Cameras and Rendering

Camera Properties palette
- Hides/shows navigation controls.
- Choose preset or save current position.
- Camera Dolly, Pan and Track tools (also on Standard tool bar).
- Choose between cameras in the scene.
- Choose and change camera lens types.

Sets translate and rotate increments.

Pan Controls rotate camera on its own axis.

Track Controls translate camera.

Dolly Controls rotate camera around selected object (origin if no selection).

Scene Settings window: Output tab
- Sets pixel aspect. Use ratio of 1 (square) in all cases but broadcast video.
- Sets image resolution.
- Sets rendering dimensions.
- Chooses units of measure.
- Number of pixels in each dimension.
- Load saved settings.
- Saves current render settings.
- Maintains aspect ratio when changing dimensions.
- Estimates best resolution in render time or time to render at current settings.
- Sets file name options for Batch Queue.
- Selects mask and other data for additional image channels.
- Choose between rendering a still image or a movie.
- Choose Output file format.
- Sets options for the selected format.
- Sets in point and out point (render range) of movie.
- Sets frame rate.
- Choose camera to use for rendering.

Free Form Modeler

UNIVERSAL   MAC   WIN
P=PERSPECTIVE, F=FREE FORM, M=MESH FORM

Arrange Menu (F)
Compound . . . . ⌘-Option-G . . . Ctrl+Alt+G
Break Apart Compound
. . . . ⌘-Option-U . . . Ctrl+Alt+U

Sections Menu (F)
Center . . . . ⌘-Shift-C . . . Ctrl+Shift+C
Next . . . . ⌘-Right Arrow
. . . . Ctrl+Right Arrow
Previous . . . . ⌘-Left Arrow
. . . . Ctrl+Left Arrow
Show Shapes Numbers
. . . . ⌘-Shift-N
. . . . Ctrl+Shift+N
Cross Section Options
. . . . ⌘-Option-N
. . . . Ctrl+Shift+N

Free Form Modeler Tools (F)
Pen Tool . . . . .D
Convert Point . . . .'
Add Point . . . .+
Delete Point . . . .-
2D Primitive Shape
Rectangle . . . . .A
Rounded Rectangle . . . . .Z
Oval X
Hexagon . . . . .F
2D Text . . . . .H

Cross Section Shortcuts (F)
Move to First Cross Section
. . . . ⌘-Option-Left Arrow
. . . . Ctrl+Alt+Left Arrow
Move to Last Cross Section
. . . . ⌘-Option-Right Arrow
. . . . Ctrl+Alt+Right Arrow

Mesh Form Modeler

View Menu (M)
. . . . ⌘-Option-O . . Ctrl+Alt+O
Send Drawing Plane to
Selection . . . ⌘-Option-5 . . Ctrl+Alt+5
Screen . . . . . ⌘-Option-7 . . Ctrl+Alt+7
Position . . . . ⌘-Option-9 . . Ctrl+Alt+9
Top . . . . ⌘-Option-8 . . Ctrl+Alt+8
Bottom . . . . . ⌘-Option-2 . . Ctrl+Alt+2
Left . . . . ⌘-Option-4 . . Ctrl+Alt+4
Right . . . . . . ⌘-Option-6 . . Ctrl+Alt+6
Front . . . . . . ⌘-Option-1 . . Ctrl+Alt+1
Back . . . . . . ⌘-Option-3 . . Ctrl+Alt+3

Selection Menu (M)
Weld . . . . . . ⌘-Shift-W . . . Ctrl+Shift+W
Link . . . . ⌘-L . . . . Ctrl+L
Unlink . . . . . ⌘-U . . . . Ctrl+U

Mesh Form Modeler Tools (M)
Polyline Tool . . . . .D
Marquee . . . . .M

Drawing Plane Shortcuts (M)
Rotate in the drawing plane 1, 3
Rotate left and right 4, 6
Rotate down and up 2, 8

