Pro Align Tools Documentation

Release 1.0

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General

This manual is for the addon in the 2.79 version of Blender. Looking for the latest manual? Go here!

CHAPTER 1

Installation

1.1 Installing for Blender 2.79 (version 1.0 of Align Tool)

- Go to File > **User Preferences** (Ctrl + Alt + U)

- Click the **Add-ons** button

- In the section below look for the **Install Add-on from File...** button

- Navigate through your filesystem until you find the **Align Tool** addon and select it: **align_tool_2_79.zip**

- Press the **Install Add-on from File...** button. You should now be able to see it listed in the addons list

- Press the little empty **checkbox** next to the addon name in order to enable it

- In the section below press the **Save User Settings** button to make the addon stay available in future executions of Blender

- Enjoy!

Introduction

2.1 Accessing the Tool

You can start the interactive mode of **Align Tool** by pressing **Ctrl + Alt + A** in the 3D View.

The main panel is located at the Toolbar (**T**) in the Relations tab > Align Tool panel.

From this panel you can access the interactive mode by clicking on the eyeball icon next to the Align button.

Fig. 1: The default state of the interactive preview.

You can align objects by just clicking the Align button without the need to access the interactive mode. This is useful to apply the same last operation repeatedly, no confirmation needed. Though it is recommended to use the interactive view to better see what's going on when changing the panel buttons.

Fig. 2: Click the eyeball icon to start the interactive preview, or just press the Align button to immediately align your current selection.

2.2 Running the first time

The default alignment of **Align Tool** is to just align objects to the +X plane of the world coordinates, by using the geometry of objects, whose origin is picked up from the generated bounding box that follows the current plane.

So, as a first exercise, just select some object and press the Align button. Your object will move to one side of the X plane of the world. If you want to move your object and see how it gets projected into the plane, press the eyeball icon next to the Align button and select your object. Move, scale and rotate it while you preview the resulting alignment.
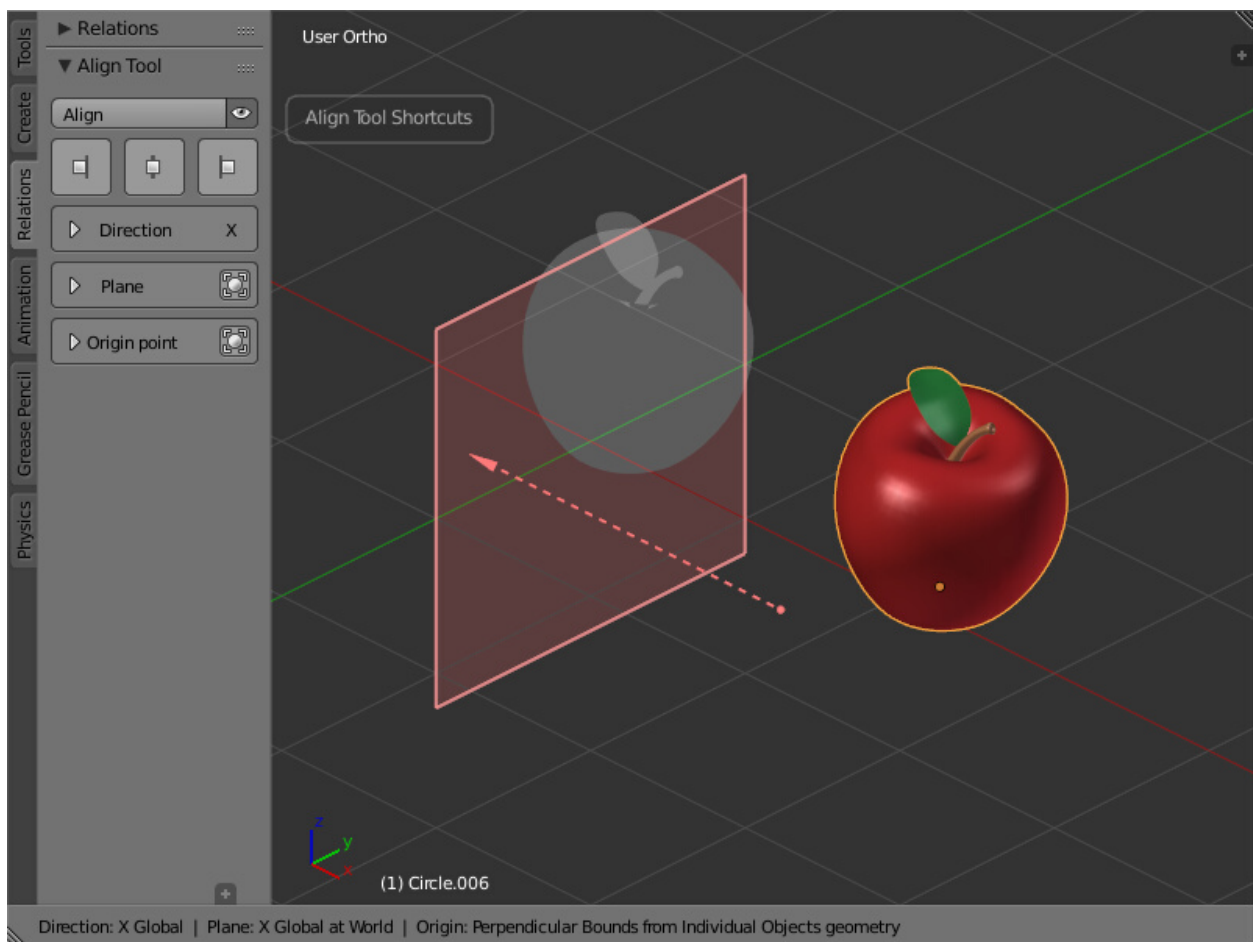

Fig. 3: The default behaviour of Align Tool.

To better see what's going on, enable the little **bounding box button** next to the Origin point **panel**. This allows you to see the considered bounding box that is being used while your alignment is taking place.
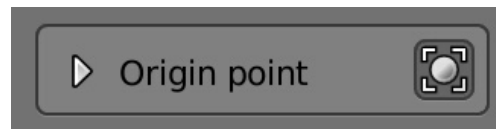

Fig. 4: Enabling the drawing of bounding boxes for objects.

Now you can see that your object has a bounding box from where the origin of the translation is being picked up.
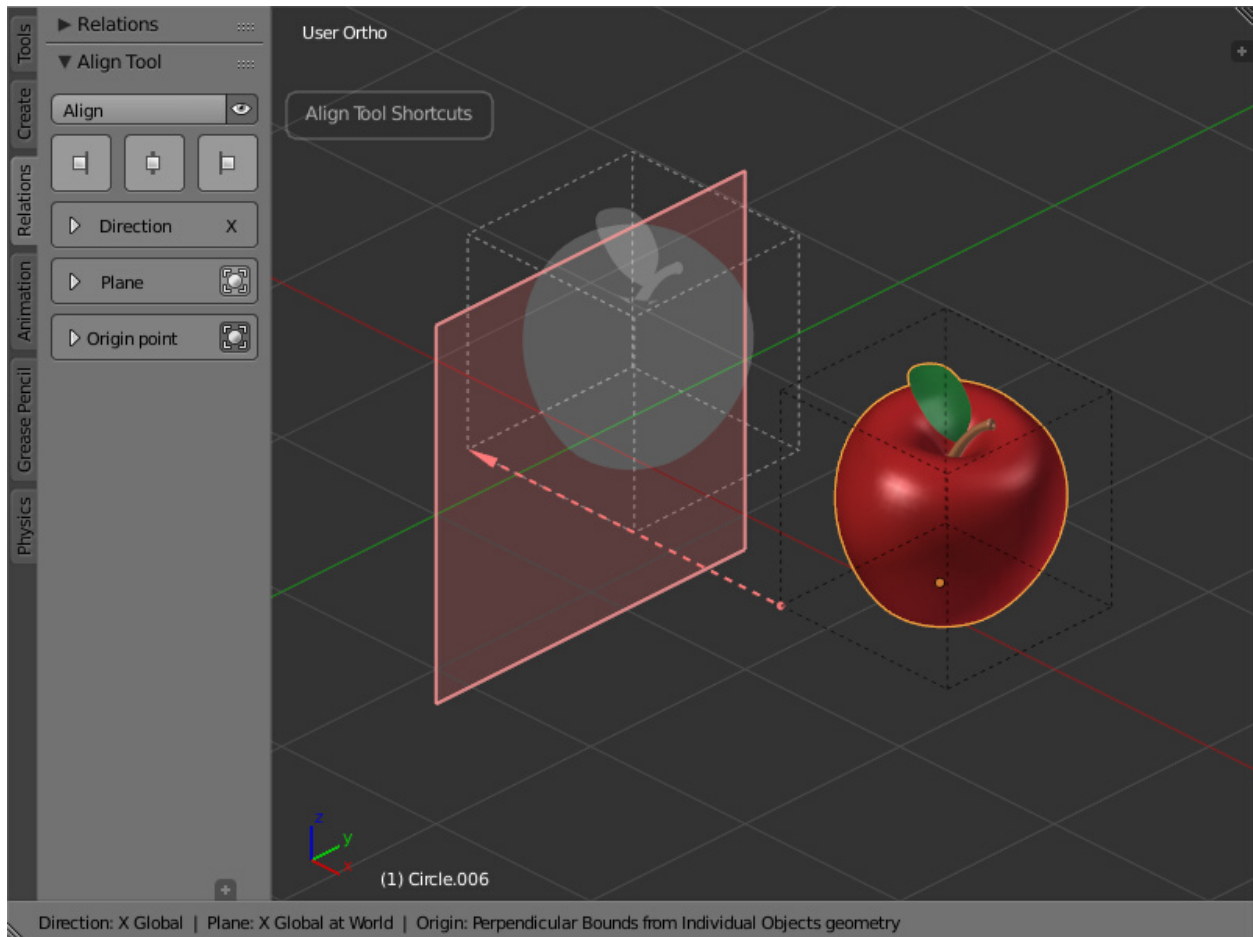

Fig. 5: The bounding box helps to understand how is the alignment being done.

To switch fast between the levels of alignment relative to the plane, use the **Preset Alignment** buttons on top. This is just a predefined configuration of alignment that automatically takes some origin point on your object to make it go to one side or the other of the *projection Plane*.

Fig. 6: Align your object to the 'left' (negative direction of the current plane)

As you can see, your object gets aligned to one side of the *projection Plane*, and the origin point from where the translation is being taken, has moved from one corner of the bounding box to the midpoint "behind" the object.
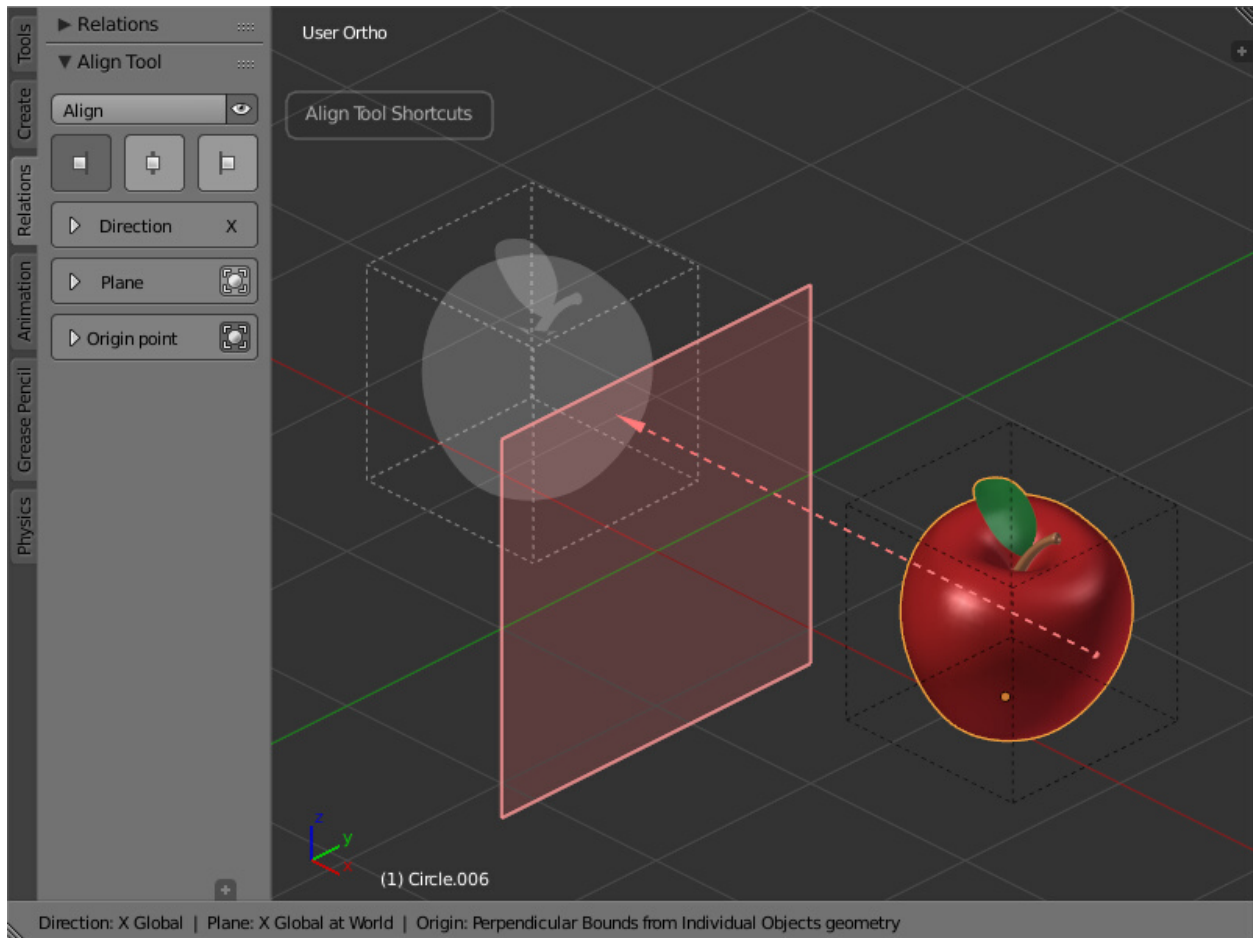
Fig. 7: The alignment changes and the Status bar informs of the change.

