

The 3D Cursor

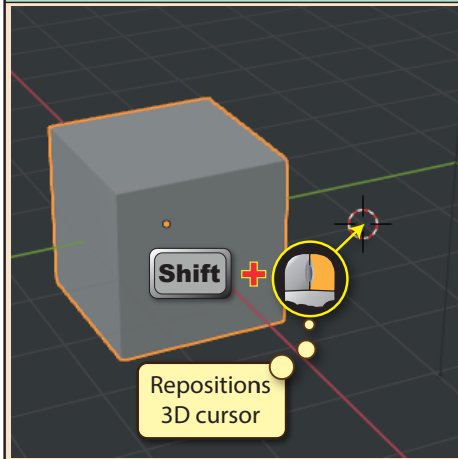
The **3D cursor** determines where any new element is placed within a scene.

Objects are placed so that their origin is at the centre of the **3D cursor**.

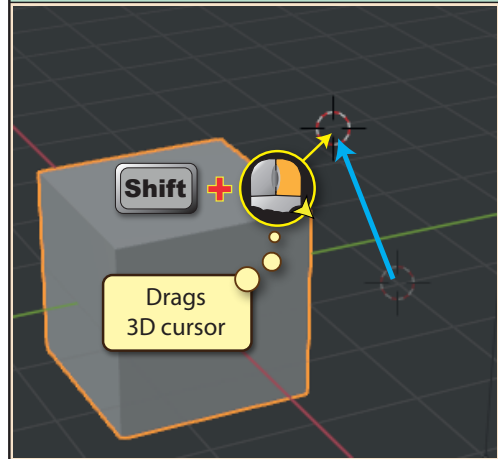
The **3D cursor** is initially positioned at the World Origin but can be moved using *Toolbar* and keyboard options.

The **3D cursor** also contains its own set of axes which can be rotated and used to align newly created objects.

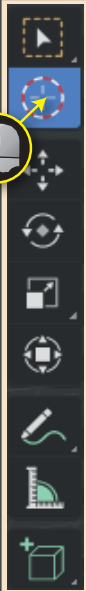
The **3D cursor** can be repositioned to the current mouse pointer location within the **3D Viewport** by holding down **Shift** and right-clicking the mouse.



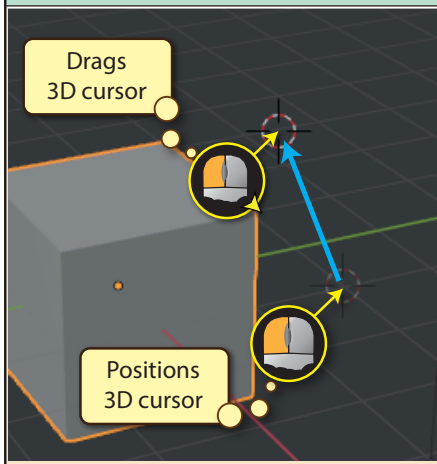
It is also possible to drag the **3D cursor** by continuing to hold down **Shift** and the right mouse button while moving the mouse pointer on the screen.



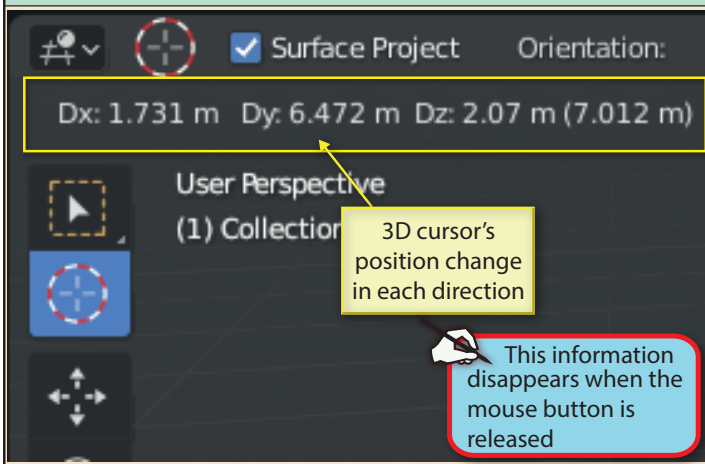
The second entry in the **Toolbar** offers another way of controlling the **3D cursor**.



