

BLAZING PADDLES™

ILLUSTRATOR

Commodore Version By

TECHNICAL SOFTWARE DEVELOPMENT INC.

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INTRODUCTION

WHAT IS BLAZING PADDLES?

BLAZING PADDLES is a very powerful and easy to use drawing program. It allows you to use almost any input device to create drawings, diagrams, and text. It is easy enough for young children to use like a coloring book, yet sophisticated features are included for the serious computer artist.

EQUIPMENT REQUIREMENTS

- A Commodore 64 computer.
- A disk drive.
- A color TV or monitor.
- One of the following input devices (properly connected):
 - (1) Touch Tablet
 - (2) Paddles
 - (3) Joystick
 - (4) Trackball
 - (5) Light Pen
- A printer is optional. You can get a printout of your pictures with most types of dot matrix printers.

GETTING STARTED

Before running the program, make sure your input device is properly connected. Carefully follow the installation directions supplied with the device. Make sure the power is OFF before connecting anything to your computer.

Turn ON the computer and the disk drive. Place the BLAZING PADDLES disk in the drive. Then type LOAD "START",8 and press **RETURN**. When the computer signals READY, type RUN and press **RETURN**. When the drive stops spinning, you will see the following display on the screen:



In the center of the screen is a menu of the various input devices. Use the **CRSR** key to scroll through the selections. When the desired input device is highlighted, press **RETURN** to run the program.

The disk will run for a few moments and then the main menu will appear. Since each input device is operated differently, you will have to learn the following techniques for your device:

- How to move the "cursor" around the screen.
- How to draw and select menu items using the "ACTION BUTTON."
- How to delete actions using the "UNDO BUTTON."

MOVING THE CURSOR

The cursor is a small flashing marker that indicates your position on the screen.

- **TOUCHPAD**—Place the stylus or finger on the pad to position the cursor on the screen. Lift the stylus off pad to take the cursor off the screen.
- **PADDLES**—The paddles provide separate horizontal and vertical control of cursor movement. Press the **F5** function key to take the cursor off the screen. Press the **F7** key to put the cursor back on the screen.
- **JOYSTICK**—Push the joystick in the direction you want the cursor to move on the screen. Press the **F5** function key to take the cursor off the screen. Press the **F7** key to put the cursor back on the screen.
- **TRACKBALL**—Roll the ball in the direction you want the cursor to move on the screen. Press the **F5** function key to take the cursor off the screen. Press the **F7** key to put the cursor back on the screen.
- **LIGHTPEN**—Move the pen lightly across the screen and the cursor will follow the pen. Since the lightpen is sensitive to bright colors, it may not respond to a black or dark color background. The **F1** function key can be used to change the background color so the pen will respond. To move the cursor off the screen, point the pen at the border area around the picture.

ACTION BUTTON

The ACTION BUTTON is used when you want to make a menu selection or draw something on the picture:

- **TOUCHPAD**—There are two buttons on the touchpad. The left button is the ACTION BUTTON.
 - **PADDLES**—The button on the horizontal control paddle is the ACTION BUTTON.
 - **JOYSTICK or TRACKBALL**—The button on the joystick or trackball is the ACTION BUTTON.
 - **LIGHTPEN**—The **CTRL** key is used as the ACTION BUTTON. Some light pens have a switch in the tip of the pen or on the side of the pen. This switch can also be used as the ACTION BUTTON.
-

UNDO BUTTON

The UNDO BUTTON is used to remove the last item placed on the picture. This allows you to try things out before they become a permanent part of the picture.

- **TOUCHPAD**—The right button is the UNDO BUTTON.
 - **PADDLES**—The button on the vertical control paddle is the UNDO BUTTON.
 - **JOYSTICK or TRACKBALL**—The **SPACE** bar is used for the UNDO BUTTON.
 - **LIGHTPEN**—The **SPACE** bar is the UNDO BUTTON.
-

BACKGROUND & BORDER COLORS

The background color can be changed at any time by pressing the **f1** function key. To change the color of the screen border, press the **f3** function key.

THE MAIN MENU



The Main Menu contains each of the program functions shown as a square with a title and an icon that symbolizes the function. To choose the menu item you want, simply move the cursor to the desired icon and press the ACTION BUTTON.

Once you have selected one of the drawing routines, you can get back to the Main Menu by moving the cursor OFF the drawing screen and pressing the ACTION BUTTON

In the center of the Main Menu is a window that shows part of the current picture while you are making a menu selection.

