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1. Introduction

Thank you for buying SwiftCad, the professional 2D Computer Aided Design (CAD) package for Windows. SwiftCad is intended for the first-time or casual user, as well as the design professional. It is faithful to all Windows user interface conventions and provides Clipboard support.

SwiftCad's editing commands are especially flexible, and it exchanges drawings with virtually any other CAD or CAM package, or Windows application, with no conversion necessary.

In this manual you will find...

- Instructions for installing SwiftCad
- A brief tutorial
- The layout of the menu structure and its functions
- A brief guide to keyboard accelerators
- A list of the Program disk's contents

In addition to the descriptions of the commands included in this manual, there is a comprehensive on-line help system.

[INSERT INSTALLATION INSTRUCTIONS AS #2]

3. Tutorial

a. To run SwiftCad

Double-click on its icon and wait for a few seconds as the program is loaded. At this stage, on-line help will be available, which has much of the same information included below. or follow the tutorial below, which explains the basic drawing and editing commands.

b. To begin a new drawing

When SwiftCad loads it creates a new, untitled, drawing, which you can name when you save it. It helps if you maximize the drawing, so you can see all the menus clearly. See Appendix A for a brief description of SwiftCad's menu commands.

c. To draw a rectangle

To begin with, you're going to draw a rectangle with the co-ordinates (15,25) and (65,65) using the Draw menu. Then you'll delete the rectangle and draw it again using the Toolbox and grid.

Using the Draw menu

Choose Rectangle from the Draw menu.
Enter the lower left x-ordinate (15) at the insertion point.
Position the cursor in the lower box (using Tab or the mouse) and enter the lower-left y-ordinate (25).
Click OK to specify the upper right point (65, 65) in the same way.

d. To delete the rectangle

The rectangle will be selected by default. Deselect it by clicking anywhere outside the rectangle. Select the rectangle by clicking inside it.
Delete the rectangle using Delete or Cut from the Edit menu or the Delete key.
Now draw the rectangle again, using the Toolbox and Grid.

Defining a Grid

Choose Grid from the Settings menu.
Type 5 for the X- and Y-spacing. This means your grid will have a mesh measuring 5 units on the X and Y axes.
Set Show and Snap (so the boxes are checked). This means the grid appears shown on your drawing, and all entities you draw will snap to the nearest grid point.
Click on OK to draw the grid.

Using the Toolbox

The Toolbox is displayed by default. It can be turned on and off from the "View" window. Move the Tools window to a convenient part of the screen by clicking on its title bar and dragging it to a new position.
Click on the Rectangle icon. Note that by double-clicking on the rectangle button, you can make it the default button. Ordinarily, the cursor button is the default.

Position the cursor in the drawing near the 15,25 grid point.
Holding the mouse button down, drag and release when the lower right co-ordinate is near the 65,65 grid point.
Because you set Snap, the rectangle snaps to exactly the points you want.
Notice the handles at each corner. This means it is selected and can be moved, etc.
Click anywhere to deselect it.

e. Now you're drawing!

Practise drawing circles, arcs and lines, using the Toolbox and the Draw menu. To draw a circle, you need to specify the centre and radius. For an arc, you need the start and end angles, radius and centre. Practise selecting objects, then moving, deleting, mirroring or rotating them. If you get stuck, on-line Help is only a menu away!

4. Menu Commands

File

The File Menu allows you to create a new drawing; open an existing drawing; save and rename drawings; select a printer and print your drawing; exit SwiftCad. You can work with as many drawings and entities (objects within a CAD file) as the memory installed in your computer will allow.

Opening a new file:

To open a new file, choose "New" from the File menu, or "Control+N" from the keyboard. A new window appears. This window will be untitled until you save it, using the "Save As..." option in the File menu.

Opening an existing file:

To open an existing file, choose "Open" from the File menu, or "Control+O" from the keyboard. A dialogue box appears, listing the files in the specified directory.

By default, the program looks for files in it's own format, those that end with the extension ".ccf." You can also look for CAD interchange format files, compressed or uncompressed, those files with the extension ".dxf" or ".dx_," respectively. The "Open" command can also be used to access the line fonts provided with SwiftCad, which have the extension ".fnt." Finally, the "All Files" option will show every file in the SwiftCad directory. Each of these function is controlled by the pull-down menu in the lower left hand corner of the "Open" box.

