How to draw in perspective with Illustrator

In Adobe Illustrator CS6, you can easily draw or render artwork in perspective by using a feature set that works on established laws of perspective drawing.

When you draw in perspective, you can represent on a flat surface a three-dimensional scene as it is naturally perceived (by the human eye). For example, a road or a pair of railway tracks can seem to meet or vanish in the line of vision.

The following features in Illustrator facilitate drawing in perspective:

- Define or edit one, two, and three vanishing point perspectives in a document.
- Control different perspective-defining parameters interactively.
- Create objects directly in perspective.
- Bring existing objects into perspective.
- Transform objects in perspective (move, scale, and move objects in a perpendicular direction).
- Draw objects with real-world measurement in perspective.

About the Perspective Grid tool

The Perspective Grid tool group consists of the Perspective Grid tool (**Figure 1**) and the Perspective Selection tool. When the Perspective Grid tool is selected, it shows a perspective grid with the following elements:

- Left and right grid controls to adjust planes
- Horizon height
- Left and right vertical plane position
- Visibility and extent of a grid cell
- Grid cell size
- Origin
- Left and right ground-level points used for grid movement

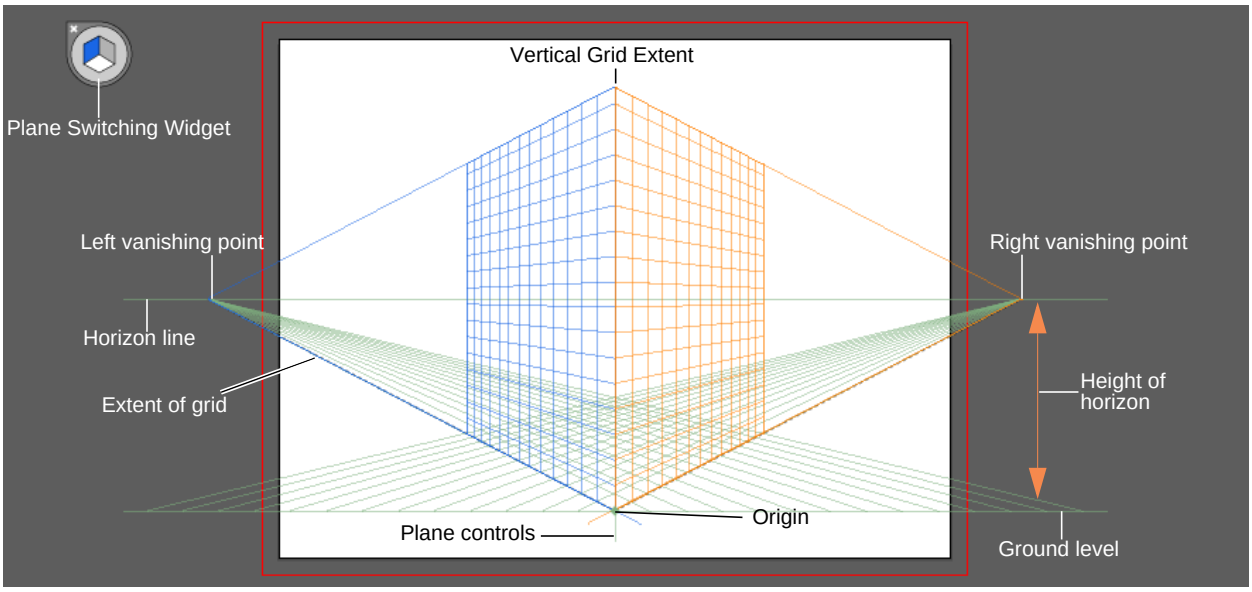

Figure 1 Perspective grid illustrating two-point perspective

In the perspective grid, use the Plane Switching Widget (**Figure 2**) to select the active perspective plane.

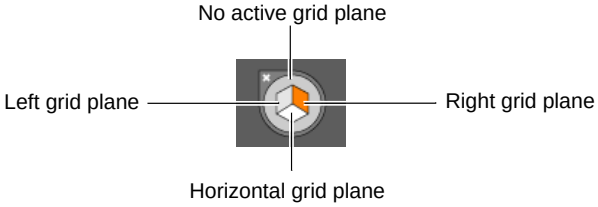

Figure 2 Plane Switching Widget

You can set options to position the widget and choose to display it when the perspective grid is visible. To set these options, double-click the Perspective Grid tool in the Tools panel. In the Perspective Grid Options dialog box, you can select the following:

- *Show Active Plane Widget:* This option is selected by default. If you deselect this option, the widget is not displayed with the perspective grid.
- *Widget Position:* You can choose to display the widget on the Top-Left, Top-Right, Bottom-Left, or Bottom-Right corner of the screen.