CLEARING THE SCREEN



Move the cursor to the CLEAR icon and press the ACTION BUTTON. A menu of background colors will appear in the center of the screen:



Select a background color from the menu by moving the cursor inside one of the colored squares and press the ACTION BUTTON. Then move the cursor to the PERFORM CLEAR square and press the ACTION BUTTON again. This will clear the screen to the color selected.

THE BRUSH SET

At the bottom of the Main Menu are the seven different brush strokes used in the draw routines:



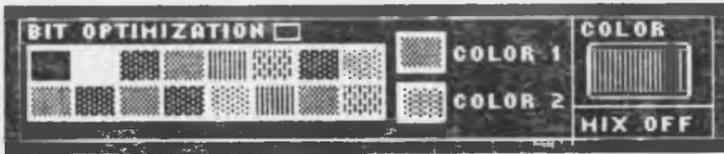
The current brush selected is highlighted with a heavy border. To change brushes, move the cursor to the desired brush and press the ACTION BUTTON.

COLOR SELECTION



Over 200 colors and textured hues are available with the unique color mixing palette. The current color selected appears inside the COLOR icon square.

- To change color, move the cursor to the COLOR icon and press the ACTION BUTTON. The color menu will appear with the 16 standard colors and two boxes labeled COLOR 1 and COLOR 2:



- At the bottom right corner of the color menu is the MIX mode box. When you are in the MIX OFF mode, the color selected will be the same as COLOR 1. When you are in the MIX ON mode, COLOR 1 and COLOR 2 are mixed together, with the result displayed in the COLOR icon. To switch between MIX OFF to MIX ON, move the cursor to the MIX box and press the ACTION BUTTON.
- To change either COLOR 1 or COLOR 2, simply move the cursor to that box and press the ACTION BUTTON. Then move the cursor to the desired color and press the ACTION BUTTON again.

When the desired color is in the COLOR icon, move the cursor to the COLOR icon and press the ACTION BUTTON to get back to the Main Menu.

Note: There is an alternate method of color selection called "register selection" which is provided for more advanced users. This method is explained in detail in the ADVANCED COLOR TECHNIQUES chapter.

THE DRAWING ROUTINES IN DETAIL

Once you have cleared the screen and selected a brush color, you are ready to start drawing. To get to the drawing screen, choose one of the draw icons from the Main Menu. The menu will disappear leaving the entire screen available for drawing.

SKETCH



This is the freehand draw mode.

- Place cursor where you want to start drawing. Hold down the ACTION BUTTON and draw. Release button to stop drawing.
 - To undo last line drawn, move cursor off screen and press UNDO BUTTON before starting another line.
 - To return to the Main Menu, move cursor off screen and press ACTION BUTTON.
-

DOTS



Draw single dots.

- Position cursor and press ACTION BUTTON. A dot will appear shaped like the currently selected brush.
- To undo last dot drawn, move cursor off screen and press UNDO BUTTON.
- To return to menu, move cursor off screen and press ACTION BUTTON.

LINE

Draw individual straight lines.

- Position cursor at one end of line to be drawn, then press ACTION BUTTON and release.
- As you move around the screen, a flashing line (like a stretched rubber band) will reach from the starting point and follow the movement.
- Press ACTION BUTTON again to "plant" the line. The cursor will reappear.
- To "unhook" the flashing line without planting it, move off screen and press ACTION BUTTON once.
- To undo last line drawn, move cursor off screen and press UNDO BUTTON.
- To return to menu, move cursor off screen and press ACTION BUTTON twice.

LINES

Draw connected straight lines.

- Position cursor at end of first line to be drawn, then press ACTION BUTTON and release.
- A rubberband line will follow your movement as in the LINE routine.
- Press ACTION BUTTON again to plant the line. A new rubberband line will stretch from the end of the last line drawn. Press ACTION BUTTON again to plant the second line, etc.
- To unhook the rubberband line, move off screen

and press ACTION BUTTON once. The cursor will reappear.

- To undo the last line, move cursor off screen and press UNDO BUTTON.
 - To return to menu, move cursor off screen and press ACTION BUTTON twice.
-

OVAL



Draw outline circles and ellipses.

- Place the cursor at the center of the circle or ellipse to be drawn, then press ACTION BUTTON and release.
- Now when you move around the screen, a flashing ellipse will follow the movement instead of the cursor. As you move up or down, the ellipses will be tall and narrow. Moving sideways will make short and wide ellipses. To get circles, move diagonally from the starting point.
- When you get the ellipse the size and shape you want, press the ACTION BUTTON again to plant it on the screen.
- To undo the last ellipse drawn, move off the screen and press the UNDO BUTTON.
- To unhook the flashing ellipse, move off screen and press ACTION BUTTON once.
- To return to menu, move off screen and press ACTION BUTTON twice.

