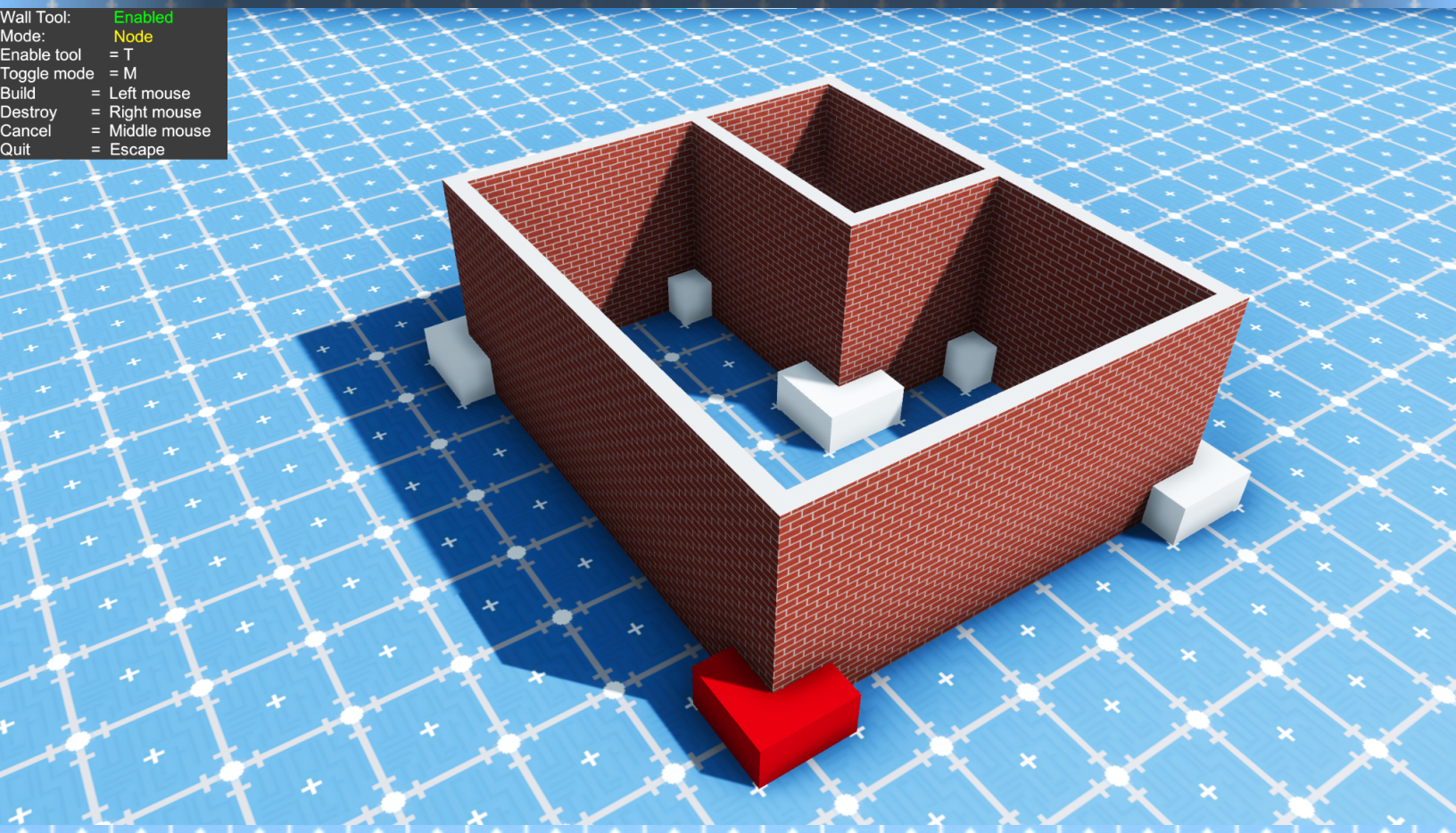
studios

Runtime Wall Tooling

Documentation



Wall Tooling Guide

This guide will explain all the functionalities of the wall tooling. Starting off in the Setup Guide to get a better understanding of the package and how it can be used.
The project contains a demo scene to show the capabilities of the system.

Setup guide

Download package
Importing the package in your project can be done via the package manager.

Setup
The package contains two prefabs for the setup, the Wall Builder and Demo Wall Builder.
The demo is instantly ready for editing, the other requires some setup first.

