

## Main Command Dialog Interaction

### **addplight**

Add point/string light source.

If there is a single point then a point light source is added. When multiple points are available then string light is added. A string light is nothing but multiple light sources at the nodal points on a path. Once added the light source can be manipulated. Hover over the light source and press space bar to bring up the parameter dialog for that light source. Users can change light buffer size, light colour, shadows etc for the light source.

Press DEL while hovering over the light source to remove it.

Light sources are animatable.

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### **opmod**

opmod [front op] [back op]

Opacity modifier to modulate opacity of the transfer functions from front to back of the volume.

This modulating factor is multiplied to the opacity value. Default value is 1 for both front and back - i.e. no modulation.

Example :

opmod 1

opmod 0 1 : front slice opacity will be multiplied by 0.

back slice opacity will be multiplied by 1.

inbetweens will be multiplied by linearly interpolated values between 0 and 1.

opmod 0.1 : multiple all opacity values by 0.1

opmod 0.1 0.5 : front slice opacity will be multiplied by 0.1.

back slice opacity will be multiplied by 0.5.

inbetweens will be multiplied by linearly interpolated values between 0.1 and 0.5.

---

### **tempdir**

tempdir/resettempdir

Set temporary directory to store temporary files created by the program.

When not set (which is default), these files are stored in the directory where .pvl.nc file resides.

Give "resettempdir" to reset temporary directory.

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### **resettempdir**

tempdir/resettempdir

Set temporary directory to store temporary files created by the program.

When not set (which is default), these files are stored in the directory where .pvl.nc file resides.

Give "resettempdir" to reset temporary directory.

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### **point**

point x y z

Add a point at the given x,y,z coordinates.

Example : point 10 20.5 123

Users can also add points by using Shift+Left click on visible region of the volume.

---

**setlod**

setlod lod

Set the highest Level of Detail (lod) to load in hires mode. The highest level of detail is the amount of subsampling needed to fit the selected subvolume in the available texture memory. Default value is 1 (i.e. no subsampling required - load full resolution whenever possible). The program will automatically calculate level of detail that is needed taking into account the user defined limit. For e.g.

To set level 3 subsampled volume as the most detailed version : setlod 3

---

**scalebb**

scalebb scale

Increase the bounding box size in order to realign volumes in the case of multiple volumes. Default value of scale is 1.0 - i.e. no increase in bounding box size.

For e.g.

scalebb 1.2 - increase bounding box by 20%

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**voloffset**

voloffset vnum offsetX offsetY offsetZ

When multiple volumes with different grid sizes are loaded, they are aligned to be in the center of the bounding box. With voloffset, you can offset the volumes relative to each other within the bounding box.

vnum specifies the volume number to offset

offsetX, offsetY, offsetZ (values between 0.0 and 1.0) are offsets within the bounding box. Default value for the offsets is 0.5 i.e. align in the center.

For e.g.

voloffset 0 0 0 0 - align volume 0 to be in the bottom corner

voloffset 1 0 1.0 0 - align volume 1 to the top of Y axis

voloffset 0 0.5 0.5 0.5 - align volume 0 in the center

---

**loadpoints**

loadpoints/loadpoint

Load points from a file. User will be asked for the text file name from which the points will be loaded. This file should specify number of points on a single line followed by all point coordinates with one point (i.e. 3 values) per line.

Example :

4

0.5 1.0 4.0

3.5 1.0 1.0

2.5 1.0 4.0

0.5 1.5 6.0

Once loaded these points can be edited.

---

### **savepoints**

Save points into a file. User will be asked for the text file name into which the points will be saved. This file will have number of points at the top followed by one point (i.e. 3 values) per line.

---

### **geosteps**

geosteps <int>

The rendering of meshes becomes slower when "merge with volume" is switched on in the mesh dialog. This happens because the mesh is diced up into several slabs which results in coarse level sorting of triangles in that mesh. These mesh slabs are then rendered with the volume (if available). Higher number of slabs result in slower rendering. The parameter "geosteps" controls the number of slabs that are rendered. Higher value results in less number of slabs (coarser sorting) and faster rendering.

