

# **Prefab World Builder Documentation**

## **Contents**

<b>Hardcoded Shortcuts</b>	<b>2</b>
<b>Customizable Shortcuts</b>	<b>5</b>
<b>Interface</b>	<b>6</b>
<b>Toolbar</b>	<b>7</b>
<b>Toolbar Overlays</b>	<b>8</b>
<b>Palette</b>	<b>9</b>
<b>Brush Properties</b>	<b>10</b>
<b>Common Tool Properties</b>	<b>11</b>
<b>Pin</b>	<b>12</b>
<b>Brush</b>	<b>14</b>
<b>Gravity Brush</b>	<b>15</b>
<b>Line</b>	<b>16</b>
<b>Shape</b>	<b>17</b>
<b>Tiling</b>	<b>18</b>
<b>Replacer</b>	<b>19</b>
<b>Eraser</b>	<b>20</b>
<b>Selection</b>	<b>21</b>
<b>Extrude</b>	<b>23</b>
<b>Mirror</b>	<b>24</b>
<b>Grid and Snapping</b>	<b>25</b>
<b>Brush Creation</b>	<b>27</b>
<b>Thumbnail Editor</b>	<b>28</b>
<b>Preferences</b>	<b>29</b>
<b>Limitations</b>	<b>30</b>
<b>Support and feedback</b>	<b>30</b>

# Hardcoded Shortcuts

Tool	Command	Shortcut
<b>Common</b>	Deselect tool. Deselect handle.	Esc
	Snap to vertex	V
<b>Pin Tool</b>	Position handles at top, bottom or pivot height	(Page Up or Page Down) or (Ctrl + Shift + U or J)
	Set the pivot as the active handle	Home or (Ctrl + Shift + T)
	Select the next handle as active	End or (Ctrl + Shift + Y)
	<b>Select next item in the multi-brush</b>	<b>Ctrl + Alt + Mouse scroll wheel</b>
	Toggle repeat item option	Ctrl + T
	<b>Scale</b>	<b>Ctrl + Mouse scroll wheel</b>
	Reset Scale	(Ctrl + Shift + Home) or (Ctrl + Shift + Period)
	<b>Rotate freely around local Y axis</b>	<b>Ctrl + Hold down the right mouse button + Move the mouse horizontally</b>
	Rotate freely around local X axis	Ctrl + Hold down the middle mouse button + Move the mouse vertically
	Rotate freely around local Z axis	Ctrl + Shift + Hold down the middle mouse button + Move the mouse vertically
	Snap rotation while rotate freely <sup>1</sup>	Hold down the <b>Alt</b> key while rotate freely
	Add 90° or -90° to the rotation around local Y axis	(Ctrl + Q or W) or (Ctrl + ← or →)
	Add a step <sup>1</sup> to the rotation around local Y axis	(Ctrl + Shift + Q or W) or (Ctrl + Shift + ← or →)
	Add 90° or -90° to the rotation around local X axis	(Ctrl + Alt + K or L) or (Ctrl + Alt + ← or →)
	Add a step <sup>1</sup> to the rotation around local X axis	(Ctrl + Alt + Shift + K or L) or (Ctrl + Alt + Shift + ← or →)
	Add 90° or -90° to the rotation around local Z axis	Ctrl + Alt + Period or Comma
	Add a step <sup>1</sup> to the rotation around local Z axis	Ctrl + Alt + Shift + Period or Comma
	Reset rotation to zero.	(Ctrl + Home) or (Ctrl + Shift + M)
	<b>Edit distance to the surface</b>	<b>Ctrl + Shift + Hold down the right mouse button + Move the mouse vertically</b>
	Add 1 or -1 unit to the distance from surface	(Ctrl + Alt + U or J) or (Ctrl + Alt + ↑ or ↓)
	Add 0.1 or -0.1 units to the distance from surface	(Ctrl + Alt + Shift + U or J) or (Ctrl + Alt + Shift + ↑ or ↓)
	Reset the distance from the surface to zero	Ctrl + Shift + G

<sup>1</sup> The step size can be changed in the [preferences window](#).

Tool	Command	Shortcut
<b>Brush Tool, Gravity Tool, Eraser and Replacer</b>	Change radius	(Ctrl + Mouse scroll wheel) or (Shift + Hold down the right mouse button + Move the mouse horizontally)
	Update brushstroke	Ctrl + Shift + Period
	Edit density	Ctrl + Alt + Mouse scroll wheel
	Rotate Brush	Ctrl + Hold down the right mouse button + Move the mouse horizontally
<b>Gravity Tool</b>	Add 1 or -1 units to the height	(Ctrl + Alt + U or J) or (Ctrl + Alt + ↑ or ↓)
	Add 0.1 or -0.1 units to the height	(Ctrl + Alt + Shift + U or J) or (Ctrl + Alt + Shift + ↑ or ↓)
	<b>Edit height</b>	<b>Ctrl + Shift + Hold down the right mouse button + Move the mouse vertically</b>
<b>Line, Shape and Tiling</b>	Delete Selected Persistent Item	Alt + Delete (In Edit Mode)
	Select parent object	Ctrl + Shift + T
	Toggle Edit Mode	Ctrl + Shift + Period
<b>Line and Shape</b>	Edit gap size	Ctrl + Shift + Hold down the right mouse button + Move the mouse
<b>Line</b>	Add New point	Click Midpoint
	Remove selected points	Delete
	Select points	Shift + Draw selection rectangle
	Select all points	Ctrl + Shift + A
	Deselect all points	Ctrl + Shift + D
	Set the previous segment as a <b>Curved or Straight Line</b>	Page Down or (Ctrl + Shift + Y)
	Close or open the line	End or (Ctrl + Shift + O)
	Snap to control points	V

Tool	Command	Shortcut
<b>Tiling and Selection Tool</b>	Rotate 90° or -90° around X axis	(Ctrl + Shift + U or J) or (Ctrl + Shift + ↑ or ↓)
	Rotate 90° or -90° around Y axis	(Ctrl + Alt + K or L) or (Ctrl + Alt + ← or →)
	Rotate 90° or -90 around Z axis	(Ctrl + Alt + U or J) or (Ctrl + Alt + ↑ or ↓)
<b>Tiling</b>	Edit spacing	(Shift or Shift + Ctrl) + Hold down the right mouse button + Move the mouse
<b>Selection Tool</b>	Toggle position handle	W
	Toggle rotation handle	E
	Toggle scale handle	R
	Toggle Space Global/Local	Ctrl + Shift + X
	Move to other selection handle	Return, select the other objects, select the destination handle and press Return again to confirm the move.
	Edit custom handle	U to start editing and U or Return to confirm
<b>Grid</b>	Toggle grid	Ctrl + G then Ctrl + G
	Toggle snapping	Ctrl + G then Ctrl + H
	Toggle grid Lock	Ctrl + G then Ctrl + L
	Set the origin to the active gameobject position	Ctrl + G then Ctrl + W
	Set the grid rotation to the active gameobject rotation	Ctrl + G then Ctrl + E
	Set the snap value to the size of the active gameobject	Ctrl + G then Ctrl + R
<b>Palette</b>	<b>Select next brush</b>	<b>Ctrl + Shift + Mouse scroll wheel</b>
	Select next palette	Ctrl + Alt + Shift + Mouse scroll wheel
	Delete selected brushes	Ctrl + Shift + Delete
	<b>Pick or add a Brush</b>	<b>Hold Shift + Hold 1 + Click on the object</b>

