# DESTRUCTIBLE TERRAIN TREES


In this quick tutorial, we'll import a terrain tree asset, paint it on the terrain, and use DestroyIt to make the tree destructible.

INSTRUCTIONS

- Start a new project in Unity. Import the **DestroyIt** asset.

- Add a **Terrain** object to the scene. Save the scene and give it a name.

- Select the **Terrain** object. In the inspector, uncheck **Enable Tree Colliders**.
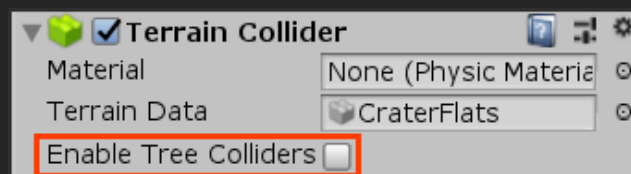

- Choose Window => DestroyIt => **Setup - Destructible Trees** from the top menu. Note that the **TreeManager** script was added to the **DestroyIt** game object in the scene.
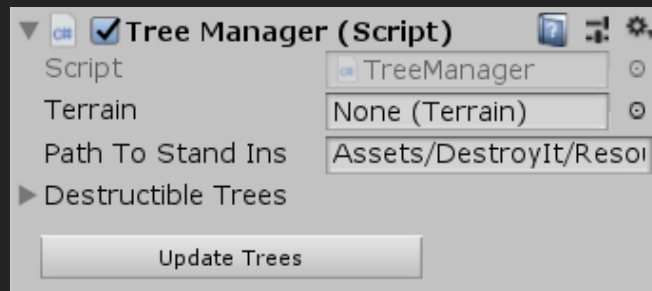
- Import a **tree asset**. For this tutorial, I'll import the Broadleaf_Desktop SpeedTree asset from the **Unity Standard Assets** package on the Asset Store.

- Drag the tree prefab into the scene (SpeedTree prefabs have a green tree icon). This gameobject will become our destroyed tree prefab.

- Right-click your tree game object in the hierarchy panel and choose **Unpack Prefab**. We'll be making changes to the object and saving it as a new prefab.

- *(SpeedTree Only)* On the tree game object, select the **LOD0** child. Change the shader on all the materials to use the **DestroyIt/DestroyItSpeedTree** shader instead of Nature/SpeedTree. *(Our customized shader locks in the Hue Variation the moment the tree is destroyed.)*
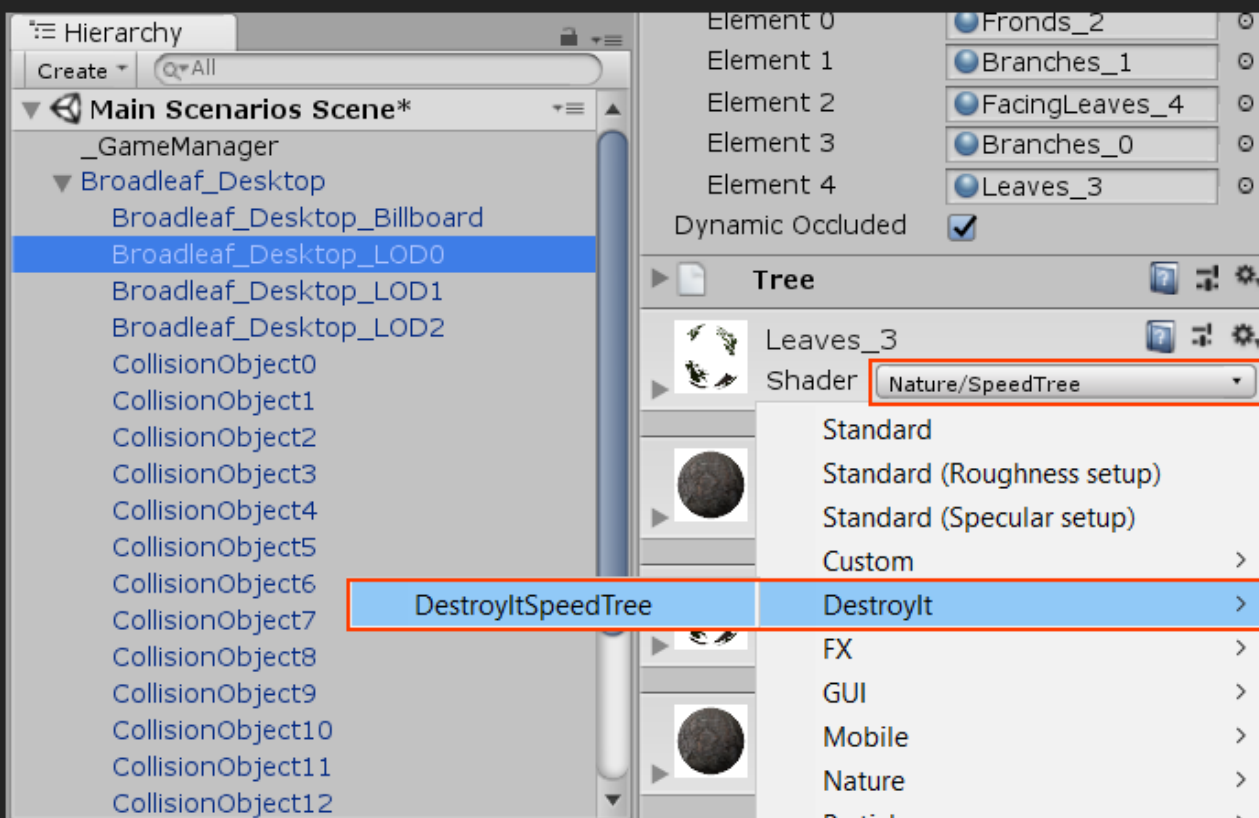