Perspective Window Keyboard Shortcuts

UNIVERSAL   MAC   WIN
P=PERSPECTIVE, F=FREE FORM, M=MESH FORM

File Menu
New . . . . ⌘-N . . . . Ctrl+N
Open . . . . ⌘-O . . . . Ctrl+O
Close . . . . ⌘-W . . . . Ctrl+F4
Save . . . . ⌘-S . . . . Ctrl+S
Print . . . . ⌘-P . . . . Ctrl+P
Preferences . . ⌘-Shift-P . . . Ctrl+Shift+P
Exit . . . . ⌘-Q . . . . Alt+F4

Edit Menu
Undo . . . . ⌘-Z . . . . Ctrl+Z
(P, F, M)
Redo . . . . ⌘-Y . . . . Ctrl+Y
(P, F, M)
Cut . . . . ⌘-X . . . . Ctrl+X
(P, F, M)
Copy . . . . ⌘-C . . . . Ctrl+C
(P, F, M)
Paste . . . . ⌘-V . . . . Ctrl+V
(P, F, M)
Duplicate . . . . ⌘-D . . . . Ctrl+D
(P, F, M)
Duplicate with Symmetry
. . . . ⌘-D . . . . . Ctrl+Alt+D
(P, F, M)
Insert Camera ⌘-Option-C . . Ctrl+Alt+C
(P)
Insert Light . . ⌘-Option L . . . Ctrl+Alt+L
(P)
Select All . . . . ⌘-A . . . . Ctrl+A
(P, F, M)
Select All Objects
. . . . ⌘-Option-A . . Ctrl+Alt+A
(P)
Find . . . . ⌘-F . . . . Ctrl+F
(P, F, M)
Jump In . . . . . ⌘-Down Arrow
. . . . Ctrl+Down Arrow
(P)
Jump In New Window
. . . . ⌘-Option-Down Arrow
. . . . Ctrl+Alt+Down Arrow
(P)
Jump Out . . . . ⌘-Up Arrow
. . . . Ctrl+Up Arrow
(P, F, M)

View Menu (P, F, M)
Preset Positions Reference
. . . . ⌘-O . . . . Ctrl+O
Drawing Plane
(F, M)
. . . . ⌘-5 . . . . Ctrl+5
Top . . . . ⌘-8 . . . . Ctrl+8
Bottom . . . . . . ⌘-2 . . . . Ctrl+2
Left . . . . ⌘-4 . . . . Ctrl+4
Right . . . . ⌘-6 . . . . Ctrl+6
Front . . . . ⌘-1 . . . . Ctrl+1
Back . . . . ⌘-3 . . . . Ctrl+3
Wireframe . . . ⌘-Shift-Y . . Ctrl+Shift+Y
Preview (Fast)
. . . . ⌘-Option-Shift-Y
. . . . Shift+Ctrl+Alt+Y
Better Preview (Phong)
. . . . ⌘-Option-Y
. . . . Ctrl+Alt+Y
Grid . . . . ⌘-J . . . . Ctrl+J
Production Frame
P only)
. . . . ⌘-Option-F . . Ctrl+Alt+F

Arrange Menu (P)
Align
On Working Box
. . . . ⌘-Shift-K . . Ctrl+Shift+K
On Universe . . ⌘-Option-K . . . Ctrl+Alt+K
On Gravity . . . ⌘-Shift-G . . Ctrl+Shift+G
Reset Orientation
. . . . ⌘-Option-Shift-K
Align Objects
. . . . ⌘-K . . . . Ctrl+K
Group . . . . . . ⌘-G . . . . Ctrl+G
Ungroup . . . . ⌘-U . . . . Ctrl+U
Point At . . . . . ⌘-M . . . . Ctrl+M
Center Hot Point
. . . . ⌘-Option-H . . Ctrl+Alt+H
Send Working Box to
Global Universe
. . . . ⌘-Option-B . . Ctrl+Alt+B
Local Universe
. . . . ⌘-B . . . . Ctrl+B
Selection . . . . ⌘-Option-Shift-B
. . . . Ctrl+Alt+Shift+B

Render Menu (P, F, M)
Scene Settings
. . . . ⌘-Shift-T . . . Ctrl+Shift+T
Use Current Settings (to render now)
. . . . ⌘-R . . . . Ctrl+R

