DAUB Dynamic Brush

(To run, open the directory c:\daub in File Manager and double click on daub.exe}

Features

DAUB is a Windows drawing program which has a unique and speedy approach to putting your graphics ideas onto the screen. **DAUB** simulates a broad brush that is controlled using the mouse, and offers many ways to vary the look of the brush strokes that you draw. Also, the brush strokes may be extensively modified after you have drawn them, in ways that allow the computer to do nearly all the work.

As may be seen by the features described below, **DAUB** is a superb illustrative graphics tool, fully capable of complementing other software being used by the professional artist. Artists will be glad to know that **DAUB** graphics may be saved to disk as Encapsulated PostScript (*) files (in the registered version of **DAUB**), which may then be imported into most of the current major graphics packages. For educational or personal use, **DAUB** is able to print to any printer supported by Windows 3.1.

The main features of **DAUB** are:

> **Brush size** fully adjustable.
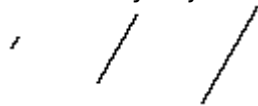
> **Brush orientation** fully adjustable through 360 degrees. Orientations of 0 and 45 degrees respectively are illustrated below:
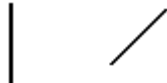
> This results in calligraphy style brush strokes:

> **Variable orientation** option, resulting in brush strokes of constant thickness:

> This is like using an ordinary round brush.

Over 16 million colours available for the brush, although these will be approximated to an extent dependant on the capabilities of your graphics hardware and printer.

Variable brush size and/or colour while *drawing* the brush stroke, in accordance with variations in the path of the cursor. Sophisticated and complex effects can be achieved quite easily.

Selection of one or more drawn brush strokes for further manipulation, for example, re-colouring or stretching. Every drawn stroke has a small selection circle which is green if the stroke is selected and red if it is not selected.

Edit features, namely Cut, Copy, Paste and Delete for any selected stroke(s).

Positioning any selected stroke(s). Fine adjustment of position is also available.

Scaling and **rotation** of any selected stroke(s), also with fine adjustment. This may be done with no loss of detail.

Smoothing and/or **curve fitting** of the outlines of any selected stroke(s).

Automatic re-draw of any selected stroke(s) with specified alterations to brush size, orientation and colour.

Automatic re-draw using path attributes. Varies brush size, orientation and colour of any selected brush stroke(s), after they have been drawn. Very sophisticated and complex effects may be achieved by making different changes to brush strokes that have already been re-drawn one or more times.

Saving and **loading** of complete drawings on your hard disk or floppy disks using **DAUB**'s own special format. E.g. doodle.str

PostScript compatibility with commercially available graphics packages.

System Requirements

DAUB should run on any IBM compatible machine (preferably 386 or above) running Microsoft Windows version 3.1 or later. The graphics standard should be EGA or better. At least 3 megabytes of RAM is recommended.

Also, the use of a 80x87 Math Co-processor will improve performance due to the computational nature of the graphics manipulation. A further boost to performance may be gained by installing a graphics accelerator card.

Treat yourself to a truly innovative product! **DAUB Dynamic Brush**.

(to register, please use the form in the file register.doc)

(*) PostScript is a registered trademark of Aldus Corporation

Instructions

These instructions are based on the **DAUB** User Manual, and are intended to be a quick guide only, to help you get started with creating **DAUB** graphics. It may be helpful to print this document. Updates pertinent to the current version are at the end of this file.

Drawing - General Points

With **DAUB**, the basic drawing technique is the same as for other graphics programs. You specify a brush, click the mouse in the drawing area of the screen, and drag it wherever you want colour to appear.

With **DAUB**, a small red circle appears where you first clicked the mouse (i.e. at the beginning of the brush stroke), when the brush stroke is completed. This is the selector circle, and is used for choosing the stroke for further manipulation, at some later stage. Selecting the stroke is achieved by clicking inside the selector circle with the right mouse button.

