Chapter 4 - Working with Draw Objects

4.1 Object Types

All drawings are created from the following five types of objects:

Graphic objects
Geometric objects
— Lines
— Rectangles
— Rounded Rectangles
— Ovals
— Arcs/Wedges
Polygon objects

Text objects
Standard text – Paragraph text or Caption text
Bound text – Text placed along the path of a polygon
Flow text – Text flowed into polygons

Bitmaps
Images imported from MacPaint format files

Pictures
Imported PICT or EPSF

Linked Pictures
PICT files stored on disk

4.2 Graphic Creation

To create a graphic object, first click on a tool in the Tool Palette. When a tool is highlighted in black, it is ready for continuous use. This means that the tool will remain selected and ready for use until you click on another tool.

To have the tool switch to the Arrow pointer after creating a single object, choose Revert to Pointer in the Preferences dialog. When this option is on, the highlight for a selected tool is gray instead of black and the tool pointer reverts to the Arrow pointer after each object is created.

If you don't turn Revert to Pointer on, you can hold down the Option key to temporarily switch the tool to the Arrow pointer. This allows you to move the object or take other actions without having to go back to the Tool Palette to select the Arrow tool. Releasing the Option key will revert the pointer to your selected tool.

4.2.1 Creation of Geometric Objects

Geometric objects are those that are created with a single click and straight drag action. These objects are lines, rectangles, rounded rectangles, ovals, and arcs. To create all geometric objects, click the mouse in the drawing area and drag to set the size of the new object. The starting point of the object is where you click the mouse. The ending point is where you release the mouse button.

When Grid Snap is turned on in the Layout menu, the starting and ending points will snap to the nearest grid point. To temporarily turn off grid snap while creating an object, hold down the Command key when setting the starting and/or ending points of the object.

Holding down the Shift key while creating a geometric object will constrain the shape of that object.

he Perpendicular Line tool creates only horizontal or vertical lines.

The Diagonal Line tool creates lines at any angle. To constrain lines created with this tool to be vertical lines, horizontal lines, or 45° angle lines, hold down the Shift key when completing the drag operation.

Arcs are created as a quarter oval from the starting point to the ending point. A wedge is an arc with a fill pattern or texture. Holding the Shift key constrains the arc to a quarter circle instead of a quarter oval.

Rectangles, Ovals, and Rounded Rectangles are shapes that are all based on a rectangle. The default drawing method for these shapes is to have the starting and ending points be opposite corners of the rectangle. An alternate drawing method, called Draw from Center, can be turned on in the Preferences dialog. When this is on, a dot appears in the center of the creation tools in the Tool Palette. You then create your shapes by clicking where you want the center of the object to be and dragging to a corner.

4.2.2 Polygon Creation

The Regular Polygon tool works just like the rectangle-based tools in that you click and drag from corner to corner (or center to corner if Draw from Center is on) of a rectangle that defines

the bounds of the polygon object.

Although the tool icon is always shown as a diamond shape, the Regular Polygon submenu in the Graphic menu lets you choose how many sides your polygon will have. You can draw triangles, diamonds, pentagons, hexagons, octagons, and dodecagons.

To create a standard Polygon, click the mouse where you wish to place each vertex of the polygon. To complete the polygon, double-click where you wish the final vertex to be. Double-clicking while pressing the Option key creates an unsmoothable, sharp vertex without ending the polygon (see 4.5.1 Polygon Shape for more information on smooth and unsmooth vertices.) Use the Command key to release grid snap while setting vertices. Use the Shift key to constrain line segments of the polygon to horizontal, vertical, or 45° angles.

When creating Freehand polygons, drag the mouse in any direction to create the desired shape. ShareDraw will automatically set the vertices and line segments. Freehand polygons are never affected by grid snap or Shift key constraint while being drawn.

4.3 Vertex Reshape

A vertex is a control point for the shape of an object. The starting and ending points of lines and arcs are vertices. Every angle in a polygon is a vertex. Freehand polygons have many vertices. You can insert and delete vertices on polygons but not on lines or arcs.

Five vertex tools let you reshape objects.

ll geometric objects can be converted to polygons using Convert to Polygon in the Graphic menu. Converting graphic objects lets you start with a basic shape and then reshape it to your choosing. Some objects, such as lines with arrows, create a group of polygons when converted.

To use any of the vertex tools:
1.
Select the object.
2.
Move the vertex pointer over the selected object so that the polygon control points (vertices) become visible. Note that individual control points become highlighted as the pointer passes over them.

3.
Move the pointer over the desired vertex and press the mouse button.

You can only reshape a single vertex at a time. You cannot change the vertex on an object that is part of a group.

4.3.1 Moving a Vertex

The Move Vertex tool is used to move existing vertices on lines and polygons. For arcs, the Move Vertex tool is used to change the angle of the arc. Holding the Shift key constrains the arc to 45° angles.

