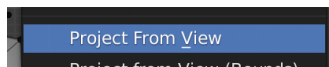
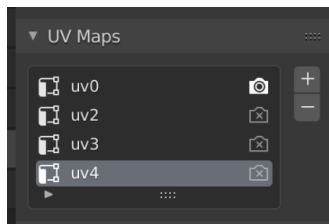
Create and place a "control" object over the leaf clump. The control object's shading is the one that matters (top).



The normals should now look something like this.

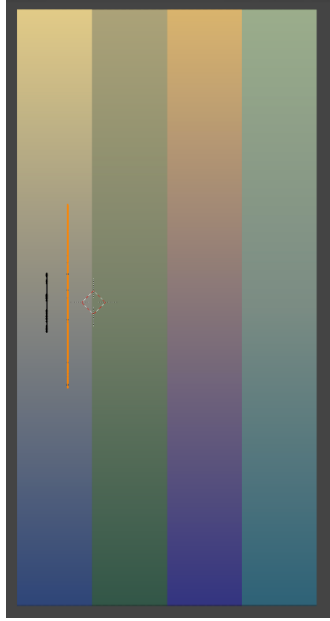
2.1.C Adding Plant Gradients/UV4

In order to get the look of the Garden Art style the shader uses *Gradients and UV4*.



- Access UV set editor with asset selected.
- In Maya: Model mode > UV > UV set editor
- Create 4 uv channels using the create (+ or new) button.
- Name them uv0, uv2, uv3, and uv4.
- Having four channels is a must.**
- Use the uv4 Channel for gradients.
- In viewfinder make sure you are viewing the plant from orthographic front.
- In uv4 channel use *project from view* to create UVs. In Maya, under UV this command is *Camera Based*

Scale the UVs down on the X axis and place it in the corresponding gradient.



PART 2.2. MODELING PROPS

Props typically have two different categories. Static Plants (Plants that don't unlock) and objects.

Part 2.2.A Modeling Plant Props (Static Plants)

For static plants, the process is the same as Part 2.1 Plants. Add the textures to the *GardenPlant* Texture (same as the dynamic plants).

Part 2.2.B Modeling Props

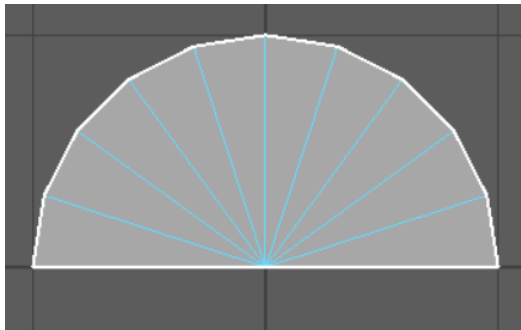
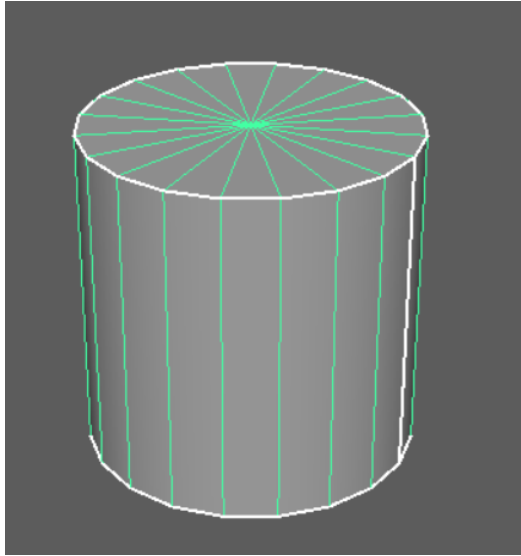
For the most common garden props here are some modeling tips:

Buildings:

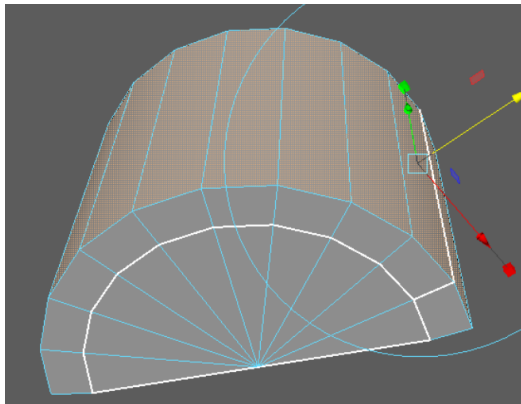
- Delete the bottom faces of buildings, or faces that will never be seen by camera.
- Model windows

Arches:

Create a Cylinder.

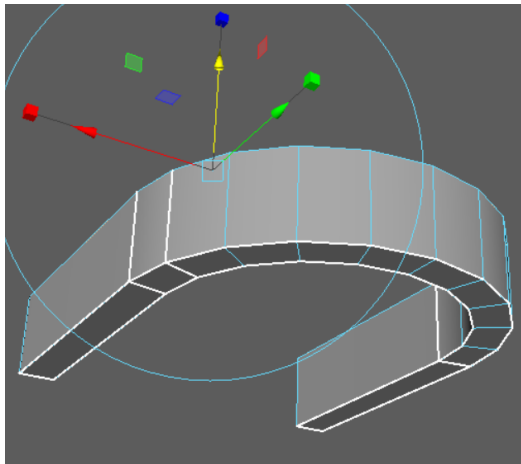
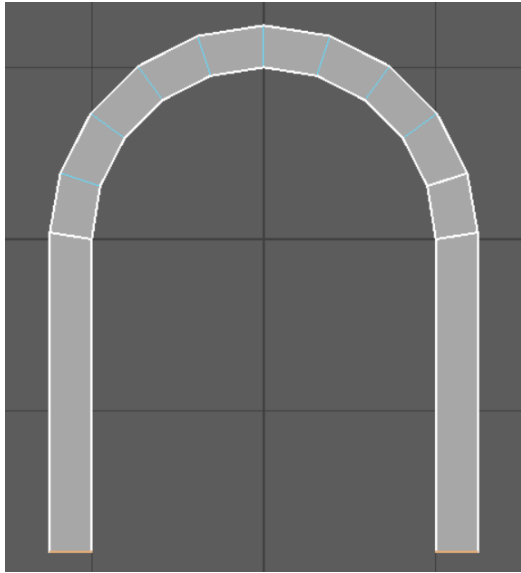


Delete the bottom.



Select the non flat part and extrude.

select the bottom edges and extrude down.



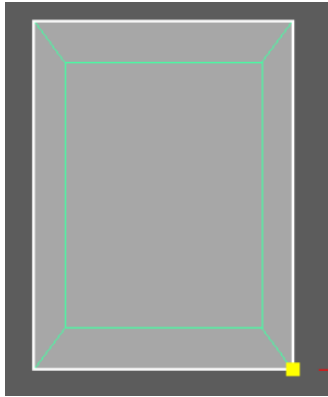
Extrude the whole mesh.

Add any details or shape from here to get the look of the arch.

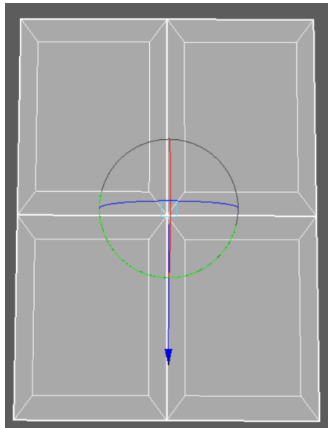
Windows:



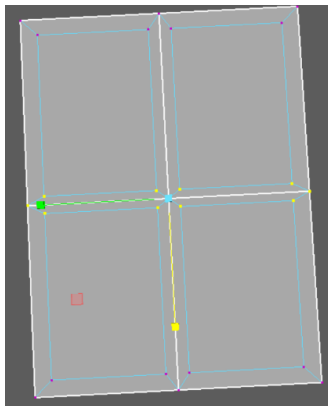
Start with a cube. Delete all but one plane. Extrude inward to get the window rim size that is appropriate.



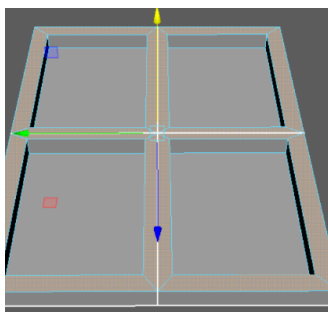
Mirror X, Mirror Y. Confirm that borders and vertices are merged.



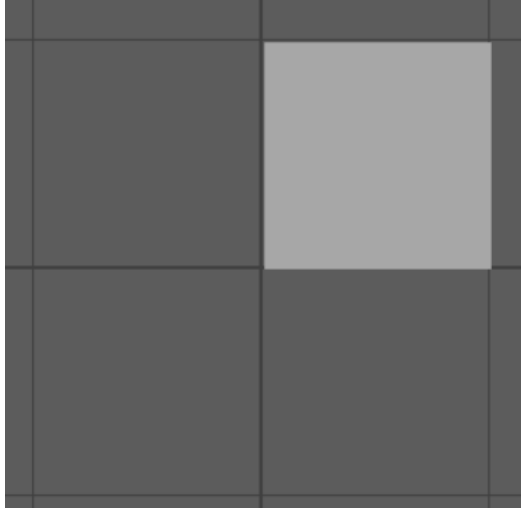
Bring in the points a bit so they are the appropriate size.



Select the frame part of the window and extrude upwards.



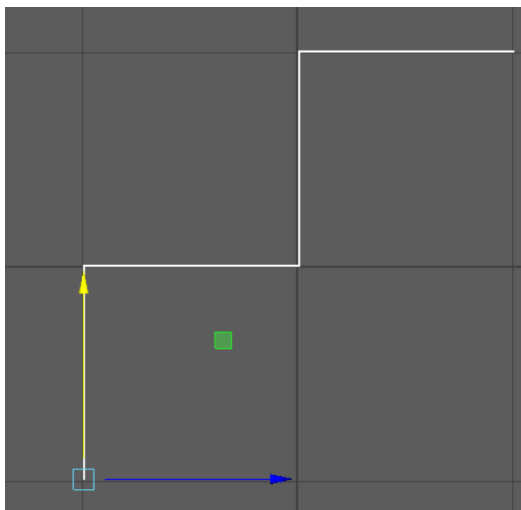
Stairs:



create a cube and align it to the square in a grid.

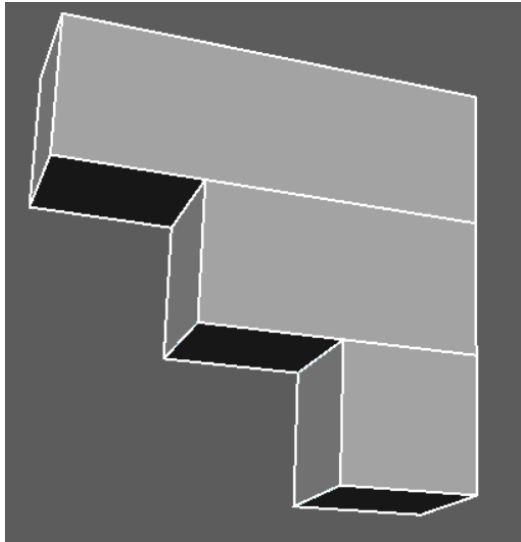
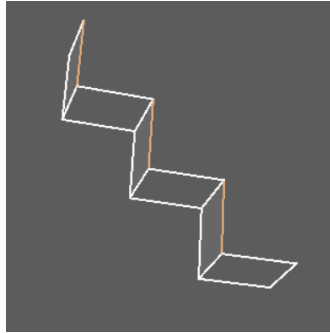


Delete everything but the top and side.

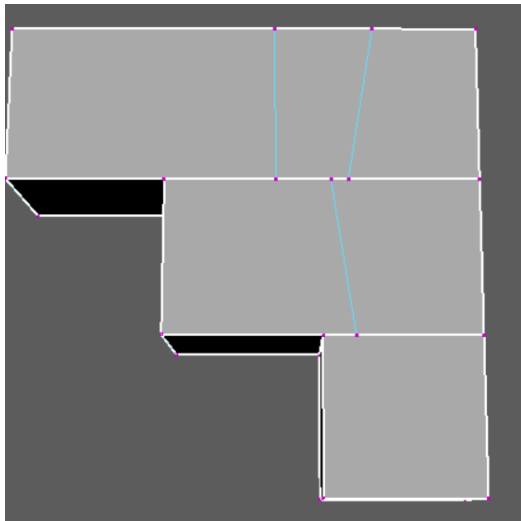


Take the edge and extrude down and out to match grid.

Take the edges and extrude down.

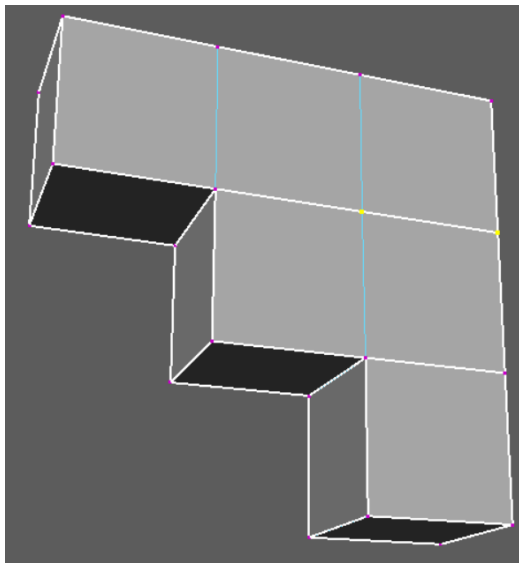
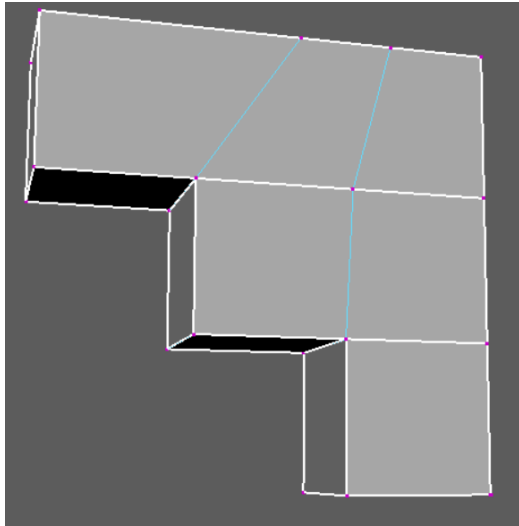


Scale to make them all the same height. Merge together.



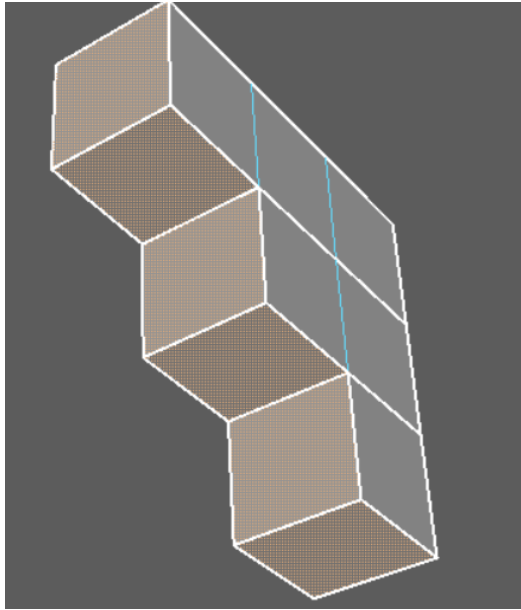
Make cuts.

Merge vertices.



Straighten Lines.

Delete, Extrude.



Delete faces that won't be seen by camera.



Modeling props and things that don't animate, use common modeling knowledge.

[10 tips to improve your 3d Modeling](#)

[6 Key Principles for Modeling](#)

[5 Modeling Tools to Make anything in Blender](#)

PART 2.3 ANIMALS

This section needs more information from Sophia.

Some rules around modeling animals:

-The animals have the proper topology around areas that bend. (e.g. knees, elbows, mouth) [Essential Skills to Become a Pro Collapsible Joint Topology Intro to 3D Art Pixar Style Topology](#)

- The eyes of the characters are a nice shape for every side of view.



In the front view the eyes feel “squished” > Try to avoid this.



The eyes should feel a little more front facing, round eyes from both the front and side.

-Simplify textures, especially on small animals.

-Keep poly count lower, 5k or under per animal.

-When modeling an animal that is similar to an already existing animal make sure to model the new character to be similar enough to the existing-a-like so that the rig for that other character can be used for this one.

PART 2.4 TERRAIN

The terrain should try and stay as flat as possible to keep everything simple. If there are height differences determine whether the height differences should be modeled into the flat plane or added on-top as a prop.

The important part of terrain modeling is the vertex painting. Vertex paint the terrain to allow for the terrain to look like the concept art. *8.3.A Terrain Material Overview* has more information on the Terrain shader inside the game and gives more insight into how to paint.

Basically,

Colors for each layer of the terrain. Each layer is controlled by the mesh vertex color:

Color Ground - No vertex color
Color 1 - Red vertex Color
Color 2 - Green vertex color
Color3 - Blue vertex color
Alpha - Controls whether or not the pattern shows up

PART 2.5 SKYBOX

To model the skybox, it's easiest to take an existing skybox asset from the project folder, but can also take a sphere and delete the bottom half. Invert the Normals so the textures are displaying inwards.



-Another way to handle the background mountains and items is to model them:

Mountains, props, etc that are on the horizon or in the distance will be modeled like so. It used a gradient for variety in color.



PART 3: TEXTURING

[Top 6 Blender Nodes to make any Material](#)

PART 3.1 PLANTS

Need from Sophia

PART 3.2 PROPS

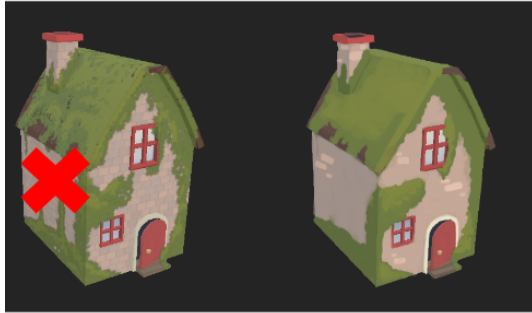
-Props should have minimal detail.
(e.g. Bricks should be suggested not actually all rendered, moss is full and no holes or noise.. Etc)

-Models should be simple

-Rocks should be geometric with flat surfaces

-All rocks in every garden should share similar visual language

-rocks should have very little texture to them



-we want the shading to create the depth/detail in props and rocks

-even small rocks should feel geometric



-too much noise
-not angular enough



PART 3.3 ANIMALS

Need from Sophia

PART 3.4 TERRAIN

Texturing the terrain in most cases means painting the vertex colors onto the mesh.

Colors for each layer of the terrain. Each layer is controlled by the mesh vertex color:

Color Ground - No vertex color

Color 1 - Red vertex Color

Color 2 - Green vertex color

Color3 - Blue vertex color

Alpha - Controls whether or not the pattern shows up

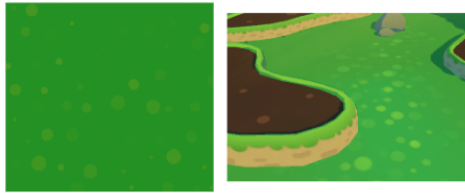
If there is a part of the Terrain that isn't using the terrain shader inside Unity, then a texture and a separate mesh needs to be creative.

Stylize out the texture to match the Garden style, and include it into the Props texture atlas.

-since everything else has simpler textures, grass can have a little more detail.

-All gardens should share the same texture technique.

Grass

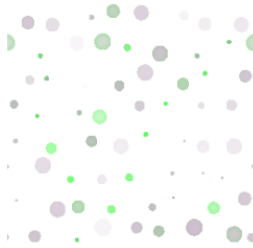


-Grass should lean up towards camera only placed in clumped areas

Gravel



Soil



-Alpha patterns like Animal Crossing Grass, shapes can vary.

-sand: exaggerated size of sand, low noise level

-Gravel: implied gravel, stylized so that not every piece of gravel is drawn out (example is just a sketch)

-Soil: patches of darker/lighter dirt with some rocks that match the darker and lighter dirt color (example is just a sketch)

-Raked Rocks: very graphic (example is just a sketch)

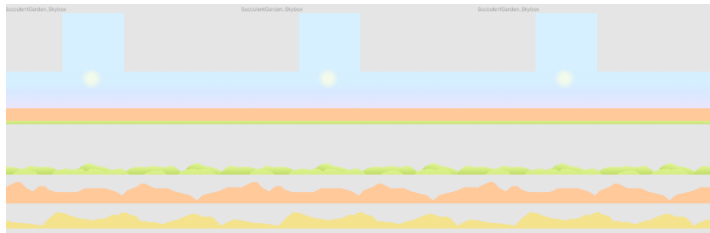
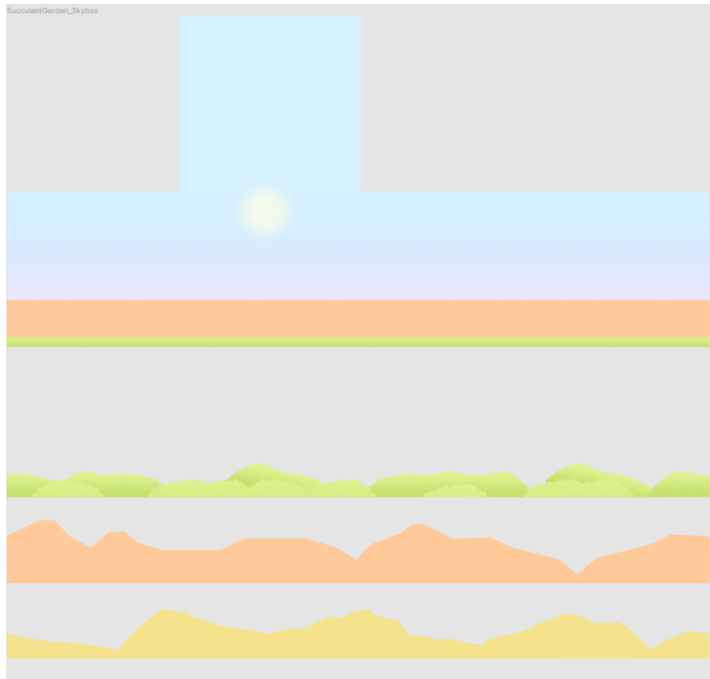
-best to use FLAT grounds

PART 3.5 SKYBOX

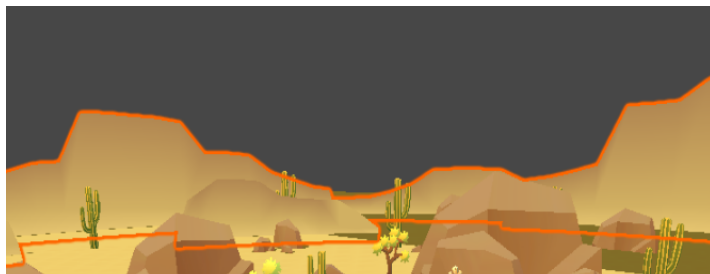
To texture the skybox, follow the concept art, base colors off concept art.

Use a 2048x2048 canvas.

Create each layer of the skybox into separated illustrations on the texture space.



Make sure the texture can tile perfectly on the horizontal axis.



-Another way to handle the background mountains and items is to model them:

Mountains, props, etc that are on the horizon or in the distance will be modeled like so. It used a gradient for variety in color.



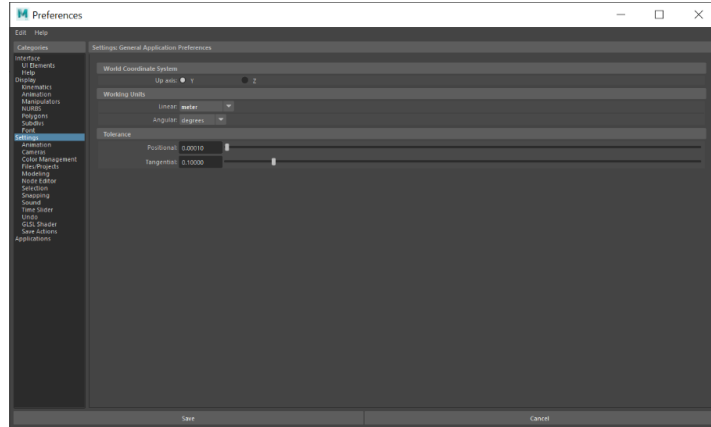
PART 4: RIGGING

Once the model and textures are completed, it's time to start rigging the character. If you do not have the model and textures finalized you will run into major issues at this stage. Any corrections to the model or texture/uv during and past this stage will

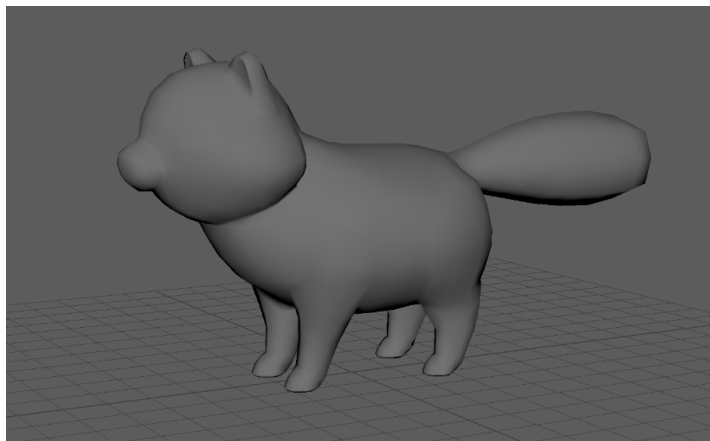
result in needing to re-paint weights.

PART 4.1 RIGGING FROM SCRATCH

Part 4.1.A Prepping scene



Open Maya or equivalent software. Set the scene working units to meters.



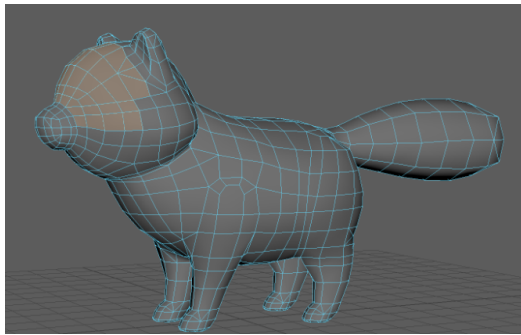
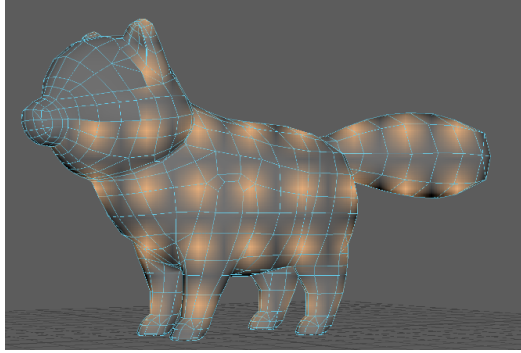
Import the animal model into the scene.

Have the character facing camera on z-axis. Check placement to be in center and pivot point base center. Freeze any transformations, Delete history on scene, and check to make sure UVs and model are in tact before beginning any work. Name the mesh. Assign proper materials. *(this should be done in the final stages of modeling. Check, if this already exists then skip the material assigning step.)*

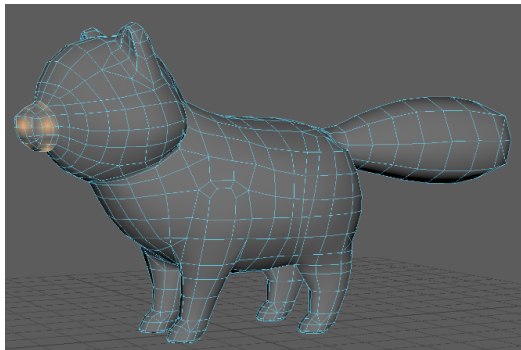
Materials:

Assign and name materials with the following:

Body > Body



Eyes > Eyes

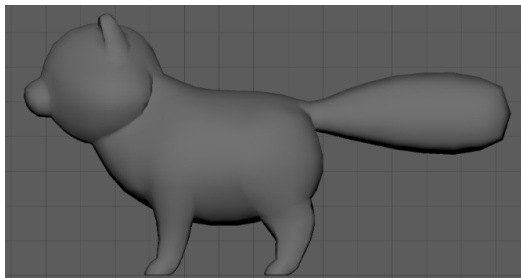


Mouth > Mouth

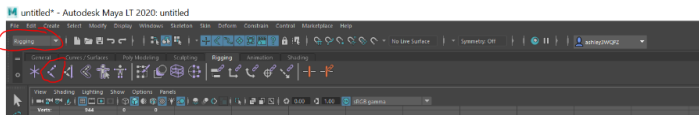
-If the mesh doesn't have mouth atlas then that's ok, just don't assign mouth.

Part 4.1.B Adding Bone/Joints

Now that the mesh and scene are ready to be worked on, the next step is to start placing bones/joints (*they are the same thing fyi. People refer to these with both of those names*)

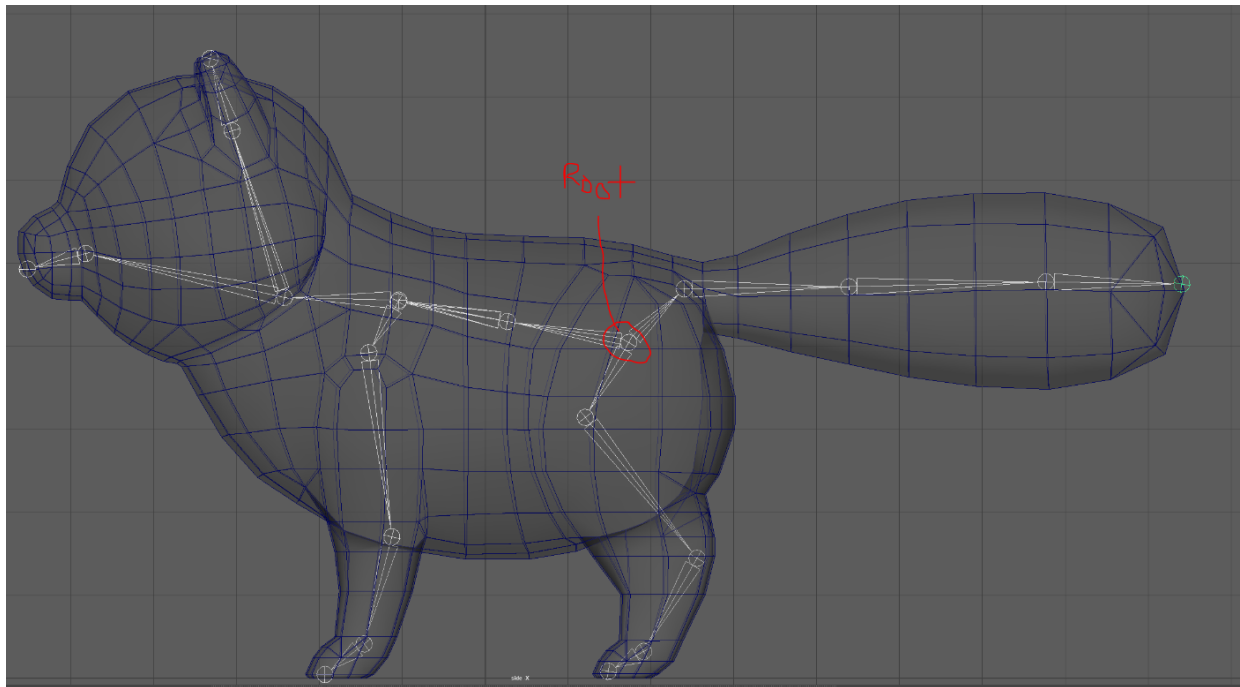


Got to panels in the viewport and change it over to orthographic side view.



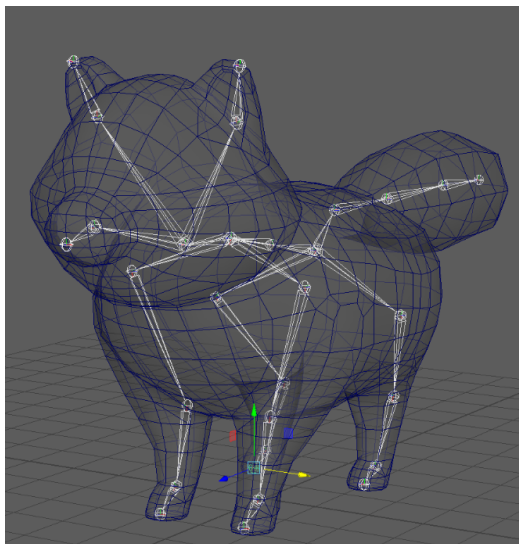
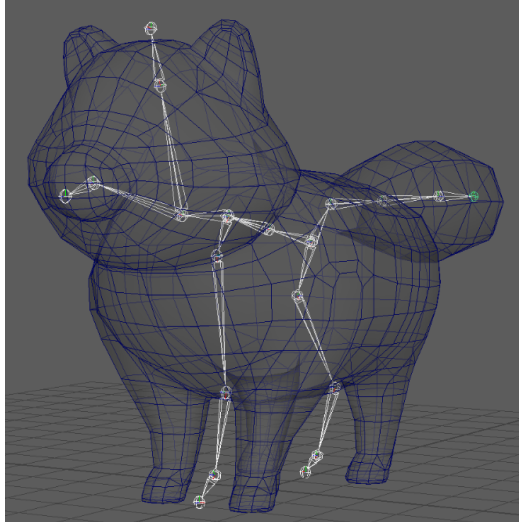
Change scene to Rigging mode. Use this button to create a joint. Can also go to skeleton > create joint.

Start by adding a bone to the “root” of the animal. In this case it's the hips. The rig for a quadruped should look something like below. It will be different depending on the animal. The best way to get an understanding of where to place the bones would be to look at the skeleton of the animal and think about how the animator will be animating the character. For games like Garden there are also bone limits (*16 or fewer is optimal but for quadrupeds that can be difficult, lower the better*) so being aware of limited amount of bones is important.

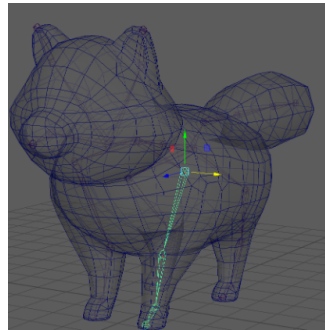


Once the joints placed on the side orthographic view, its onto adding and adjusting bones based on other views. Currently there are only 2 legs with bones, and the animal has 4 legs.

in perspective mode the joints may look something like this. Obviously this isn't correct placement, the ear and legs particularly are wrong. Lets move them into place.



In order to get the other legs and ear, duplicating the respective needed bone at the top of the chain.

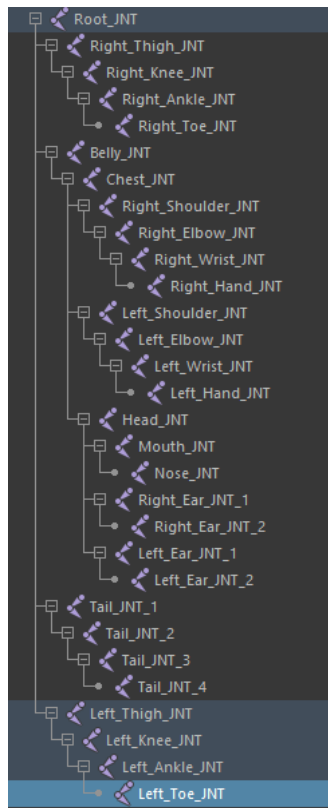


CNTRL + D and then move into place.

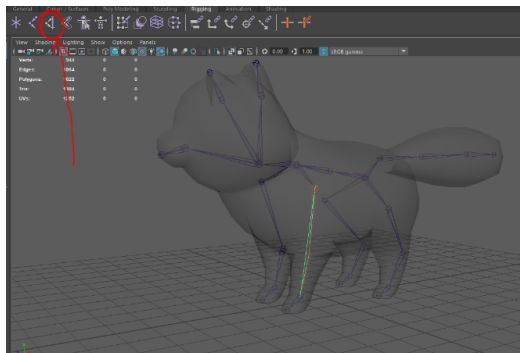
DO NOT ROTATE the bones/joints. Only translate. General rule of thumb with rigging is to not rotate the joints at all as they mess up the way the joints move. It's best to have fully zeroed out bones, but translated information on bones can not be frozen. This is ok, just make sure there are **no rotations** on the bones.

Select all joints. Go to Modify > Delete all Transforms. Then go to Edit > Delete by type > Delete History.

Name all of the joints. Here is an example of how to name them.



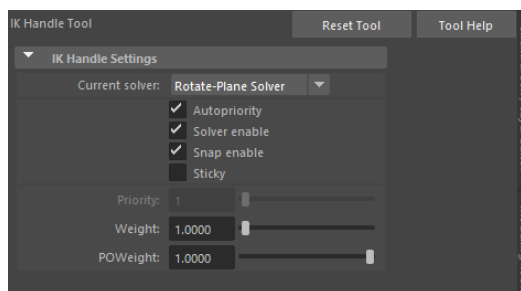
Part 4.1.C Adding IKs



to create IK hit this button or go to Skeleton> Create IK

Go to the tool settings of the IK.

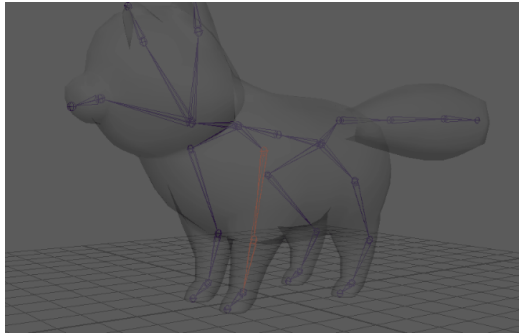
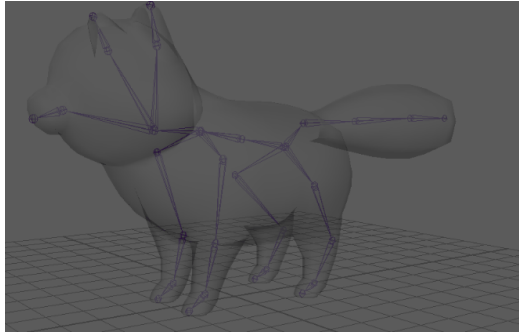
[what is Ik?](#)



Start with Rotate Plane Solver.