Windows Menu (P, F, M)
New Perspective
. . . . ⌘-7 . . . . Ctrl+7
Current Shader Editor
. . . . ⌘-/ . . . . Ctrl+/
Properties . . . ⌘-T . . . . Ctrl+T
Camera Properties
. . . . ⌘-E . . . . Ctrl+E

Perspective Window Tools
Camera Dolly . . . . .Y
(P)
Camera Pan .U
(P)
Camera Track I
(P)
Selection . . . . .T
(P, F, M)
Zoom . . . . . . ⌘-Spacebar
. . . . Ctrl+Spacebar
(P, F)
Hand .Spacebar
(P, F, M)
Render Preview . . . . .R

Rotate
Rotate . . . . .Q
(P, F)
Virtual Trackball V
(P, F, M)
3D Paint Select . . . . .W
(P, F)
3D Paint Create . . . . .W
(P, F)
Square . . . . .S
Oval C
Poly . . . . .G
3D Paint Brush . . . . .B
(P, F)
Dropper . . . . .E
(P, F)

Magnification (P, F, M)
Zoom In . . . . . . ⌘-+ . . . . Ctrl++
Zoom Out . . . . ⌘-- . . . . Ctrl+-
1:1 Zoom Level
. . . . ⌘-= . . . . Ctrl+=

Manipulation Features
Nudge . . . . .Arrow Key
(P, M)
Nudge (x5) . . . . .Shift Arrow Key
(P, M)
Lock Hot Point . . . . .Caps Lock
(P)

Alignment Palette
Select Anchor Object . . . . .Tab

Shading
Current Shader Editor
Jump In Subshader
. . . . ⌘-Shift-Down Arrow
. . . . Ctrl+Shift+Down Arrow
Jump Out Subshader
. . . . ⌘-Shift-Up Arrow
. . . . Ctrl+Shift+Up Arrow

Time Line Window

Time Line Manipulation

Nudge Selected Key Event Marker
One Pixel Ahead . . . . .Right Arrow
One Pixel Back . . . . .Left Arrow

One Frame Ahead . . . .Shift+Right Arrow
One Frame Back . . . . .Shift+Left Arrow

Advance Current Time to Next Marker
. . . . .Option+Right Arrow
. . . . .Alt+Right Arrow
Move Current Time to Previous Event
Marker . . . . .Option+Left Arrow
. . . . .Alt+Left Arrow

Time Line Tools
Add Key Event Tool . . . . .K

Tools Palette

Ray Dream Studio 5

QUICK
REFERENCE
CARD

Perspective Tool Box
- **Selection** selects objects.
- **Rotation tools** rotate object in 2D/3D.
- **Zoom** enlarges areas. Alt/Option zooms out.
- **Hand** scrolls/pans image.
- **Text** creates text objects.
- **Free Form** creates objects in the Free Form modeler.
- **Formula** creates objects in Formula Editor.
- **Infinite Plane** creates Infinite planes.
- **Geometric Primitive tools** create geometric primitives.
- **Mesh Form** creates objects in the Mesh Form modeler.
- **Environmental Primitives** creates environmental primitives.
- **Modeling Wizard** opens Modeling Wizard.
- **Create Light** creates a new light source.
- **Create Camera** creates a new camera.
- **Camera tools** pan, dolly or track the current camera.
- **Render Preview** renders a scene area.
- **Paint Shape Select** selects paint shapes.
- **Create Paint Shape tools** create rectangular, polygon and oval paint shapes.
- **3D Paint Brush** paints brushstrokes on objects.
- **Eyedropper** displays selected shader in Shader Editor.
- **Display Planes button** hides/displays grid planes.

Zoom
- **Zoom In** zooms in on an area.
- **Zoom Out** zooms out of an area.
- **Actual Size** shows image at actual size.
- **Zoom to Select** zooms in on selected objects.
- **Zoom to All Objects** zooms to area showing all objects.
- **Zoom to Working Box** shows the entire working box.