When reshaping a polygon with the Move Vertex tool, Grid Snap can be temporarily turned off by pressing the Command key. Press the Option key to force the vertex you are moving to jump to an adjacent vertex. This special feature requires that you move the vertex close to the previous or next vertex. When you hold down the Option key, the position of the vertex is moved exactly on top of the adjacent vertex. This is useful when creating sharp, unsmoothable corners on smooth polygons.

4.3.2 Inserting a Vertex

To create a vertex between two existing polygon vertices, use the Insert Vertex tool. When the Insert Vertex pointer is moved over a selected polygon, the potential vertices (vertices that you will be able to create between existing vertices) are shown. Clicking on a potential vertex creates a new vertex in the polygon. The Insert Vertex tool now acts just like the Move Vertex tool allowing you to drag the new vertex into any position.

4.3.3 Deleting a Vertex

The Delete Vertex tool lets you remove a vertex from a polygon simply by clicking on the vertex you wish to delete.

4.3.4 Splitting a Polygon

The Split Polygon tool allows you to open a closed polygon or divide a single, open polygon into two separate polygons. To split a polygon, click on any vertex.

4.3.5 Joining Polygons

The Join Polygon tool lets you join two open polygons into a single polygon. Only the starting or ending vertices can be joined. When joining two polygons that have different graphic attributes such as pen width or fill texture, the graphic attributes of the first polygon will be applied to the final polygon.

To join two polygons:

1.
Select the two polygons you wish to join.
2.
Click on the Join Polygon tool.
3.
Click on the first or last vertex of the first polygon.
4.
Drag the vertex on top of the first or last vertex of the second polygon.
5.
Release the mouse button to complete the join.

4.4 Polygon Shape Modification

Polygons can be modified with any of the three polygon editing tools. Only one object can be modified at a time and that object must be either a polygon or a group of polygons. Other objects must be converted to polygons before they can be modified.

o use a polygon editing tool:

1.
Select an editing tool: Shear, Perspective, or Distort
2.
Select an object. Note that as you move the pointer over your selected object a heavy, black outline will appear around the rectangular boundary of the object.
3.
Move the pointer over the desired boundary side, click the mouse button and drag in the direction you wish to change the object.

Note that as you drag, an outline of the changed object is shown. Holding down the Option key while you drag will remove this outline and allow for faster drawing.

4.4.1 Shear

The Shear tool lets you tilt or slant any of the four sides of a polygon or group of polygons.

.4.2 Perspective

The Perspective tool helps you create the illusion of three dimensions by angling the dragged edge and narrowing it toward a vanishing point. The Perspective tool allows you to use an object in your drawing as a vanishing point so that you can make sure that all objects use the same vanishing point. To do this:

1.
Draw a small oval or rectangle and center it over your chosen vanishing point, leave it selected.
2.
Click on the Perspective tool.
3.
Shift-click on the polygon or group of polygons that you wish to modify.
4.
Click on a side of the highlighted polygon boundary.
5.
Press the Shift key and drag near the center of the selected oval or rectangle.

The Perspective tool will use the center of that selected oval or rectangle as the vanishing point.

4.4.3 Distort

The Distort tool lets you pinch corners together or spread them apart.

To pinch two corners together, click on a side of the highlighted polygon boundary and drag the mouse perpendicularly to the highlighted side.

To spread two corners apart, click on a highlighted side of the boundary and drag the mouse along the axis of that side.

.5 Graphic Attributes

Graphic Attributes determine the appearance of objects. All graphic attributes have default values that are used when creating new objects. These defaults can be changed. The Graphic Attributes of objects can be modified by using:

- Menu commands in the Graphic menu– these will change a single attribute
- The Texture dialog– this changes the fill and pen textures
- Floating palettes opened through the Tool menu
- The Grab Attributes tool– this tool is discussed in Chapter 7 – **“**More Draw Features”

4.5.1 Polygon Shape

A polygon shape can be open or closed. When closed, the last vertex is connected to the first vertex.

A polygon shape can also be straight or smooth. When straight, the outline of a polygon is determined by the line segments that connect the vertices. When smooth, a curve is drawn inside the vertices.

Even when a polygon is smooth, it can have sharp angles. These sharp angles, or unsmoothable

vertices, are created by placing two consecutive vertices at the same position. To create one of these sharp angles, use the Move Vertex tool and hold down the Option key while moving the selected vertex close to the previous or next consecutive vertex.

4.5.2 Pen Width

All graphic objects use the Pen Width attribute. Values are specified in either points (1/72 of an inch) or as a fraction of an inch– for example 3.2 points or 2/45 inch. When entering values in points, you may use up to one digit past the decimal point. The maximum pen width allowed is 72 points or 1 inch.

4.5.3 Pen and Fill Patterns

Objects can have both a pen pattern and a fill pattern. All patterns are composed of an 8 by 8 black and white grid. Patterns are accessed through either the Pattern palette or the Textures dialog. Patterns can have two colors applied to them, as described in the following section: “Textures and Gradients”.

