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## **Basics**

ObjectDraw is a full-featured object-oriented drawing tool that illustrates many of the facilities available with ObjectGraphics.

While its main purpose is to illustrate the power and simplicity of Actor and ObjectGraphics programming, it is also quite useful as a tool for creating and editing graphics for import as OGL files into ObjectGraphics applications.

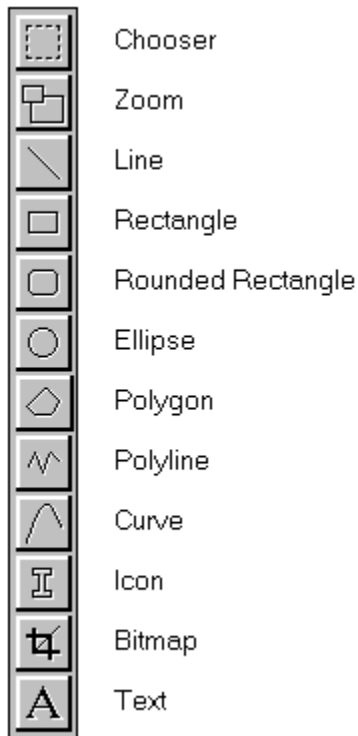
ObjectDraw is supplied with a number of sample OGL files you can load into ObjectDraw for editing.

## Tool Palette

The tool palette is the strip of symbols always present at the left of the drawing area, where each symbol represents an ObjectGraphics graphic object. You can select a drawing tool from this palette by clicking one of the tool pictures. Selecting a tool from the tool palette is equivalent to selecting the same tool from the Tool menu.

This tool palette does not resize to fit the window size, so you should make the window tall enough to see all of the tools.

The palette contains the following tools:



## Menu Commands

File

Edit

Tool

View

Arrange

Pen

Brush

TextPen

## File Menu

New

Open

Save

Save As

Set Win3 Bitmap filename

Set Icon Resource ID

Import OGX 1.0 File

Printer Setup

Print

About ObjectDraw

## **New**

**New** clears the drawing surface of all graphics in preparation for defining a new picture.

## Open

**Open** opens a file in OGL format as the new picture. The previous picture is destroyed.

## Save

**Save** saves the current picture to disk in OGL file format. If the picture does not have a file name associated with it, **Save** prompts for a file name. Files saved in OGL file format can easily be read into and used by any ObjectGraphics application.



## **Save As**

**Save As** saves the current picture to disk in OGL file format, always prompting for a file name before saving.

## Set Win3 Bitmap filename

**Set Win3 Bitmap filename** lets you set the name of the Windows 3 device-independent bitmap file that can be placed using the [bitmap tool](#). After a bitmap file (\*.BMP) has been selected using this command, all subsequent uses of the bitmap tool will use the OGL bitmap object created from that bitmap file until another filename is specified.

## Set Icon Resource ID

**Set Icon Resource ID** lets you enter the name of an Icon resource contained in the OBJDRAW.EXE's resources.

You can enter all of the standard Windows icon resource IDs, as well as some sample ObjectDraw icons. Simply type the resource ID in the dialog box. Valid resource IDs are:

IDI\_APPLICATION  
IDI\_HAND  
IDI\_QUESTION  
IDI\_EXCLAMATION  
IDI\_ASTERISK  
DIVIDERS (an ObjectDraw icon)  
BRUSH (an ObjectDraw icon)

## **Import OGX 1.0 File**

**Import OGX 1.0 File** lets you import and convert ObjectGraphics version 1.0 files. This import will only work correctly if your OGX 1.0 file was saved in the correct OGX 1.0 format. If you created the file using ObjectDraw version 1.0, you will be able to import the file into ObjectDraw version 1.1. You can then save the file in OGL 1.1 file format.

## **Printer Setup**

**Printer Setup** launches the printer setup dialog box for your system's default printer.

## **Print**

**Print** lets you print the picture on your system's default printer.

## **About ObjectDraw**

**About ObjectDraw** presents the ObjectDraw about box, which contains information about Whitewater's products. Click on any of the four buttons on the left of the about box to obtain information about Whitewater's product line, phone number, and CompuServe information.

If your display system supports palettes, click the left mouse button anywhere in the about box to see an example of palette animation.

## Edit Menu

Cut

Copy

Paste

Clear

Clear All



## **Cut**

**Cut** places the currently selected graphics into the clipboard in Windows bitmap, text and ObjectGraphics 1.1 format. **Cut** also removes the selection from the display and its picture.

Shortcut key: SHIFT+DEL

## **Copy**

**Copy** places the currently selected graphics into the clipboard in Windows bitmap, text and ObjectGraphics 1.1 format. **Copy** does not remove the selection from the display and its picture.