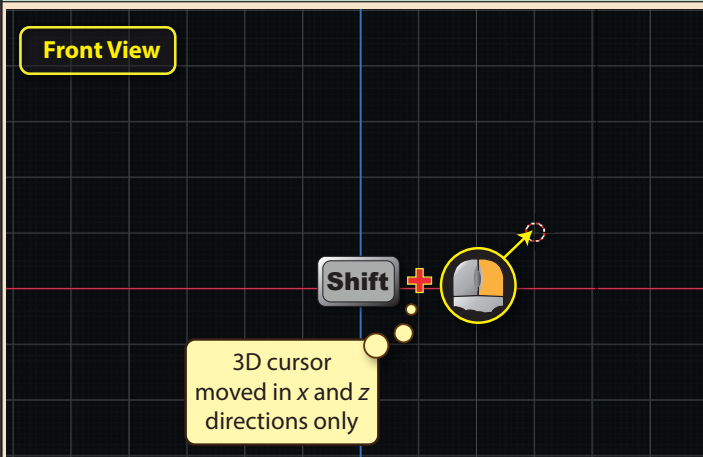
Using this option, we can use the left mouse button to move or drag the **3D cursor**.



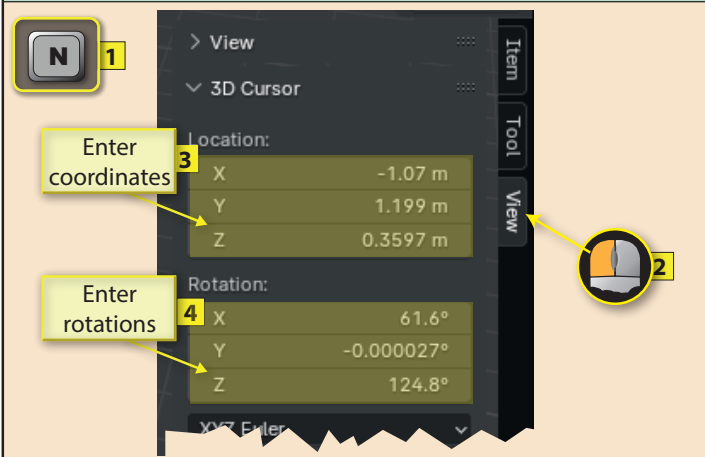
As we drag the **3D cursor** to a new position, in the top-left of the **3D Viewport**, we can see the **3D cursor's** change in position in each direction (x, y and z).



A more controlled approach is to jump to a named viewpoint (such as **Front (1)**, **Right(3)** or **Top(7)**) before moving the **3D cursor**. When we use this approach, the cursor will not be moved in the dimension facing out towards the user.

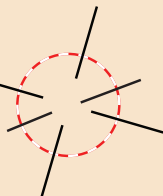


When we need to specify an exact location for the **3D cursor**, we can display the **Sidebar (N)**, select the **View** page, and enter not only an exact location for the **3D cursor** but also its angle of rotation about its own axes.



Making changes to the **Rotation** values will affect the axes shown within the **3D cursor** in the **3D Viewport**. The image below is an enlarged version of that appearing on the screen.

3D cursor's axes rotated

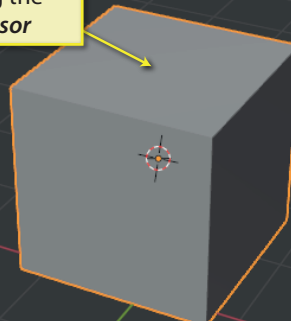


Rotational values entered in the **Sidebar**

Rotation:	
X	60.9°
Y	24.1°
Z	49.1°

Although, when we first create a new object it ignores the **3D cursor's** orientation...

Cube added after rotating the **3D cursor**



...if we change the **Align** setting in the **Last Op panel** to **3D Cursor**, the newly created object will adjust to the orientation of the 3D cursor.

Add Cube

Align 3D Cursor

Cube's orientation matches that of the **3D cursor**

When moving the **3D cursor** around the **3D Viewport**, it can be helpful if we have a quick way of returning the cursor to the **World origin** and resetting its rotation. From the keyboard we can do that by pressing **Shift C**.

Shift + C 3D Cursor to World Origin

3D cursor returned to world origin and its Rotation values set to zero

If we position the **3D cursor** over an existing object it will automatically place itself on the surface of that object.

Shift +

This assumes the **3D cursor** option in the **Toolbar** is not selected

When placing the **3D cursor** on an existing object, we can gain greater using **snapping**. Snapping forces the moving object (in this case the **3D cursor**) to jump to nearby specific locations.