- *(SpeedTree Only)* Now do the same for **LOD1** and **LOD2.** Change each material to use the **DestroyIt/DestroyItSpeedTree** shader.

- On the tree game object, add a **rigidbody** component if none exists. Modify it to have a **Mass** of between 10 (small conifers) to 100 (huge oaks), check **Freeze Y Rotation**, check **Use Gravity**, and uncheck **Is Kinematic**.
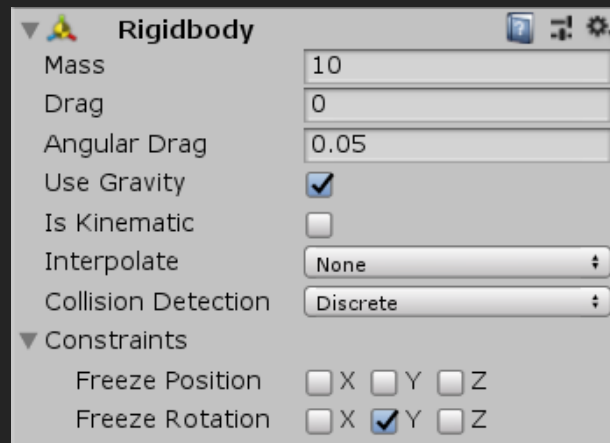
- Delete any **large sphere colliders** on your tree that represent leaf bunches or roots. We want the destroyed tree to fall and rest on its branch colliders naturally. ***Note:*** *If your tree doesn't have any colliders, you'll need to at least add a single capsule collider to it.*

    Example: with the Broadleaf_Desktop tree, I deleted CollisionObject6, 7, 8, 9, 10, 11, and 12. Here's what it looked like when I finished:
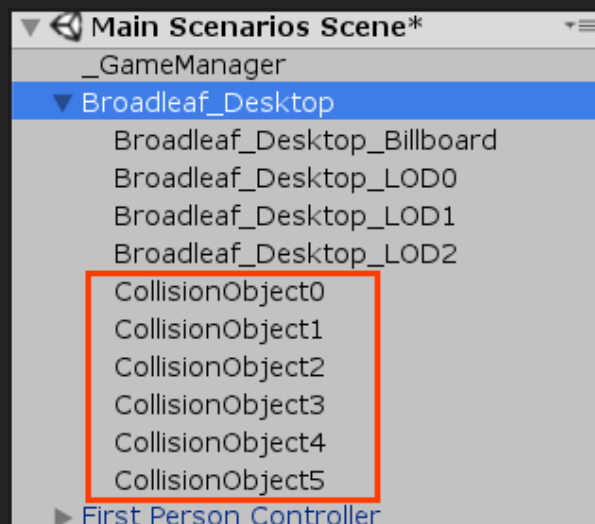