If the filename is in the list, double click on the name, or click on it and on OK to open the file. Otherwise, type the name in the box and click on OK.

In addition to using the File menu or keyboard, there is another way of opening an existing drawing: by dragging it from the File Manager and dropping it onto a running copy of Smartdraw. ("Drag and drop.")

A drawing may be opened for reading only by checking the "Read Only" box in the File Open dialog. A read only drawing is indicated by a status box at the bottom of the screen. It remains read only until Saved As a new file. (This status box also displays whether a file has been modified.)

Saving a file:

Save a file by choosing "Save" from the File menu, or "Control+S" from the keyboard. When you save a new, untitled file, the "Save As..." dialogue box appears, allowing you to name the file. By default, SwiftCad will save files with the ".ccd" extension, unless you specify another.

Save a new file by choosing "Save As" from the File menu. Type the filename in the "Save As..." dialogue box and click on OK to save. The new filename replaces "Untitled" in the title bar. You can now save the file as frequently as you wish.

If you exit before saving a new file, a dialog box appears with the question "Save changes to Untitled?" If you click on Yes, the Save As dialog box appears. Alternatively, click on Cancel, and choose "Save As" from the File menu.

Printing:

To print a drawing, first choose "Printer setup" from the File menu. A dialog box appears, allowing you to choose the paper source and size, orientation, etc. For help on the printer setup, click the Help button. Click on OK to accept the printer currently selected.

To print the file, choose "Print" from the File menu, or "Control+P" from the keyboard. To see page breaks before printing, choose "Page breaks" from the Settings menu.

Exiting SwiftCad:

To exit SwiftCad, choose "Exit" from the File Menu. If you exit without first saving any changes, you will be prompted to save changes to every open and modified drawing.

Edit

The Edit Menu allows you to undo the previous operation, to use the Windows Clipboard for

cutting, copying and pasting, to delete, duplicate and select all entities.

Undoing:

To undo the previous cut or delete action, choose "Undo" from the Edit menu, or "Control+Z" from the keyboard. You cannot undo an action once you have carried out another.

Cutting:

To cut an object, select it, then choose "Cut" from the Edit Menu, or "Control+X". The selected object is copied to the Windows clipboard, from which you may paste it elsewhere, or retrieve it with the "Undo" command.

Copying:

To copy an object, select it, then choose "Copy" from the Edit menu, or "Control+C" from the keyboard. A copy of the selected object is placed on the Windows clipboard, the original is left where it came from, and the copy may be pasted anywhere within the drawing, or into another open file.

Pasting:

To paste a cut or copied object, choose "Paste" from the Edit menu (or "Control+V" from the keyboard) and click on the screen where you want to paste the object. You can paste multiple copies by repeating this procedure. The last object pasted is selected. Click anywhere to deselect it.

Deleting:

To delete objects, select them, then choose "Delete" from the Edit menu, or use the "Delete" key on your keyboard.

Duplicating:

To duplicate an object once, select it and choose "Duplicate" from the Edit menu, or press "Control+D" on the keyboard. Before you do this, however, you should go to the Settings menu and set the parameters for duplication by choosing "Duplication Options..." (see below). These parameters will become the default settings.

Selecting All:

To select all objects, choose "Select All" from the Edit menu, double click anywhere in the drawing, or type or "Control+A." Click anywhere (except on the selected object) to deselect all.

View

The View Menu controls certain aspects of SwiftCad's program window: the toolbox, status bar and toolbar. The second set of options displays readouts on the toolbar.

Tools:

This setting toggles the toolox on or off. This can also done using "Control+T" from the keyboard.

Status Bar:

The status bar is the small gray bar running along the bottom of the window. It displays cursor location, measurements of objects and cursor movement, and a count of selected objects. It may be toggled on and off from the menu or by pressing "Control+I." This choice toggles the status bar on and off.

Toolbar:

This menu selection turns the toolbar at the top of the window on or off.