OVAL 2

Draw solid color filled circles and ellipses.

- Follow directions for OVAL.
-

BOX

Draw rectangular and square box outlines.

- Position cursor at one corner of box, then press ACTION BUTTON and release.
 - When you move around the screen, a flashing rectangle will follow the movement.
 - Press ACTION BUTTON again to plant the box on the screen.
 - To undo last box drawn, move cursor off screen and press UNDO BUTTON.
 - To unhook flashing rectangle, move off screen and press ACTION BUTTON once.
 - To return to menu, move cursor off screen and press ACTION BUTTON twice.
-

BOX 2

Draw solid color filled boxes. This routine is handy for erasing large areas of the screen.

- Follow directions for BOX.

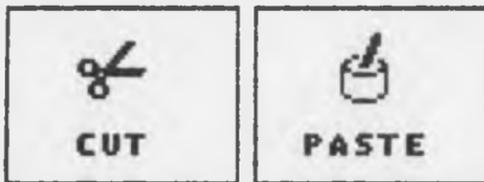
TEXT

Add text to the picture. The style of text can be changed by loading a different Character Set from the disk.

- Place the cursor where you wish the line of text to begin and press ACTION BUTTON. A flashing text prompt will replace the cursor.
- Type the line of text directly from the keyboard.
- For upper case text, press the **SHIFT/LOCK** key. Release the **SHIFT/LOCK** key for lower case.
- Use the **DEL** key to delete unwanted characters.
- This line of text may be repositioned by moving the cursor to a new location and pressing the UNDO BUTTON. This must be done immediately after placing the line of text on the screen. Make sure the cursor is on the screen or you will "undo" the text instead of repositioning.
- To undo the last line of text, move cursor off the screen and press the UNDO BUTTON.
- To return to menu, move cursor off the screen and press ACTION BUTTON.

WINDOW

This is the Cut and Paste feature. It is very handy for moving a part of the picture or copying it like a rubber stamp. When you select the WINDOW icon from the main menu, the CUT and PASTE options will appear in the center of the screen. Here is how they work:



SELECT WINDOW OPTION

CUT—This is used to clip a portion of your picture by placing a frame around the area you want. The contents of this frame is called a "Window" and is stored in a separate part of memory. Once a window has been clipped, it can be moved around the screen, copied repeatedly, or even saved to disk and "pasted" later to a different picture. Note: The largest Window that may be clipped at one time is approximately 1/4 of the total screen area.

- Select the CUT option from the WINDOW menu.
- Move the cursor to one corner of the area you want to clip and press the ACTION BUTTON and release.
- As you move around the screen, a "shimmering" rectangle will follow the movement. This is the Window box.
- Position the Window box so that it completely frames the area you want to cut and press the ACTION BUTTON and release. The shimmering Window box will stay on the screen to show that the clipped area has been stored in memory. The window will remain in memory (even if the screen is cleared) until a new window is clipped or loaded from the disk.
- When the window has been cut you will automatically be in the PASTE mode. Now you can either copy the window to another part of the

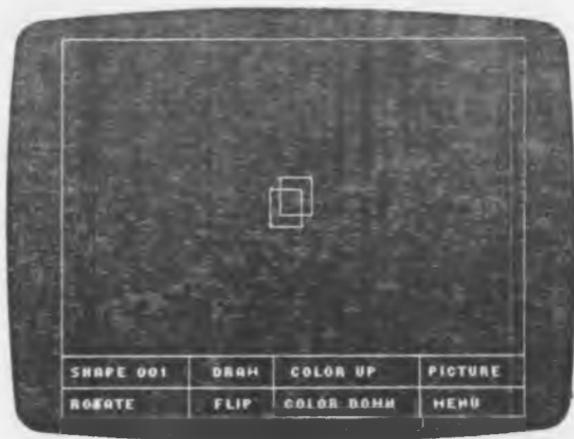
picture, or return to the main menu and use the window later.

PASTE—This is used to copy or duplicate the image in the Window buffer.