Rotate Plane Solver is used for the upper leg part. This allows for pole vectors to be attached for knee control.

Using Rotate Plane Solver, Select top of leg joint and the ankle joint.

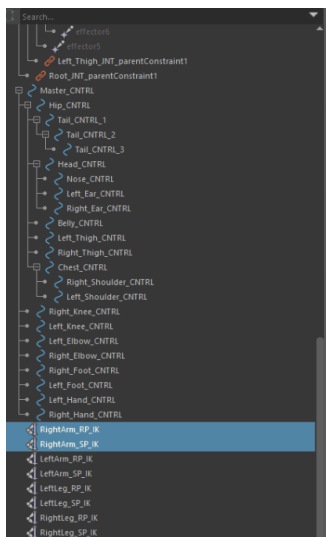


Using Single Plane Solver, select ankle and then the toe joint.

Repeat this for each leg of the character.

Name your Ik controls so it's easier to manage and keep track.

Example : LeftLeg_RP_IK, LeftLeg_SP_IK



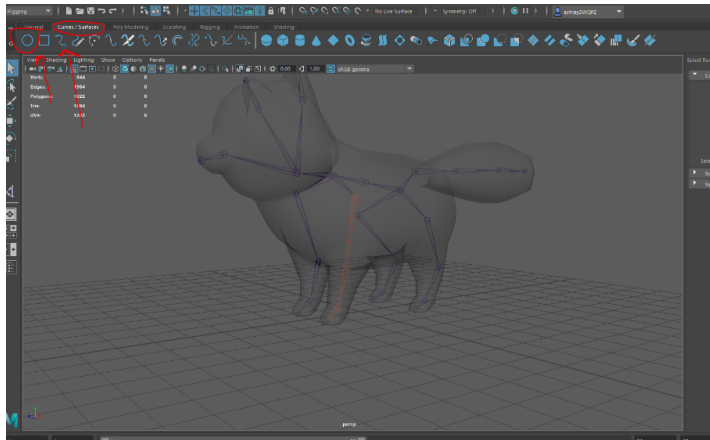
Nest both the RP and SP IK for each leg into its corresponding curve.

Middle button > hold down > drag.

NOTE: if you delete your IK make sure to freeze transformations on the joints that were influenced. They will hold information from the IK (rotations).

Part 4.1.D Adding Curves

To create a curve select from the curves/surfaces tab. Or go to



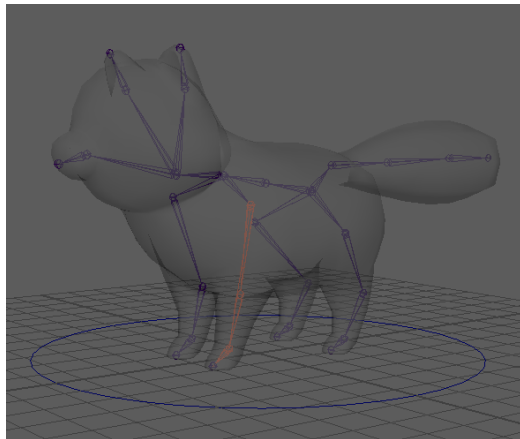
create > Nurbs Primitives> circle.

The controls for the character will be curves. These can be as simple as circles (*which is what garden has been using*) or as complex as the artist wants them to be.

Plug-ins and other tools can make this process more complex and quick.

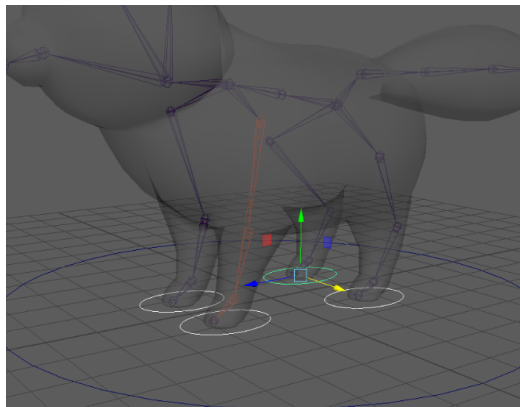
For this guide circles will be used.

Select Circle from the curves/surfaces tab.



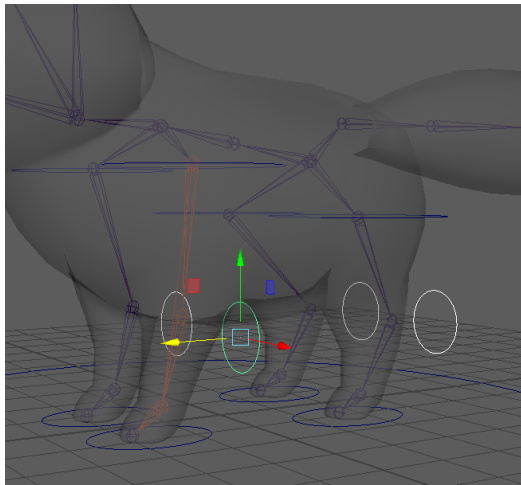
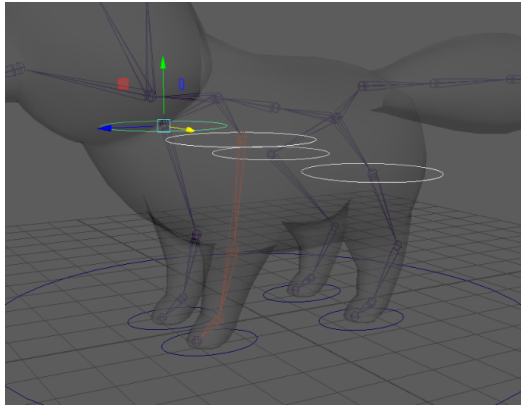
Start by making the master control.

This control will allow for the animator to move the entire character around the scene.

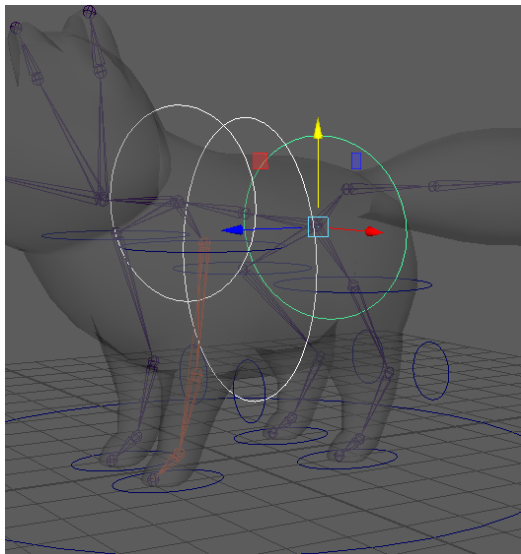


Create controls for the feet.

Create controls and place them on the shoulders and thighs.

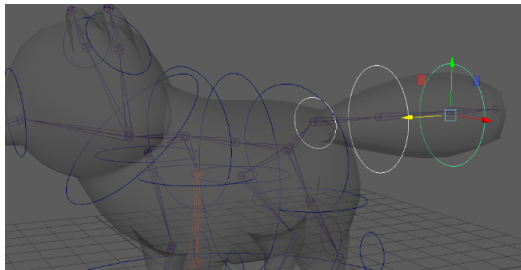
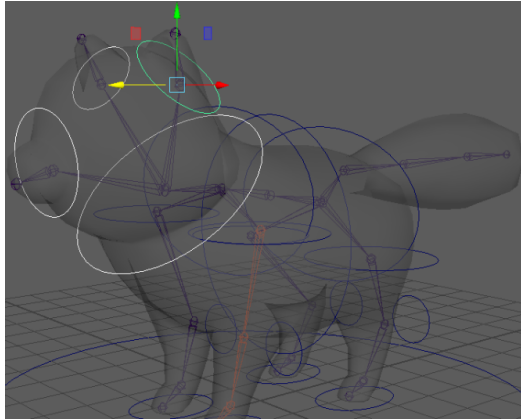


Create and place controllers for the elbows and knees.

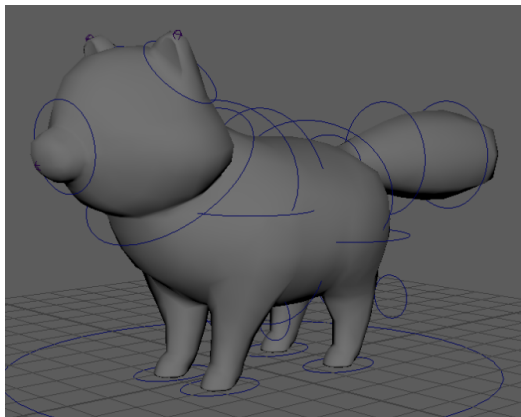


Create and place controls for the hips, belly and chest.

Create and place the controls for the head, ears and mouth/nose.

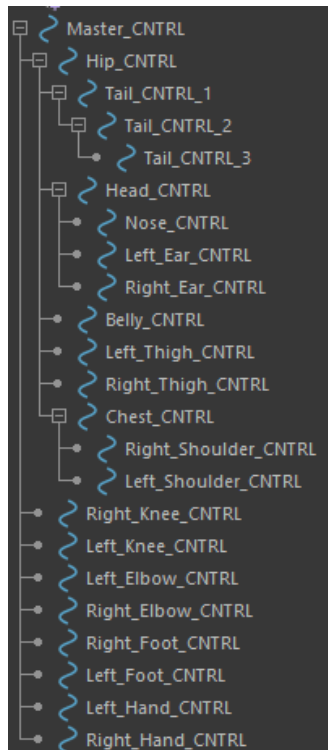
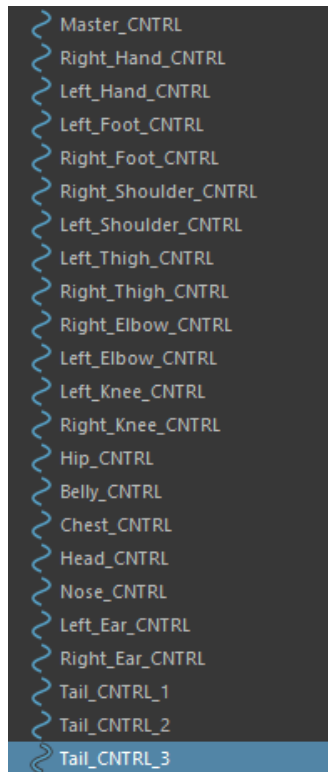


Create controls for the tail.



Once all the curves/controllers are placed, select all the controls and freeze transformation and delete history on those selected curves.

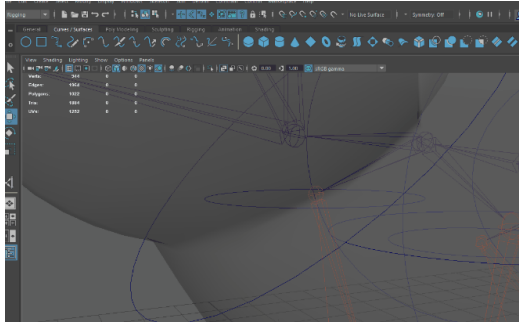
Name the Curves. Here is an example.



Nest all of the controls so they are influencing the right things. Example included here.

Part 4.1.E Adding Constraints

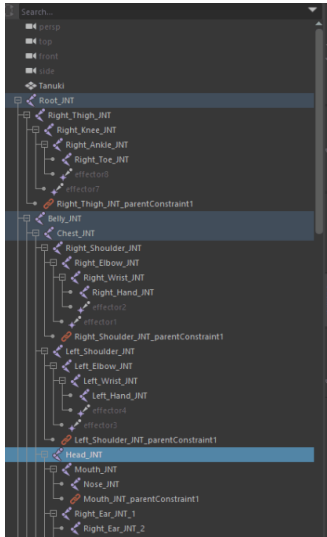
After everything is created it's time to start putting things together.



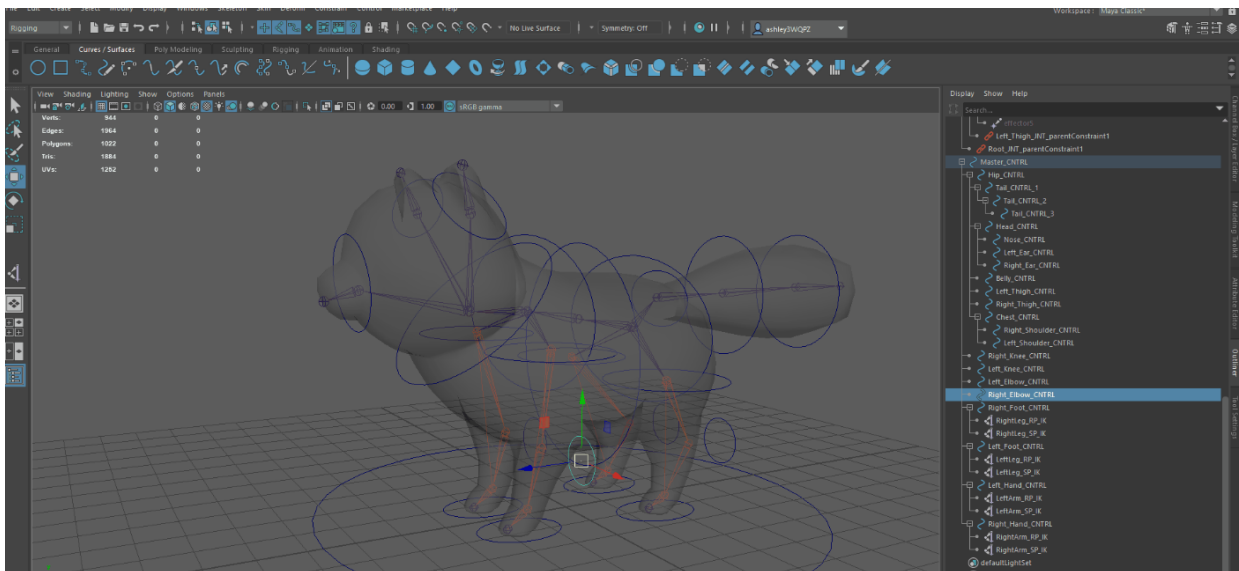
Select the control and then the corresponding control.
go to Constrain > Parent
to repeat a command hit - G (saves time when parenting everything together)

Do this for every joint that has a control.

DO NOT do this for the hands/feet or knees/elbows.

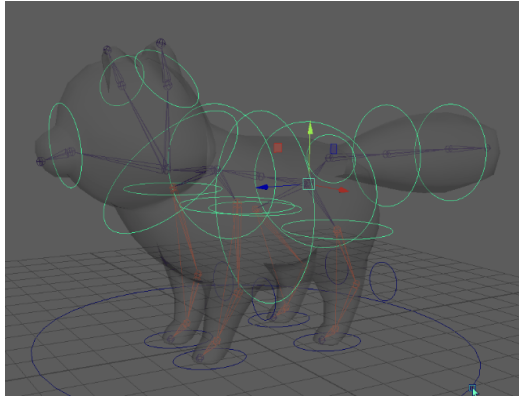


After constraining everything in the outliner there should be visual representation of the constraints created.



Create Pole Vectors for each leg. Select the Control and the corresponding Rotate Plane Solver. *Must use the Rotate Plane solver otherwise it won't work.* Do this for all four legs.

Everything is set up. Test the rig by moving it around.
Make sure everything is working as expected before



attaching skin and painting weights.

Part 4.1.E Rigging Tips

Tutorials that might help:

[Rigging Basics](#)

[How to rig a ball](#)

[IK basics](#)

[Quadrapped Rigging](#)

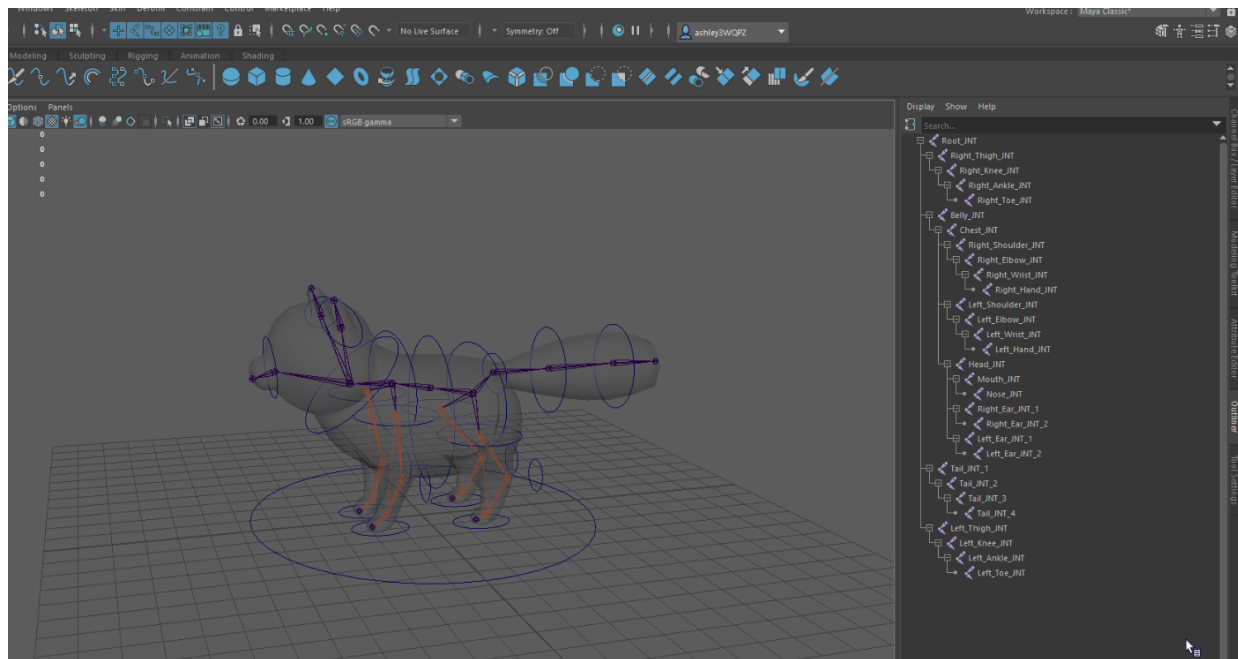
[Reverse Dog Leg](#)

[Rigging Tips](#)

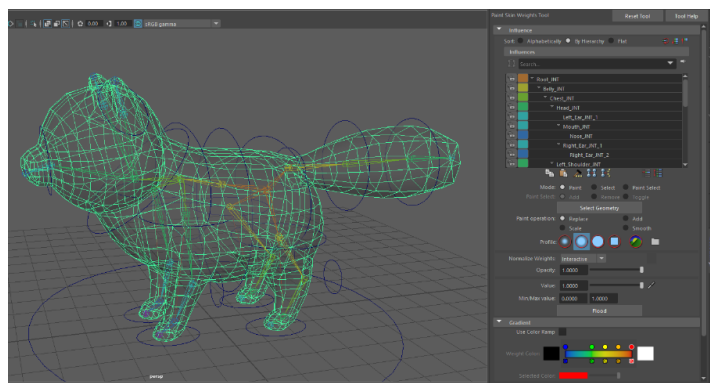
- Always check assets, check for rotations, transformations, history before making the next step.
- Name things, it makes life so much easier.
- Rig only for what you need.
- Test before moving to the next step.
- Don't be afraid to break rules, but also follow the rules when possible.

Part 4.1.F Painting Weights

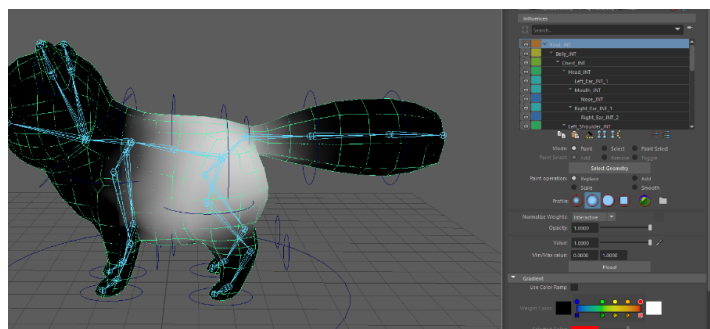
Now that everything is set up it's time to attach the mesh to the rig and paint the weights.



Select all joints, select the mesh to influence and go to Skin > Bind Skin



Select the mesh and then go to Skin > Paint Skin Weights



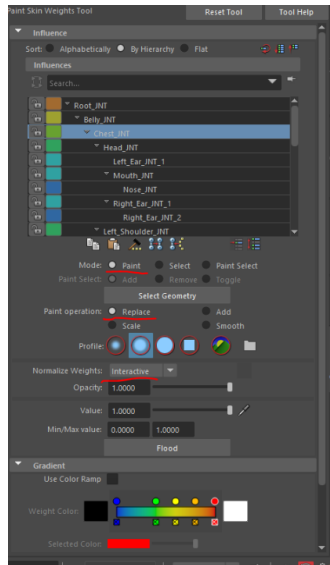
When selecting the joint inside the paint weights tool the mesh will go black and white. Black means no influence of the mesh from that joint, and white means absolute influence.

Black = 0 influence
White = 1 influence

Grey is a value between 0-1. The more white, the closer to 1.

Use Mode : Paint

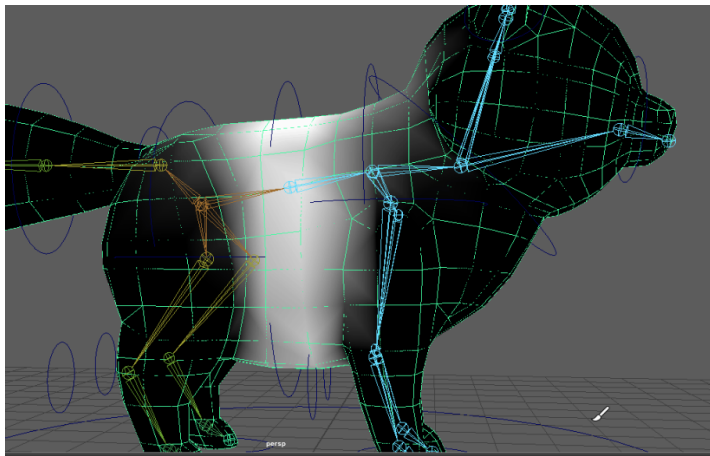
Paint Operation: Replace



Never use add or scale in paint operations.

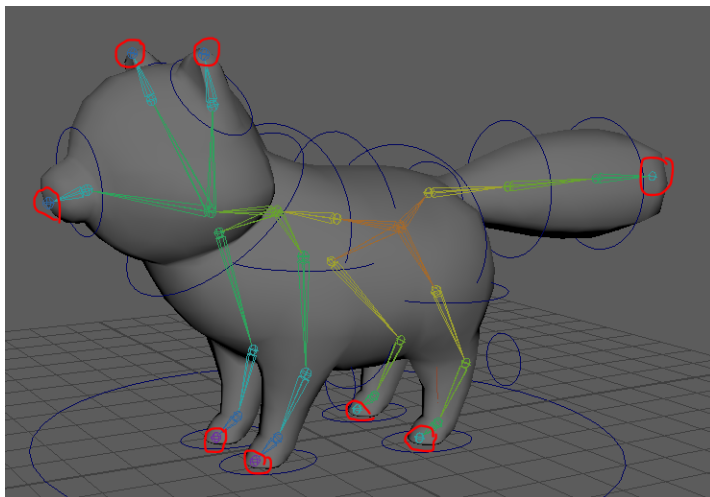
Normalize Weights : Interactive

Opacity and Value can be changed.



Example of painting weights, hold down Shift and paint to smooth.

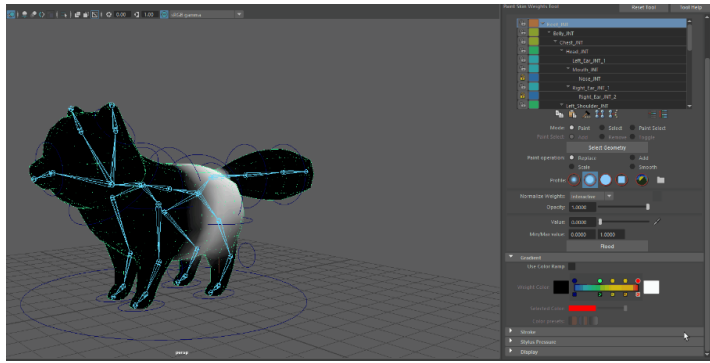
Left mouse button to paint.



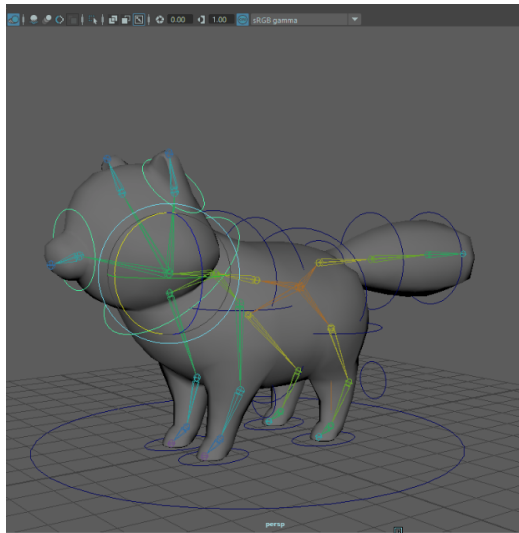
Joints at the end of the chain typically do not have influence on them. There should be an influence of 0 on these joints.

Inside the Paint Skin Weights tool there is a button labeled "Flood"

The end result should look something like this.



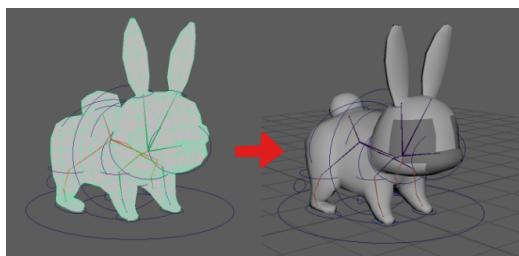
Part 4.1.G Testing Rig



After the painted weights are applied and refined, the rig needs to be tested. The best way to do this is to move the rig around. Bend, rotate, translate each control to see if its deforming in the way the animator wants.

Most of the time the painted weights will need to be adjusted. This process is back and forth. Average is three times back and forth to get it in a good state.

PART 4.2 ATTACHING NEW MODEL TO EXISTING RIG

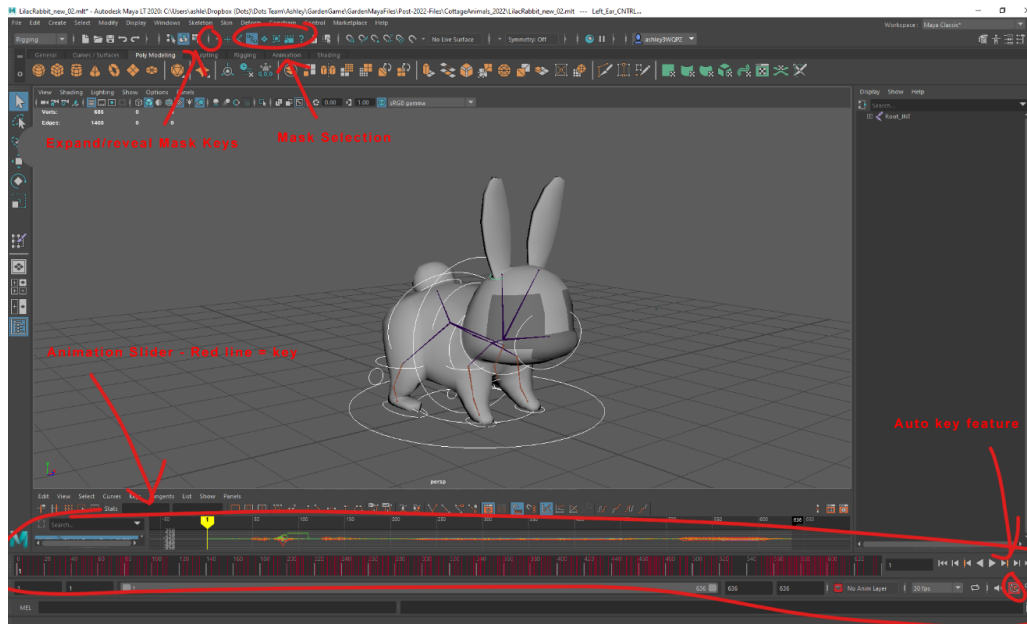


How to attach new models to existing animal rigs inside of garden. Whether this be an update to the specific model or re-using a rig for a new animal.

Part 4.2.A : Prep Scene/File for attaching Model to Existing Rig

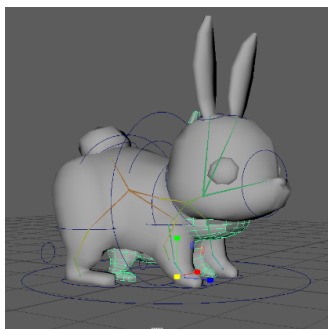
1. Select the appropriate existing rig to attach new model or differing model to. Open that file. In this example the new bunny is attached to the bunny rig file.
2. Save as a new file, name appropriately.
3. Take screenshots of painted weights. Go to the Rigging mode, then at the top go to Skin > Paint Skin weights. (This is optional, is helpful if you need a guide)
4. Put scene/workspace into Rigging Mode.

-



- a. Make sure the final frame is keyed and then create a new key after that.
 - b. Select all of the curves on the rig. The curves are the circles around the character that are moved to animate. For a quick selection turn off all selection masks except the curve feature. To do this find the mask selection buttons at the top of the screen. To create a key select the preferred frame on in the slider, and then hit S. This process is the same to ensure everything is keyed on that last frame. This is done incase there is a need to move around the rig or need to zero it out to paint weights.
9. Name old mesh with OLD at the end inside the scene.
 10. Ok once the file has been prepped, it's time to import the new model.

Part 4.2.B : Import New model for Existing rig



drag in new model into scene

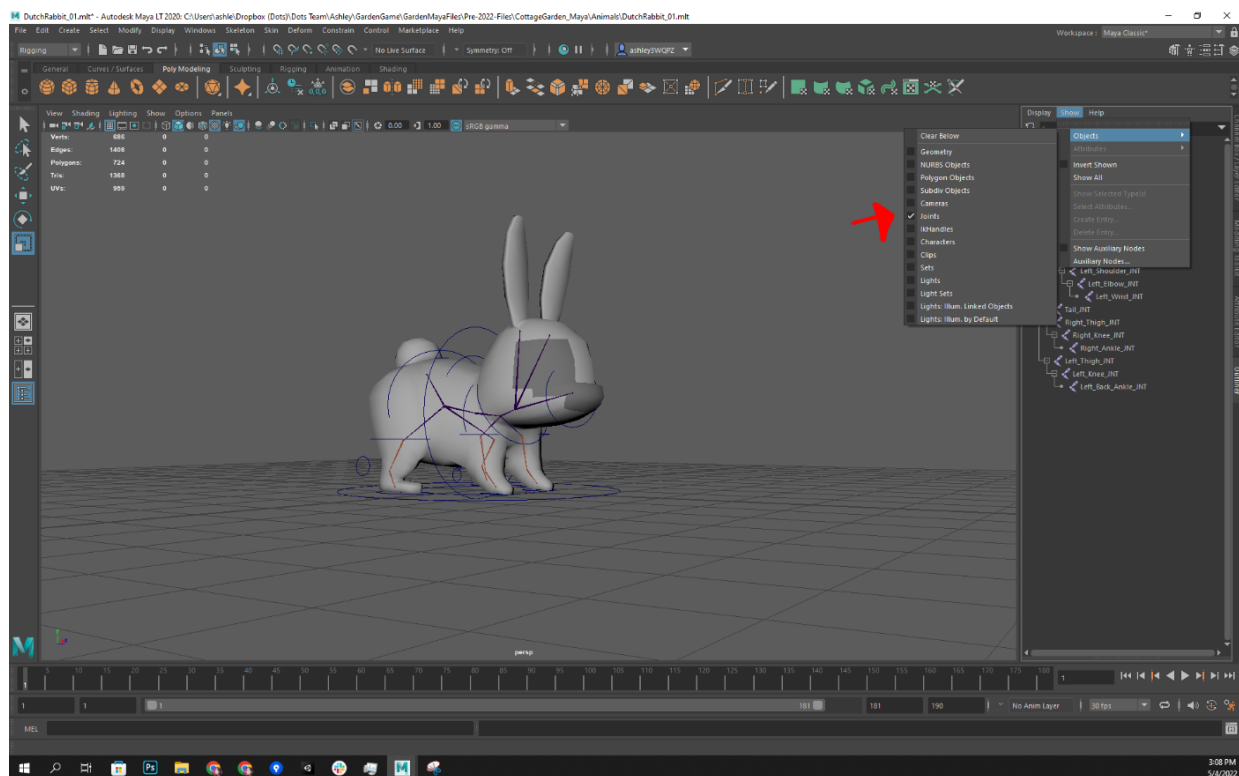
Scale new model to fit the size of the old model.

Freeze transformations on new model and delete history.

1. Unbind skin of old model from the rig.
 - a. Skin > Unbind Skin
 - b. Hide old mesh with Shift + H ; or go to outliner to hide
2. Prep new model to attach to rig
 - a. Make sure the Entire Model has the right materials assigned per UVS for face-plates.
 - i. Select whole model > right click on model > Assign New Material or Assign Existing (Body)
 - ii. Select UV for Eyes (right click on model go to UV) > Assign New Material or Assign Existing (Eyes)
 - iii. Select UV for Mouth (right click on model go to UV) > Assign New Material or Assign Existing (Mouth)
 - b. Modify > Freeze Transforms
 - c. Edit > Delete by > Delete non-deformer history

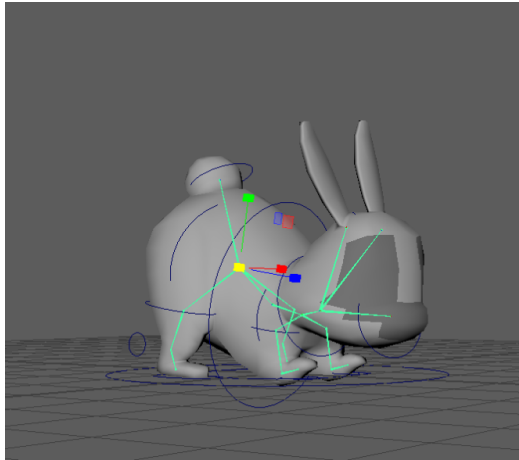
Part 4.2.C : Attaching Model to Existing Rig

Attach new model to rig.



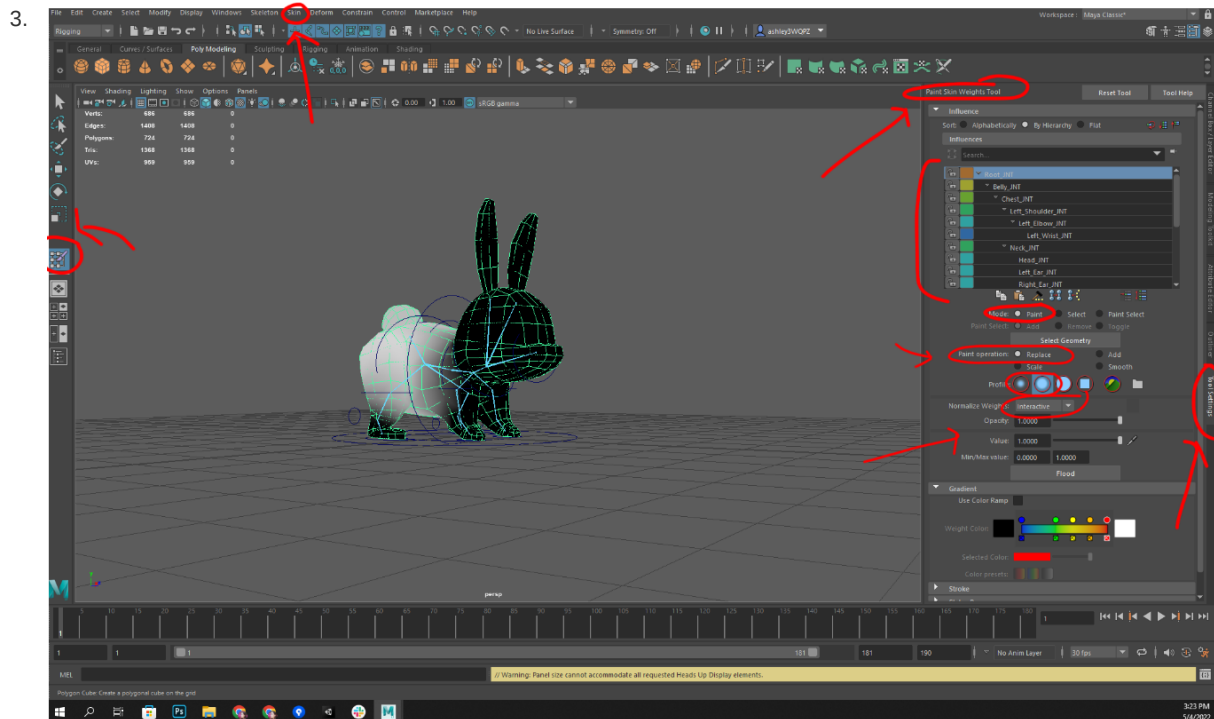
1. to attach model, first select all joints and then select the model. To do this easily, go to the outliner, and go to object and turn everything off except joints. Now all that will show up in the outliner is the joints. Shift select the top of the chain and it will collapse fully. Select every joint and then select the mesh.
2. go to Skin > Bind Skin. (at the top of the screen if in the rigging mode) or hit/hold space and find Skin, and hover over to find Bind Skin.
3. Now the joints should turn Green. To test that the Mesh is attached, scrub the animation timeline, but remember what frame the character was at when it was bound (should be the last key on the slider).