To switch on snapping in Blender we have to activate the **Snapping icon** at the top-centre of the **3D Viewport**.

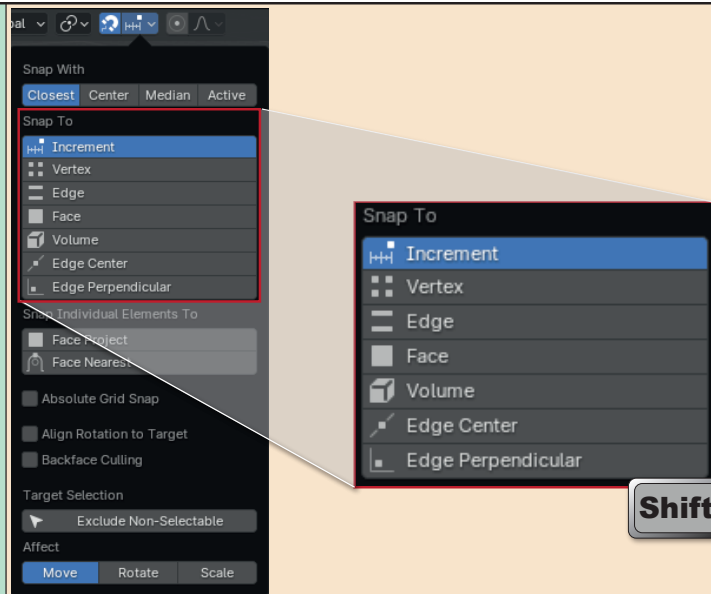
ding Animation Rendering Compositing

Global

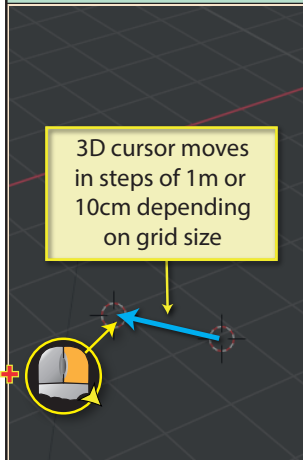
Snapping activated

To the immediate right of the **Snapping** icon is an icon that activates a dropdown panel. This allows us to adjust the nature of the snapping.

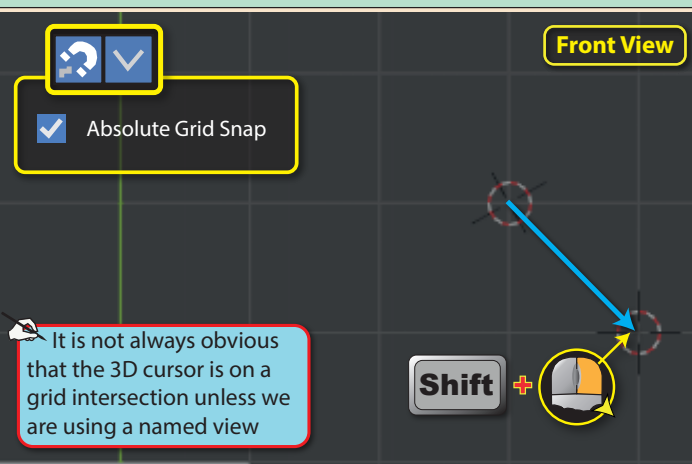
When dealing with the **3D cursor**, we are mainly interested in the **Snap To** options.



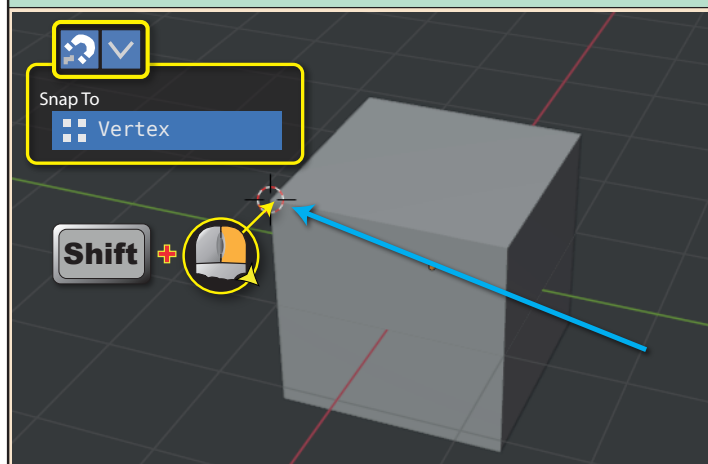
Increment snaps the moving **3D cursor** to steps of 1m or 10cm depending on the visible grid size.