Preview
- **Collision Tracking** enables collision detection feature.
- **Interactivity** enables interactivity in animation preview.
- **Bounding Box Quality** displays all objects as bounding boxes.
- **Wireframe Quality** displays objects as wireframes.
- **Preview Quality** displays objects with using flat shader colors.
- **Shaded Preview Quality** displays the effects of lights on objects.
- **Better Preview Quality** displays all shader surface properties on objects.
- **Render** starts a rendering.

Standard
- **New** creates blank new scene.
- **Open** opens an existing scene file.
- **Save** saves the current scene.
- **Print** prints rendered images.
- **Cut** cuts selection.
- **Copy** copies selection.
- **Paste** pastes selection.
- **Group** groups selected objects.

Internet
- **Go to Fractal Online** goes directly to Fractal website.
- **Go to Third-Party website** goes to third-party websites.

Time Controller
- **Play** plays an animation.
- **View Motion Paths** displays/hides object motion paths.
- **Play Backward** plays animation in reverse.
- **Stop** stops preview.
- **Previous Frame** jumps back one frame.
- **First Frame** jumps to first frame in animation.
- **Next Frame** jumps forward one frame.
- **Loop** loops animation preview.
- **Frames Per Second** sets the frame rate for your animation.
- **Last Frame** jumps to last frame in animation.
- **Current Time** sets current time in animation.
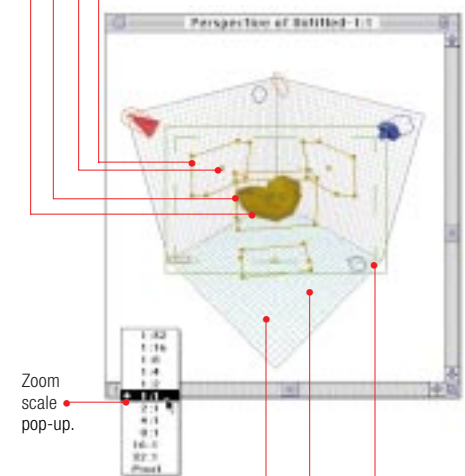
00:00:00   6 fps

FRACTAL DESIGN CORPORATION

Z-STD-C50-C-001

Perspective Palette

Choose a **View▶ Preset** or navigate the current camera to change the view.

- **Object Preview.**
  - Object Bounding Box.
  - Hot Point projection.
  - Projection.

Zoom scale pop-up.

⌘-Click /Ctrl-Click working box to select it. Manipulate on screen (Virtual Trackball, drag with Selection tool) or use Properties palette.

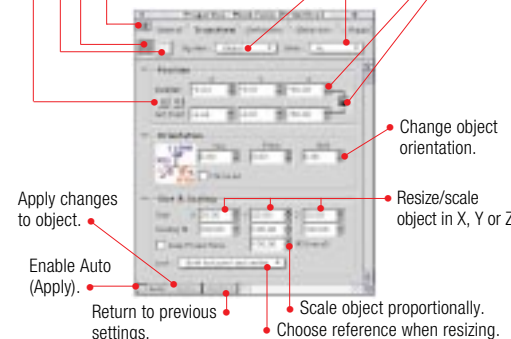**Working box** (active plane in green). Used as a reference. Control grids with Display Planes button.

Production Frame defines region to be rendered.

Display Plane button

- Click to display/hide object preview.
- Click the plane you want to display/hide.
- Option/Alt-Click to set active plane.

Properties Palette

- Send Hot Point to center.
  - Use outline view.
  - Use control view (shown).
  - View other Properties tabs.
    - Click to lock/unlock hot point with center.
  - Change object (center of bounding box) position.
  - Choose position and size units.
  - Choose coordinate system.

Apply changes to object.

Enable Auto (Apply).

Return to previous settings.

- Change object orientation.
- Resize/scale object in X, Y or Z.
- Scale object proportionally.
- Choose reference when resizing.