## Customizable Shortcuts

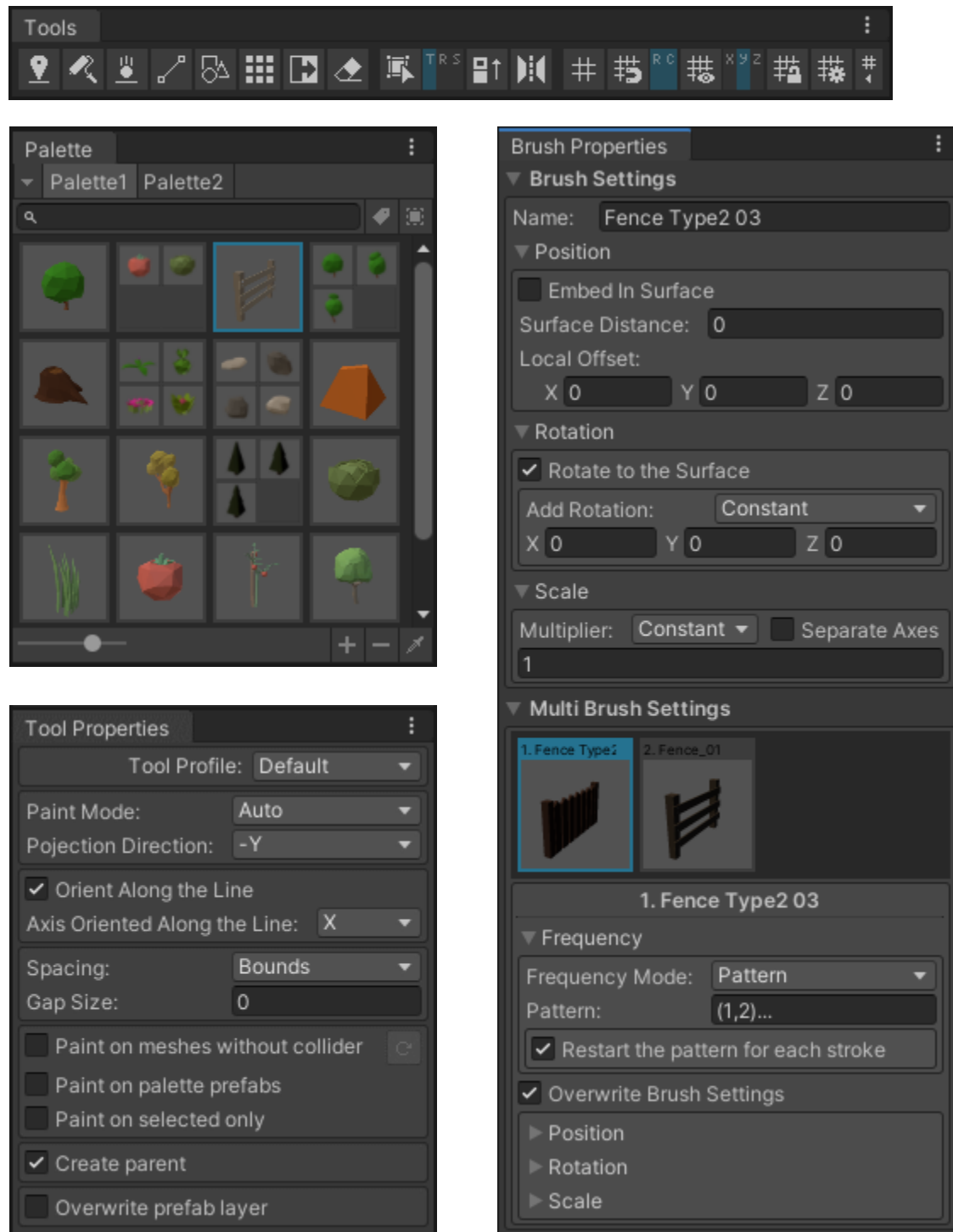
The following shortcuts are customizable via shortcuts manager.

Category	Command	Shortcut
All Unity Commands	Tools - Toggle Pin Tool	Alt+Shift+1
Binding Conflicts	Tools - Toggle Brush Tool	Alt+Shift+2
Main Menu	Tools - Toggle Gravity Tool	Alt+Shift+3
3D Viewport	Tools - Toggle Line Tool	Alt+Shift+4
Animation	Tools - Toggle Shape Tool	Alt+Shift+5
Curve Editor	Tools - Toggle Tiling Tool	Alt+Shift+6
Grid	Tools - Toggle Replacer Tool	Alt+Shift+7
ParticleSystem	Tools - Toggle Eraser Tool	Alt+Shift+8
Prefab World Builder	Tools - Toggle Selection Tool	Alt+Shift+9
Profiling	Tools - Toggle Extrude Tool	Alt+Shift+X
Scene Picking	Tools - Toggle Mirror Tool	Alt+Shift+M
Scene View	Grid - Toggle Grid Lock	
Scene Visibility	Grid - Frame Origin	Ctrl+Alt+Q
Snap	Grid - Toggle Postion Handle	Ctrl+Alt+W
Stage	Grid - Toggle Rotation Handle	Ctrl+Alt+E
Terrain	Grid - Toggle Spacing Handle	Ctrl+Alt+R
Timeline	Palette - Toggle Brush Picker	Alt+Shift+P
Tools	Palette - New MultiBrush From Selection	
Transform Tools	Palette - New Brush From Each Prefab Sele	
Version Control	Palette - Filter by selection	
Window	Close All Windows	Alt+Shift+End

The Shortcuts manager lets you view and manage keyboard shortcuts, you can access it from Unity's main menu.

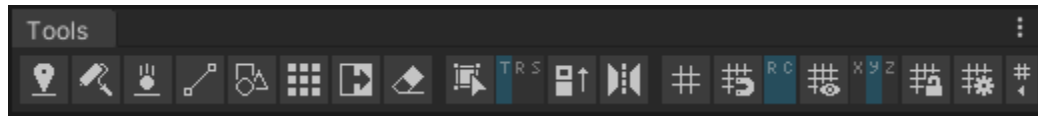
## **Interface**

PWB consists of a comprehensive set of tools to help you design levels in no time.



The interface is made up of four main windows: toolbar, palette, tool properties, and brush properties.

## Toolbar



To open the toolbar, click the menu item **Tools > Plugin Master > Prefab World Builder > Toolbar**.

The toolbar consists of three groups of controls:

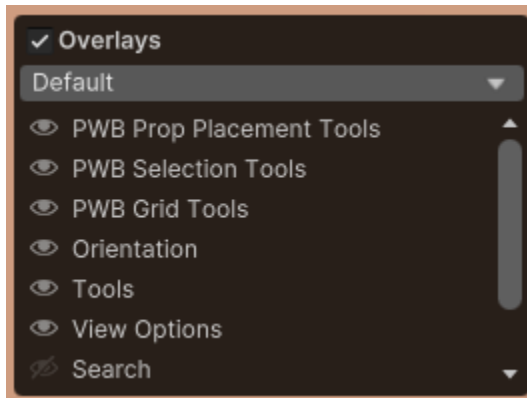
Control	Description
<b>Prop Placement Tools</b> 	<p>All the placement tools allow you to preview the props you are going to add to the scene.</p> <p><b>Pin Tool:</b> Place one object at a time.</p> <p><b>Brush Tool:</b> Place large amounts of randomly scattered objects.</p> <p><b>Gravity Tool:</b> Physics-based placing tool.</p> <p><b>Line Tool:</b> Place objects along a bezier path.(Create fences easily)</p> <p><b>Shape Tool:</b> Place objects along a shape (Circle, triangle square or polygon)</p> <p><b>Tiling Tool:</b> Place several objects arranged in a grid. (ideal for creating floor and walls)</p> <p><b>Replacer:</b> Replaces objects circled around the cursor with prefabs from the selected brush.</p> <p><b>Eraser:</b> Erase objects as in a drawing editor.</p>
<b>Selection Tools</b> 	<p><b>Selection Tool:</b> It adds handles to the vertices of the bounding box containing the selected objects. Extends and complements the functionality of the unity transform controls. The TRS buttons toggle the position, rotation, and scale handles respectively.</p> <p><b>Extrude Tool:</b> Creates copies of the selected objects in the direction defined by the handle. The extrusion length can be specified by moving the handle away from the selection.</p> <p><b>Mirror Tool:</b> Create a mirrored copy of selected objects.</p>
<b>Grid and Snapping Tools</b> 	<p><b>Grid Type:</b> Rectangular or Radial.</p> <p><b>Enable/Disable Grid Snapping:</b> XYZ buttons toggle snapping on each axis. RC buttons toggle radius and circumference snapping.</p> <p><b>Show/Hide Grid:</b> The XYZ buttons allow you to select which grid plane is currently visible.</p> <p><b>Lock/Unlock Grid:</b> When unlocked, the grid follows the cursor along the normal direction of the grid plane. Otherwise, the grid remains in the same place.</p> <p><b>Grid and snapping settings:</b> Open the grid and snapping settings.</p>

## Toolbar Overlays

### Description



PWB tools are available as overlay panels in the scene view window (in **Unity 2021.2 or higher**) to make them more accessible and improve your workflow.



### Displaying and hiding Overlays

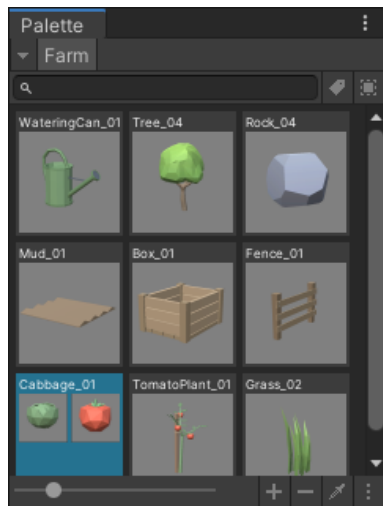
1. Click anywhere in the Scene view and press the **Spacebar** to open the overlays menu.
2. Click the overlay you want to display or hide. If the Overlay is already displayed, an eye icon appears to its left. When you rollover a displayed option, the Overlay highlights in blue in the Scene view.

