
SUMMARY

FUNCTIONS

Accucadd is a 32 bit Windows program in which each function has a name. These names are grouped under twelve headings to form the Main Menu, which is displayed across the top of the screen while you are using Accucadd. Each heading produces a submenu when selected, as explained under Accucadd: Operation.

Function, icon, and sub-function names are usually written thus:

“**Draw: Elements**” means the Elements function in the Draw menu.

“**Dimension: Distance: Vertical**” means the Vertical icon in the Dimension: Distance function palette.

Keyboard shortcuts (Hot Keys): The characters shown in the main column below are the “short cut” or “hot keys” for Accucadd. For example, to use Edit: Wipe simply press the w key on the keyboard. Note that all the shortcut keys are lower case - don't press Shift, and ensure Caps Lock is Off.

| <u>Keys</u> | <u>Function</u> |
|-------------|---|
| a | Toolkit: Angle Trap |
| b | File: Backup: Backup Now |
| c | Draw: Copy |
| d | Edit: Erase (Delete) |
| e | Draw: Elements |
| f | Library: File and File: Save |
| g | Toolkit: Grid |
| h | Draw: Hatch |
| i | Library: Import RDF |
| l | Library: Load and File: Open (lower case letter L, not number 1 or letter I) |
| m | Edit: Move |
| n | Toolkit: N-Tan Trap |
| o | Toolkit: Orth Trap |
| p | View: Previous View |
| r | View: Redraw |
| s | Library: Export (Save) RDF |
| t | Draw: Text |
| u | Edit: Undo |
| v | File: Viewprint |
| w | Edit: Wipe |
| x | Toolkit: X-Y Coordinate |
| z | View: Zoom (see below) |

Zoom - a special case Accucadd provides a special quick access to zoom, typically the most frequently used function. Simply place the cursor at the point on the screen that you wish to be the center of your zoomed view, and press the plus (+) key **on the numeric keypad**—typically over at the extreme right of the keyboard. Similarly, you can Shrink the view by using the minus (-) key on the numeric keypad.

Pan If you are in a zoomed view, pan can be accessed through the regular Windows Scroll Bars .

Intellimouse Zoom and Pan If you have a Wheelmouse and Intellimouse driver, or equivalent, you can zoom and pan by using the mouse wheel. Some three button mice have some of this functionality. Exactly what is available depends on both the hardware and the driver that you are using.

Keyboard selection: If you wish to use the Accucadd keyboard selection feature the characters to type for each function are shown below. In general, **use the Alt key when typing the letters**. Use the Esc key to “put away” a menu you don’t need. Note that some sequences are “hot” - they work as soon as you type the letter(s) - while other sequences require you to press the Enter key.

System Menu (Accucadd Icon) **The System menu contains standard Windows functions only. Consult your Windows documentation and Help files for more information on this menu.**

File Menu **The File menu contains functions used to start, save, print, and close your drawing.**

New Page Start a new drawing page.
A maximum of two (and the Scratchpad) may be in use at once.

Open... l Show the library to open (load) an existing drawing.
The same as Library: Load

Save... f Show the library to save (file) your current drawing.
The same as Library: File

Close Page Close the current drawing page. If there is a drawing on it you will be asked to save it.

Backup b Set up and work with backups of your drawing made by Accucadd’s automatic backup system. Note that this is an equipment failure backup only. It only backs up the drawing you are currently working on—it is neither a substitute nor a replacement for your own security backup of your drawings.

Print Output the current drawing on a printer connected to your computer (or network). In general the printer should be capable of using the same paper size as you are drawing on. Also permits a color test print.

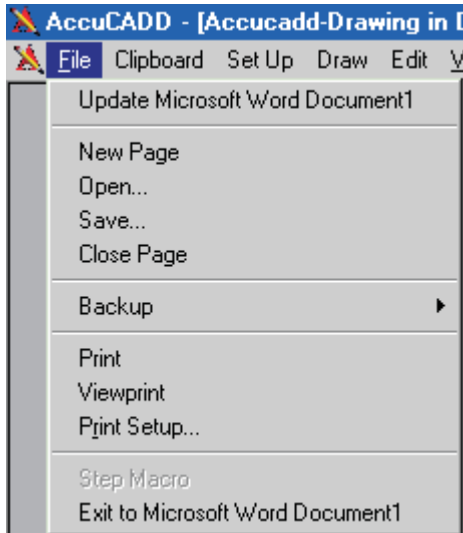
Viewprint v Output the current drawing on a printer connected to your computer (or network). The paper size and scaling are disregarded. The drawing is resized (by an unknown amount) to fit onto the currently selected printer and paper size. Also permits a color test print.