Default value is 1.

---

### **grid**

grid <columns> <rows>

Add a grid using the selected set of points in column major fashion. If none of the points is selected, the grid is created using all the available points.

The order of selection of points affects the grid.

Once a grid is created, points used for creating the grid are removed. The grid can be modified after it has been created - rows or columns of points can be added and removed from the grid. Individual points on the grid can be moved.

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### **path**

Add a path going through the selected set of points. If none of the points is selected, the path is created through all the available points.

The order of selection of points affects the path.

Path consists of at least 2 points.

Once a path is created points used for creating the path are removed. The path can be modified after it has been created - points can be added, moved and removed from the path.

---

### **loadvector**

Load vector field from a text file.

User will be asked for the text file name from which the points and vectors will be loaded. This file must be a text file with number of points at the top followed by point and vector per line. Each line must have at least 4 values and up to 6 values. The first 3 values will be treated as position. The missing vector values will be filled with 0.

Once loaded user can assign colour gradient based on vector length.

The vectors are treated just as a special case of pathgroups.

Example :

```
4
10.5 1.0 4.0 0.0 1.0 0.0
13.5 1.0 1.0 0.3 0.5 0.0
12.5 1.0 4.0 0.0 0.8 2.0
10.5 1.5 6.0 0.4 1.3 0.7
```

Another example (here the missing y & z vector values will be taken as 0.0)

Users can use this format for loading scatter plot data - pos and value.

```
4
10.5 1.0 4.0 0.9
13.5 1.0 1.0 0.3
12.5 1.0 4.0 1.0
10.5 1.5 6.0 0.4
```

---

### **loadpathgroup**

Load paths from a file. All the paths in the file are treated as a single entity. Points cannot be added or removed from a pathgroup.

Users can also load indexed paths.

More information can be found under loadpath help.

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### **loadpath**

Load a path from a file. User will be asked for the text file name from which the points will be loaded. This file must be a text file with number of points at the top followed by one point (i.e. 3 values) per line. The file may contain multiple paths, as shown in the example below.

Once created a path can be edited.

Example :

```
4
0.5 1.0 4.0
3.5 1.0 1.0
2.5 1.0 4.0
0.5 1.5 6.0
3
1.5 19.0 21.0
2.5 10.0 42.0
0.5 12.5 16.0
```

Paths can also use indexed coordinates. In this case the first line should be "#indexed". The next line specifies the number of points followed by coordinates of each point on a separate line. After all the points have been specified, list point number for the individual paths on separate line.

Example :

```
#indexed
8
75.9695 211.301 2.95066
62.4697 211.301 2.98529
```

```
82.5082 211.141 18.0185
76.5653 210.904 40.2637
75.5968 210.772 52.5721
64.0969 210.772 52.6016
74.7241 210.244 102.195
76.5653 210.904 40.2637
0 7
1 3
0 1 2
4 5 6 7 3
```

---

### **savepath**

Save all paths into a file. User will be asked for the text file name into which the path points will be saved. For each path this file will have number of coordinates at the top followed by point coordinates.

---

### **loadgrid**

Load grid from a file. User will be asked for the text file name from which the points will be loaded. This file must be a text file with number of points in column and row at the top followed by one point (i.e. 3 values) per line. The file may contain multiple grids, as shown in the example below. Once created a grid can be edited.

Example :

```
2 2
34.5303 20.1612 9.31844
41.9833 21.8794 4.20507
26.2442 17.2637 21.2988
35.3462 19.1446 19.023
5 3
271.732 218.195 222.585
295.348 195.691 225.244
324.001 175.675 233.581
365.62 170.704 230.079
412.551 186.984 229.766
288.938 238.488 198.753
305.034 223.429 200.204
334.305 211.594 202.559
358.957 207.566 203.925
397.39 219.637 199.611
308.406 259.479 172.502
331.812 250.454 173.442
350.776 237.703 181.048
373.104 249.167 176.439
397.585 256.729 169.862
```

---

### **floatprecision**

floatprecision value

Sets the precision for displaying floating point numbers - i.e. maximum number of significant digits.