There are three different overlays: prop placement tools, selection tools and grid tools. Each can be shown, hidden, or collapsed independently.

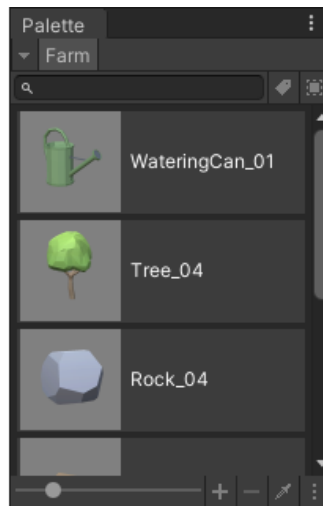
For more information on overlays, visit the [unity manual](#)



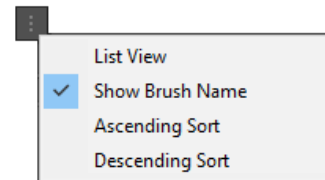
## Palette



Grid View



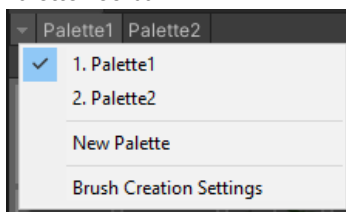
List View



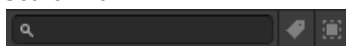
Settings

### Control

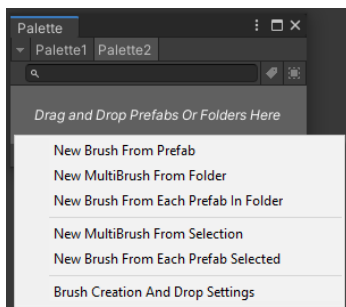
#### Palette Toolbar



#### Search Bar



#### Palette



#### Bottom bar



### Description

Each palette allows you to add a different set of brushes and the tab bar allows you to quickly switch between different palettes.

The drop-down menu allows you to select the active palette, create new palettes and open the brush creation settings window.

Use the search field to **filter brushes** by name. You can use words separated by commas to filter for multiple words. You can also use the "w:" token to define that it will search for whole words only

Use the "l:" token to filter by prefabs labels.

You can also use the buttons on the right to filter by prefab labels or selected objects in the scene.

You can **add new brushes** to the palette by dragging and dropping prefabs and folders from the project window or hierarchy window to the palette. You can also do it through the context menu by right clicking on the palette.

Use the slider to change the size of the brush buttons. The + and - buttons can be used to add and remove brushes.

**The picker** allows you to set the brush by picking an object in the scene. If the object is not part of any brush then a new brush will be created.

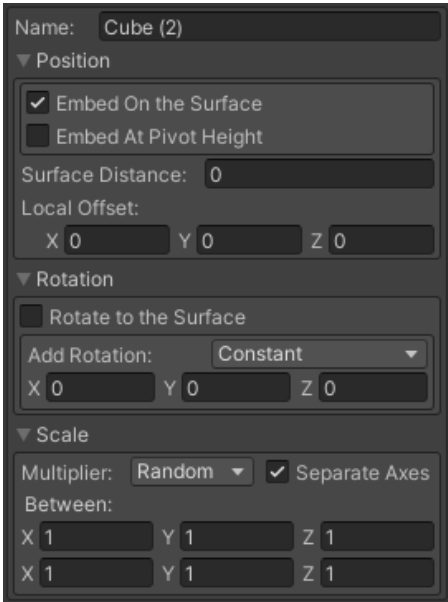
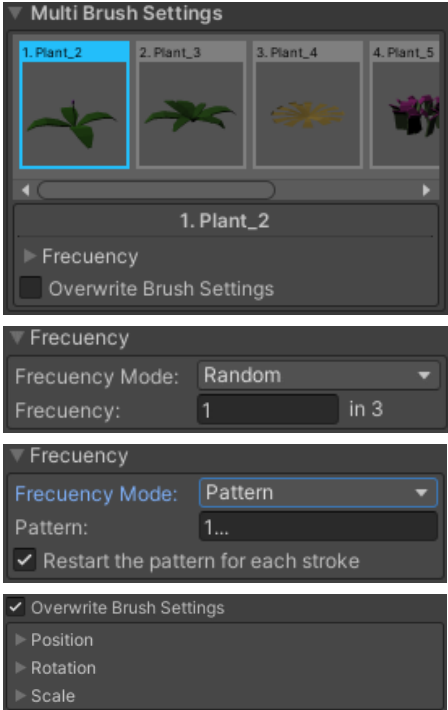
By pressing the **settings** button you can choose between the grid view and the list view. If you choose the grid view you can show or hide the name of the brush. Another option within the settings menu allows you to sort the brushes in ascending or descending alphabetical order.

### Command

### Shortcut

Select next brush	Ctrl + Shift + Mouse scroll wheel
Select next palette	Ctrl + Alt + Shift + Mouse scroll wheel
Delete selected brushes	Ctrl + Shift + Delete
Pick or add a Brush	Hold Shift + Hold 1 + Click on the object

## Brush Properties

Control	Description														
 <p>Name: Cube (2)</p> <p>Position</p> <p><input checked="" type="checkbox"/> Embed On the Surface</p> <p><input type="checkbox"/> Embed At Pivot Height</p> <p>Surface Distance: 0</p> <p>Local Offset:</p> <p>X 0 Y 0 Z 0</p> <p>Rotation</p> <p><input type="checkbox"/> Rotate to the Surface</p> <p>Add Rotation: Constant</p> <p>X 0 Y 0 Z 0</p> <p>Scale</p> <p>Multiplier: Random <input checked="" type="checkbox"/> Separate Axes</p> <p>Between:</p> <p>X 1 Y 1 Z 1</p> <p>X 1 Y 1 Z 1</p>	<p><b>Embed in surface:</b> If selected, objects are placed so that the bottom vertices are below the surface. This is very useful for placing trees.</p> <p><b>Embed at pivot height:</b> If selected, objects are positioned so that their pivots are on the surface.</p> <p><b>Surface distance:</b> Distance from the point of contact of the object with the surface, it can be positive above the surface or negative below the surface.</p> <p><b>Local offset:</b> Adds the offset value to the object position in local space.</p> <p><b>Rotate to the surface:</b> If selected, objects are placed oriented perpendicular to the surface.</p> <p><b>Add Rotation:</b> Can be a constant or random value within a range.</p> <p><b>Scale multiplier:</b> Can be a constant or random value within a range.</p>														
 <p>Multi Brush Settings</p> <p>1. Plant_2 2. Plant_3 3. Plant_4 4. Plant_5</p> <p>1. Plant_2</p> <p>Frequency</p> <p><input type="checkbox"/> Overwrite Brush Settings</p> <p>Frequency</p> <p>Frequency Mode: Random</p> <p>Frequency: 1 in 3</p> <p>Frequency</p> <p>Frequency Mode: Pattern</p> <p>Pattern: 1...</p> <p><input checked="" type="checkbox"/> Restart the pattern for each stroke</p> <p><input checked="" type="checkbox"/> Overwrite Brush Settings</p> <p>Position</p> <p>Rotation</p> <p>Scale</p>	<p><b>Multi brush items:</b> Add or remove prefabs to the brush to create a multibrush that allows different objects to be instantiated at random frequency or following a pattern.</p> <p><b>Frequency - Random:</b> Define how often each item appears.</p> <p><b>Frequency - Pattern:</b> Defines in which order the items appear. Each item is identified by a number ranging from one to the number of items, zero represents an empty space. Sequences are defined by comma separated values. The ellipsis symbol (...) represents that the preceding item is repeated indefinitely. The parentheses allow you to create subsequences and the asterisk sign (*) followed by a number represents that the element that precedes it is repeated the number of times defined after the asterisk. Examples:</p> <table> <thead> <tr> <th>Pattern</th><th>Result</th></tr> </thead> <tbody> <tr> <td>1,2</td><td>1,2</td></tr> <tr> <td>1...</td><td>1,1,1...</td></tr> <tr> <td>(1,2)...</td><td>1,2,1,2,1,2...</td></tr> <tr> <td>1,2...</td><td>1,2,2,2...</td></tr> <tr> <td>1*3</td><td>1,1,1</td></tr> <tr> <td>(1,2)*3</td><td>1,2,1,2,1,2</td></tr> </tbody> </table> <p><b>Overwrite Brush Settings:</b> if selected, the brush settings for the current item are overridden by the values below.</p>	Pattern	Result	1,2	1,2	1...	1,1,1...	(1,2)...	1,2,1,2,1,2...	1,2...	1,2,2,2...	1*3	1,1,1	(1,2)*3	1,2,1,2,1,2
Pattern	Result														
1,2	1,2														
1...	1,1,1...														
(1,2)...	1,2,1,2,1,2...														
1,2...	1,2,2,2...														
1*3	1,1,1														
(1,2)*3	1,2,1,2,1,2														

