Fixing pivot points when using custom assets with Easy DG.

The generation process utilised by Easy DG assumes that your architecture meshes (referred to in this document simply as 'models') have a pivot point in the centre of the model and rotation of (0, 0, 0).

If this is not the case, then it can lead to issues with some pre-made modular architecture packs or custom prefabs, where the models have been made with unique (off centred) pivot points, leading to undesired or bad dungeon generation.

While the best way to fix / re-centre a pivot point on a model is always to import the models into a 3D modelling program (such as Blender, Maya or 3ds Max), centre the pivot point and then re-export the models, this isn't always possible for various reasons, so this document attempts to detail the steps required to centre a pivot point within the Unity editor without the need to open the model in a modelling program.

Fixing rotation is also simple and requires no changes to the model, you need only configure and rotate your object and then child it to an empty game object, using that as your prefab.

Symptoms of this issue:

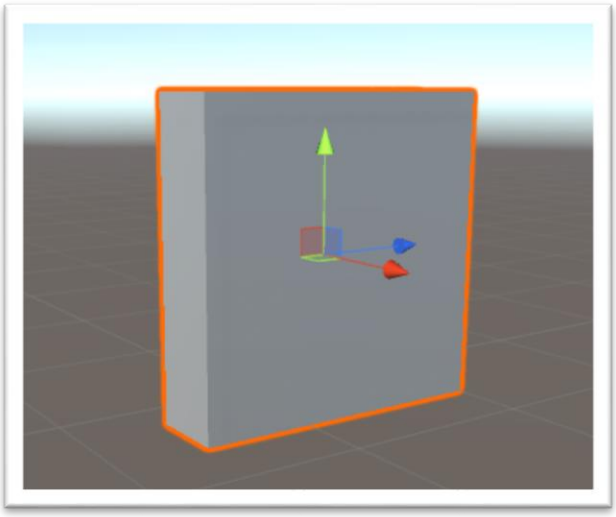
While there are many different outcomes from using models with off centre pivot points, there are still some common faults that may indicate your models do not have a centred pivot point, including:

- The floor tiles might be all grouped together in one spot / overlapping each other.
- Incomplete layouts / dead ends, something that should NEVER happen with Easy DG.
- Holes / Gaps in the layout aren't surrounded by walls (holes may still happen but they'll have walls around them, a normal part of the layout).
- Every floor tile being surrounded by four walls.

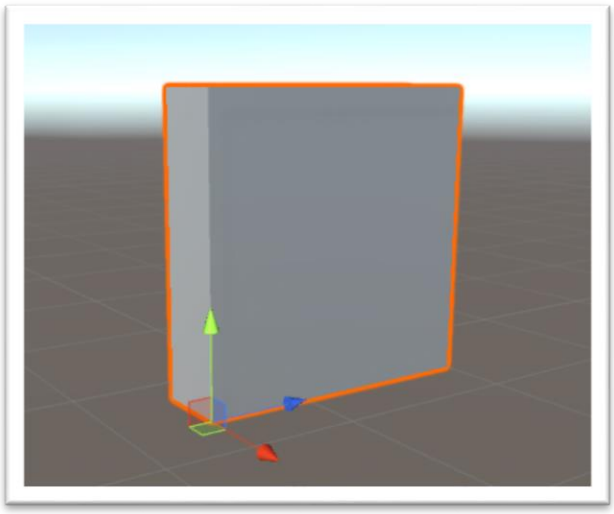
There is an easy way to determine the pivot point of a model within the editor. Simply add your model to a scene and with either the Move, Rotate or Scale tools selected, ensure that the '**Tool Handle Position**' is set to '**Pivot**':

*By default, this setting will be on '**Center**'.*

If you look at the object in the scene view, you should see the Unity tool handle is positioned on the pivot point of the model. If the pivot point is centred on the model, the model should show the tool handle in the centre of the object:



Otherwise, if the pivot point is not centred, the tool handle will appear somewhere else on the object, showing you exactly where the pivot point is located:



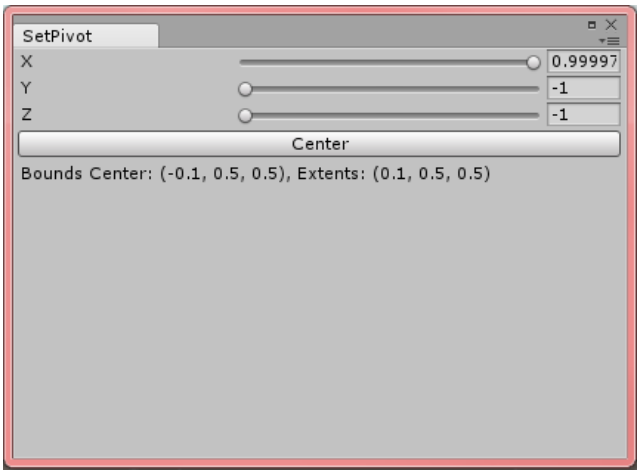
Should you find that your objects do not have a centred pivot point and your Dungeons are being generated poorly or have errors / faults, then following the steps in the next part of this document should help to resolve this and allow you to use your custom assets without further problems.

How to fix the issue:

IMPORTANT NOTE *- This process assumes you have both the SetPivot.cs and CopyMesh.cs scripts saved in an editor folder within your project. These have both been bundled with EasyDG and should be provided by default. If any of the menu options mentioned in these steps are missing, ensure you have imported these along with the Easy DG asset and that they are sitting within a folder called 'Editor'.*

Steps:

- Add your prefab to the scene and select it so that it is highlighted in the scene view.
- With the prefab selected, open to the '**GameObject**' menu in the top menu bar.
- Select the '**Set Pivot**' menu option.
- This will open the '**Set Pivot editor window**':



- Click on the '**Center**' option.
- Close the '**Set Pivot editor window**'.
- If you check the object now, you should see that the object has a centred pivot point.
  *Note: This script essentially recreates the object's vertices and may move position as a result. Any attached colliders may need to be reset or resized as a result. To reset a collider, simply click the settings icon ( ) on the component in the inspector window and select '**Reset**'.*

Now that the pivot point has been reset, you need to create a copy of the mesh, as any changes made will be lost when the mesh is refreshed, such as when you next load the project. Follow the steps in the remainder of this document to achieve this.

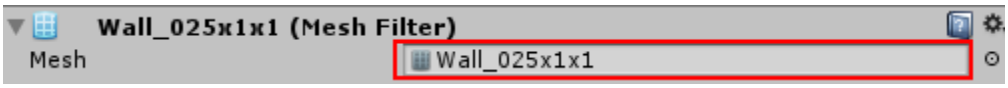
Making a copy of the mesh within Unity:

Now that you've configured the pivot point, the mesh needs to be recreated, else any changes will be lost on import – e.g. when Unity is next opened and the project loads.

This makes use of the **CopyMesh.cs** script provided with Easy DG.

Steps:

- Select your prefab object.
- In the **Inspector window**, locate the object's **Mesh Filter** component.
- This will list the object's currently used Mesh:



- Click on this field, where it lists the name of the Mesh.
- This will highlight and select the Mesh object in the **Project window**.
- With the Mesh selected, open the **Assets menu**.
- Select **CopyMesh**
- This will create a copy of the Mesh in the project, usually located underneath the original model the mesh belongs to, named according to the file itself with the word 'copy' appended to the end of the name - e.g. 'Wall_025x1x1.fbx copy'.

  Note: It is recommended you move these copies into their own folder to ensure no confusion occurs between these and the originals. They can be renamed safely.

- With the copy successfully created, select the prefab object again.
- In the **Inspector window**, go back to the **Mesh Filter**.
- Click on the circle (⊙) next to the Mesh name.
- In the **Select Mesh window** that opens, locate and select the new Mesh you just created by double clicking on it.
- This will use the new Mesh in the **Mesh Filter**.
- Check to ensure the pivot point is positioned in the centre and save your project.

Changes to the pivot point are now retained in the copy of the Mesh you just created and should remain when re-loading the project.

For any other errors or faults with Dungeon generation, please consult the Troubleshooting, Known Issues and Using Custom Prefabs sections of the Easy DG User Guide documentation provided with the asset.

If you are still unable to resolve your issues, please contact support on the details provided in the manual.