Browser Palette

- Pop-up to choose between *Apply All Channels* and *Apply Non Empty Channels.*
  - Click an item to select it. Then click Apply to put it on selected object. Double click an item to open it in a document window.
    - Shader folder/directory.
      - View other Browser tabs.
      - Choose other view of listings.
      - Choose options for Browser files and folders.
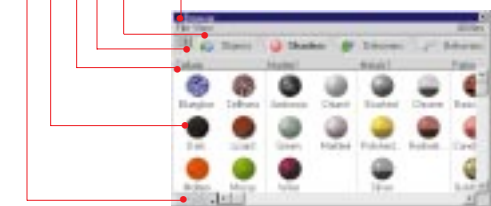
Drag item, camera, light, render filter listing into scene to use it. Drag Shader, Deformer, Behavior, Link listings onto object to apply them. Drag item (from Perspective, Hierarchy, Shader Editor, Properties palette) into appropriate Browser tab (under folder column) to add it to the Browser.

Time Line Window

- **Objects hierarchy** shows logical relationships (groups and links) of all elements in scene.
  - **Masters tab** lists each object of unique geometry. Objects in the scene are copies of the master.
  - **Effects tab** lists **Scene Settings window: Effects tab** features in use.
  - **Key event marker** sets properties at that point in time.
  - **Tweeners** double-click to set tweener options.
    - When markers overlap, shows a plus sign. Zoom in/change scale to distinguish them.
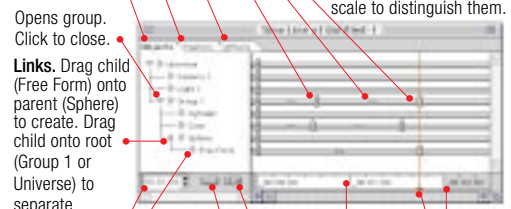
Opens group. Click to close.

Links. Drag child (Free Form) onto parent (Sphere) to create. Drag child onto root (Group 1 or Universe) to separate.

Current time (hours: minutes: seconds: frames). Edit field to move to a specific time.

- Click to display listings and time tracks for animatable properties.
- Displays time/frames on time axis.
- Sets time axis scale and animation frame rate.

Render range. Drag edges to change beginning.

Time Axis.

Current Time Bar. Drag to set time or click on the axis.

Hierarchy Mode

Light icon indicates a light in the scene.

Primitive icon indicates a primitive object in the scene.

Camera icon indicates a camera in the scene.

Link indicates an object link.

Free Form icon indicates Free Form object in scene.

Open Group indicates that the objects in the lower branch belong to the same group.

Free Form Tools

- **Selection** selects and moves points and sections.
- **Rotation** rotates object in 2D and 3D.
- **Zoom** zooms in on an area.
- **Hand** pans modeling window.
- **Pen** draws sweep paths and cross section shapes.
- **Point tools** adds, deletes, and converts points.
- **Draw tools** draws primitive cross section shapes.
- **Text** adds text to cross section.
- **Render Area** renders an area of object.
- **Paint Shape Selection** selects paint shapes.
- **Paint Shape tools** draw different types of paint shapes.
- **3D Paint Brush** paints brush strokes on object.
- **Eyedropper** displays selected shader in Shader Editor.
- **Display Planes** displays/hides grid planes.

Free Form Modeling Window
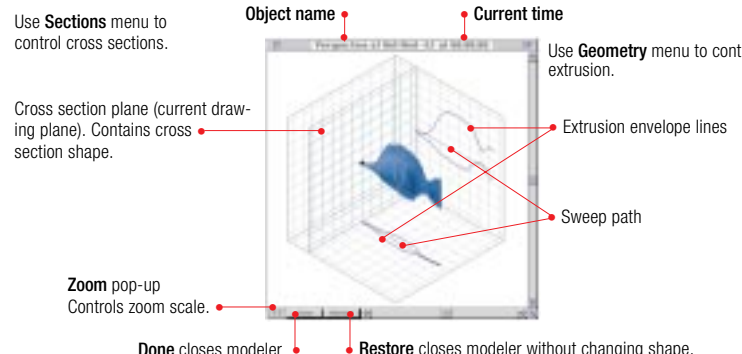
Use **Sections** menu to control cross sections.

Object name

Current time

Use **Geometry** menu to control extrusion.

Cross section plane (current drawing plane). Contains cross section shape.

Extrusion envelope lines

Sweep path

Zoom pop-up Controls zoom scale.

Done closes modeler.

Restore closes modeler without changing shape.