Try the centered alignment.

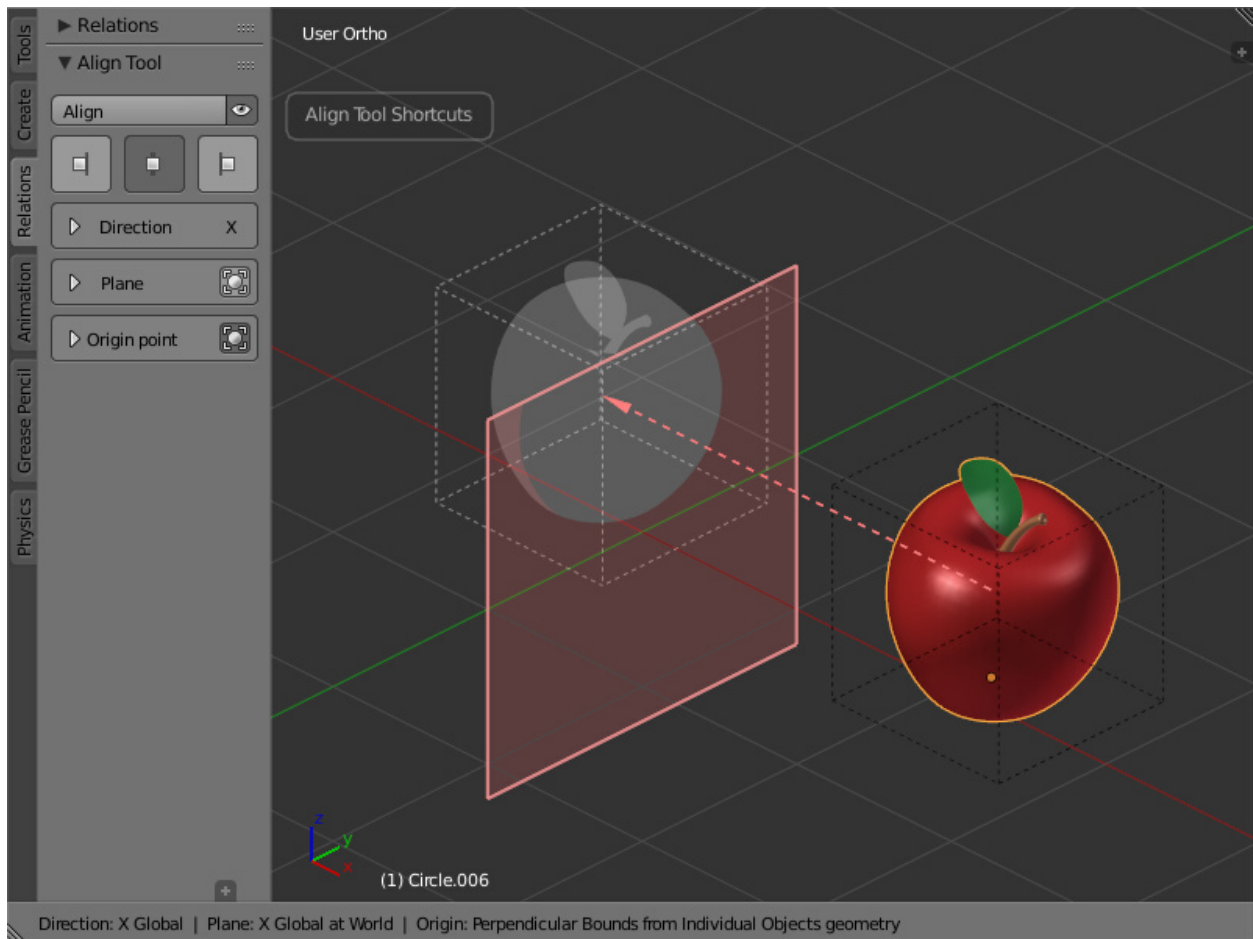Fig. 8: The preset for a centered alignment.

Fig. 9: The object is centered on the plane, and the ghost helps to preview its final position.

You can see how the alignment changed, and the origin point moved to the center of the bounding box.

Now confirm the alignment by pressing the **Align** button on top, or by just pressing the **Enter/Return** key.

Your object moves to its final position and the interactive mode is leaved automatically. As you can note, your last settings are remembered per session, so this way you can easily apply the same kind of alignment to different groups of objects.
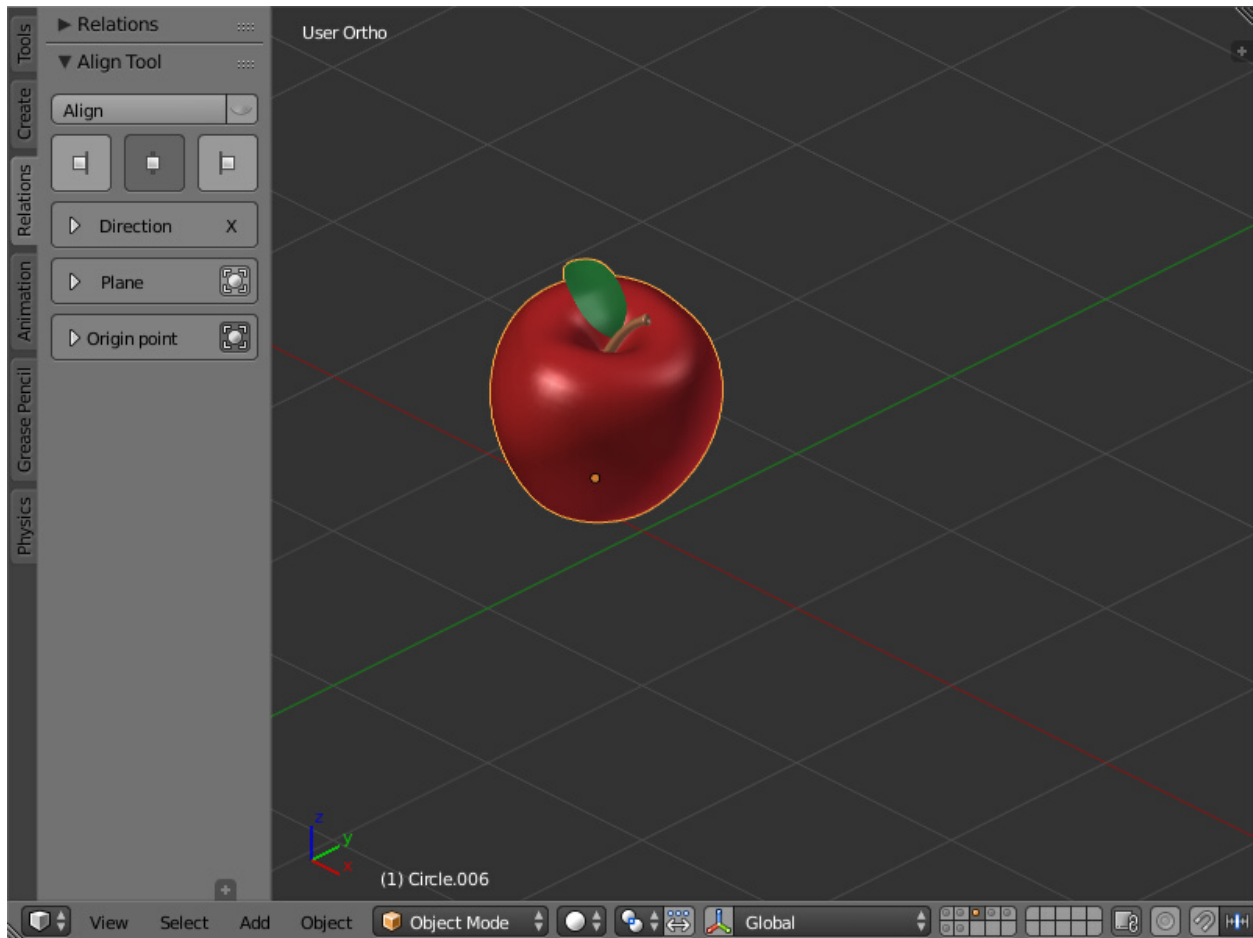
Fig. 10: The object has been aligned to the Plane.

CHAPTER 3

Overview

3.1 Origin selection mode

3.1.1 Global Space

Picking the *Origin* directly from the 3D view

You can always pick the *Origin point* from the 3D view if you are in interactive mode and you have some object selected.

To pick interactively, hold the **Ctrl** key while you move the mouse cursor. A small rounded box with a legend, will appear below the mouse cursor, to let you know what kind of element you are selecting. In this case, it shows the word "Origin".

While you hold the key, you can see all the available points from where you can pick the *Origin*. They appear as white rounded dots for corners and squared dots for midpoints, including the location of the selected objects (their origin pivot point), the origin of the world coordinates and the location of the cursor.

When you pass near a pickable point, a yellow dot will appear, indicating that you can select it. If you click with the **Left mouse button** while you still hold the **Ctrl** key, the point will be selected as the *Origin point*.

If you check the **Origin point panel**, you will see that your actions get updated in the User Interface, from where you can also pick the *Origin* and change settings.

You can also note that your object highlights while you are near some of its points. This helps to understand what are you picking up, as you can also select a group of objects instead.

3.1.2 Local Space

Picking the *Origin point* from the local bounds

To select some *Origin point* using the **local box** of the object: while you hold the **Ctrl** key, hold also the **Alt** key, you will then see some purple colored points aligned with the local bounding box of the selected object. Following
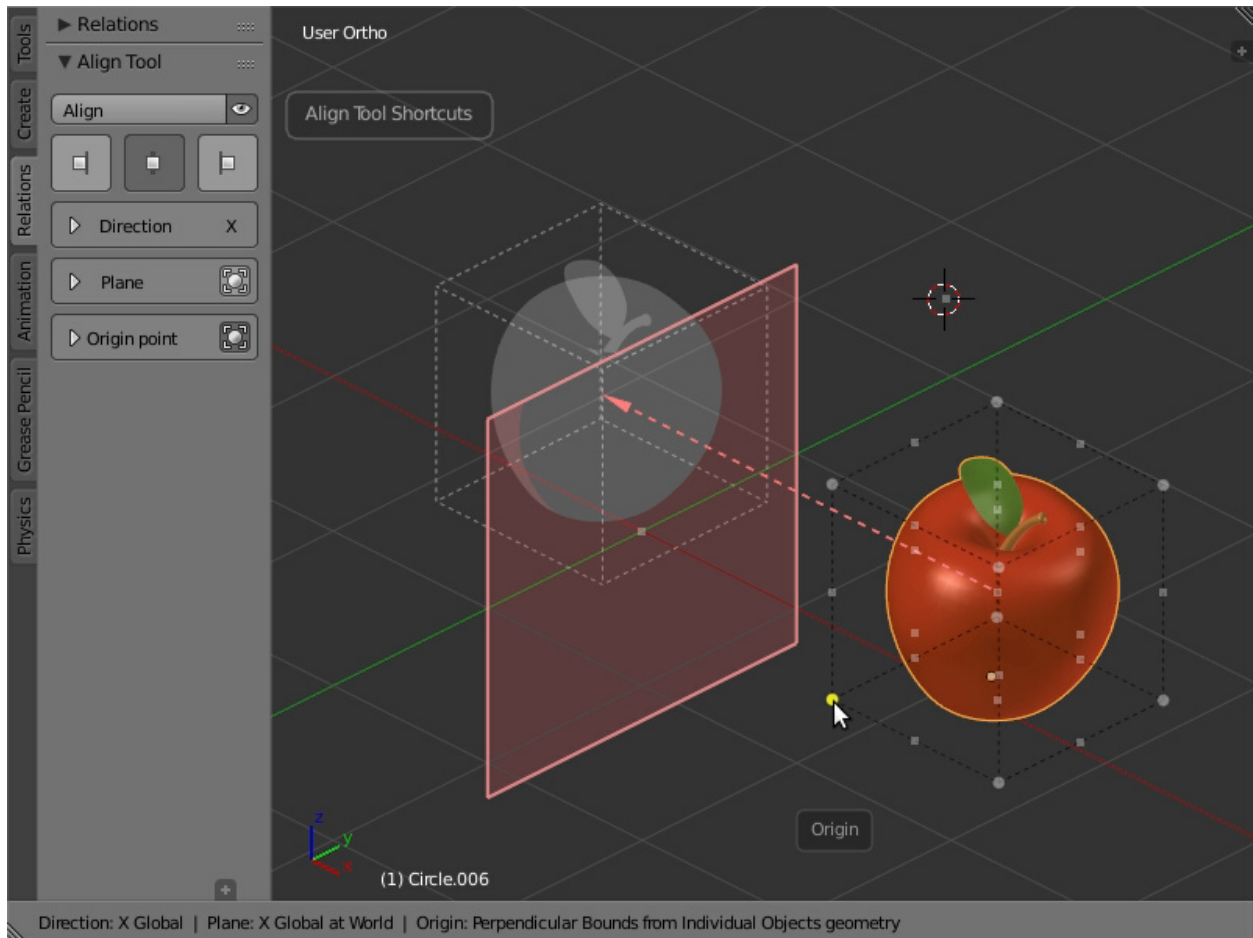

Fig. 1: Pick any of the available points interactively.

the same convention as before, corners are rounded, midpoints are squared, and you can select a point with the **Left mouse button**.