Shortcut key: CTRL+INS

## **Paste**

**Paste** places the contents of the Clipboard into the display and its picture at the upper left corner of the display.

Shortcut key: SHIFT+INS

## **Clear**

**Clear** removes the currently selected graphic objects from the display and its picture without affecting the Clipboard.

Shortcut key: DEL

## **Clear All**

**Clear All** removes all objects from the picture and sets all rendering tools back to their defaults.

## Tool Menu

**Tool** contains selections for each of the drawing tools supported by ObjectDraw. These tools correspond directly to ObjectGraphics objects.

Choosing a tool from the **Tool** menu has the same effect as choosing one from the Tools palette.

Chooser

Zoom

Lines, Rectangles, Round Rectangles and Ellipses

Polylines and Polygons

Curves

Icons

Bitmaps

Text

## View Menu

Actual Size

Fit in Window

Zoom

Dimensions

Grids

Window Color

Show Rulers

Show Grid

Show HelpLine

Redraw

## **Actual Size**

**Actual Size** shows the picture in a close approximation of its actual dimensions.



## Fit in Window

**Fit in Window** shrinks the picture to fit entirely in the display. The aspect ratio of the picture is preserved, so it won't be stretched or squashed.

## **Zoom**

**Zoom** activates the zoom tool. While **Zoom** is selected, you can drag out a selection rectangle. Everything contained within that rectangle is enlarged so that the selection rectangle fills the window.

## Dimensions

**Dimensions** presents the Dimension dialog box. Use this dialog to set the size and units of the world coordinate system.

Note that changing dimensions while objects exist in the picture will affect the way in which their coordinates are interpreted. For example, depending on the granularity you choose, if you draw a square that is one inch on a side and then change to millimeters, that square will be one millimeter on a side.

## Grids

**Grids** presents the Grid dialog, which lets you define the X and Y increments of the grid. An active grid constrains placement of objects to fall on multiples of those increments. An increment of zero allows unconstrained placement in that dimension. For example, a grid with a non-zero X and zero Y will constrain horizontal placement to the grid, but will allow vertical freedom.

## Window Color

**Window Color** lets you change the color of the display. The default color is white. Window color can be set to either an RGB or a System color.

RGB Color

System Color

## Show Rulers

**Show Rulers** toggles the display of the rulers.

## Show Grid

**Show Grid** toggles the display of the grid in the display. The grid is displayed as a collection of dots that represent the grid points.

## Show Helpline

**Show Helpline** toggles the display of the help line.



## **Redraw**

**Redraw** repaints the display, thereby redrawing all graphics in the picture.

## Arrange Menu

Bring to Front

Send to Back

Group

Ungroup

Align to Grid

## **Bring to Front and Send to Back**

**Bring to Front** and **Send to Back** control the position of the objects in the current selection in the relative stacking order of all objects in the picture. Objects in front cover objects that are behind them.

## **Group and Ungroup**

**Group** is used to collect the objects in the current selection into pictures (groups of graphics or other pictures) so that they may be treated as a single unit.

**Ungroup** separates any pictures in the selection into individual objects.

## **Align to Grid**

**Align to Grid** aligns the origins of all of the selected objects with the nearest point on the active grid.

## Pen Menu

A pen controls the appearance of lines, and has the following attributes: color, width, style, combination mode and transparency. The Pen menu always shows the attributes of the currently selected graphic's pen. If no selection exists, the menu shows the attributes of the default pen.

**Color** controls the color of a pen. Color can be set to either an RGB or a System color.

RGB Color

System Color

**Width** lets you specify the width of a line as an integer. The value of the integer is based upon the smallest unit possible for the grid being used (see the [View menu](#)).

**Style** lets you specify the line style of the pen. Available styles include **Solid**, **Dash**, **Dot**, **DashDot**, **DashDotDot**, and **Invisible**.

**Combo** lets you specify the combination mode of the pen. Combination mode is used to determine the visual result of drawing one graphic on top of another. Available combo modes include **Copy**, **And**, **Or**, **Xor**, **Not**, **Nand**, **Nor** and **Nxor**.

**Opaque** and **Transparent** control the rendering of the gaps in segmented line styles:

- With **Opaque**, the gaps in dotted or dashed lines are drawn in the background color of the display device to which you are drawing.
- With **Transparent**, the space in dotted or dashed lines is not filled, allowing you to see underlying graphic objects through the line's gaps.

## Brush Menu

A brush controls the way graphic objects fill their interiors, and has both a color and a pattern. The Brush menu always shows the attributes of the currently selected graphic's brush. If no selection exists, the menu shows the attributes of the default brush.