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- Print Setup... Select the current printer and set its properties.
- Exit Shut down Accucadd. If there are any drawings open, you will be asked to save them.

Special case If you have previously copied (embedded) an Accucadd drawing to another application (using Clipboard: Drawing Data), you can double click the Accucadd drawing in that application, and automatically open Accucadd with that drawing ready loaded for editing.



If you do this, you will see two other menu items in the File menu:

Update... Click this to Update the Accucadd picture in the target application (in this case, Microsoft Word), and leave Accucadd running.

Exit... Click this to close Accucadd, and return to the target application. If you do not first click "Update..." your changes will be lost.

If Accucadd was already running, the embedded drawing will be on a new drawing page—it will not affect drawings already on pages 1, 2 or the Scratchpad.

- Clipboard** The Clipboard menu contains two functions used to copy Accucadd drawings into other Windows applications. For example, you can copy an Accucadd drawing, and paste it into a Microsoft Word document. In general, the true world size and scale of the Accucadd drawing will be lost, but the relative proportions will be maintained.
- The underlying format of the drawing is a Windows Meta File (WMF) which retains the vector properties of the original drawing. This means that it can be re-sized without losing resolution.
- To Paste the Accucadd drawing into the target use the target's Edit: Paste menu or Ctrl-V.
- Metafile** Copies only the entities in the drawing. The copied data will occupy the smallest rectangle that can be drawn around and enclose the drawn lines, arcs, etc..The drawing is a metafile, and can be edited by the target application (if it has a graphics editor—for example, Microsoft Word Picture Editor).
- Drawing Data** Copies the entire drawing, including blank space. The copied data will include the blank space surrounding the drawn lines, arcs, etc. out to the paper edge. The drawing is inserted into the target application (e.g. Word) as a Windows "Object" (of type "Accucadd Drawing"). This means that if you double-click the drawing (in Word), Accucadd will automatically start up "inside" Word, allowing you to edit the drawing.
- Technical note** Clipboard: Drawing Data is the starting point for using Accucadd in a Windows OLE/DDE client/server relationship. The requisite registry entries are made when Accucadd is run for the first time. Accucadd implements OLE through the MFC class library.

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| Set Up | | The Set Up menu contains functions used to control your Accucadd working environment, and to control some parts of the drawing environment. Basic facts about the drawing (e.g., scale, paper size, drawing units) are set up here. Setting the Layer Table is the most important function here, and should be understood before serious use is made of Accucadd. |
| Paper | Alt(s) Enter | Select or define required paper size |
| Scale | Alt(ss) Enter | Define scale of drawing |
| Units | Alt(su) | Select units to be used for measurements |
| Precision | Alt(sp) Enter | Set dimensioning precision |
| Layer Table | Alt(sl) | Create and alter Layers and the layer table (Note: lower case letter 'L,' not number 1 or letter l) |
| Snaps | Alt(sss) Enter | Set snap Trap Zone, control saving and loading of snap list |
| Colors | Alt(sc) | Select current drawing color |
| Set Digitizer | Alt(ssss) Enter | Define the digitizer scaling |

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|--------------|----------------|---|
| Draw | | Accucadd drawings are made up of Entities, as described under Accucadd: Orientation. The Draw menu functions are used to create these Entities; some of them (e.g., Parallel, Polygon) are special techniques for drawing several Entities at a time. The types of Entities are described under Summary: Entities. |
| Elements | e | Draw basic elements |
| Drag Insert | Alt(dd) | Add Inserts, with simple transformations |
| Frame Insert | Alt(df) Enter | Add Inserts, with complex transformations |
| Hatch | h | Fill regions with patterns |
| Curve | Alt(dc) Enter | Draw a variety of curve types through points |
| Text | t | Add text to the drawing |
| Tan Circle | Alt(dtt) Enter | Draw a circle tangent to lines and/or points |
| Polygon | Alt(dp) Enter | Draw regular polygons |
| Fillet | Alt(dp) Enter | Draw a fillet arc between two Entities (or points) |
| Chamfer | Alt(dcc) Enter | Chamfer a corner between two Entities |
| Parallel | Alt(dpp) Enter | Create parallels and concentric circles |
| Balloon Text | Alt(db) | Create automatic boxes around text |
| Copy | c | Copy part (or all) of a drawing |
| Stretch-Copy | Alt(ds) Enter | Copy, stretching joining lines |