In this version of **DAUB**, movement of the brush is limited to an area half a brush width smaller than the drawing area. This area is outlined by a light gray dashed line. When the cursor is in this area it will change to the 'no go' symbol.

A brush stroke cannot be started in the no go area. Also, if the cursor enters the no go area while a brush stroke is being drawn, the brush stroke is finished, exactly as if you released the left mouse button.

The Shift key may be used in conjunction with the mouse, to draw straight lines. Whenever the Shift key is pressed, while drawing a brush stroke, the program ignores the mouse until the Shift key is released. This results in a straight line from where the Shift key was pressed, to where it was released, provided the mouse moves after the Shift key is released. With the current version of the program, these straight lines will be drawn in one colour from end to end. (Later manipulation of the brush stroke may result in variable colour, however).

DAUB also allows the drawing of constrained lines. This means that you can draw a horizontal or vertical line from where the Shift key was pressed, depending on which is closest to the cursor. To draw a constrained line, hold down the Shift key, drag the cursor, and then click the right mouse button (while holding down the Shift key and left mouse button).

At this point, you can draw another constrained line by dragging the cursor again, and pressing the right mouse button again. Any number of joined straight lines can be drawn like this.

At any time, you can continue drawing freehand by releasing the Shift key, and continuing to drag the cursor.

Constrained lines will have variable colour, if drawn with a variable colour brush.

Exporting Graphics

Graphics produced with **DAUB** may be 'exported', i.e. transferred to other graphics programs, in two ways.

1) Any **DAUB** graphic may be saved as a PostScript file, making it accessable to PostScript compatible programs such as PageMaker. This is explained in the section **Menu Items,** under **File.**

2) Windows allows you to capture the contents of the screen as a bitmap, by pressing the Print Screen key. This action copies an image of the screen to the Windows clipboard. You can then paste the screen image from the clipboard while using any graphics program running under Windows.

Menu Items

The following items are described in the order that they appear in the **DAUB** menu bar.
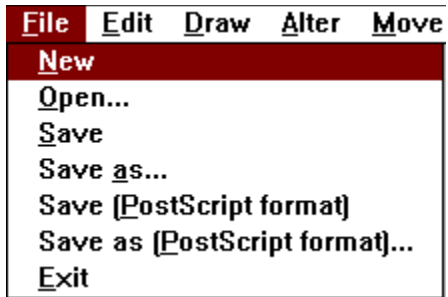
This menu item provides standard file operations plus PostScript options.

File | New

Create a new drawing.

File | Open...

Open a drawing file (e.g. doodle.str) to make further changes to the drawing.

File | Save

Save the current drawing under the name that appears in the title bar.

File | Save As...

Save the current drawing under a different name.

File | Save (PostScript format)
(Not available in this evaluation version)

Save any selected stroke(s) in Encapsulated PostScript (EPS) format.

File | Save As (PostScript format)...
(Not available in this evaluation version)

Save the current drawing in Encapsulated PostScript (EPS) format, but under a different name e.g. doodle2.eps .

File | Print
Print the currently displayed graphic on the printer.

File | Printer Setup
Display the standard Windows printer setup dialog box.

File | Exit
Terminate the **DAUB** program i.e. quit when you are finished a drawing session.

This menu item provides standard Edit operations, but these do not use the Windows clipboard since the graphics are not stored as bitmaps.

Edit | Undo

Undo a drawing operation that has only just been completed. Any change made to the drawing using main menu options **Edit, Alter, Move** or **Outline** may be undone this way.

Edit | Cut

Create a temporary copy (invisible) of the selected stroke(s) and delete it from the current drawing.

Edit | Copy

Create a temporary copy (invisible) of the selected stroke(s) for later pasting (see below).

Edit | Paste

Duplicate the most recently Cut or Copied stroke(s), a short distance from their original position. This may be done repeatedly, at any time, until the next **File | Cut** or **File | Copy** is done.