The toolbar is displayed at the top of the window when this menu function is toggled on. It allow for quick selection of the "New," "Open," "Ortho," "Attatch," "Zoom Actual," "Zoom All," "Group," and "Ungroup" functions.

Distance:

This feature measures the distance that the mouse has traveled in the current operation, and displays it in the status bar at the bottom of the screen, in the second panel from the left. This distance can be displayed in various ways, depending on the "Units" setting described below.

For example, if you want to draw a line 50 units long (whether actual length units or scale length units in the drawing), choose "Distance" from the View menu. Click on the line icon in the toolbox and begin to draw the line. The distance that the mouse has moved is displayed in the status bar.

Measuring objects:

This feature measures objects you have selected and displays the measurement in the units you select in the status bar at the bottom of the screen. For lines and arcs, the measurement shown is their length; for circles, their circumference; and for rectangles, their perimeter.

For example, to measure a line, choose "Measure" from the Settings menu and select the line. The measurement is shown in the status bar, in the fourth panel from the left. Naturally, if more than one object is selected, you will get some odd measurements!

Counting selected objects:

To count the selected objects in a drawing, choose "Count" from the Settings menu. The number of selected objects appears in the status bar at the bottom of the screen, in the third panel from the left.

Settings

The Settings Menu controls a number of functions. It is divided into five sections.

The first section of the Settings Menu offers Ortho, Attach, and Relative modes that facilitate accurate drafting, and allows you to toggle visible page breaks on and off.

The second section of the menu allows you to display a grid and have lines "snap to" the nearest grid line; to display x- and y-axes originating at a specific point; to adjust the units of measurement used in your drawing; and to adjust the speed at which you scroll through your drawing.

The third section allows you to: to set custom background colors; to insert a Windows .bmp image as a background; and to clear the image from your drawing.

The fourth section allows you to work with layers--different drawings that can be superimposed on each other to form one drawing.

The last section allows you to set the color to draw with; to select fill patterns; to change the styles of lines; adjust the precision of measurements; set the program to draw parallel lines or shapes and adjust how far apart they will be; and permits you to control duplication of objects.

Ortho mode:

To draw or move objects orthogonally, choose "Ortho" from the Settings menu. In orthogonal mode, all lines are drawn either horizontally or vertically on 90 degree angles.

Attach mode:

In attach mode, the mouse release position is attached to the nearest object (i.e. line or arc) end-point. To draw in Attach mode, choose "Attach" from the Settings menu. Select the object you want to attach to. Draw the line or arc with an end point inside a "handle" (one of the little boxes you'll see when the object is selected) of the selected object.

This setting is useful for drawing shapes like triangles or polygons.

Relative mode:

Relative mode allows you to draw objects by specifying their end points as offsets, instead of absolute points. To draw in Relative mode, choose "Relative" from the Settings menu.

When Relative mode is set, the co-ordinates displayed in the status bar at the bottom of the screen indicate the distance from the start point of the current operation (usually drawing), and not the absolute co-ordinates of the cursor on the drawing.

Page breaks:

To see where the page breaks occur in your drawing, choose "Page breaks" from the Settings menu.

Grid:

To mark the screen off with a grid, choose "Grid" from the Settings menu. Type the dimensions of the x- and y-axes as prompted, and click on Show so it is checked. Click on Snap if you want all drawings to snap to the grid. To turn the grid off, choose "Grid" again and click on Show to uncheck it.

Axes:

By choosing this menu item, you can display dashed lines representing the x- and y- axes. You will see a dialogue box which asks you for the origin points of the axes, and gives you a check box to set them to show or not. Once the axes are set to show, you can move them around by clicking on them and dragging them to a new position.

Units:

This selection allows you to set the scale of your drawing. It will produce a dialog box which prompts you to set the units on screen in millimeters, inches or pixels and converts them automatically to scale units of pixels, millimeters, feet, miles or kilometers at a ratio you set. The default is 1 screen unit per 10 "real world" units.

Scrolling speed:

This sets the speed at which the scroll bar will move the viewing window around the drawing.

Background Color:

Here is where you may set the background color on which you'll be drawing. You can even make custom colors.

Background Image:

When you select this item, a dialogue box will appear, asking you for the name of a Windows .bmp file to import into your drawing. The drawing will only display in sixteen colors.