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Edit **The Edit menu functions are used to alter the Entities that make up Accucadd drawings.**

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| Undo | u | Undo the last drawing action |
| Redo | Alt(er) | Undo the last undo |
| Erase | d | Select then delete Entities or groups of Entities |
| Change | Alt(ec) Enter | Select then change line styles, line weights, colors or layers |
| Move | m | Select then move an insert, element or group of Entities |
| Stretch Move | Alt(es) Enter | Select then move and stretch lines connected to the move |
| Cleanup | Alt(ecc) Enter | Trim or tidy elements, or corners |
| Erase Points | Alt(eee) Enter | Delete unwanted Points |
| Text | Alt(et) | Change or duplicate text |
| Layer | Alt(el) | Edit the layers in a drawing (Note: Lower case L, not number 1 or letter I) |
| Isolate | Alt(ei) Enter | Select an insert for alteration |
| Explode | Alt(eeee) Enter | Convert an insert into a collection of separate Entities |
| Implode | Alt(eii) Enter | Convert a set of Entities into an Insert |
| Add Snap | Alt(ea) | Create or add to the `magnetic` snap list |
| Wipe | w | Discard the drawing. Note: you can not undo a Wipe! |
| Sort | Alt(ess) Enter | Select then sort Entities or groups of Entities |

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|---------------|-----------------|---|
| View | | The View functions are used to select an area of the drawing for viewing. The Speed Filter function allows types of Entities to be hidden selectively. |
| Redraw | r | Redraw the drawing at `base view` |
| Regenerate | Alt(vr) Enter | Rebuild the Display List for the current view |
| Pan | Alt(vp) Enter | Inspect areas adjacent to a zoom view |
| Zoom | z | Magnify part of the drawing |
| Shrink | Alt(vs) Enter | Shrink the current view |
| Previous View | p | Return to the view |
| Save Zoom | Alt(vss) Enter | Save the current zoom view |
| Load Zoom | Alt(vl) | Display a saved zoom view Note: lower case L, not number 1 or letter l |
| Speed Filter | Alt(vsss) Enter | Filter out classes of Entities for speed of redrawing |
| Options | Alt(vo) | Control redrawing and regeneration Note: lower case letter O, not zero. |

1 This is only provided for compatibility with previous versions (RoboCAD) and is not needed on current computers. We do not recommend using it as the results can be confusing.

Library The Library functions work with Accucadd visual drawing libraries and their Index Pages, and also with the “RDF” files which are used for archiving drawings and moving drawings between programs. Accucadd libraries are explained under “The Library” in Accucadd: Orientation.

The “DXF” files used by many other systems can be translated and used by Accucadd with the Import DXF and Export DXF menu items.

HPGL (Hewlett-Packard Graphics Language) is a format produced by many business packages for line graphics. It is also produced by “printing” to file using a Hewlett-Packard simple pen plotter driver, like the HP7475.

Note throughout this section that the character “l” is a lower case L, not the number 1 or the upper case letter I (for India).

| | | |
|-----------------|----------------|---|
| File | f | Save a drawing on a library index |
| Load | l | Retrieve a drawing from a library index |
| Maintenance | Alt(lm) | Copy and Delete indexes |
| Add Index | Alt(la) | Add an index to an existing library |
| Set Pathname | Alt(ls) | Define and select pathnames for libraries and files |
| Import RDF | i | Convert and load an RDF file |
| Export RDF | s | Save the drawing as an RDF file |
| Group Export | Alt(lg) | Export part of the drawing as an RDF file |
| Import DXF | Alt(lii) Enter | Convert and load a DXF file |
| Export DXF | Alt(lee) Enter | Save the drawing as a DXF file |
| HPGL Import | Alt(lh) | Convert and load an HPGL file |
| Log Maintenance | Alt(III) Enter | Delete and Edit Accucadd Library Log files |

