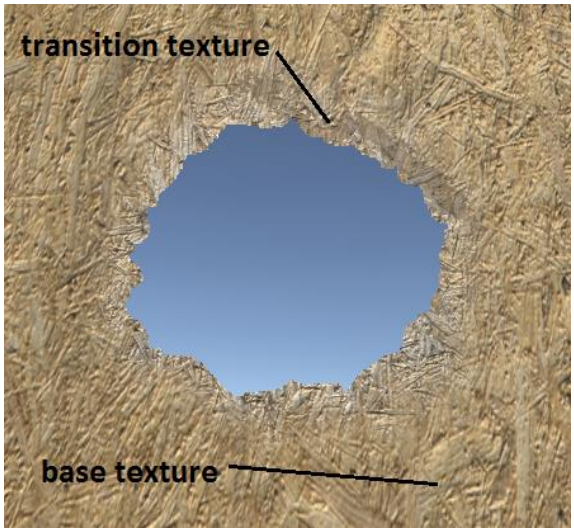
Breakable Wall System

Manual

Wall textures

1. Create your own wall and transition texture.

2. Add them to your Unity project.



Break mask textures

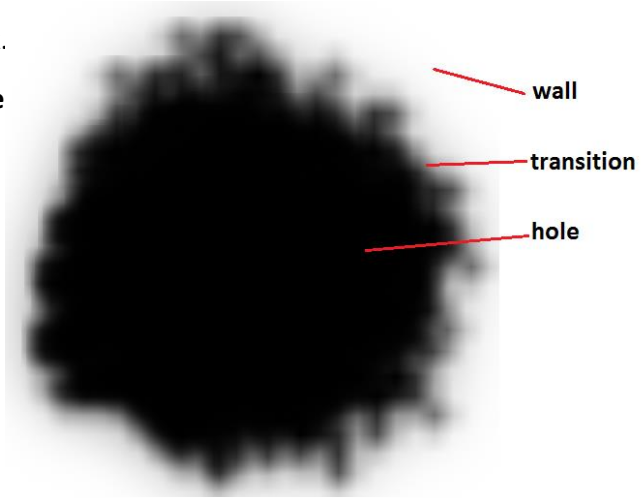
1. Create your break shape (black-white) mask.

Align hole (black) area to **center of the texture**

If your wall has undesired mesh holes along the wallbreaks, make wider transition area on the mask.

