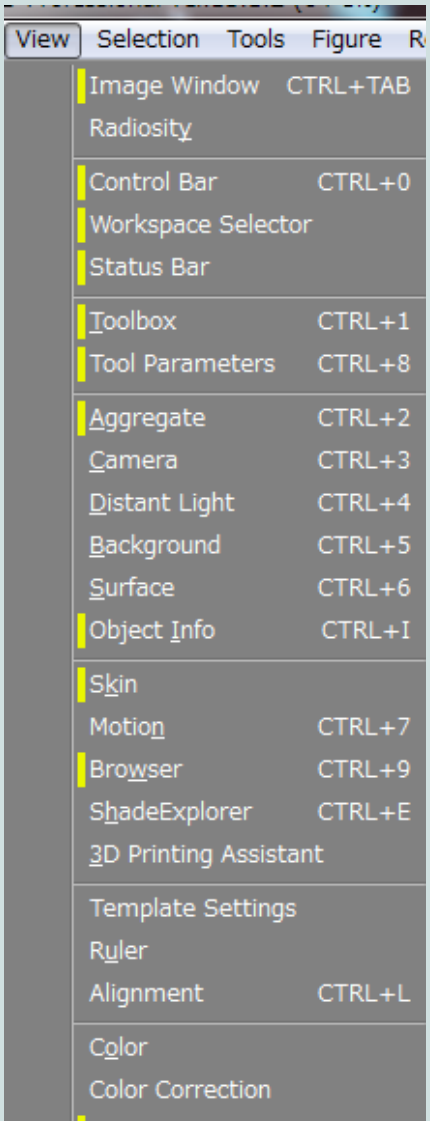
Joint Tool ver.1.0

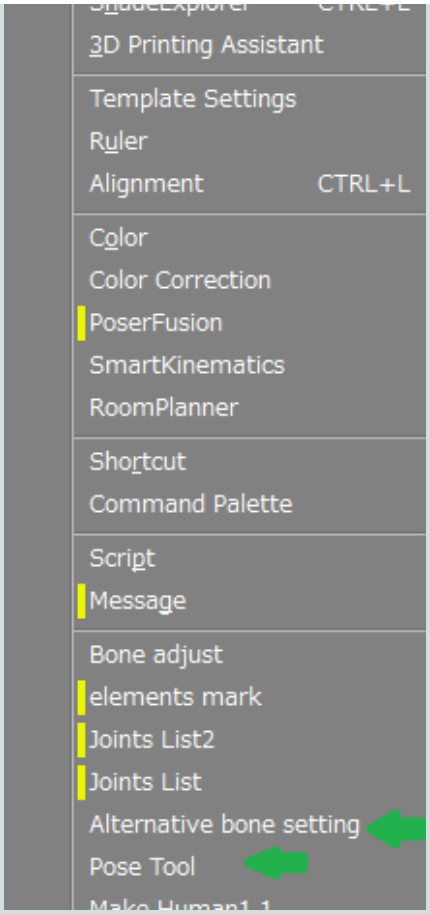
Masa: http://masatoshisoh.sitemix.jp/ 2016/2/28

Joint tool provides **Pose Tool** that have the sliders of joints for posing, and **Alternative Bone Joint**.
Pose Tool is just like the **Object Information Window** when selected the joint of **Shade**, but **Pose Tool** operate to the registered(not selected) joint, so you do not need to select the joint for operation. The slider have suitable funtions for subtle pose than Shade's slider.
Alternate Bone Joint is simple implementation than the Bone Joint of **Shade**, This does not realize the axis by the transformation matrix. But by using the **Pose Tool**, similar to the Bone Joint of Shade. In addition, It can also adjust the perpendicular axis of the bone axis, the direction is explicitly displayed in the Figure Window.

1. How to install

When Windows environment you launch the Shade 3D, after copying the **joint_tool.dll**(**joint_tool64.dll** for 64bit version) to **My Documents\Shade name\pluings** folder. **My Documents**: the folder of the user's My Documents If the Mac environment, you launch the Shade 3D, after coping the **joint_tool.shdplugin** to **Documents/Shade name/pluings** folder. **Documents**: a folder of name of **Documents** in the user of the Finder **Shade name**: a folder name, including up to Shade of the version, it will be created automatically at start up of Shade 3D. If you find a menu of **Pose Tool** and **Alternative Bone Setting** in the View menu, and **Alternative Bone Joint** in Toolbox->Create->Plugin, and **Convert to Alternative bone** in the Toolbox->Modify->Tools->Plugins, the installation is successful.