In this case, this action will also enable the use of the **Local bounds** button in the User Interface, from where you can also switch between both coordinate systems.

The drawn bounding box in the 3D view updates to reflect this change, showing a purple colored box this time.
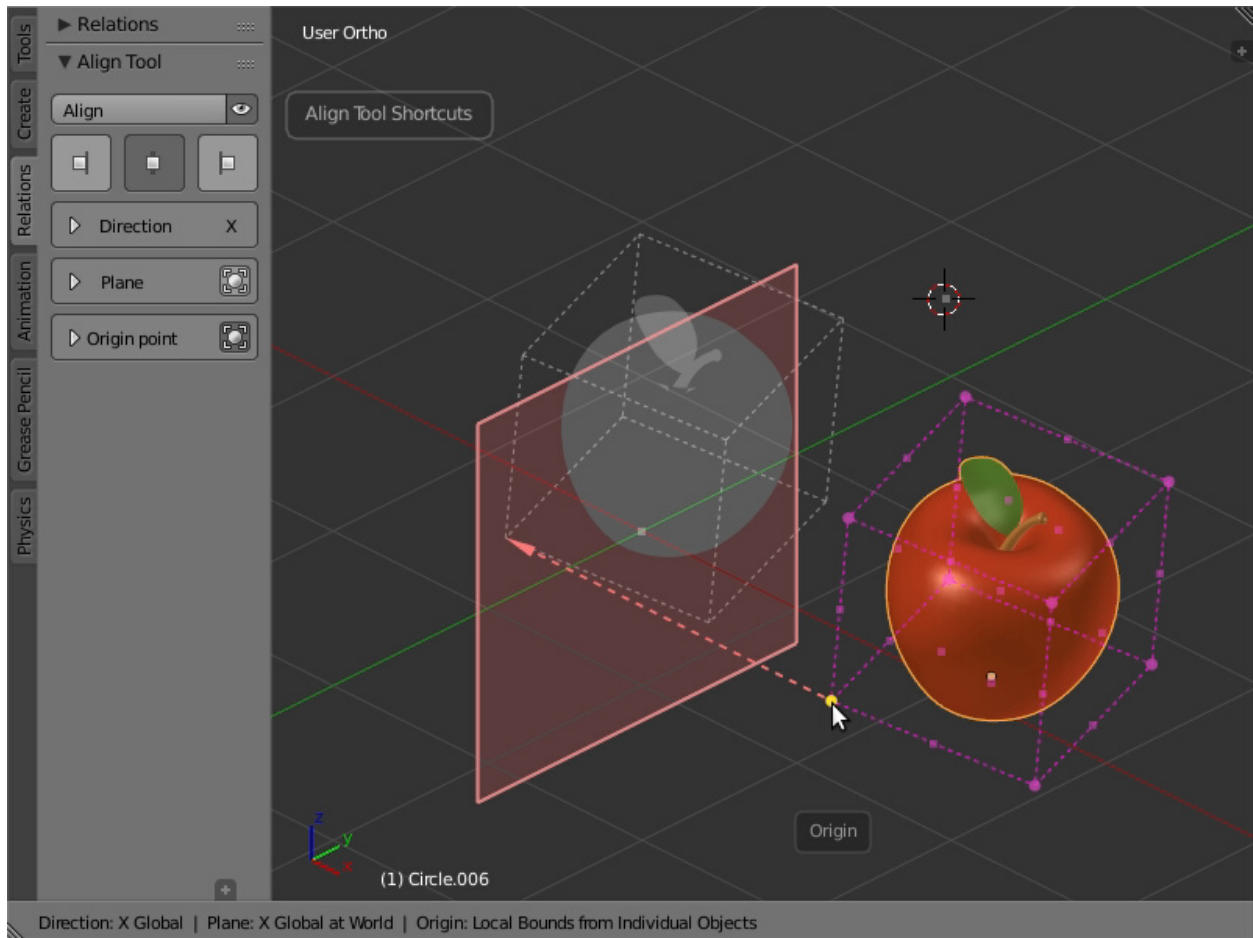

Fig. 2: Picking the origin point from local bounds.

3.1.3 Picking the *Origin point* from the basic bound box

You can use a more basic approximation for alignment by using a **global bounding box** surrounding the local bounds of the object. This bounding box ignores the object's geometry, which usually means that it will not exactly touch the *projection Plane* when aligned.

To use this bounding box, you can disable the button **Use geometry** in the Origin point panel, or by using the shortcut **Ctrl + G**.

The local bounding box will also be drawn in this mode, so that you can see the relationship between the two boxes.
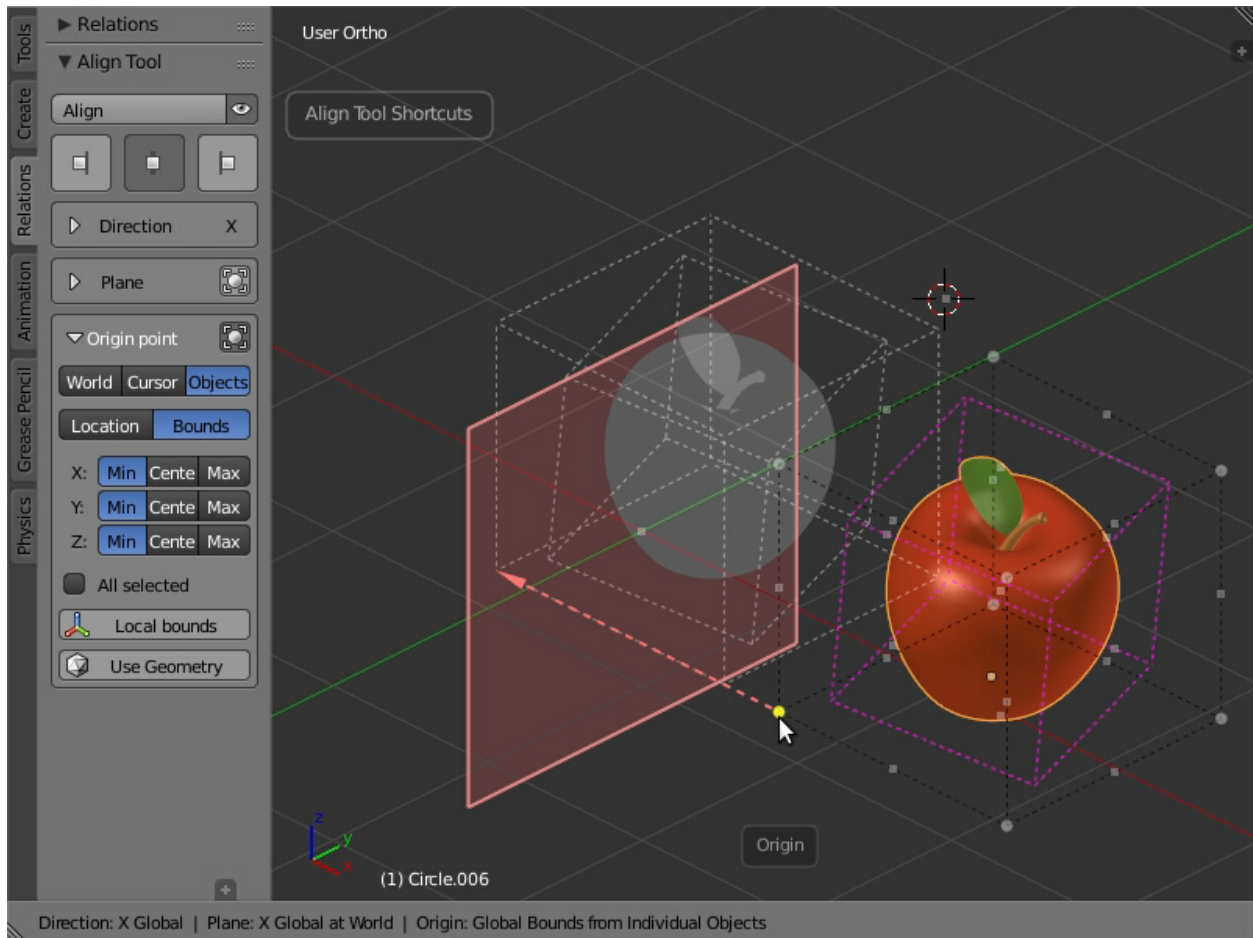
Fig. 3: Picking an origin point from the global bounding box, while local bounds are drawn.

3.1.4 Picking the *Origin point* from the current selection

When you have more than one object selected at a time, pressing **Ctrl** will also show the selectable points of an additional bounding box surrounding the objects.

This points appear dark colored, and are different than the white points surrounding individual objects, as they will treat the selection as a group, moving all objects the same amount and in the same direction.

You can notice that all selected objects highlight when you pass near some of the dark points. If you click with the **Left mouse button** on some of this points, the button **All selected** is enabled in the Origin point panel, meaning that all the selected objects will move as a whole.

If you combine this mode with the **Preset Alignment** buttons, you can easily align all objects to the *projection Plane* without losing the distances between them.
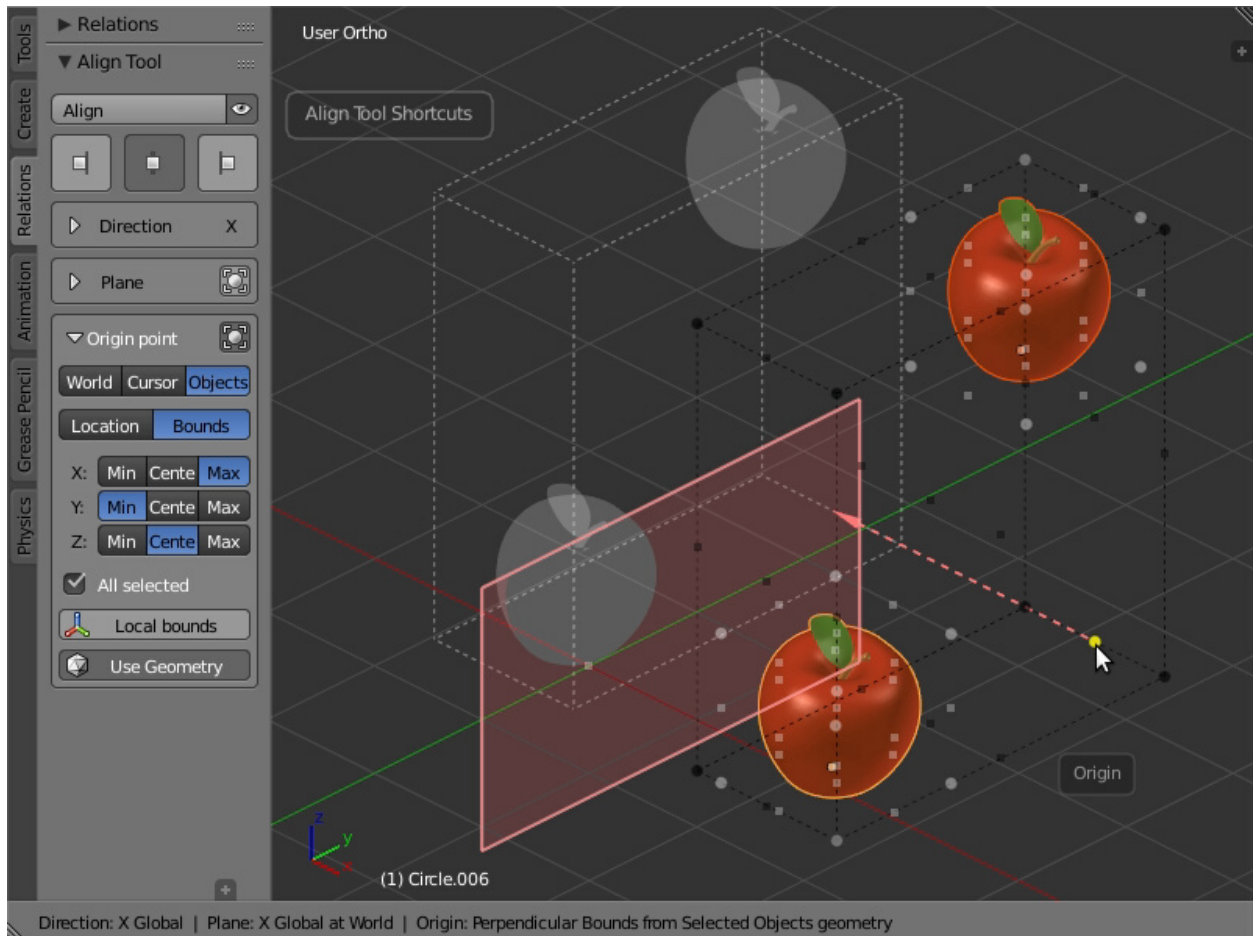

Fig. 4: Picking an origin point from the current selection of objects.