When you select the Perspective Selection tool, the left, right, and horizontal plane controls are displayed. You can switch to the Perspective Selection tool by pressing Shift+V or selecting it from the Tools panel. Use the Perspective Selection tool to do any of the following tasks:

- Bring objects, text, and symbols into perspective with respect to the active plane
- Switch active planes by using keyboard shortcuts
- Move objects into perspective (parallel to the active plane)
- Move objects perpendicular to the active plane

With the Perspective Selection tool, the active planes in the perspective grid are indicated by pointers.

Active plane	Pointer
Left grid plane	
Right grid plane	
Horizontal grid plane	

This guide presents the basics of the Perspective Grid tool and the Perspective Selection tool. For more detailed information about how to use the perspective grid, see "Perspective drawing" in Illustrator Help.

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Perspective grid presets

Illustrator provides presets for one-point, two-point, and three-point perspectives (**Figure 3**).

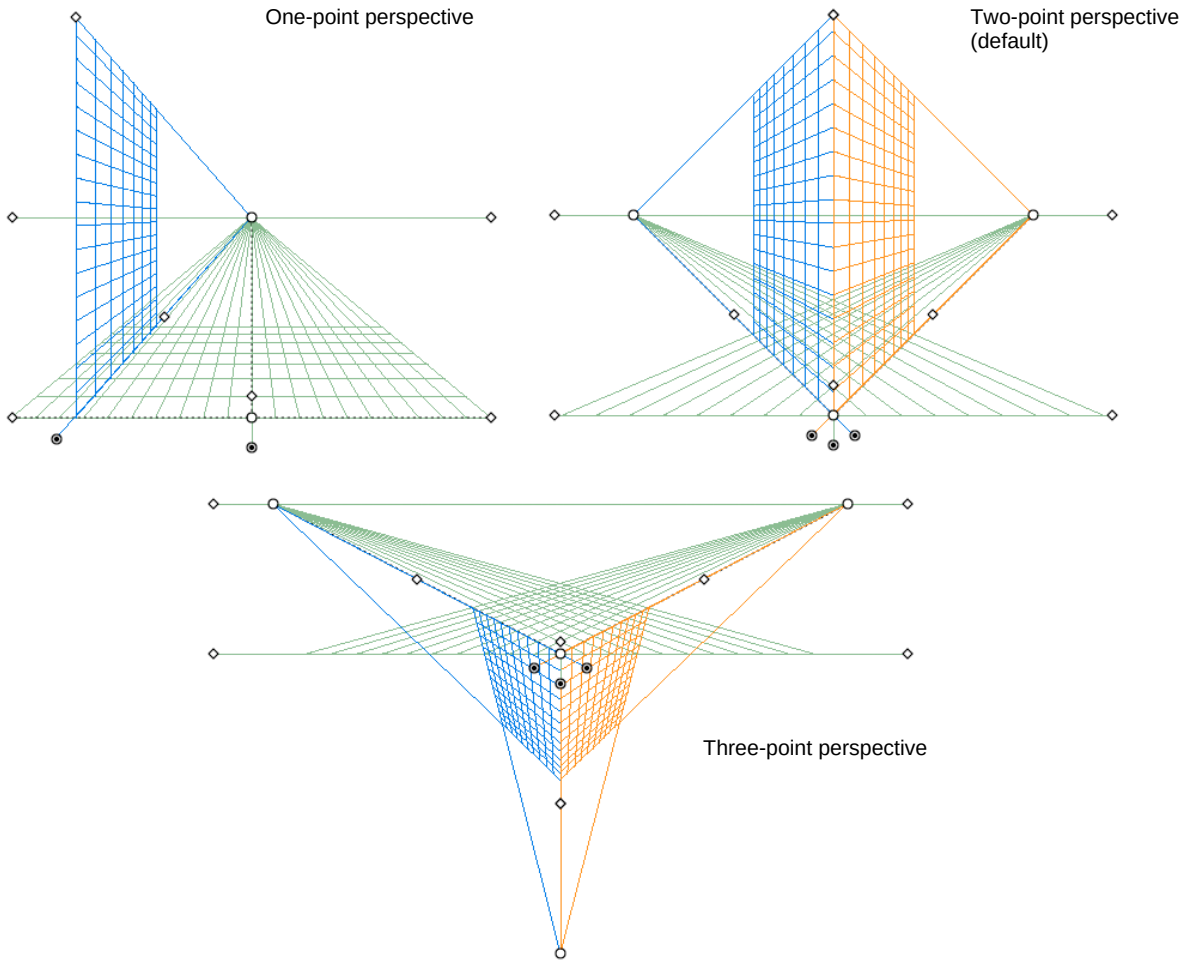

Figure 3 Perspective grid presets

To select a perspective grid preset:

1. Click View > Perspective Grid.
2. Select one of the presets (One Point Perspective, Two Point Perspective, or Three Point Perspective) and then select Normal View (**Figure 4**).