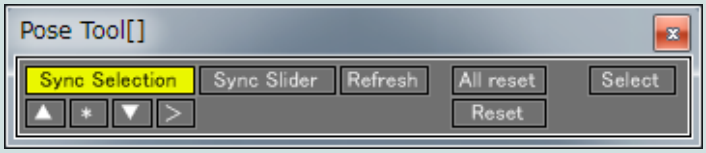
2. Operating environment

- **OS**
  Windows: 7/8/8.1
  Mac: OSX 10.8/10.9/10.10
- **Shade**
  after
  Shade 3D Standard/Professional ver.15.1
  ※ Can not use in Shade 3D Basic.

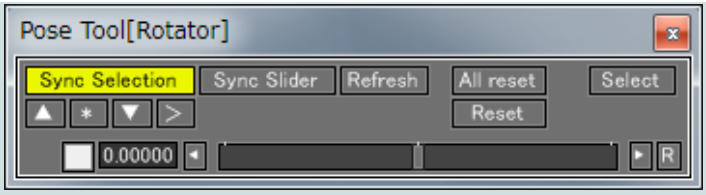
3. How to use

3.1. Pose Tool

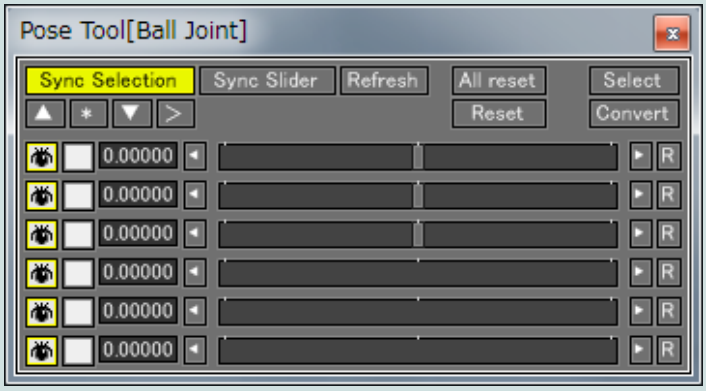
Window will appear following like by clicking **Pose Tool** on the View menu. By the slider in **Pose Tool**, the registered joint will move. Windows style changes for each of the registered joint.



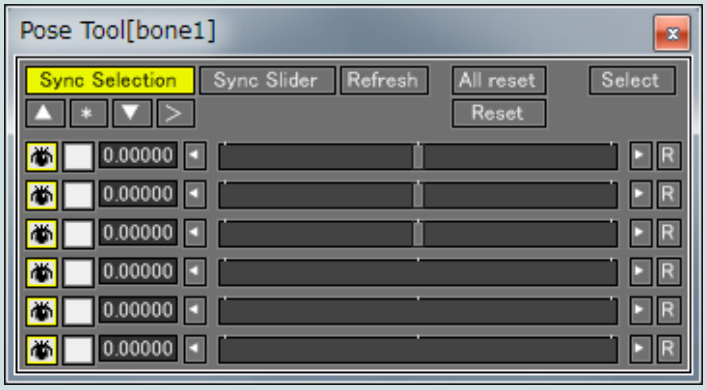
Above is an example when the joint is not registed. If no joint or start of the scene, it will be display, the root part is selected.



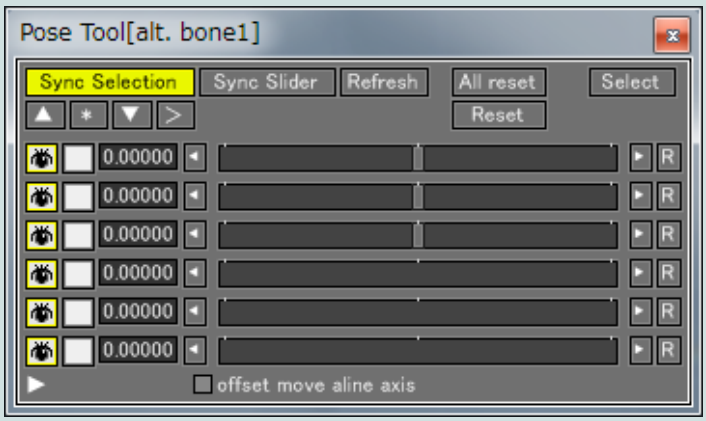
This is an example of one slider type joint such as the rotater joint, slider joint, or scale joint is registed.