Default value is 2 - i.e. 2 digits after decimal point.

---

### **clip**

When three points are specified a clip plane can be added.

Clip plane allow users to cull regions in the volume. When the clip plane widget is visible press spacebar while hovering on the widget to change clip plane parameters via a parameter dialog.

---

### **crop**

When two points are specified a crop widget can be added. Crops allow users to cull regions in the volume. When the crop widget is visible press spacebar while hovering on the widget to change crop parameters via a parameter dialog.

Crop can be morphed into dissect/blend/glow/displace.

---

### **dissect**

When two points are specified a dissect widget can be added. Dissect allow users to cut open regions in the volume. When the dissect widget is visible press spacebar while hovering on the widget to change dissect parameters via a parameter dialog.

Dissect can be morphed into crop/blend/glow/displace.

---

### **blend**

When two points are specified a blend widget can be added. Blend allow users to blend different transfer functions within the selected region. When the blend widget is visible press spacebar while hovering on the widget to change blend parameters via a parameter dialog.

Blend can be morphed into crop/dissect/glow/displace.

---

### **glow**

When two points are specified a glow widget can be added. Glow allow users to emissive glow within the selected region. When the glow widget is visible press spacebar while hovering on the widget to change glow parameters via a parameter dialog.

Glow can be morphed into crop/dissect/blend/displace.

---

### **displace**

When two points are specified a displace widget can be added. Displace allow users to move parts within the selected region. When the displace widget is visible press spacebar while hovering on the widget to change displace parameters via a parameter dialog.

Displace can be morphed into crop/dissect/blend/glow.

---

### **landmarks**

Add landmarks via the (selected) set of points. Once a point is converted to landmark then it can be assigned a name via landmark dialog. Landmarks are shown as points.

To toggle visibility of the landmark dialog hover over any of the landmarks and press space bar. Landmark dialog allows users to calculate and show distances between landmarks, projections on line as well as plane. Landmark point and text colour and size can be modified.

Users can save landmarks to a text file.

Landmarks can be loaded from .landmark file or a .points file or from a set of points.

Landmarks can be reordered. Just reorder the rows in the table for landmarks and press "Reorder" button at the top left in the dialog to reorder the landmarks.

Enter the landmark name in the "Name" column of the landmark table.

Coordinates in the table can be changed.

-----

To calculate distance between landmarks use the Distances textbox.

Format for this is point pairs separated by comma.

Following show distances between points 1 and 2, 1 and 4, and 3 and 4.

1 2, 1 4, 3 4

To project landmark distances on a line use the Line Projection textbox.

Format for this is 2 coordinates to define line on which the distances are to be projected, followed by point pairs and text display distance in pixels from default position. The two coordinates defining the line are separated by comma. The line definition is separated from landmark points definition by semi-colon. The point pairs and distances are separated by comma. For e.g.

0 0 0, 1 0 0 ; 1 2 0, 1 4 10, 3 4 -20

Here first (0 0 0) and (1 0 0) are points on the line on which the landmark points will be projected.

(1 2 0) - 1 and 2 are landmark points and 0 is the deviation of display text.

(1 4 10) - 1 and 4 are landmark points and 10 is the deviation.

(3 4 -20) - 3 and 4 are landmark points and -20 is the deviation.

To project landmark points on a plane use the Plane Projection textbox.

Format for this is 2 coordinates to define plane on which the distances are to be projected, followed by points. The two coordinates defining the plane are separated by comma. The plane definition is separated from landmark points definition by semi-colon. The points are separated by comma. For e.g.

200 200 450, 0 0 1 ; 1, 2, 5

Here first (200 200 450) and (0 0 1) define the projection plane. (200 200 450) is a point on the plane and (0 0 1) is the plane normal. Users can make use of clip plane to show projection plane - turn on solid color and "grid" option to make clip plane look good. Plane center and normal for the clip plane can be obtained from the clip plane dialog.

1, 2, 5 are the landmark points that will be projected on the plane.

-----

Landmarks can be moved around using mouse as well as via the dialog.

Individual landmarks can be deleted by hovering over relevant landmark and pressing "DEL" key.