   The chosen perspective grid appears in the document window (**Figure 1**).

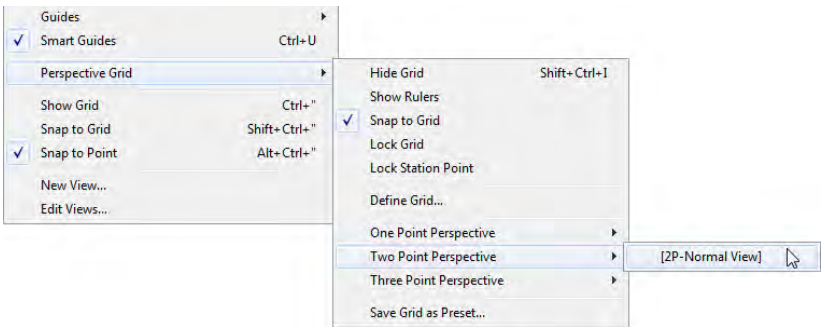

Figure 4 Perspective Grid options in the View menu

Working with objects and text in perspective

You can use the perspective grid to create and manipulate objects and text in perspective.

Drawing new objects in perspective

To draw objects in perspective, use the line group tools or rectangle group tools while the grid is visible.

To draw new objects in the grid:

1. To select the plane in which you want to draw an object, click one of the faces of the cube in the Perspective Grid Widget (**Figure 6**).

   The plane you selected becomes the active plane.

2. Choose the Rectangle tool in the Tools panel (**Figure 5**).

   Note: You can use any shape tool with the perspective grid except the Flare tool.

3. Choose fill and stroke colors in the Control panel.

4. Drag anywhere in the document window (**Figure 6**).

   The shape automatically aligns with the active plane.