- In the Paste mode, the cursor becomes a pointing hand.
- Place the pointer to the place where you want to copy the window and then hold down the ACTION BUTTON. The window will appear at the end of the hand and can be moved around the screen as long as the button is held down.
- When the window is where you want it, release the button to paste it to the picture.
- The last window pasted to the screen can be repositioned by moving the pointer to the new location and pressing the UNDO BUTTON. Make sure the cursor is on the screen or you will "undo" the window.
- To undo the last paste, move cursor off the screen and press the UNDO BUTTON.
- To return to the menu, move cursor off screen and press ACTION BUTTON.



BLAZING PADDLES comes with a library of pre-drawn shapes which can be added to your picture. The selection of shapes can be changed by loading a different shape table from the disk. When the SHAPES icon is selected from the main menu, the Shape Options menu will appear in its place:



The upper area of this screen shows the current shape and the bottom part of the screen has several options to change or modify the shape.

- To scan through the available shapes, move the cursor to the SHAPE NUMBER box and press the ACTION BUTTON. The next shape in the table will appear above.
- To rotate the shape, move the cursor to the ROTATE box and press either button. The ACTION BUTTON will rotate clockwise and the UNDO BUTTON will rotate counterclockwise.
- To change a shape to its mirror image, move the cursor to FLIP and press the ACTION BUTTON.
- XDRAW and DRAW—There are two modes for drawing the shapes. The DRAW mode will put the shape on the screen in the color selected. The XDRAW mode will draw the shape in the inverse of the background. The XDRAW mode is a good way to erase a shape previously drawn. To switch back and forth between DRAW and XDRAW, move the

cursor to the DRAW box and press the ACTION BUTTON.

- To change the color of a shape, move the cursor to the COLOR UP or COLOR DOWN box and press the ACTION BUTTON.
- When you are ready to add the shape to your picture, select PICTURE from the menu options.
- Place the cursor where you want to draw the shape and then hold down the ACTION BUTTON. The shape will appear on the screen and be moved around as long as the button is held down.
- When the shape is where you want it, release the button to plant it to the screen.
- The shape can be repositioned by moving the cursor to the new location and pressing the UNDO BUTTON. Make sure the cursor is on the screen or you will "undo" the shape.
- To undo the last shape, move cursor off the screen and press UNDO BUTTON.
- To return to the shape options menu, move the cursor off screen and press ACTION BUTTON.
- To return to the main menu, select MENU from the shapes options menu.



This gives you a magnified view of a small area of the picture and allows you to edit fine details. When you select ZOOM from the main menu your picture will appear with a large box at the top or bottom half of the screen. This is the ZOOM lens. A smaller rectangle will appear on your picture. Each dot inside the small rectangle is magnified in the ZOOM lens.

- The cursor appears as a tiny square inside the ZOOM lens. Individual pixels inside the ZOOM lens can be drawn in the selected color by moving the cursor to the desired pixel and pressing the ACTION BUTTON.
- When you move the cursor to the extreme edge of the ZOOM lens, a message will appear at that edge—MOVE UP, MOVE DOWN, MOVE LEFT, or MOVE RIGHT. To move the smaller box to a different part of your picture, move the cursor to the edge of the ZOOM lens and press the ACTION BUTTON when the move message appears.
- To change the selected color, move the cursor off the screen and press the UNDO BUTTON. Now you can move the cursor to the color menu at the right side of the ZOOM lens. Press the ACTION BUTTON to select a new color. Move the cursor off the screen and press UNDO BUTTON to return to the ZOOM lens.
- To return to the main menu, move the cursor off the screen and press the ACTION BUTTON.



Creates an airbrush effect by "spraying" color onto the screen. This is used for shading and blending one color into another.

- Follow directions for SKETCH. As you go over the same spot, the color becomes thicker.



Colorfill an enclosed area of the picture. Any area that is already filled with a primary color can be refilled with another color (including black). The fill may leak out of an area that is not completely enclosed. Areas

that are colored with textured hues will not always accept colorfill.

- Position cursor inside of area to be filled and press ACTION BUTTON.
- To undo last colorfill, move cursor off screen and press UNDO BUTTON.
- To return to menu, move cursor off screen and press ACTION BUTTON.

THE DISK STORAGE ROUTINES

When you select DISK from the main menu, the DISK UTILITY MENU will appear. This is where you load and save files to the disk.



To make a selection from the menu, simply move the cursor to the UP or DOWN arrows in the SCROLL box and press the UNDO BUTTON to scroll through the menu options. When the desired option is highlighted, press the ACTION BUTTON. If you accidentally select the wrong menu option or decide not to load a file from the disk, you can press the **RUN/STOP** key to safely back out of a menu selection.