3.1.5 Picking a custom *Origin point* in Edit mode

If you enter **Edit mode** while you have a mesh, curve, surface, lattice or armature object, the **Align Tool** panel will change, showing new buttons to **Set** and **Remove** a custom origin point.

You can use this as a singular origin for all your selected objects. All of them will start moving from this point. Just note that this is different than the option **All selected**, since if you use a Local *Direction*, you could project objects

Fig. 5: Set a custom origin point in Edit mode.

individually, every one of them starting from the same point, but reaching a different location.

If you press the **Set origin** button, the vertex picked will be the active one, no matter if you have several of them selected. Once you have set the origin, the **Remove** button will become available. The picked origin will be drawn with a green dot, and you will be able to pick it up again in **Object mode** in case you select another *Origin point*.

The custom origin is automatically removed when you confirm or exit the interactive mode.
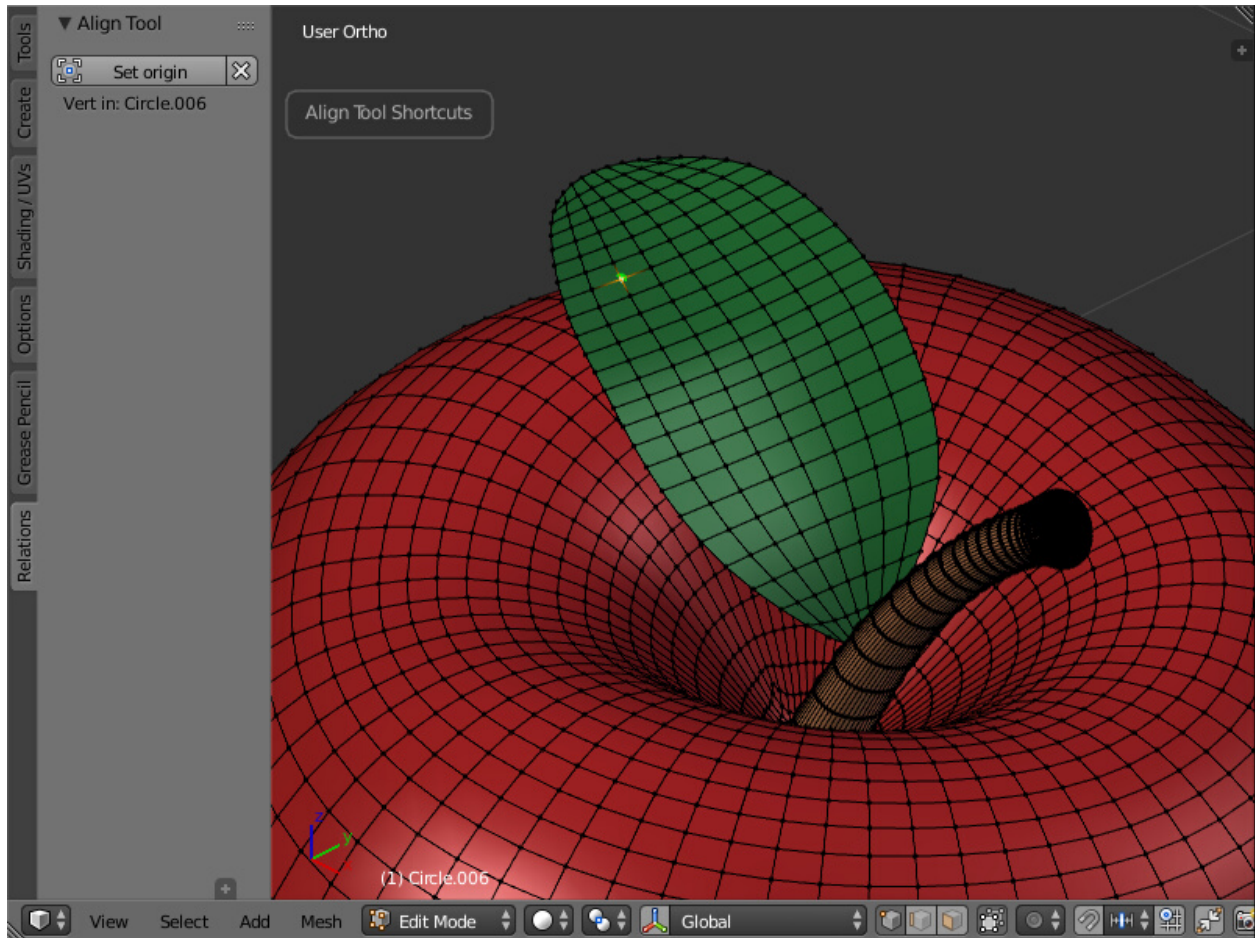

Fig. 6: A custom origin point selected in Edit mode.

The custom origin will appear in the Origin point panel, from where you can also remove it at any time.

You can always pick another origin point with the **Ctrl** shortcut, and when you have selected another, your custom origin point will appear as a green dot, from where you can reselect it.
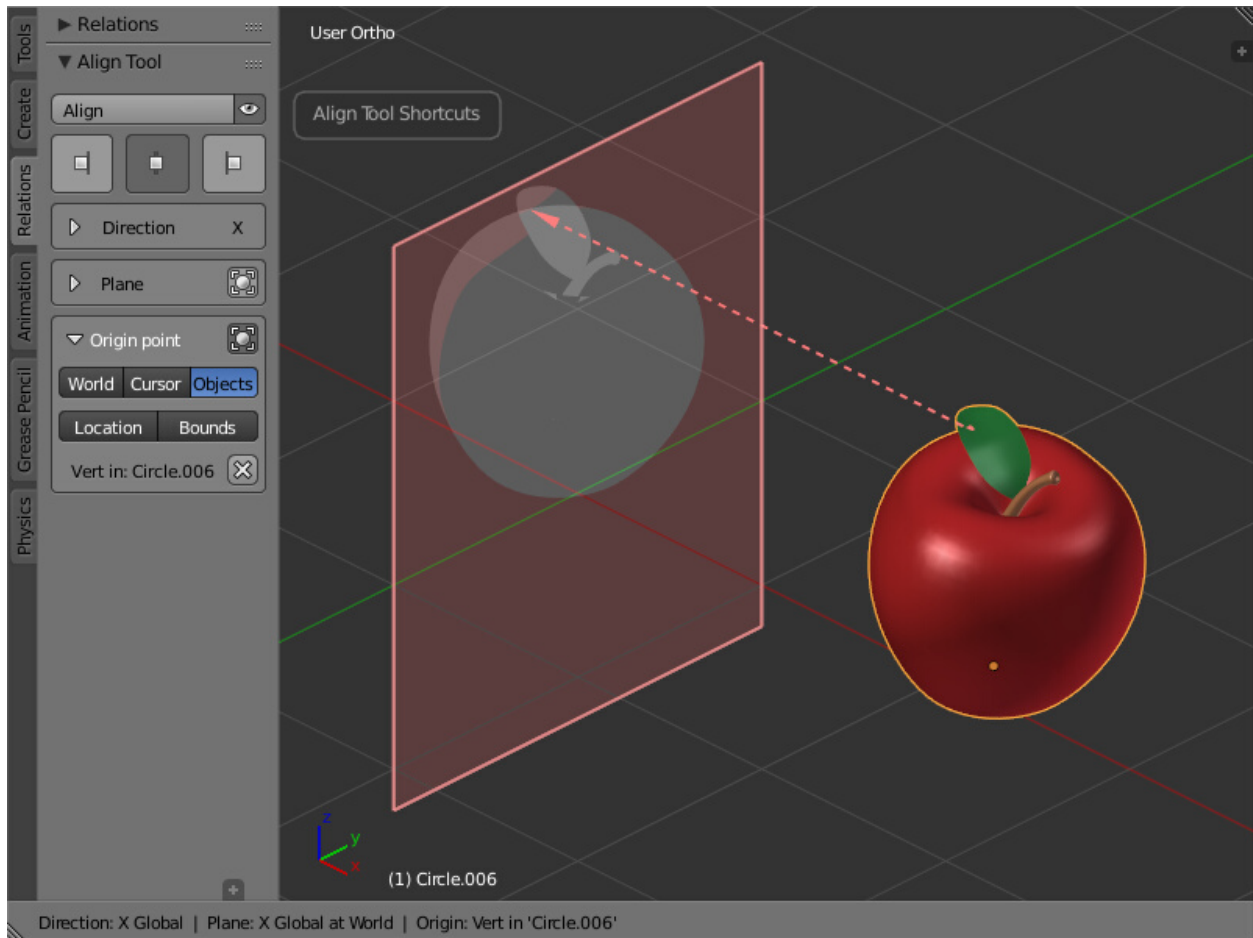
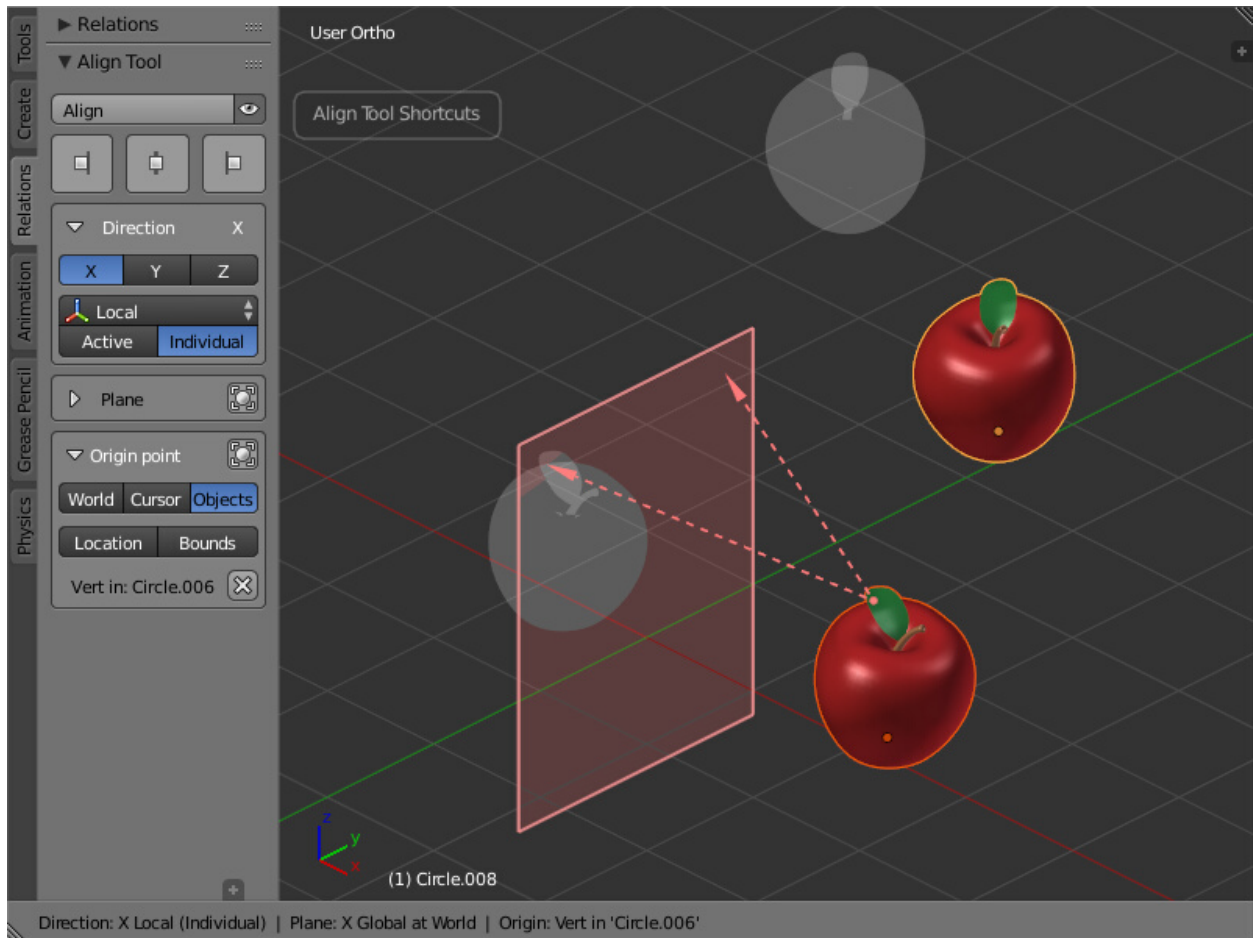Fig. 7: The alignment taking place from the custom origin point.

