

## Intro Blender Mesh Modeling-UI pt2

### Mesh Tools and other useful things

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Part 1 was to get you comfortable in Blender's UI and 3DView work Window. This paper gives further information on 'Mesh Tools' found in the 'Buttons Window Type', plus other useful information that might help you in Mesh Modeling.

**REMEMBER:** Not all items are covered here as these papers are for learning basic Mesh Modeling.



A few more items in the **USERS PREFERENCE** Window type

### PANELS:

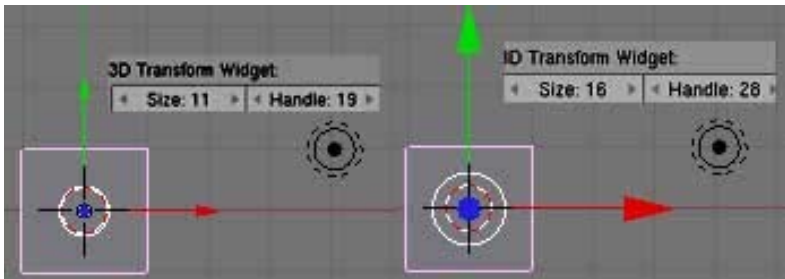
#### ---VIEWS AND CONTROLS PANEL---

**TOOL BOX CLICK HOLD---** If you think your 'Tool Box' takes too long/short to open when you hold down a mouse button try adjusting the time here.

**SNAP TO GRID---** Snaps a Transform to grid/home plane units. Here turn the feature on and off for the 3 '**Transform**' types **Move-Rotate-Scale**, more than one can be on at any time.

**MINI AXIS---** This is the small axis that appears in the lower left corner of the 3D View Window. Adjust its **Size** and **Brightness** here if you have trouble seeing it in the Window.

**3D TRANSFORM WIDGET---** When Transforming a (sub)object, Move-Rotate-Scale, a transform 'Widget/Gizmo' shows on the selected (sub)object. Here you can increase its **Size** if you think it's too small to work with. Plus increase the **Handle** size as well; these are the small arrows at the tips of the Widget axis, only for viewing purposes as it does not affect the 'Hot Spot' size associated with the 'Handle'. This is as you might guess done with the 'Hot Spot' area, and increase or decrease the pixel distance your mouse cursor needs to be away from the **Transform Widget** axis lines and handles.



Remember the white circle is also part of the Widget.

**Note:** The term 'Widget' has other meanings to programmers, reason why I sometimes refer to this

as a Gizmo.

### ---EDIT METHODS PANEL---

UNDO--- 'Steps' how many undo's do you think you might want. More undo's more system memory needed to hold them. 'Global Undo' on by default further increases memory needed for keeping track of past actions further.

If your machine has little random memory, RAM, you might need to play with the levels of Undo you need to get memory back. If you're the type who likes trying out a number of actions then Undoing back to where you started you might increase the number.

DUPLICATE WITH OBJECTS--- Meshes/Objects can have a number of properties associated with them besides just their geometry. Such as a character mesh might have an Armature (Skeleton/Rig/Bone) associated with it. And often will have a texture or material assigned to the Object that you may wish to include in a duplicate command.

Use this area to pick and choose which properties you want to include in your duplicates.

### ---AUTO SAVE PANEL---

Always good to have a backup copy of your file hanging around, and in this Panel you set both *how often to save* a backup file automatically and *how many backup versions* are kept. The 'Open Recent' opens the latest 'Auto Save'.

On important projects try to save often, and keep more than one backup/autosave version. Why, because occasionally your 3D file gets corrupted, just happens, which means your first or second Autosave make carry the corruption, or the later corruption was caused by some action taken earlier. Meaning you may need to go back a few version to find a stable file.

Same goes for how often to Autosave, doesn't have to be every 3 minutes but if something should happen to crash your 3D program; not good to sudden loose 2 hours worth of work.

### ---FILE PATHS PANEL---

Use it to step up where you like your various file kept.

## HOT AREAS: User Preferences Header Bar

### ---FILE---

Pretty standard **New-Open-Save-Save As** operations, but the 'Open Recent' is not the same as if done through the Auto Save Panel. Here it is the last file that was worked on, there the last Auto Save File.

SAVE IMAGE 'F3'--- saves the Contents of the 'Blender; Render' pop up window which shows whenever you do a (Full/Camera) render from the 'Render' Hot Area of the **User Preferences Header Menu**. Or a '3D View Render' from the **3D View Header Bar** rendered from that view.

### DUMP SUBWINDOW 'Ctrl F3' /DUMP SCREEN 'Ctrl Shift F3'---

Used to take snap shots of a selected window, or of your entire screen, this is not a render but more of a screen grab. Useful to keep snap shots of your work so if you say you have a problem with a mesh, and want to send a snapshot of it to a friend to look at you can dumb a screen to quickly shoot it off to them.

