WinDIG Help Index

Welcome to the *WinDIG* Help. Click on one of the following items:

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Hints :

Click left (or press the space bar) to get cursor coordinates in the status bar.

Use the arrow keys for small cursor displacements, or Home/End/Page Up/Page Down..

Double click left (or press the D key) to digitalize one point manually.

Click right (or press return) on a curve to start the automatic digitalization mode. Stop it with the ESC key.

To limit the extent of the automating digitalization, use the **Rubber** in the **File menu**.

Use the **File / Reload** command to reset the bitmap to its original state.

If there are too many stops in the automatic digitalization, increase the **Delta X and Y** values in the options menu, or use the **Pen** (in the **File menu**) to fill in some missing points.

If the automatic digitalization won't start at all, check the **Search direction** and the **Color limit** options.

Do not forget to redefine the axis system or to clear all data when you load another bitmap.

The File Menu

Load Load a Windows bitmap file (normally a .BMP). The previous mapping and digitalized data are kept in memory !

Reload Reload the last loaded file (or reload from the clipboard). The previous mapping and digitalized data are kept in memory !

Close Release the current bitmap.

Paste Load a bitmap (Device Dependent) from the clipboard, if there is one available

Rubber Enter in rubber mode. In this mode, the crosshair cursor is changed to a rubber cursor. By clicking on the left mouse button, you may set the rubber rectangle to a low (inactive) color. By slowly dragging the mouse with the left button down, you can set a larger region to low color. If you made a mistake, you can correct it immediately after by pressing the R (Restore) key. To exit then rubber mode, just click right, or type ESC.

The rubber mode and the pen mode are useful to correct poorly scanned bitmaps before the digitalization. If you have to change the color limits, be sure to do it before using the rubber and the pen.

Pen Enter in pen mode. In this mode, the crosshair cursor is changed to a pen cursor. By clicking on the left mouse button, you may set a bitmap pixel to an high (active) color. You can draw a line by slowly dragging the mouse while keeping the left button down. If you made a mistake, you can correct it immediately after by pressing the R (Restore) key. To exit pen mode, just click right, or type ESC.

The rubber mode and the pen mode are useful to correct poorly scanned bitmaps before the digitalization. If you have to change the color limits, be sure to do it before using the rubber and the pen.

Exit Exit from *WinDIG*. A confirmation is asked if data have not been saved.

The Scale Menu

Define 3 pts Let you define three reference points on the screen and in your coordinates, to define the mapping used. The three points may be anywhere (but not aligned). If a transformation is already defined (menu item checked), selecting this item will forget this transformation.

Define pt 1 Let you define or redefine the first reference point. The mapping will be updated.

Define pt 2 Let you define or redefine the second reference point. The mapping will be updated.

Define pt 3 Let you define or redefine the third reference point. The mapping will be updated.

Log X Select the X scale mode. Already digitalized data will not change, so choose the correct mode before digtizing !

Log Y Select the Y scale mode. The same remark as above applies.

The Data menu

Format	Dialog to select an output format for your digitalized data.
Edit	Dialog to view the digitalized data list, and delete some if wanted.
Clear All	Forget all the data digitalized before.
Sort Asc	Sort the digitalized data with increasing X values
Sort Desc	Sort the digitalized data with decreasing X values
Save	Let you select a file name and save all the digitalized data in this file, in ASCII.
Copy	Copy the current data list to the clipboard, in text mode.

The Options menu

AutoScroll Option to select the autoscroll mode, where the large bitmap will scroll automatically when the mouse comes near the window limits.

ZoomWindow Option to display the region around the cursor with 4 times magnification in a small independent window.

Coord. Window Option to display the cursor coordinates in a small independant window.

Delta X & Y Dialog to let you select the dimensions of the rectangle which will be searched for next curve points in automatic digitalizing mode. This will allow the digitalization to go over discontinuities in poorly scanned images. If there are'nt anymore active pixels in a rectangle of dimension Delta X and Delta Y around the last digitalized point, the automatic digitalization will stop.

Fit Window Size Option to automatically adjust the *WinDIG* window size to the bitmap size when you load a new bitmap

Color Limits Dialog to select the limiting R, G and B values for an active pixel (ie. a pixel on the curve to be digitalized). This feature enables the digitalization of any color curves. The default values are : R < 64, G < 64 and B < 64 (which stands for black or dark gray curves). All the three conditions must be fulfilled. To digitalize a red curve, just change the first test to R > 64 ! Be sure to reset to the default conditions afterwards, since it could prevent you to digitalize a black curve.

Search Direction Dialog to select the search direction. Normally *WinDIG* will search for the next curve point to the right of the previous points. But this may be changed to any of the four directions. This is useful for example when bitmaps are turned by a flat-bed scanner.

About Coordinates

WinDIG accepts any kind of 2D coordinate transformation. Your axis system may be tilted by any angle from 0 to 360 degrees ! And the two axises need even not be perpendicular ! So be accurate when you define an axis system. *WinDig* will normally searches for the next points to the right in the automatic digitalization mode. But this setting can be changed with the **Search Direction Option**.

To define an axis system, you have to specify three points, both on the bitmap and in your coordinates. These points need not be on any peculiar axis. The only constraint is that they cannot be all the three on the same line. But of course the accuracy will be improved if the points you choose are well apart.

To do it effectively, select **Define 3 pts** in the Scale Menu. Then for all three points, you will have to click with the left mouse button (or press space or return) on a reference point somewhere in your bitmap, and give your corresponding X and Y coordinates in the following **Coordinates** dialog box. When this is complete, *WinDIG* will establish the transformation matrix. As a check, t will display the axis system tilt, and the angle between the two axises. If you made a mistake somewhere, you may redefine any of the three points. To check further the current transformation matrix, use the **Coordinate Window**, or simply click left on the bitmap.

When a transformation matrix is defined, the **Define 3 pts** item is checked. If you select it again, it will temporarily remove the transformation. In this case, the coordinates displayed are the pixel coordinates. Click **Define 3 pts** once again to reset the transformation matrix.

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Getting Started

Step by step simple introduction :

- Use the **File / Load** menu item to load a Windows bitmap from a .bmp file
- Optionally : use the **Scale / Define 3 pts** to specify your coordinates. You will have to click (left) on a reference point on your bitmap, and then give the corresponding X and Y coordinates in the following Coordinates dialog box. When you have repeated this three times, the coordinates transform will be established.
- Move the cursor to a point to digitalize, and double click on the left mouse button. The current point will be added to the data list.
- Or move the cursor to the start of a curve to digitalize, and click right. This will start the automatic digitalization mode.
- Save your data with the **Data / Save** item as soon as finished.

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About *WinDig*

WinDIG digitalizes data from a figure. It works in three or four phases:

- load a bitmap intol *WinDIG* (from a file or from the clipboard)
- define the mapping of the coordinates system (optional)
- digitalize data, either manually or automatically
- save your data in ASCII, either to a file or to the clipboard

WinDIG is very helpful and complementary if you have a scanner. *WinDIG* may help you to get numerical values back from a figure. This is very useful either if you have lost the numerical values for a figure you made, or if you want to get accurate numerical values from a published figure. This way you'll be able to compare your results with others...

I would be pleased to hear from (not)satisfied users. If you have any comments, suggestions or bug reports, please send it to the author E-Mail address : lovy@scsun.unige.ch

I hope this little utility can help you. Dominique LOVY

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