You are not limited to the predefined patterns in the Pattern palette. The Edit Patterns dialog available in the Graphic menu allows you to create your own custom patterns by modifing existing patterns.

All patterns, except the first 9 in the palette, can be altered. The Edit Patterns dialog displays 36 patterns at a time. Click on the arrows to the right of the displayed patterns to scroll to the next group of 36 patterns. Altogether there are 144 patterns available for your use. Patterns that you modify are saved with your document.

To edit a pattern:

1.
Open the Edit Patterns dialog.
2.
Click on the pattern you wish to modify. An enlarged version of that pattern will appear.
3.
Click in the enlarged view of the pattern to add or remove black bits. You can also use the Invert, Clear, Revert, or Default buttons to the right of the enlarged view.

Changing a pattern in the Edit Patterns dialog does not change any objects in your document. The new patterns you create will now be available for use in the Pattern palette and the Textures dialog.

4.5.4 Textures and Gradients

The combination of colors and patterns is called a Texture. For fills, a texture can also be a gradient. Pens cannot have a gradient.

The Texture dialog lets you set values for pen and fill textures, including gradients. If graphic objects are selected while changing the values in the Texture dialog, then the selected objects will be changed to use those values.

The Texture dialog is found in the Graphic menu, but it can also be opened by double-clicking on any graphic creation tool or by double-clicking on any graphic object in your document.

When you double-click on a graphic object, the attributes of that object are displayed in the dialog. If you click the OK button, those attributes become the default for the next objects created. If the object which was double-clicked was a group object, all objects in the group will be modified to use the new values.

Some of the gradient choices in the Textures dialog allow you to set an orientation or center point of the gradient by clicking in the preview box when the gradient is displayed. The gradient types that can be modified by clicking in the preview box are Circular, Directional, and Shape Burst gradients.

The Textures dialog allows you to apply colors to patterns for your pen or fill. To apply color to a fill pattern:

1.
Open the Textures dialog
2.
Select any pattern except No pattern from the pattern pop-up.
3.
Select a color from the Black Bits pop-up to apply a color to the black pixels in the selected pattern.
4.
Select a color from the White Bits pop-up to apply a color to the white pixels in the selected pattern.

The same steps are used to create a color pattern for the pen pattern.

To learn more about using the Textures dialog, turn on ShareDraw Help before opening the dialog.

4.5.5 Graphic Palettes

The Tool menu provides a number of floating windows as an alternative to using the menus and dialogs. The windows– or palettes– can be left open for easy access while you work in your document. Of these palettes, there are three Graphic palettes: the Color Palette; the Pen Palette; and the Pattern Palette.

The Pen Palette allows you to set the pen width, style, centering options, and corner rounding for rounded rectangles.

The Pattern Palette lets you select any of the 144 patterns for use as either a pen pattern or fill pattern. To set the pen pattern first click on the pen icon at the top of the palette, then select a pattern. To set the fill pattern, click on the fill icon before selecting a pattern. If you have modified any of the patterns through the Edit Patterns dialog, your new patterns will be displayed in the palette.

The Color Palette lets you assign colors to the current pen and fill patterns.

lick on the pen or fill icons at the top of the palette, then click on the black rectangle icon to set the color for the black pixels in the current pattern or click on the white rectangle icon to set the color for the white pixels. You can switch between using the standard 256 color palette or using the color wheel by clicking the wheel icon at the top right of the palette.

4.5.6 Line Style

The Line Style menu items allow you to create lines with Arrows At Start, Arrows At End, Double Arrows, or Autosize lines. Autosize lines are lines that have arrowheads at both ends and that display the length of the line using the current ruler settings.

Choosing Set Autosize Font from the Line Style submenu opens the Type dialog. This dialog allows you to set the font characteristics for autosize lines. The options set in this dialog will apply to all autosize lines in your document whether or not they were selected at the time.

4.5.7 Centering

Centering adjusts the pen position of perpendicular lines, rectangles, rounded rectangles, ovals, and arcs. The position can be Inner, Middle, or Outer

Changing the centering setting does not affect the size readout of objects, but it does affect the autosize display in perpendicular autosize lines.

4.5.8 Corners

The Corners dialog sets the type and amount of corner rounding for rounded rectangles. The dialog is opened by choosing Corners from the Graphic menu.

In the dialog, the current corner value for rounded rectangles is highlighted with a black rectangle.

If you click on the Square button, all selected rounded rectangles and ovals will have 90° corners. If you click on the Oval button, all selected rectangles and rounded rectangles will become ovals.

Click on a Fixed corners option when you want a fixed-size quarter circle at each corner. The radius of the quarter circle is specified in points. The dialog displays these options at actual size to aid you in making your selection.

If you want the size of the rounded corner to remain proportional to the size of the rectangle, click on a Relative corners option. Displayed values indicate the ratio of the radius to the shortest side of the rectangle.

Clicking on any option in the Corners dialog applies that value to all selected rectangles, rounded rectangles, and ovals and dismisses the dialog.