Edit | Delete

Delete the selected stroke(s) from the current drawing.

This menu item provides specifications for what will happen when you drag the cursor in the drawing area of the screen.

Draw | Uniformly

This menu item brings up a dialog box which contains various parameters and their default values.

The brush parameters **Red, Green, Blue, Brush Size** and **Orientation**, and the drawing parameter **Delay** are for drawing uniformly. This means that the size and colour of the brush will not change from the beginning of a brush stroke to the end.

Red, Green and **Blue** are the components of the brush colour.

Brush Size is the diameter of the brush, in pixels.

The **Orientation** parameter determines whether the brush will stay at the specified angle (in degrees) during a brush stroke (**Constant**), or whether it will stay perpendicular to the path of the brush (**Follow curve**). The former will result in calligraphy style brush strokes, while the latter is much like using a round brush, apart from the strokes having flat ends.

Draw | Variable
This menu item brings up a dialog box which contains various parameters and their default values.

The brush parameters **Red, Green, Blue, Size** and **Orientation,** and the drawing parameters **Delay,** (averaging) **Colour** and (averaging) **Size** are for drawing with variation in the brush parameters. This means that the size and colour of the brush will vary, depending on changes in the path of the brush stroke. For example, a brush stroke may start red in colour and quite thin in width, and gradually change to a green colour and a larger width at the end. In terms of the dialog box, the above example could be set up by setting **Red Initial** to 220, **Red Final** to 0, **Green Initial** to 0, **Green Final** to 190, **Size Initial** to 12, **Size Final** to 43 and also selecting **Length** as the path attribute.

Length is the distance along a stroke's path, measured in pixels.

Speed (lo) is the speed at which the stroke is being drawn at any moment, measured in pixels per 2 seconds. This path attribute is most effective when a stroke is being drawn very slowly and carefully.

Speed (hi) is the speed at which the stroke is being drawn at any moment, measured by the distance between successive positions of the cursor. This path attribute is most effective when a stroke is being drawn smoothly and fairly quickly.

Index is the number of cursor positions that have been recorded by the computer at any moment, in the stroke being drawn. Thus, it is similar in effect to the **Length** attribute. The difference is that changes in the brush parameters are spread over varying distances on the screen when the mouse is moved slower or quicker.

Curvature is how tightly curled the stroke is at any point.

In the bottom right corner, averaging values may be specified; **Colour** for red/green/blue values and **Size** for brush size. These drawing parameters are useful for smoothing out the effect of imperfect mouse movement.

This menu item provides specifications for what will happen when you want the computer to re-draw selected strokes, to alter their appearance.

Alter | Uniformly

This menu item brings up a dialog box which contains various parameters and their default values.

This is similar to **Draw | Uniformly**, except that it applies to selected strokes (see **Selectors**) that have already been drawn. It can be thought of as an automatic re-draw of the selected strokes, with the drawing parameters altered. For example, a stroke may be selected and re-drawn with the brush 80% of its previous size, and with some more red added in to the colour.

Brush Size % is a percentage of the existing brush diameter, as illustrated in the above example.

Red Inc is an increment which applies to the red component of the brush colour.

Green Inc and **Blue Inc** work the same as **Red Inc**, except that they affect the green and blue components of the colour, respectively.

Orientation Inc is an increment which is applied to the orientation of the brush, regardless of whether **Const** or **Follow curve** was selected when the stroke was drawn. A positive value (in degrees) rotates the brush marks clockwise, while a negative value rotates them anti-clockwise. The brush stroke itself is not rotated.

Alter | Variable

This menu item brings up a dialog box which contains various parameters and their default values.

This is similar to **Draw | Variable**, except that it applies to selected strokes (see **Selectors**) that have already been drawn. It can be thought of as an automatic re-draw of the selected strokes, where further manipulations are applied to the strokes. Thus, for example, a group of strokes which change from red to green over their lengths might be altered to go darker where they are tightly curved and remain unchanged elsewhere.

