

Curve  
digitization  
package

**version Java 1**

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# DIGITIZER

## INTRODUCTION

This software package facilitates the digitization of curves. It displays on the screen the image previously scanned of a chart, and then allows you to easily record the points of the curves you want (up to 2000).

When you launch the app, a window will appear on the screen. Its "Digitization" menu allows you to open the digitization window (Figure 1).

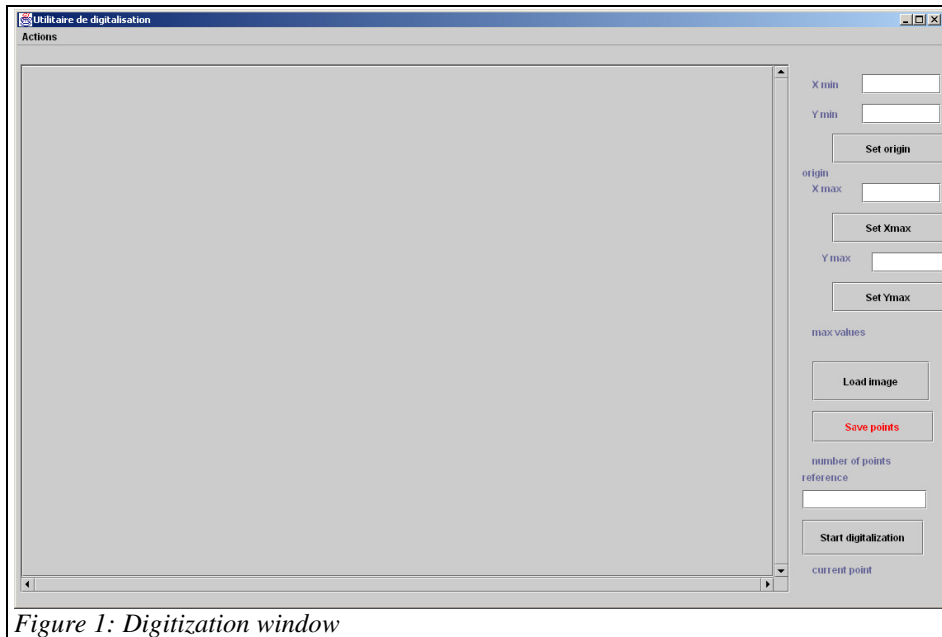


Figure 1: Digitization window

This window also has a menu that allows you to delete the input of a point, as we will see later. The keyboard equivalent of this menu line is "Ctrl z".

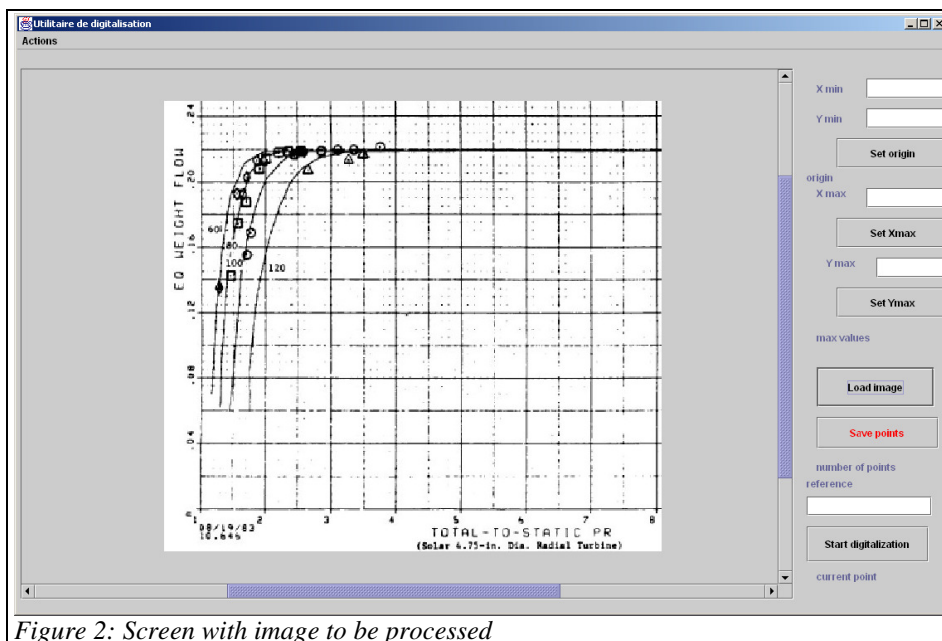


Figure 2: Screen with image to be processed

To use the tool, first load the image to be digitized by clicking on the button "Load image". A file selection window allows you to search the file for processing, which is then displayed (Figure 2).

If necessary use the scroll bars to position the image at best in the visible window.

You then have to define the origin and axis scales.

### DEFINITION OF THE GRAPH ORIGIN

To define the origin of the graph, three actions are needed:

- Start by entering in the two fields named Xmin and Ymin values of the origin point, here Xmin = 1 and Ymin = 0;
- Click on the origin on the graph,
- Finally, click on "Set origin".