This setup is as follows:

- Go to the “Prefabs” folder and drag the “Wall Builder” in the scene.
- Place down a flat surface with a collider with the tag “Default”.
- Press play to start editing.

Demo Wall Builder:

- Go to the prefab folder and drag the “Wall Builder Demo” prefab in the scene.
- Press play to start editing.

Usage

Creation

Once in play mode, the walls can be manipulated by right clicking and left clicking. Left will create wall segments and the right button will destroy the selected segments.

By clicking and dragging the mouse a selection can be made, this selection will highlight blue for creation, and red for deletion.
Letting go of the selection will execute the change and update the wall segments. To cancel a selection the middle mouse button can be used.

The build tool raycasts towards a surface with the selected mask, this mask can be adjusted in the Input configuration of the tool. (can be found in “Configs/Input”)
The default value is the layer “Default”.

Default Controls:

Left mouse: Build
Right mouse: Destroy
Middle mouse: Cancel
T: Enable tool switch
M: Node mode switch
Esc: Quit

Modes

The tool can be enabled or disabled when the user wants to stop using the tool by pressing the “T” key.

Node mode is also available for when you want to delete the underlying nodes. Switching to this mode can be done by pressing the “M” key.

Exporting

The tool does not have the functionality to bake the mesh into one wall or into a usable FBX file for usage in another scene.
To enable this functionality the FBX exporter package from Unity can be used to store the mesh into a FBX file and use it in another scene.

Settings

Walls

The tool can be configured to create wall variants. The configuration files can be found in the “configs” folder. By default the project will have one preset, but this can be extended by creating new configuration files. A new configuration file can be created by right clicking in the project folder and selecting “WallTool/WallObjData”.
The root of the prefab will have a “Wall Tooling” script in which the configuration can be inserted. The configurations allow for different settings for internal and external walls.

Wall configuration files contains the following options:

- Width
- Height
- Material
- Texture
- Normal texture
- Color

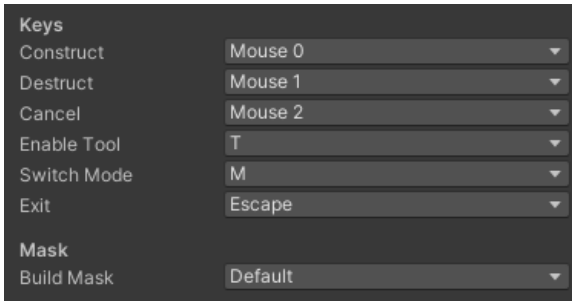
Audio

The audio for the actions can be configured using the scriptable objects “AudioCue”.
These can be found in “Configs/Audio”. New ones can be created just like the wall configuration files.

Controls

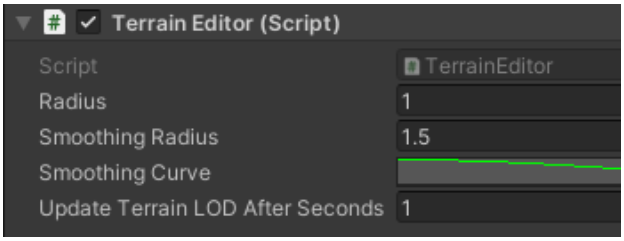
The controls for the tooling can be adjusted in the scriptable object “InputData”. This scriptable object can be found in “Configs/Input”.

In this file you will also be able to change the layer mask on which to build on.



Terrain support

The terrain support consists of an extra script which has to be placed on a floorplan manager script. This will automatically set the wall object within the terrain. This

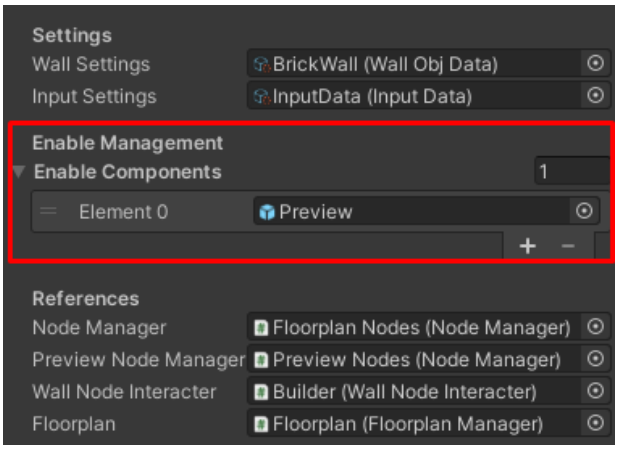


system has a smoothing value and alteration distance.
Note: The terrain cannot be edited below its own world position because of the limitation of the terrain system.