"c" to show landmark coordinates.

"n" to show landmark number.

"t" to show landmark name.

---

### **enablevolumeupdates**

Enable texture updates whenever subvolume is changed.

By default subvolume updates are enabled.

---

### **disablevolumeupdates**

Do not upload a new texture even when subvolume is changed.

By default, texture is updated whenever subvolume is changed.

---

### **interpolatevolumes**

interpolatevolumes [no|color|value]

Linearly interpolates color/voxel values between two volumes in double volume. The interpolation ratio varies between 0.0 and 1.0 : color/val = (1-frc)\*volume1 + frc\*volume2. This ratio is automatically determined based on the frame number and the timestep number of the first volume.

At keyframes this value is always 0.0.

Default is no interpolation between the volumes.

---

### **addrotationanimation**

addrotationanimation [x/y/z] [angle] [frames]

Simplest way to add rotation animation to keyframe editor. Two keyframes will be added to the keyframe editor. First frame with rotation angle 0 and second frame is set at frame number [frames] with rotation angle set to [angle].

Default value for axis is x-axis, angle is 360 degrees and frames is also 360.

Examples :

addrotationanimation

addrotationanimation y 90 400

---

### **mix**

mix [0|1|2] [no|color|opacity|color opacity|tag|tag no]

During handling of multiple volumes, "mix" influences the rendering of volume specified by the volume number in the mix command.

The second parameter is volume number. If not specified volume 0 is assumed. Color and opacity for all volumes below the volume number are not affected - For example when volume number is 1, color and opacity for volume 0 is not affected.

Default style is "mix no" - volumes are composite in normal way.

When "color" is specified, affected volume is tinged with colors from transfer functions defined for volume numbers above it. The opacity/transparency is not modulated. Volume numbers above the affected volume are not rendered.



When "opacity" is specified, transparency for the affected volume is modulated with transparency from transfer functions defined for volume numbers above it. The color is not modulated. Volume numbers above the affected volume are not rendered.

When both "color" and "opacity" are specified both of these are modulated for the affected volume.

When "tag" is specified, affected volume is tinged with tag colors. Volume 1 voxel value is used as tag value to choose appropriate tag color.

Examples :

mix no - switch of the mixing.

mix color - modulate color for volume 0 by the colors from volumes 1,2,...

mix 1 color opacity - modulate color and opacity for volume 1 by color and opacity from volumes 2,... Volume 0 remains unaffected.

mix tag - modulate color for volume 0 by tag colors chosen using volume 1 values.

mix tag no - turn of tagging.

---

### **loadbarepoints**

Load points from a file. These points will be shown as tiny green dots. Bare points cannot be selected and edited. They can only be removed all at once.

User will be asked for the text file name from which the points will be loaded. This file should specify number of points on a single line followed by all point coordinates with one point (i.e. 3 values) per line.

Example :

```
4
0.5 1.0 4.0
3.5 1.0 1.0
2.5 1.0 4.0
0.5 1.5 6.0
```

**\*\*Once loaded these points cannot be edited.\*\***

---

### **removebarepoints**

Remove all points that were loaded as bare points.

---

### **pointsize**

pointsize [size]

Set the point size for display.

Default value is 20 pixels.

---

**pointcolor**

Set the point color for display. A color dialog will pop via which color can be selected.

**enablegrabpoints**

Enable mouse grabbing for points. Mouse grabbing for points will remain enabled till it is switched off with "disablegrabpoints".

By default mouse grabbing is enabled for points.

---

**disablegrabpoints**

Disable mouse grabbing for points. Mouse grabbing for points will remain disabled till it is switched on with "enablegrabpoints".

By default mouse grabbing is enabled for points.

When there is many points, it might happen that while dragging the mouse across the screen, a point might get activated and moved around quite unintentionally. This option is to avoid that.

This option also helps in slightly increasing rendering speeds while rendering large point clouds.

When mouse grabbing is enabled, before each frame is rendered, a search is performed to find any grabbable object below the current mouse position. Reducing the number of grabbable object will reduce this search time.