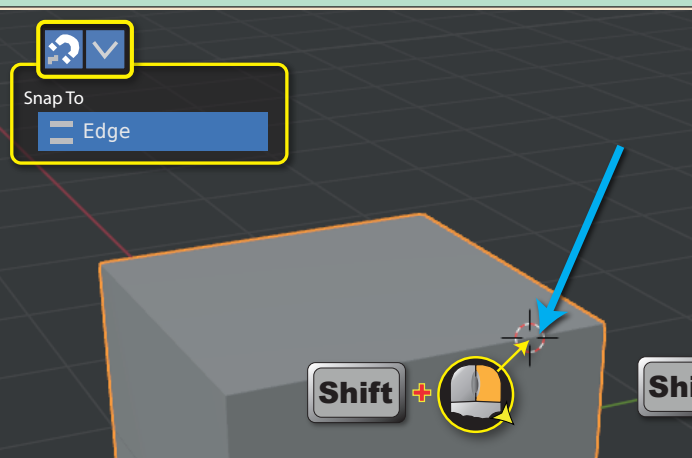
If **Absolute Grid Snap** checkbox in the **Snap panel** is selected, then the **3D cursor** snaps to an exact intersection on the grid.



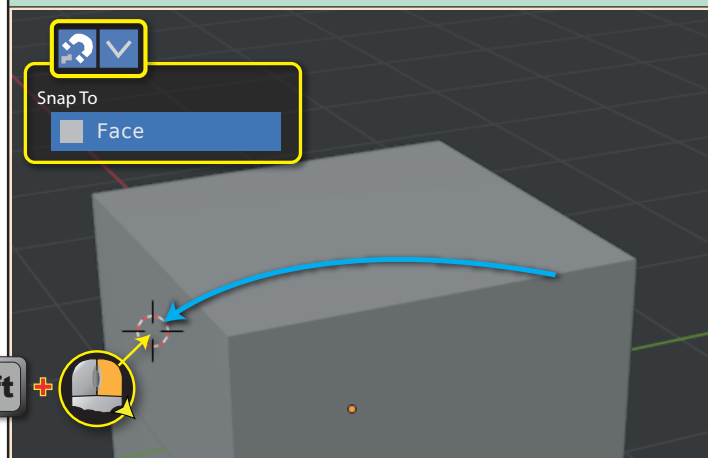
Snap To's Vertex option is used to place the 3D cursor on the vertex of an existing object.



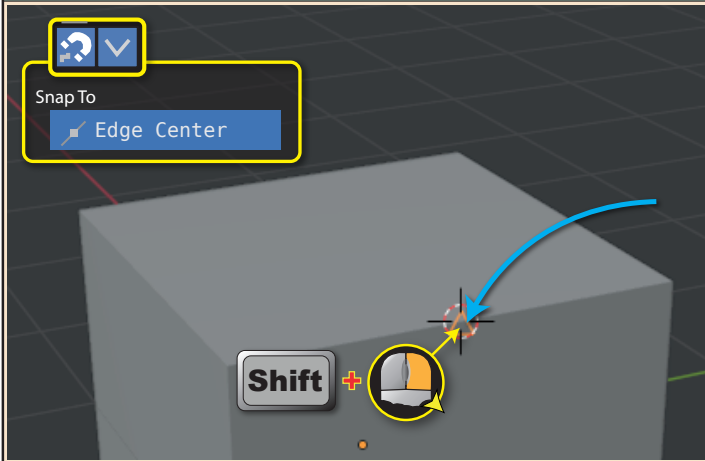
Edge snaps the **3D cursor** to any nearby edge in a mesh.



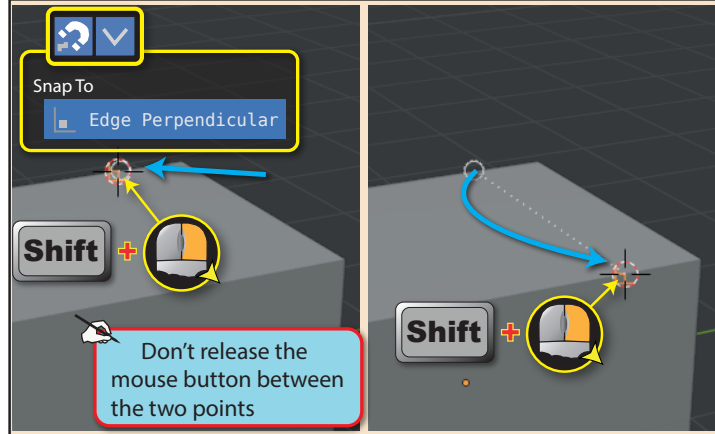
Face snaps the **3D cursor** to any nearby face. Blender does this automatically even when snapping isn't switched on.