After this operation, the two fields are not editable (unless you double-click inside), and values (in pixels) of the intercept are displayed.

You then define the origin and axis scales.

### DEFINITION OF AXES MAXIMA

To set the axes maxima, three similar actions are also needed, explained here for the abscissa:

- Start by entering the value of the maximum abscissa in field named Xmax, here Xmax = 8
- Then click on the corresponding point of the graph,
- Finally, click "Set Xmax".

After this operation, the field is not editable (unless you double-click inside), and the value (in pixels) of the maximum is displayed.

Figure 3: Origin

Figure 4: Maxima

### ENTRY OF POINTS

Once the boundaries of the graph defined, you can start entering points. To do this, click the "Start digitazing " button. The title of the button is changed, and becomes "Stop digitazing." From that moment, any click on the image will create a new point. If you wish to cancel the last entry, type "Ctrl Z", or select the Cancel line the Actions menu. If you repeat the cancellation, the previous line is removed, and so on.

If there are multiple isovalue lines, as in the case of Figure 2, you can distinguish them by entering an identifier in the field labeled "reference".

For example, to digitize the isovalue 100 line in Figure 2, enter 100 in this field, and click as many points as you want to follow its plot. Then change the reference to another line and continue until you complete the digitization.

Figure 5: Creation of points

By clicking the "Stop digitazing " button, you can interrupt the automatic entry of points: a mouse click on the image will no longer automatically create a point.

**POINT BACKUP**

When the digitization is complete, you can save points in a file called "curve.txt" by clicking on the button "Save points". Check that the file is closed before performing the backup, otherwise an error will occur.

This is a structured text file which can be directly opened in a spreadsheet. Its structure is given below, with the plot obtained for some isovalue lines.

```
Digitized curve
number of points
27
120 1.7254545454545456 0.06393234672304439
120 1.7254545454545456 0.07357293868921776
120 1.7381818181818183 0.08727272727272727
120 1.789090909090909 0.1095983086680761
120 1.8145454545454545 0.11974630021141648
120 1.9163636363636365 0.14004228329809723
120 2.0181818181818185 0.15932346723044397
```

After processing in the spreadsheet, the reconstituted curve has the appearance of Figure 6.

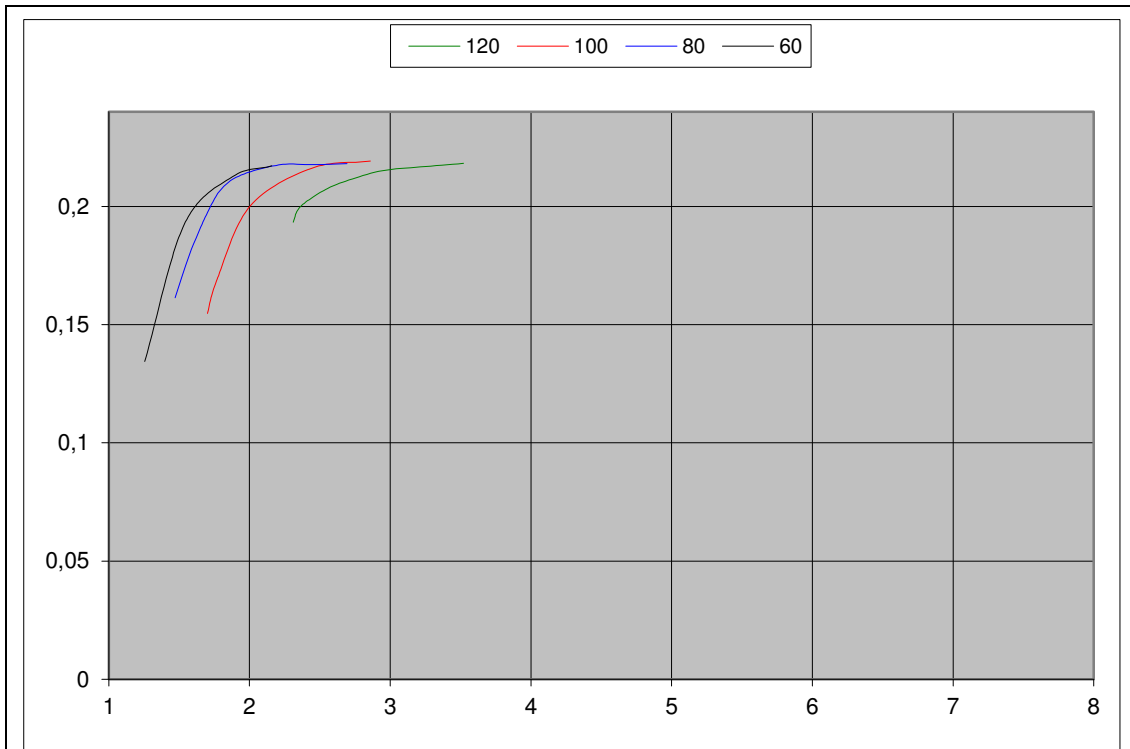


Figure 6: Curve obtained

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