- Rename the tree game object with a "_DEST" suffix. *(**Example:** "Broadleaf_Desktop_DEST".)* Drag the game object from the Hierarchy to the Project window to create a new **prefab**. Delete the game object from the scene Hierarchy. We now have our finished **destroyed tree prefab**.

- Drag your original tree asset prefab back into the scene again. Now we are going to make the **pristine** version of our destructible tree.

- Right-click your tree game object in the hierarchy panel and choose **Unpack Prefab**. We'll be making changes to the object and saving it as a new prefab.

- Select the tree gameobject and add the **Destructible** script to it.

- On the Destructible script, under **Destroyed Prefab**, select the destroyed tree prefab we created earlier. *(**Example:** Broadleaf_Desktop_DEST):*
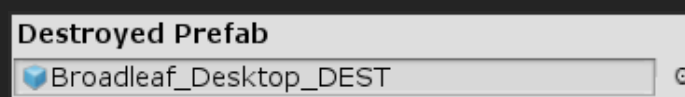
- That's it for the pristine version. Rename the game object with a "_PRIST" suffix *(Example: "Broadleaf_Desktop_PRIST")* and drag it to the Project window to create a **pristine tree prefab**. We will paint this version on the terrain. Delete the tree game object from the scene Hierarchy since we don't need it any longer.

- Select your **Terrain** game object in the scene. Choose the Paint Trees icon => Edit Trees. Add your pristine tree prefab *(Example: "Broadleaf_Desktop_PRIST")* to the collection of terrain trees to paint.
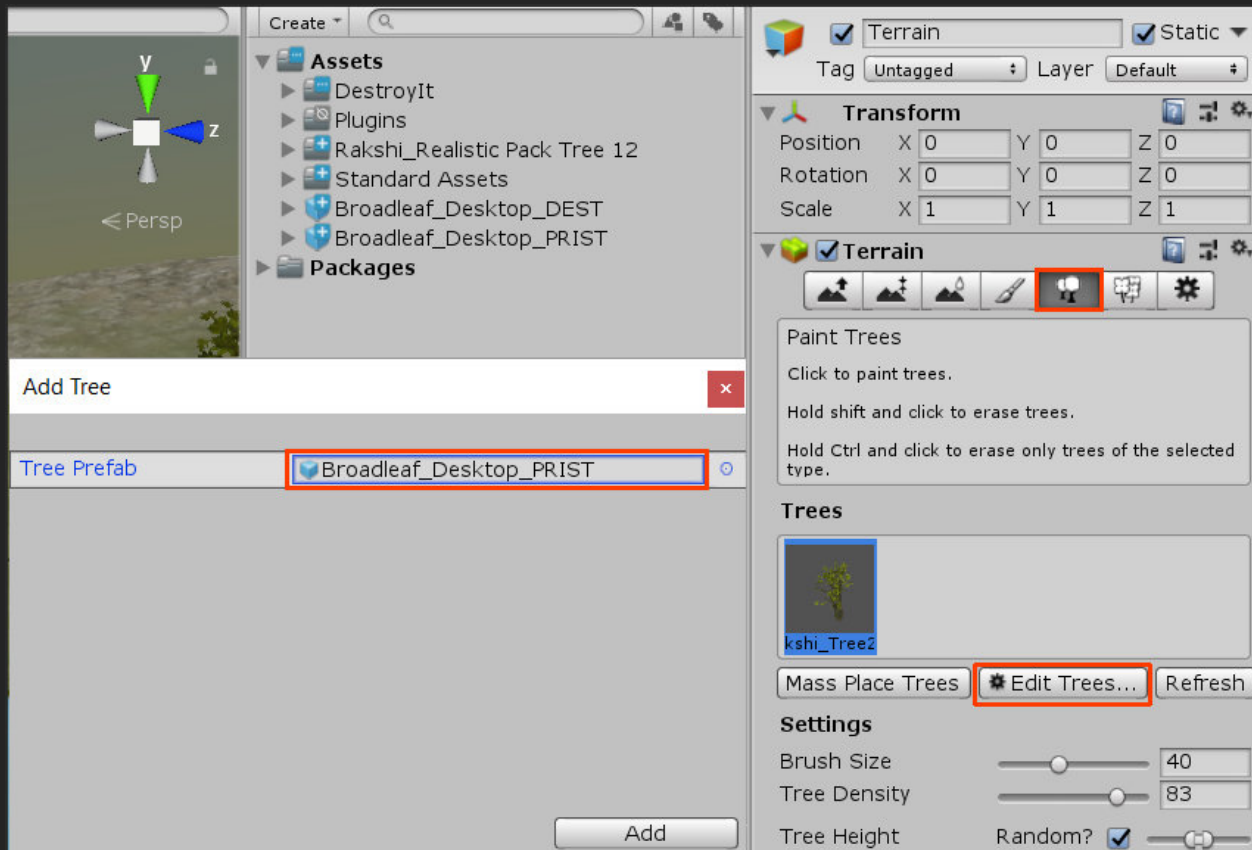
- Now **paint** a few of your destructible trees onto the Terrain.

