



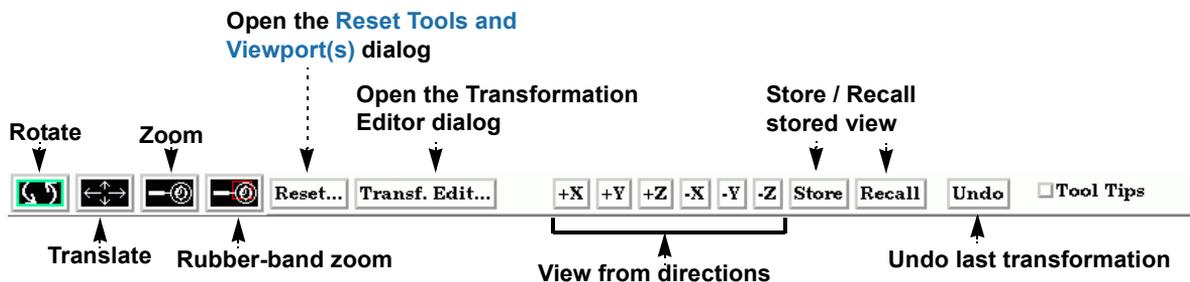
Manipulate Viewing Parameters  
Rotate, Zoom, Translate, Scale

## INTRODUCTION

EnSight provides global transformations (rotation, translation, and zooming) to permit user manipulation of objects in the Graphics Window. The transformations can either be performed interactively with the mouse, or precisely by entering explicit values. The mouse buttons can be user-programmed to perform different transformations.

## BASIC OPERATION

The Transformation Control Area controls the operation of the left mouse button (by default) in the Graphics Window. The icon of the current action will be highlighted (e.g. Rotate is current below):



Select Part [or View] mode in the Mode Selection area.

### To rotate:

1. Click the rotate icon.
2. Move the mouse pointer into the Graphics Window.
3. Click and hold the left mouse button and:
  - move the mouse left and right to rotate about the screen Y (vertical) axis, or
  - move the mouse up and down to rotate about the screen X (horizontal) axis, or
  - hold down the Control key and move the mouse left and right to rotate about the screen Z axis.
4. Press the F1, F2 or F3 keys for 45 degree rotation about the X, Y, or Z axis, respectively. Hold the Control key down for -45 degree rotation. (Note: cursor must be in the EnSight window for F keys to work)
5. Press +X to view the scene from the positive X axis (looking toward the origin). The +Y, +Z, -X, -Y, -Z buttons are similar. Press the "Last" button to get the scene back to the view that existed before any of the +/-XYZ keys were pressed.

### To translate:

1. Click the translate icon (or use the middle mouse button in steps 2 and 3 (default)).
2. Move the mouse pointer into the Graphics Window.
3. Click and hold the left mouse button and:
  - move the mouse left and right to translate in the screen X (horizontal) direction, or
  - move the mouse up and down to translate about the screen Y (vertical) direction, or
  - hold down the Control key and move the mouse left and right to translate in the screen Z direction.

### To zoom:

1. Click the zoom icon (or use the middle mouse button in steps 2 through 5 (default)).
2. Move the mouse pointer into the Graphics Window.
3. Click and hold the left mouse button.
4. Drag down to zoom in or drag up to zoom out.
5. Hold down the Control key and move the mouse to pan.

### To rubber-band zoom:

1. Click the rubber-band zoom icon.
2. Move the mouse pointer into the Graphics Window and position it at one corner of the desired viewing region.
3. Click and hold the left mouse button.
4. Drag to include the desired viewing region. An outline of the region will appear as you drag.



Note that zooming actually changes the location of EnSight's virtual "camera" or "look-from" point. Zooming in moves the camera closer to the object; zooming out moves it farther away. The **look-from/look-at points** can also be edited explicitly.

If you have multiple **viewports** visible, each one can be manipulated independently. To transform in a different viewport, place the mouse pointer within the bounds of that viewport before you click the left mouse button.

You can reset transformation parameters (as well as tool and frame transforms) by clicking the Reset.... See [How To Reset Tools and Viewports](#) for more information.

## ADVANCED USAGE

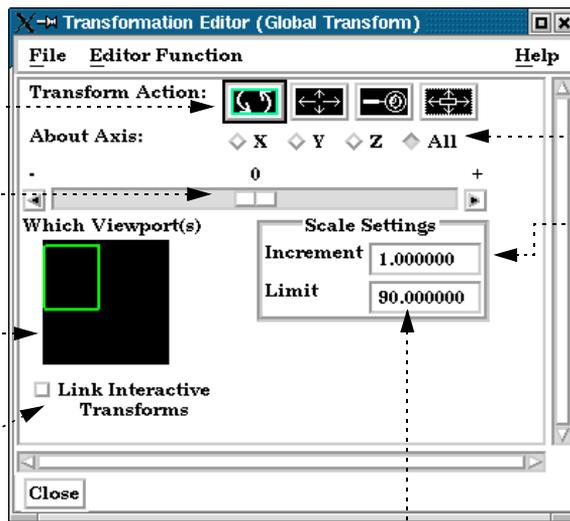
All EnSight transformations can be controlled precisely by specifying explicit transforms in the Transformations Editor dialog. To open the dialog, click the Transf Edit... icon on the desktop. The slider performs the requested transformation (based on the selected transformation action) in the selected viewport(s).

Select the desired transformation action.

Slider to specify transform.

Set (by clicking within the desired region) the viewport that the transform applies to.

To interactively perform transformations on multiple viewports, select viewports then toggle on.



Specify axis to which the transform applies

Increment controls the step size for the slider end arrows.

Enter explicit values in the Increment field (and press return) to transform by a precise amount.

Limit controls the sensitivity and limit of the slider action.

You can also perform scaling in any or all dimensions (to, for example, magnify subtle differences in a surface). Although you cannot perform the scaling operation with the mouse, you can scale using the Transformations dialog. Click the Scale icon in the Transformation Control area and specify the scaling as described above.

You can copy the transformations from one viewport to another. First select the viewport you wish to copy, select Editor Function->Copy Transformation State, then select the viewport(s) you wish to modify and select Editor Function->Paste Transformation State.

## OTHER NOTES

By default, EnSight uses only the left mouse button for performing transformations. You can, however, program the transformation action attached to each mouse button. See [Customize Mouse Button Actions](#) for more information.

The transformation operations described here also apply to frame transformations. If additional frames have been created and if the mode has been set to Frame, then any transform will apply to the currently selected frame. See [Create and Manipulate Frames](#) for more information.

Pressing the F5, F6, or F7 keys while the mouse is in the Graphics Window will transform the scene to show a standard right, top, or front view, respectively. Pressing the F8 key will return the scene to that which existed prior to F5, F6, or F7 being pressed. Further, holding the Control key down while pressing F5, F6, or F7 will store the current view to the selected Fx button.

Pressing F9 while the mouse is in the Graphics Window will zoom the display to full screen. Press F9 again to return to the normal display.



## SEE ALSO

Other viewing operations: [How To Set LookFrom/LookAt](#), [How To Set Z Clipping](#), [How To Create and Manipulate Frames](#), [How To Reset Tools and Viewports](#).

User Manual: [Global Transform](#), [Frame Transform](#)