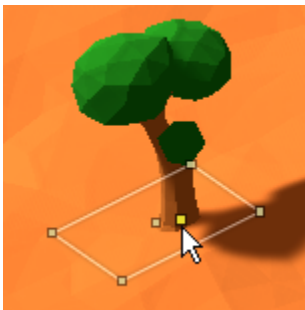
## Common Tool Properties

Control	Description
<div>                     Tool Profile: <span>Default</span> </div>	<p><b>Tool profile:</b> allows you to quickly save and load different settings.</p>
<div> <input type="checkbox"/> Paint on meshes without collider                     <input type="checkbox"/> Paint on palette prefabs                     <input type="checkbox"/> Paint on selected only                       <input checked="" type="checkbox"/> Create parent                     <input checked="" type="checkbox"/> Create sub-parents per palette                     <input checked="" type="checkbox"/> Create sub-parents per tool                     <input type="checkbox"/> Create sub-parents per brush                     <input checked="" type="checkbox"/> Create sub-parents per prefab                       <input checked="" type="checkbox"/> Overwrite prefab layer                     Layer: <span>Default</span>   <input checked="" type="checkbox"/> Overwrite Brush Properties   ▼ Position                     <div> <input type="checkbox"/> Embed On the Surface                     </div>                     Surface Distance: <span>0</span>                     Local Offset:                     <div>                         X <span>0</span> Y <span>0</span> Z <span>0</span> </div>                     ▼ Rotation                     <div> <input checked="" type="checkbox"/> Rotate to the Surface                     </div>                     Add Rotation: <span>Constant</span> <div>                         X <span>0</span> Y <span>0</span> Z <span>0</span> </div>                     ▼ Scale                     Multiplier: <span>Constant</span> <input type="checkbox"/> Separate Axes                     <div> <span>1</span> </div> </div>	<p><b>Paint on meshes without collider:</b> When enabled, generates temporary mesh-colliders for all meshes without colliders. The button on the right allows you to generate the colliders manually.</p> <p><b>Paint on palette prefabs:</b> When unchecked, does not allow drawing on prefabs within the same palette.</p> <p><b>Paint on selected only:</b> When selected, It filters the target surfaces by the ones that are currently selected.</p> <p><b>Create parent:</b> Automatically creates a parent for new objects.</p> <p><b>Create sub-parent per palette, tool, brush, prefab:</b> Automatically creates a sub-parent for new objects with the same (palette, tool, brush, prefab).</p> <p><b>Parent transform:</b> defines the parent of the newly created objects.</p> <p><b>Overwrite prefab layer:</b> Allows you to define the layer of newly created objects.</p> <p><b>Overwrite brush properties:</b> Allows you to overwrite the properties of the brush.</p>
<div> <input checked="" type="checkbox"/> Embed On the Surface                     <input type="checkbox"/> Embed At Pivot Height                     Surface Distance: <span>0</span> <input type="checkbox"/> Rotate To the Surface                 </div>	<p><b>Embed on the surface:</b> If selected, objects are placed so that the bottom vertices are below the surface.</p> <p><b>Embed at pivot height:</b> If selected, objects are positioned so that their pivots are on the surface.</p> <p><b>Surface distance:</b> Distance from the point of contact of the object with the surface, it can be positive above the surface or negative below the surface.</p> <p><b>Rotate to the surface:</b> If selected, objects are placed oriented perpendicular to the surface.</p>

## Pin

Control	Description
<div> <div>Tool Properties</div> <div> <div>Tool Profile: Default</div> <div>Paint mode: Auto</div> <div> <input type="checkbox"/> Repeat multi-brush item                             </div> <div> <input checked="" type="checkbox"/> Flatten the terrain                             </div> <div>                     Hardness: 1                 </div> <div>                     Padding: 1                 </div> <div> <input checked="" type="checkbox"/> Clear trees                             </div> <div> <input checked="" type="checkbox"/> Clear details                             </div> <div> <input type="checkbox"/> Paint on meshes without collider                             </div> <div> <input type="checkbox"/> Paint on palette prefabs                             </div> <div> <input type="checkbox"/> Paint on selected only                             </div> <div> <input checked="" type="checkbox"/> Create parent                             </div> <div> <input checked="" type="checkbox"/> Create sub-parents per prefab                             </div> <div> <input type="checkbox"/> Overwrite prefab layer                             </div> <div> <input type="checkbox"/> Overwrite Brush Properties                             </div> </div> </div>	<p><b>Paint Mode:</b></p> <ul style="list-style-type: none"> <li>• <b>Auto:</b> Paints on surfaces and if no surface is found, objects are painted on the current grid plane.</li> <li>• <b>Paint on surface:</b> Paints objects only on surfaces.</li> <li>• <b>Paint on grid:</b> Paints objects only on the current grid plane.</li> </ul> <p><b>Repeat multi-brush item:</b> If selected, It ignores the frequency (random or pattern) defined in the brush properties. Use it with the next item shortcut for quick access to multi-brush items.</p> <p><b>Flatten the terrain:</b> If enabled it flattens the terrain under the new objects.</p> <p><b>Hardness:</b> determines how smooth or abrupt the transition is between flattened terrain and the existing terrain.</p> <p><b>Padding:</b> Defines how much flat space to add around the object's bounding box.</p> <p><b>Clear trees:</b> Removes any trees under the new object.</p> <p><b>Clear details:</b> Removes any details under the new object.</p>

## How to use



### Normal use case:

1. Toggle on the pin tool.
2. Select the brush on the palette.
3. Use the handles and shortcuts to preview the position, rotation, and scale of the object to create.
4. Click to instantiate the object.

### Alternative use case:

1. Drag and drop a brush from the palette to the scene view.
2. Use the handles and shortcuts to preview the position, rotation, and scale of the object to create.
3. Click to instantiate the object.

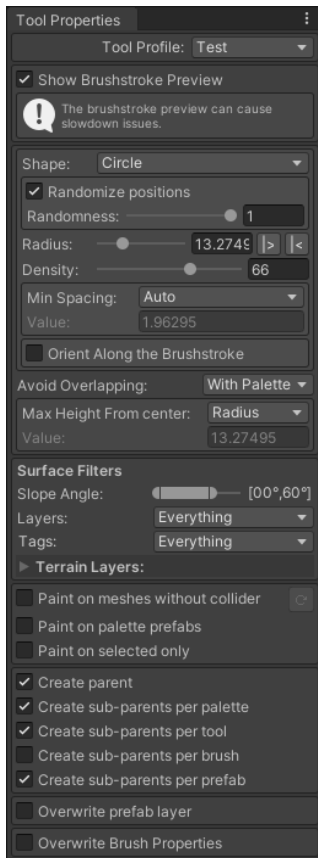
Command	Shortcut
Position handles at top, bottom or pivot height	(Page Up or Page Down) or (Ctrl + Shift + U or J)
Set the pivot as the active handle	Home or (Ctrl + Shift + T)
Select the next handle as active	End or (Ctrl + Shift + Y)
<b>Select next item in the multi-brush</b>	<b>Ctrl + Alt + Mouse scroll wheel</b>
Toggle repeat item option	Ctrl + T
<b>Scale</b>	<b>Ctrl + Mouse scroll wheel</b>
Reset Scale	(Ctrl + Shift + Home) or (Ctrl + Shift + Period)
<b>Rotate freely around local Y axis</b>	<b>Ctrl + Hold down the right mouse button + Move the mouse horizontally</b>
Rotate freely around local X axis	Ctrl + Hold down the middle mouse button + Move the mouse vertically
Rotate freely around local Z axis	Ctrl + Shift + Hold down the middle mouse button + Move the mouse vertically
Snap rotation while rotate freely <sup>2</sup>	Hold down the <b>Alt</b> key while rotate freely
Add 90° or -90° to the rotation around local Y axis	(Ctrl + Q or W) or (Ctrl + ← or →)
Add a step <sup>2</sup> to the rotation around local Y axis	(Ctrl + Shift + Q or W) or (Ctrl + Shift + ← or →)
Add 90° or -90° to the rotation around local X axis	(Ctrl + Alt + K or L) or (Ctrl + Alt + ← or →)
Add a step <sup>2</sup> to the rotation around local X axis	(Ctrl + Alt + Shift + K or L) or (Ctrl + Alt + Shift + ← or →)
Add 90° or -90° to the rotation around local Z axis	Ctrl + Alt + Period or Comma
Add a step <sup>2</sup> to the rotation around local Z axis	Ctrl + Alt + Shift + Period or Comma
Reset rotation to zero.	(Ctrl + Home) or (Ctrl + Shift + M)
<b>Edit distance to the surface</b>	<b>Ctrl + Shift + Hold down the right mouse button + Move the mouse vertically</b>
Add 1 or -1 unit to the distance from surface	(Ctrl + Alt + U or J) or (Ctrl + Alt + ↑ or ↓)
Add 0.1 or -0.1 units to the distance from surface	(Ctrl + Alt + Shift + U or J) or (Ctrl + Alt + Shift + ↑ or ↓)
Reset the distance from the surface to zero	Ctrl + Shift + G