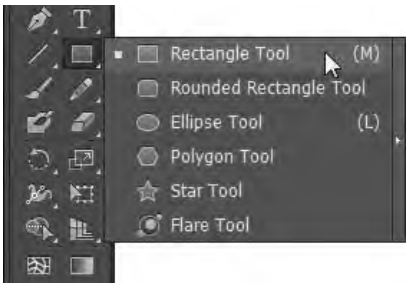

Figure 5 Shape tools in the Tools panel

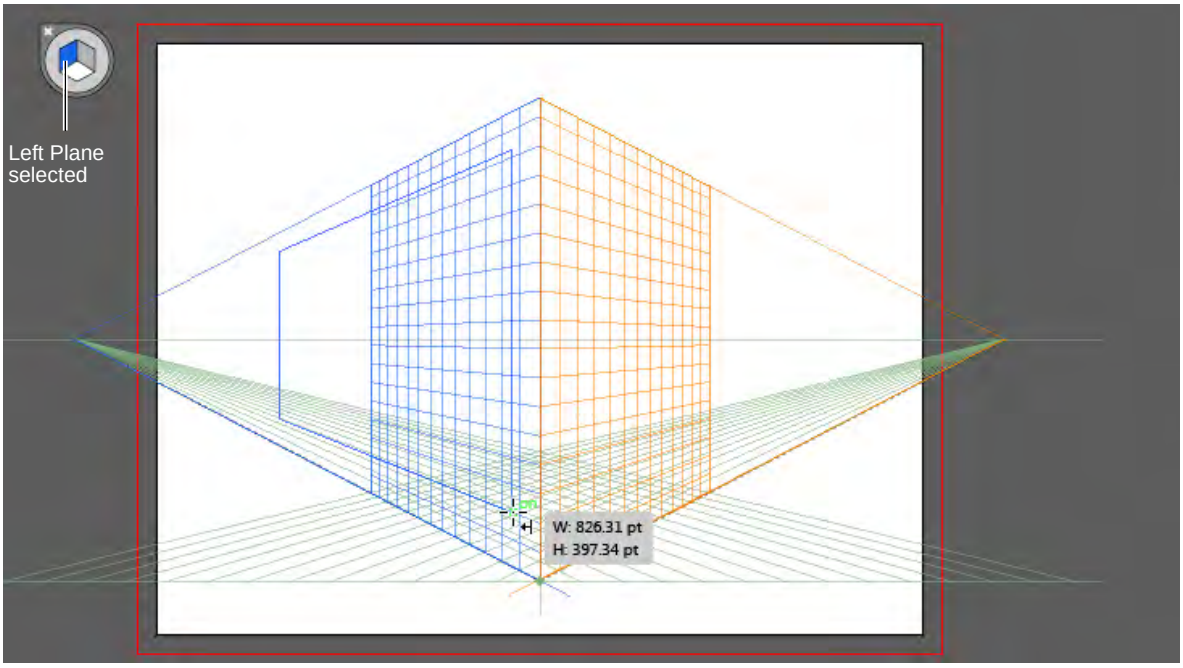

Figure 6 Drawing a rectangle in the perspective grid

5. To reposition the shape in the perspective grid, hold down Ctrl (Windows) or Command (Mac OS).

   This temporarily selects the Perspective Selection tool.

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6. Drag the shape to a new location in the document window (**Figure 7**).

   As you drag, position coordinates help you align the object in the perspective grid.

7. Release the mouse button to accept the change.

   The shape is repositioned.

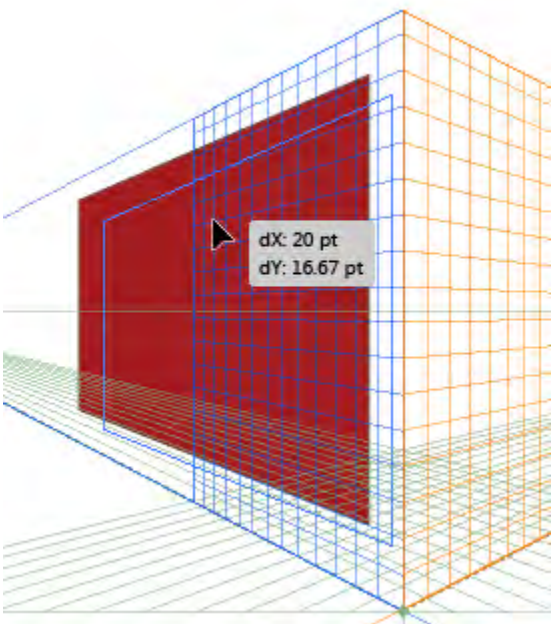

Figure 7 Repositioning an object in the perspective grid

Attaching objects to perspective

If you have already created objects, Illustrator provides the option to attach objects to an active plane in the grid.

To attach an object to the grid:

1. Select No Active Grid in the Plane Switching Widget (**Figure 8**).

Figure 8 Plane Switching Widget

2. Choose the Rounded Rectangle tool in the Tools panel (**Figure 5**) and set the fill and stroke for the object in the Control panel.
3. Drag to draw a rounded rectangle anywhere in the document window.

   Observe that the rectangle is not drawn in perspective. That happens because in step 1 you chose to have no active plane in the perspective grid.

4. Select the Left, Right, or Horizontal Grid in the Plane Switching Widget.

   Your selection becomes the active plane.

5. Choose the Perspective Selection tool in the Tools panel (**Figure 9**).

Figure 9 Perspective Grid tools in the Tools panel

6. Click to select the rounded rectangle you drew in the document window.

7. Choose Object > Perspective > Attach To Active Plane.

   The object's bounding box is aligned with the active plane (**Figure 10**).

   Note: Using the Attach To Active Plane command does not affect the appearance of the object.