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| Toolkit | | The Toolkit functions provide drawing “tools”, including analogies to set-squares, protractors and the like. The “snapping” concept, used to provide most of the drawing tools, is explained under “Snap Points, Grids and Traps” in Accucadd: Orientation. |
| Points | Alt(tp) | Add/display/disable/enable snap points, midpoints, and intersections |
| Angle Trap | a | Set traps at any angle |
| Grid | g | Set a rectangular grid |
| Radial Grid | Alt(tr) | Set a circular grid |
| Orth Trap | o | Set orthogonal traps |
| N-tan Trap | n | Set normal-and-tangent traps |
| X-Y Coord | x | Display the cursor’s position |
| Arc Direction | Alt(taa) Enter | Set the current direction tangential to an arc |
| Line Direction | Alt(tl) | Set the current direction along a line Note: the character “l” is a lower case L, not the number 1 or the letter I |
| Tangent | Alt(tt) | Find & draw tangents between a point and a circle or between two circles |
| Find Layer | Alt(tf) | Select Entities, and get a readout of which layers they are drawn on, and also their other properties. |

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| Dimension | The Dimension functions use special Dimension Entities, which are explained under Dimension: Entities (q.v.). Dimensioning conventions are set up by means of dimensioning Styles, the most complex and important of the various Styles used by Accucadd. | |
| Set up | Alt(is) | Set up the dimension style |
| Edit Dimension | Alt(ie) | Change dimension position or style |
| Line | Alt(il) | Dimension between two points |
| Radius | Alt(ir) | Dimension the radius of arcs |
| Diameter | Alt(id) | Dimension the diameter of circles |
| Angle | Alt(ia) Enter | Dimension an angle |
| Arrow | Alt(iaa) Enter | Place arrow heads on lines, circles and arcs |
| Area | Alt(iaaa) Enter | Calculate and display the Area and Perimeter of a selected part of the drawing |

| | | |
|----------------------------------|---|---|
| Window | The Window functions are the standard Windows controls for arranging the components of a window and controlling their display. For details on Windows menu items consult your Windows Help system. | |
| Toolbar | Alt(wt) | Show or hide the Toolbar |
| Status Bar | Alt(ws) | Show or hide the Status Bar |
| Cascade | Alt(wc) | Arrange the windows one in front of the other with a small offset |
| Tile Horizontally | Alt(wh) | Arrange the windows one above the other |
| Arrange Icons | Alt(wa) | Arrange icons (minimized drawing windows) at the bottom of the Accucadd window. |
| 1 Page 1 | Alt(w1) | Make Page 1 active Note: the figure 1 |
| 2 Page 2 | Alt(w2) | Make Page 2 active |
| 3 Scratchpad | Alt(w3) | Make the Scratchpad Page active |
| Special case | Entering Accucadd from another application (DDE or OLE). See the "File" and "Clipboard" menu sections for more information. | |
| 3 Accucadd Drawing in Document 1 | Alt(w3) | <p>Make the embedded drawing active. This only happens if you have previously inserted an Accucadd drawing into another application (using Clipboard: Drawing Data to copy it from Accucadd, and then the other application's Edit: Paste or Ctrl-V command).</p> <p>The number at the beginning may not be 3—it depends on whether any other Accucadd windows were open when the embedded drawing was activated.</p> |

² These will only show when the specific windows are in use. The Scratchpad is called up by some of the editing functions, including Edit: Isolate.

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| | | |
|---------------|---------|--|
| Help | | The Accucadd system information and Windows based Help functions. |
| Environment | Alt(he) | Show the Accucadd version and computer operating conditions |
| Help Contents | Alt(hh) | Bring up the Accucadd on-line help system. This uses the standard Windows "Help" system, and for information on how to use it you should check your Windows documentation. |

The Accucadd Family has many customization facilities. This section provides a list.

Drawing environment The Accucadd drawing program has a variety of customization functions:

Inserting drawings of standard components can reduce complex projects to a simple assembly task. Draw: Drag Insert gives details.

All the menu and palette settings can be saved by Save Setup to establish a default working environment.

Style files can save a choice of standard setups for:

- Text styles (Draw: Text)
- Parallel line drawing (Draw: Parallel)
- Dimensioning (Dimension: Set Up)

Incremental labeling can be applied in any sequence desired. Like attributes, labels can be created as standard sets and applied to many drawings.

Custom Layer Tables (SET UP: LAYER TABLE) can be created for drawing projects, and can be saved in the libraries that use them.