Part 4.2.D : Painting Weights on Existing Rig



1. While scrubbing the animation slider there could be weirdness with the mesh. This is because the auto-weight tool isn't good.
2. Weights are important because they indicate how much influence the joint will have on the mesh.

1. To paint weights go to Skin > Paint weights tool (again at the top or hit/hold space and look for skin)
2. A tool pop up should show up, dock that to the right of the screen, or whatever is preferable. This will help not needing to go look for it every time.



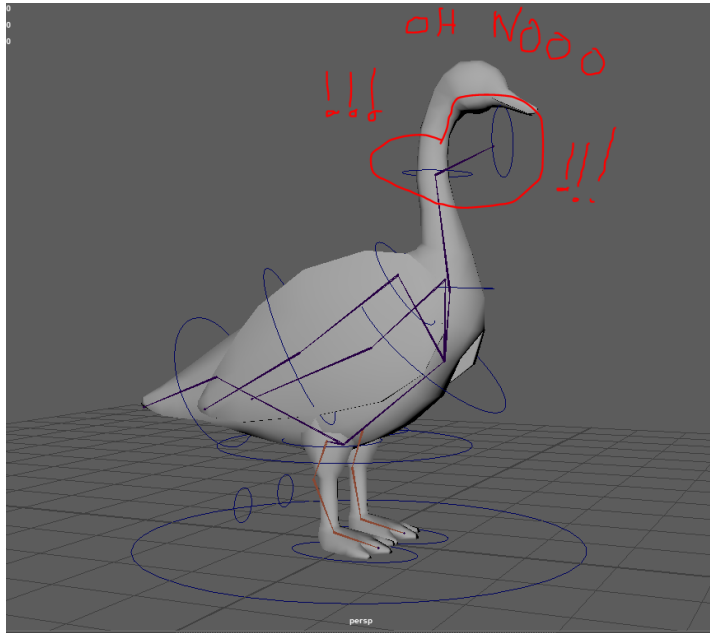
a. Make sure the settings for the paint weights tool is set to :

- i. Paint
- ii. Replace
- iii. Interactive
- iv. and use either soft round, to hard round
- v. play around with opacity and value.
 1. 0 = Black (no influence) , 1 = White (100% influence)
 2. Select vertexes and use FLOOD tool to quickly fill influences on mesh, useful for blocking out influences or if there is a particular part to be influenced by a set amount.

4. Double check every joint is on that hierarchy list inside the paint weights tool.
5. Paint to match how the old mesh kind of looked, feel free to use screenshots of the older mesh. This part is more about common sense/feeling than a set of rules.
6. However there are SOME rules that should be used:
 - a. If there is no curve on the joint, it's influence is most likely 0
 - i. Examples: End of tail, toes, tips of ears, tips of wings
 - ii. to make sure the tips don't get influenced lock those joints after flooding with influence value 0.
 1. To do this, just hit the little lock on the left of the name of the joint. once its "locked" it will go from grey to yellow
7. Now that's done, scrub the animation and double check the animation is ok, and the model looks ok.
8. When it's done save the file.

Part 2.4.E : Matching rig to Mesh

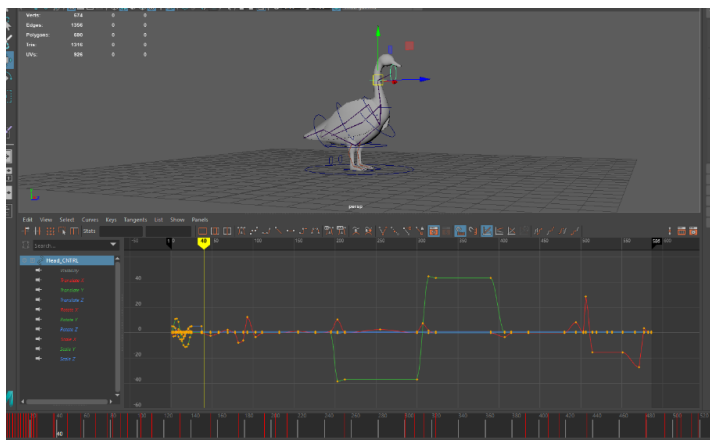
If the mesh does not line up well with the rig, there are a few things one can do. "



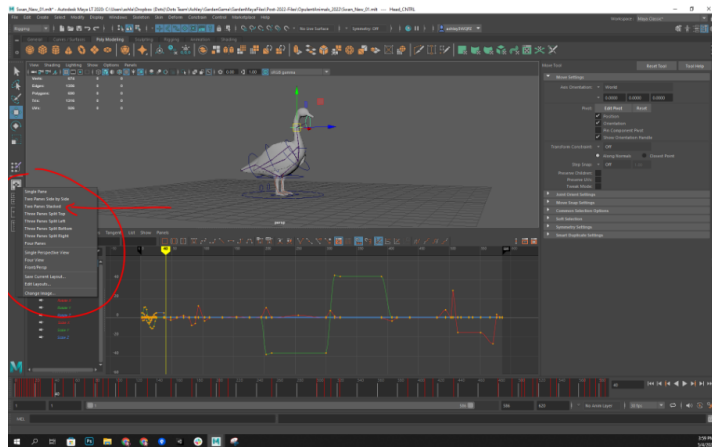
First, re-position curves to match the points on which the curves lay. For this we will use the neck of the goose to explain.

The rig is too short for the neck.

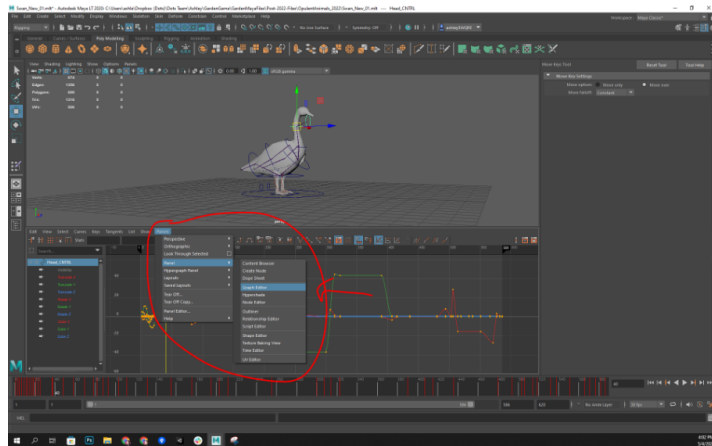
Here is a way to fix this without breaking the animation (this is a destructive workflow, but works fine for Garden needs):



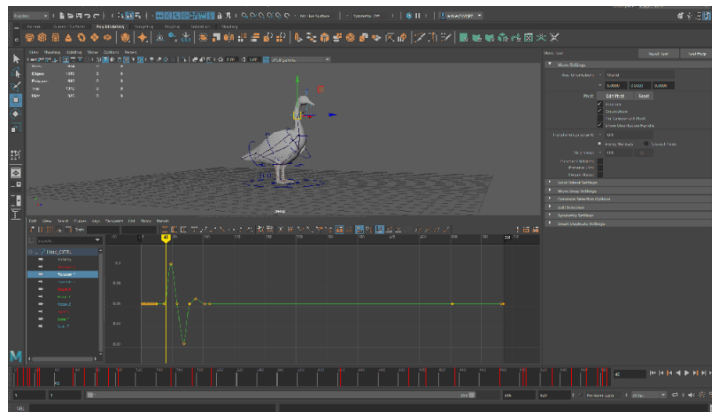
Open Graph editor. To do this, go to the left and select the first grey square with grid, right click and a little dropdown menu should appear. Select Double Pains Stacked.



The graph editor may not display at the bottom split screen, another perspective scene or another orthographic scene may appear. If this is the case, then....



1. Go to that second bottom split screen and go all the way over to Panels.
 - a. Panels > Panel > Graph Editor
2. Now the graph editor should appear (the colorful lines = curves)
3. In order to move the curve DO NOT just move the curve in the top viewport scene.



1. move the curve VIA THE GRAPH EDITOR
2. SELECT THE TRANSLATION OR ROTATION YOU WANT TO MOVE THE CURVE ON
3. THEN HIGHLIGHT THE ENTIRE LINE AND MOVE IT VIA THAT WAY
4. hold the middle mouse button and drag it up and down (may need to hold shift while doing this, esp if picking multiple curves at once)

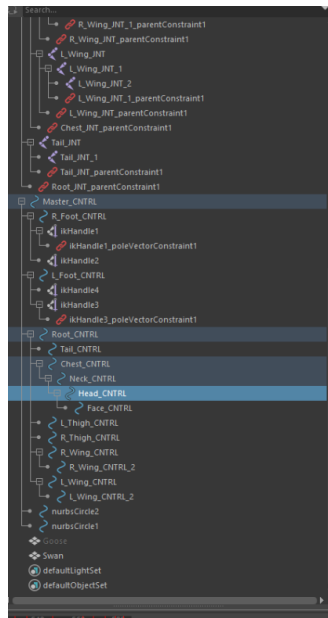
1. This is the **MOST IMPORTANT** thing, make sure to move the **WHOLE CURVE**
2. This will only work if there are **NO IKS**.

3. So what about the things with IKs?

Part 2.4.F : Replacing IK Handles on existing rig

This is the most complicated part of re-attaching models. This should be mitigated during modeling (really think about the existing rig when modeling)

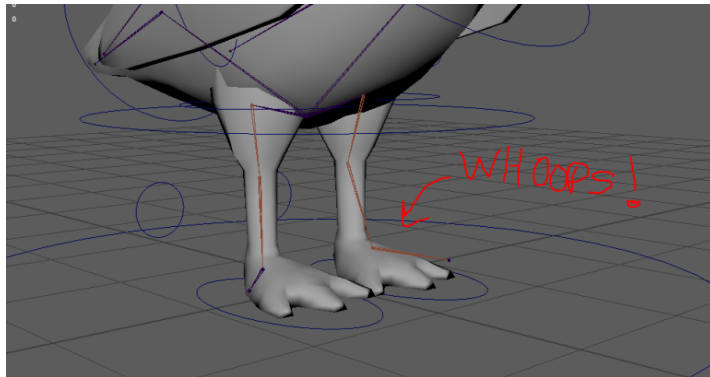
If there is no way around it, then here is how to move the curves with IK on them:



Go to the outliner, Collapse and make everything visible.

Find the IK Handles.

Delete all IK Handles. For 2 legged creatures there will be 4, for 4 legged there will be 8.

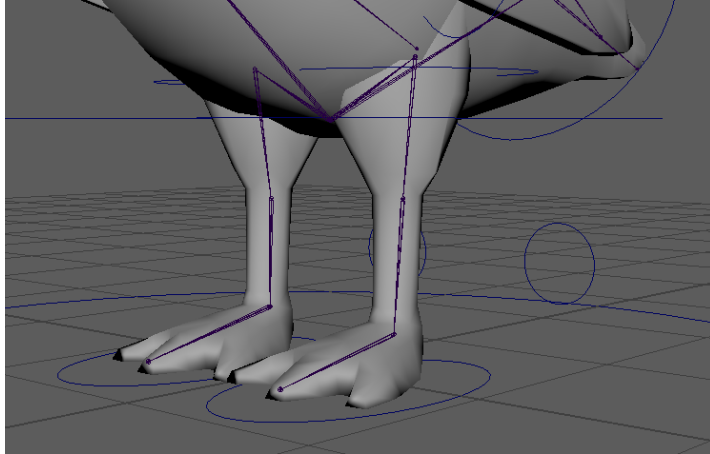


1. Remove all parents on legs by looking for the corresponding leg parent. Parents are the red link things in the outliner.

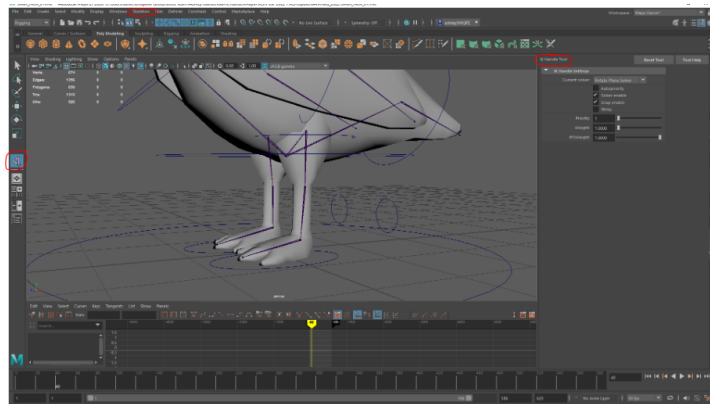
2. The joints may move out of place. This is ok, we can reposition them.

3. To reposition them, just select the joint you want to move and move it. Avoid rotating joints (this makes the pivots all weird).

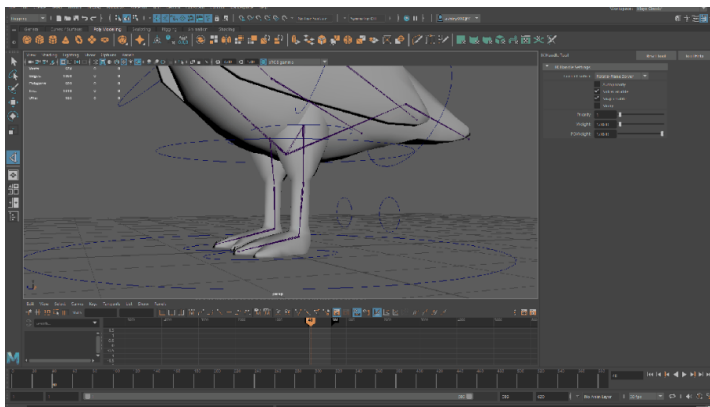
1. Move curves and joints to appropriate spot. Remember, when moving a curve select the whole curve in the graph editor for the translation or rotation to move it. In this case it's the



As you can see the thigh curves have been brought up, our joints are sitting in good spot, and everything is ready to re-apply IK to.

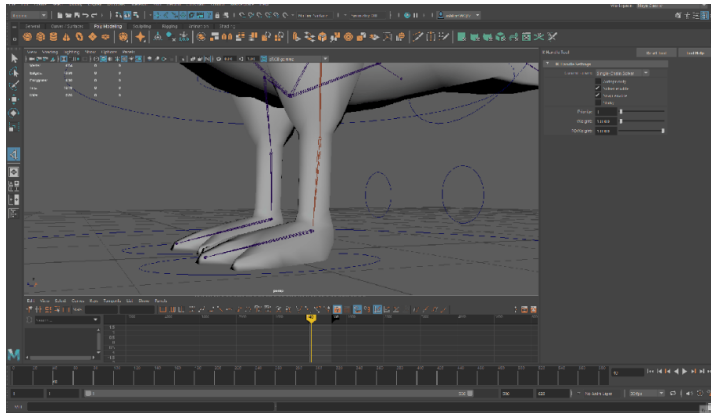


- thighs.
2. Once re-positioned, select ONLY the LEG joints and free transformations and delete non-transformer history.
3. should look like this.

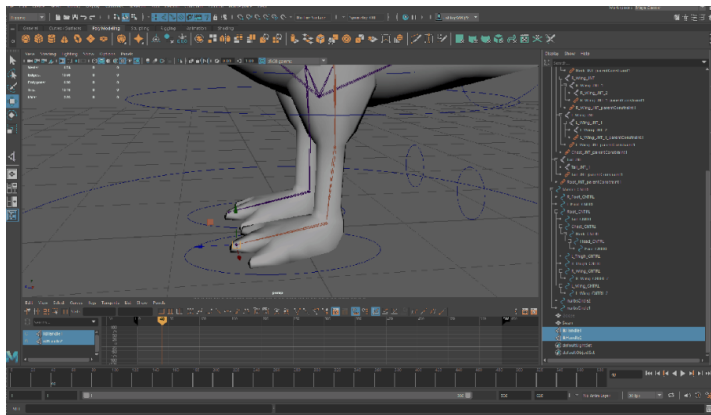


1. To reapply IK go to the top selection or hold space, and find the skeleton tab, click/hover over that to find the tool create IK Handle

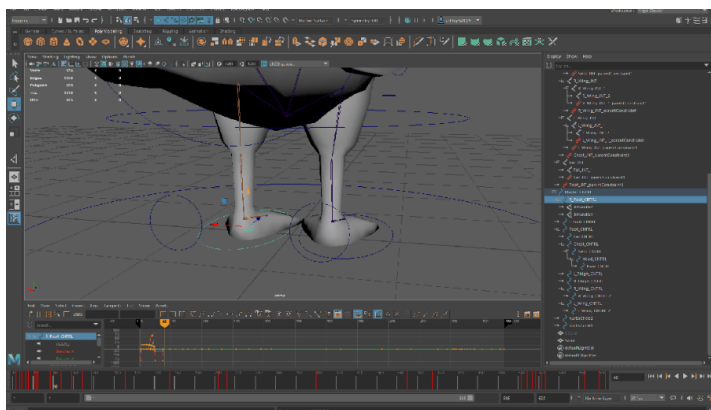
1. To reapply IK go to the top selection or hold space, and find the skeleton tab, click/hover over that to find the tool create IK Handle
2. For the first IK use Rotate Plane Solvers. Double check that Rotate Plane Solver is selected in the tool settings for the IK tool.
3. Select Top of joint, and then ankle joint. It should turn brown(or a different color like pink). Double check its there by viewing it in the outliner. It should not be nested under anything.



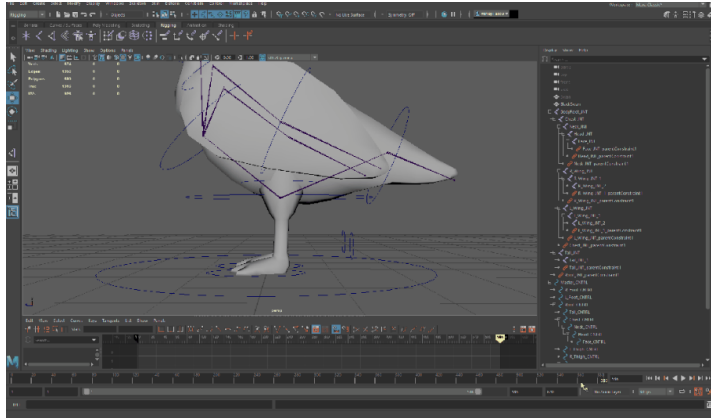
1. Now make another IK but this time it needs to be a single plane solver. This will connect from the ankle to the toe joint. Double check its there by viewing it in the outliner. It should not be nested under anything.
2. IK is set up for one leg. Time to attach, so its functioning properly
3. Drag both IKs (*rename to R_LegIK, R_FootIK*) underneath foot control in outliner.



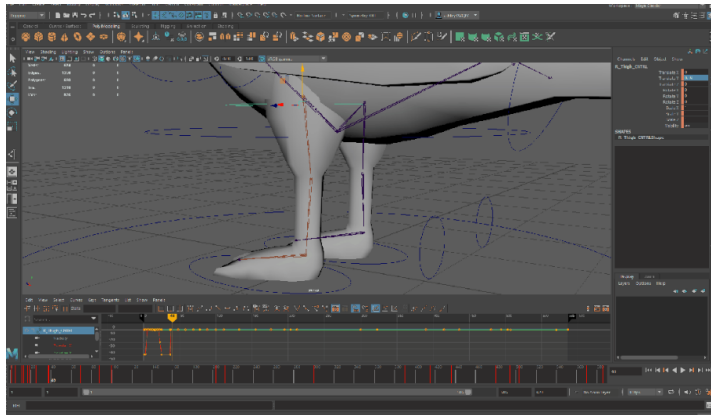
1. Test it, and notice the knee is bending really far in. The knee should just bend straight back, re-do this process again after moving the joints so it's not so bent "IN".



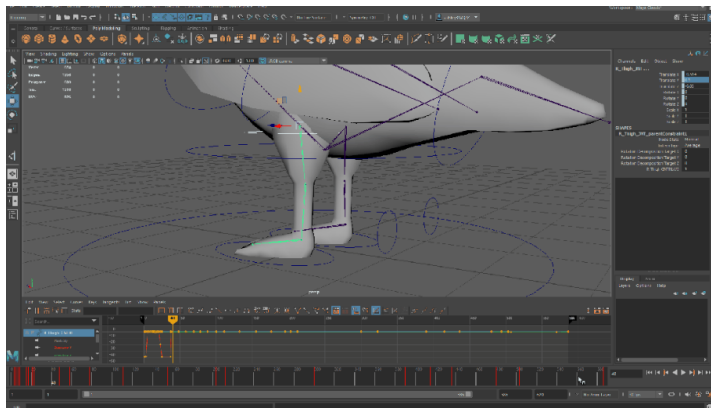
1. It's properly working by slightly shifting the joint. This is an acceptable bend for the leg. Note some legs do have knees that bend the exact opposite of this one, so be careful about that and inform of how the old animal's rig used to bend.
2. If for some reason this doesn't work, delete all leg joints, and re-build them. To do this select all leg joints in outliner, hit delete. Then go into orthographic side mode on the top screen. Then go to create > Joint. Start to build joints where they should be.



1. In perspective mode the new joints created are in the exact middle, which isn't correct. Move them over and position them into place. Select the chain of joints just created in the outliner, drag them underneath the root joint.
2. After the one set of joints is in place, and nested under root joint, check for any rotations. Freeze rotations if so. Then duplicate the chain of leg joints and position the second set on the other leg.

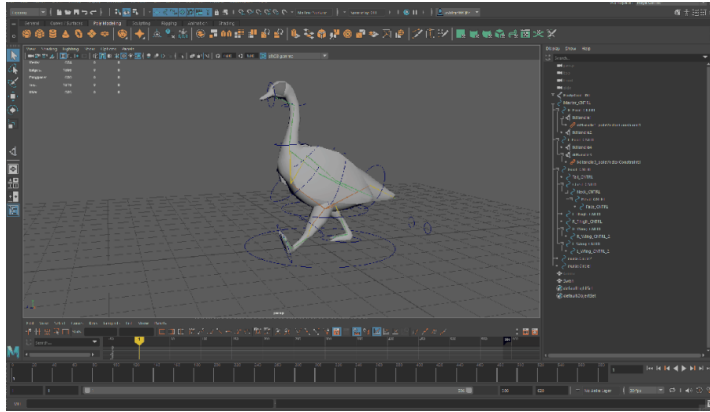


1. Attach IKs (follow earlier steps).
2. Great! Set up the parent to the thigh and pole vector on this leg.
3. To set up the parent, select the Thigh/shoulder control, and then the Thigh/shoulder joint. Go to Constrain > Parent. That's it. This is the only parent constraint PER LEG needed.



1. For the Pole Vector select the Knee Curve, and then Leg IK (The rotate plane Solver IK set up first). **DO NOT SELECT THE KNEE JOINT.**
2. Then go to Constrain > Pole Vector. moving the curve will move the knee.
3. And now do that on the other leg(s) and the legs should be good to go!

1. Double check that after all



this is set up, the animation still plays properly by scrubbing the animation slider. Do this before or after the skin is bound to the rig. Make sure to go back to the working frame, which should be at the end of the timeline.

2. Once legs are done, **follow steps 3 and 4 ...** then **TEST IT AND DONE!** Save file as a new version.

PART 5: ANIMATION

PART 5.1: REQUIRED ANIMATIONS FOR ANIMALS:

Each character requires the following:

Idle 1 - this Idle will be the breathing default standing idle. It's the most used.

Idle 2 - this idle acts like an action. The character is doing something or interacting with something in the space its in. Whether that be it eating something off the ground, scratching it's head, etc.

Idle 3 (optional but ideal) - Another action but one that is more interesting. This will be the most rare animation of the three idles.

Move - This animation is the walk cycle of the animal. It allows for the animal to move around the garden.

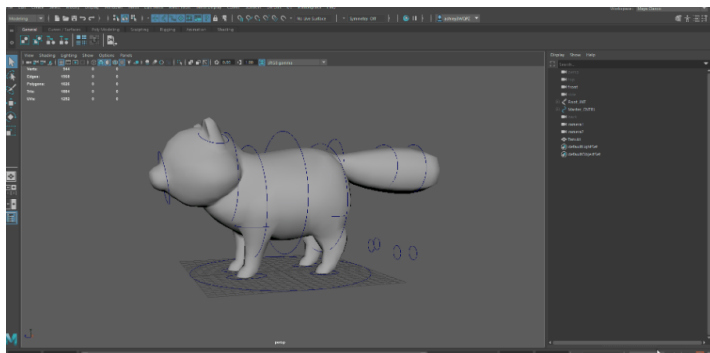
Tap 1 - Animation that plays when the user taps on the animal. (*tap animations are also used when the character is happy after the user completing a task.*)

Tap 2 (optional but ideal) - Animation that plays when the user taps on the animal.

PART 5.2 : PREPPING FOR ANIMATION

Animation is only used in garden for the animals and insects. In order to start animating, open the file that needs animation.

Confirm that all parts of the scene are correct before animating. Check materials assigned, check naming, check rig to make sure it works.



Turn off everything in the object selection mask except the curves.

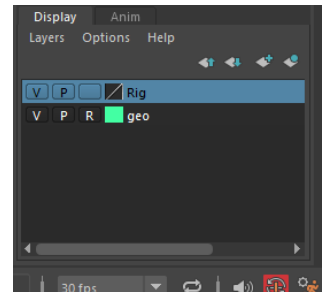
Can also create a layer and place the curves on a layer inside the display section of the channel box.

use the icon with the plane and plus to create new layer. Right click on layer to add selected objects and rename.

However the curves are isolated is up to the artist. Either works. For Garden the object selection masking was used so only the curves could be selected in the scene.

Other Optional things can be done in this stage :

- Setting up animation layers
- Setting up references for animation
- deciding rough amount of frames per animation



PART 5.3 ANIMATING THE CHARACTERS

After reference is found, it is time to start animating.

Animation is a complicated skill that takes a lot of time to master and there isn't any one guide that will create immediate success. Animation should be done by someone who has studied or practiced animation for a while. It's similar to drawing where, anyone can draw, but it takes time and practice to become good.

The basics can be found here:

[12 principles of Animation](#)

[Become a PRO at Animation in Blender](#)

[Animation for Beginners Blender](#)

[Intro to Maya : Animation Basics](#)

More advanced Tips:

[The Secret Animation workflow](#)

[The 7 Workflows of Professional Animators](#)

[Animate a Dog Walk Cycle \(\\$\\$\)](#)

[Cat Walk Cycle Tutorial](#)

Part 5.3.A Reference Footage for Animating Characters

If possible, use individually created reference. If that reference isn't available stick to stock footage. Last resort use live action YouTube or other source. Never Plagiarize another animator/artists work.

For general animation tips refer to the office Animator's Survival Handbook.

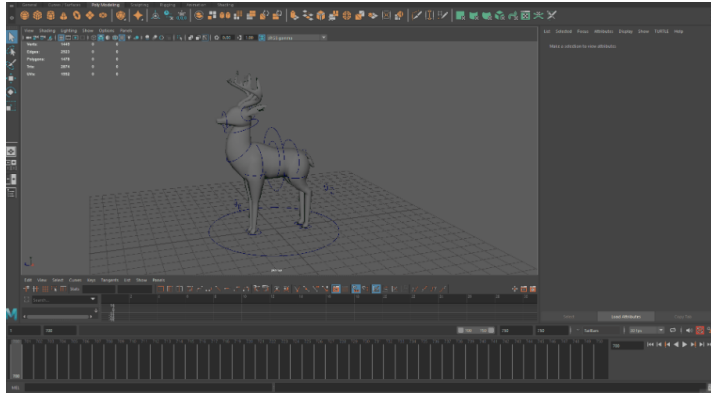
[Take Your Animation to the Next Level and Create Great Reference Guide](#)

Part 5.3.B Animating Characters

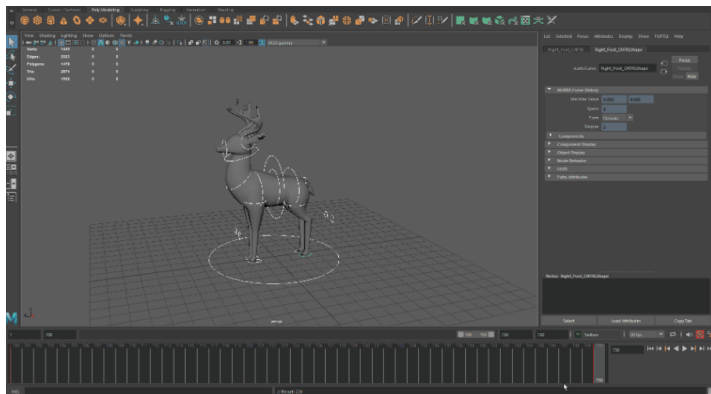
Determine which animation is being worked on. Decide on an approximate amount of frames. Typically start with Idle 1 animation.

Select all Curves (there are tools and scripts to do this but just drag click for simplicity reasons).

Set a key at the start and finish.

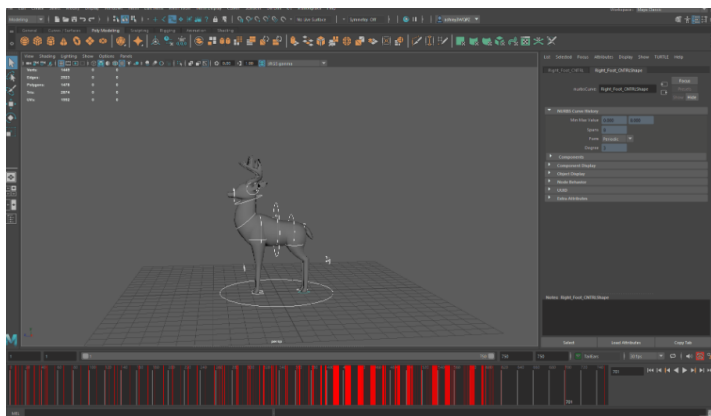


These should both be the default pose that is selected for Idle 1 animation.



Pose character and set the corresponding frame for that animation.

Keep doing that until the animation is complete. Clean up animation with graph editor.



All of the animations per character should be inside one file. (*this is garden tails specific and not the universal way to handle animations.*)

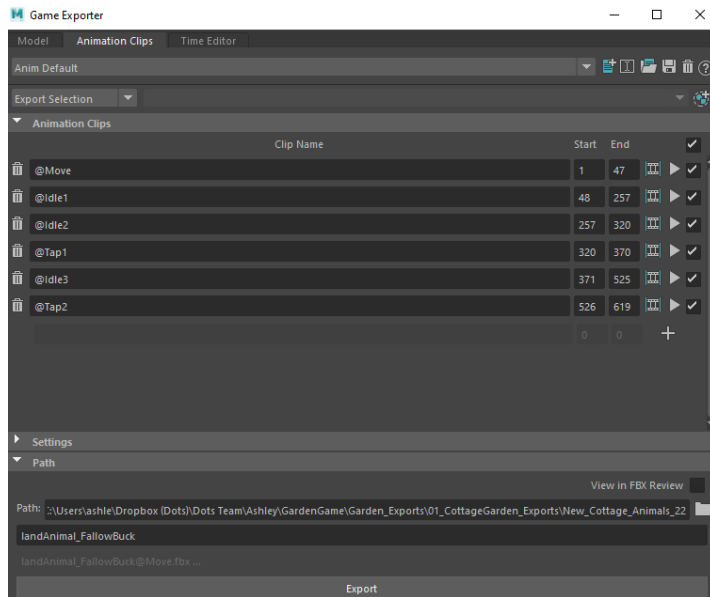
Go to file > Game Exporter

Set up the frames in the animation clips tab.

Name each animation with a @ before the name of the animation

If there is more than one of that type of animation add a 1, 2, etc

Idle 1 should always be the idle



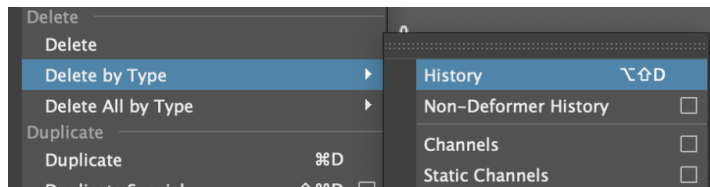
that is the least interesting and is just the character standing and breathing.

Once the animations are done, it is time to export the character. Use the Game Exporter and follow Part 6.

PART 6: EXPORT FOR UNITY

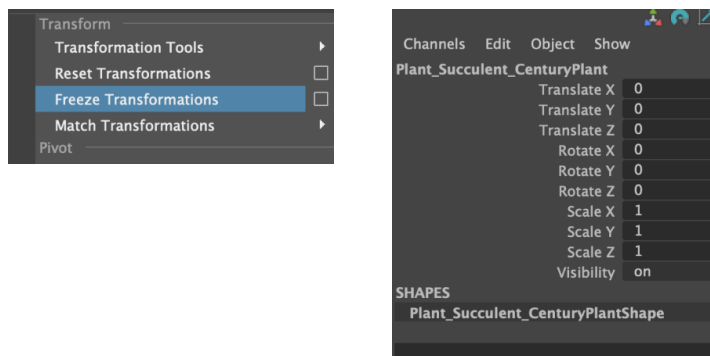
6.1. EXPORT PLANTS AND PROPS

6.1.A: Delete History



Make sure that there's no history that interferes with export. For **animated** files make sure to select **Non-Deformer History** instead of History.

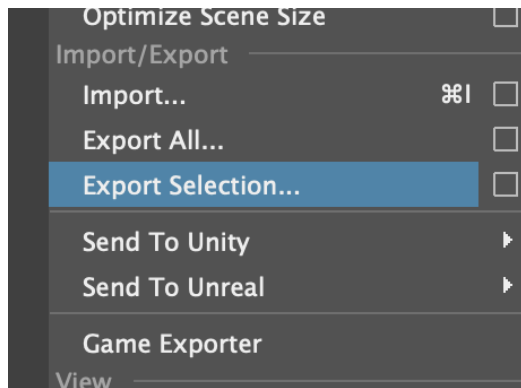
6.1.B: Freeze Transformations



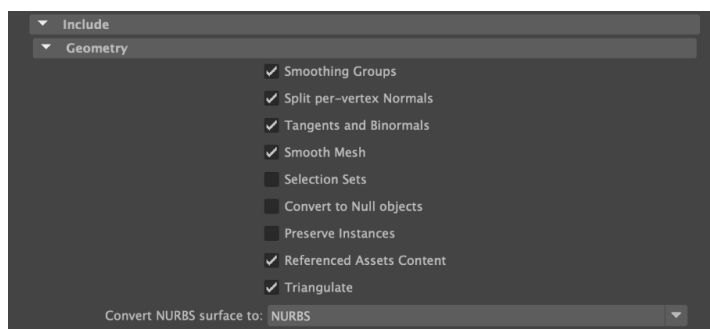
The attributes panel should have all 0s for translate and rotate and 1s for scale. Do **NOT** freeze transformations on **animated** files.

6.1.C: Export (**NOT** on **animated** files)

Go to file and export selection. For **animated** Files **skip** step 6.1.C-6.1.E.

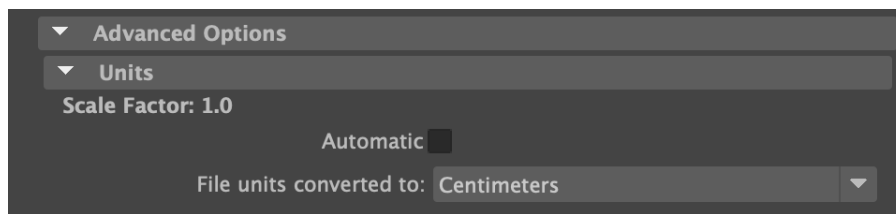


6.1.D: Geometry Options



Turn on smoothing groups, split per-vertex Normals, tangents and binormals, smooth mesh, and triangulate.

6.1.E Units



Turn off automatic and set the file units to centimeters.

6.1.F Naming Plants/Props: Export

Plants should be named as following :

If the plant is an unlockable: Plant#Dynamic_PlantName

If plant is NOT unlockable and always in scene: Plant#Static_PlantName

Props should be named as following:

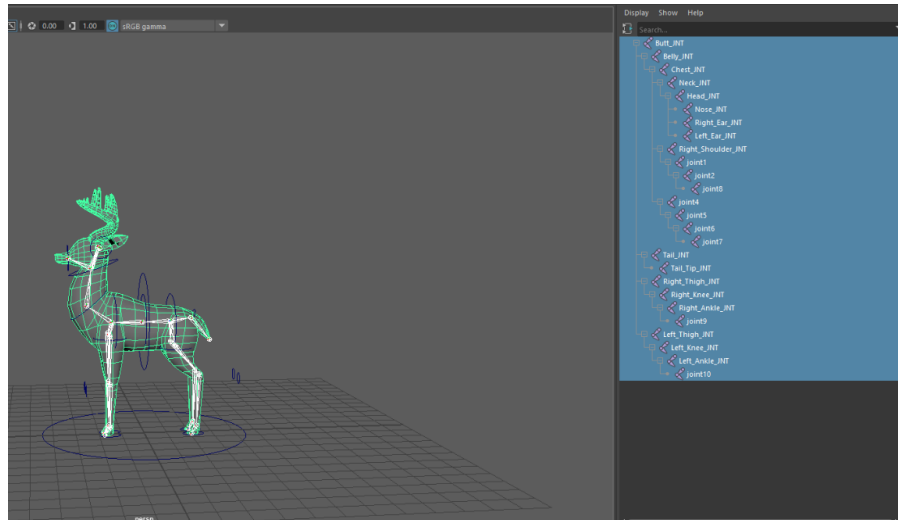
Prop_Propname

6.2 EXPORT ANIMALS / ANIMATED ASSETS

Exporting Animals requires two exports. One is for the model with the bones. The second is the bones and animations.