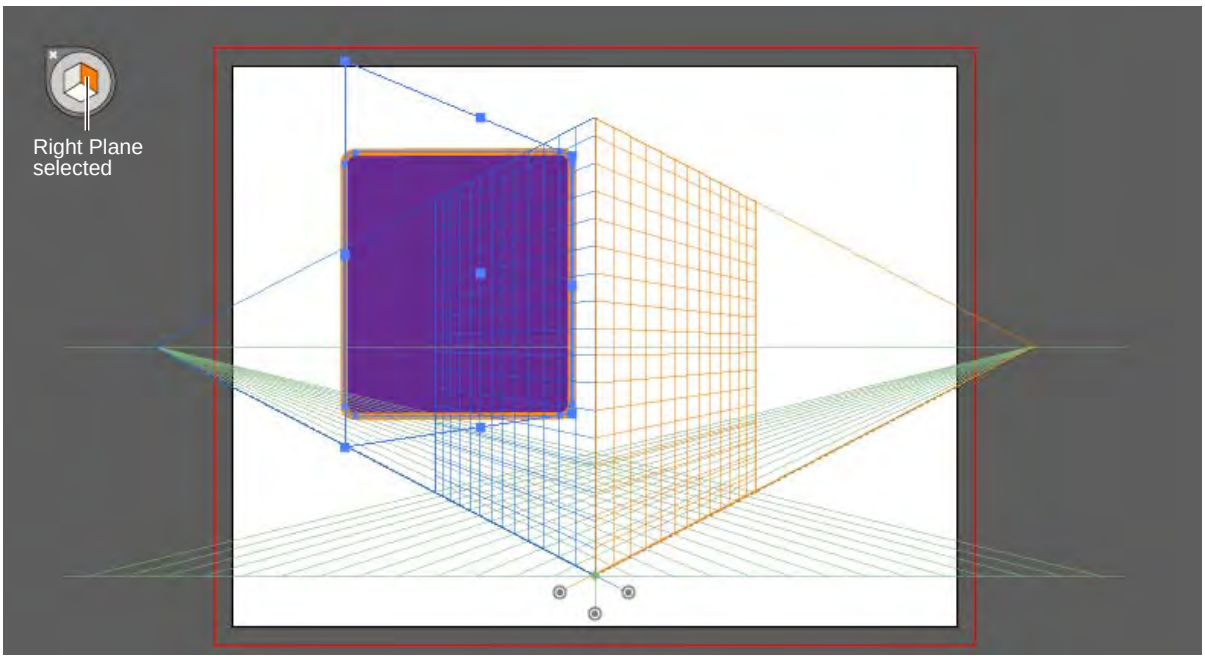

Figure 10 Object's bounding box aligned to the perspective grid

8. Drag the selection to a new location in the document window and observe the change in perspective of the object relative to the selected plane (**Figure 11**).

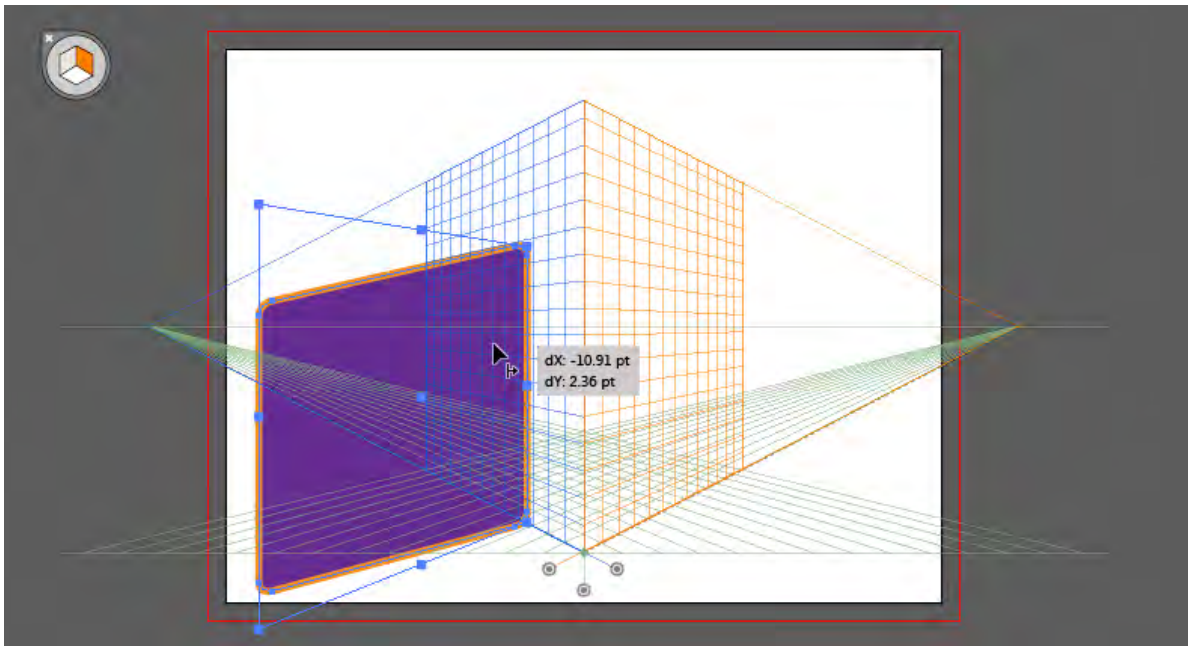

Figure 11 Dragging the object in the perspective grid

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9. If you want to release an object with a perspective view, select Object > Perspective > Release With Perspective. The selected object is released from the associated perspective plane and is available as a normal artwork.

   Note: Using the Release With Perspective command does not affect the appearance of the object.

Moving objects in perspective

To move an object in perspective, select the Perspective Selection tool (Shift+V) and then either use the arrow keys or drag the object. To constrain the movement in perspective, Shift-drag the object.

You can also move objects perpendicular to the plane in which they are drawn. This is useful when creating parallel objects, such as the walls of a room.