Edge Center snaps the 3D cursor to the centre of an edge.




Edge Perpendicular requires two steps. The first is to select any point on an edge by holding down **Shift** and the right mouse button. We then need to drag the cursor to the opposite edge and Blender will snap it to the point which represents the far end of a line perpendicular to the first edge.



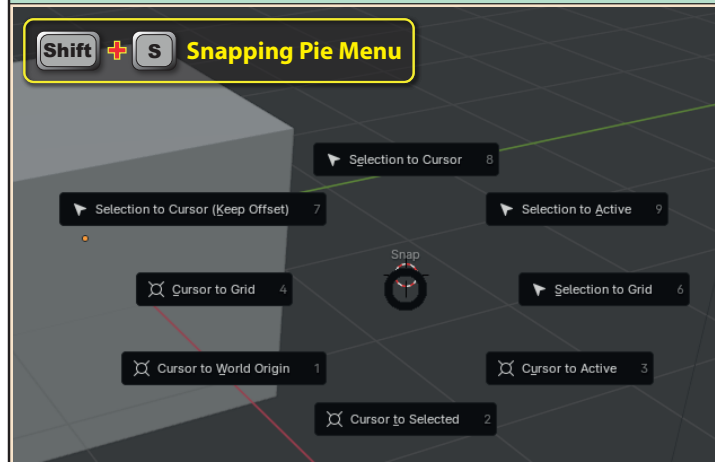
As an alternative to clicking on the Snapping icon, we can switch snapping on and off using the key combination **Shift Tab**.

Shift + Tab Toggle snapping

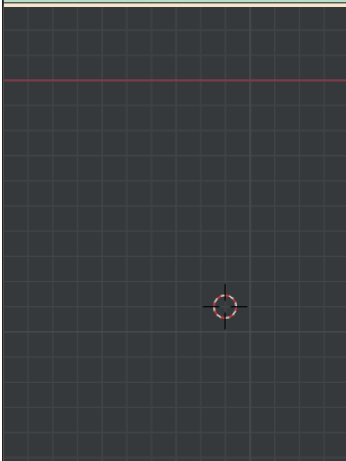
And if we want to use snapping for a single operation we can hold down the **Ctrl** key after beginning a drag operation. The currently selected **Snap To** option will be used.

Shift +  Begin 3D cursor dragging
Ctrl Snapping on

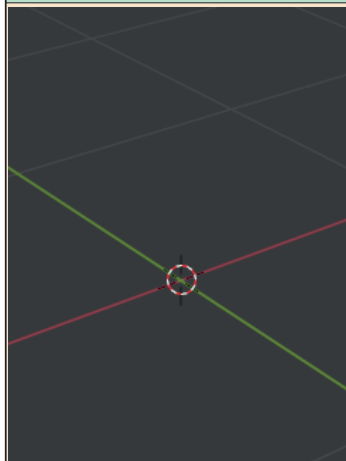
Another way of controlling the **3D cursor** is using the **Snapping pie menu** which is displayed by pressing **Shift S**.



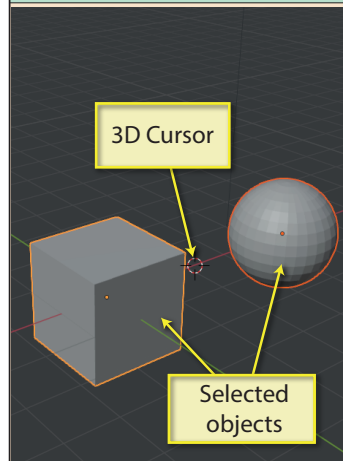
Cursor to Grid moves the **3D cursor** to a grid intersection point.



Cursor to World Origin moves the **3D cursor** to the **World Origin**.



Cursor to Selected moves the **3D cursor** to the mid-point of all selected items (measured from their origins).



Cursor to Active moves the **3D cursor** to the origin of the active object.