**Color** controls the color of the area that the brush fills. Color can be set to either an RGB or a System color.

RGB Color  
System Color

The following patterns are available, and are colored using the brush's color attribute:

**Solid** paints areas with a solid color.

**Invisible** ignores requests to paint the area, allowing what is behind the graphic to show through.

**10, 15, 30, 50, 70, and 85** control the gradation of color as percentages.

**Vertical, Horizontal, Diagonal, Hatch, Pebble, and Brick** fill an area with pre-defined fill patterns.

## TextPen Menu

Another rendering tool is a text pen, which controls the appearance of text. The TextPen menu always shows the attributes of the textpen of the currently selected graphic. If no selection exists, the menu shows the attributes of the default textpen.

Fonts

Height

Foreground and Background Color

Style



## TextPen Fonts

**TextPen** fonts control the type of font used in drawing Label objects. Available fonts include the following:

**System** (the system font used by the windowing system to create menus, dialog boxes, etc.)

**Fixed Serif** (a fixed-pitch font with serifs)

**Prop Serif** (proportionally-spaced with serifs)

**Prop SanSerif** (proportionally-spaced font without serifs)

**Stroke Serif**

**Stroke SanSerif**

**Script**

## **TextPen Height**

**Height** controls the desired height of a font as an integer. The value of the integer is based upon the smallest unit possible for the grid being used (see the [View menu](#)).

## TextPen Foreground and Background Color

**Color** controls the foreground color, or the actual color of text itself. **Background** controls the background color, or the color used to fill in the character cells around characters. Foreground and background color can be set to either an RGB or a System color.

RGB Color

System Color

Related to the textpen's background color is its transparency attribute:

**Transparent** allows what is behind the selected text to show through (ignoring the background color).

**Opaque** surrounds the text with its background color.

## TextPen Style

**TextPen** styles control the style of text. Those available include **Normal**, **Bold**, **Italic**, **Underline**, and **Strikeout**.

More than one style can be selected at one time, for example, **Bold** and **Italic**.

## Procedures

Selecting Objects

Repositioning Objects

Resizing Objects

Alignment

Graphic Identities

## Selecting Objects

Once a graphic object has been drawn, it is likely that you will want to change attributes of the graphic objects. To do this, you must select the object or objects; this is done using the selection tool, called the Chooser in ObjectGraphics. Selection is indicated by the presence of a small black rectangle at each corner of the bounding rectangle of the selection.

There are a few ways to go about identifying the object or group of objects to select. The simplest way is to move the finger cursor to any point within the bounding box of the object and click the left button; this selects that object. To select more than one object at one time, click and drag with the finger cursor, which will grow a dashed-line rectangle as you drag. When you release the left button, any objects that are completely enclosed within the rectangle are selected.

The last variation on selection is the case where several objects are "stacked up" in the image -- there are objects on top of other objects. The way to move down the stack is to click once on the top object, which selects it, and then click again in the same spot with the SHIFT key held down. If there is another object behind the selected object and the cursor is within that object, then the selection will change to that object. In general, whenever you click with the finger within an object that is already selected, ObjectDraw will look to see if there is another object behind it.

Once selected, graphic objects can also be repositioned and resized. See [Repositioning Objects](#) and [Resizing Objects](#).

## Repositioning Objects

Once a graphic object has been drawn, you may wish to reposition the object elsewhere in the display. To do this, simply select the object (see **Selecting Objects**), then click and drag on the object with the left mouse button to move it. A gray rectangle will appear around the selection that is being moved and will serve to indicate where the graphics in the selection will be positioned. Once this rectangle is in the desired position, release the mouse button, and the graphic objects will be moved and drawn in their new position. These objects will remain selected.

If you hold down the CONTROL (ctrl) key while repositioning graphic objects, a copy of the selected objects will be made and placed in the position defined by the selection rectangle when you release the mouse button.

## Resizing Objects

Once a graphic object has been drawn, you may wish to change the object's size. To do this, simply select the object (see [Selecting Objects](#)), then click on and drag any of the four marking rectangles at the corners of the selection. A dashed rectangle will appear around the selection that is being moved and will serve to indicate the new size of the object as it is being resized. Once this rectangle is of the desired size, release the mouse button, and the graphic objects will be resized to fit this sizing rectangle. These objects will remain selected.



## Alignment

Once selected (see **Selecting Objects**), graphic objects can be aligned in two different ways. First, one of the menu selections, **Align to Grid**, causes graphic objects to align themselves with an active grid.