<sup>2</sup> The step size can be changed in the [preferences window](#).



## Brush

### Control



### Description

**Show brushstroke preview:** When enabled it can cause slowdown issues.

**Shape:** Point, circle or square. If circle or square is selected, you can define the density and the maximum height from the center.

**Randomize positions:** If unchecked, objects are placed in a grid layout within the brush area. If selected, allows you to define the randomness value.

**Density:** Value from 0 to 100 where 100 represents the maximum density taking into account the minimum spacing between objects.

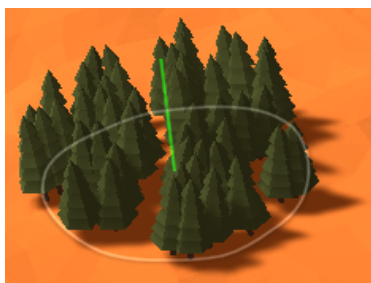
**Min spacing:** Minimum spacing between objects. It can be automatic or customized.

**Orient along the brushstroke:** Orient current objects in the direction of mouse movement. It allows you to add an angle to the local rotation.

**Avoid overlapping:** If enabled, new objects are positioned away from existing objects, preserving density and spacing values.

**Max height from center:** set the limit value for the distance from the plane that passes through the center of the circle in the normal direction. It can be automatic, equal to the radius of the circle or custom.

**Surface filters:** allows you to define the maximum and minimum value of the slope of the surfaces where objects are going to be placed. You can also ignore surfaces depending on their layer, tag or terrain layer.



### How to use

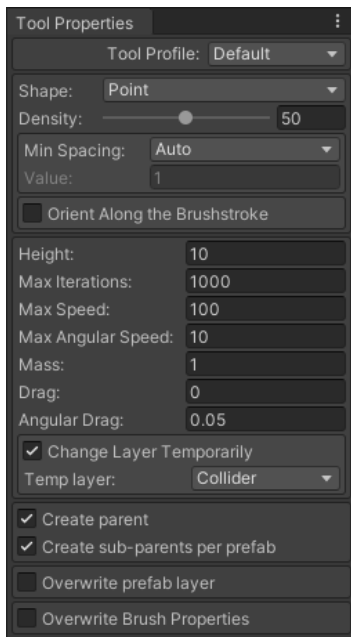
1. Toggle on the brush tool.
2. Select the brush on the palette.
3. Use the shortcuts to change the radius and update the brushstroke.
4. Hold down the left mouse button and move the mouse to instantiate the new objects.

Command	Shortcut
Change radius	Ctrl + Mouse scroll wheel or Shift + Hold down the right mouse button + Move the mouse horizontally
Update brushstroke	Ctrl + Shift + Period
Edit density	Ctrl + Alt + Mouse scroll wheel
Rotate Brush	Ctrl + Hold down the middle mouse button + Move the mouse horizontally



## Gravity Brush

### Control



### Description

**Shape:** Point, circle or square. If circle or square is selected, you can define the density.

**Randomize positions:** If unchecked, objects are placed in a grid layout within the brush area. If selected, allows you to define the randomness value.

**Density:** Value from 0 to 100 where 100 represents the maximum density taking into account the minimum spacing between objects.

**Min spacing:** Minimum spacing between objects. It can be automatic or customized.

**Orient along the brushstroke:** Orient current objects in the direction of mouse movement. It allows you to add an angle to the local rotation.

**Height:** Height from the surface.

**Max Iterations:** The simulation runs until all selected objects are at rest or up to a maximum of iterations.

**Physical quantities:** You can define some physical quantities such as mass, drag, maximum speed and also the gravity force.

**Change Layer Temporarily:** You can temporarily change the layer of objects to make sure they collide with the surface.



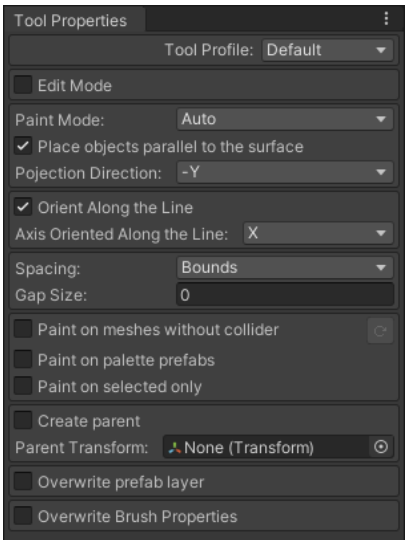
### How to use

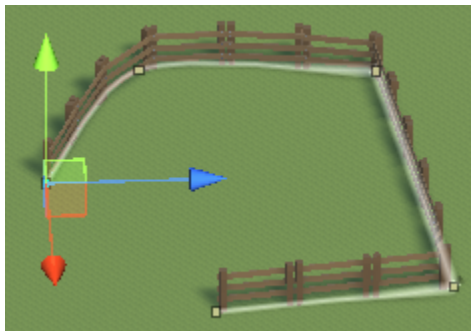
1. Toggle on the gravity tool.
2. Select the brush on the palette.
3. Use the shortcuts to change the radius, update the brushstroke or increase/decrease height.
4. Click to instantiate the new objects.

Command	Shortcut
Change radius	Ctrl + Mouse scroll wheel Or Shift + Hold down the right mouse button + Move the mouse horizontally
Edit height	Ctrl + Shift + Hold down the right mouse button + Move the mouse vertically
Update brushstroke	Ctrl + Shift + Period
Edit density	Ctrl + Alt + Mouse scroll wheel
Add 1 or -1 to height	(Ctrl + Alt + U or J) or (Ctrl + Alt + ↑ or ↓)
Add 0.1 or -0.1 to height	(Ctrl + Alt + Shift + U or J) or (Ctrl + Alt + Shift + ↑ or ↓)
Rotate Brush	Ctrl + Hold down the middle mouse button + Move the mouse horizontally



## Line

Control	Description
	<p><b>Edit mode:</b> If selected, you can edit previously created lines.</p> <p><b>Paint mode:</b></p> <ul style="list-style-type: none"> <li>• <b>Auto:</b> Paints on surfaces and if no surface is found, objects are painted on the line.</li> <li>• <b>Paint on surface:</b> Paints objects only on surfaces.</li> <li>• <b>Paint on the line:</b> Paints objects only on the line.</li> </ul> <p><b>Place objects parallel to the surface:</b> if unchecked, objects are placed parallel to the line.</p> <p><b>Projection direction:</b> Defines the direction in world space in which the objects on the line will be projected onto the surface.</p> <p><b>Orient along the line:</b> Very useful for creating fences and walls. Allows you to select which axis of the objects is oriented along the line.</p> <p><b>Spacing:</b> Defines how the distance between objects on the line is calculated. It can be based on the bounding box size or customized by the user.</p> <p><b>Gap size:</b> Defines the size of the gap between objects.</p>



### How to use, create mode

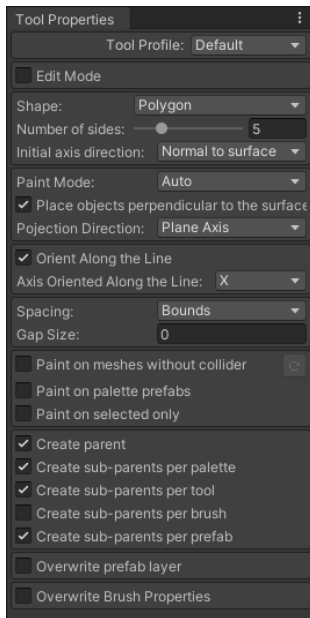
1. Toggle on the line tool.
2. Select the brush on the palette.
3. Press the left click to create the first point.
4. Move the mouse to preview the line.
5. Click again to create the line and preview the objects.
6. Select the handles and use the shortcuts to edit the shape of the line.
7. Press Enter to confirm and instantiate the objects.