- Select the **TreeManager** component in the Inspector (it's on the DestroyIt game object). Click the **Update Trees** button. You'll need to click this button any time you make changes to the **pristine** versions of your destructible trees.
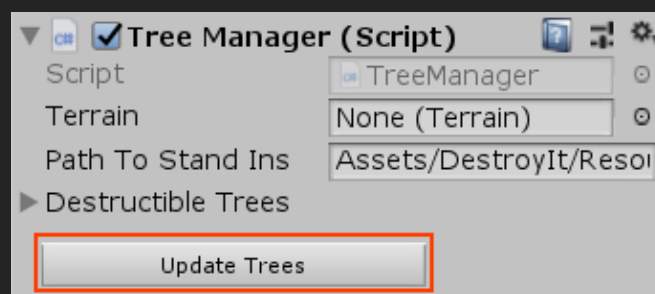
- **Run the game**. You should now be able to destroy any of the destructible trees you painted on the terrain!

Troubleshooting Tips

Trees won't fall down - If your trees won't fall down when destroyed, make sure the weapon you're using to damage them provides some force to get it started falling. Also check that your trees are using capsule colliders. Capsule colliders are rounded on the bottom, which helps them roll over.

Color shift when trees are destroyed - If your trees have a noticeable color change when destroyed, check your Terrain lightmap settings. Make sure Lightmap Static under Lighting is un-checked.

Destroyed trees hang/fly around wildly - If a tree gets hung up or flings around wildly as soon as it's destroyed, it's probably because its collider is overlapping with another object, most likely a nearby tree. Make sure your destructible trees are spaced out so they have room to fall naturally.

If you intend to make a dense forest of destructible trees, you'll probably want to use a single capsule collider for each one - for performance and to prevent overlapping colliders.

Destroyed trees have odd physics behavior - If your destroyed trees stutter or float around strangely, check the physics material of your colliders. We have included a Wood Tree physics material you can use.

Where to Go from Here

We hope you found this guide useful for making destructible trees with DestroyIt. But this is just the beginning! There are several things you can do to further polish and enhance your tree destruction.

You could add extra embellishments, such as leaf **particle effects**, splinter or bark **hit effects**, even **damage effects** such as a burst of splinters, bark, or wood chips when a tree is destroyed. You could also enhance the destroyed tree's **mesh** by adding a separate **stump** object and collider, or fill in the geometry **backfaces** on the bottom of the tree so it's not see-through.