Fig. 8: When multiple objects are selected, any one of them can move in their local axes.
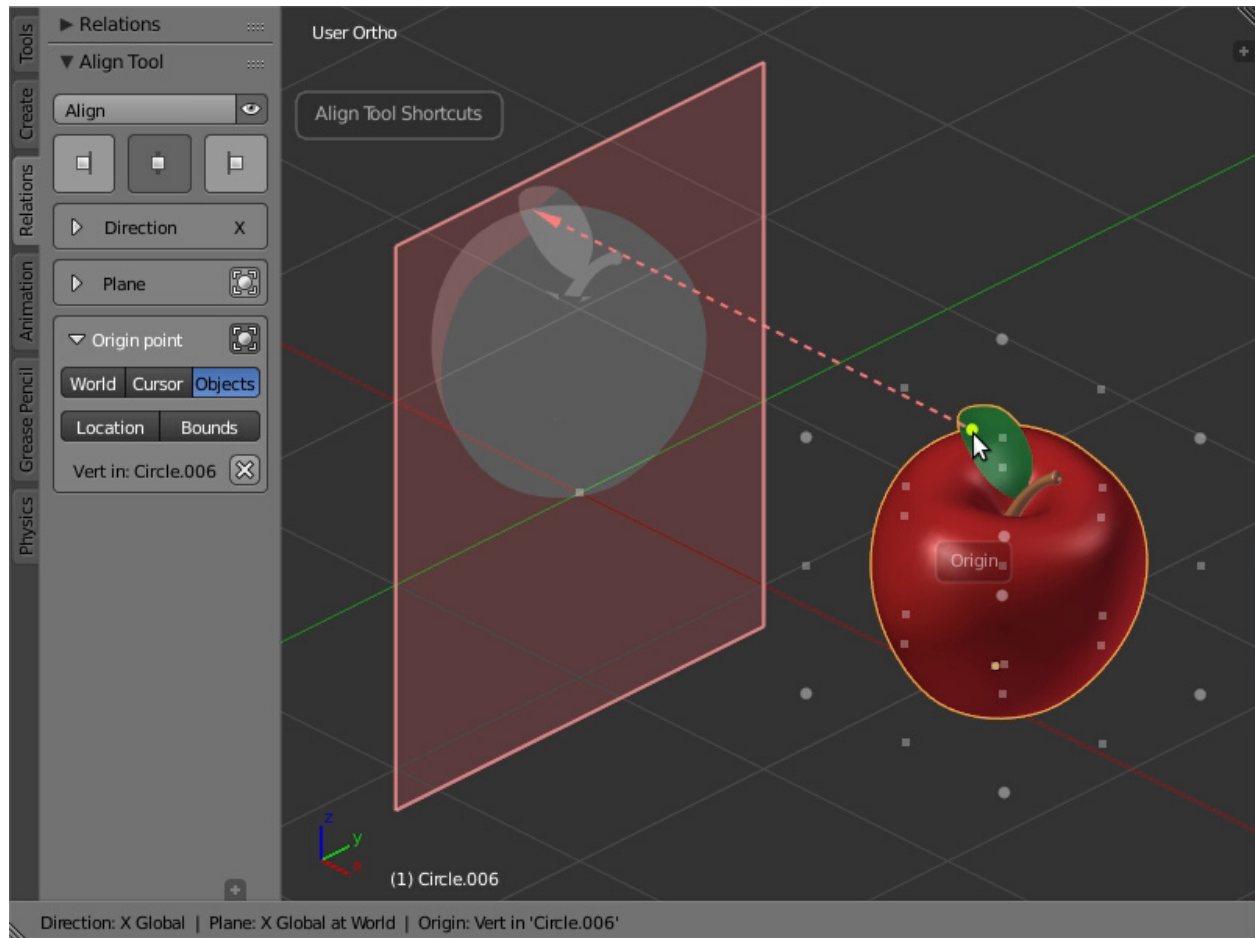
Fig. 9: Reselecting the custom origin point.

3.2 Plane selection mode

3.2.1 Global Space

Picking the *projection Plane* directly from the 3D view

You can pick the *projection Plane* from the 3D view if you are in interactive mode.

To pick interactively, hold the **Shift** key while you move the mouse cursor. A small rounded box with a legend, will appear below the mouse cursor, to let you know what kind of element you are selecting. In this case, it shows the word "Plane".

While you hold the key, you can see all the available points from where you can pick a *projection Plane*. They appear as white rounded dots in the corners only. The midpoints are only shown when you are near them.

You can pick a *projection Plane* from the origin of the world, the cursor, some plane of the bounding box of the selected objects and from their location (their origin pivot point).

When you pass near a pickable point, a yellow dot will appear, indicating that you can select it. Along with the point, a colored line will be drawn, this is the **normal** of the plane, indicating the axis that will be taken as *projection Plane*.

The colors of the normal lines are codified, meaning, **light red** as the X axis *Plane*, **light green** as the Y axis *Plane*, and **light blue** as the Z axis *Plane*.
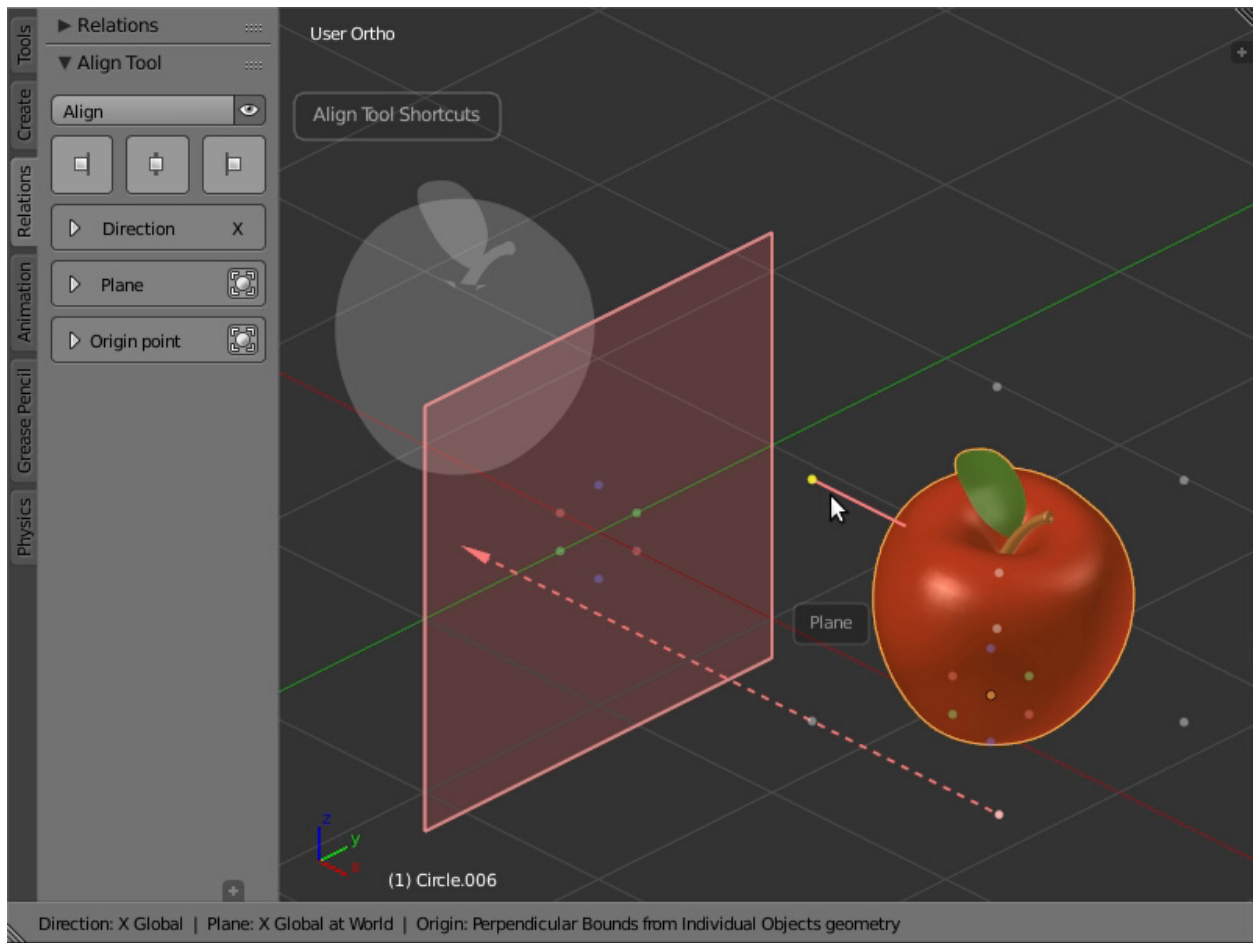

Fig. 10: Picking the projection Plane interactively.

If you click with the **Left mouse button** while you still hold the **Shift** key, the point and normal will be selected as the *projection Plane*.

If you check the **Plane panel**, you will see that your actions get updated in the User Interface, from where you can change settings and pick the *Plane*, its **Axis** and its **Depth**.

You can also note that your object highlights while you are near some of the points. This helps to understand what are you picking up, since you can also select the *projection Plane* of a group of objects instead.
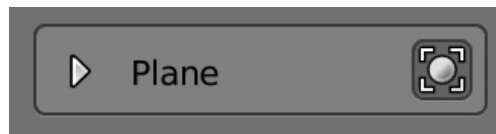

Fig. 11: Enabling the drawing of the bound box for the current Plane.

The bounding box for the *projection Plane* will only appear when you use the bounds of an object or group of objects. When you use the origin of the world, cursor or location of an object, there will be no bounding box drawn. The bounding box will be colored with the current axis Plane in use.

3.2.2 Local Space

Picking the *projection Plane* from the local bounds

You can select the *projection Plane* based on the **local bounds** of the object. To do this, hold the **Shift** key, and hold also the **Alt** key, you will then see some purple colored points aligned with the local bounding box of the selected object. You can select any of the points and axes with the **Left mouse button**.

This action will also enable the use of the **Local bounds** button in the User Interface, from where you can also switch between both coordinate systems.

The drawn bounding box in the 3D view updates to reflect this change, always taking the color of the current axis Plane in use.

3.2.3 Picking from the basic bounding box

You can use a more basic approximation to the object's geometry by using a **global bounding box** surrounding the local bounds of the object. This bounding box ignores the object's geometry, which usually means that the *projection Plane* will not exactly touch the object.

To use this bounding box, you can disable the button **Use geometry** in the Plane panel, or by using the shortcut **Shift + G**.