Command	Shortcut
Add New point	Click Midpoint
Remove selected points	Delete
Select points	Shift + Draw selection rectangle
Select all points	Ctrl + Shift + A
Deselect all points	Ctrl + Shift + D
Set the previous segment as a Curved or Straight Line	Page Down or (Ctrl + Shift + Y)
Close or open the line	End or (Ctrl + Shift + O)
Edit gap size	Shift + Hold down the right mouse button + Move the mouse
Toggle edit mode	Ctrl + Shift + Period
Snap to control points	V
Select Parent Object	Ctrl + Shift + T
Delete Selected Persistent Item	Alt + Delete (In Edit Mode)



## Shape

### Control



### Description

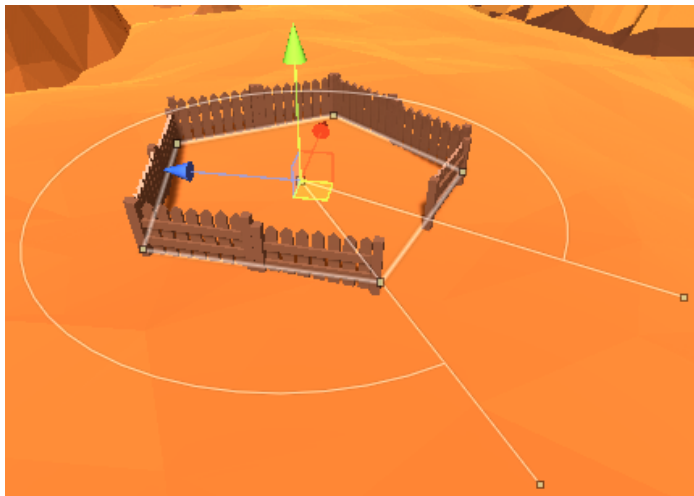
**Edit mode:** If selected, you can edit previously created shapes.

**Shape:** Circle or polygon. In the case of the polygon you can choose the number of sides.

**Initial axis direction:** Defines the initial direction of the axis of the plane from the center point, it can be normal to the surface or a global direction.

The other properties are the same as in the line tool.

## How to use

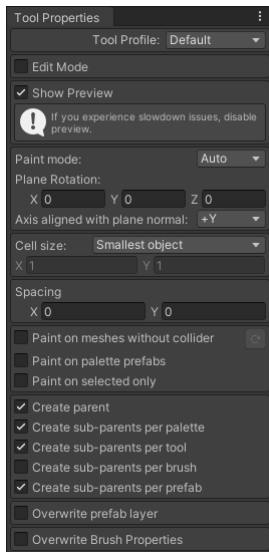


1. Toggle on the shape tool.
2. Select the brush on the palette.
3. Press the left click to create the center point.
4. Move the mouse to preview the shape.
5. Click again to create the shape and preview the objects.
6. Select the handles to edit the radius and the angle of the arc.
7. Press Enter to confirm and instantiate the objects.

Command	Shortcut
Edit gap size	Shift + Hold down the right mouse button + Move the mouse
Toggle edit mode	Ctrl + Shift + Period
Select Parent object	Ctrl + Shift + T
Delete Selected Persistent Item	Alt + Delete (In Edit Mode)

## Tiling

### Control



### Description

**Edit mode:** If selected, you can edit previously created objects.

**Show preview:** When enabled it can cause slowdown issues.

**Paint mode:**

- **Auto:** Paints on surfaces and if no surface is found, objects are painted on the plane.

- **Paint on surface:** Paints objects only on surfaces.

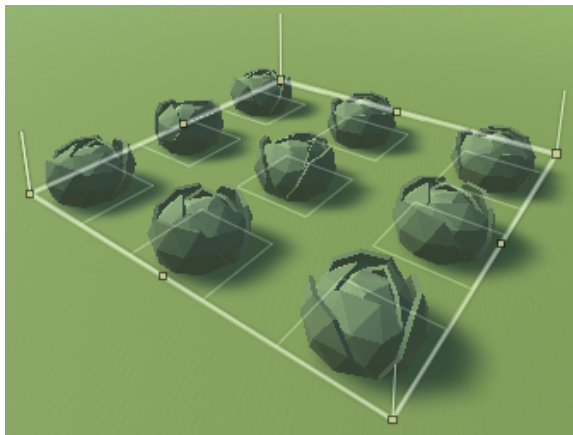
- **Paint on the plane:** Paints objects only on the plane.

**Plane Rotation:** Defines rotation of the plane.

**Axis aligned with plane normal:** Defines which object axis is aligned with the normal of the plane.

**Cell size:** Defines how the cell size is calculated. It can be calculated from the size of the smallest object bounding box, the largest object bounding box, or by a user-defined custom value.

**Spacing:** Spacing between objects.



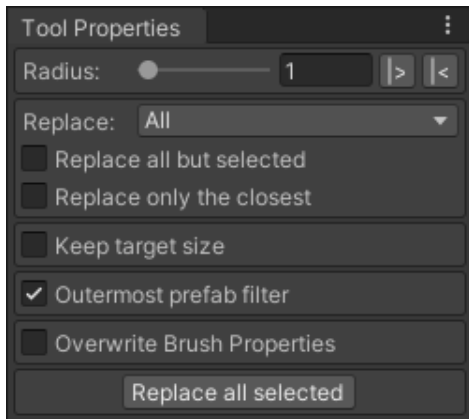
### How to use

1. Toggle on the tiling tool.
2. Select the brush on the palette.
3. Click to create the first point.
4. Move the mouse to preview the rectangle.
5. Click again to create the tiling rectangle and preview the objects.
6. Select the handles to edit the shape, the position and the rotation of the rectangle.
7. Press Enter to confirm and instantiate the objects.

Command	Shortcut
Edit spacing	(Shift or Shift + Ctrl) + Hold down the right mouse button + Move the mouse
Rotate 90° or -90° around X axis	(Ctrl + Shift + U or J) or (Ctrl + Shift + ↑ or ↓)
Rotate 90° or -90° around Y axis	(Ctrl + Alt + K or L) or (Ctrl + Alt + ← or →)
Rotate 90° or -90 around Z axis	(Ctrl + Alt + U or J) or (Ctrl + Alt + ↑ or ↓)
Delete Selected Persistent Item	Alt + Delete (In Edit Mode)
Select parent object	Ctrl + Shift + T
Toggle Edit Mode	Ctrl + Shift + Period

## Replacer

### Control



### Description

#### Replace:

- **All:** Replace any object under the cursor.
- **Palette prefabs:** Replace only the prefabs that belong to the current palette.
- **Brush prefabs:** Replace only prefabs that belong to the current selected brush.

**Replace all but selected:** This option is especially useful when you don't want to replace surface objects.

**Replace only the closest:** If selected, only the closest object will be replaced.

**Keep target size:** If selected, the new object is created the same size as the target.

**Maintain proportions:** When selected, It maintains the proportions of the new object.

**Outermost prefab filter:** If selected, the tool ignores the children of the prefab and only detects the parent object. When disabled, if you replace a child of a prefab, the parent will be unpacked.

**Replace all selected:** This functionality is useful to replace empty objects.

## How to use



#### Normal use case:

1. Toggle on the replacer tool.
2. Select the brush on the palette.
3. Use the shortcut to change the radius.
4. Click to replace the objects.

#### Replace all selected:

1. Select the objects to be replaced.
2. Toggle on the replacer tool.
3. Select the brush on the palette.
4. Press the "Replace all selected" button.

### Command

### Shortcut

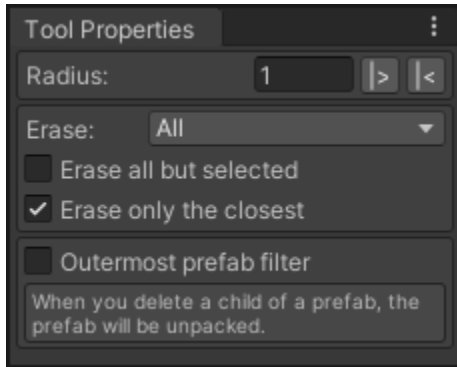
Change radius

Ctrl + Mouse scroll wheel or  
Shift + Hold down the right mouse button + Move the mouse horizontally



## Eraser

### Control



### Description

#### Erase:

- **All:** Erase all objects inside the circle.
- **Palette prefabs:** Erase only the prefabs that belong to the current palette.
- **Brush prefabs:** Erase only prefabs that belong to the current selected brush.