Accucadd automatically saves your current Layer Table, paper sizes (Set Up: Paper Size) and the directories that you load and save data from (Library: Set Pathname), adjusting itself to your work.

View: Speed Filter allows you to customize the display of your drawing for faster working.

File: Print and File: Print Setup allow you to change printers easily from within Accucadd.

Dimensioning symbols and tolerance text can be customized to your own standards, following the instructions given under Dimension: Terminators.

Text fonts can be created and altered using RoboFONT, and added to other copies of Accucadd.

Customized library logging and tracking facilities can be created using Accucadd's built-in library log system.

Most drawing work with Accucadd is done by positioning the cursor at points in the drawing. This section summarizes the techniques for doing this.

Free Positioning

This uses the Mouse to position points by eye on the screen without any drawing aids. It is quick, but inaccurate.

Point Snap

This uses the 'magnetic' attraction of snap points, automatically created at the endpoints of Entities, to position the cursor at these endpoints. See Toolkit: Points.

Grid Snap

This uses the Grid tools to provide a regular set of 'magnetic' points which attract the cursor. See Toolkit: Snap Grid.

Value Entry

This is used for entering Elements at precise sizes (angles and lengths), by typing them on the keyboard. It and the techniques described below are described under Draw: Keyboard Input.

X coordinate from Datum

This is entered by using the **F1** key, to set an X coordinate for the cursor while leaving it free to move along the Y axis. The coordinate is measured from the last Datum Handle placed in the drawing. Also accessible from Toolkit: X-Y Coord.

Y coordinate from Datum

This is entered by using the **F2** key, to set an Y coordinate for the cursor while leaving it free to move along the X axis. The coordinate is measured from the last Datum Handle placed in the drawing. Also accessible from Toolkit: X-Y Coord.

X, Y coordinate pairs from Datum

These coordinates are entered using the **F5** key and are measured from the last Datum Handle placed in the drawing.

X, Y relative coordinate pairs

These coordinates are entered using the **F6** key. They are measured from the previous point entered in the drawing.

Radius and Angle coordinate pairs from Datum

These coordinates are entered using the **F7** key and are measured from the last Datum Handle placed in the drawing.

Radius and Angle relative coordinate pairs

These are entered using the **F8** key. The coordinates are measured from the previous point entered in the drawing.

Accucadd drawings are made up of lists of Entities, as explained in section 2 of this manual, under “Orientation”. A technical description of the various kinds of Entity is given in Appendix E of this manual, “RDF Files”. The Entities that can be created with Accucadd are:

| | |
|-----------------------|--|
| Elements: Line | Line elements are used by all functions that generate individual straight lines, including the Dimension and Parallel Lines functions. They can usually be selected for editing functions at any point along them; when selected they are marked at their endpoints and mid-points. |
| Arc | Arc elements are used by all functions that generate arcs, including the dimensioning and filleting functions. They are selected and marked for editing like Lines. |
| Circle | Used by all functions that generate circles; selected like a Line and marked at each point of the compass. |
| Nib | Used by Draw: Elements: Nib; it is not made out of individual Line entities. A Nib can only be selected by its corners; they are marked when it is selected. |
| Handle | Used only by Draw: Elements: Handle. It is shown as a small triangle which is selected and marked by its center. |
| Records: Hatch | Used only by Draw: Hatch; it is selected for editing by its Seed Point and marked as selected there. |
| Text | Used for all text in the drawing, including that created by Dimension functions and Arrowheads. A Text Record has a handle at the position used to position it in the drawing; it is selected there and marked as selected by having a box drawn round it. |
| Insert | Used by Drag Insert, Frame Insert and Fit Insert. An Insert has one or more Handles, created by Handle elements in the drawing that has been Inserted. It can be selected by any one of its handles and is marked by having a box drawn round it. |
| Curve | Used by Draw: Curve to create its special curves. It can be selected at any point along its length, and is marked by having a box drawn around it. |
| Dimension | This very large record holds all the information needed to create a Distance, Angle, Radius or Diameter Dimension. It can be selected by the endpoints of the line or arc it describes, the center of the arc, or the handle of the dimension text. It is marked at its text handle. |
| Stream | A series of points, joined by short lines. Stream records can only be selected by their endpoints and are marked by having a box drawn around them. Accucadd does not generate Stream records, but supports those found in drawings from earlier systems. |