Clear Background Image:

This allows you to remove the background image from the drawing.

Layers:

To work with layers, choose "Layers" from the Settings menu. The Layers dialog box lists the existing layers, and allows you to create, delete, hide, show, rename and move between layers.

To create a new layer, click on the New button. The new layer, called Layer #n by default, appears on the list. Note that a new layer inherits the current color and line style as a default.

To rename, select the layer name and type the new name in the Rename box. When you next select a layer, or click on OK, the previously selected layer is renamed.

To delete a layer, select it and click on Delete. Be careful: you cannot undo a layer deletion, except with the Cancel button, which cancels all operations since you chose the "Layers" option.

To move between layers, select the layer you wish to work on. The title of the currently selected layer appears in the window title bar. Subsequent operations apply only to this layer, until you select another. The show/hide button indicates whether the selected layer is hidden or showing.

To hide a visible layer, select it and click on Hide, which then becomes Show. If you select another visible layer, Show becomes Hide again, and you can hide this layer also. The layer you are working on cannot be hidden.

Choosing a color:

Using the menu: choose "Color" from the Settings menu. The color menu appears to the right of the option. The current color is marked with a tick. Change the color of an existing object or objects by selecting them and then changing the color. You now continue to draw in this color until you choose another.

You may also use the toolbox, available from the "View" menu: open the toolbox and click on the required color. You now draw in this color until you click on another. The current color is indicated in the toolbox.

Fill Pattern:

SwiftCad provides 8 patterns which may be set to fill in objects, solid, hatched, hollow squares, diagonal right, cross-hatched, diagonal left, a zig-zag pattern and a dotted square.

Styles:

This feature allows you to set the type of line you will draw: solid, dashed, dotted and dotted-dashed. The current style is checked on the menu.

Readout Precision:

This setting specifies the number of decimal places that will follow any measurement, 1, 2, 3, or 4.

Draw Parallel:

This menu option permits you to draw parallel lines and shapes. Note that SwiftCad has only one "pencil width." With this setting you can draw 2 parallel lines that are close together to get the effect of a thick line. This is accomplished by using...

Parallel options:

Clicking on this menu item sets how far apart parallel lines and shapes will be drawn.

Duplicate options:

Choosing this selection will produce 2 dialogue boxes, the first asks how many objects you would like to duplicate, the second prompts you for the offset. The first box is the x coordinate, that is, how far apart should the centers of the duplicated objects be drawn, the second box asks for the y offset, that is how far above or below the selected object should the duplicates be drawn. This setting becomes the default.

Text

The Text Menu contains options for font selection, point size, justification and horizontal or vertical positioning of text.

Font:

This allows you to choose a line font, provided with SwiftCad, or a Windows font.

Horizontal/Vertical:

These menu settings allow you to orient your text along the x- or -y axes.

Left, Center, Right:

These settings justify the text, so that it is flush right, centered, or flush left. This all occurs within the "box" in which your text is placed; the box can be placed left, right or center in your drawing regardless of the setting made from this menu item.

Draw

The Draw Menu allows you to draw objects by specifying absolute or relative co-ordinates from the keyboard. This is particularly useful for establishing initial construction lines, for example the outer dimensions of a measured room. The Draw Menu also allows for dimension lines and angles, and functions such as rotate, scale and fillet. Most of the drawing menu commands are also available from the toolbox.

Line:

This option prompts you for a beginning and end point specified in x- and y-coordinates, which is useful for precise placement of lines. Free-handing with the toolbox is easier, but less precise.

Rectangle:

Like the line draw, this selection prompts you to enter the coordinates of two sides of the rectangle. A second dialog box then prompts for the second two edges. If you want to draw a square, you can hold down the "Control" key while placing a rectangle. You may also draw lines in multiples of fifteen degrees by holding down the "Control" key while drawing a line.

Circle:

Selecting this menu item will bring up a dialog box which prompts you for the center point of the circle in x- and y-coordinates, then allows you to specify the radius.

Arc:

This selection will prompt you for the start angle, end angle, exact center point in x- and y-coordinates and the radius of the arc.