2. Add the new mask to the project.

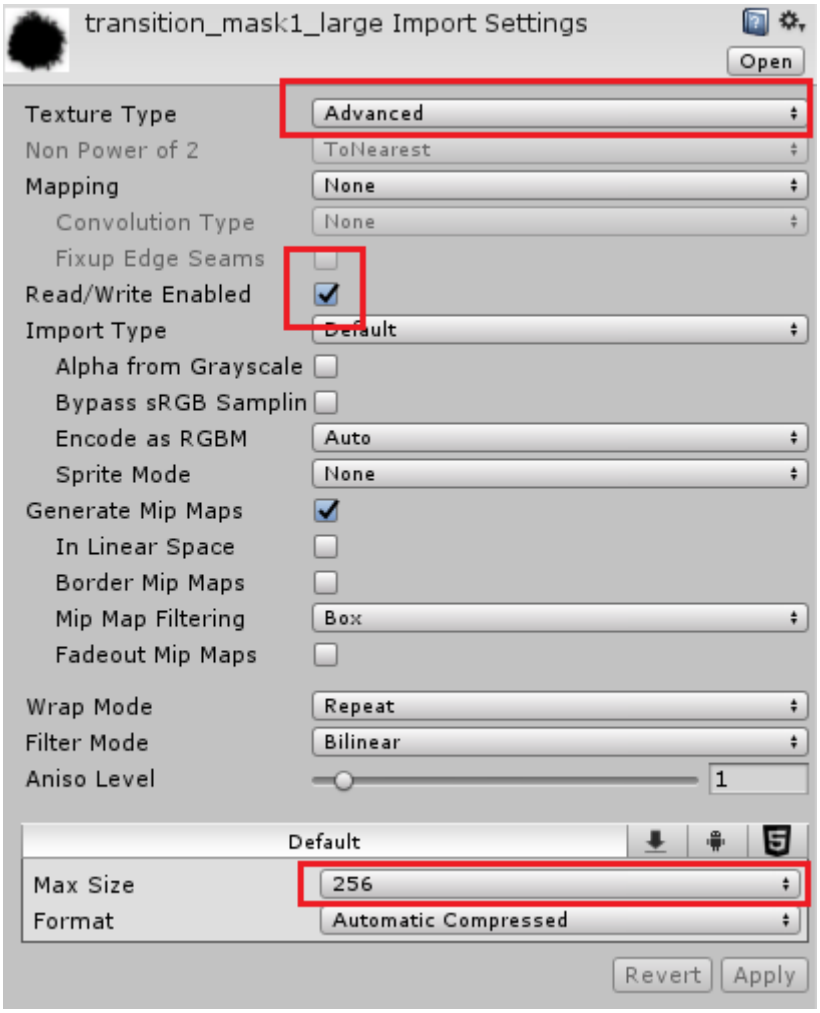
3. Set properties of the mask texture



Texture type – Advanced

Read/Write Enabled – True

Max Size – this determines the hole size
(More details later.)



Materials

Each type of wall require 4 different material.

Wall main and wall fragment main materials:

These materials have same parameters but use different shader.

1. Create new material with the included **WallShader** and use it on your wall main area.
2. Create other new material with the included **WallFragmentShader** and use it on your wall fragment main area.

Parameters:

Base Text and Base Normal: assign these with your main wall texture and normal map.

Transition Text and Transition Normal: assign these with your transition texture and normal map.

Metalic and Gloss: similar the other Unity shaders.

Cutoff Offset: if it needs you can fine tuning with this parameter to your masks hole cutting area.

Tessellation: mesh tessellation scale, lower – better performance, rough edges / higher – good quality, slower performance

Displacement Offset: if the wall has undesired mesh holes along the break edges you can fix them with this parameter, it need to adjust to your break masks.

Wall and fragment border (edge) materials:

These materials have same shader but sometimes require different parameter adjustments.

Create 2 new material with the included **WallBorderShader** and use them on your wall and your wall fragment edge (border) area.

Parameters:

Base Text and Base Normal: assign these with your main wall texture and normal map.

Transition Text and Transition Normal: assign these with your transition texture and normal map.

Border mask: assign it with the included **border_mask.png** (Textures dir.) texture.

Metalic and Gloss: similar the other Unity shaders.

Cutoff Offset: if it needs you can fine tuning with this parameter to your wall edge breaking shape.

Create new wall

Wall fragment:

1. Add **wallFragment** prefab (Prefabs dir.) to your scene.
2. Replace its materials with yours.
3. Set **WallFragment** script parameters.

   Particle Effect – If you want create particle effect when the wall fragment spawn assign this variable with it.

   Impact Force – this force will be applied on fragment when it spawn.

   Life Time – after this time the fragment will be destroyed, 0 – no destroy
4. Create new prefab from this object.

Wall:

1. Add **wallPrefab** prefab (Prefabs dir.) to your scene.
2. Replace its materials with yours.
3. Set object transform – particularly the **scale**
4. Set **BreakableWall** script parameters.