Also for your Demo Reel you can grab shots of your mesh work to include along with your full renders of the mesh.

*Understand* when you do a 'Dump' one of your windows will change to a '**File Browser Window Type**' and stay as such even after saving your Image file, and will need to be changed back to the original 'Window Type' you had it set up as.



### SAVE DEFAULT SETTINGS---

Once you've setup your 'Windows' and 'User Preferences' how you like them picking this saves your new setup as the **Default** setup: so after that when opening Blender, or starting a New File, Blender's UI opens up how you last saved it.

### APPEND---

Basically a 'Merge' function in other 3D programs, used to add assets from one saved scene into another.

### IMPORT / EXPORT---

Blender not only saves in its native formats, but can import or export in certain other 3D Formats so you can bring in, or export to, meshes and other assets made in 3D Programs such as Maya – Max- Xsi to list a few.

Through the use of Python Scripts 3<sup>rd</sup> Party Import/Exporters can be added to Blender to further enhance this feature.

### QUIT BLENDER---

Quit the program.

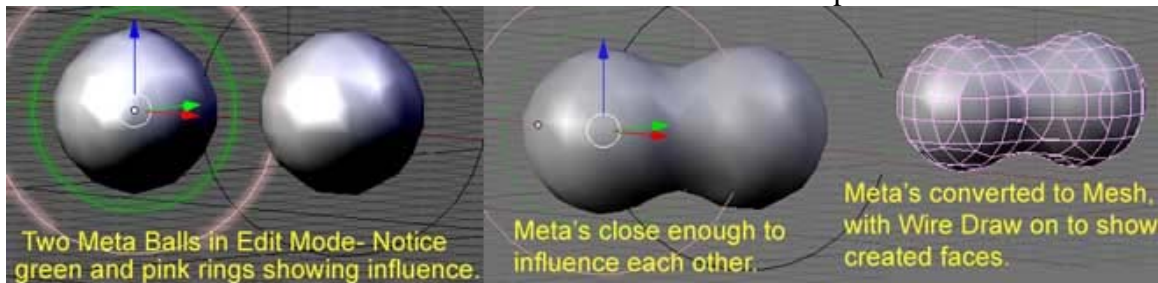
### ---ADD---

**MESH---** Add mesh primitives to begin transforming, 'Monkey' is to Blender what 'Teapot' is to 3dsMax.

**CURVE---** Nurbs and Bezier(Spline) curves used to form shapes, which are then most often spun(Spin) or extruded into shapes which can be converted into Mesh objects. Path is a spline that you can assign an object to follow.

**SURFACE---** Adds a Nurbs surface primitive to begin transforming. However these papers don't really go into using Nurbs as they are considered a more advanced technique in mesh modeling.

**META---** MetaShape primitives for modeling. Often simply called meatball modeling, metaballs/shapes are volume objects that have a threshold of influence with other metashapes. Which when converted to a Mesh object bases the new mesh shape as if the mesh was contained within the volume of the combined metashapes. Huh?



A more advanced technique that will briefly be touched in a later paper, due to the ease of modeling. A hard concept to grasp by way of explanation but easier to understand by simply doing a bit of modeling.

**GROUP---** Not fully implemented.

**CAMERA---** Only one type currently, basically a free camera with no fixed target.

**LAMP---** Standard types of lights found in most 3D Programs, but with Blender names.

**ARMATURE---** Puts down a single '**Armature**' for you to start building a **skeletal 'Armature'** from, or for users of other Programs a Biped or Bone system just called a Armature in Blender not a Bone.

#### **---TIMELINE---**

Functions related to animation, and the '**Timeline Window Type**'. Not really used in Modeling.

#### **---GAME---**

Test art assets for use in Blender Game engine.

#### **---RENDER---**

**RENDER CURRENT FRAME 'F12'---** Does a 'Full' render based on scene Camera, **no Camera no render**. By 'Full' mean uses all settings for shadows, radiosity ...etc, as opposed to a 'Quick' render.

**RENDER ANIMATION 'Ctrl F12'---** As above but an animation rather than a single frame.

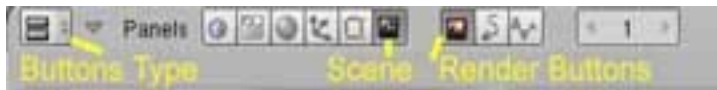
**SHOW RENDER BUFFER 'F11'---** Shows last rendered image.

PLAYBACK RENDERED ANIMATION 'Ctrl F11' --- Plays last rendered animation.