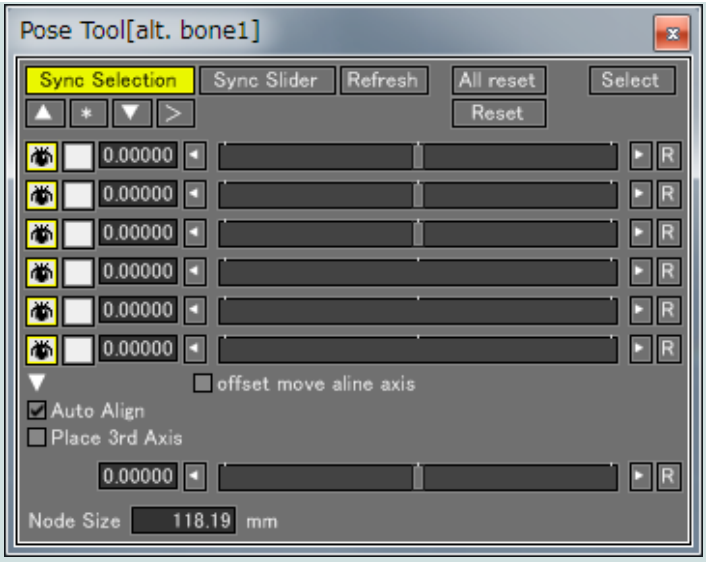


This is an example of a ball joint. Lower three sliders are for the offset. By dragging in those sliders, offset will travel width of the drag.
When you press the button named **Convert** , this ball joint is converted to **Alternative Bone Joint**.

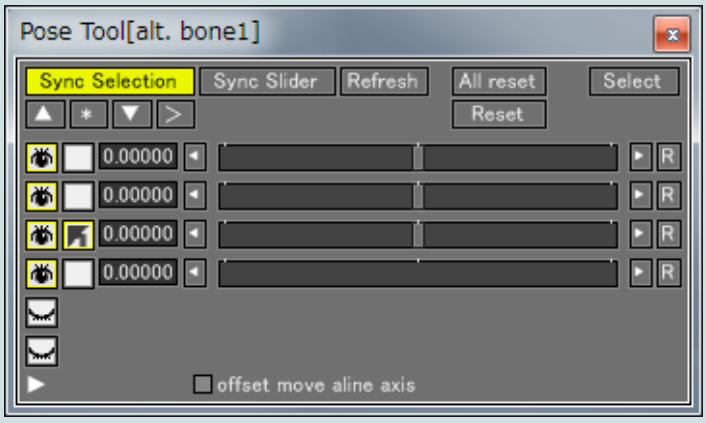


This is an example of a bone joint. It does same as the ball joint type without the no **Convert** button.

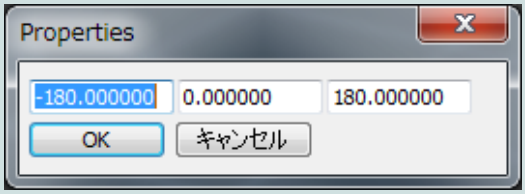


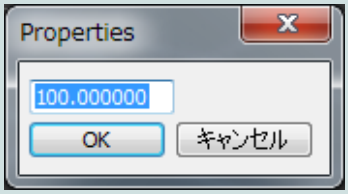


Those are examples of an **Alternative Bone Joint**. 1st is the example of closed lower area, and 2nd is disclosed. For the informations on the lower part are described in the chapter of the next **Alternative Bone Joint**.
The basic functions of a slider are described in the following example.



The first left button show/hide slider.
The next button reverse the direction of the slider.
The next number box be able to enter the value of slider direct.
Arrow buttons on the left and right of the slider, move the slide one unit.Last **R** button reset the slider.
In addition to upper base function ,When right-click on the slider, the following the dialogs will appear.





Right is the example of the normal slider. Here, you can specify the range of movement of the slider. The first number is the minimum value, the last number is the maximum, and the center values is the default value at the reset.
Left is the example of the Offset slider.This number is the range value of dragging from the left end to the right end of the slider.
Finally, when press left/right arrow buton while holding down press Control key(in the case of the Mac, command key), current slider value is set to the minimum/maximam range.

Under are description of two rows on top of the window.

Sync Selection

This button is toggle type. If active, the registed joint of the **Pose Tool** will sync of selecting the joint (if selected shape is not a joint, it does not regist), else it can not change even if the joint is selected. **Pose Tool** can

move registed joint without selection. So you can check movment or adjust of the selected shape's Skin, with moving registed joint.