Red, Green, Blue, Size and **Orientation** are brush parameter increments which can be given initial and final values under the headings **Initial Inc** and **Final Inc**.

One path attribute from the list on the right (**Length, Speed** etc.) whose range is specified under the headings **Min** and **Max**, may be selected to govern the variation of the brush parameter increments.

The path attributes for **Alter | Variable** are described below.

Length is the distance along a stroke's path, measured in pixels.

Speed is the speed at which the stroke was drawn, measured by the recorded distance between successive brush marks. This is equivalent to the **Speed (hi)** path attribute described under **Draw | Variable.**

Index is the brush mark number, which increases by one for each mark, starting at 1 for the first mark, and is equivalent to the **Index** path attribute described under **Draw | Variable.**

Curvature is how tightly curled the stroke is at any point, and is equivalent to the **Curvature** path attribute described under **Draw | Variable.**

Slope is a measure of how close to vertical or horizontal the stroke is at any point, and currently has no equivalent in **Draw | Variable.** Using this path attribute, a circular brush stroke could be altered to go blue on the top and bottom, and green on either side, with continuous variation in between.

Move Outline

This menu item brings up a dialog box, in which three ways are provided to specify movement of the selected stroke(s).

> 1) **Shift** (X ,Y).
>
> E.g. (130 , -40) would shift the selected stroke(s) 130 pixels to the right and 40 pixels up.
>
> 2) **Scale** (X , Y).
>
> X and Y are percentages for scaling in the X and Y directions. E.g. (200 , 50) would make the selected stroke(s) twice as wide and half as high.

3) **Rotation** R.

R is the rotation amount in degrees. E.g. a value of -30 would rotate
the selected stroke(s) 30 degrees anti-clockwise.

Outline **Selectors**

This menu item brings up a dialog box which provides three ways to modify the outline of the selected stroke(s). The numbers typed in specify how many times the corressponding operation is repeated.

      1) **Harden / Soften.**

      A positive value 'hardens' the selected stroke(s), making them retain more of the original detail after other **Outline** operations have been applied.

      A negative value 'softens' the selected stroke(s), making them lose detail immediately.

      2) **Smooth.**

      This operation smoothes the outline of the selected stroke(s) by averaging the position of the brush mark end points, but will retain the overall shape of the stroke(s).

      3) **Curve Fit.**

      This operation rounds the outline of the selected stroke(s) by adding an extra brush mark with just the right position and size, between every pair of existing brush marks. Thus, the curve looks smoother, while retaining all of its original detail.

Selectors
| **Select All** |
| **De-select All** |
| **Toggle All** |
| **Display Selectors** |
| **Hide Selectors** |

This menu item provides useful short-cuts when multiple strokes are to be selected for manipulation, and the ability to hide or display all the selectors currently on the screen.

Selectors | Select All

Makes all strokes active.

Selectors | De-select All

Makes all strokes in-active.

Selectors | Toggle all

Makes all active strokes in-active, and all in-active strokes active.

Selectors | Display Selectors

Make all selectors visible, if they have been hidden.

Selectors | Hide Selectors

Make all selectors invisible, if they are currently visible.

Options

This menu item allows you to alter the way brush strokes are displayed on the screen (**Note:** only the way they appear on the screen is changed - for all other purposes the strokes are entirely unchanged). A dialog box is displayed which has two parameters, **detail level** and **frame only**. Any settings affect the currently selected strokes only, and remain in effect until set differenly.

Typing a figure from 1 to 9 beside **detail level** affects the amount of detail shown when the stroke is displayed. A value of 1 results in the stroke being displayed in full detail. A value of 2 results in only half the detail being displayed, a value of 3 gives a third of the detail, and so on up to 9 which gives only a ninth of the detail. Reducing the detail also increases the speed at which the strokes are re-drawn, for example when a dialog box disappears from the screen. This feature is handy for very detailed and/or large graphics which may be relatively slow to re-draw.