---

**deselectall**

Deselect all selected/active points.

---

**removepoints**

removepoints [all | selected]

Removes all points or the selected set of points.

Example :

removepoints all

removepoints selected

---

**loadimage**

Load background image from a file. User will be asked for the image file. This image will be drawn for the background instead of background color.

---

**resetcamera**

Reset camera to examine mode. Show entire scene.

---

**resetimage**

Reset background image. No background image will be drawn, instead the background color will be used to fill the background.

---

**setfov**

setfov fov

Set field of view, fov, in degrees. Default value is 45 degrees.

---

**resetfov**

Reset the field of view to default value. Default value is 45 degrees.

---

**search**

search text

Search keyframes for text within captions. The captions could be either normal caption on screen or those that are added using paths. If found, first keyframe with given search text within captions is displayed and current frame is set to that keyframe.

---

**countcells**

Count the number of isolated regions, as defined by the transfer function. Only those voxels that have opacity greater than zero according to the current transfer function will be considered for locating isolated regions.

---

**getangle**

Given three points calculate angle in degrees.

---

**backgroundrender**

backgroundrender [no]

Toggle rendering to framebuffer object. Default is render to framebuffer object. By rendering to framebuffer object, the image is drawn and saved properly even when other windows overlap the render window.

When backgroundrender is switched off, regions of the render window occluded by other overlapping windows are not drawn, consequently the images may be saved with parts of overlapping windows.

When users want to save images with transparent background - set the background colour to black and switch off backgroundrender.

---

**translate**

translate x y z

Translate camera to the x,y,z position.

Example :

translate 200 250 200

---

**translatex**

translatex x

Translate camera to the x,0,0 position.

Example : translatex 200

---

**translatey**

translatey y

Translate camera to the 0,y,0 position.

**translatez**

translatez z

Translate camera to the 0,0,z position.

**move**

move x y z

Move camera from the current position by x,y,z units.

Example : move 50 20 20

---

**movex**

movex x

Move camera from the current position by x,0,0 units.

Example : movex 50

---

**movey**

movey y

Move camera from the current position by 0,y,0 units.

**movez**

movez z

Move camera from the current position by 0,0,z units.

**movescreenx**

movescreenx x

Move camera horizontally as seen by the viewer from the current position by x units.

Example : movescreenx 10

---

**movescreeny**

movescreeny y

Move camera vertically as seen by the viewer from the current position by y units.

---

**movescreenz**

movescreenz z

Move camera in/out as seen by the viewer from the current position by z units.

---

**rotate**

rotate x y z a

Rotate camera by a degrees about the axis defined by vector x,y,z. The vector x,y,z is internally normalized.

Example : rotate 0.1 1.0 0.5 40

---

**rotatex**

rotatex a

Rotate camera by a degrees about X-axis.

Example : rotatex 30

---

**rotatey**

rotatey a

Rotate camera by a degrees about Y-axis.

---

**rotatez**

rotatez a

Rotate camera by a degrees about Z-axis.

---

**addrotation**

addrotation x y z a

Rotate camera by a degrees about the axis defined by vector x,y,z from its current orientation. The vector x,y,z is internally normalized.

Example :

addrotation 0.1 1.0 0.5 40

---

**addrotationx**

addrotationx a

Rotate camera by a degrees about X-axis from its current orientation.

Example :

addrotationx 30

---

**addrotationy**

addrotationy a

Rotate camera by a degrees about Y-axis from its current orientation.

---

**addrotationz**

addrotationz a

Rotate camera by a degrees about Z-axis from its current orientation.

---

**rotatescreenx**

rotatescreenx a

Rotate camera by a degrees about horizontal screen axis from its current orientation.

Example :

rotatescreenx 30

---

**rotatescreeny**

rotatescreeny a

Rotate camera by a degrees about vertical screen axis from its current orientation.

---

**rotatescreenz**

rotatescreenz a

Rotate camera by a degrees about axis perpendicular to screen from its current orientation.