Sync Slider

This button is toggle type too. If active, sync sliders value of **Pose Tool** changing the joint motion by other event.

Refresh

This button will refresh **Pose Tool** window.

All reset

This button reset all of the joints of the scene.

Reset button

This reset the registed joint.

Select

When you press this button, the registed joint will be selected.

Convert

This button will appear in case of that ball joint is registed. When you press this button, the ball joint will convert to an **Alternative Bone Joint**. For information of the **Alternative Bone Joint**, refer the next chapter.

▲ button

If the registed joint has paremt joint, change to it.

***** button

If **Skin Tool**(Ver.1.0.2) has been installed, this regist the joint from **Skin Tool**.

▼ button

If the registed joint has son joint, change to the first son, else regist top joint.

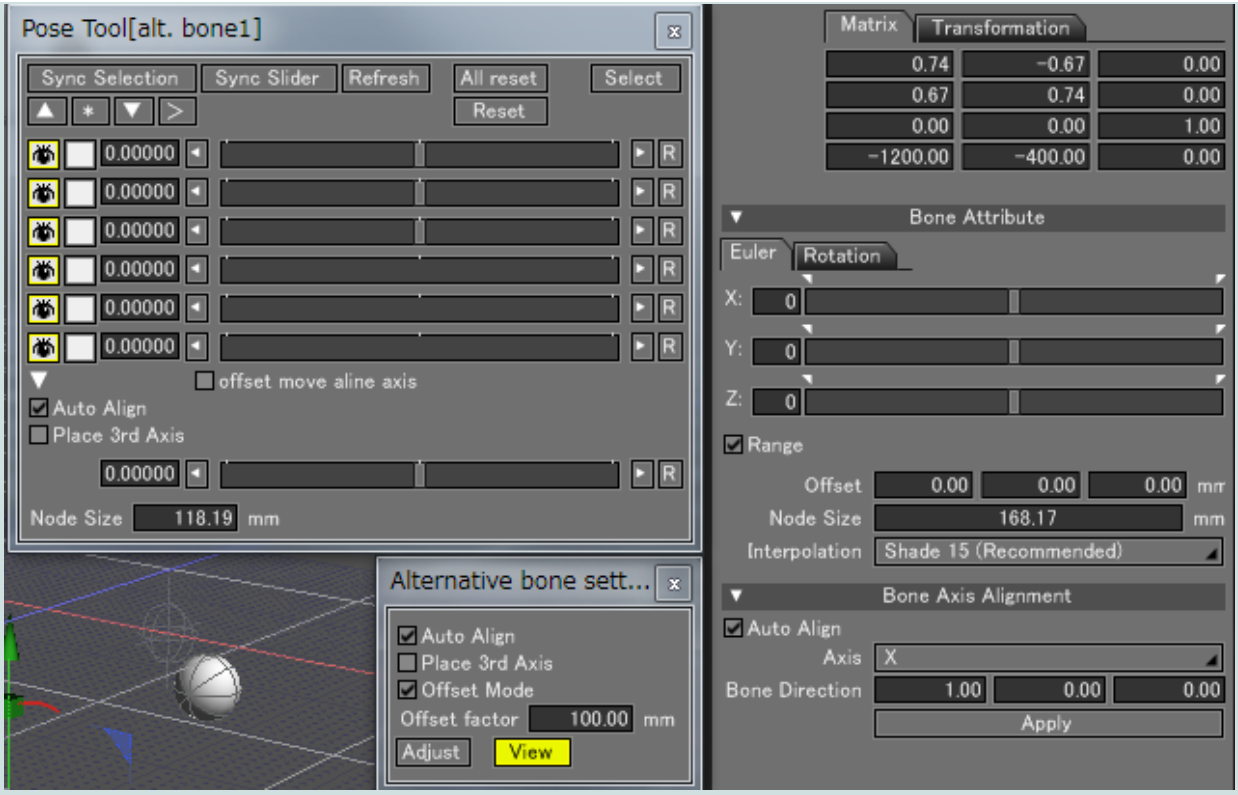
> button

If the registed joint has brother joint, change to the first brother joint. If the registed joint is last, change to 1st brother joint.

3.2. Alternative Bone Joint

3.2.1.Alternative bone setting

When click **Alternative bone setting** in the View menu , the window named **Alternative bone sett...** will appear. It set the properties when you create an **Alternative bone joint**. These properties are possible to change individually later in the **Pose Tool**. Under is a comparison of the **Pose Tool**, **Alternate bone setting window**, and the **Object Information window** of **Shade**.