**Erase all but selected:** This option is especially useful when you don't want to delete surface objects.

**Erase only the closest:** If selected, only the closest object will be deleted.

**Outermost prefab filter:** If selected, the tool ignores the children of the prefab and only detects the parent object. When disabled, if you delete a child of a prefab, the parent will be unpacked.

### How to use



1. Toggle on the eraser tool.
2. Use the shortcut to change the radius.
3. Click to erase the objects.

### Command

### Shortcut

Change radius

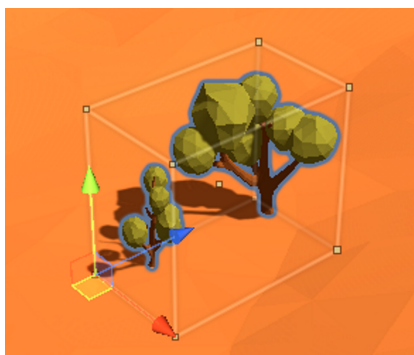
Ctrl + Mouse scroll wheel  
Or  
Shift + Hold down the right mouse button + Move the mouse horizontally



## Selection

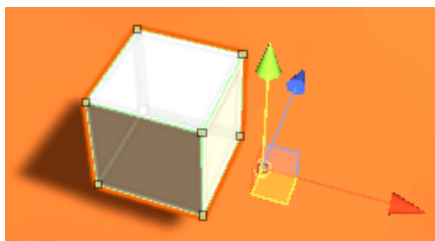
Control	Description
<div> <div> <div>Tool Properties</div> <div> <div>Tool Profile: Default</div> <div> <div>Handle Space: Local</div> <div>Box Space: Global</div> </div> <div> <div>Selection Filters</div> <div> <div><input type="checkbox"/> Prefabs from selected palette only</div> <div><input type="checkbox"/> Prefabs from selected brush only</div> <div>Layers: Mixed...</div> <div>Tags: Everything</div> </div> <div> <div><input checked="" type="checkbox"/> Embed On the Surface</div> <div><input type="checkbox"/> Embed At Pivot Height</div> <div>Surface Distance: 0</div> <div><input type="checkbox"/> Rotate To the Surface</div> </div> </div> </div> </div> </div>	<p><b>Handle Space:</b> Global or local.</p> <p><b>Box Space:</b> Global or local.</p> <p><b>Selection filters:</b> Allows you to filter the selection by palette, brush, layer and tag.</p> <p><b>Embed in surface:</b> If selected, objects are placed so that the bottom vertices are below the surface.</p> <p><b>Embed at pivot height:</b> If selected, objects are positioned so that their pivots are on the surface.</p> <p><b>Surface distance:</b> Distance from the point of contact of the object with the surface, it can be positive above the surface or negative below the surface.</p> <p><b>Rotate to the surface:</b> If selected, objects are placed oriented perpendicular to the surface.</p>

### Normal use case



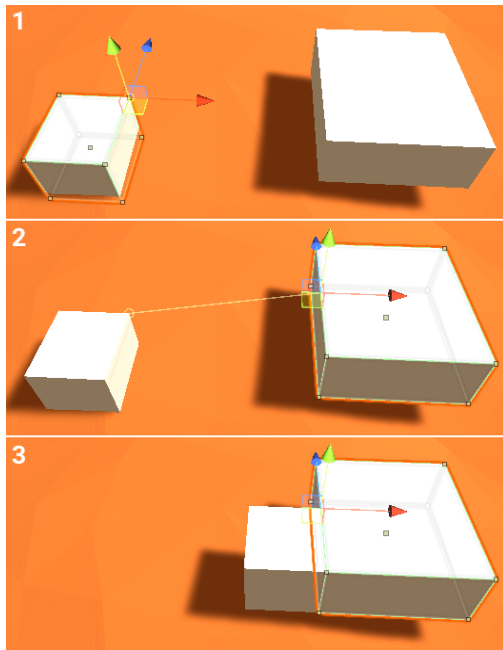
1. Toggle on the selection tool.
2. Select the objects you want to edit.
3. Use the handles:
  - a. Select one of the handles to translate, rotate or scale the selection from there. There are handles in the corners of the bounding box, but also in the middle of each side and each plane.
  - b. Use the mini buttons T, R and S to toggle the position, rotation and scale handles.

### Edit custom handle



1. Press U to start editing the custom handle position.
2. Move the handle to the desired position.
3. Press U or Return to confirm.
4. Now you can use the custom handle to translate, rotate and scale the selection from there.

## Move to other selection handle



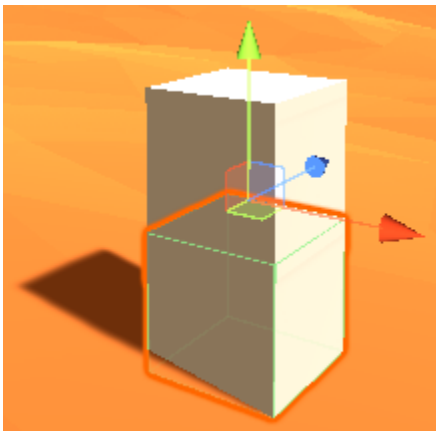
1. Select one of the handles and press Return to enable the “Move to other selection handle” mode.
2. Select the other objects. Select the destination handle.
3. Press Return again to confirm the move.

Command	Shortcut
Toggle position handle	W
Toggle rotation handle	E
Toggle scale handle	R
Rotate 90° or -90° around X axis	(Ctrl + Shift + U or J) or (Ctrl + Shift + ↑ or ↓)
Rotate 90° or -90° around Y axis	(Ctrl + Alt + K or L) or (Ctrl + Alt + ← or →)
Rotate 90° or -90° around Z axis	(Ctrl + Alt + U or J) or (Ctrl + Alt + ↑ or ↓)
Move to other selection handle	Press Return, select the other objects, select the destination handle and press Return again to confirm the move.
Edit custom handle	U to start editing and U or Return to confirm
Toggle Space Global/Local	Ctrl + Shift + X

## Extrude

Control	Description
<div> <div>Tool Properties</div> <div> <div>Tool Profile: Default</div> <div>Space: Global</div> <div>Spacing: Custom</div> <div>Value: X 0 Y 0 Z 0</div> <div> <input checked="" type="checkbox"/> Same parent as source                             </div> <div> <input type="checkbox"/> Overwrite prefab layer                             </div> <div> <input type="checkbox"/> Embed In Surface                             </div> </div> </div>	<p><b>Space:</b> Global or local. If local space is selected, you can choose whether the selection rotation is equal to that of the first selected object or that of the last selected object.</p> <p><b>Spacing:</b> Defines the space between objects, it can be equal to the size of the box multiplied (component-wise) by a multiplier or it can be custom defined.</p> <p><b>Same parent as source:</b> If not selected, allows you to define the parent of newly created objects.</p> <p><b>Embed in surface:</b> If selected, objects are placed so that the bottom vertices are below the surface.</p> <p><b>Embed at pivot height:</b> If selected, objects are positioned so that their pivots are on the surface.</p> <p><b>Surface distance:</b> Distance from the point of contact of the object with the surface, it can be positive above the surface or negative below the surface.</p>

## How to use



1. Select the objects you want to extrude.
2. Toggle on the extrude tool.
3. Move the position handle to preview the extrusion.
4. Press Return to confirm and instantiate the objects. Another way to confirm object creation is by changing the extrusion direction.

## Mirror

### Control

Tool Properties

Tool Profile: Default

Position:

X -5.08863

Y -3.22857

Z 30.89018

Rotation:

X 0

Y 90

Z 0

☐ Invert scale
 ☒ Reflect rotation

Action: Create

☒ Same parent as source

☐ Overwrite prefab layer

☐ Embed In Surface

### Description

**Position and Rotation:** Current mirror position and rotation.

**Invert scale:** If checked, inverts the scale of objects on the other side of the mirror.

**Reflect rotation:** if checked, the rotation of the new objects is a reflection of the source objects; otherwise, the rotation remains the same as that of the source objects..