---

**autospin**

autospin [off]

When left mouse button is quickly dragged and released, model goes into auto-spin mode.

autospin off : switch off auto-spin

autospin : switch on auto-spin

---

**masktf**

masktf [tfset]

Used for creating the empty space skipping volume. This volume is used as a mask. The rendering is limited to within the non-zero regions of this mask.

---

**mop**

mop

mop [option] [parameters]

When only mop is specified, command dialog for mop will open. More information on the following options available in MOP command dialog. Supported options :

average

carve

carverad

chessboard

cityblock

close

copy

copyfromsaved

copytosaved

dilate

dilateedge

edge

erode

fusepatch

histogram

invert

localmax

localthickness

masktf

max

maxvalue

min

nop

open

paint

rdilate

removepatch

sat0

sat1

save  
setvalue  
shrinkwrap  
smoothchannel  
swap  
tag  
thicken  
update  
xor

---

### **relativedatapos**

relativedatapos x y z

Relative placement of smaller volumes (for multiple/time series volumes).

Allowed values of x,y,z are -1, 0 and 1.

For a given axis :

-1 implies bottom of smaller volumes is aligned to the bottom of the bigger volume.

0 implies the smaller volume is centered w.r.t the bigger volume.

1 implies top of smaller volumes is aligned to the top of the bigger volume.

Default value is 0 for all x,y and z.

For e.g.

relativedatapos 0 0 1 - align x and y for the center and z for the top

relativedatapos 0 0 -1 - align x and y for the center and z for the bottom

---



## Keyboard Interaction

|                 |   |
|-----------------|---|
| <b>F2</b>       | Toggle between Hires and Lowres modes.  |
| <b>Tab</b>      | Bring up dialog for GiLighting.   |
| <b>Spacebar</b> | Bring up command input dialog.  |
| <b>Esc</b>      | Quit Drishti.   |
| <b>?</b>        | Toggle information text at the bottom in image window.  |
| <b>a</b>        | Toggle axis display.  |
| <b>b</b>        | Toggle bounding box.  |
| <b>c</b>        | Add a clip plane.<br>Clip plane is always added in the center of the volume.  |
| <b>r</b>        | Reload subvolume or toggle Carve/Paint Radius box.<br><br>When mouse cursor is in a clip plane viewport or user is in paint/carve mode, pressing r will toggle the Carve/Paint Radius box. Users can change carve/paint region radius via this box.<br><br>When mouse cursor is not in a clip plane viewport or user is not in paint mode then pressing r will trigger reloading the subvolume. This is useful when the volume data file has changed and the subvolume needs to be reloaded. Helpful in volume file is changing in realtime and one wants to view the changed data. |
| <b>s</b>        | Toggle stereo display in Hires mode. Operational only when activated using -stereo command line option.<br><br>Users can also get stereo-like results by switching to red-cyan/blue anaglyph mode by pressing 2 or 3.   |
| <b>t</b>        | Add captions or toggle Tag Selector box.<br><br>When mouse cursor is in a clip plane viewport or user is in paint mode, pressing t will toggle the Tag Selector box. Users can change current tag value via this box.   |