Properties of **Alternative bone joint** have no concept of a coordinate value unlikely the Bone Joint. Only those have first to third axis for the sliders order.
Below are descriptions of each properties.

Auto Align

This is the same meaning as the Bone Joint of **Shade**.

Place 3rd Axis

The **3rd Axis** is the axis that rotates by the third slider. If it is set, This axis is kept horizontally automatically, when joint generation. So the second slider like horizontal rotation, and the third slider like vertical rotatetion. The Bone Joint of **Shade** have not this feature. The slider(just under this check in **Pose Tool**) shows the slope of the horizontal plane of the 3rd axis. So you can change the direction of this later. You can slide this even if the upper rotation sliders are moved. **Pose Tool** can adjust joint's rotation automatically.

Offset factor

This is Increase/decrease value of the Offset, when dragg from left end to right end on the slider.This value can change by right click on the sliders.

Node Size in **Pose Tool**

This is the same meaning as the Bone Joint of Shade.

Adjust in **Alternative joint setting**

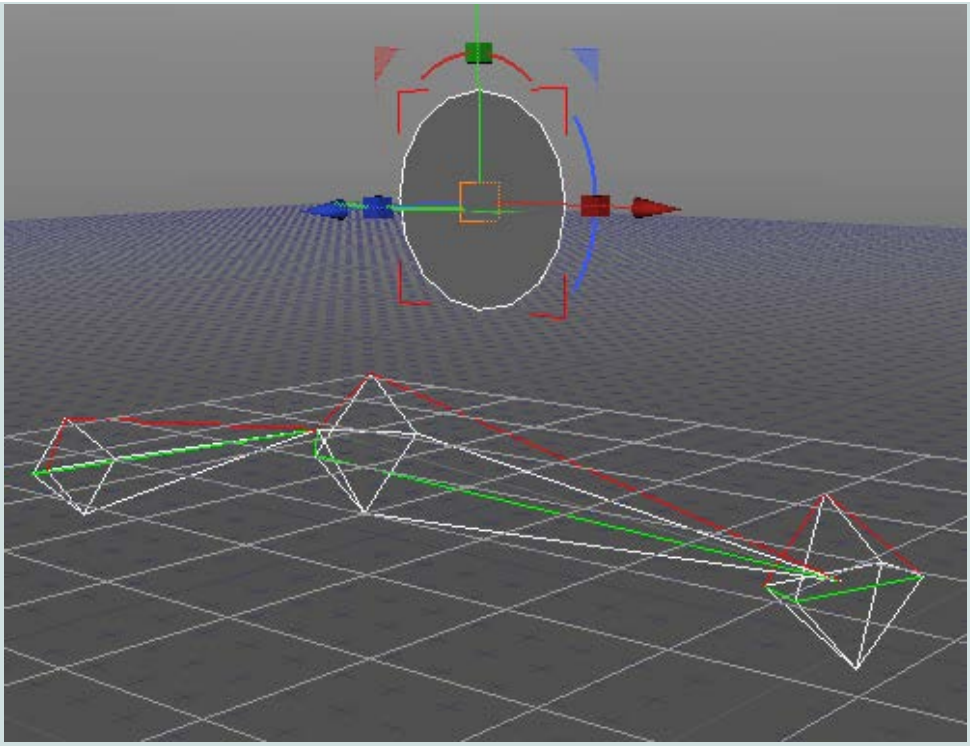
This refresh all **Alternative bone joint** in the scene. If view of **Alternative bone joint** became somehow amusing, press it.