Text:

This allows the placement of text--selected from the settings menu--in your drawing, either horizontally or vertically, as specified in the settings menu. You will be prompted for an insertion point, and then provided with a dialogue box in which to enter text.

Dimension Line:

This works the same way as the line-draw function, but it inserts a measurement of how long the line is, with the units specified from the settings menu. In addition, it draws the line with arrowheads at each end.

Dimension Angle:

Similar to drawing an arc, this function adds the measurement of the arc and arrowheads, as does the Dimension Line function.

Group:

This setting (also available from the toolbar--see below) allows you to join all selected objects as one selection.

Ungroup:

This undoes the "Group" feature, allowing individual selection of objects.

Lock:

This freezes a line, rectangle, or circle into place. It cannot then be moved by grasping the "handles."

Unlock:

This undoes the previous function, returning the selected object to a mode where it can be moved easily.

Send to back:

Occasionally you'll draw an object on top of another object in a single layer. If you decide that you want the object that is now covered by the second object on top, simply select the first object and click on this menu item.

Send to front:

This choice puts a selected object which is behind another object in one layer on top.

Rotate:

This setting allows you to turn objects through increments of 90 degrees. You will be prompted for a center point and for an angle through which to rotate the object. The program automatically rounds to the nearest 90 degrees.

Scale:

This item allows you to move and to resize the selected object. You will be prompted for a center point and for a factor by which to increase the size of the object.

Translate:

This function allows for the precise movement of objects. You will be prompted for an offset, that is for how far to move the object in the x- and y- axes.

Mirror:

The mirror function allows you to draw a copy of a selected object, usually adjacent to it. When you select the object and choose "Mirror," you will be prompted for the x- and y- coordinates of a starting point and an end point. The selected object is then redrawn in mirror image along the line between these points. This function is also available from the toolbox. With the toolbox, just select the object, click on the mirror tool (first button in the fourth row of buttons), draw a line with the cursor, and the object will automatically be placed on the other side of the line.

Fillet:

Filleting connects two lines by means of an arc of a specified radius. To fillet two lines, select the lines and choose 'Fillet' from the Draw menu. Enter the radius of the circle, which will form the filleting arc, as prompted. Smartdraw fillets the two lines and crops their ends. This is a good way to draw angles, or rounded edges.

If the lines cannot be filleted, for example if they are parallel, a message appears saying filleting is not possible.

When the endpoints of two lines are too far apart for them to be filleted using the specified radius, they will simply be extrapolated or trimmed to their point of intersection by the first attempt at filleting. Thus a fillet radius of 0 will always cause two lines to be joined up. This provides a rudimentary trim facility.

Zoom

The Zoom Menu allows you to magnify or shrink the drawing in various ways, for example by zooming to a selection or a specified region.

All:

Shows the entire drawing

Entities:

Shows the selected objects

Region:

This allows you to zoom in on a specific region, which you may indicate by coordinates.

Previous:

This reverts to the last zoom setting, whether it be all, entities, or region.

Windows

The Windows menu allows control of various windows inside the SwiftCad window. It also allows you to arrange the icons of minimised windows close all the drawing windows, and to reorganise open ones, for example to tile or cascade them.

Cascade:

Use this setting to either display the layers of your drawing(s) to cascade—that is to display in front of one another, with their titles visible. You can also "Shift+F5" to cascade the drawings.

Tile:

When this menu item is toggled on, your drawings will display in the whole window, and will hide drawings below. This may be accomplished through the keyboard by pressing "Shift+F4."

Arrange Icons:

When your drawings are minimized within the SwiftCad window, this setting will line them up so that they are easier to see.

Close All:

This selection allows you to close all of the drawings in the SwiftCad window quickly. You will be prompted to save any changes.

Current:

The last menu item in the "Window" menu allows you to click on the titles of open drawings to bring them up in the SwiftCad window.

Help

The Help Menu allows you to access online help. (Note that help is available on a menu item by pressing the F1 key with the menu item selected.)

B. Keyboard Accelerators

Attach F6Open^OCascadeShift-F5OrthoF5Copy^CPaste^VCut
^XPrint^PDeleteDelSave^SDuplicate^DSelect All^AGrid SnapF7TileShift-
F4HelpF1Tools^TNew^NUndo^ZNotes: "^C" means hold down the control key (Ctrl) while pressing the C key.