The local bounding box will also be drawn in this mode, so that you can see the relationship between the two boxes.
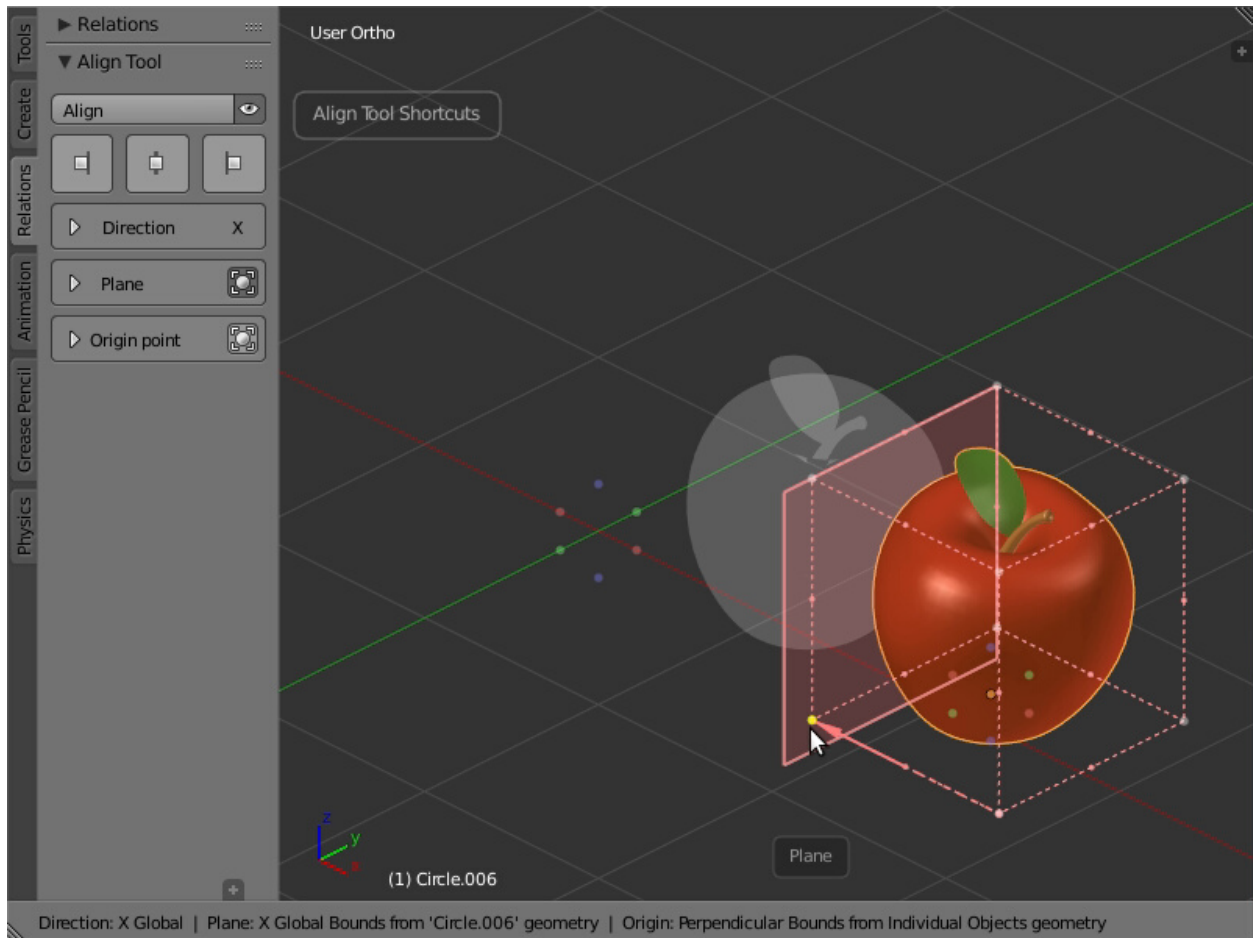
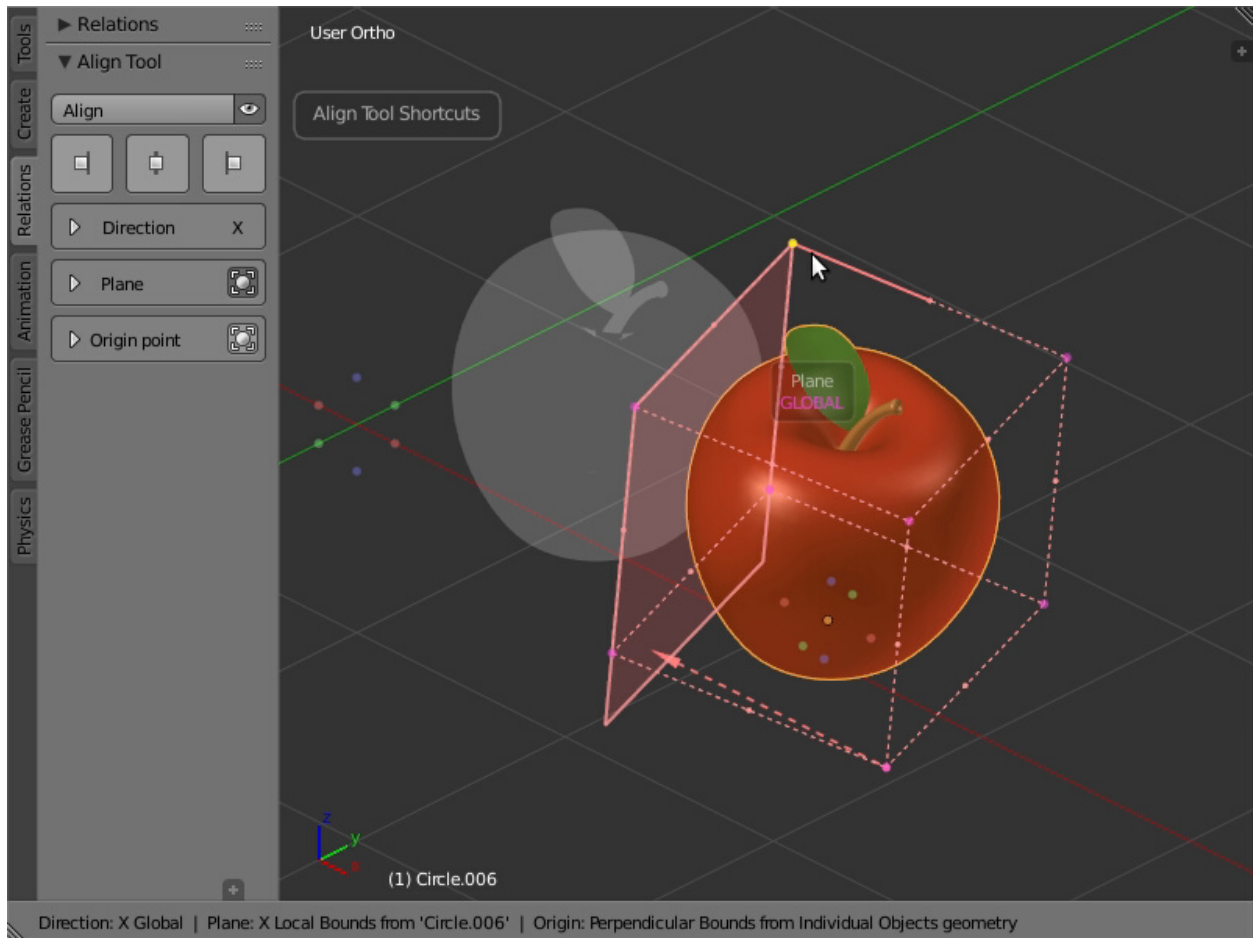Fig. 12: Picking a projection Plane while the bounding box is drawn.

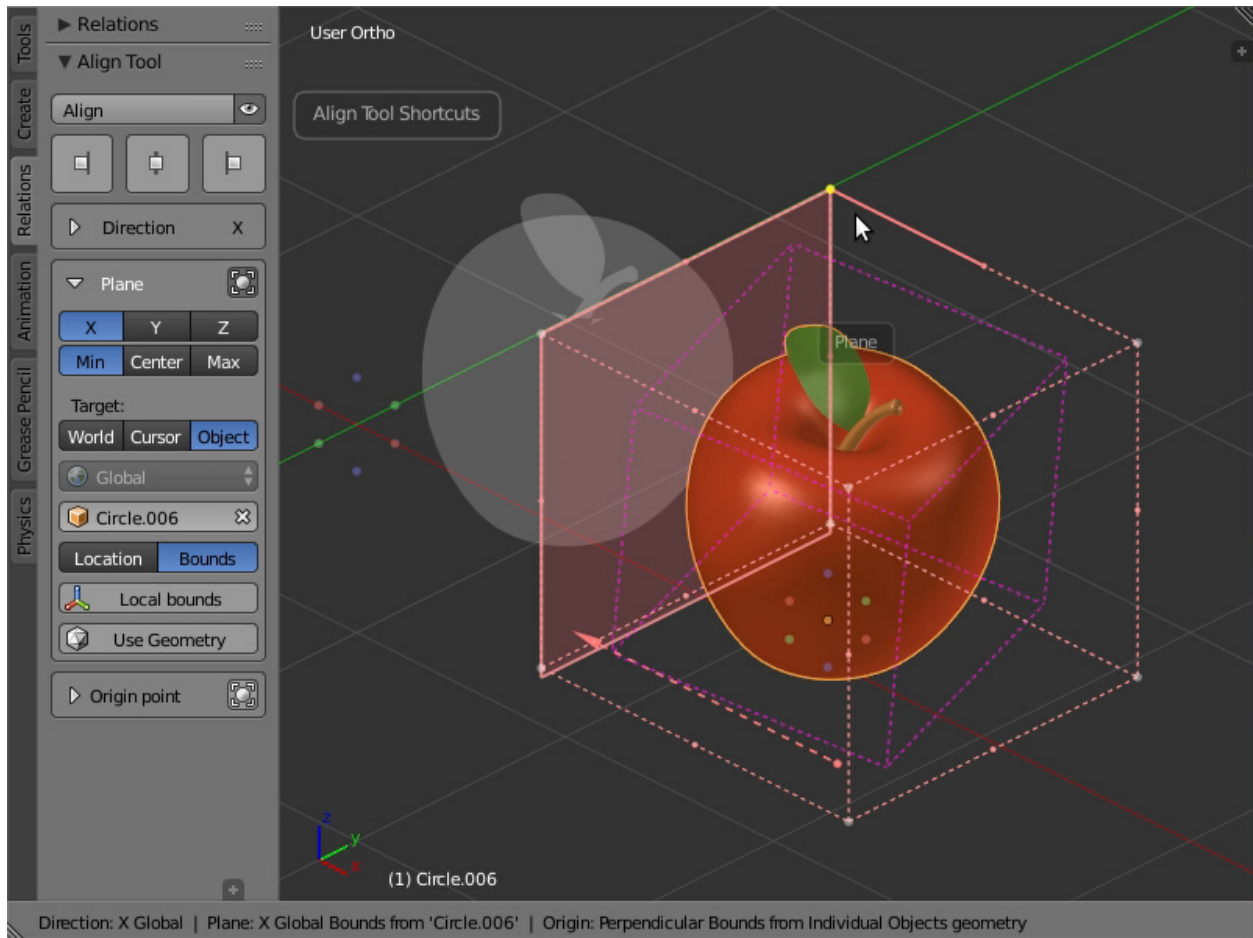Fig. 13: Picking the projection Plane from local bounds.

Fig. 14: Picking the projection Plane from the global bounding box, while local bounds are drawn.

3.2.4 Picking the *projection Plane* from the current selection

When you have more than one object selected at a time, pressing **Shift** will also show the selectable *projection Planes* of an additional bounding box surrounding the objects.

The points of this bounding box will appear dark colored, to differentiate from points of individual objects.

You can notice that all selected objects highlight when you pass near some of the dark points. If you click with the **Left mouse button** on some of this points, the User Interface in the Plane panel will reflect this change enabling the use of bounds for the **Selected** objects.
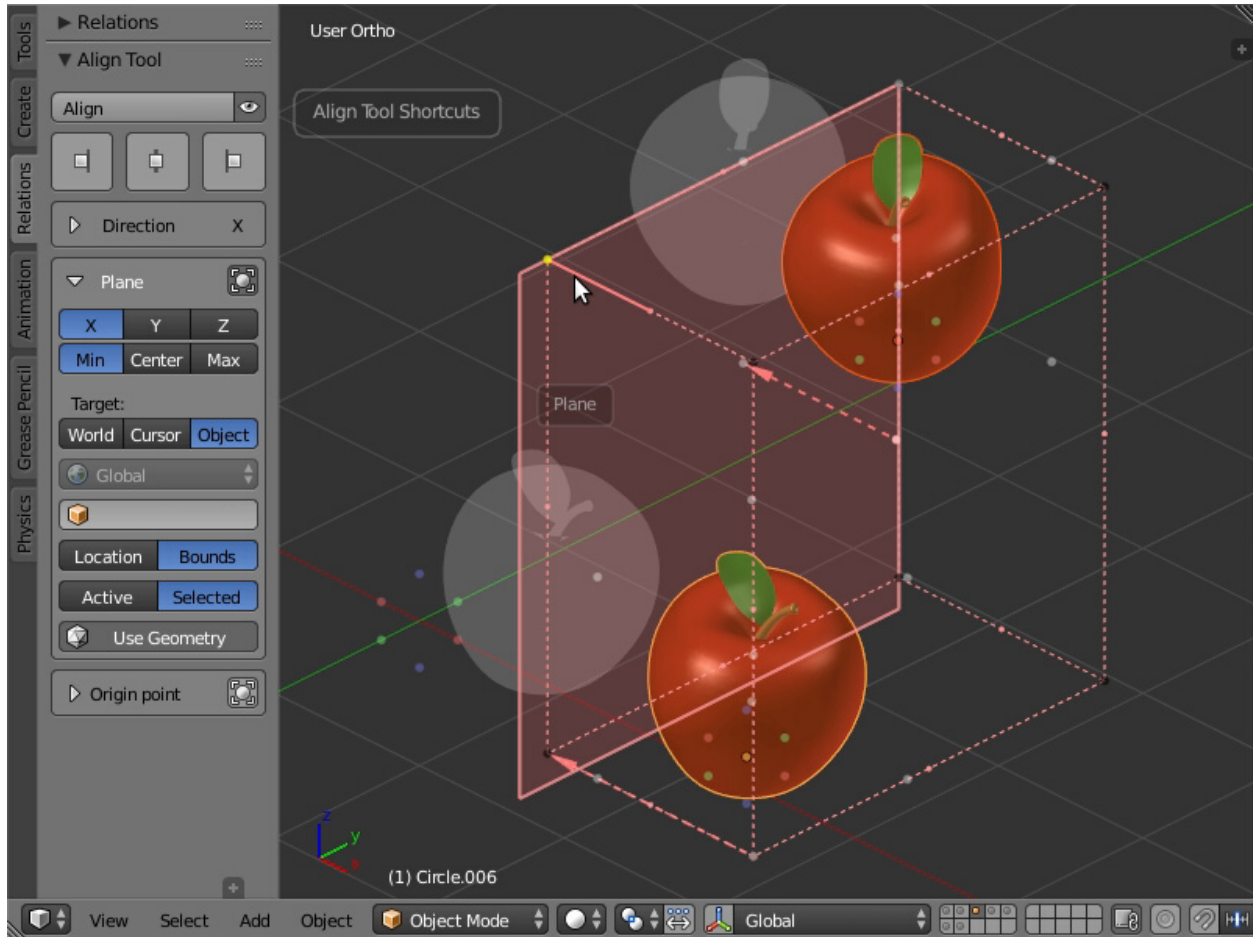

Fig. 15: Picking the projection Plane from the current selection of objects.