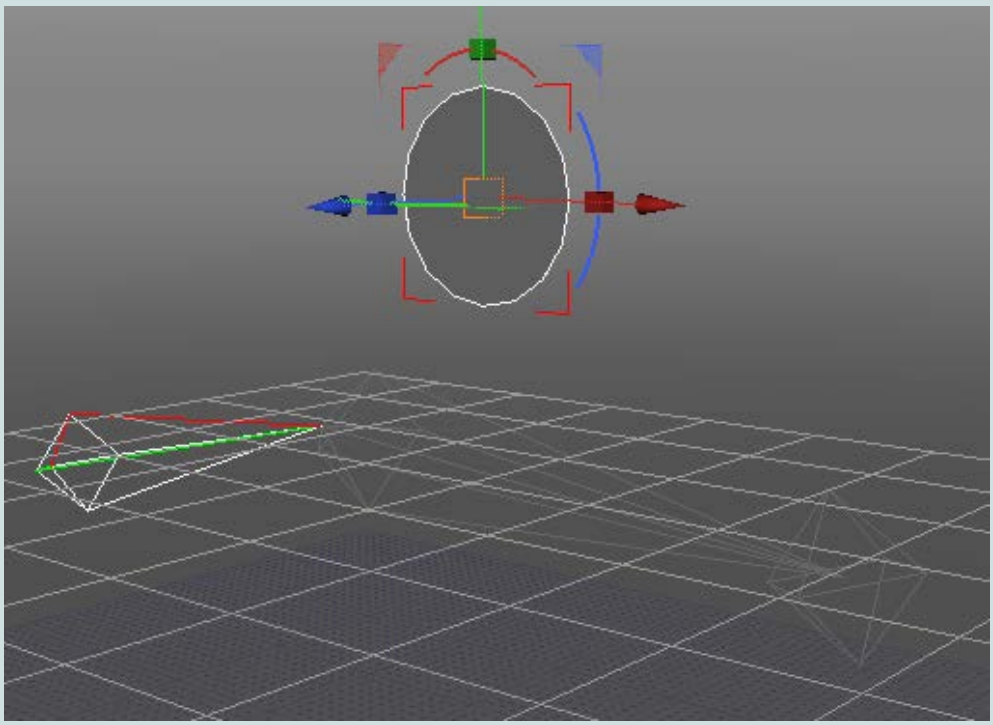
View in **Alternative joint setting**

this button is to Toggle type. When active, the sons of selected **Alternative bone joint** are highlighted like active, else not highlighted.

3.2.2.How to create Alternative bone joint

When click **Alternative bone joint** in the Tool Box -> Create -> Plug-ins of **Shade**, **Shade** turn on create mode of **Alternative bone join**. Just like create of Bone Joint, by dragging around in the Figure Window, **Alternative bone joint** will be created. But, no wire-frame appear like Bone Joint in dragging. Below it shows the wire-frame of an **Alternative bone joint**.

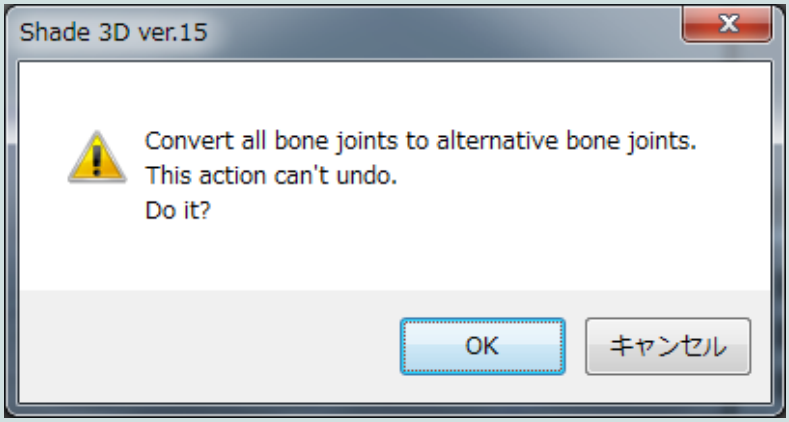




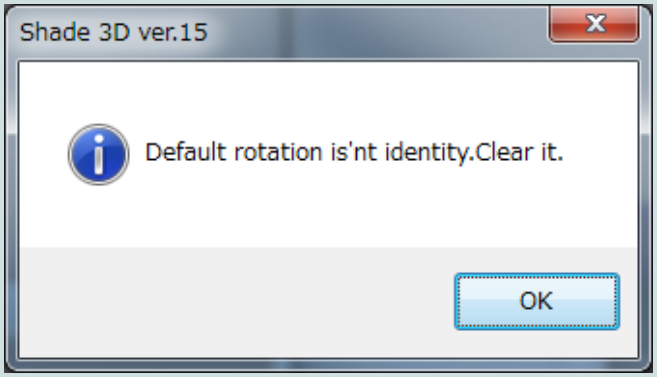
1st is a sample of activate **View**、2nd is non active. As compared to the standart Bone Joint, these wire-frame are marked with red and green lines. Red line is edge line direction to the second axis, green line is to the third axis. Please try to move each slider. Joints can move in a manipulator in the same way as Bone Joints, in Modify mode, by move the head and tail, it can be deformed. Even if inverted copy of **Alternative Bone Joint**, transformation matrix is not inverted, Only the actual coordinate value is inverted. Therefore, if the left and right of symmetric deformation, quaternion will not be the same.