Scripting References

Active State

The tool supports the functionality to toggle the active state of the tool. This will enable/disable the placement preview objects.



The "Wall Tooling" script contains a list of items which will be activated upon calling this function.
This can be used to extend the functionality of the system.

Set the state of the tool to active:

```
WallTooling.Instance.ToggleActiveState(bool active);
```

Mode

The mode of the tool can also be changed to placement or node mode. To change this the static reference to the "Wall Tooling" can be used to toggle the mode.

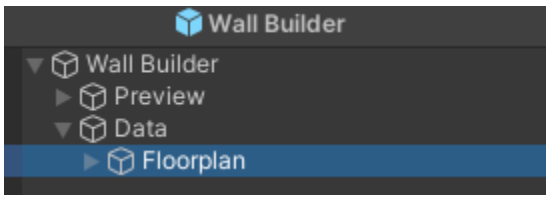
True = Placement mode
False = Node mode

Set the mode of the tooling:

```
WallTooling.Instance.ToggleMode(bool mode);
```

API

The API consists of extension methods which allow for manipulation of the wall system. Methods require a reference to the FloorplanManager to execute the function on. This script can be found on the demo object.



To spawn nodes the following functions can be used. These functions will spawn a node on the given position. The optional parameter is to set the previous node to which the new one should connect. Otherwise this will just generate a disconnected pillar.
If the spawned node overlaps on an already present node, it will not create the new node, but it will connect the nodes together. If the new node is on another wall, it will integrate itself into that wall.

When a node is created the function will return a INode.
SpawnNode(this FloorplanManager, Vector3, [INode](optional))

If the node is not known, this function will find the node to connect to. The second position will be used to find this node.
SpawnNode(this FloorplanManager, Vector3, Vector3)

These two functions will despawn the given node or it will find the node based on the given location.
DespawnNode(this FloorplanManager, INode)
DespawnNode(this FloorplanManager, Vector3)

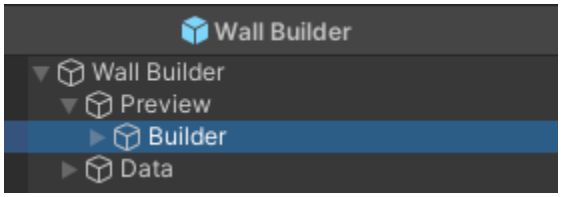
To create a connection two nodes are needed to connect to.
Connect(this FloorplanManager, INode , INode)

Disconnect two nodes if they are connected.
Disconnect(this FloorplanManager, INode , INode)

Move the node to the given position. This will not disconnect other walls.
When the nodes moves over another node it will automatically connect to it.
MoveNode(this FloorplanManager, INode , Vector3)

Find and move the to the given position.
When the nodes moves over another node it will automatically connect to it.
MoveNode(this FloorplanManager, Vector3, Vector3)

Events



The WallNodeInteracter throws a couple of events when interacting with the system.
The first three events handle the input from the user.

Event for when the user places a wall segment.
PlacementEvent

Event for when the user destroys a wall segment
DestroyEvent

Event for when the user cancels a selection
CancelEvent

The MoveEvent fires when the user moves the preview the distance determined by the MovementThreshold value.
MoveEvent

Events for when the system snaps to an line or node.
LineSnapEvent
NodeSnapEvent

The FloorplanManager throws an event when the wall segments have been generated.
This is event is:
WallsGeneratedEvent

When this event is thrown the RoomOutput has been populated.
This object will contain all the generated data such as all the wall segments and nodes.

Known Issues

Wall creation does not go through other walls or nodes
When creating a wall the tool will not go through any walls.

Wall removal does go through nodes
When removing walls the tool will stop on nodes and prevent the user from selecting any further.

Links/Contact

Company: Trive Technology

Tutorial: https://youtu.be/ANIdsfhrleA
Config Tutorial: https://youtu.be/tLlKmGQecas
Showcase: https://youtube.com/playlist?list=PLhnqk7lMAUYJRy2o6PYi1Ith6o7hsPbbL

Support email: support@trivetechnology.com
Website: www.Trivetechnology.com