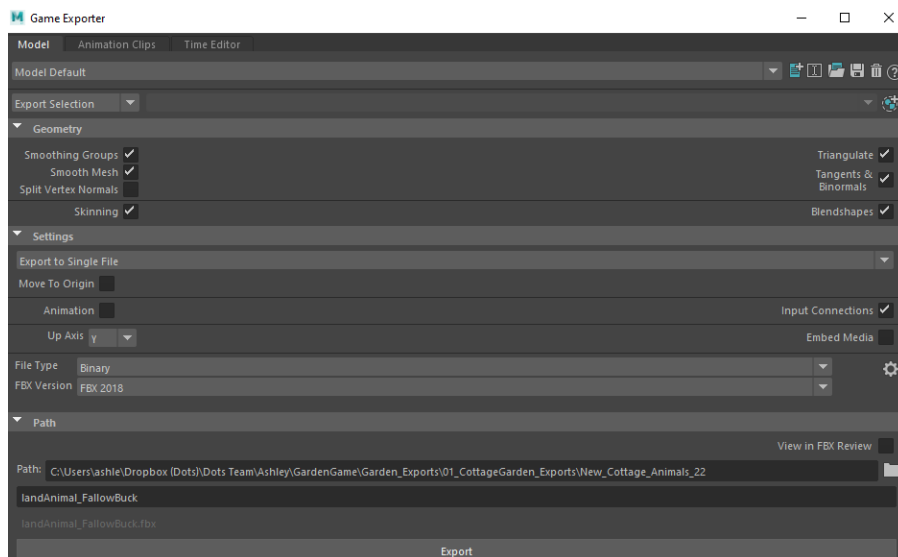
6.2.A Export Animals Model/Bones

First export the model/bones.



Select the bones and then the mesh.

To export animals go to File > Game Exporter.



The game exporter window will appear.

Smoothing Groups, Smooth Mesh, Skinning, Triangulate, Tangents and Binormals, blendshapes and Input connections should be selected in Model tab.

6.2.B Naming the Character Model

For Gardens Before Zen Garden... Name the character as the following:

Land > landAnimal_AnimalName
Flying > flyingAnimal_AnimalName
Butterfly > flyingAnimal_AnimalName

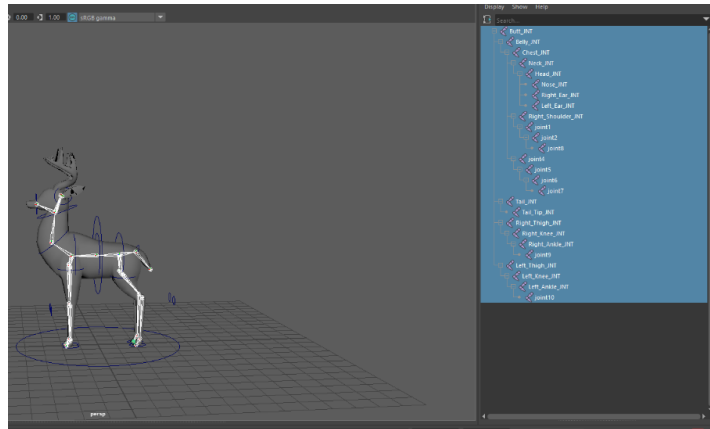
For Gardens Past Zen Garden ... Name the character as following:

Land > Animal#Land_AnimalName
Flying > Animal#Flying_AnimalName
Butterfly > Animal#Butterfly_AnimalName

The model tab will be for the character model.

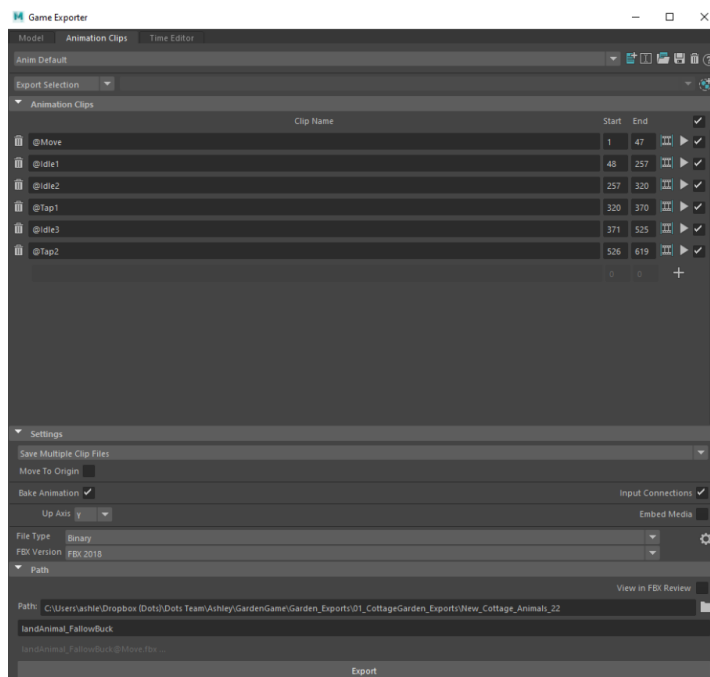
After exporting the Model it's time to export the Animations.

6.2.C Exporting Animations



The first thing to do is only select the joints of the character.

To export the animation part of the character, select the “Animation Clips” tab inside the Game Exporter.



Make sure to select Export Selection.

Label each animation clip with @ and then the animation name. Add start and end frame.

For settings, select save multiple clip files, and have Bake animation/ Input Connection selected.

File type should be FBX.

6.2.D Naming the Character Animations

For Gardens Before Zen Garden... Name the character animation as the following:

Land > landAnimal_AnimalName
Flying > flyingAnimal_AnimalName
Butterfly > flyingAnimal_AnimalName

For gardens Past Zen Garden ... Name the character animation as following:

Land > Animal#Land_AnimalName
Flying > Animal#Flying_AnimalName
Butterfly > Animal#Butterfly_AnimalName

6.2.E Animal Exporting Results

Name	Date modified	Type
 landAnimal_FallowBuck	7/22/2022 6:14 PM	3D Object
 landAnimal_FallowBuck@Idle1	7/22/2022 6:15 PM	3D Object
 landAnimal_FallowBuck@Idle2	7/22/2022 6:15 PM	3D Object
 landAnimal_FallowBuck@Idle3	7/22/2022 6:15 PM	3D Object
 landAnimal_FallowBuck@Move	7/22/2022 6:15 PM	3D Object
 landAnimal_FallowBuck@Tap1	7/22/2022 6:15 PM	3D Object
 landAnimal_FallowBuck@Tap2	7/22/2022 6:15 PM	3D Object

There will be one FBX that is just the model and the joints.

There will be multiple FBX of just the joints with animations, those are the animation clips.

After exporting everything it is time to start importing into unity.

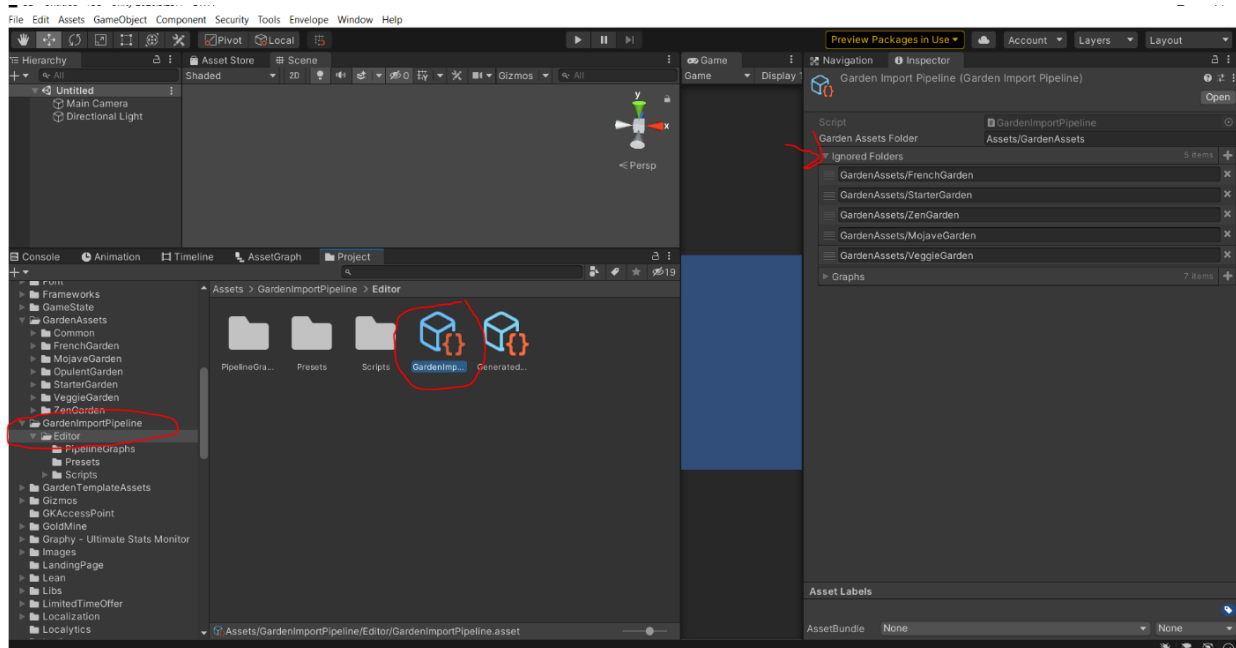
PART 7: IMPORT TO UNITY

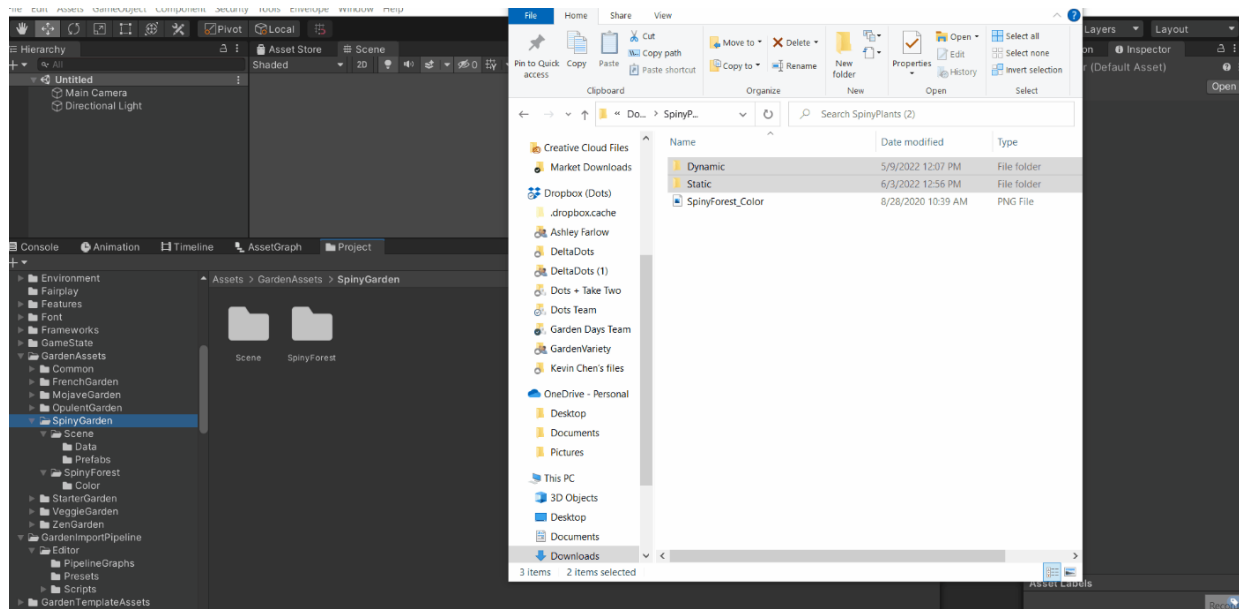
7.1 UNDERSTANDING THE IMPORTER TOOL

Garden has an importer tool that helps the artist by setting everything up. It creates prefabs, configs, etc. This is beneficial but also has it's flaws. It's important to understand this tool so if the import doesn't work the way intended or if something isn't importing the user has a better time understanding.

[Garden Asset Pipeline](#) < Take a look into this document to learn more about the importer.

The importer tool only works for the gardens past Zen garden. This is because the other gardens are on the list of Ignored Folders. To turn the importer off, add the garden folder into this list. To make the importer work on that garden, remove the garden from the ignored folders list. Find the importer tool inside GardenImportPipeline > Editor > Garden Import Pipeline Config.





7.1.A Pros and Cons of Importer Tool

Pros of the Importer:

- Drag and drop, Easy access to auto setting things up

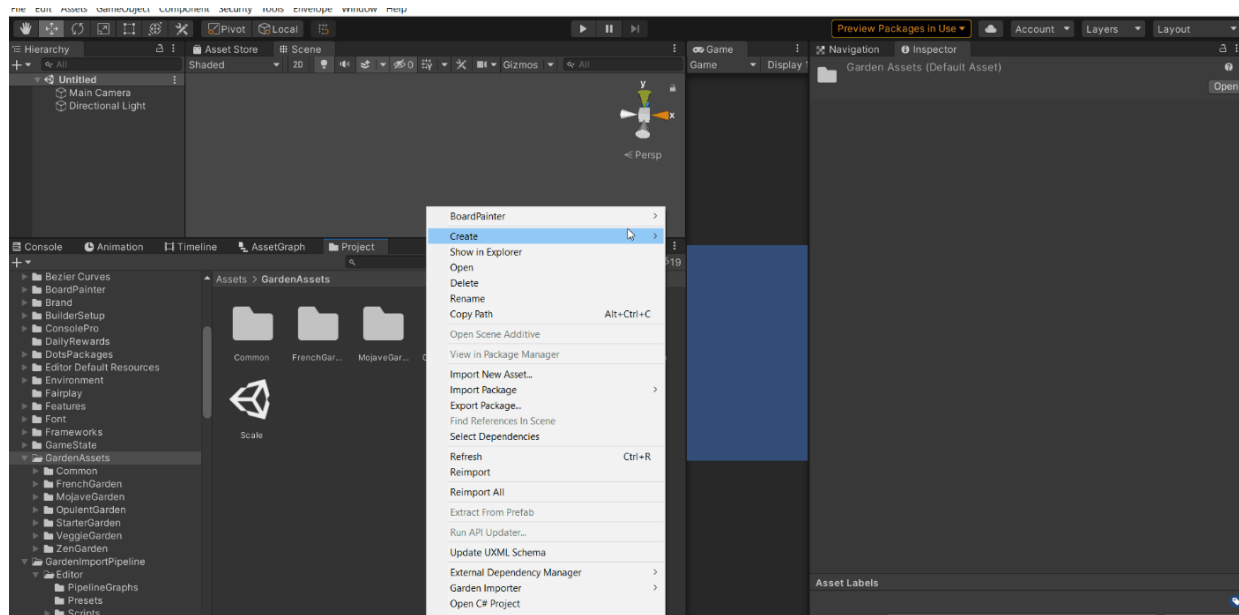
Cons of Importer:

- Uses a naming structure that doesn't match the naming capabilities of Maya (blender does allow the unusual characters)
- Very rigid, one wrong spelling or set up means the importer tool won't work properly
- Hard to change
- Must turn it off to import assets that don't have a structure set up in the importer or assets that need to be named differently.
- Creates a million folders and nests things in hard to access way.
- Folders created are capitalized (Animal instead of animals, Plant instead of plants, flying instead of Flying) which causes issues with the configs.
- Only works on assets past Zen garden.

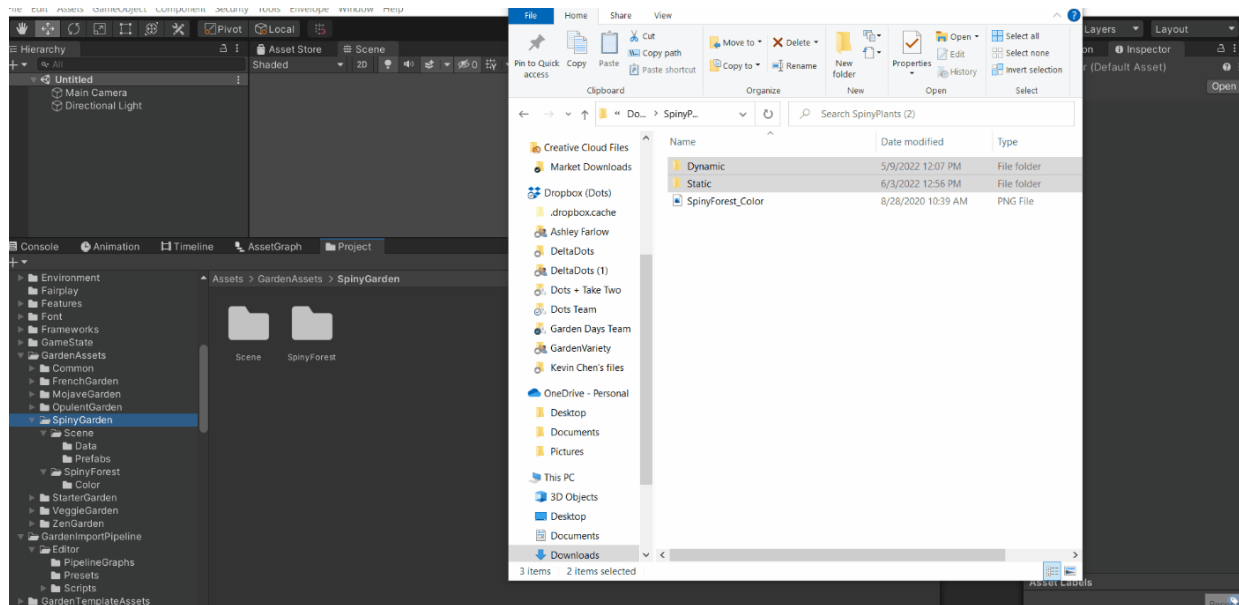
7.2 HOW TO USE THE IMPORTER TOOL

Using the importer tool is easy. Simply drag and drop the set of assets into the project folders inside Unity. Do not do this in file explorer (outside of unity) the importer won't work.

First, create a folder for the respective garden inside Garden Assets Folder



Drag and drop in the assets. It will auto create folders and set up a folder for each asset, as well as a config. If its the first time importing in the garden assets it will also create a scene folder with all the basic items for the garden.

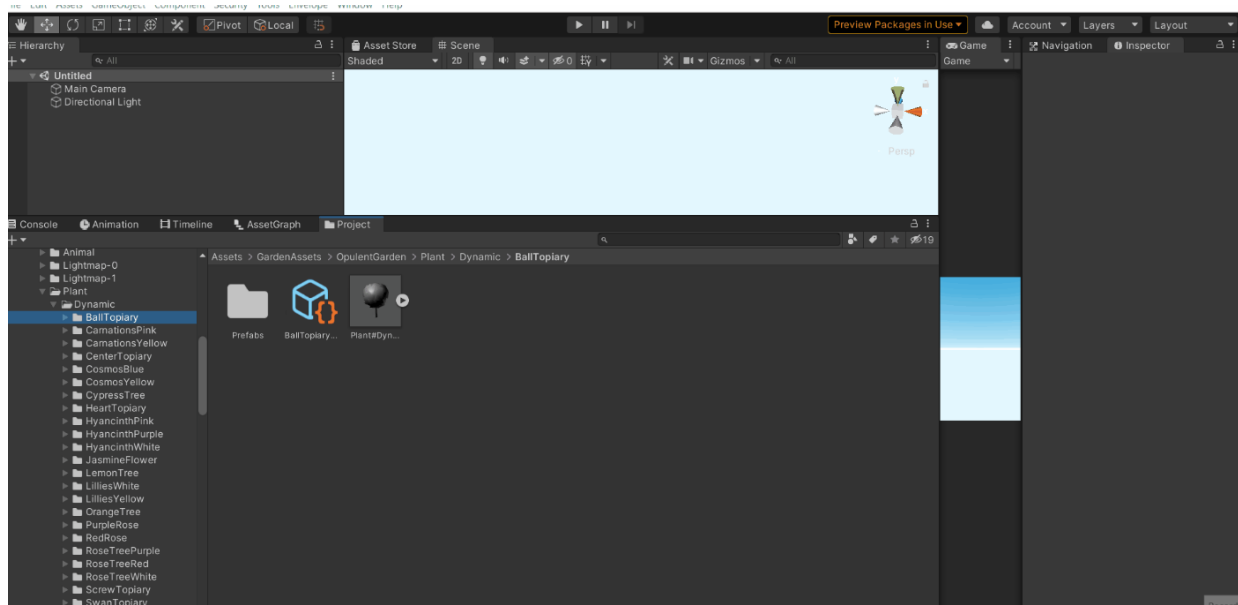


It does create folders for everything, and in some cases random empty folders are created. If that folder is not intended it is ok to delete. In this case ^ the empty dynamic and static folders are fine to delete.

7.3 IMPORTING PLANTS/ PROPS

7.3.A Automatic Importer Tool Importation

To import the plants and props, pull all of the plant assets and textures from the location of where the files are and drag them into the corresponding garden folder.



The plant folders should look like this. The assets should auto populate into a Plant folder and each asset should create its own folder. Four prefabs, config and the fbx should all be in that folder. It may take a minute or two to load the assets into the scene. Dynamic (unlockable plants) and Static (always in garden) folders will be created. Props will be put inside a Prop folder.

The UI prefabs may appear empty, this is ok. The material is meant to be viewing in UI.

The prefab that will be used to place inside the garden will be the Plant_Garden prefab.

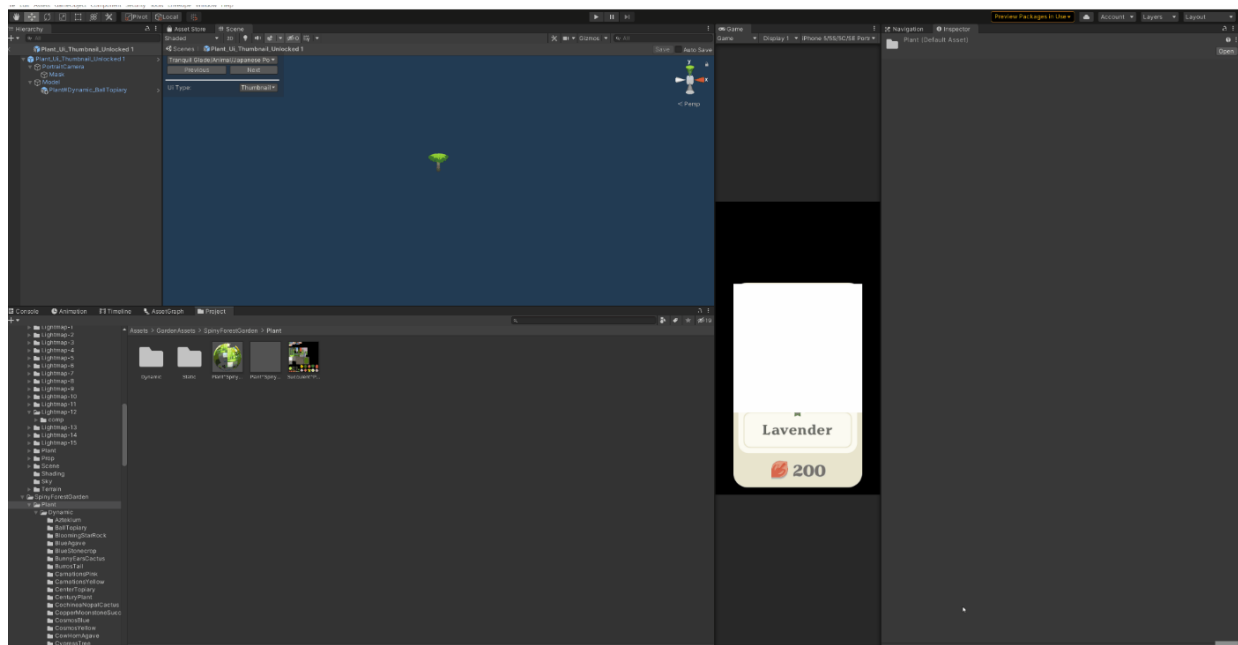
Double check that everything imported properly and the following are all displaying.

7.3.B Manual Import and Prefab Set Up for Plants

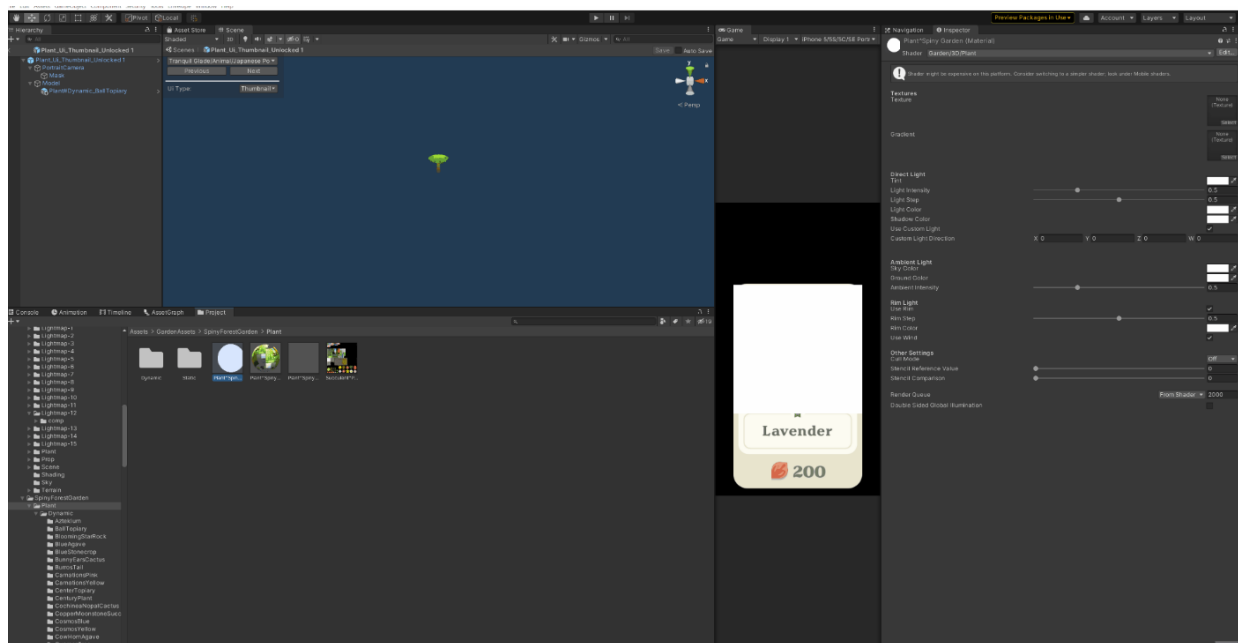
If the importer is not properly functioning (at the time of the document it was broken in apple arcade branch), follow the steps below:

Import in the plant assets. Create two materials for the plants. One material will be for the plant and it displaying inside the gardens, and the other will be for the Ui so the plants display in the catalog.

In the desired folder (can create a materials folder or have this live inside the garden's plant folder) right click and chose Create > Material. A default Unity material will appear.

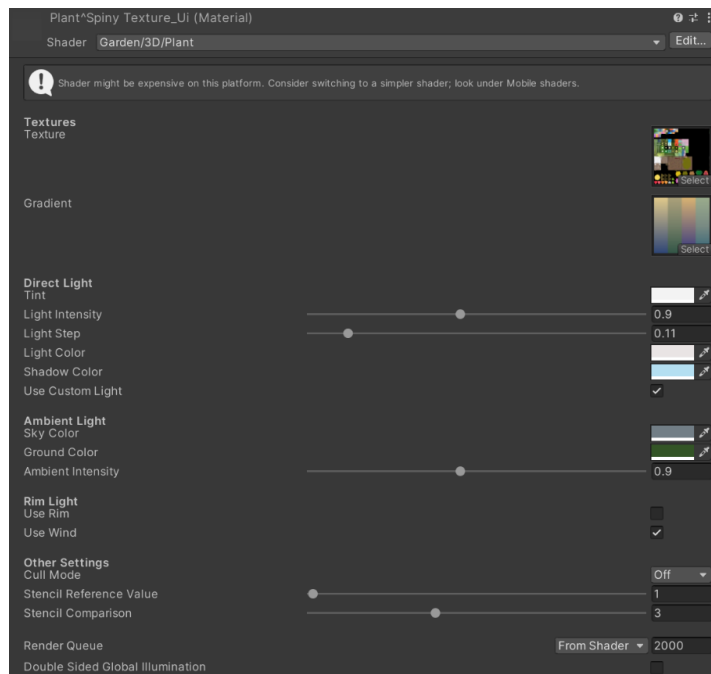


Name the material `Plant^PlantNameTexture`. Assign the material with the `Garden/3D/Plant` shader.



Drag in the correct plant texture for that garden into the texture box. Assign the corresponding gradient texture. Turn off wind in the material.

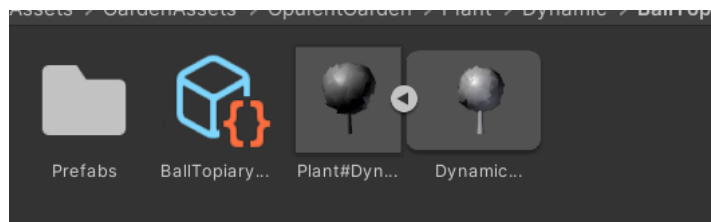
Do this again for the `Ui` material for that garden. The only extra step is to input 1, 3 for the Stencil input sections.



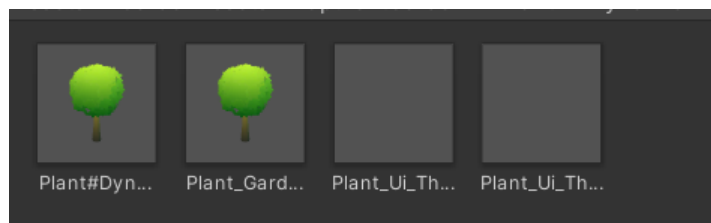
Now it is time to work on the Plant Prefabs.

Manually Setting Up Plant Prefabs

Find an existing garden where the plants are already set up. (in this case the Opulent Garden).



Each plant should have a config, imported FBX and four prefabs (inside a prefab folder)



The four prefabs should be:

Plant#Dynamic_PlantName

Plant_Garden_Prefab

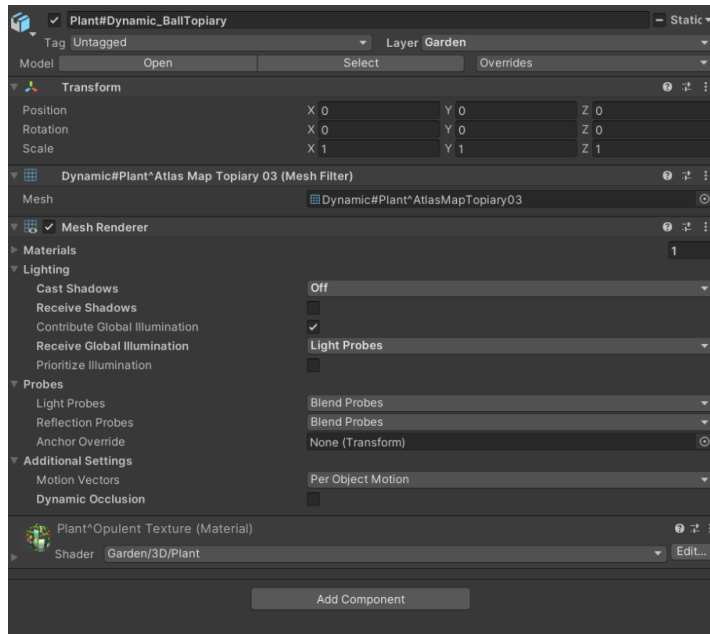
Plant_Ui_Thumbnail_Locked

Plant_Ui_Thumbnail_Unlocked

Duplicate the following four prefabs. Move the duplicated assets into the proper plant folder for the plant being worked on.

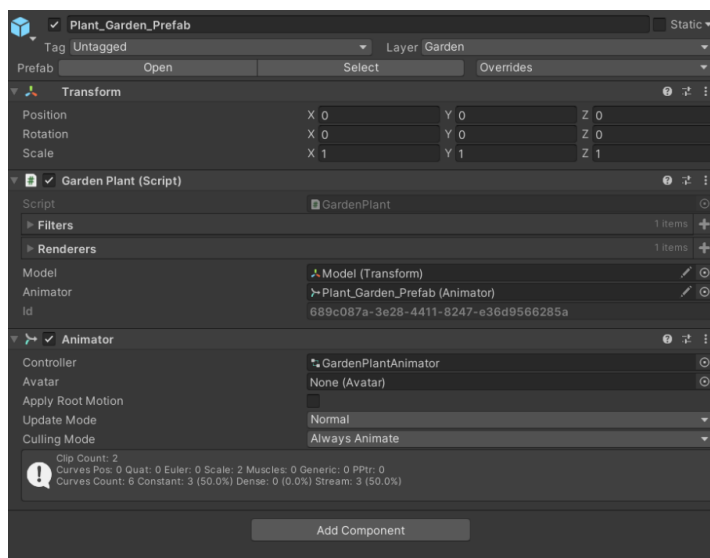
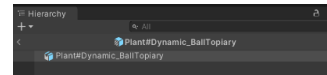
Understanding Plant Prefabs

Plant#Dynamic_PlantName is a prefab that lives inside the Plant_Garden_Prefab and Ui



prefabs. It acts as the fbx file would. It has a mesh filter, a mesh renderer and a Material assigned.

Hierarchy:



Plant_Garden_Prefab is a prefab that is meant to be placed inside the gardens. This prefab has a garden plant script and an animator that helps the plant function inside the 3d garden space.

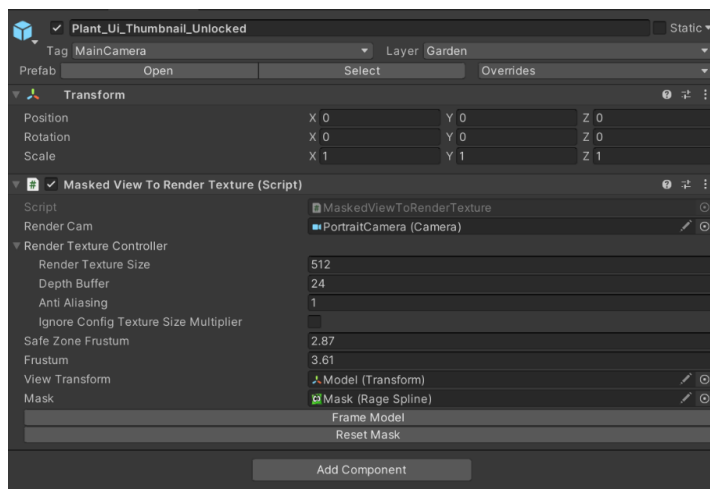
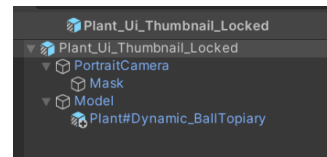
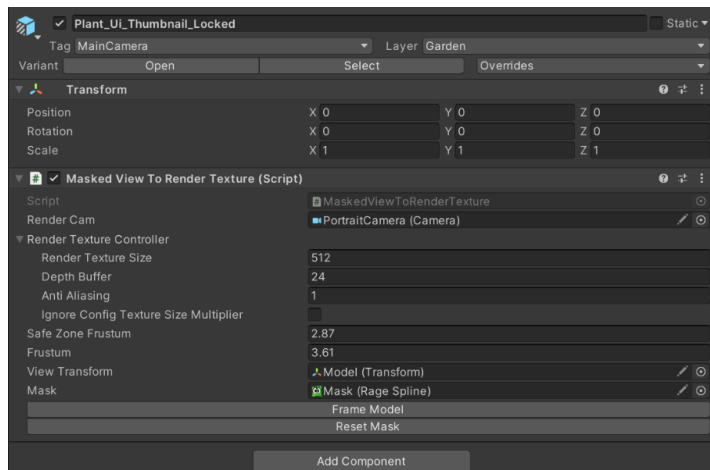
Hierarchy:



Plant_Ui_Thumbnail_Locked is a prefab that is for the catalog. This is the prefab that appears when the item inside the catalog is locked.

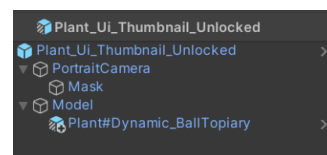
This prefab has a masked view to render texture script.

Hierarchy:



Plant_Ui_Thumbnail_Unlocked is a prefab that is for the catalog. This prefab appears when the item inside the catalog is unlocked.

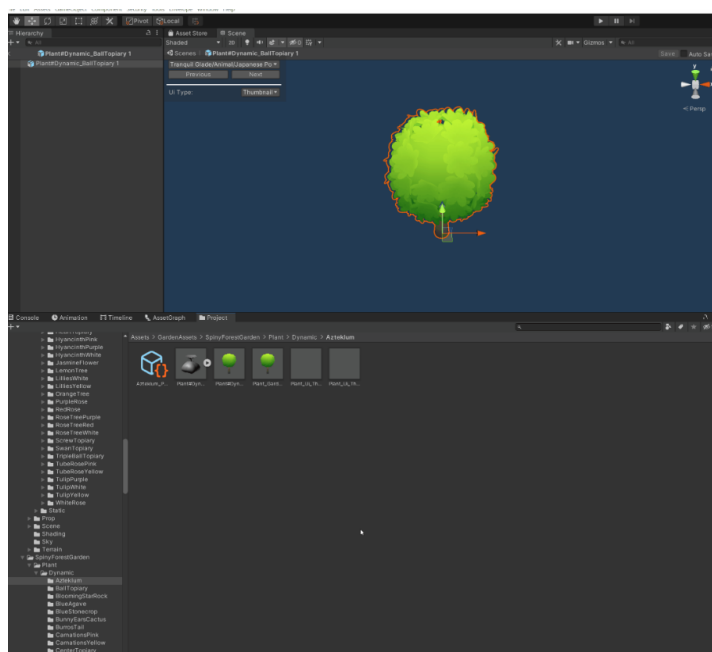
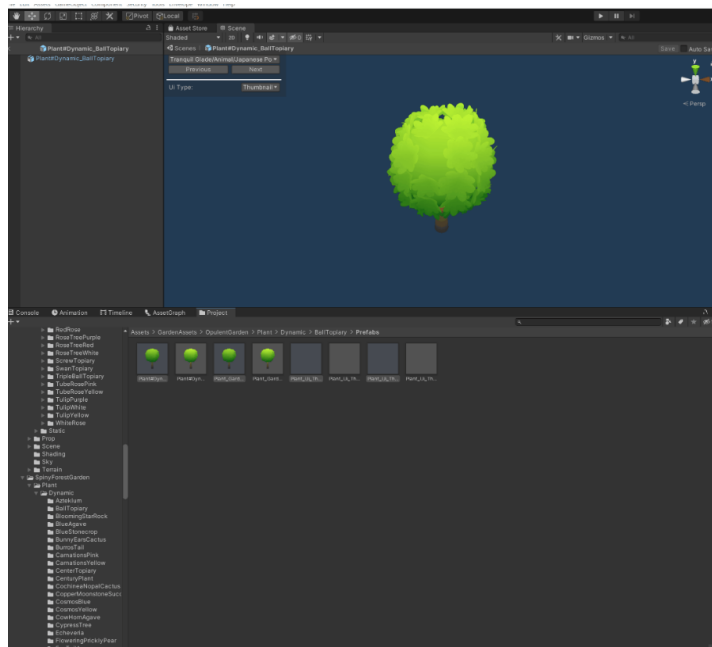
this prefab has a masked view to render texture script.