|  |  |
|--|--|
|  | <p>When mouse cursor is not in a clip plane viewport or user is not in paint mode then it will add captions. It will pop up a caption dialog to input the caption details. Once the captions are added, they can be edited, moved and animated. Hover over a caption to activate it and press spacebar to edit it.</p> <p>Users can display frame number - \$#f, time step number in volume - \$#v[0-3] or interpolated values - \$n(value), within caption.</p> <p>Example :</p> <p>\$4f will display frame numbers with padded 0s.</p> <p>\$3v0 will display time step number for volume 0.</p> <p>\$2v1 will display time step number for volume 1.</p> <p>"Temperature : \$n(3.032)" will display "Temperature : 3.03" if "floatprecision" is set to 2.</p> <p>"Temperature : \$n(3.032)" will display "Temperature : 3" if "floatprecision" is set to 0.</p> <p>If one keyframe has \$n(val1) and subsequent keyframe has \$n(val2) then the intermediate frames will have interpolated values between val1 and val2.</p> |
| <b>v</b>   | Toggle visibility of widgets - networks, clipplanes, crop, dissect, blend, displace.   |
| <b>g</b>   | Toggle mouse grab for widgets - trisets, networks, paths, clipplanes, crop, dissect, blend, displace.  |
| <b>Ctrl+c</b>  | Copy a snapshot to clipboard.  |
| <b>Ctrl+s</b>  | Save project.  |
| <b>Alt+s</b>   | Save single image. If any of the Red-Cyan or Red-Blue anaglyph modes are active, anaglyph image will be saved. Same goes for image sequences and movies.   |
| <b>Alt+f</b>   | Toggle between examine and fly mode for camera.<br>Default is examine mode   |
| <b>Ctrl+z</b>  | Undo last camera position/rotation change.<br>Users can perform unlimited undo.  |
| <b>Ctrl+y</b>  | Redo the last undone camera position/rotation change.<br>Users can perform unlimited redo.   |
| <b>Ctrl+h</b>  | When keyboard focus is any of the editors under "View" menu, show help for that editor.  |
| <b>Alt+Return</b>  | Toggle full screen display.  |
| <b>PageUp</b><br><b>PageDown</b><br><b>Shift+Up</b><br><b>Shift+Down</b> | Change still image stepsize.   |
| <b>Home</b><br><b>End</b><br><b>Shift+Left</b>                           | Change drag image stepsize.  |

|                    |   |
|--------------------|---|
| <b>Shift+Right</b> |   |
| <b>0</b>           | Set render resolution to normal - image is rendered at full resolution of the renderwindow.   |
| <b>9</b>           | Set render resolution to low - image is rendered at half resolution of the renderwindow.  |
| <b>8</b>           | Set render resolution to very low - image is rendered at quarter resolution of the renderwindow.  |
| <b>1</b>           | Toggle shadows.   |
| <b>2</b>           | Toggle Red-Cyan anaglyph mode.<br>Use Focus Distance slider in Stereo tab within the Preferences panel under View to change the focus.  |
| <b>3</b>           | Toggle Red-Blue anaglyph mode.<br>Use Focus Distance slider in Stereo tab within the Preferences panel under View to change the focus   |
| <b>4</b>           | Toggle Crosseye stereo mode.<br>Use Focus Distance slider in Stereo tab within the Preferences panel under View to change the focus.  |
| <b>5</b>           | Toggle Crosseye stereo mode compatible with 3D TVs - this will create a squashed image by 50% for each eye. When displayed on 3D capable TV, the images will be stretched out properly.<br>Use Focus Distance slider in Stereo tab within the Preferences panel under View to change the focus. |
| <b>l</b>           | Toggle use of drag volume for render.   |
| <b>e</b>           | Toggle use of prune texture to skip rendering empty (transparent) spaces in the data.   |
| <b>j</b>           | Toggle use of drag volume for shadow render.  |
| <b>h</b>           | Force normal render even for mouse drags.<br>If drag mode is not active, force to use higher resolution volume even for mouse drags.  |
| <b>d</b>           | Depthcueing - darkening of image depending on distance to the viewer.<br>By default depthcueing is disabled.  |

## Mouse Interaction

|   |  |
|---|--|
| <b>Mouse wheel<br/>Middle button<br/>drag</b> | Zoom camera.   |
| <b>Mouse right<br/>button drag</b>            | Translate camera.  |
| <b>Mouse left button<br/>drag</b>             | Rotate object<br>When Control is pressed rotate around an axis orthogonal to the screen.   |
| <b>Mouse left double<br/>click</b>            | Align camera.  |
| <b>Mouse middle<br/>double click</b>          | Center scene.  |
| <b>Mouse right<br/>double click</b>           | Center object.   |
| <b>Mouse Shift +<br/>Right click</b>          | Change rotation pivot.<br>Normally the rotation pivot is at the center of the volume. To change that Shift+Right mouse click on the desired point to set that point as the new rotation pivot. Rotation pivot can be on any geometry or volume.<br><br>To reset the rotation pivot, Shift+Right click on empty region on screen. |
| <b>Mouse left +<br/>Middle drag</b>           | Rotate object about the axis perpendicular to the screen.  |