The check box next to **frame only** specifies whether the strokes are filled with colour. If checked, only the outlines of the brush marks making up the brush stroke will be visible. As well as being faster to re-draw, this allows you to easily see if any strokes are excessively detailed, leading to unnecessarily slow re-drawing and unneccessarily large .str files.

The Tool Column

The following is a brief explanation of the tool column at the left side of the screen. The first twelve boxes are a handy way to perform the functions described under the **Move** menu item.

Stretches the selected stroke(s) horizontally.

Shrinks the selected stroke(s) horizontally.

Stretches the selected stroke(s) vertically.

Shrinks the selected stroke(s) vertically.

Expands the selected stroke(s).

Shrinks the selected stroke(s).

Shifts the selected stroke(s) to the left.

Shifts the selected stroke(s) to the right.

Shifts the selected stroke(s) upwards.

Shifts the selected stroke(s) downwards.

Rotates the selected stroke(s) anti-clockwise.

Rotates the selected stroke(s) clockwise.

The next 4 boxes implement the functions under the **Outline** menu item.

Hardens the selected stroke(s) once.

Softens the selected stroke(s) once.

Smooths the selected stroke(s) once.

Curve fits the selected stroke(s) once.

The next 4 boxes select the 4 different brush types as set in the **Draw** menu item.

Selects the uniform brush with constant orientation.

Selects the uniform brush with follow curve orientation.

Selects the variable brush with constant orientation.

Selects the variable brush with follow curve orientation.

The last 5 boxes implement the following functions:

Drag and drop the selected stroke(s).

Repaint the drawing area.

Split the nearest selected stroke at the point closest to the cursor, when the left mouse button is pressed.

Join the tail of one selected stroke to the head of another selected stroke. Nominate the first stroke by clicking inside the selector circle, then nominate the next stroke in the same way.

Examine the data of the brush mark nearest the cursor, when the left mouse button is clicked.

Version 1.24 Sep 1993
Minor cosmetic changes and updates to program and documentation.

Version 1.23 Sep 1993
Selector menu items grayed/enabled as appropriate.

Bug fixed which affected only strokes drawn from right to left.

Memory requirements reduced significantly for storing brush strokes.

Version 1.22 Sep 1993
Copying to the Windows clipboard in bitmap format was implemented
(operates on selected strokes).

Text box beneath the tool column was added to identify/explain the
currently selected tool.

Version 1.21 Aug 1993
'Hot keys' were added for **Edit** menu operations, e.g. the Delete key to
delete a stroke or group of strokes.

Tool column operations were made interruptable by the ESC key.

Changes were made to the way strokes are selected and de-selected, to
make the program easier to use.

Most dialog boxes were re-designed and all implemented in the Borland
style (except Printer Options).

Menu item graying was added.

Version 1.2 Aug 1993
The path attribute 'slope' was added to the **Draw | Variable** menu option.

flip vertically (i.e. about the vertical axis) and **flip horizontally**
(about horizontal axis) radio buttons have been added to the **Move** dialog
box. One or none of these radio buttons may be selected, in addition to
any other move operation.

The **Options** dialog box was extended to include a grid which displays
behind all other graphics on the screen. The **visible** check box
determines whether the grid is displayed or not, and **spacing** determines
the number of pixels between each line of the grid. The **Drag 'snap to'**
check box affects the operation of the drag tool. If checked, the top
left corner of the dotted box always 'snaps' to the grid intersection
points (regardless of whether the grid is visible), thus allowing
accurate alignment of strokes or groups of strokes.

A **group select** tool was added at the bottom right corner of the tool
column, which may be used in a manner similar to the cut tool in
Window's Paintbrush. Its effect is to select all strokes whose selector
circles lie within the dotted box.

Version 1.1 Jul 1993
First version presented to vendors