A group of selected objects can also be aligned relative to each other. Whenever the right button is clicked when there is a current selection containing more than one graphic, an alignment menu pops up within the drawing area. It offers selections for Left/Center/Right and Top/Middle/Bottom alignment. These alignments are expressed relative to the box which bounds the selected objects. Selecting Left alignment, for example, will move all of the objects in the selection so that their left side is up against the left edge of this bounding box.

Note that the two groups in the popup menu are not mutually exclusive: selecting Left and then Top will align with the top-left corner of the bounding box.

## **Graphic Identities**

ObjectGraphics lets you assign a numeric or symbolic identification to any graphic object. To make this assignment in ObjectDraw, double-click on the graphic that you wish to identify. This will bring up the Set Identity dialog box, which prompts you to enter either a symbol or an integer as the object identifier. Identifiers are saved as part of the graphic object and can be used to refer to the object in an ObjectGraphics application.

## **Drawing Lines, Rectangles, Round Rectangles and Ellipses**

To draw simple graphics like lines, rectangles, round rectangles, and ellipses, click and drag with the left mouse button to define the initial position and size of the graphic. Release the mouse to place the graphic.

Holding the SHIFT key down while drawing lines will cause lines to be drawn only vertically, horizontally or on 45 degree angles. Holding the SHIFT key down while drawing rectangles, round rectangles and ellipses will cause these graphics to have the same value for their width and height (thus producing squares and ellipses).

## **Drawing Polylines and Polygons**

When drawing polylines or polygons, you press the left mouse button to define a vertex, then drag the mouse to define a line segment, releasing the mouse when you reach the next vertex. Then simply click and drag again to define the next line segment. When you are finished defining your graphic, click again over the last vertex without moving the mouse. Polygons will automatically close themselves when the left mouse button is clicked on the last vertex.

Holding the SHIFT key down while drawing these kinds of graphics will cause the line segments to be drawn only vertically, horizontally or on 45 degree angles

## **Drawing Curves**

Since ObjectGraphics curves are defined using control points, you click the mouse where you want the next control point to be. Click twice in the same location to finish the curve. A curve must have at least four control points.

## **Drawing Icons**

To draw an icon, simply click on the drawing surface where you want the origin of the icon to be placed. Icons are of a fixed size.

## Drawing Bitmaps

You can use the bitmap/cropper tool to place a bitmap object defined with the Set Win3 Bitmap filename command. To define a cropping rectangle for the bitmap, click and drag using the left mouse button to define the cropping rectangle, then release the mouse. Click again anywhere within the cropping rectangle and drag the bitmap until it appears in the appropriate place. Release the mouse button and the bitmap will be placed at the point the mouse button was released. You can avoid using the cropping rectangle by clicking twice where you want the bitmap to appear instead of dragging out the cropping rectangle.

## **Drawing Text**

To draw a text object, click on the drawing surface where you want the origin of the text to be placed. Type the text at the caret, then click the mouse somewhere else on the drawing surface.



## **RGB Colors and the Set RGB Color Dialog**

The Set RGB Color dialog lets you specify a color using red, green and blue intensity values. It provides for the selection of one of the eight primary colors, and it allows you to enter a "custom-mixed" color of your own.

A slight variation on a standard RGB color is the palette-relative RGB color. Checking the Palette RGB check box in the Set RGB Color dialog will make the RGB color palette-relative. Your application can then create an ObjectGraphics palette to correctly display this color, if your system's display hardware is palette-capable.

## **System Colors and the System Color Dialog**

The Set System Color dialog lets you specify a color by using an identifier that represents one of Windows' standard system attribute colors, as defined using the Control Panel. Some examples of system colors are: window text, desktop color, window color and menu text color. ObjectGraphics system colors always reflect the current settings of Windows' system colors.

## Keyboard

The following is a table of keyboard commands available in ObjectDraw:

### **SHIFT+drag**

Constrains rectangularly-defined shapes to equal width and height. Constrains line-based and polygonal shapes to 45- and 90-degree lines.

### **CTRL+drag**

During a repositioning operation, copies current selection and places it at point of mouse button release.

The **display** or **drawing surface** refers to the window in the ObjectDraw application that drawing is performed on. It is the largest window in the application.

The **drawing** or **picture** is the collection of graphic objects displayed on the drawing surface.

The **rulers** are the windows immediately above and to the left of the display. They indicate the current position of the display (if it is scrolled) and provide a measure of scale that is helpful when drawing.

The **graphspace** or **world coordinate system ("world")** is the system of units used to define the position and size of graphics in the drawing. Among other attributes, a graphspace has units (e.g. inches), granularity (the number of "ticks" per unit), a grid, a zoom level, and a rectangle defining the extent of the coordinate "world".