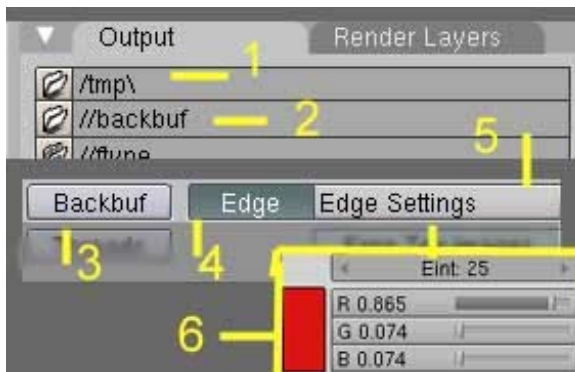
RENDER SETTINGS 'F10' --- Brings up rendering options for Blender but *pay attention* to the following. If you simply click this item nothing may seem to happen. This is because the 'Render Settings' DO NOT SHOW up in the 'User Preferences Window'. Instead they do SHOW UP in a 'Buttons Window Type'. So you will need to have a Window of this type open to see the 'Render Settings'.

### A BIT ON RENDER SETTINGS

While at first you might ask yourself if these papers are on Modeling why then a portion on Rendering Settings? Well because often how you see your mesh in '3D View Editing Mode' can not show you how the mesh will really look when rendered. A lot of this has to do with lighting, as usually objects/meshes when rendered create self casting shadows that are affected by the geometry of the object. Also meshes may look OK when in Editing Views, but when rendered will show odd areas of smoothing, or other bad geometry. On more complex models that contain such material properties as specular, bump, or normal maps the quick style rendering going on in a work window can not accurately or not at all display these texture properties. So you need to render to check to see how they will actually look on your model.



A FEW RENDER SETTINGS TO LOOK AT IN THE BUTTONS WINDOW TYPE.



### OUTPUT ACTIONS---

- 1) Where you want to save Renders to. In the 'User Prefs' >File Paths you can also set where to save Renders to, but that is the Default.
- 2) Backbuf- means background image you wish to use if any.
- 3) Backbuf icon to turn on and off the use of the background image listed above in a render.

- 4) ON/OFF for showing edges for 'TOON SHADING' effect. These are not all Edges, but outline Edges for a Mesh object.
- 5) Click here for 'Edge Settings' bring up pop up 6
- 6) Choose the color you want to set your Edges to, plus 'Eint:' deals with the intensity of the color you choose. **NOTE:** Pure Black 0,0,0 and pure white 255,255,255 can not change their intensity values.





**RENDER ACTIONS---**

- 1) Render the Scene (Full render form Camera).
- 2) Select Rendering Engine – Which Engine do you want to use to render the scene? Default install has 2 choices. Further Engines be developed by 3<sup>rd</sup> Parties and should show here.
- 3) OSA – Over sampling for anti

aliasing the image, numbers pertaining to number of samples. Higher sampling better anti aliasing but longer render times.

- 4) MBLUR- Means Motion Blur ON/OFF plus Blur Factor, again higher factor more blurring but longer renders.
- 5) Area includes ON/OFF Toggles for **Shadows, Environmental Maps, Panoramic Render, Raytracing, and Radiosity** rendering.
- 6) Set Render size by percentage of Render Settings. For example you set your render size at 800 by 600, a complicated scene with lots of lighting so a large render would take a long time. Instead of changing your Render Settings simply render at a percentage of those settings, to make the Render faster if you just need a quick check of the scene. Also if you just want to say check out a characters general motion during an animation. Full render of the animation would take to long and not really be needed so Render at a lower percentage.
- 7) This is **related to #2** and is the pop up Window that opens to show you your Rendering Engine choices.



**FORMAT ACTIONS---**

- 1) Click to see Game Framing Settings, for working with the Blender Game Engine.
- 2) Numeric Inputs for X-Y dimension of Render in Pixels.
- 3) Numeric Inputs for Render Aspect.
- 4) Render Image Format. What format you want you image saved in.

**CAUTION:** Remember if you want a single animation file you must set this to an animation file format (AVI, Quicktime), else a series of images will be output. Or if you want to save with an Alpha Channel, formats like JPEG can not contain an Alpha.

- 5) CROP—Crops border rendered image.
- 6) Quality setting for Jpeg, Avi jpeg, SGI movie, or in others words compression.

- 7) Frames per Seconds---Animation speed in Frames per second, for film work 24 FPS, NSTC-TV 30 FPS, PAL-TV 25 FPS.  
**NOTE:** Due to Blender's European upbringing the default is for PAL 25 FPS. So if you're in the Americas and use NTSC be sure to set this to 30 FPS, or Film 24.
- 8) Image saved with--- **BW:** 256 grey scale, **RGB:** 24 bit color, **RGBA:** 32 bit color or 24 bit color plus 8 bit alpha grey scale.
- 9) Predefined settings--- Predefined settings for common type of video dimensions use on certain platforms and broadcast format dimensions.