To move an object perpendicular to the plane in which it is drawn:

1. Select the object by using the Perspective Selection tool.
2. Holding down the tilde (~) key, drag the object to the required position.

   This action moves the object perpendicular to the plane in which it is drawn (**Figure 12**).

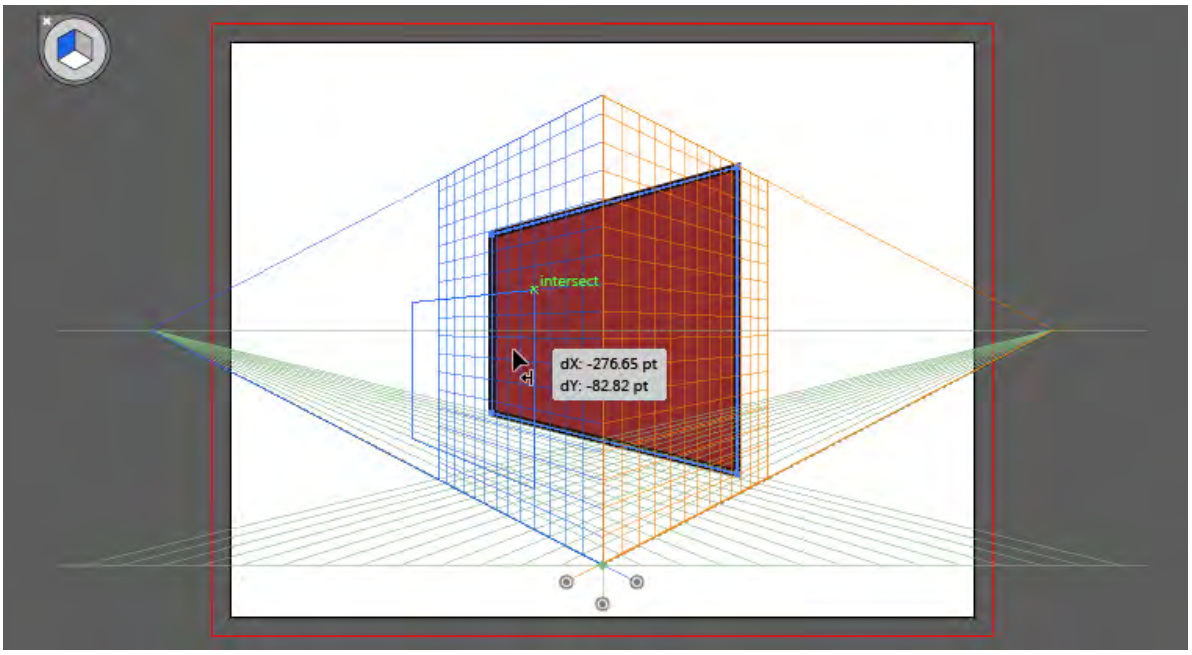

Figure 12 Moving a rectangle perpendicular to the plane in which it is drawn

Scaling objects in perspective

You can scale objects in perspective by using the Perspective Selection tool. While scaling objects in perspective, the following rules apply:

- Scaling is done in the object's plane. When you scale an object, the height or distance is scaled based on the object's plane and not the active plane.
- In case of multiple objects, scaling is done for objects that are on the same plane. For example, if you select multiple objects on the right and left plane, scaling occurs for all of the objects that are on the same plane as the object whose bounding box is used for scaling.
- Objects that have been moved perpendicularly are scaled on their respective planes and not the current or active plane.

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To scale objects in the grid:

1. Choose the Perspective Selection tool in the Tools panel.
2. Select an anchor point of the shape.

   As you hover over an anchor point, the pointer changes to a solid square inside a dashed square. Corner anchor points display X and Y coordinates (**Figure 13**).
3. Drag the anchor point to scale the object.
4. To scale the shape proportionally, Shift-drag an anchor point (**Figure 14**).

   Note: Only the grid in the object's plane is visible as you Shift-drag the anchor point.