3.2.5 Picking the *projection Plane* from another object

If you need to pick a projection Plane from an object outside the selection, you can do it from the dropdown list of objects of the Plane panel.

You can also do this easily in the 3D view when you are in interactive mode, by using the shortcut **Shift + Left mouse click** over an object. You will have to ensure that you are not pointing to a pickable *Plane*, otherwise, you will be selecting a new *projection Plane* instead of an object as target.

If you want to clear the current object set as target for *projection Plane*, just do **Shift + Left mouse click** in an empty space, far from any object or pickable *Plane*. Or just click in the **X** button next to the Object name in the Plane panel.
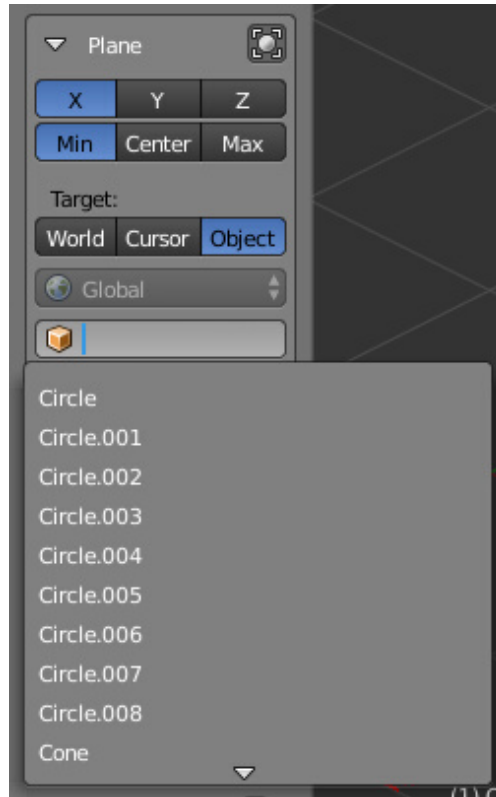
Fig. 16: Select a target object from the dropdown.

3.2.6 Picking the *projection Plane* from other points

Along with the ability to select *projection Planes* from the bounds of objects, you can also select a *Plane* from the location of objects, the cursor and the origin of the world.

While you hold the **Shift** key, the available planes will appear as 3 crossed axes, color coded and aligned with the global coordinates, from which you can select the axis you need.

If you hold the **Alt** key along with **Shift**, you will see the additional orientation that you can use for the *projection Plane*. The rounded box following the cursor, will show an additional word purple colored with the name of the currently selected orientation.

You can set the orientation directly from the Plane panel, while in the 3D view you can change it in realtime with the Mousewheel by using the shortcut **Shift + Alt + Mousewheel Up/Down**. You can scroll through the default orientations, in addition to the **Custom Orientations** stored in the Transform Orientations of the Scene.

To add a new Custom Orientation, refer to the *Adding a Custom Orientation* section.

3.3 Setting the *Direction* of projection

Similarly to how the *projection Plane* makes use of the axes of orientations, the *Direction* of projection can take an axis for the translation of objects.

You can change the current axis for *Direction* interactively in the 3D view by using the shortcuts **X**, **Y**, **Z**.

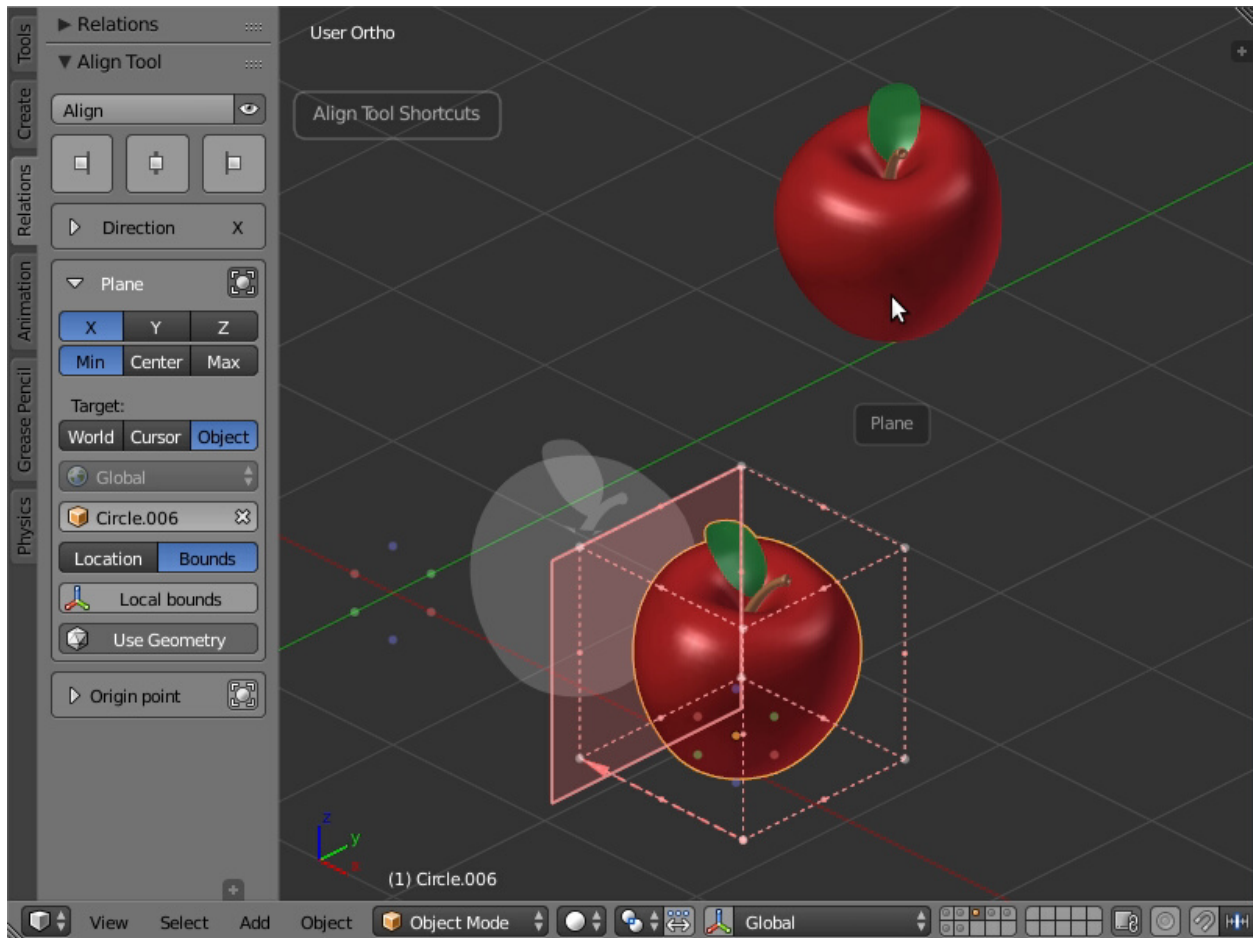The built-in orientations of **Align Tool** includes:

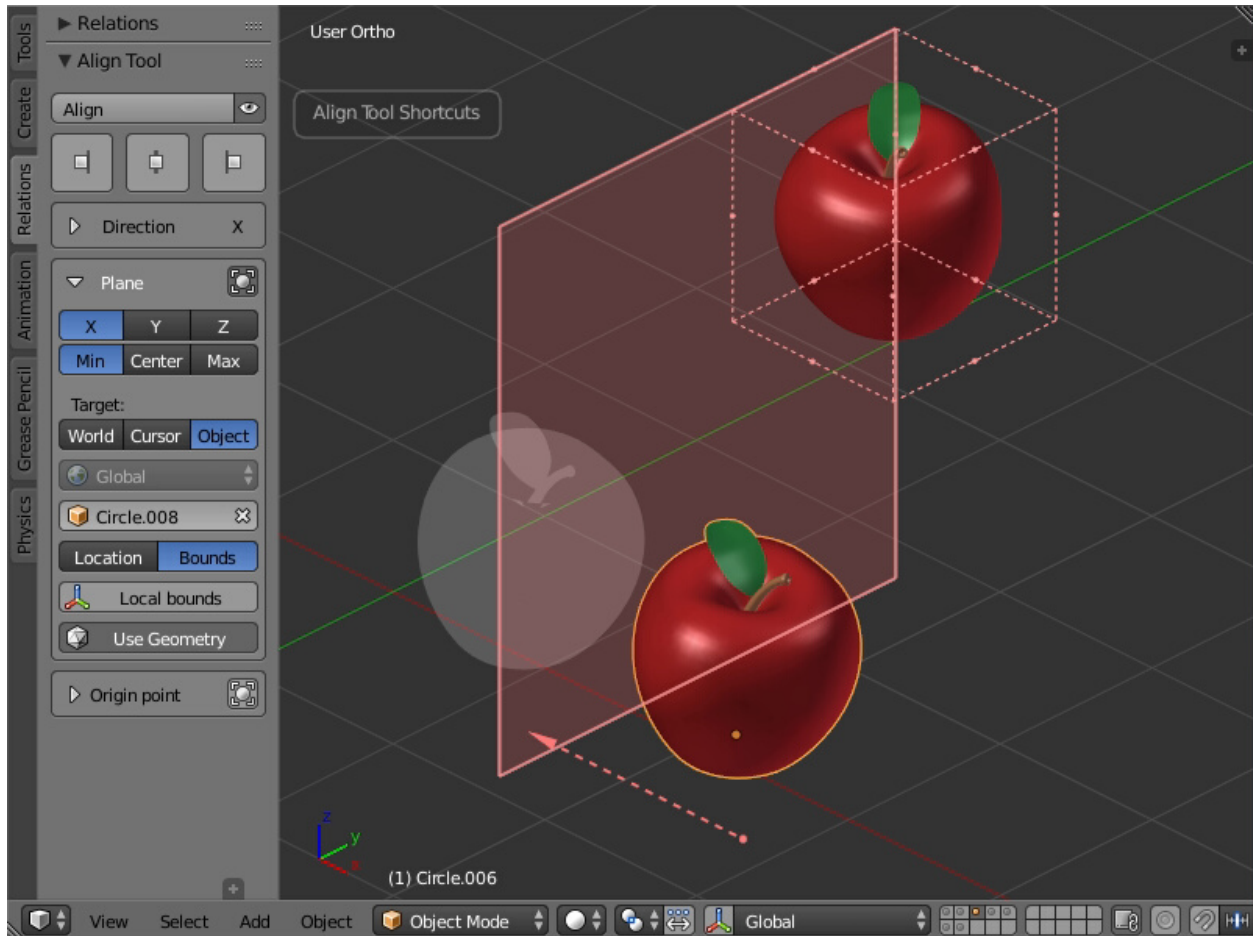Fig. 17: First, point to an object while you hold the Shift key.