Wall Fragment Prefab – assign it with your wall fragment prefab

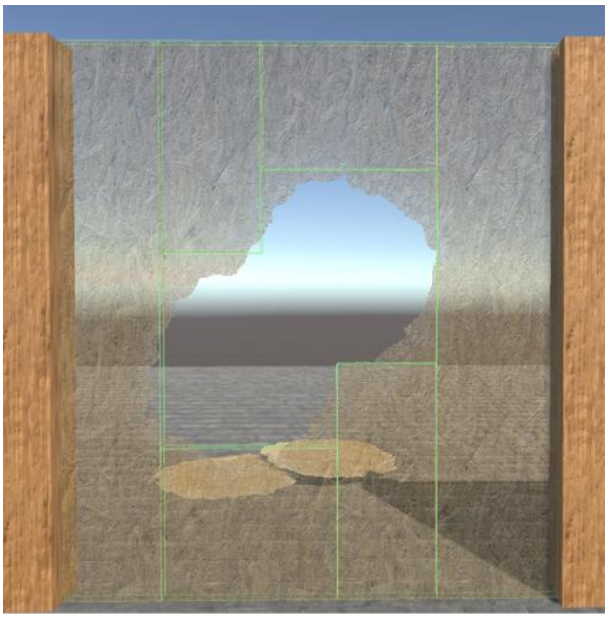
Break Text Width/Height – these determines your wall break „quality" and scale. If it needs use different values because of the wall scale ratio (for example: scale(4,2,2) / width:1024, height:512). Very High resolution may result poor performance.
These values also determines your break mask effective size. Set your break mask textures **Max Size** based on this. (for example: break texture resolution (512,512), break mask texture max size: 256 – if you create wall break with this texture it has effect roughly a quarter section of the wall).

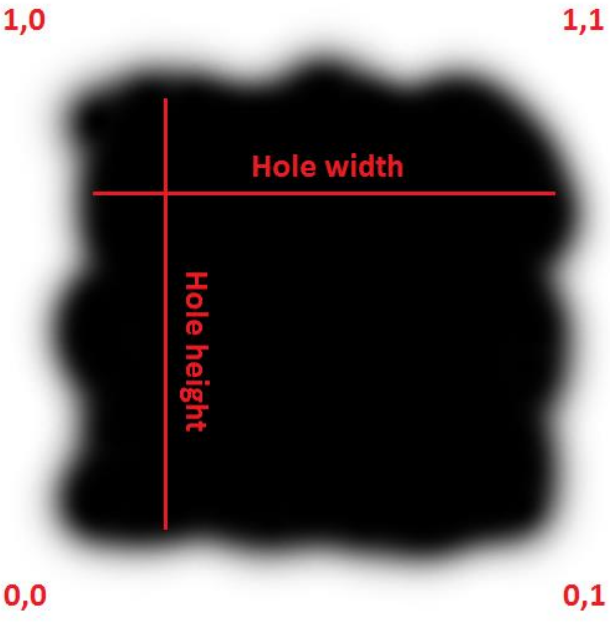
Collider Res X/Y - these determines your wall collision precision. If it needs use different values because of the wall scale ratio. High resolution may result poor performance but more precision. The wall system approximate the desired collider with BoxColliders because of the better performance.

Break Types – list of available type of wall breaks

New type of wall break:

1. Add new element to the list.
2. Set a unique ID to the break type (*Type ID* parameter), use it when create new wall break.
3. Assign *Transition* variable with your break mask texture.
4. Use *Hole Width/Height* slider to set your break hole size (mask texture black area). The collider generator use this values.





Break wall

Call the **BreakWall** method on the *BreakableWall* or *WallColliderHandler* script (which attached all collider object).

```
public void BreakWall(int breakType, Ray ray)
```

int breakType – break type ID (from break type list)

Ray ray – impact ray (for exmple: projectile)

```
Ray ray = new Ray(transform.position, transform.forward);
RaycastHit hit;
if (Physics.Raycast(ray, out hit, Mathf.Infinity))
{
    WallColliderHandler bw = hit.transform.GetComponent<WallColliderHandler>();
    if (bw != null)
    {
        bw.BreakWall(1, ray);
    }
}
```

WallBreaker.cs script has complete examples.