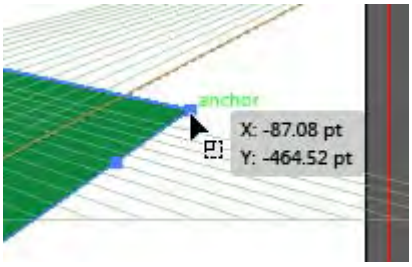

Figure 13 Selecting an anchor point

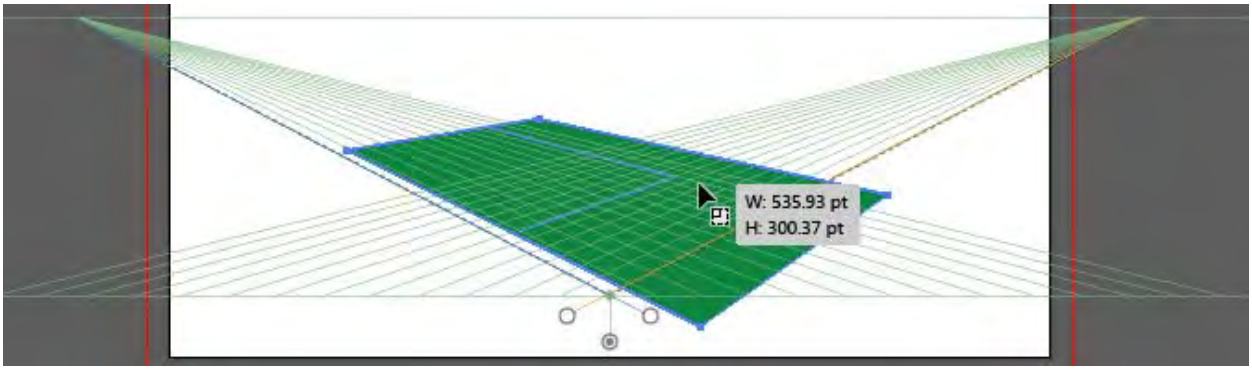

Figure 14 Scaling an object in the perspective grid

Adding text and symbols in perspective

You cannot directly add text and symbols to a perspective plane when the grid is visible. However, you can bring text or symbols into perspective after creating them in normal mode.

To bring text or symbols in perspective:

1. Select the Type tool or the Vertical Type tool (**Figure 15**).

   The pointer changes to an I-beam within a dotted box. The small horizontal line near the bottom of the I-beam marks the position of the baseline, on which the text rests.
2. (Optional) Set text-formatting options in the Control panel, Character panel, or Paragraph panel.
3. Click where you want the line of text to begin.
4. Enter the text. Press Enter (Windows) or Return (Mac OS) to begin a new line of text within the same type object.
5. When you finish entering text, select the Perspective Selection tool, and then select the type object.

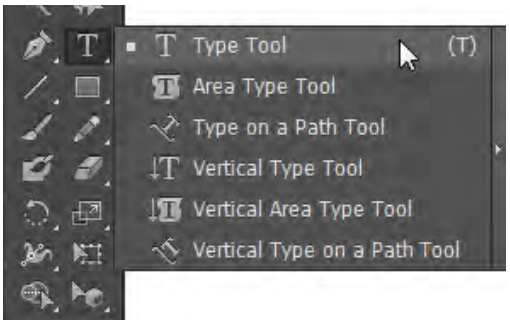

Figure 15 Text tool options

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6. Drag the existing text or symbol to the required position.

   The text object's bounding box is aligned with the active plane (**Figure 16**).