Setting up : Plant#Dynamic_PlantName

First focus on the Plant#Dynamic_PlantName Prefab.

Duplicate all four of the referenced prefabs, and move them into the folder that corresponds with the plant being worked on.

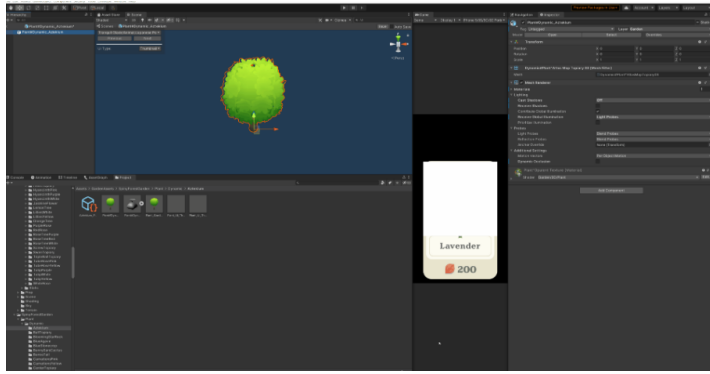


Rename the prefab and the internal object to the name that matches the plant being worked on.

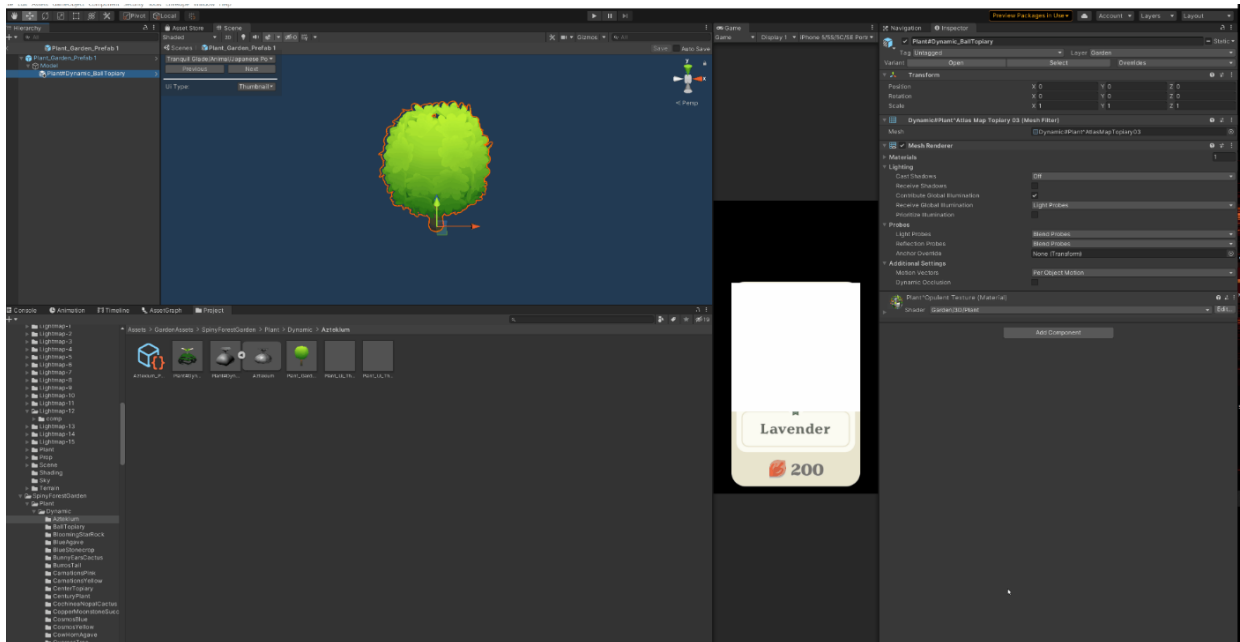
Assign proper mesh to the mesh filter.

Assign proper plant material to the asset.

Save.



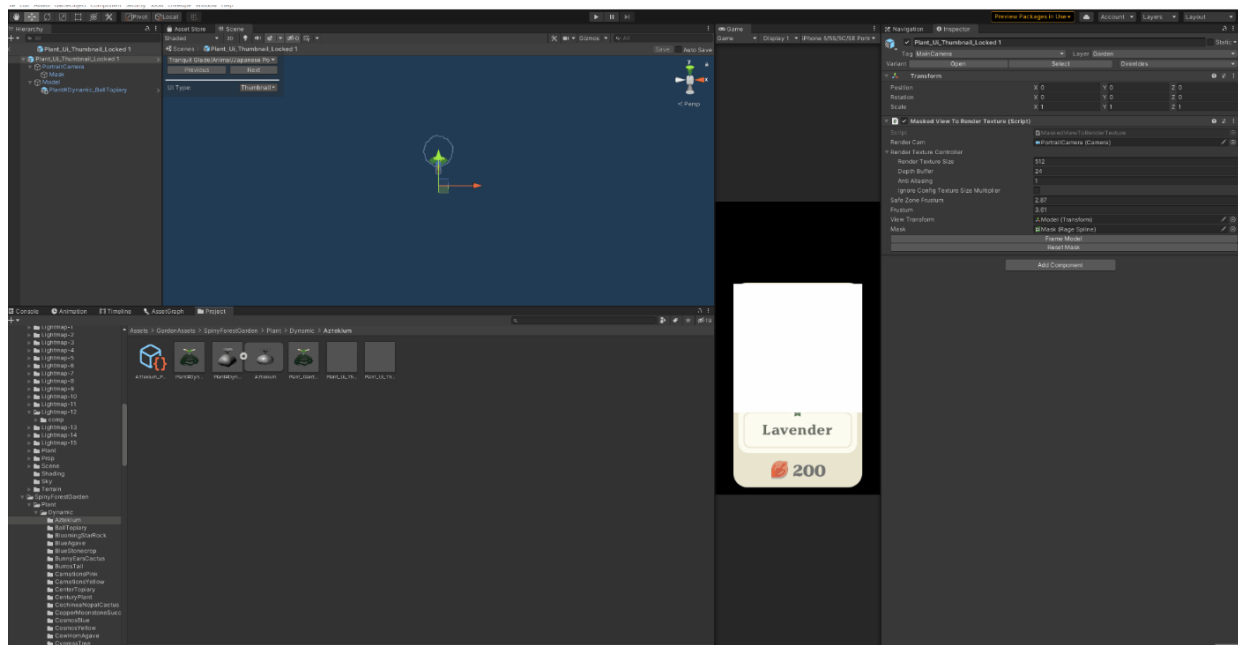
Setting up : Plant_Garden_Prefab



Double Click on the Plant_Garden_Prefab

Remove existing prefab under the Model parent if not desired plant. Add desired Plant#Dynamic_PlantName prefab under Model. Rename the prefab to remove the 1 (both inside the hierarchy and in the project folder).

Setting up : Plant_Ui_Thumbnail_Locked Prefab & Plant_Ui_Thumbnail_Unlocked



Double click on the Plant_Ui_Thumbnail_Locked Prefab.

Remove existing prefab under the Model parent if not desired plant. Add desired Plant#Dynamic_PlantName prefab under Model. Rename the prefab to remove the 1 (both inside the hierarchy and in the project folder). Assign the UI material to the newly added prefab.

Repeat for the Plant_Ui_Thumbnail_Unlocked Prefab.

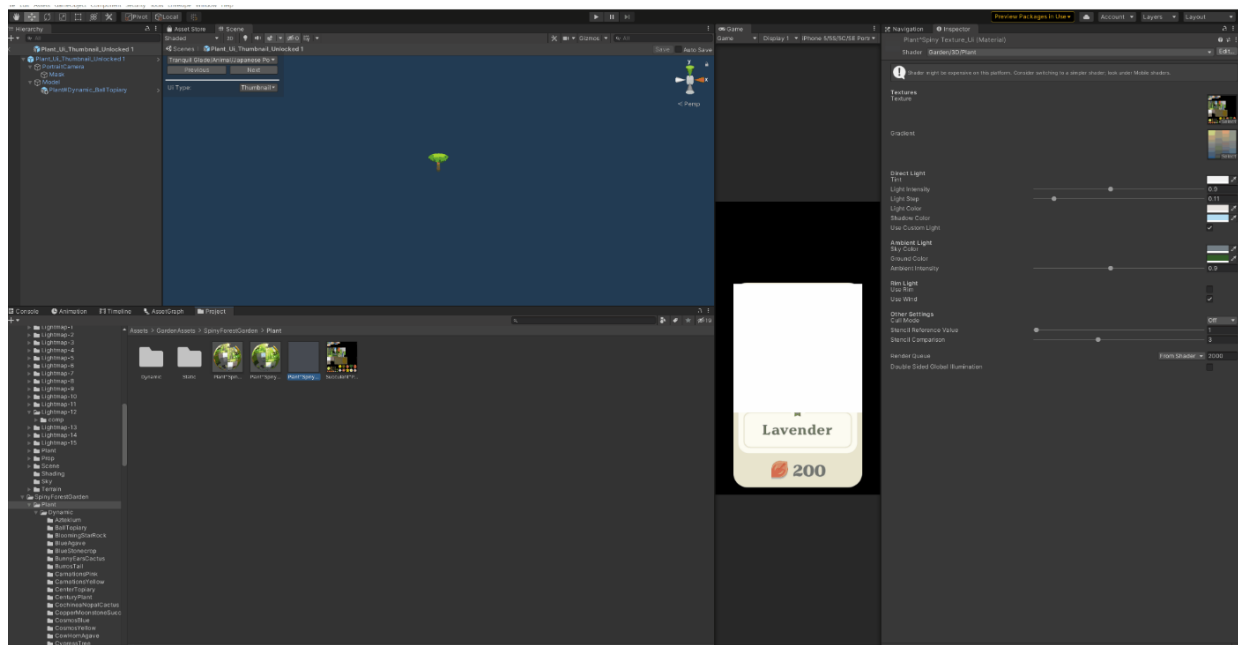
7.3.C Using the AssetGraph to re-populate Prefabs, Configs, Materials, Clean-up, ETC

To access the Asset Graph Editor : Window > AssetGraph > Open Graph Editor

Note: *If submodules are messed up this tool will not work properly.*

The Asset Graph is a powerful tool for re-populating linked necessary components. Using the tool is easy, open it up and then select from the drop down menu the function that is needed to run. Select that function and hit execute. This can be helpful if prefabs, configs, variants, materials, scenes, etc are not correct.

Example below, configs aren't functioning properly for the garden assets:



If configs do not auto-populate access the Asset Graph. Open the asset Graph by going to Window > AssetGraph > Open Graph Editor. On the upper left of the Graph editors select Auto-populate Config. Hit *Execute* in the upper right of the Graph Editor window. Check to see if there are configs inside the folder.

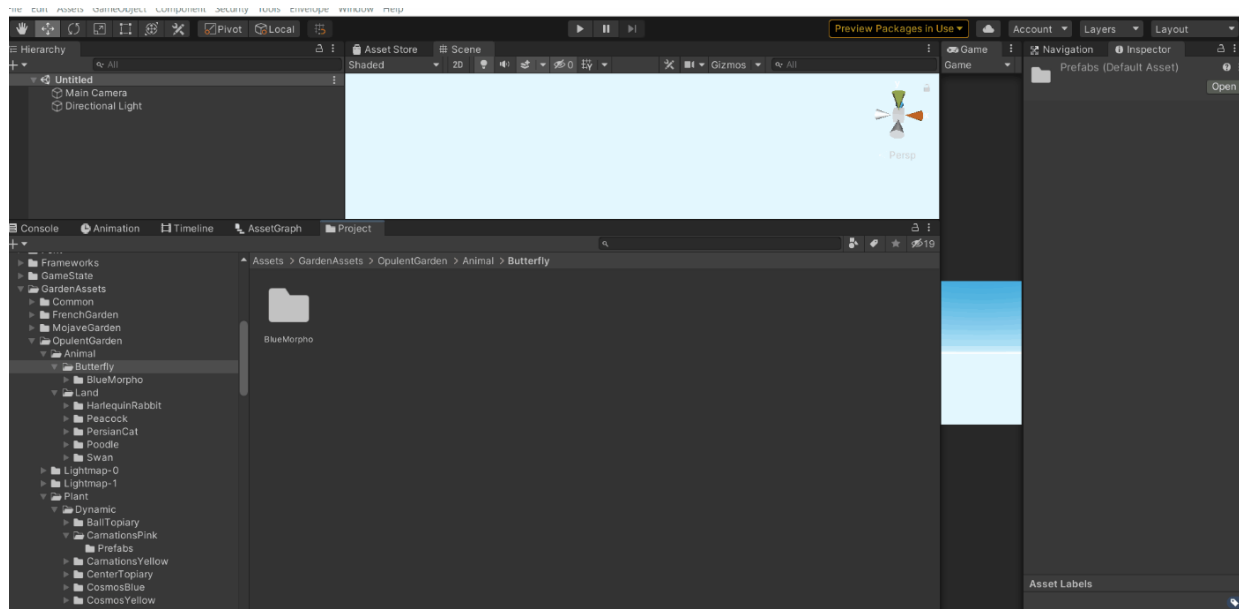


The final result inside that plants folder should look something like this^. The Prefabs may be in their own folder labeled Prefabs.

1 Config, 1 FBX, 4 Prefabs

7.4 IMPORTING ANIMALS

Importing Animals is the same as importing Plants. Drag in the assets and the corresponding textures into the Garden folder. A fbx file for the model, several fbx files for the animation clips and a texture should all be imported in. Four prefabs will be created.



Double check that all animals have imported properly.

7.5 IMPORTING TERRAIN/SKYBOXES ETC

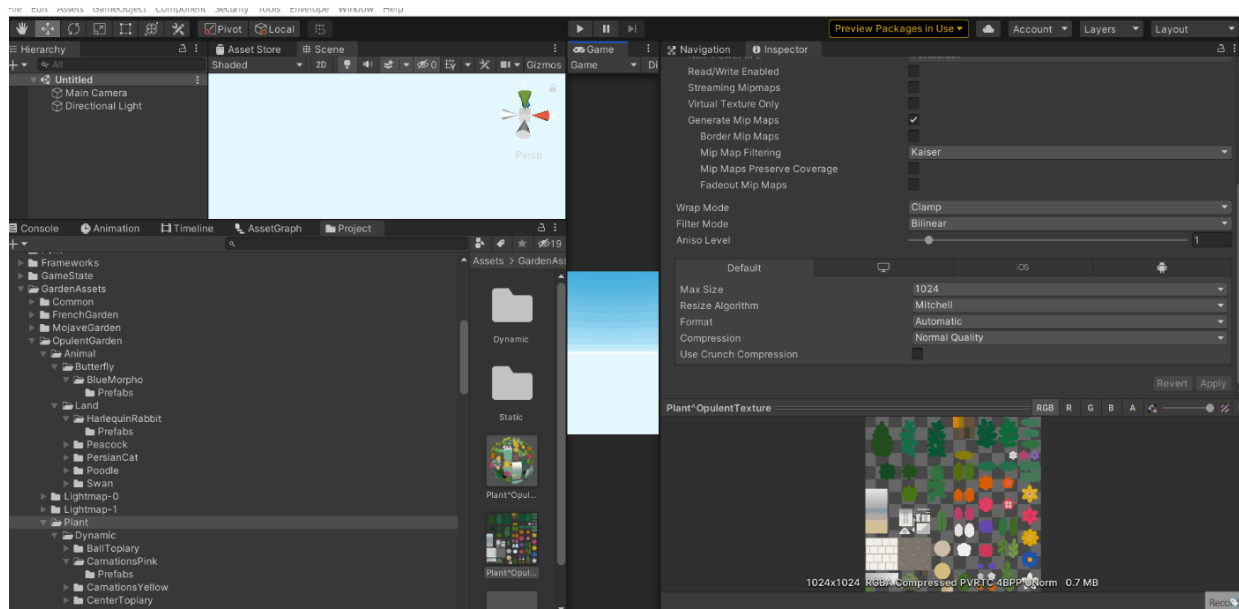
The exact same process for terrain and skyboxes. If for some reason the asset won't import, at this time turn off the asset importer tool for the garden. This can be done by following steps in [7.1 Understanding the Asset Importer Tool](#).

7.6 FINAL IMPORTING TOUCH-UPS

Now that everything is imported, it's time to start looking through the assets. Triple check everything looks ok, and all assets are there. All configs have populated as well as all prefabs. If there are any issues try re-importation. The importer tool may need to be turned off if it got turned off. There are a few small things that can be done at this stage as well.

7.6.A Changing Texture Resolutions inside Unity

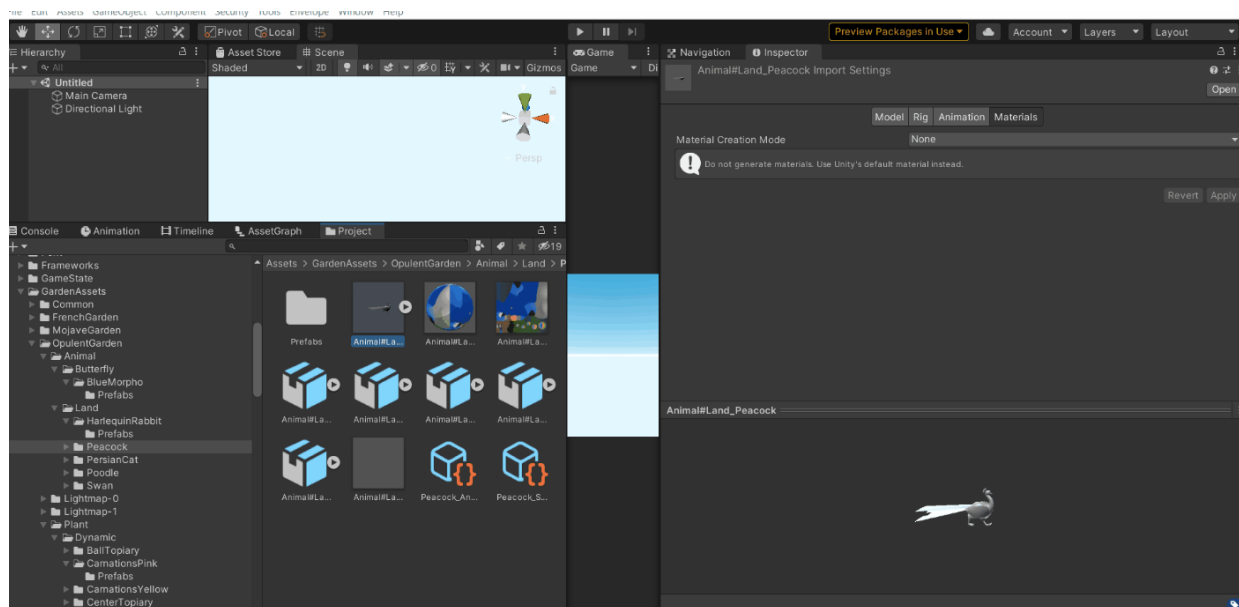
If for some reason the imported texture is greater than 1024x1024 then it is important to scale down the texture. Garden Plant Atlas Textures should be set to 1k (1024x 1024). Animal's textures and face plates should be set to 512x512. Skyboxes are 1024x1024.



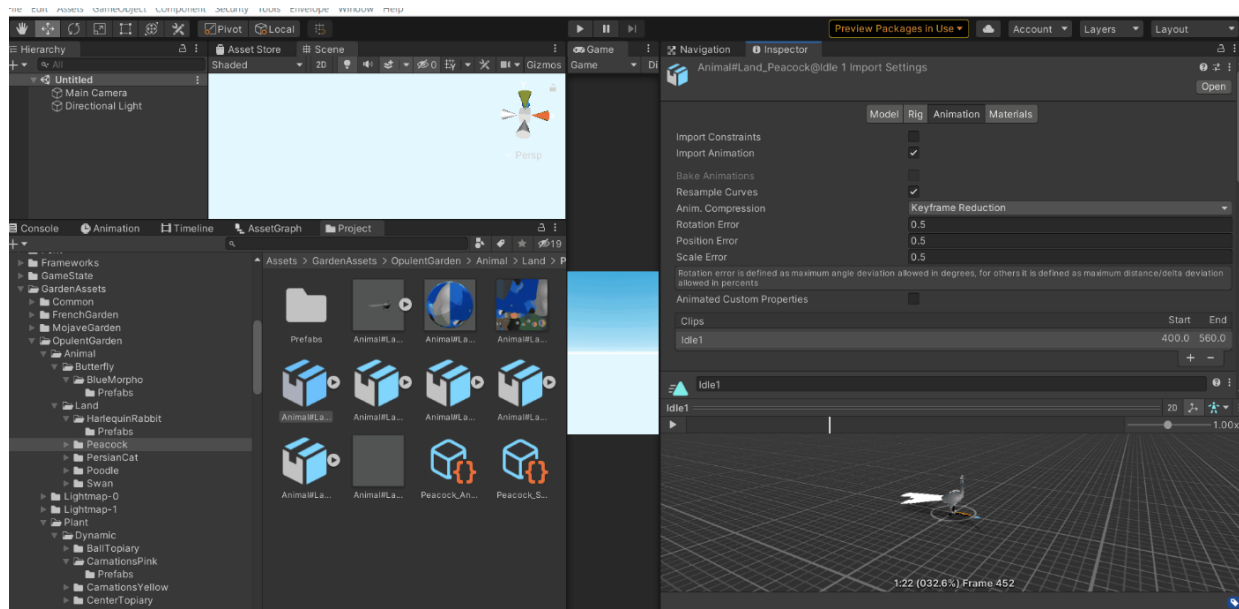
Make sure the texture compression settings are set to high. Clamp is used in wrap mode and filter mode is bilinear.

7.6.B Inspecting Animal Assets

At this stage the model can also be checked to make sure everything is set. Uncheck things in the model tab, like blend shapes that are not being used. On the model no animation should be imported (since garden uses separate animation clips). The rig is generic and optimized. No materials should be imported as well.



Check to make sure all animations on each animation clip are playing properly.



Animation compression should be on, import animation should be checked.

Check the animation by pressing play in the inspector. The asset it corresponds with should appear in that 3d window and there is a play button. Watch it all the way through. If there is an issue with the animation (like the key frames aren't right) then adjust the key frames in the start and end input box.

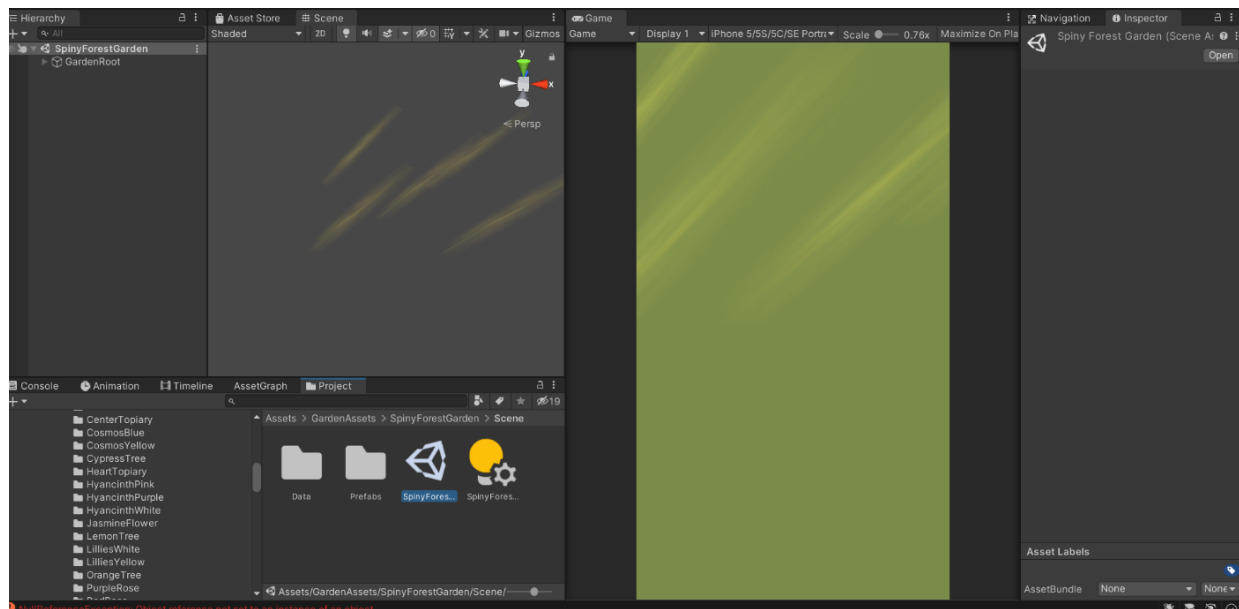
Make sure that **Loop Time is on**. This is super important and most of the time is not checked on. It is one of the major reasons why the animation won't play inside Unity.

PART 8: GARDEN SET UP

Now that everything has been imported for making the garden, it is time to start making it.

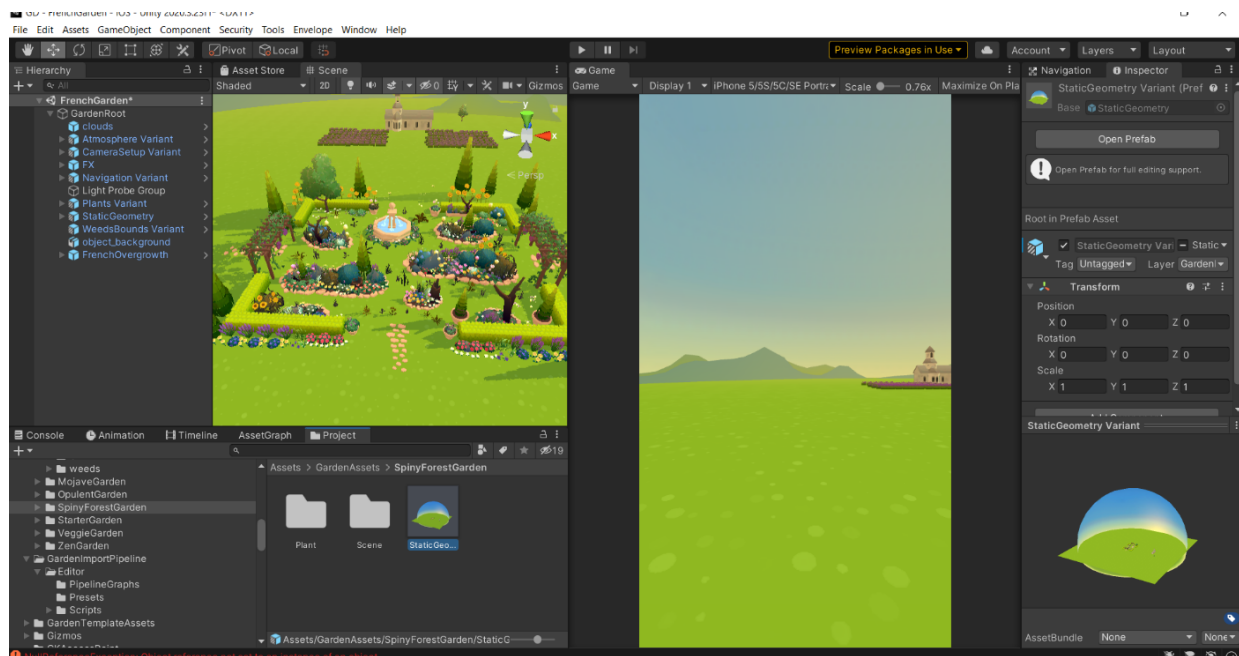
PART 8.1 OPENING THE SCENE AND IMPORTING THE WHITE BOX

Begin by opening up the corresponding Garden Unity Scene.



It's going to look something like this. (we are just opening to make sure it opens)

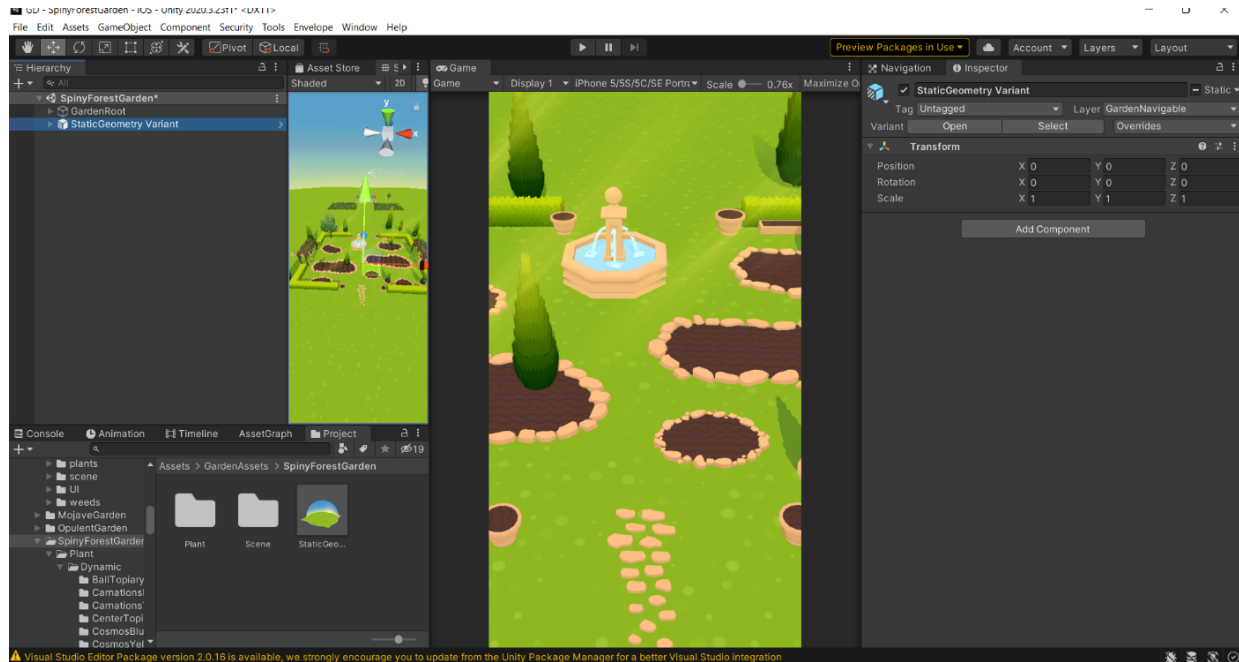
Immediately after open the French garden scene. This is the garden I've been using as a "whitebox" for all other gardens. Reality is a "white box" prefab should be set up in the default scene that populates but that was never implemented. So this will be the hacky way to do things.



Drag the Static Geometry prefab into the garden folder being worked on. It will ask if a prefab or variant should be created. For the sake of not being destructive, select the variant option.

Re-Open the garden scene needing to be worked on.

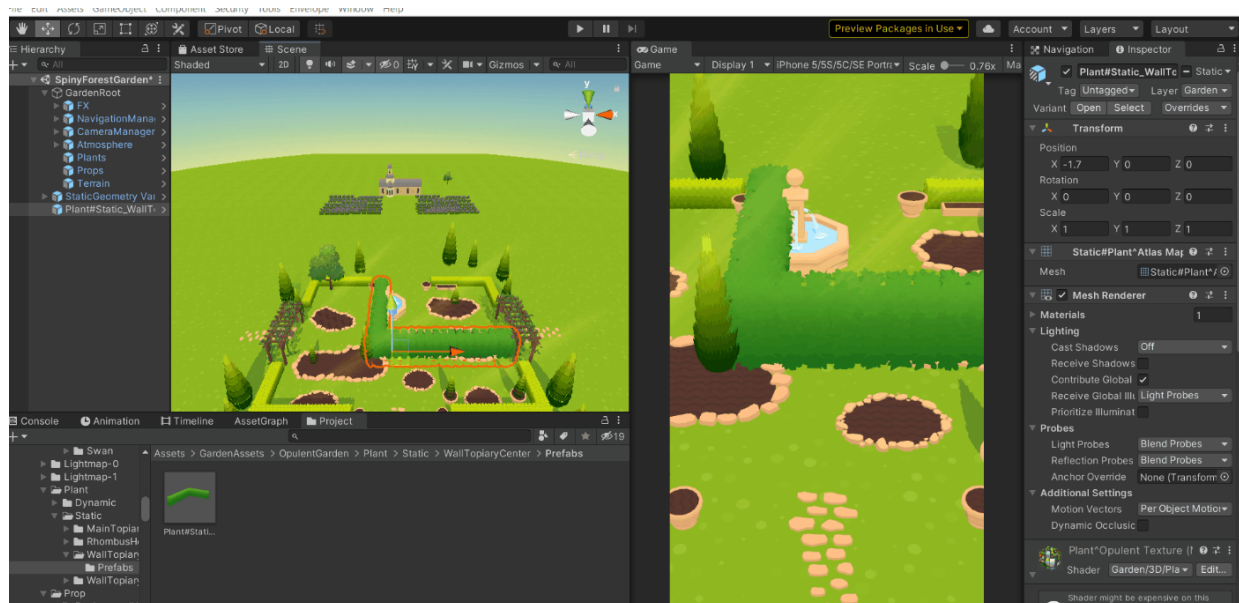
Drag in the Static Geometry prefab that was created.



This will be the guide used to make sure that assets and gardens don't get too big/small etc. It's to help make every garden feel uniform. There can be up to 30% difference in scope of garden if needed, but assets should try to maintain the scale of what's in the variant prefab. (again normally in a production it would be a whitebox situation instead of this hacky way).

PART 8.2: PLACING THE PROPS, PLOTS, LARGE ASSETS

Drag in any Terrain Objects and props. Make sure to use the prefab version of the asset. Start with plots and large defining assets. Also any assets that are border objects for the actual garden space.

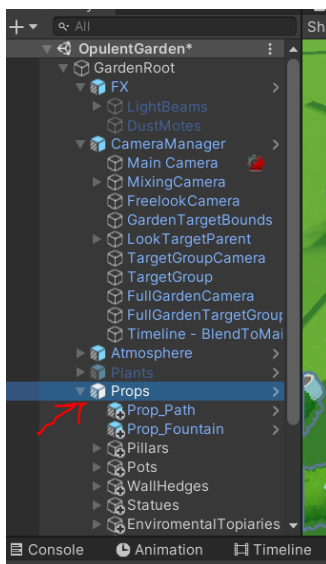


Keep placing all of the garden prop and terrain assets into the correct places until all are placed.

Eventually the new garden should



look something like this. All props, terrain, and large assets are placed.



At this time the “whitebox” variant can be removed. Make sure to nest all of the prop assets into the props prefab under the Garden Root.

PART 8.3: SETTING UP THE TERRAIN TEXTURE

At this stage the terrain texture may not be correct to the concept art. If there is a specific terrain FBX then that should be imported and placed if it hasn't already. Then assign a material to the terrain fbx. Make sure to make a new material for each garden terrain.

Terrain material can be named as:

Terrain^GardenName

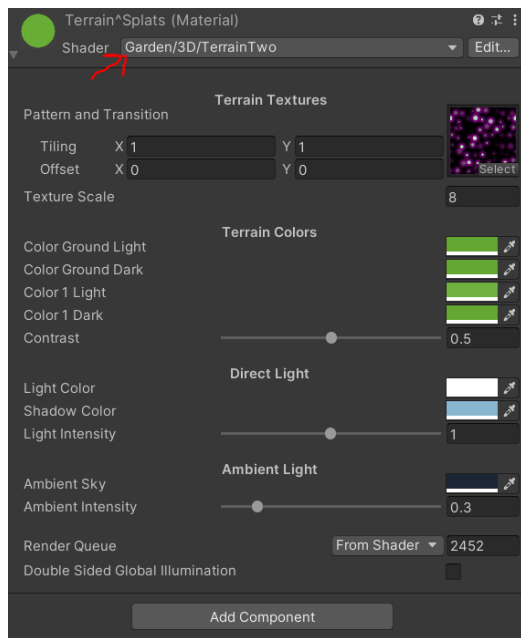
Re-using any material will affect any garden with that material (so if the cottage material is used in opulent garden and a color is changed in that material then the cottage garden will be affected).

8.3.A Terrain Material Overview

Below is an overlook on the terrain material. Understanding how the material works is important to understand how to use it.

[Internal Overview Video of the shader](#)

In the shader selection menu select:



For simple terrain like the opulent garden select Terrain Two.

For more complicated terrain like the Zen garden, select Terrain four. (this gives more color options for the fbx)

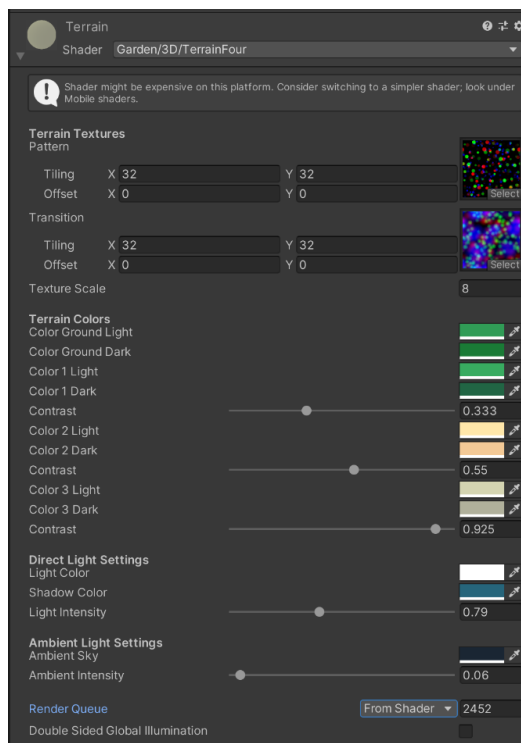
Direct Light and Ambient Light are the same as other shaders.