"Shift-F5" means hold down the Shift key while pressing the F5 key.

"Del" denotes the Delete key.

Scrolling a drawing using the keyboard

Up/Down/Left/Right: same as click on up/down/left/right scroll

Page Up/Down: scroll up/down one screen

CTRL+Page Up/Down: scroll left/right one screen
Home/End: scroll to left/rightmost point
CTRL+Home/End: scroll to top/bottom

C. Contents of the Disk

This section describes the files which the installation program copies to your hard disk.

Files:

SWIFTCAD.EXE - the SwiftCad drawing program itself.
PROGRESS.DLL - the progress meter displayed during a file operation.
STATUS.DLL - the status bar at the bottom of the screen.
SWIFTCAD.HLP - this contains Windows Help for SwiftCad. SwiftCad Help has indexing and search facilities and behaves like any standard Windows help system.
ERRATA.WRI - a Windows Write file describing omissions in the on-line manual.

Fonts:

ISO.FNT - an ISO drafting standard font.
SIMPLE.FNT - a basic straight line font.
STANDARD.FNT - a basic smooth-arc font.
OUTLINE.FNT - a hollow font suitable for signmaking.
STENCIL.FNT - another decorative font.
HELV.FNT - emulates Helvetica Medium.
GREEK.FNT - a Greek language font, useful for Mathematics and Greeks.
MOVIE.FNT - another display font in a style similar to movie posters.
FREEHAND.FNT - a hand lettering style.

Symbol Libraries

The symbol libraries are standard .DXF files like any other drawing. To select a symbol, use the Copy command to copy it to the Clipboard. You can then paste it on the current drawing as often as you like.

PICT.DXF - a selection of common pictograms such as No Smoking, Three Person Elevator and parking signs.
MUSIC.DXF - standard music symbols to facilitate manuscript composition.
PEOPLE.DXF - mannequins in walking, sitting and other positions.
ELEC1.DXF and ELEC2.DXF - over 100 commonly used electrical symbols.
SPORTS.DXF - a running track, tennis court and soccer pitch.
KITCHEN.DXF - a range of kitchen appliances and fittings.
GEOMET.DXF - a selection of geometrical symbols.
DESK.DXF - a range of home and office features.
LOGIC.DXF - common digital logic component symbols.

Drawing Templates

SwiftCad provides five standard (DIN) drawing templates in the following pages sizes: A0, A1, A2, A3, and A4. These correspond to US page sizes E, D, C, B and A respectively.

The templates are complete with sheet outline, border and title block. We suggest you fill in your own name and address on the title block of each drawing. You can then use this title block each time you begin a new drawing. Remember to use the Save As command if you are saving the drawing after altering the standard template.

A couple of font tips:

If your drawing includes a lot of text...

Straight Line fonts, such as ISO and Simple, require much less memory than smooth arc fonts, so if your drawing is heavily annotated, or if the text is required for informative rather than presentation purposes, we recommend you use the line fonts.

D. Error Messages

This section explains any error messages you might see and, where possible, suggests causes and remedies.

Insufficient Resources

The system has run out of the resources needed for the operation.

You have run out of memory.

Close some other applications and/or drawings and try again.

Cannot fillet

The two lines you are attempting to fillet are parallel and an arc between them cannot be drawn with the radius specified.

Increase the the radius.

The layer must be named

Anonymous layers are not allowed.

Type an identifying string into the Rename field.

The active layer may not be hidden

If it were hidden, what would you see?

Select another layer to be the active layer, or Show the selected one.

Cannot open Help

Either the online help file is missing or system resources are low.

Check that sdw.hlp is in the same directory as the program. If it is, close some other applications and/or drawings and try again.

Cannot decompress file

The drive where temporary files are stored does not have enough free space to store the decompressed file.

No shapes found

No drawing entities were recognised in the file. Either they are of a type unrecognised by SwiftCad or the file is not a valid Interchange format.

Invalid font file

SwiftCad failed to recognise the specified file as containing a font.

Invalid numeric field

A number was not found as expected in a dialog box field.

You typed "banana" into the grid X field.