Fig. 18: Then, click with the left mouse button. The object is set as the projection Plane. As you can notice, it's still outside the selection. This allows to move all other objects except this one.
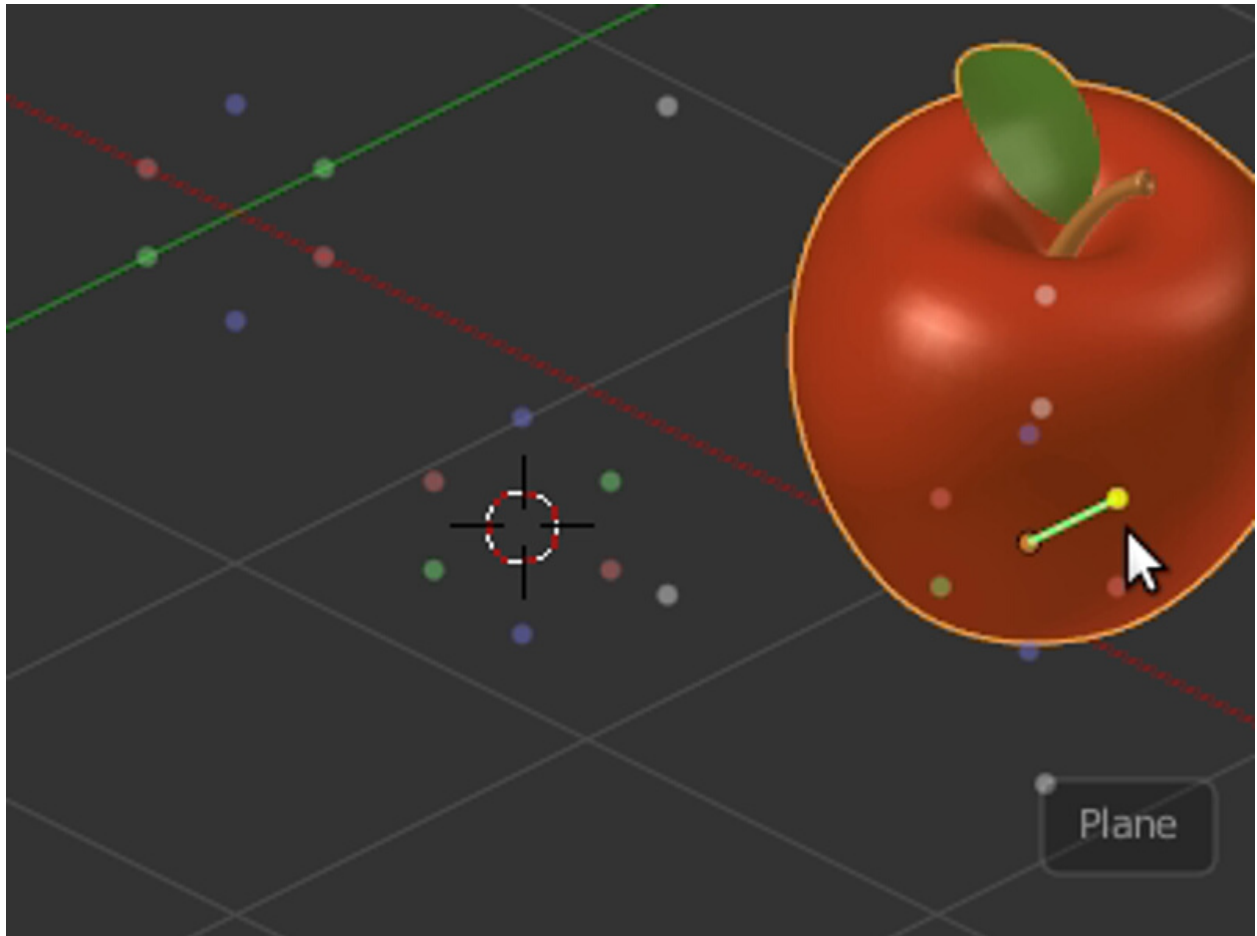
Fig. 19: Pick projection Planes from the object's location, the cursor, or the origin of the world.

Fig. 20: Scrolling through the available orientations to pick a different projection Plane.

- **Global:** Axes of the world coordinates

- **Local:** Axes of the selected object

- **View:** Axes of the current viewport space

- **Perpendicular:** Always perpendicular to the *projection Plane* (no axes)

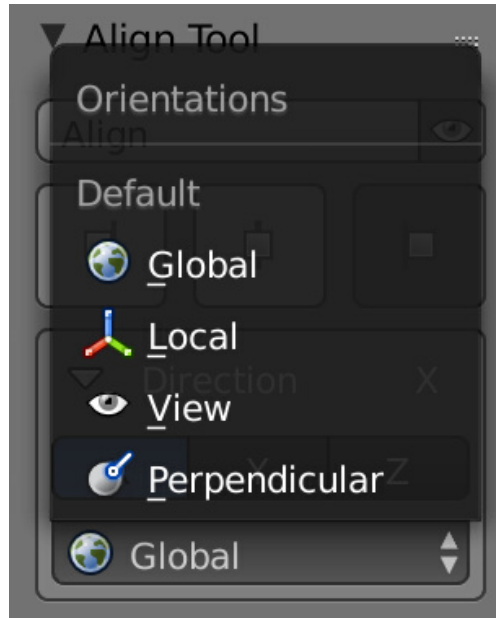- Custom: Axes of any **Custom orientation** defined for the Scene

Fig. 21: The built-in orientations of Align Tool.

The *Direction* of projection can also be changed directly in the 3D view by using the appropriate shortcuts.

- **L:** Switch between **Local** and **Global** directions

- **V:** Switch between the current **View** and **Global** directions

- **P:** Switch between the **Perpendicular** to *Plane* and **Global** directions

When you use the **Local** direction, you can choose between 2 different criteria:

- Use the local direction of the active object for all selected objects: All directions are the same.

- Use the local direction of every object individually: The directions can be different for every object.

3.4 Adding a Custom Orientation

To manually add a *Custom Orientation* for you current selection, you can use the default Blender's shortcut to add a new Transform Orientation: **Ctrl + Alt + Space**

Optionally, you can add a new *Custom Orientation* from the appropriate panel found in the Properties Tab of the 3D View (**N** key) > Transform Orientations subpanel.

Then by pressing the *plus* (+) button, you will add a new Transform Orientation that will be taken from the current selection context and will become available throughout Blender. If you are in Object Mode, the Transform Orientation will be taken from the active object. If you are in Edit Mode, it will be taken from the selected vertices/edges/faces. It's not mandatory to select just one element, and you can have more selected.
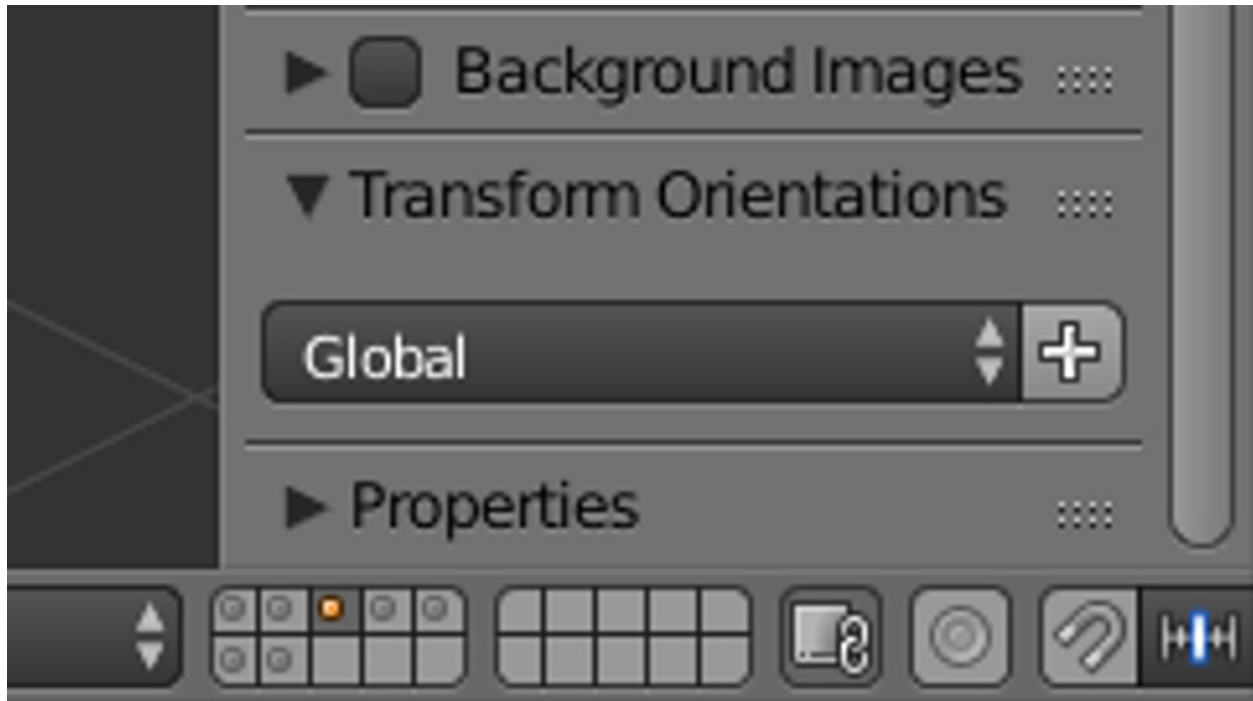
Fig. 22: The Transform Orientations panel in the Properties Sidebar (N).

After adding the new Transform Orientation, it will be listed as a new *Custom Orientation* in the main panel of **Align Tool**.

3.5 Status bar

The Status bar provides information about the current state of **Align Tool**. It will appear while you are in interactive mode, and will update its information whenever you change something relevant, whether by clicking in the User Interface or by using the shortcuts.

The Status bar informs about the three main concepts of an alignment: *Direction*, *Plane* and *Origin*.

The Status bar replaces the default header of tools in the 3D view until you confirm the alignment or exit the interactive mode. To toggle its visibility, just use the shortcut (**H**).

Fig. 23: The Transform Orientations of the current scene. All of these will be used by Align Tool except for Gimbal and Normal.
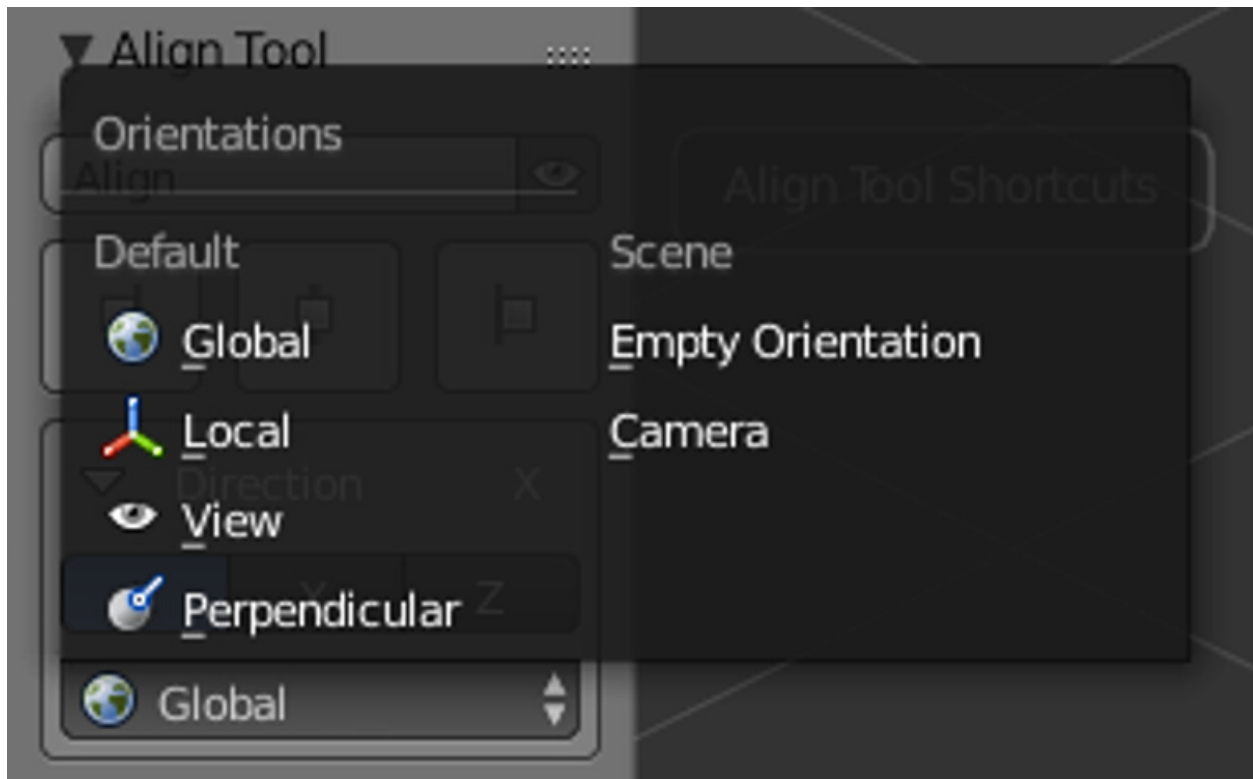
Fig. 24: The Orientations available in Align Tool.

Fig. 25: The Status bar on the header area as seen in the 3D view.