Contrast will determine how much spread there is on the texture.

Light color determines the color of the light.

Light intensity determines the intensity of the light

Ambient Intensity determines the intensity of the influence of ambience.



Terrain Colors

Colors for each layer of the terrain. Each layer is controlled by the mesh vertex color:

Color Ground - No vertex color

Color 1 - Red vertex Color

Color 2 - Green vertex color

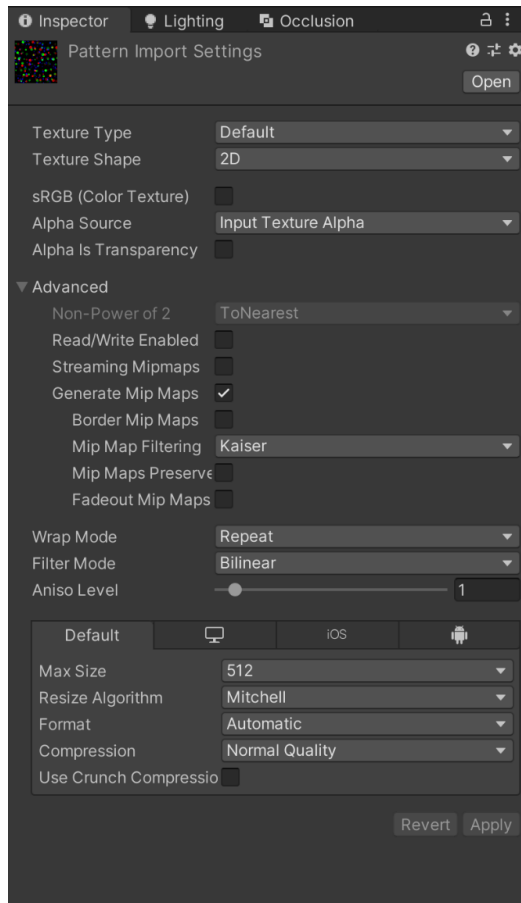
Color3 - Blue vertex color

Alpha - Controls whether or not the pattern shows up

Pattern:

The pattern determines what pattern will be displayed on the ground.

This texture is made in a 3rd party software, Substance Designer. It is a procedural based creation. For future gardens unless a skilled tech



artist is around to help out on this, use the existing pattern textures inside the project for future gardens.

The texture can also be created in photoshop manually.

[Future of Texturing is Procedural Texture Generator Tool \(realism\)](#)

Alpha Source is Input Texture Alpha.

Set texture wrap mode to Repeat.

Max size is 512, compression of high quality preferred but normal quality can be used as well.

If a garden needs a specific Pattern name that specific pattern:

Pattern^GardenName

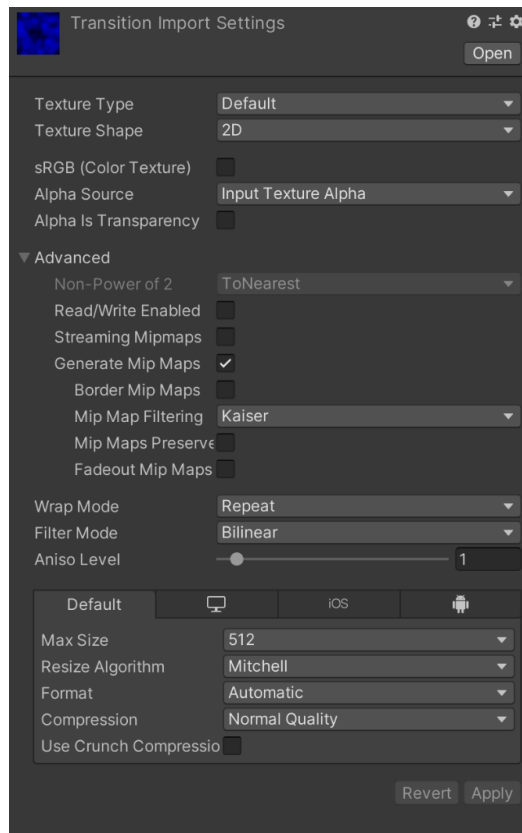
Transition - The transition between each layer

follow the settings in this screenshot.

Normal quality can be changed to high quality.

If a garden needs a specific Transition name that specific Transition:

Transition^GardenName



8.3.B Editing the Terrain Material

To change the pattern shape, input a new procedural or manual generated pattern texture.

Change the color of each Terrain color input to match the desired colors.

Change the transition texture if needed to get desired transition between colors.

Use contrast to affect spread.

This might require some back and forth with Maya or software of choice.

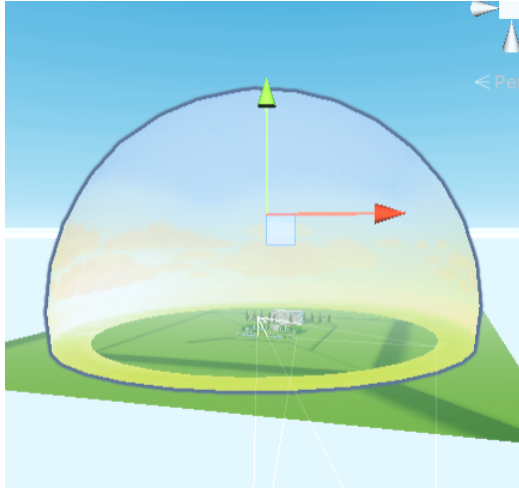
PART 8.4 SETTING UP THE SKY

Part 8.4.A Setting Up Skybox Dome

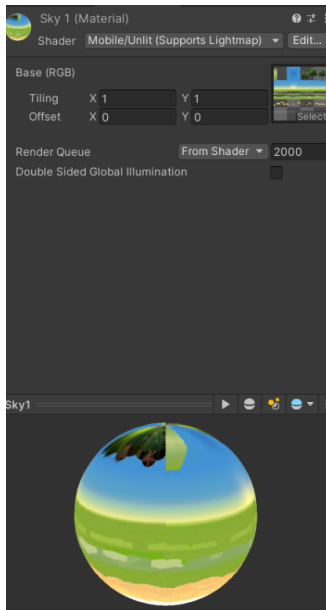
There are currently two things going on inside the Garden Project.

1. The 3D skyboxes with a texture.
2. The procedural sky.

Currently the procedural sky is broken, it is suggested that the artist uses the old method of the 3D skyboxes. The reasoning behind going a procedural route is to optimize the memory/size of the app and also to reduce the amount of textures and assets. It also can be more performant not needing larger textures. This was explored because the scope of the game was unknown and infinite. Unfortunately it was



never fully implemented properly so it displays broken in game.



To use a skybox, import in a skybox model. Each garden might have its own skybox model depending on any background assets that might be attached to it (e.g. mountains)

Place it into the scene, assign it to a mobile unlit shader. Apply the appropriate texture in the texture box.

To name the Skybox material:

Skybox^GardenName

Skybox FBX can be named:

Skybox_GardenName

The Skybox can live inside the atmosphere prefab in the hierarchy.

8.4.B Setting Up Procedural Sky

Sky Ramp - A 2D texture ramp that describes the sky conditions. There is currently a hazy texture and a clear texture.

Sky top color - Very top of the sky

Sky bottom color - Right before the sky meets the horizon

Horizon color - Where the sky and the ground meet

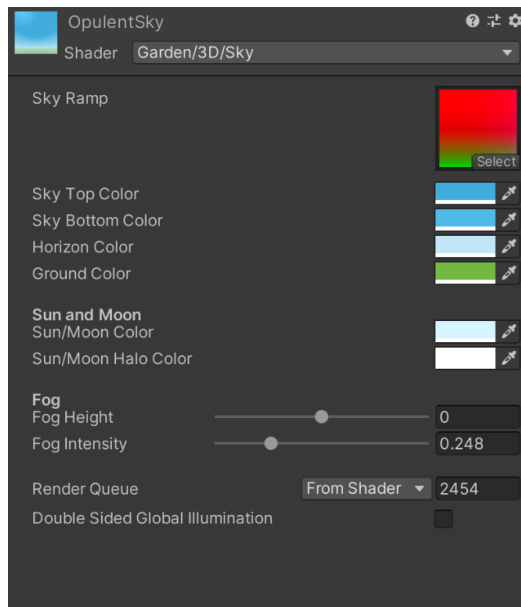
Ground color - Ground

Sun Color - It replaces the color of the sky. It is not additive. CloudDirect Light and Ambient Light are the same as other shaders.

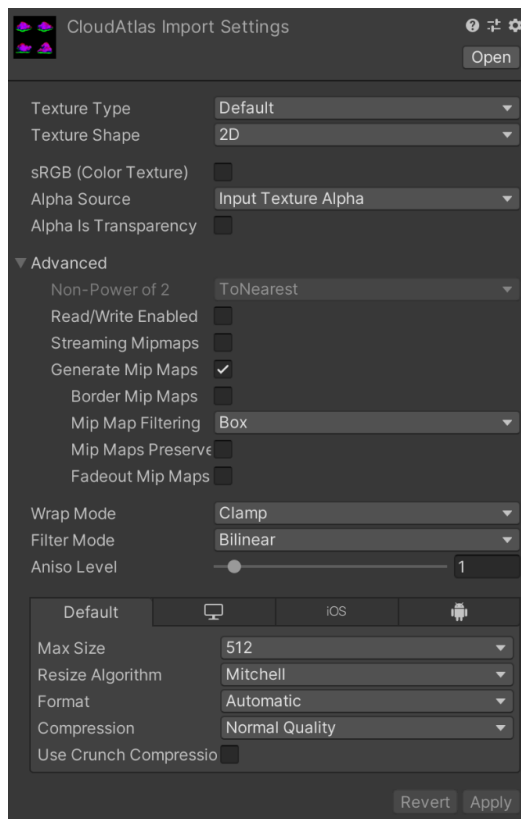
Halo Color - Additive. Color around the sun.

Fog Height - How high the fog goes

Fog Intensity - How opaque the fog is



Cloud Texture - Atlas for the clouds sprites



Alpha Cutoff - Threshold for discarding pixels. Should be around .8

Distortion

Distortion Texture - Texture used to warp the clouds

Distortion Strength - Intensity of the distortion. Should be around .1

Scroll Speeds - Speed that the distortion happens.

Should be from .02 - .06

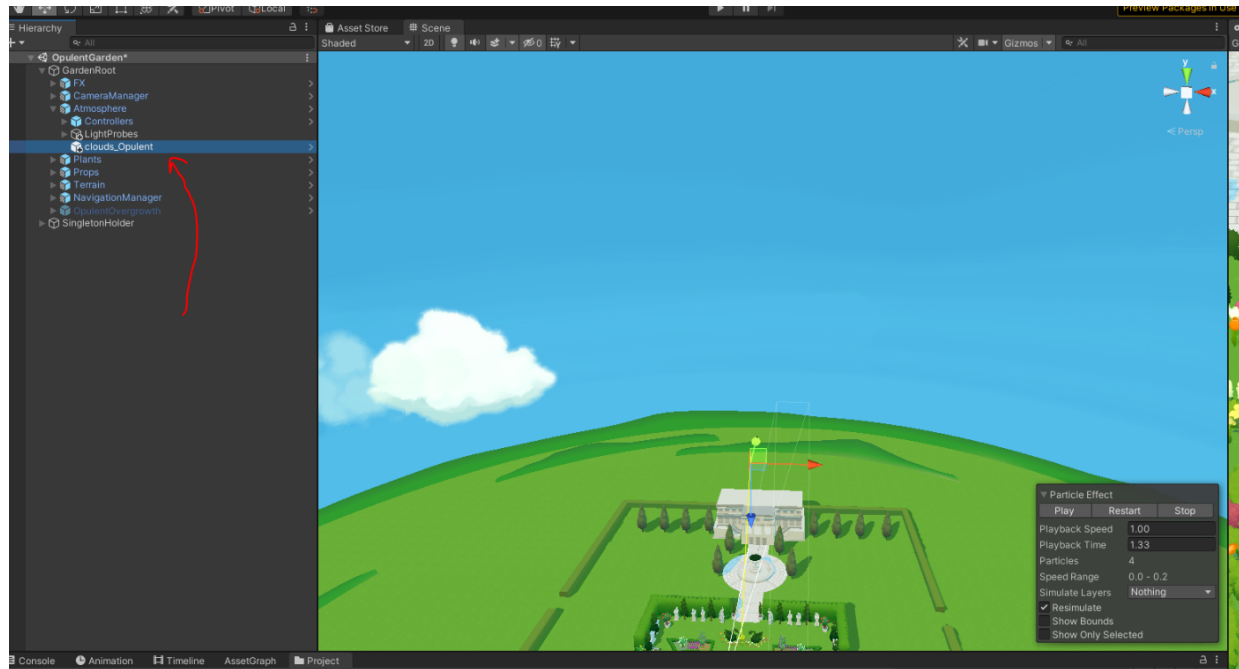
Sun Color - Color that is added to the clouds when it is closer to the sun

8.4.C Setting Up Clouds

Search for Clouds in the project folder. Find a prefab that most closely matches the clouds in the garden being created.

Duplicate, rename to *Clouds_GardenName*. Duplicate the material that matches that prefab. Name that material *Clouds_GardenName*.

Drag the asset into the Garden Scene. Place it inside the Atmosphere prefab. Adjust the cloud material as needed.



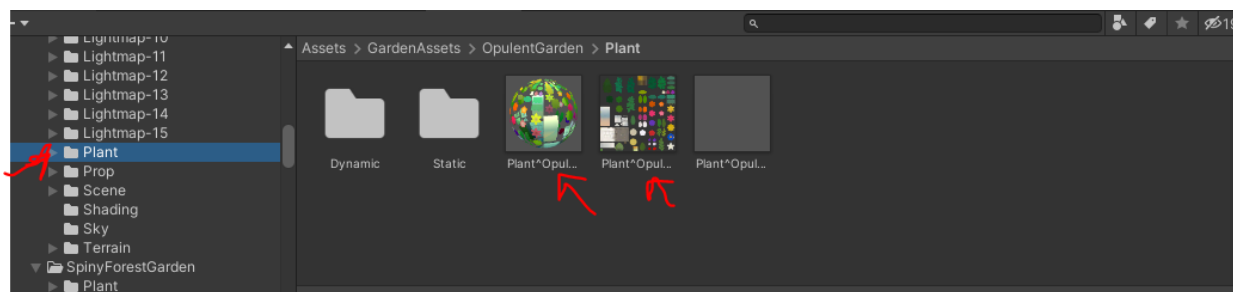
PART 8.5 PLACING THE PLANTS/UNLOCKABLE ASSETS

After the biggest assets are placed the unlockable assets can be placed.

Part 8.5.A Setting up Materials for Plants/Unlockables

If the unlockables do not have a material (this should auto-populate) then one can be created manually.

To create a material, go to the materials folder inside the respective garden



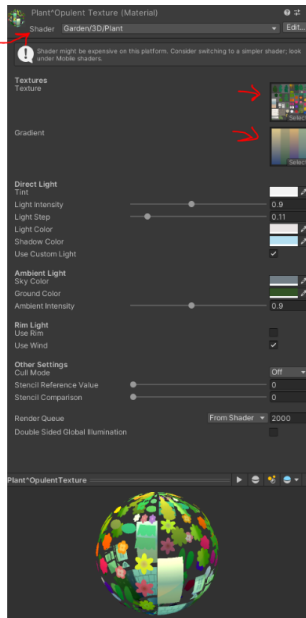
Right click in the space and go to Create > Material.

Name it : *Plant^ Garden Name*

Set the shader to Garden/3D/Plant

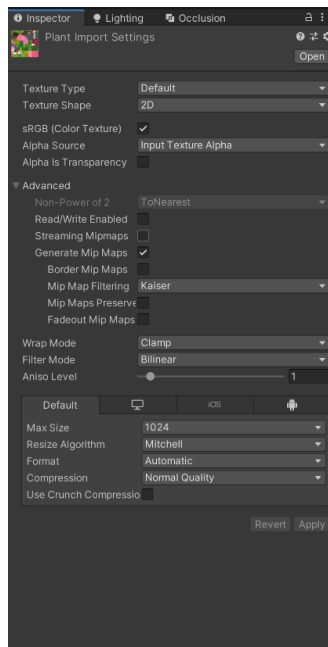
Input the corresponding texture and gradient.

adjust all the material settings to match the concept art.



Set stencil mode to 0, 0.

Cull mode Off.



Cutoff - Toggle for clipping/discarding pixels. Should be turned on for plants. Should be turned off for most props.

Cull Mode - Choose to discard the front facing triangles, back facing triangles, or don't discard any. Default is back for the first four gardens. There needs to be a pass done in a model program to make sure plants have both sides. Cull back for all props. Cull back for almost all animals - do not cull back for animals with single sided features like the peacock.

Tint - Color that is multiplied with the texture prior to light calculations.

Direct Light

Multiplicative Light

Light Intensity - How strong the direct light is.

Light Step - The threshold for where the light and shadow meet

Light Color - Color of the light

Shadow Color - Color of the shadow

Ambient Light

Additive Light

Sky Color - Color of the sky

Ground Color - Color of the ground

Ambient Intensity - How strong the ambient light is

Rim Light

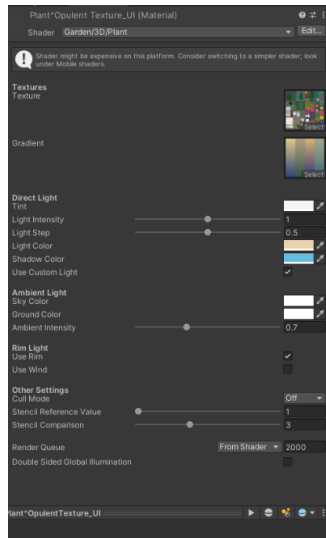
Additive Light

Rim Color - Color of the rim. It should be a darker warm color for day scene. Darker cool color for night scenes.

Rim Step- The threshold for where the rim light ends.

Assign this material inside every garden prefab for the garden.

Do these steps again for the UI material.



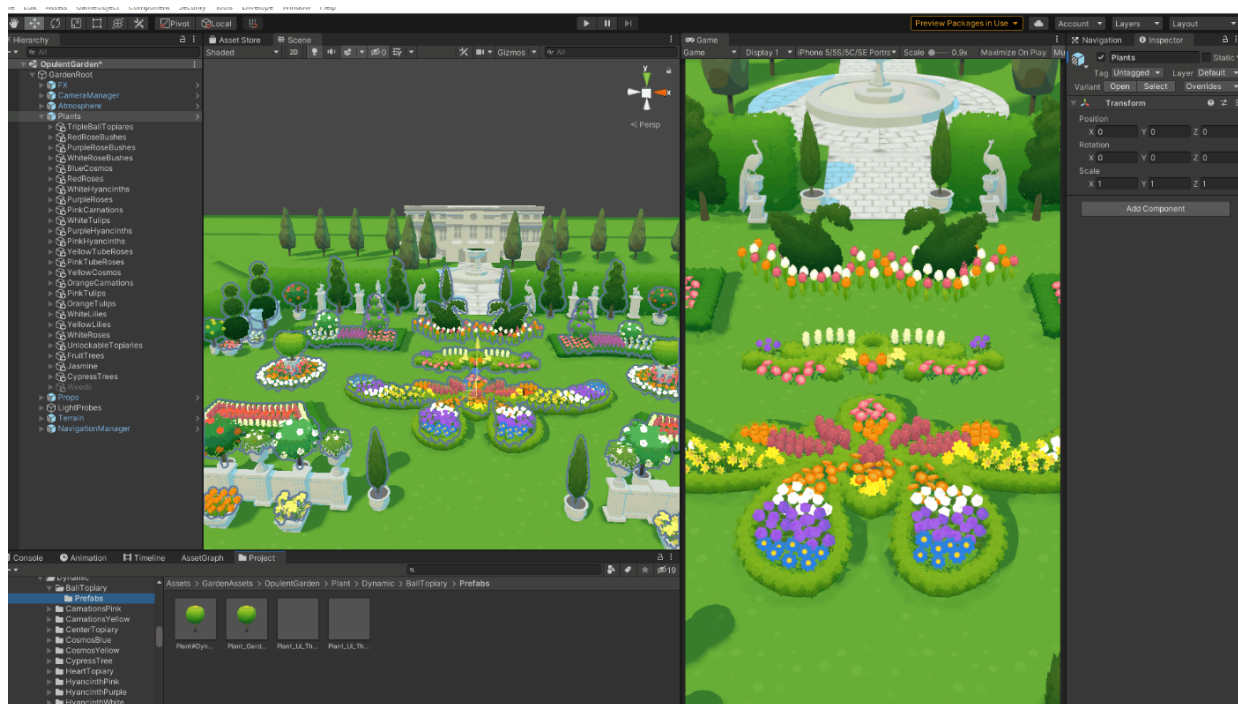
Name the Ui material Plant^GardenName_Ui

The only difference here vs the regular plant shader is the stencil information. In the Ui texture the stencil values should be set to 1, 3.

Part 8.5.B Placing Plants/Unlockables Assets

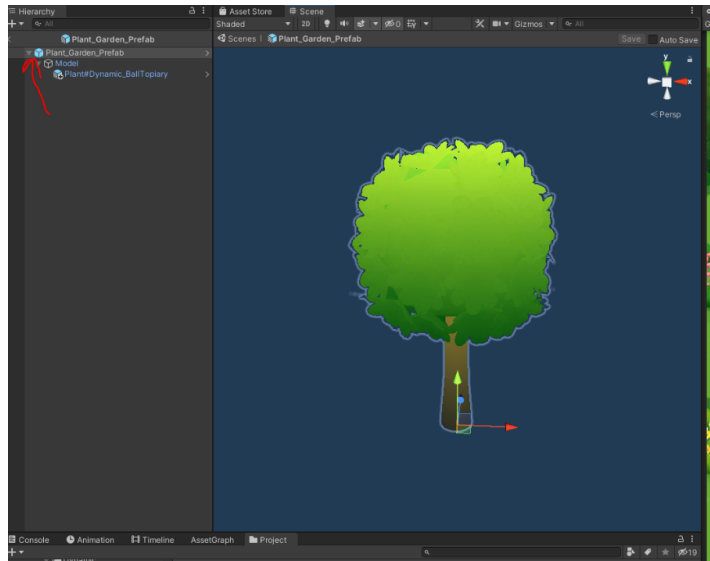
After every prefab has its material set up (if it didn't already) start placing the plant prefabs. Make sure to select the Plant_Garden_Prefab.

It's important to place all the large items first, like plots to have a better understanding of where to place individual items.



Make sure when selecting which prefab to place, the Plant Garden Prefab is selected.

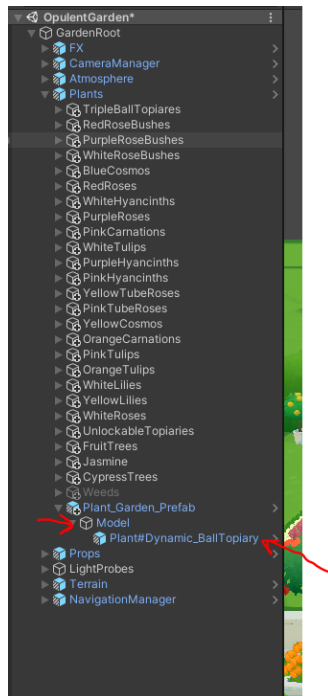
The Plant_Garden_Prefabs can



live underneath the Plants Prefab inside the garden root.

For the Plants prefab **do not override** anything about the Plants Prefab. Leave everything as a + item. The prefabs are shared amongst gardens so adding information into the base prefab will make those assets appear in all gardens.

Keep placing all the plants and unlockables in the appropriate spaces until all assets are placed. Control + D to duplicate can help speed up the process. This allows the user to make a duplicate of the asset placed without having to drag in a new asset.



Make sure when placing assets to not accidentally add transforms, rotations or scale information to the children inside the Plant_Garden_Prefab.

Information on children objects creates a messy workspace.

For organization sake the user can create groups for objects, especially unlockable assets as there will be many of them. In this example the plants are grouped based on the type. Make sure no transforms, rotations or scale live on the parents of these groups. Only the Plant_Garden_Prefab assets should have transform information.

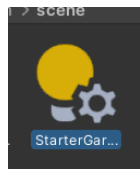
At this point the garden should look like this (maybe minus the shadows):



All terrain, skyboxes, static and dynamic assets placed.

PART 8.6 SETTING UP LIGHTING FOR GARDEN

In garden, Baked Lightmaps are used in order to create the shadows seen in the game.



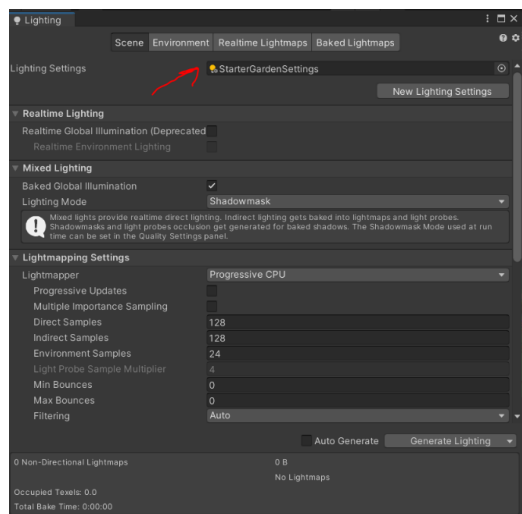
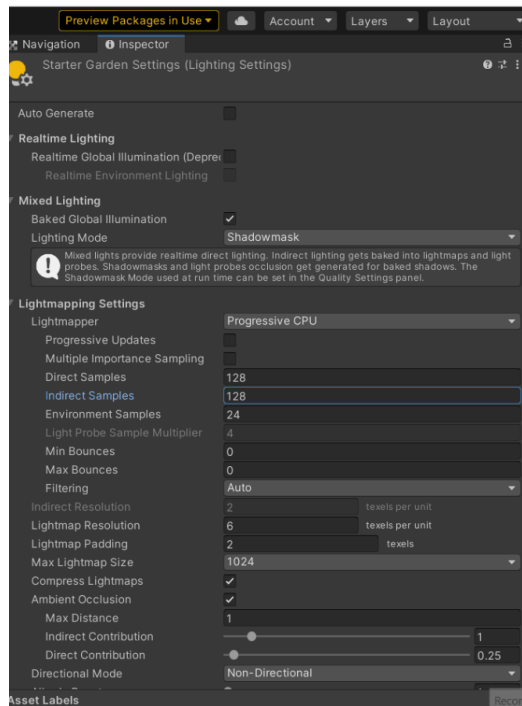
To set up lighting for the garden, First find an existing .lighting asset inside the project folder and duplicate it. In this example the StarterGarden.lighting asset will be duplicated.

Name it GardenName.Lighting

Maximum Lightmap size should be set to 1024.

Turn on compress Lightmaps and ambient occlusion.

Hover over each setting in Unity to learn what each means.

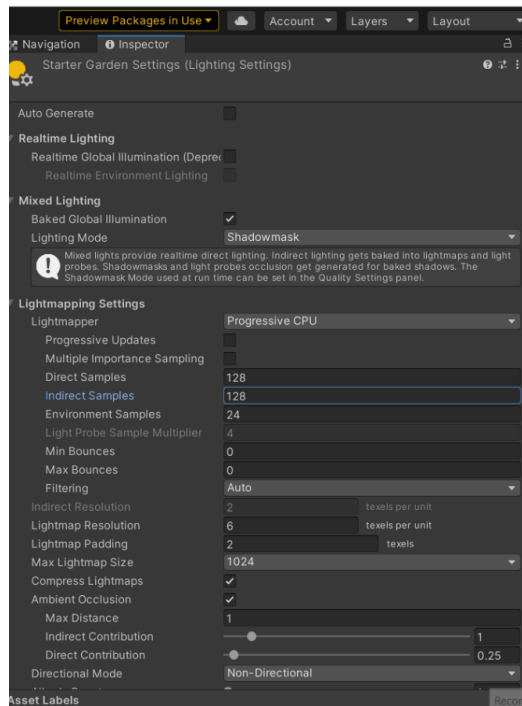


Go to Window > Rendering > Lighting.
Start inside the Scene tab.

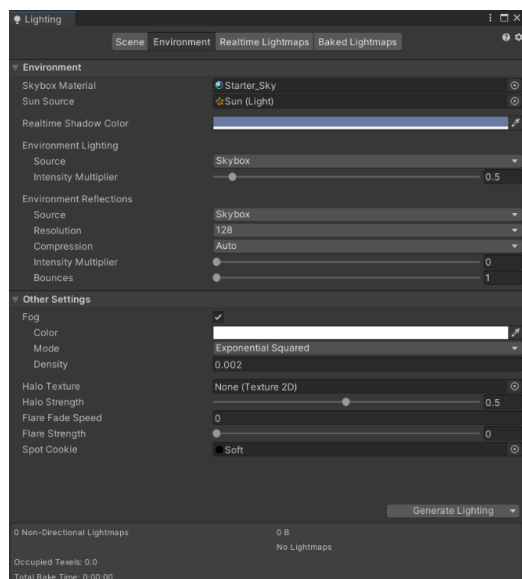
Drag in the new lighting settings asset that was
created into the lighting settings section.

The following settings are a good place to start.

Hover over each one to learn what each do.



Switch to the Environment Tab.



Input the Skybox material and the sun source for the Garden.

The Skybox material may need to be created, visit section 8.4 *Setting up the Sky* for more information on how to do that.

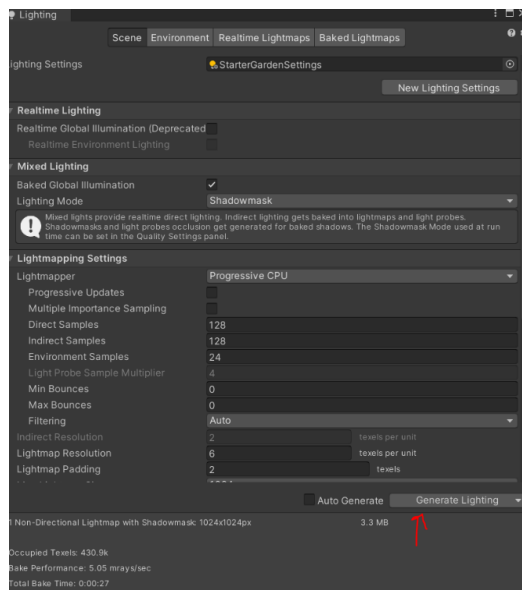
The following are decent settings to start with.

Adjust the shadow color if needed, as well as Fog color/density.

Hide anything in the scene that should not cast shadows.

Next hit the Generate Lighting button and wait.

Check the scene that the shadows are working. Adjust as needed and re-bake.



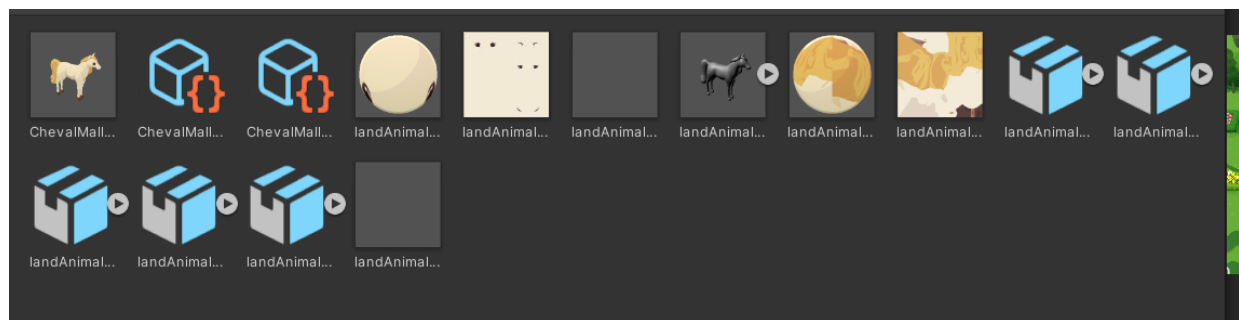
PART 8.7 SETTING UP ANIMALS FOR GARDEN

Next the animals prefabs should be properly set up.

Access the Animal Folder for the respective garden in the Project. Find the Animal_Garden_Prefab.

With the Faceplate updates, the Animal prefabs may not have any textures on them. They may even appear to not exist.

Part 8.7.A Setting up Materials for Animals



For the body of the character, create a material and assign Garden/3D/Animal Shader to the material.

Name the Material :

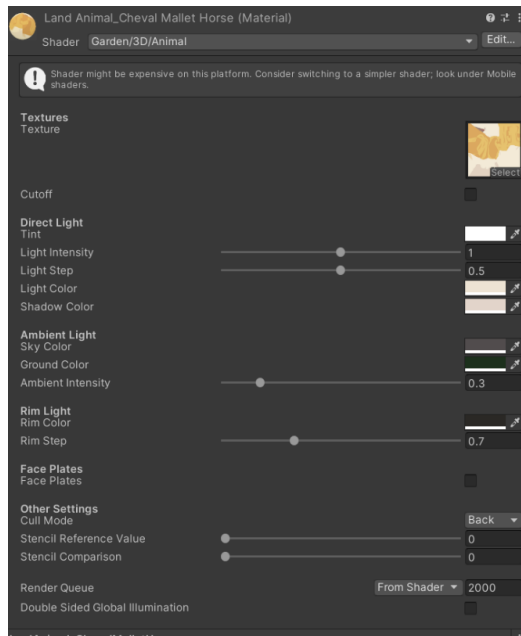
Land Animal > *LandAnimal_AnimalName*

Flying Animal > *FlyingAnimal_AnimalName*

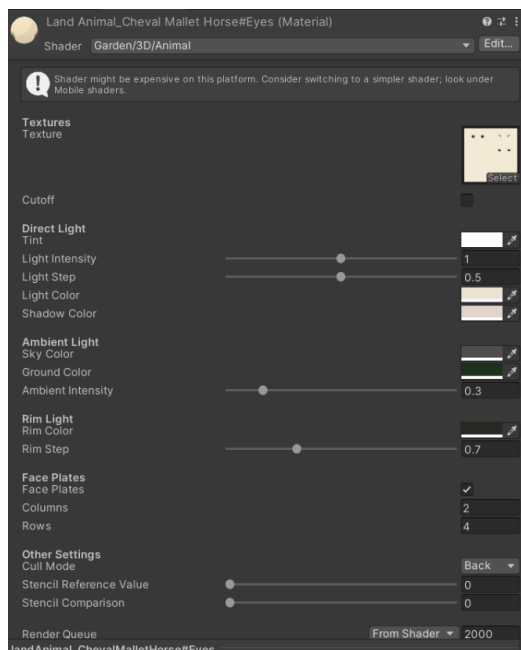
Butterfly > *Butterfly_AnimalName*

Insert Texture into texture input section.

Cull Mode: Back (*only if there is nothing dependent on both side of faces showing, e.g. Peacock feathers.*)



Stencil : 0,0



For The eyes or mouth, create a material and assign Garden/3D/Animal shader to the material.

Name the Material :

For Land Animals:

Eyes > *LandAnimal_AnimalName#Eyes*
Mouth

> *LandAnimal_AnimalName#Mouth*

For Flying Animals:

Eyes > *FlyingAnimal_AnimalName#Eyes*
Mouth

> *FlyingAnimal_AnimalName#Mouth*

Make sure to turn on faceplates for this material and set the columns to 2, and the Rows to 4.

Cull Mode : Back

Stencil: 0,0

Duplicate each of these material to make UI materials.

The settings stay the same, besides the Stencil values changing to 1, 3.

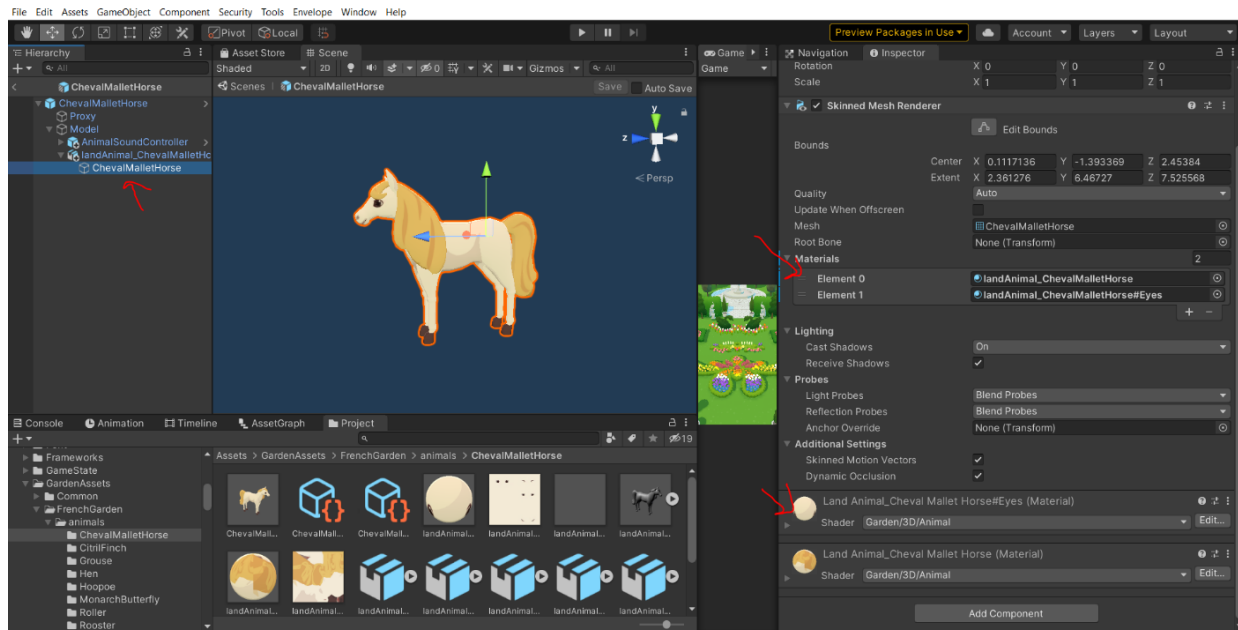
Name the Ui materials with _UI at the end of the original material name.