3.3. Convert to alternative bone

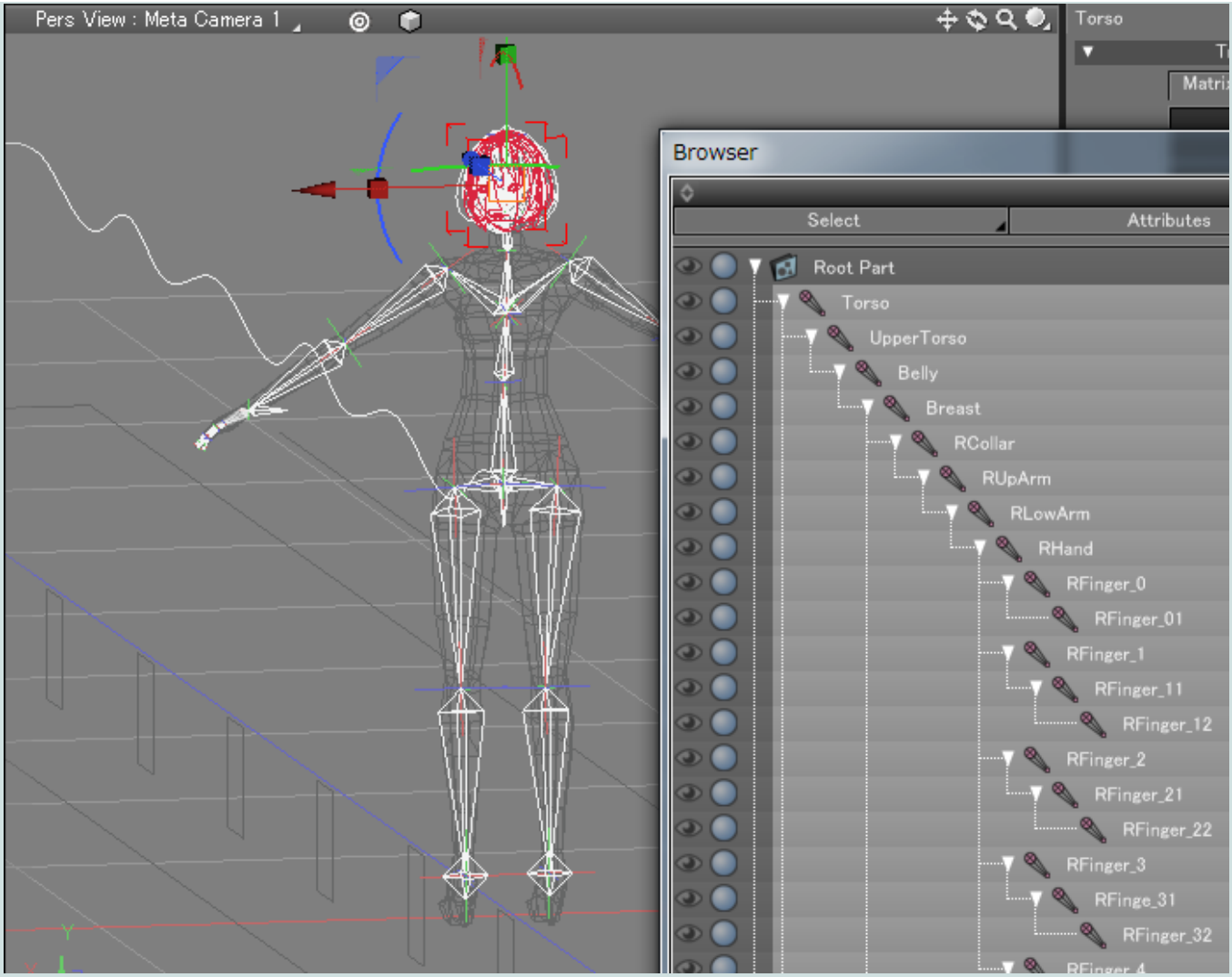
Convert to alternatvie bone in the Tool Box -> Modify -> Tools -> Plug-ins of **Shade** make a copy of the selected joints system, this copy is converted from Bone Joints to the **Alternatvie bone joints**. At the same time the all skins of all shapes in the scene are refreshed also.