Mesh Form Tools

- **Selection (T)** selects vertices.
- **Marquee** selects groups of vertices.
- **3D Rotation** rotates objects in 3D.
- **2D Rotation** rotates objects in 2D.
- **Sphere of Attraction** moves groups of vertices.
- **Zoom** zooms in on an area.
- **Hand** pans modeling window.
- **Camera Dolly** moves the camera.
- **Polyline** draws connected lines.
- **Vertex tools** add, delete vertices.
- **Create Primitive tools** create primitive shapes and objects.
- **Sweep** sweeps polylines along a path.
- **Extrude** extrudes polylines along a path.
- **Lathe** creates lathed objects.
- **Loft** lofts polylines along a path.

- **Last Action Modifier(+)** increases the effect of last action modifier.
- **Last Action Modifier (-)** decreases the effect of last action modifier.
- **Display Planes** displays/hides grid planes.

Mesh Form modeler
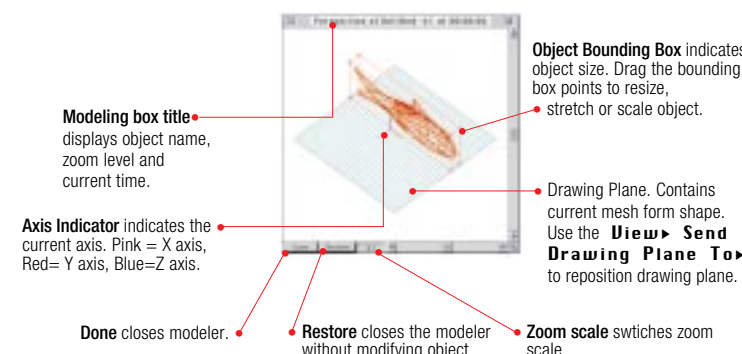
Modeling box title displays object name, zoom level and current time.

Axis Indicator indicates the current axis. Pink = X axis, Red= Y axis, Blue=Z axis.

Object Bounding Box indicates object size. Drag the bounding box points to resize, stretch or scale object.

Drawing Plane. Contains current mesh form shape. Use the **View▶ Send Drawing Plane To▶** to reposition drawing plane.

Done closes modeler.

Restore closes the modeler without modifying object.

Zoom scale swtiches zoom scale.

Collision Tracking

Collision Tracking button when enabled, all objects are treated as physical solids. Objects will collide instead of passing through each other. Use collision detection when arranging objects in the Perspective window.

Interactivity

Interactivity button when enabled, you can see objects move in the Perspective window during an animation preview or as you drag. This button should always be enabled when previewing animations.

Motion Paths

View Motion Paths button when enabled diplays lines indicating the path of an object during an animation. These paths are especially useful when editing Physics behavior settings.

Properties Palette: Light Tab

- Change position (also drag projection).
- **Light object preview** in Perspective.
- Change brightness.

Selected light Direct Manipulation controls.

- Change aim (also drag projection).
- Change placement of cross section circle.
- Change angular falloff.
- Change half angle.

Properties Palette: Camera tab

- Change position (also drag projection).
- **Camera object preview** in Perspective.

Selected camera Direct Manipulation controls— Properties palette: Camera tab

- Change zoom level (zoom lens only).
- Change aim (also drag projection).

Wave Deformer controls

Drag the frequency controls to adjust the frequency of waves.

Drag the amplitude controls away from the object to increase the size of waves.

Controls are interactive. As you adjust control handles, object redraws to show results.

Virtual Trackball

Drag outside the circles to rotate in relation to the display.

Drag within the rings to roll the object in 3D.

Drag where rings intersect to constrain the rotation axis. Hold down Shift while dragging to constrain rotation angle increments.

Physics behaviors

Physics behaviors let you create simulations of real-world physics.

- Adds a behavior to the selected object.
- Removes a selected behavior from an object.

Apply Physical-Effects behavior tells Studio to treat the selected item as a physical object. This behavior must be applied to all the objects in your simulation.

Physical Force controls sets the values for the force you apply to the object.

Auto automatically applies any changes to the object.

Deformer controls

Direct manipulation controls are available for most deformers. Each deformer has its own set of controls.