Assign the materials to the model. If the model was set up properly before export then there should be multiple slots to assign the materials. If only one material can be applied then separate materials Per UV spaces were not applied before export.

Drag the materials to the respective places. Can drag onto the model, or into the material slots.

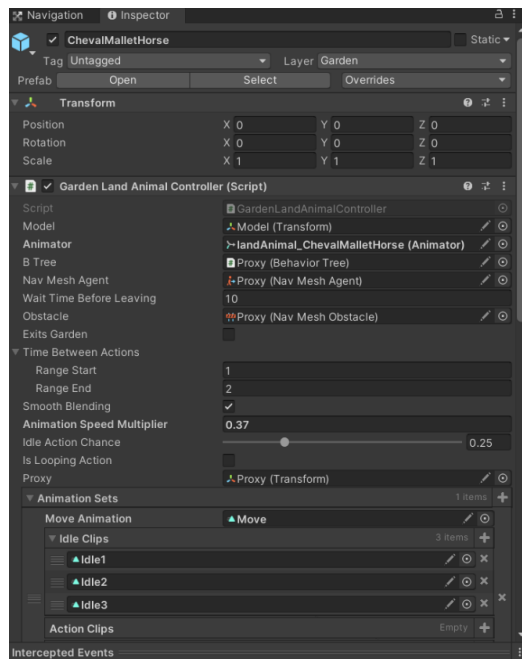
Make sure the material is being assigned to the actual model and not the prefab parent.



Part 8.7.B Setting Up Prefab Components: The Basics

At the top of the prefab, a lot should be assigned.

Check to make sure that the model and Animator



Most of the time the only thing the artist may need to touch here is re-linking the animation controller inside the Animator Tab.

have things assigned to them. The Animator should have `landAnimal_AnimalName (Animator)` or `flyingAnimal_AnimalName(Animator)` assigned to it. If not click on the circle on the right part of the input box and select the corresponding animator controller from the menu.

If no animator controller exists it's possible the fbx asset does not have a generic rig created. *Check step 7.6.B for more information on how to set that up.*

B Tree = Proxy (behavior tree) refers to the proxy that should automatically be set to the asset. Can see this inside the Hierarchy of the prefab.

Nav Mesh Agent = Proxy (Nav Mesh Agent) > Should be auto set up. Used to be able to walk on the nav mesh that's set up in the scene file.

Wait Time before leaving = how long will the animal stay on the animal landing spot before moving onto a new spot.

Obstacle = Proxy (Nav Mesh Obstacle) > related to the nav mesh inside the scene file. Should already be auto-set up.

Time Between Actions = Time between actions on the character.

Smooth Blending = Blends smoothly between animation clips.

Animation Speed Multiplier = Speeds up the animation speed.

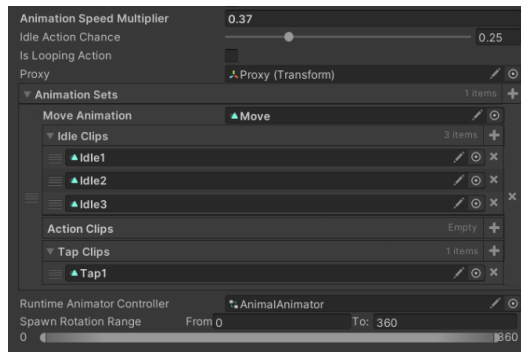
Idle Action Chance = Percentage chance of if an Idle will play.

Proxy = Refers to the Proxy inside the prefab.

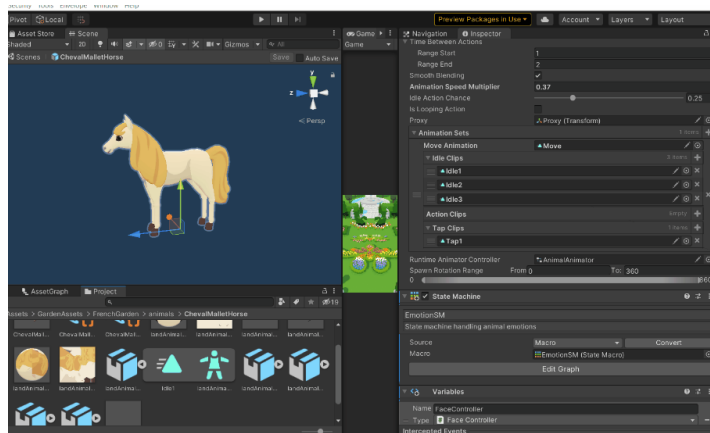
Part 8.7.C Setting Up Animation Sets

The next group are the Animation Sets.

Input the corresponding animation clips into these sections.



Example of how to input the animation clips.



Next, on the prefab the following need to be added:

Part 8.7.D Setting Up State Machine (Face Plates)

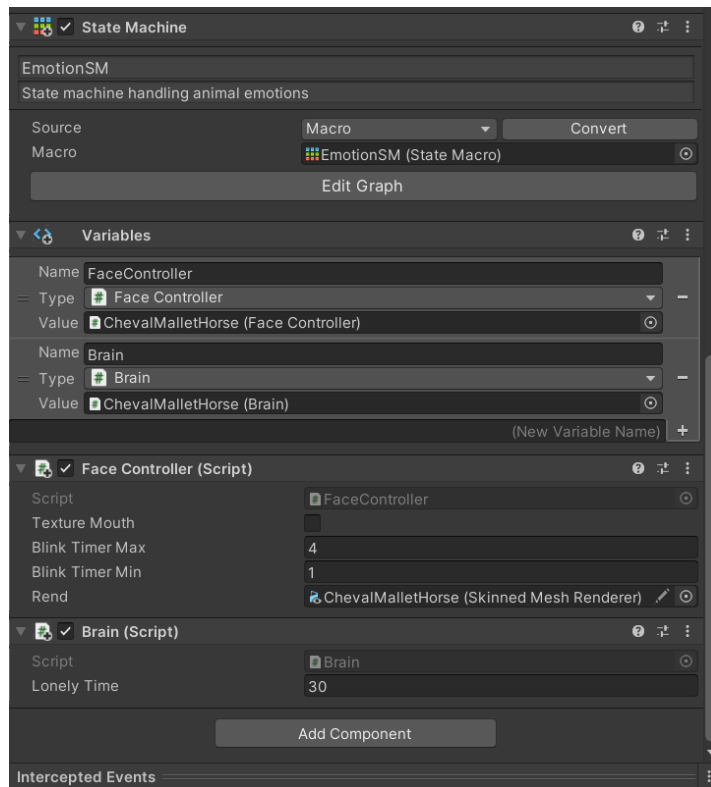
This is for the Face Animations to work.

State Machine

Variables

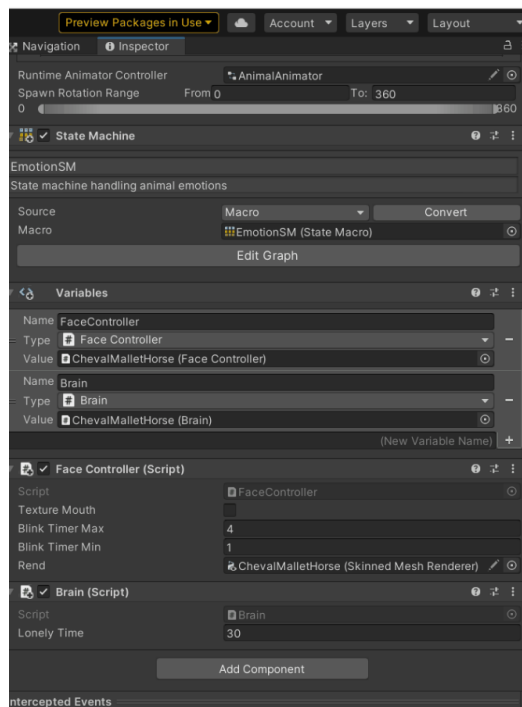
Face Controller (Script)

Brain (Script)

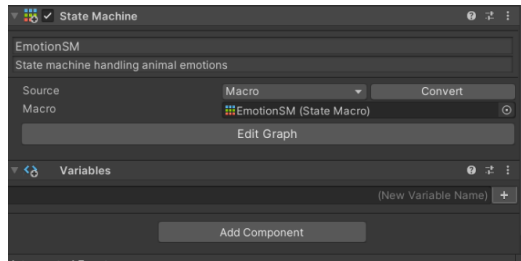


To set up the face plate system, add FaceController.cs, Brain.cs, State Machine , and Variables component on the top level.

To add one of these components select “Add component” and type in the name of the Component.

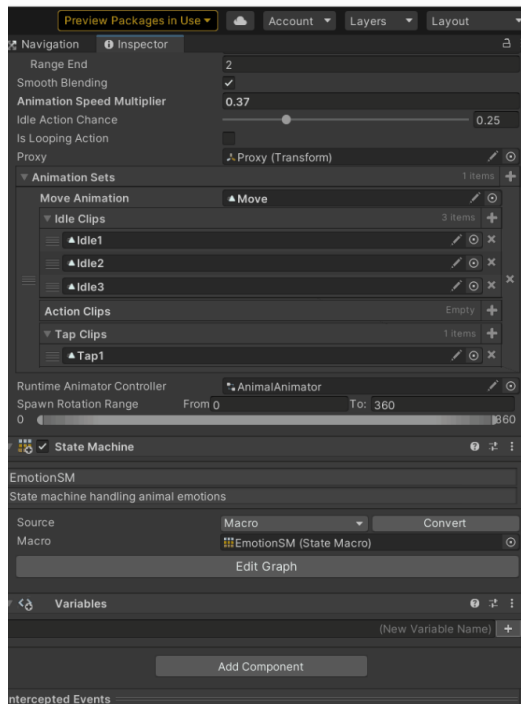


First add the State Machine Component. Click Create component and then type in State Machine.



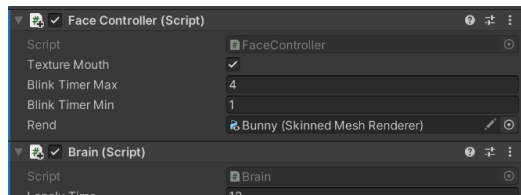
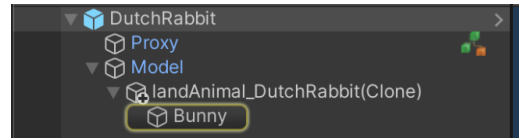
< The following should result.

Underneath a Variables section appears. For now move onto the next step, after the next two steps the variable will be re-visited.



Add another component. Select Add component button, type in Face controller. A face Controller Script will be added.

Drag in the skinned mesh renderer into the Rend section. It should live at the bottom of the hierarchy inside the prefab.



For Face Controller Script: Check on texture mouth if the animal has a mouth. *For example, on for rabbits and off for horses and birds.*

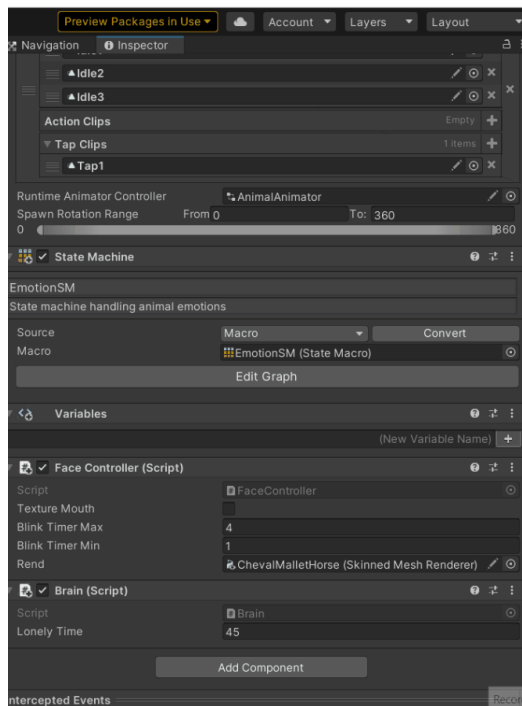
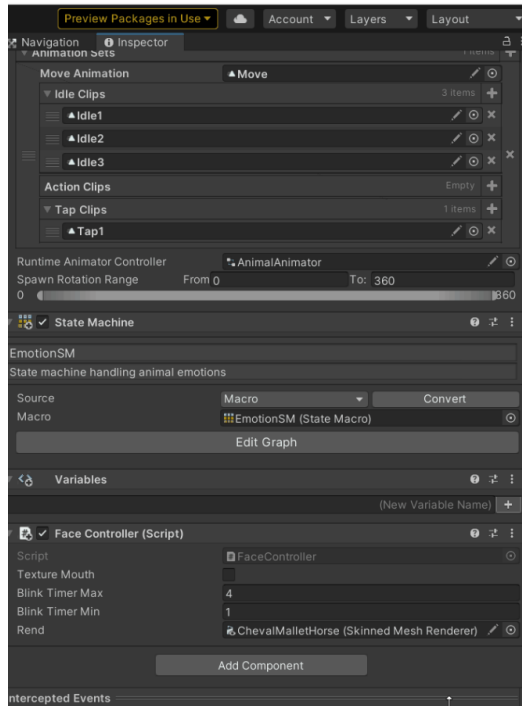
Blink Max and Min are how often the animal blinks.

Next add another component. Type in Brain.

A brain script should populate.

Set Lonely time to an appropriate time based on the character's personality. Make the number really high so it isn't always sad. 400 is a good place to start.

The bigger the number, the longer it takes for the animal to get lonely in the game. (The textures will change to sad).



Part 8.7.E Setting Up Animation Proxy

Add the following Variables to the variables tab:

Name: FaceController

Type: Face Controller Script

Value: select the circle and then the prefab that appears in the pop-up Should be the prefab that is correlating to the character.

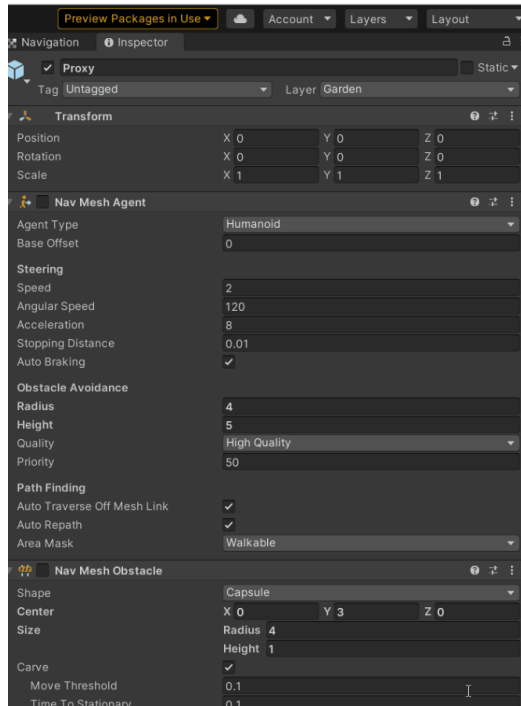
Name: Brain

Type: Brain Script

Value : select the circle and then the prefab that appears in the pop-up should be the prefab that is correlating to the character.

Next just double check everything that should of auto-populated is there.

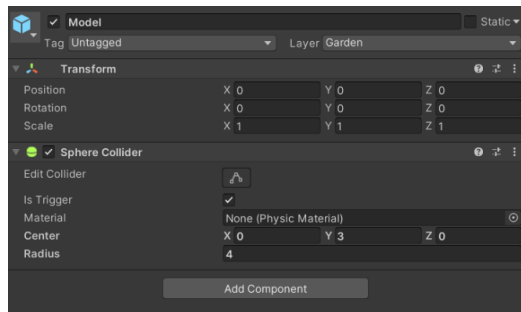
Check the Proxy, Nav Mesh Agent, Nav Mesh



Obstacle, and Behavior tree should all be applied already.

If not add them with the add component button. Use an animal prefab that is finished to reference the inputs.

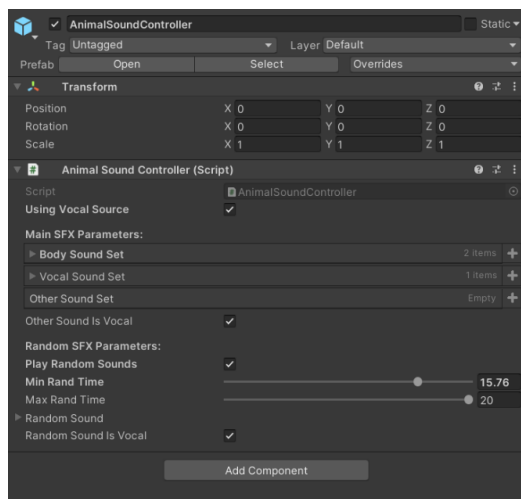
Part 8.7.F Checking Model Components



Model should have the following information.

Radius on the sphere collider may fluctuate depending on the size of the animal. Adjust as needed.

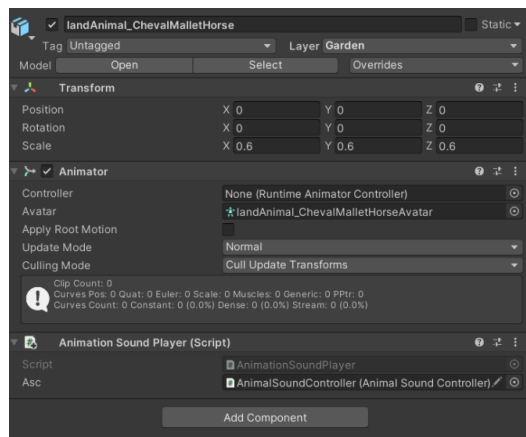
Part 8.7.G Setting Up Animal Sound Controller



Animal sound controller should be added to the model or prefab by the Sound Designer.

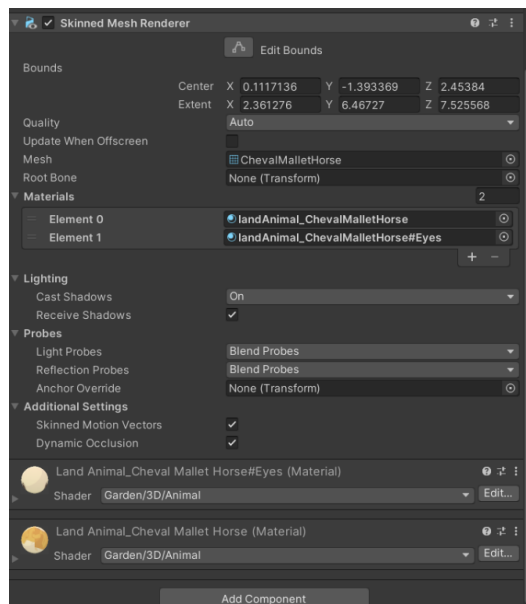
-this section may need more information from a sound designer-

Part 8.7.H Setting up Land Animal Prefab Components



The land animal prefab has an animator and an animation sound player attached.

Part 8.7.I Setting Up Model Components

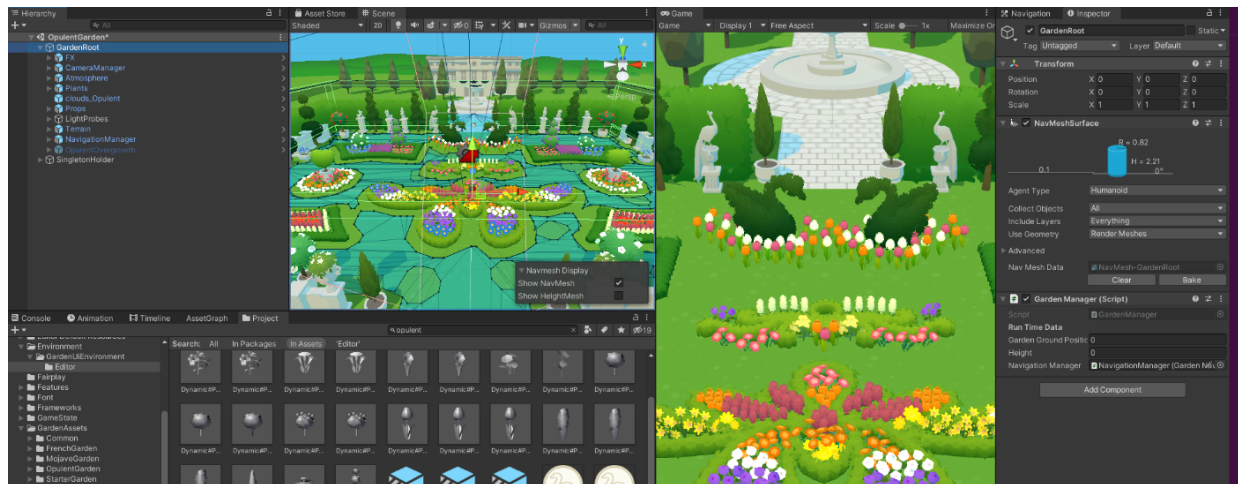


The model itself (usually the bottom of the hierarchy) has the following attached:

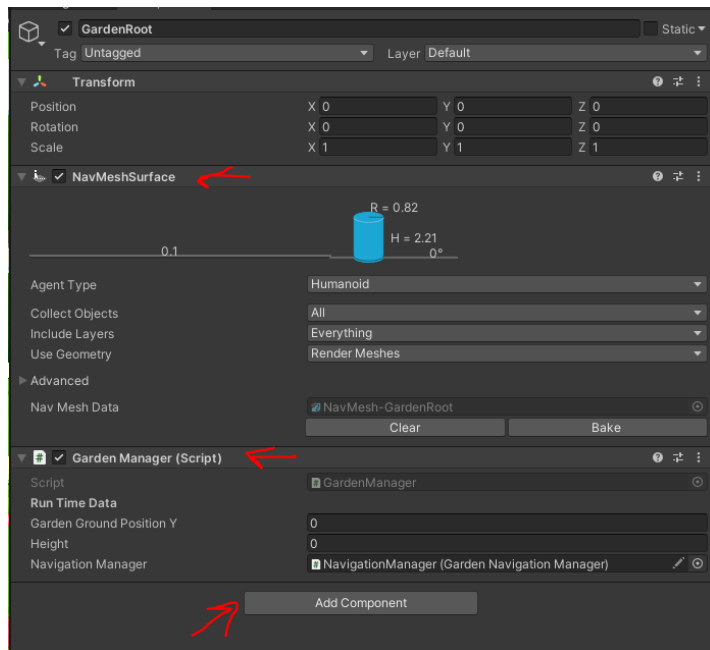
Skin Mesh Renderer

Materials

PART 8.8 SETTING UP NAV MESH



Make sure the Garden Root is selected.



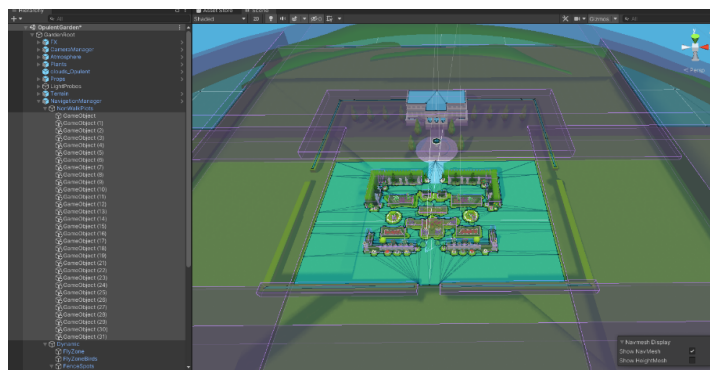
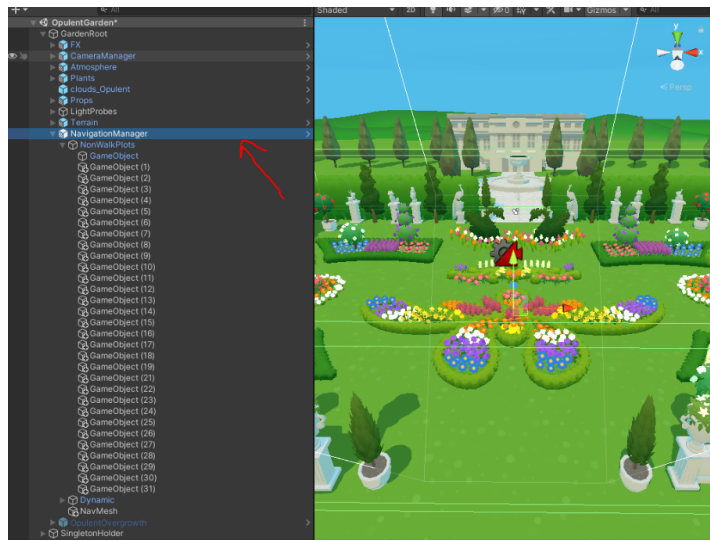
See if NavMeshSurface and Garden Manager Script are applied.

If not add both of them by using the Add Component button.

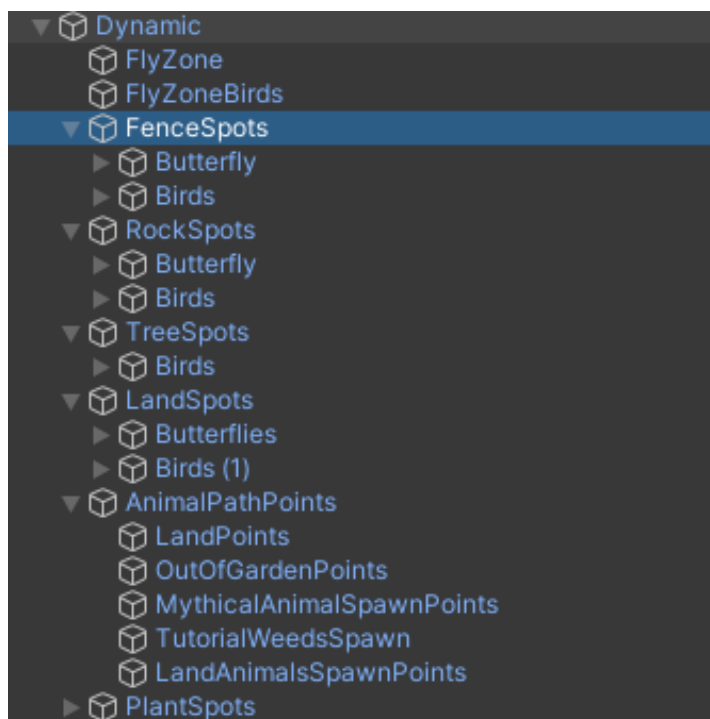
Focus on the NavMeshSurface.

Go to the hierarchy, open up the Navigation Manager.

Inside there will be NonWalkPlots, Dynamic (landing spots), and NavMesh.



For the Non-Walk Plot section when selecting the objects in the scene boxes will appear. These empty boxes are indicating spaces that should not be walked on. Duplicate the asset and scale/place the object in any area that is not walkable.



For the Dynamic section there are a couple things going on. The FlyZone and FlyZoneBirds are boxes that if selected can be seen in the scene.



These indicate where the flying animals can fly. Typically it's scaled to match the size of the interior garden space.

Make sure with editing the box collider, the collider itself is edited and not the object.



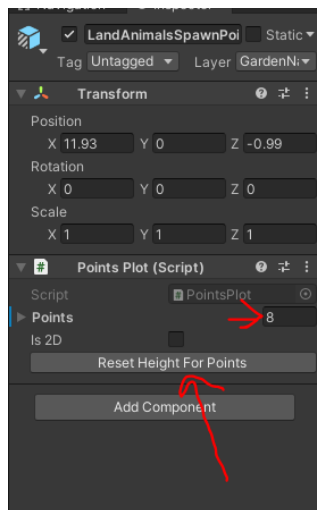
Next are the landing spots for the birds and butterflies.



these are empty game objects with a mover spot script attached. Duplicate them and place them where ideal.



Next are the Animal Path Points. There are 5 different path point game objects. Move and place the white spheres into places that the animal should stop and idle at.



For any of the points below, once placing the points, make sure to reset height for points so they stay at the right height on the ground.

To add more points change the points number.

OutOfGardenPoints are the points used to indicate where the animals go to outside the garden. Place these outside the interior of the garden.



MythicalAnimalSpawnPoints is the spawn point for the mythical animal which no longer exists. Place this inside the garden, in a very open spot incase mythical animals come back.



TutorialWeedsSpawn Is where the weeds tutorials spawn. Place these in easy to access and see spots for the player.



LandAnimalsSpawnPoints

These are the spawn points of where the animals will appear when unlocked in game. Place these in easy to see and open areas.

Once everything is placed it is time to bake the NavMesh.



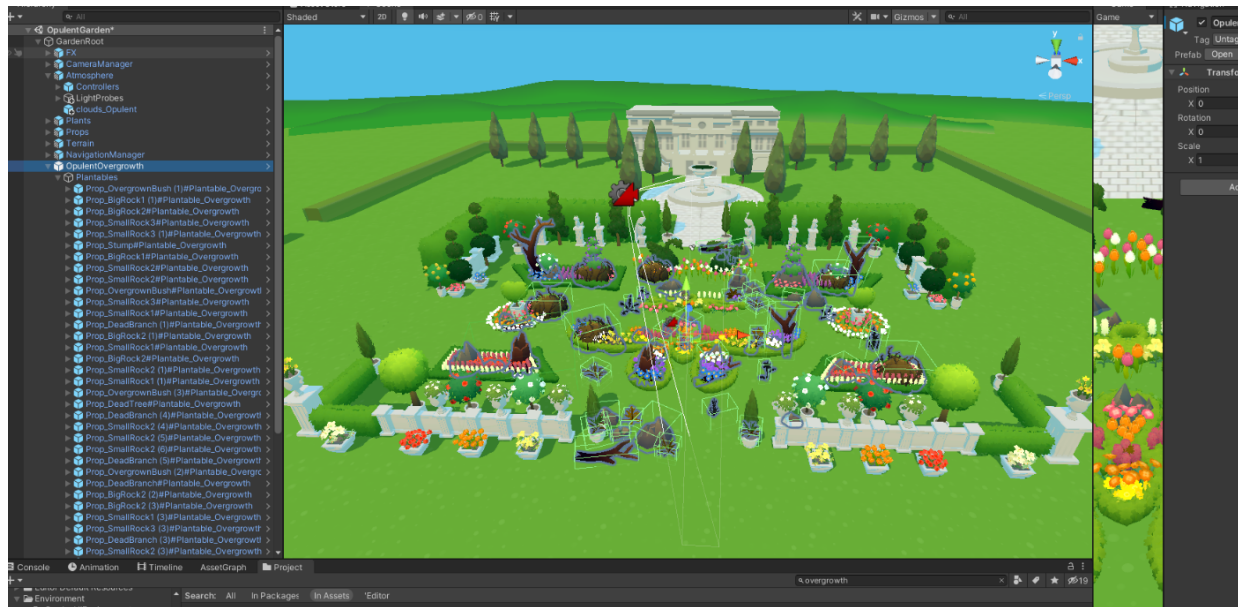
Select the GardenRoot and then go to the inspector and locate the bake button under the NavMeshSurface component. Hit Bake. This may take a few mins to populate. A green-ish blue object will appear like the one above. Adjust the none walk-plots etc and re-bake as needed.

Navmesh should not appear on top of objects (e.g. top of hedges) etc.

PART 8.9 ADDING BRAMBLE/OVERGROWTH TO THE GARDEN

Next it is time to add the overgrowth/bramble asset to the garden. In the project folder search for "StarterOvergrowth". Duplicate that asset and re-name it to the correct Garden. Move that asset into the proper folder *Assets/GardenAssets/GardenName/Scene/prefabs/*

Drag the new overgrowth prefab into the scene.



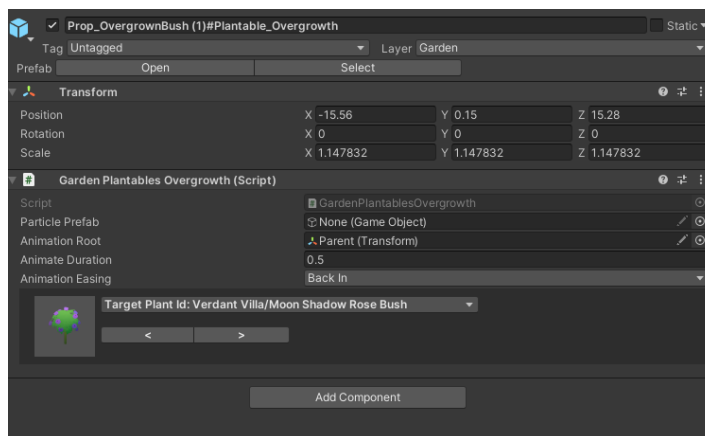
Inside the prefab there will be a section called "plantables" and "tappables". The plantables are removed via unlocking and planting a new plant. The "tappables" are removed via the user tapping them.

Move and place each of the plantables to overlap with an unlockable plant if possible. Duplicate desired ones if more are needed.

Tappables are removed via the user (weeds) and should be placed in a spot that makes them easy to see and tap on.

Part 8.9.A Assigning a Target Plant to the Overgrowth asset

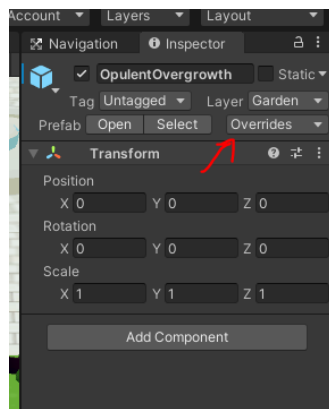
After the assets are placed, each asset inside the plantables overgrowth needs to have a target plant attached to it. This script is basically saying : *When this plant is unlocked, remove this piece of overgrowth.*



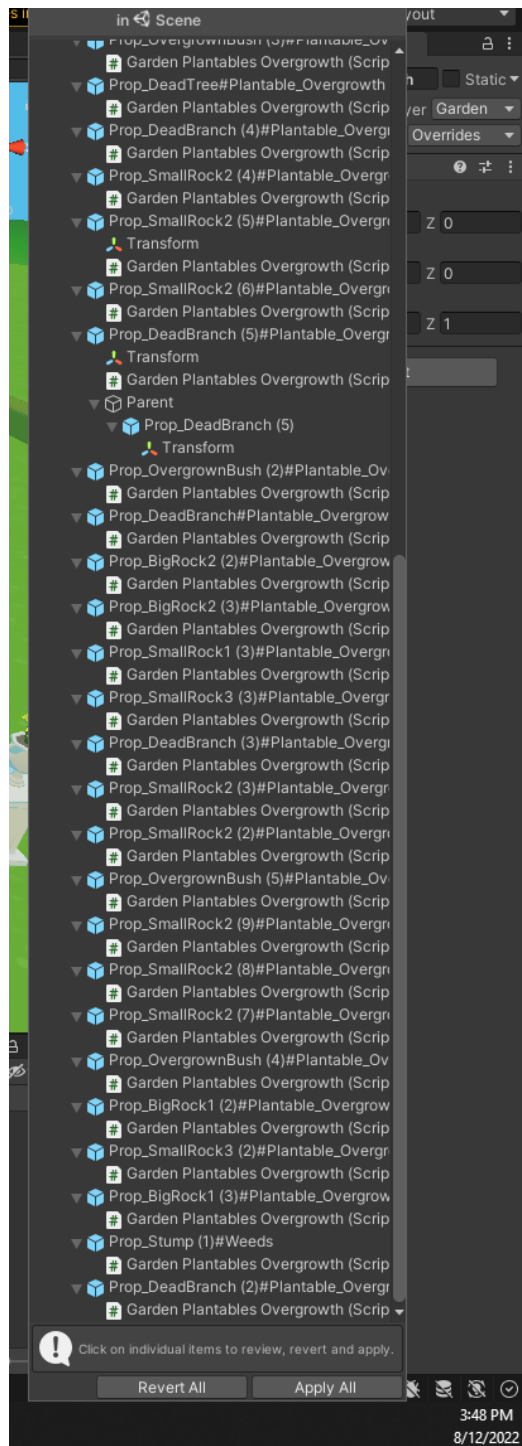
Select from the dropdown menu in the Target Plant Id and assign the one that's closest to that piece of overgrowth.

Do this for every piece of Plantable.

Once everything is placed, the prefab needs to be overwritten.



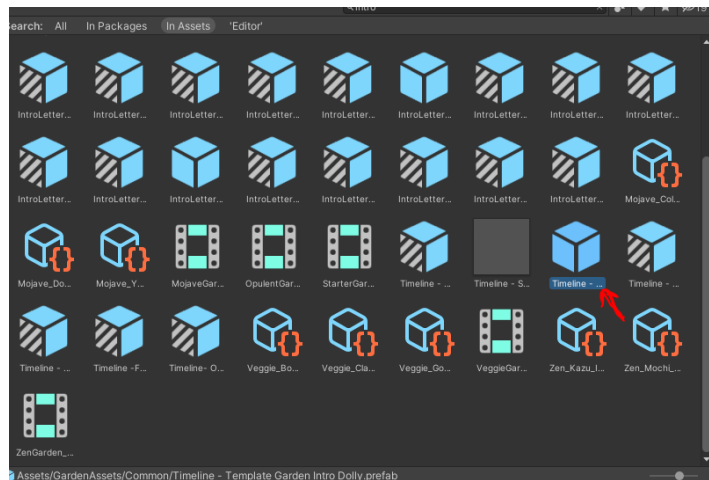
When selecting overrides, a lot of changes like this will appear. Select “Apply All”



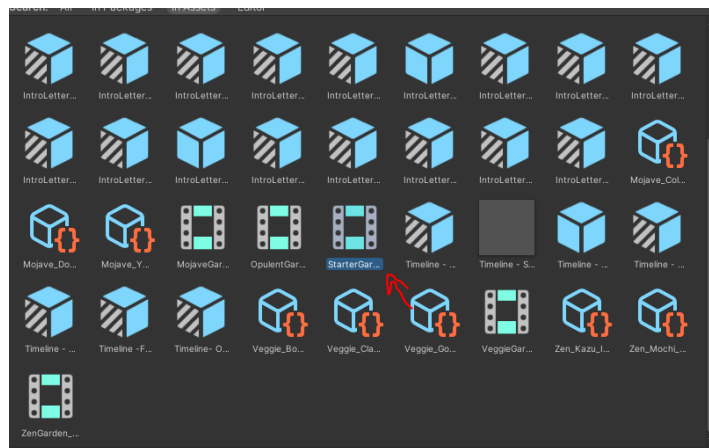
PART 8.10 CREATING A FLYTHROUGH INTRO MOMENT CAMERA

To create the Garden intro moment camera, search for *Timeline - Template Garden Intro Dolly* inside the project folder.