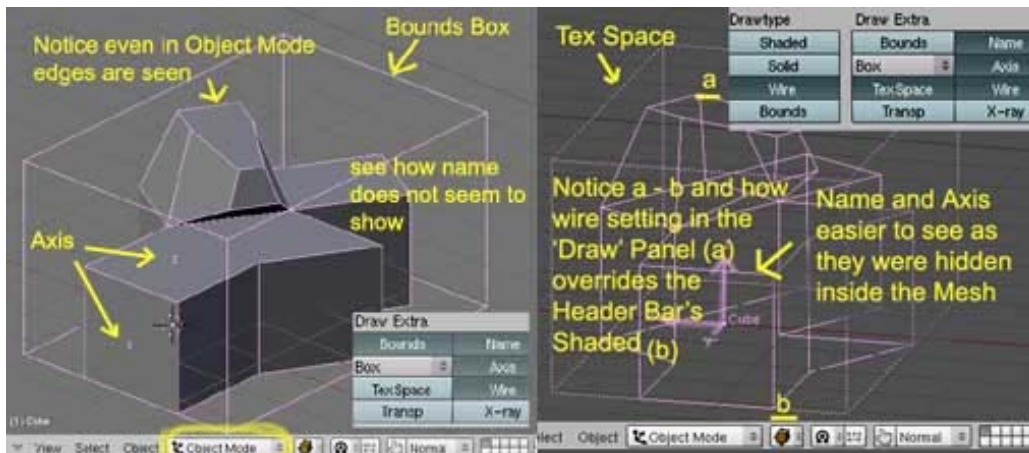


**BUTTONS > PANELS > OBJECT > OBJECT BUTTONS---**



**DRAW---**

- 1) Layers- same as your standard 3D View Header Bar Layers controls.
- 2) Draw Type- Again same as Draw Type on Header Bar.
- 3) Draw Extra- Extra drawing aids for your objects.
  - a) **Bounds** along with the **Type of Bounds** directly below. Deals with how your object is displayed in **bounding box mode**.
  - b) Tex Space- Displays an object's Texture Space, unable to fine satisfactory definition for this item. It appears to be a volumetric representation of space occupied by a mesh, and has the same dimensions of the bounding box.
  - c) Transp- Enables display of any transparent materials on a Mesh. More useful when texturing that when modeling.
  - d) Name - shows object name located at object local axis. Often in shaded/texture modes the object itself will hide this name in sided the shaded object, if that happens you need to goto wireframe mode to see the name shown.
  - e) Axis- causes XYZ letters to appear showing Local axis orientation, based at Axis location.
  - f) Wire- displays in wireframe the meshes Edges while in Shade/Textured object Mode. For 3dsMax users this is 'Edged Faces'.
  - g) X-ray- Makes active object display in front of others.



Anim Settings, Constraints, and Links are not specific to Mesh Modeling.

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**The Buttons Type – Shading Panel – Material, Texture, and World sub-Panels** each are covered in later papers due to the complexity involved in their operations.



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### A FEW TIPS AND KEY BOARD SHORT CUTS TO KEEP IN MIND

- 1) If a geometry object is selected in either **Object or Edit mode** and a new object is added it automatically becomes part of that object. So if you want a totally new object make sure nothing is selected before you *Add* a new Shape/Mesh.
- 2) Some **Header Menu Bars slide** if more items are to be found than can be shown. Try this with your **3D View Header Bar**, rescale some other windows so you can not see the whole 3D View Bar. Now got to a place on the Header bar that is not a *Hotspot or Icon*, then hold down your MMB(middle mouse button) and you should be able to slide the bar back and forth.
- 3) In a **Buttons Window Type** the Wheel of the Mouse can scroll the Panel Areas, Holding it down will move the Areas about within the Window, and 'Ctrl' Mouse Wheel can Zoom in and out

Import keys to remember

'a' select all or none of objects or of selected objects sub-components

'Tab' in 3DView switches between *Object and Edit Modes*

'Ctrl Tab' when in Edit Mode (3D View) switches among sub-components of Faces, Edges and Vertices

'g' 's' 'r' are for Grab(move), Scale and Rotate

In the 3D view Mouse Wheel Scroll Zooms, and if no Wheel 'Ctrl MMB' zooms, default has **click hold MMB** Pans view and '**Shift MMB**' rotates view. However if in *User Prefs Window Type> Views and Controls> Middle Mouse Button* rotate view is selected instead of pan these two operations are reversed.