**Action:** Transform or create. If transform is selected, the selected objects are moved and rotated to the other side of the mirror, if create is selected, new objects are created as a reflection of the originals.

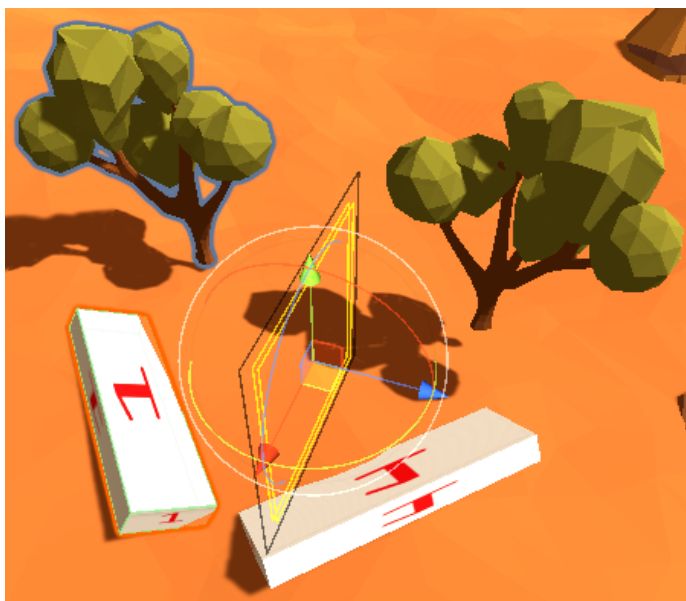
**Embed in surface:** If selected, objects are placed so that the bottom vertices are below the surface.

**Embed at pivot height:** If selected, objects are positioned so that their pivots are on the surface.

**Surface distance:** Distance from the point of contact of the object with the surface, it can be positive above the surface or negative below the surface.

**Rotate to the surface:** If selected, objects are placed oriented perpendicular to the surface.

### How to use

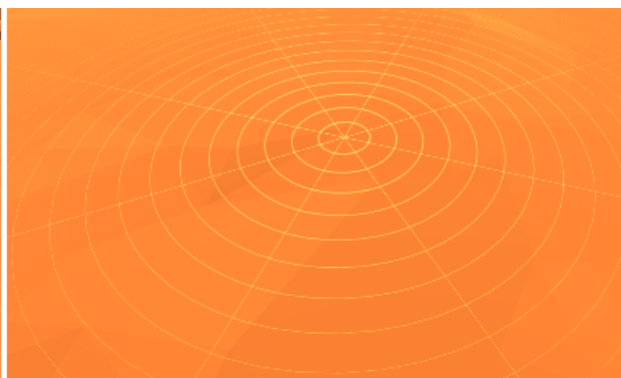
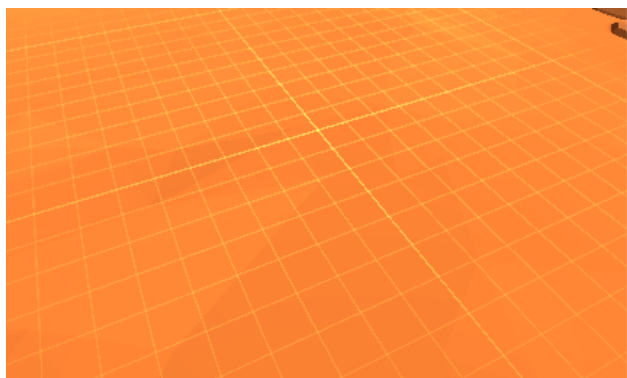


1. Select the objects you want to mirror.
2. Toggle on the mirror tool.
3. Move and rotate the mirror to the desired position.
4. Press Return to confirm.

\* Press Escape to deselect the mirror handle.



## Grid and Snapping



### Grid and snapping settings

Control	Description
<div>                     Grid and Snapping Settings                     <div>                         Snap Value:                         X 1 Y 1 Z 1                         Set the snap value to the size of the active gameobject                     </div> <div>                         Grid Origin                         X 25.58509 Y -0.05297542 Z 22.89429                         Set the origin to the active gameobject position                     </div> <div>                         Rotation                         X 0 Y 0 Z 0                         Set the rotation to the active gameobject position                     </div> <div>                         Grid type: Rectangular                         <input checked="" type="checkbox"/> Lock the grid origin in place                         <input type="checkbox"/> Show position handle                         <input type="checkbox"/> Show rotation handle                         <input type="checkbox"/> Show spacing handle                     </div> </div>	<p><b>Snap value:</b> Allows you to set the size of the cells. Set the XYZ values manually or press the button to set the value to the size of the active gameobject.</p> <p><b>Radial snap value:</b> Allows you to set the radius step of the radial grid.</p> <p><b>Radial sectors:</b> Define the amount of sectors for the radial grid.</p> <p><b>Grid origin:</b> you can set the XYZ values manually or press the button to set the grid origin to the active gameobject position.</p> <p><b>Rotation:</b> you can set the euler angle values manually or press the button to set the grid rotation to the active gameobject position.</p> <p><b>Grid Type:</b> Rectangular or radial.</p> <p><b>Lock the grid origin in place:</b> When unlocked, the grid follows the cursor along the normal direction of the grid plane. Otherwise, the grid remains in the same place.</p>

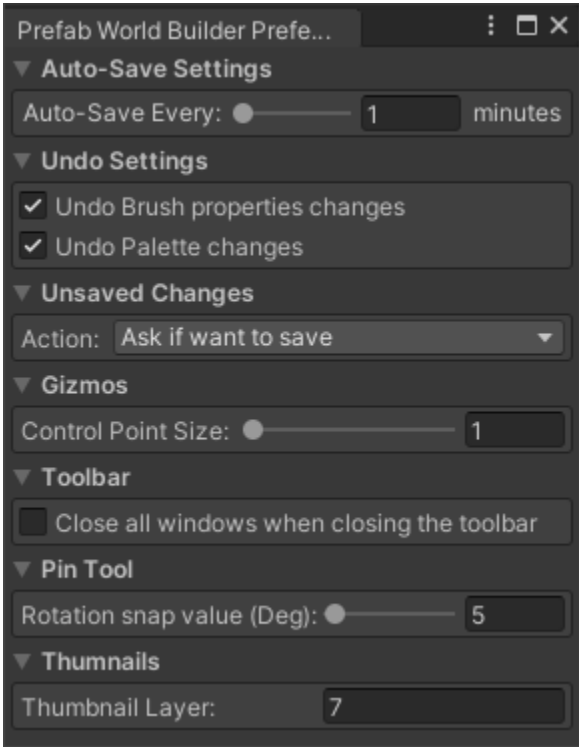
Command	Shortcut (customizable via shortcuts manager)
Toggle Grid Position Handle	Ctrl + Alt + W
Toggle Grid Rotation Handle	Ctrl + Alt + E
Toggle Grid Scale handle	Ctrl + Alt + R

Command	Shortcut
Toggle grid	Ctrl + G then Ctrl + G
Toggle snapping	Ctrl + G then Ctrl + H
Toggle grid Lock	Ctrl + G then Ctrl + L
Set the origin to the active gameobject position	Ctrl + G then Ctrl + W
Set the grid rotation to the active gameobject rotation	Ctrl + G then Ctrl + E
Set the snap value to the size of the active gameobject	Ctrl + G then Ctrl + R





## Preferences

Control	Description
	<p>To open the preferences window, click the menu item <b>Tools &gt; Plugin Master &gt; Prefab World Builder &gt; Preferences</b>.</p> <p><b>Auto-save settings:</b> Allows you to define the auto-save period in minutes.</p> <p><b>Undo settings:</b> Allows you to define whether changes to brush properties and the palette should be taken into account when undoing.</p> <p><b>Unsaved changes:</b> Lets you to define what action to take on unsaved changes: Ask to save, save or discard.</p> <p><b>Gizmos:</b> Allows you to define the control point size.</p> <p><b>Toolbar:</b> Allows you to define whether to close all PWB windows when closing the toolbar.</p> <p><b>Pin tool:</b> Lets you to set the step size of the rotation snap value.</p> <p><b>Thumbnails:</b> Allows you to define the layer where thumbnails are rendered. Default is 7 to avoid conflicts.</p>

## Limitations

- Most of the tools only work in scene view. Do not use it in the prefab view.
- It doesn't work with UI components.

## Support and feedback

Please send us feedback or ask for support via the Unity [forum](#) or the [Discord server](#). We do our very best to reply to all inquiries within 24 hours.

We hope you love it! If you do, would you consider posting an online [review](#)? This helps us to continue providing great products and helps other developers to make confident decisions.