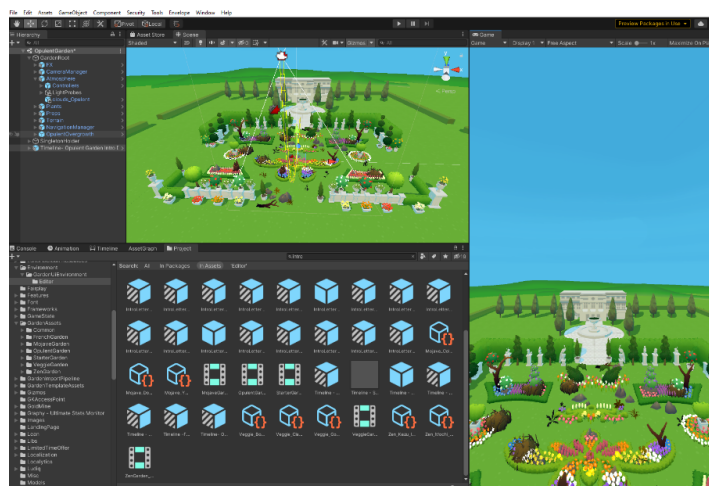
Duplicate that Asset and name it
Timeline-GardenName Intro



Search for *StarterGarden_Intro* movie clip in the project folder.



Duplicate this asset and name it
"GardenName_Intro"

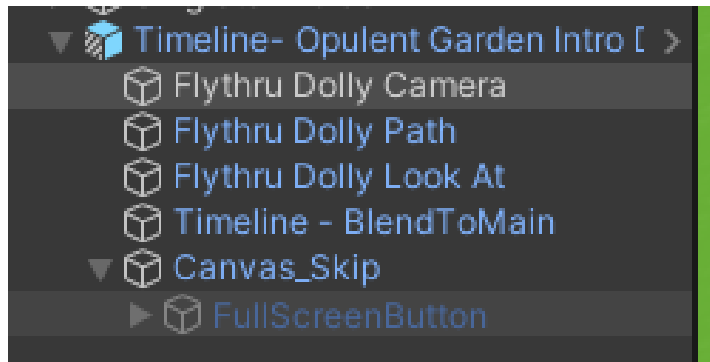


Drag the Garden Timeline prefab into the hierarchy. The game scene may change as the intro moment camera is influencing the game scene.

In the scene if Gizmos is on, a track that looks like a rollercoaster will appear.

Inside the timeline prefab:

Flythru Dolly Camera: This is the



camera for the flythrough moment

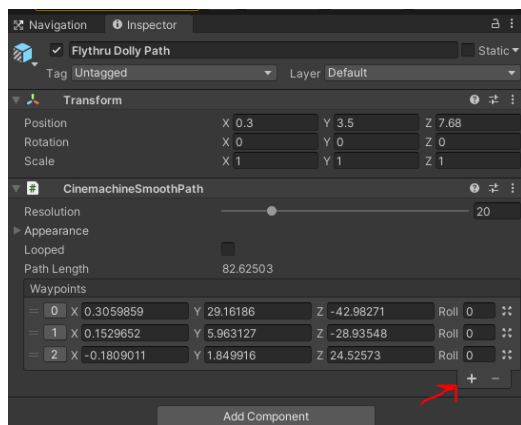
Flythru Dolly Path: this is the rollercoaster track visible in the scene view. It's what the camera moves on during the flythrough moment.

Flythru Dolly Look At: Where the dolly is pointing at

Timeline-BlendToMain: playable director for the animation

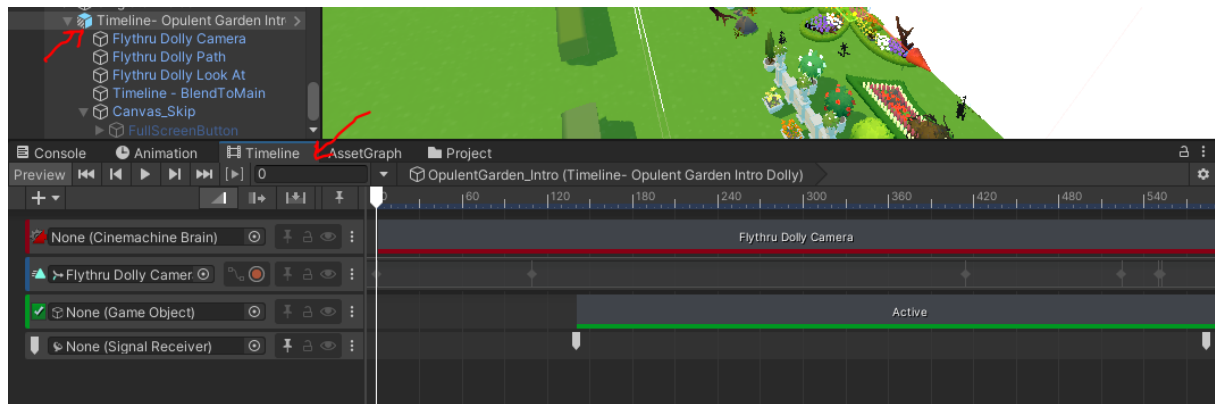


Move the spheres around to move and bend the track into the place that is desired. 0 is the start of the track.



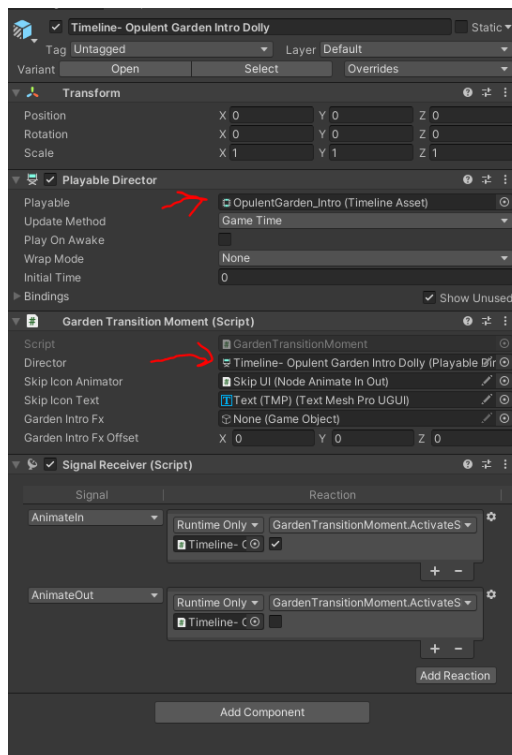
To add more points to have more control use the plus button inside the CinemachineSmoothPath script.

Select the top of the prefab and open the timeline to preview the intro moment. Use the white tab click, hold and scrub. Can also press Play.

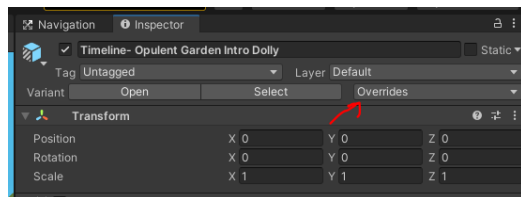


Inside the prefab input the Garden_Intro movie clip into the Playable slot.

Make sure the director is using the intro dolly.



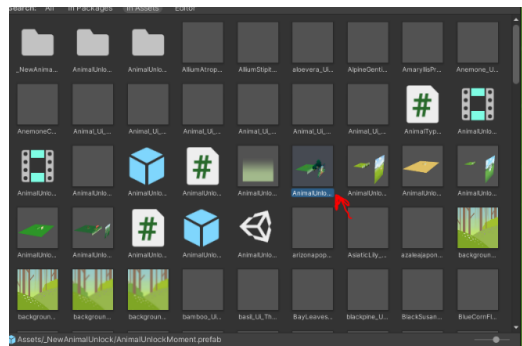
Apply any over rides



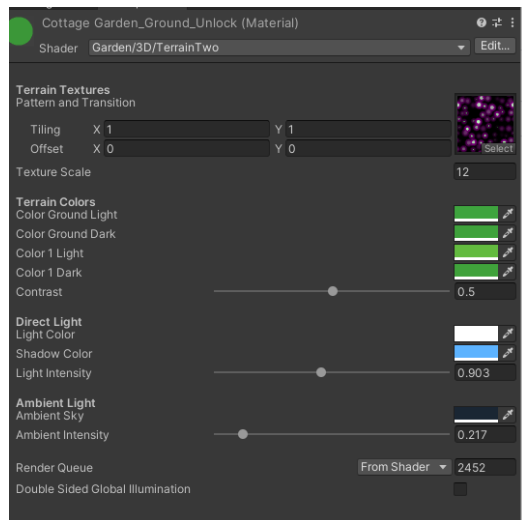
Remove the prefab from the scene.

PART 8.11 ANIMAL UNLOCK SCENE

Find the AnimalUnlockMoment prefab and duplicate it. Rename the duplicate *AnimalUnlockMoment_GardenName*.



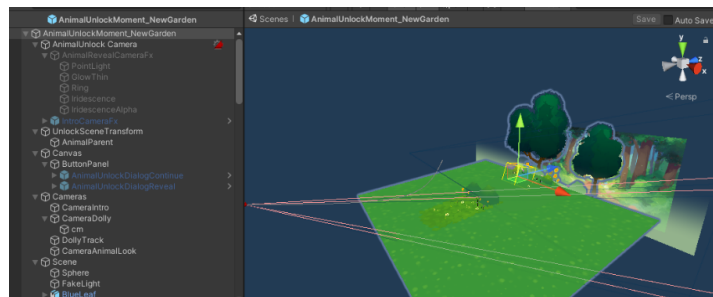
The new prefab can live inside the
_NewAnimalUnlock folder.



Find the *CottageGardenGround_Unlock* and
CottageGarden_Ground_Unlock_2 and duplicate
them.

Rename them to
GardenNameGardenGround_Unlock and
GardenNameGardenGround_Unlock_2

Place the materials in the Corresponding Material
Garden Folder.



Open the New duplicated prefab
and it should look something like
this.

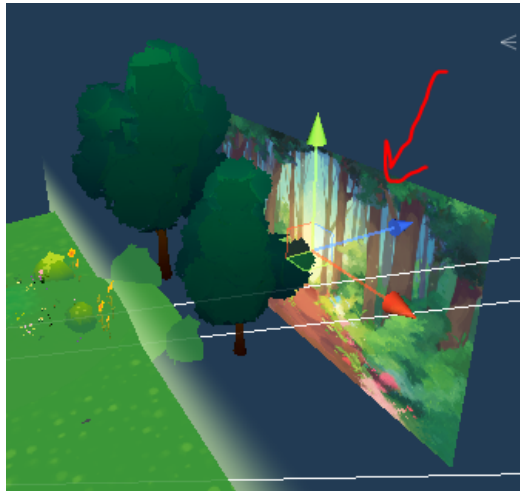
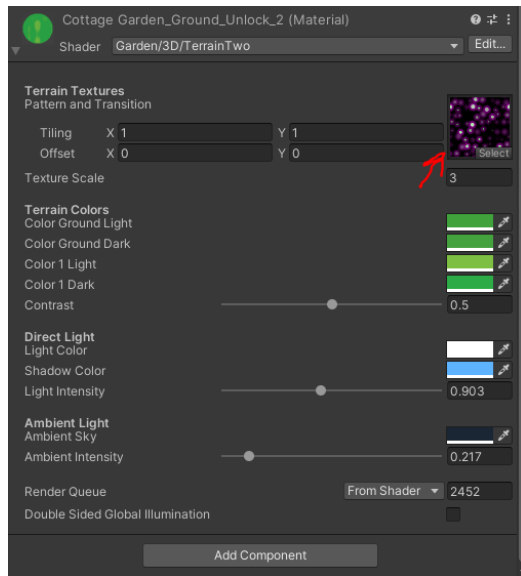
Assign the new ground materials
to the ground. *Unlock_2* goes on
the mound and *Unlock* goes on
the plane.

Make sure that the texture *Terrain Splat* is selected
for these ground textures.

Change the color inputs accordingly.

Do this for both ground materials.

The grounds of the unlock scenes all stay within the
same style, only the colors changing to match the
new garden.



Next create a background image. To create the background image, enter the respective garden. Try to screenshot the background of the garden.

For instance something like this works.

Take it into photoshop or photo editing software and blur the image. Use judgement on the amount of blur.

Bring the image back into Unity and use it as a sprite inside the animal Unlock Scene.

Next start dragging in the garden assets. Make sure to drag in the FBX and not the prefabs. apply the regular material that goes to those assets. Place assets in similar fashion to how its already set up. Use the existing assets inside the garden unlock scene for scale and placement reference.

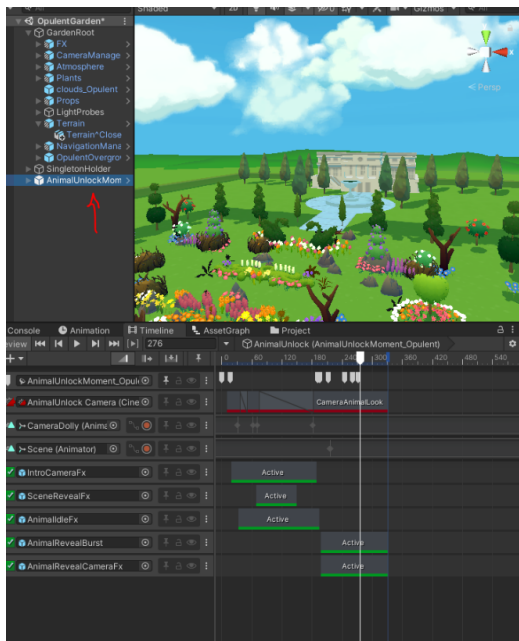
Once all the assets are placed, remove the old assets (other garden) and save the scene.

Make sure all 3d/2d assets in this



scene are set to
AnimalUnlockScene Layer.

To test how it will look in game, go to the Garden scene.

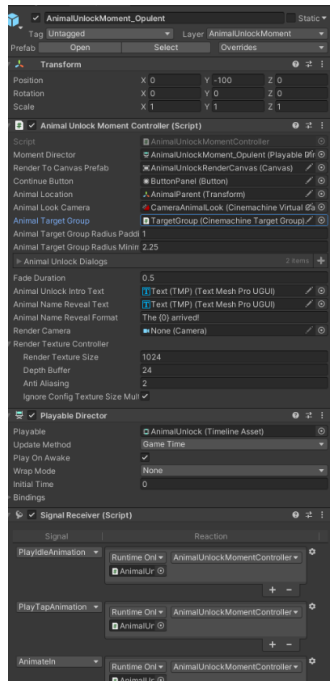


Drag in the unlock moment prefab, open the timeline.

Inside the game scene scrub along the timeline and the animal unlock scene should play.

Can also press play to watch.

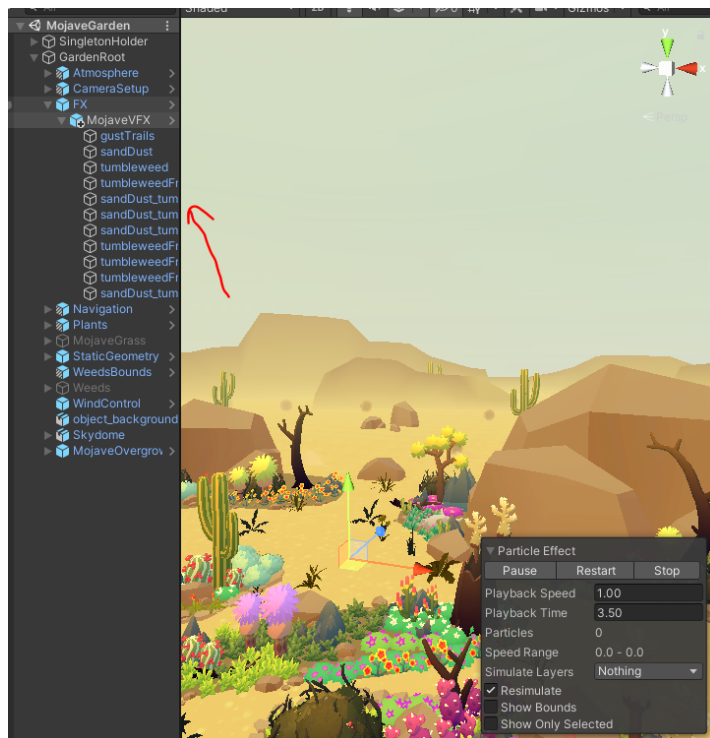
Make sure the settings on the prefab look like this. The moment director should have the corresponding garden in it. There should be 5 signal receivers at the bottom.



Yay! The Animal Unlock scene is done.

PART 8.12 GARDEN VSFX

Garden VSFX are typically done by Shirley, but in this case another person might need to make vsfx. Typically vsfx live inside the FX prefab of the garden root. Make sure to make a prefab per garden VSFX. Name it *GardenNameVFX*.



Inside the hierarchy it should look something like this.

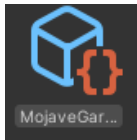
Each garden is going to have different VSFx. Feel free to re-use vsfx from other gardens if they match the garden. For instance if there is a another desert garden and the dust particles wanted to be re-used they can. Make sure to duplicate those assets and name them *GardenNameAssetName*.

PART 8.13 GARDEN CONFIGS

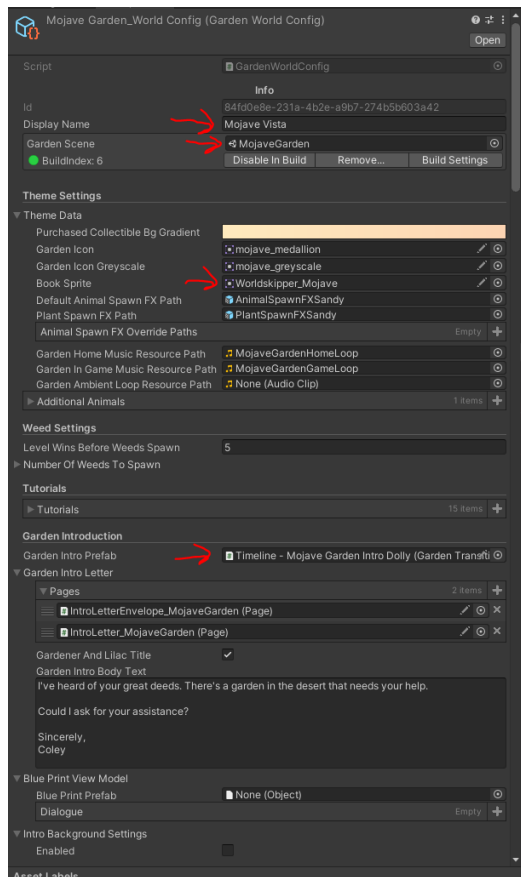
Currently the Garden will not play inside the game. This is because the garden has not been inputted into configs and other things.

The primary things to focus on:

Garden Config:



Each Garden has it's own Config. *GardenName_WorldConfig*. Search GardenName and look for this symbol.



Inside the Garden Config there are a few places to be aware of.

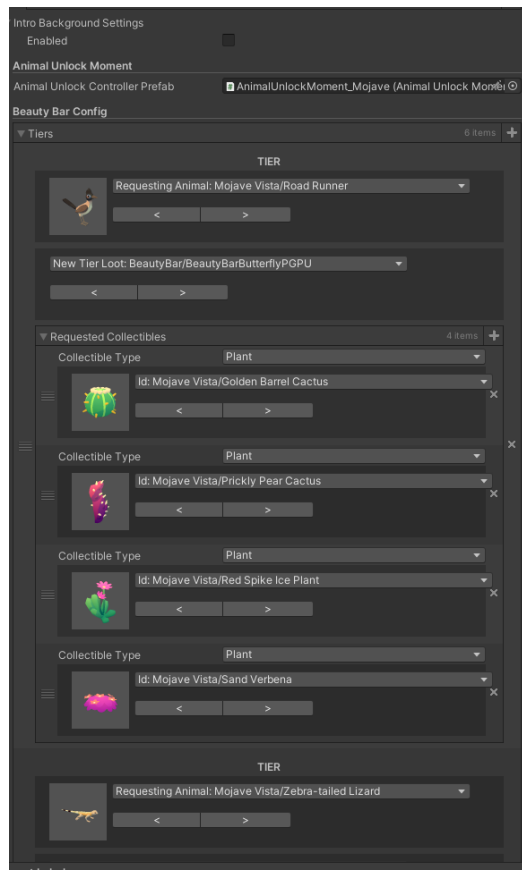
Make sure the Garden Scene is the corresponding garden scene.

Make sure the Display Name is correct.

Add in the world skipper image into the book sprite section. The image will need to be a sprite.

Make sure the Garden Intro Prefab has the *Timeline-GardenNameIntroDolly* prefab inputted. This will need to be added in.

The Animal Unlock moment will need to be added to the config. Find the animal unlock moment controller prefab slot and input the *AnimalUnlockMoment_GardenName* Prefab to the open slot.

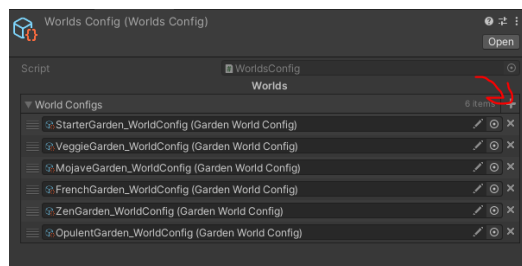


In the next section there is the Beauty Bar Config. At least 1 tier needs to be added for the garden to work. Add one animal, a reward and one plant to this section to get the garden working.

A game designer will fill in the rest/complete it.

The rest of the config will be worked on by an game designer so at this point the artist/dev is done.

World Config:



To make the garden added to the game, add it to the *WorldsConfig*. Hit the plus button to add. Fill in the input box.

Now that both configs have the proper stuff slotted in, the garden is in a place where it should run. Follow Part 8.15 to test.

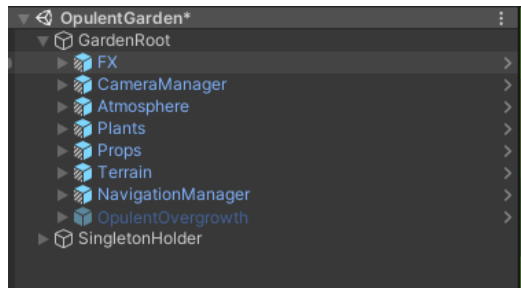
PART 8.14 FINAL CLEAN-UP OF GARDEN

Before starting to add some of the features to the garden, it's time to start organizing the garden so it's neat and tidy. Move all the assets under the corresponding prefabs.

FX = Visual Effects (e.g. God Rays, Water fountain particles)

CameraManager = no need to touch this

Atmosphere = Skybox, clouds



Plants = All plants
 Props = All Props (Non-unlockables)
 Terrain = the terrain of the garden (ground)
 NavigationManager= the Navigation tools like spawn points.

PART 8.15 TESTING THE GARDEN



Try to play the game. Search for *Init* and look for the Init Scene. Double click to enter that scene.

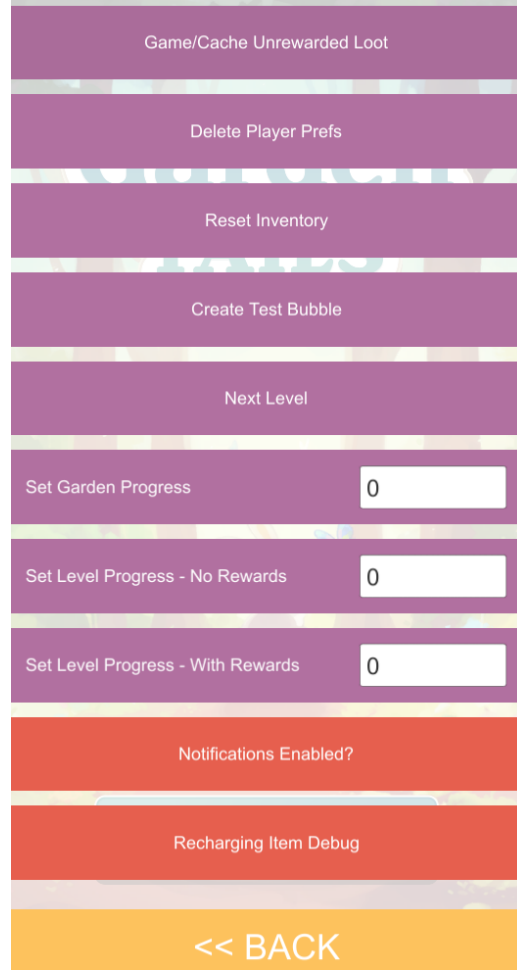
Should look something like this.

Go to Tools > Debug > Delete Player Prefs. Delete Player Prefs.

Hit the Play button at the top center of the screen.

The screen should look like this when in play mode. Hit the Continue or Begin Game button.

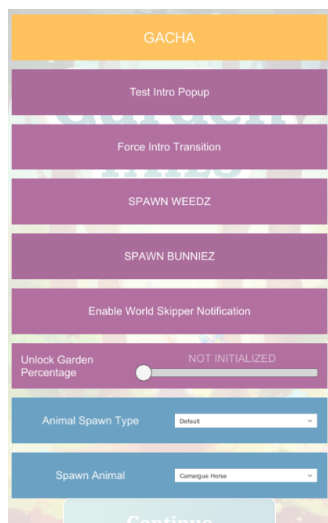
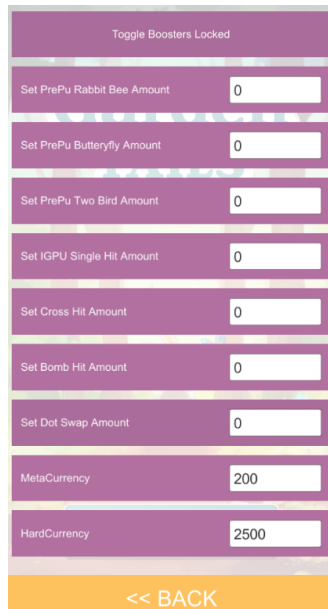
Double click at the top of the screen, Find the Set Garden Progress section and change the number to the number garden it is.



The game should then skip to the correct Garden. Once in the Garden begin testing. Either play the game and unlock currency the normal way to play the game (this is SOOO slow, not recommended.) Or add meta currency to the game.

To add meta currency double click at the top of the screen and input a very large number into the meta currency slot.

Then go through the game by unlocking every plant. Do this at least once to make sure each plant/animal is working properly.



Another way to unlock the garden is to go to Garden > Unlock Garden Percentage in that same hidden HUD. Drag the slider all the way to 100 percent. It's a little sticky so just note that it will stick, or it could crash the game. This is only recommended after you've done an unlock pass like above.

Things to Test:

- ☐ Make sure the Game Plays
- ☐ Make sure the Garden Appears
- ☐ Make sure the Garden intro Movement Runs
- ☐ Make sure things can be unlocked and placed properly.
- ☐ Make sure the camera during unlock moments works.
- ☐ Make sure the animal unlock moment is playing, the animals are animating at this moment.
- ☐ Make sure user can move around the garden, zoom in and out
- ☐ Make sure the animals look ok in follow cam mode
- ☐ make sure the Nav mesh is working and the animals are animating/moving properly
- ☐ Make sure the skybox and clouds work.
- ☐ Make sure the shadows are working properly

Make a QA Doc:

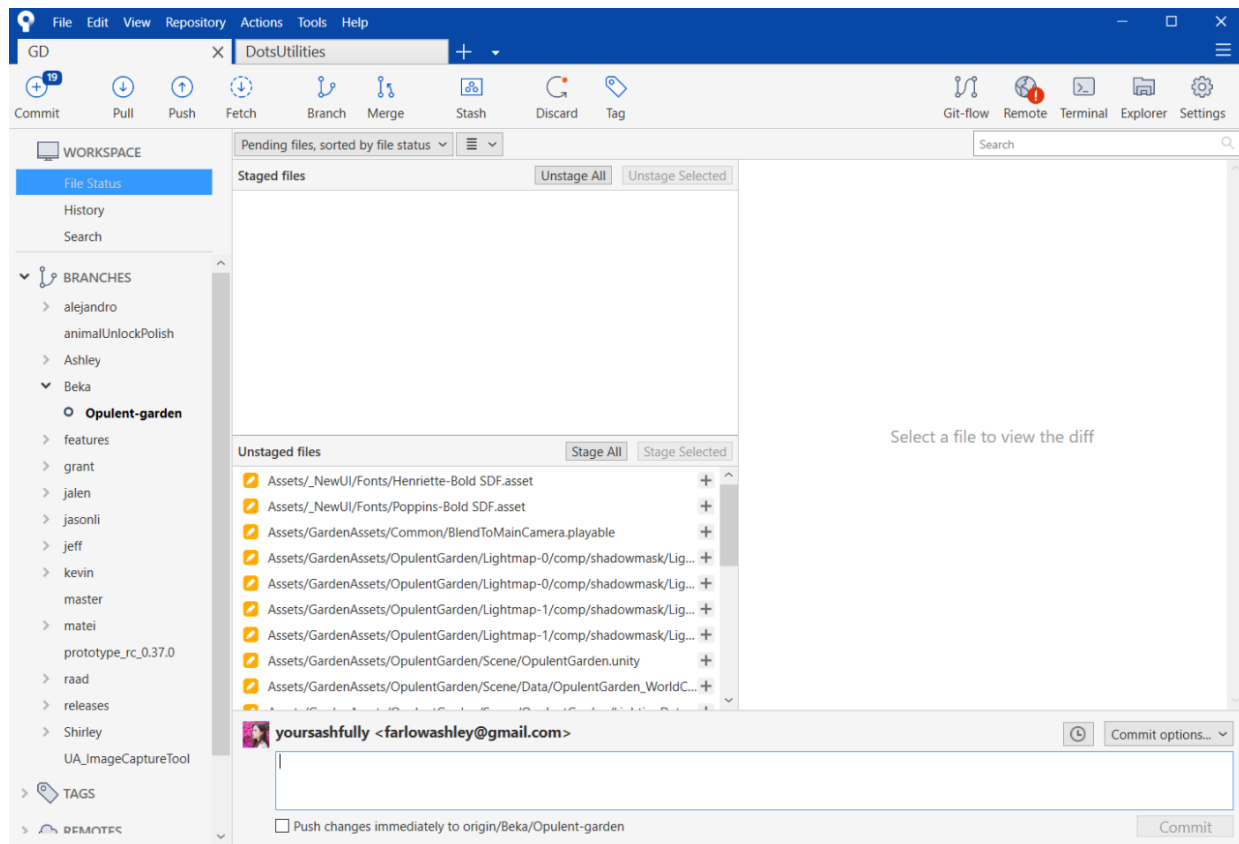
To make a QA Doc, Go here [QA for Gardens](#) and duplicate the document

Fill in the info.

PART 10: GARDEN COMPLETE

Congrats! the Garden is complete. Now it's time to set up a PR.

First, go to source tree and make sure no changes are left to push.



Check File Status under the Workspace. Stage and push any changes to the remote branch.

Once everything is pushed go to GitHub.

github.com/playdots/gardenvariety-proto

playdots / gardenvariety-proto Private

Watch 13 Fork 0 Star

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features/apple... 422 branches 336 tags

Go to file Add file Code

About

No description, website, or topics provided.

Readme

1 star

13 watching

0 forks

Releases 5

v0.0.1-rc.28 Latest on Sep 4, 2021

+ 4 releases

Packages

No packages published

Publish your first package

Contributors 23

File	Description	Time
.github	Updated Build image	25 days ago
.idea/idea.GV/idea	- Test lighting	3 years ago
Assets	Merge pull request #1939 from playdots/Shirley/OvergrowthAnim	5 hours ago
BuildPipeline	Builder Package Setup and iCloud Postprocessing	7 months ago
Cops	Cops also use 1 line from version file	14 months ago
Dots-Android	Applink handling on Java and Objective C sides.	2 years ago
GVUIModule	- Start level popup and UIModule fix for screen space UI using plane ...	4 years ago
Packages	Remove code that gets vendor identifiers as it is against Apple rules...	18 days ago
ProjectSettings	Unchecked request notification authorization on launch	2 months ago
RewiredBackup	Added Rewired	6 months ago
Scripts	Add Android create key script	4 years ago
Security	Add dev keystore and pass	4 years ago
Style/StyleCon	- Adds Assets/EnvironRegister/Resolver/ThirdParty to styleinmore	2 years ago

Go to the gardenvariety-proto repository.

playdots / gardenvariety-proto Private

Watch 13 Fork 0 Star 1

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Filters is:pr:open

Labels 16 Milestones 11 New pull request

9 Open 2,118 Closed

Author	Label	Projects	Milestones	Reviews	Assignee	Sort
Ashley/succulent garden	#2145 opened 6 days ago by yoursashfully • Review required	🔗 Arcade Update 1				1
Fix Conflict Screen Label	#2140 opened 11 days ago by sp-alejandro-alberich • Review required	🔗 Live Ready				3
[GD-4081] Update Catalog UI	#2139 opened 12 days ago by sp-alejandro-alberich • Review required	🔗 Arcade Update 1				1
GD-4054 - (Implement Story Icon to the Beauty Bar)	#2133 opened 18 days ago by beka-mujirishvili-logos • Review required	🔗 Arcade Update 1	BLOCKED			1
macOS FairPlay Update	#2130 opened 18 days ago by pavel-schelkun-ilogos • Changes requested					5
Ashley/spiny forest v1	#2122 opened 21 days ago by yoursashfully • Review required	🔗 Arcade Update 1				1
Ashley/new opulent animals import	#2097 opened on Jun 8 by yoursashfully • Review required	🔗 Arcade Update 1				
[GD-2892] Shuffle hun fix	BLOCKED					3

Go to the Pull Requests Tab and then select **New Pull Request**.

Comparing changes

Choose two branches to see what's changed or to start a new pull request. If you need to, you can also [compare across forks](#).

base: features/apple-arcade

←

compare: Ashley/Garden_overgrowth_v2

Checking mergeability... Don't worry, you can still create the pull request.

Discuss and review the changes in this comparison with others. [Learn about pull requests](#)

Create pull request

↔ 10 commits

📄 232 files changed

👤 2 contributors

🕒 Commits on Sep 22, 2021

Make sure the base will be features/apple-arcade or wherever it's being merged. Compare should be the branch needing to be merged.

Hit Create Pull Request. Follow the inputs. Hit Create Pull Request.

Announce to the team the branch is ready to be Merged. Have someone review the PR and then when approval is given, merge the PR in.

PART 11: Trouble Shooting / Common Problems

This section is for de-bugging when running into errors while working on Garden. Add to this section as more common issues are found.

<https://github.com/playdots/gardenvariety-proto/wiki/Garden-Creation-Debugging>

<https://github.com/playdots/gardenvariety-proto/wiki>

PART 11.1 PROBLEM: CONFIGS WERE NOT POPULATING.

Solution:

- Checked naming structure of folders
- renamed folders where animals are >
- animals folder needs to be lower case
- E.g> originally was Animals, need to be animals
- flying folder needs to upper case
- E.g> originally was flying needs to be Flying
- After parent folders are named properly open asset graph.
- to access> Window > Asset Graph > Open Graph Editor
- Drop down on lower left > Look for Generate Garden Config
- Select Generate Garden Config
- Select Assets that need Configs
- Hit Execute
- Exit Unity
- Sourcetree will populate correct files
- Re-Open Unity and check

PART 11.2 PROBLEM: GARDEN FREEZES WHEN TESTING NEW GARDEN

Solution:

- Check SucculentGardenConfig
 - Make sure the appropriate slots have their items hooked up
 - Make sure animals are requesting stuff
- Check WorldConfig
 - Make sure the garden you are wanting to look at is in this list.

PART 11.3 PROBLEM: COMPILER ERRORS !!!

Solution (follow options in following order, stop when the option fixes your issue) :

Option 1: Check Build Settings to make sure its platform is IOS

- File > Build Settings
- Platform > iOS (double click to switch platforms)

Option 2: Close Unity, Remove all changes on file status in file manager (sourcetree/git)(make sure you are aware if you are going to lose any of your work you want to keep before doing this), Re-Open Unity

Option 3: Close Unity

- Delete Library folder
- Documents > Dots> GD > Library
- Open Unity, let it re-import everything

Option 4: Try any or all of the above and restart your computer after each option.

PART 11.4 PROBLEM: DOTS UTILITY ISSUES/SUB MODULES

NOTE: This can also cause Compiler errors, so if none of the above worked for compiler errors check this

To identify if you are running into a dots utility issue, go to your console and check for any errors, clear errors if you can to see which stick around. If any mention Dots Utility then you may have a dots utility issue.

Identify exactly which Utility issue it is.

Missing Utilities:

If you are missing utilities go to source tree (or equivalent) and double click on dots utilities section in submodules.

Find the submodule/utility commit that you need and just select it. (Last one was committed by Raad in 2021.)

Go back to unity, and re-open.

DotNet Folder:

Another problem could be the **DotNet folder** being in the project. This folder should not exist. Find this folder in the Submodules folder and remove it. Restart Source Tree and Unity.

PART 11. 5 PROBLEM: ANIMALS NOT APPEARING IN GARDENS AND/OR CATALOG

Solution:

- Check the layer set on the animal prefab
 - Animal prefab layer should be set to "Garden"
 - Check even the children in the hierarchy, sometimes those get set to "default"