7. Release the mouse button to place the text in the perspective grid (**Figure 17**).

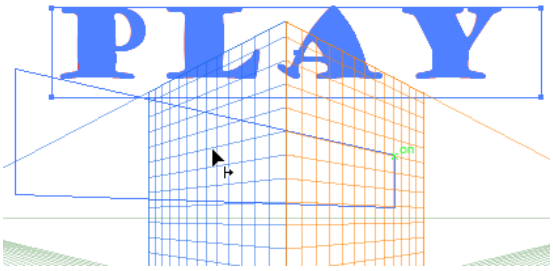

Figure 16 Dragging object to the perspective grid

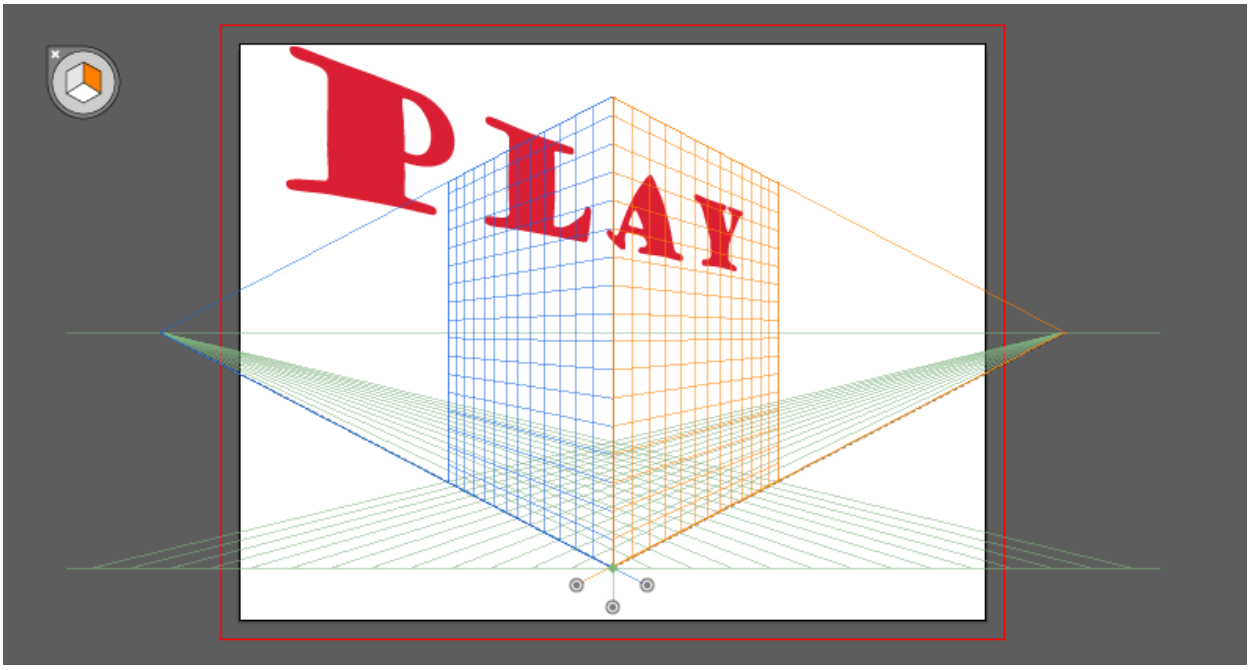

Figure 17 Text placed in the perspective grid

8. (Optional) Double-click the text object to edit text in isolation mode (**Figure 18**).

   The Edit Text option is available in the Control panel (**Figure 19**) and under the Object > Perspective menu.

   Exit isolation mode by clicking the Exit Isolated Group button at the upper-left corner of the artboard.

   Note: The options in the Control panel change to Edit Symbol or Edit Text, depending on which you are doing.

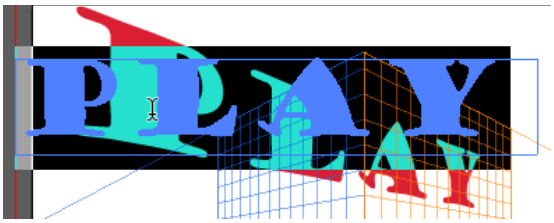

Figure 18 Editing text in isolation mode

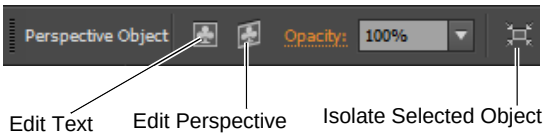

Figure 19 Control panel with Edit Text options

Perspective grid settings

You can configure the perspective grid settings from the View > Perspective Grid menu (**Figure 20**).

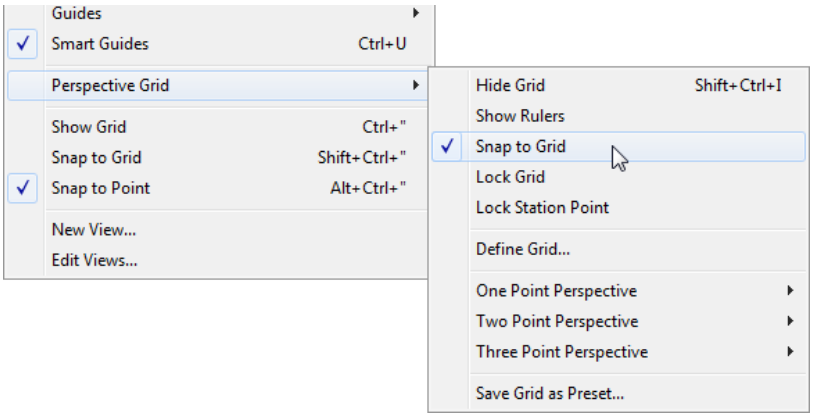

Figure 20 Perspective Grid options in the View menu

The options available in the perspective grid settings include the following:

- *Show Rulers:* This option shows the ruler division only along the true height line. To view the rulers in the perspective grid, choose View > Perspective Grid > Show Rulers.
- *Snap to Grid:* This option allows snapping to gridlines while bringing in perspective, moving, scaling, and drawing in perspective.
- *Lock Grid:* This option restricts the grid movement and other grid editing when you're using the Perspective Grid tool. Only the visibility and the plane position can be changed.
- *Lock Station Point:* When the Lock Station Point option is checked, the vanishing points move in sync. If not checked, the vanishing points move independently and the station point also moves.

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