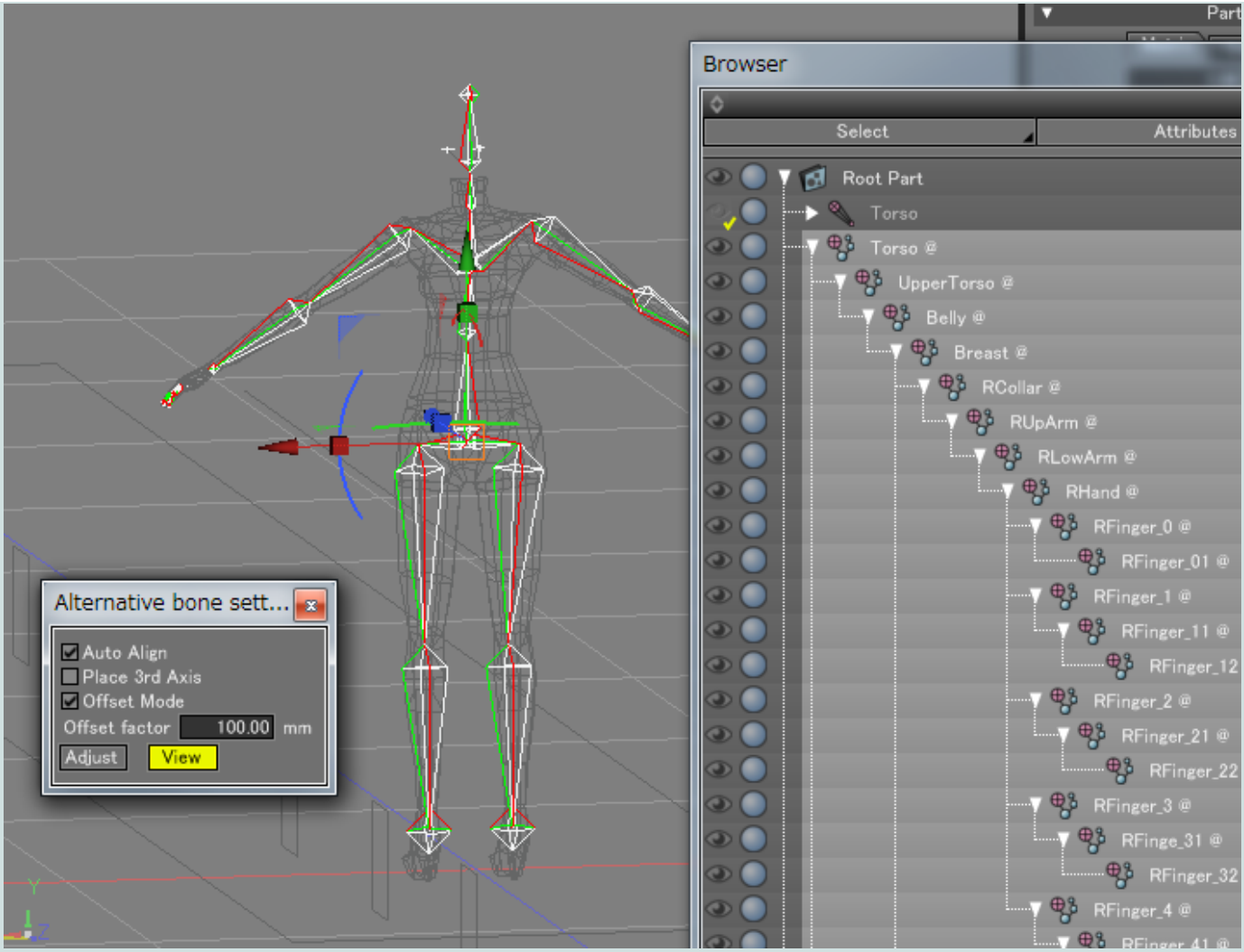
Upper Message box will appered. When press **OK**, do it.



If there are problem in the joints, above message appeared. This feature does accept, only when all joint's default value are identity, and all joints are resetted. If you want to repair, use **Clear** of my **Skin Tool**.
Under is the sample of using BONKO distributed by **Shade**.



Open BONKO, select the top of the joint, run **Convert to alternative bone**, and press **OK** in the message box, then under is the result.



The existed joints structure block are hidden, and the new structure are created. Unfortunately, shapes that placed in the joints structure are not copied by this plug-in. Please move on their own from the original joints structure. In this case, motion datas of original joins are not copied to new joints. **Motion Porter** with **Reset of the conversion matrix** can save old motion datas, and can load this to the new joints with same posing.

4. Revision history

- 2016/2/28 V1.0.0
  - New releases