SAVING A PICTURE—You must have a formatted data disk to save your picture. If you do not have one, follow directions for **FORMAT DATA DISK**. Always be careful to save any work that you don't want to lose before starting a new picture.

- Highlight the SAVE PICTURE option and press the ACTION BUTTON.
 - Type a name (up to 13 characters) for the picture and press **RETURN**.
-

LOADING FILES FROM THE DISK—The procedure for loading Pictures, Character Sets (fonts), Shape Tables, and Windows is the same. A convenient load routine automatically searches the disk and displays a list of available files. You never have to type a filename when loading files from the disk.

- When you select one of the LOAD options from the menu, the program will scan the disk and then display a list of filenames at the bottom of the screen.
 - Move the cursor to the UP or DOWN arrow and press the UNDO BUTTON to "scroll" through the list until the desired name is highlighted. Then press the ACTION BUTTON to load that file.
-

SAVING A WINDOW—If you have clipped a Window from your picture, it can be saved for later use by selecting the SAVE WINDOW option and following directions for saving pictures.

CATALOG—This option will display a catalog listing of all the files on a disk.

DISK MANIPULATION—Selecting this option will bring up a sub-menu which allows you to ERASE FILES, RENAME FILES, and FORMAT DATA DISKS. To erase and rename files, follow the prompts on the menu. The procedure is similar to loading and saving files.

FORMAT DATA DISK—Before any files can be saved to a new disk, it must be formatted.

- Remove the program disk.
- Insert the new data disk to be formatted.
- Select the FORMAT DATA DISK option.
- Just to be sure, you will be asked if you really want to format. Press the Y key for yes. The disk will spin for a few moments while formatting.

WARNING: Formatting a disk will destroy any files that were previously on it. Make sure you don't accidentally format a valuable data disk or the program disk.

RETURN TO PICTURE—When you are finished with the disk utilities, select this option to get back to the main menu.

WHAT'S IN A FILENAME—When you save a picture to the disk, a prefix is automatically added to the filename you type. This is done so that BLAZING PADDLES can identify the different types of files. Do a catalog listing of the BLAZING PADDLES program disk to see how this works. The following convention is used for filename prefixes:

PI. Hi-res picture
ST. Shape table
CS. Character set
WI. Window

PRINTING YOUR PICTURES

The printer routine will produce a full-page printout with the colors translated to a gray scale. Most popular dot-matrix printers and interfaces are supported.

When you select the PRINTER icon from the main menu, the PRINTER GRAPHICS DUMP menu will appear in the center of the screen:



If you are using an interface, move the cursor to the INTERFACE box and press the ACTION BUTTON to scroll through the available options.

To select your printer, move the cursor to the PRINTER box and press the ACTION BUTTON to change printer selection.

When the proper interface and printer information appears on the screen, check to make sure the printer is turned on and ready to print. Select the CONFIRM PRINT box to begin printing. Once the printout has started, you can press the **RUN/STOP** key to stop printing.

ADVANCED COLOR TECHNIQUES

You may have noticed some peculiar things happen when you try to draw too many colors in a small area of the screen. For example, you may try to change the color of one pixel and several nearby pixels will change at the same time. This is a result of the Commodore color mapping system. Understanding this system better will help you get the most out of BLAZING PADDLES.

The multi-color high-resolution (or hi-res) graphics screen consists of 200 horizontal lines, each of which may contain up to 160 distinct dots. These dots are also called "pixels." Pictures or images are formed by lighting up certain pixels on the screen. One way of visualizing this is to think of the hi-res screen as an electronic billboard made up of a grid or matrix of tiny lights. Placing an image on the billboard is simply a matter of turning on the right lights. If you wanted the image in color, you would place colored lamps in the appropriate places.

The Commodore hi-res screen displays colors in much the same manner. Each pixel or dot that is lit has a color, but there are restrictions on which color a particular dot may display. The hi-res screen is divided into character cells that are 4 pixels wide by 8 pixels high. There are 1000 character cells on the entire screen. Each character cell may have up to 3 distinct colors plus a background color that is common to all the cells on the screen. You cannot exceed this number of colors within a single character cell. The actual color of an individual pixel is determined by a bit pattern in the computer memory. The four possible bit patterns are 00, 01, 10, and 11. A separate area of memory

determines which 4 colors (out of 16 available) are assigned to the bit patterns in each character cell.

BIT OPTIMIZATION & REGISTER SELECTION

Since you normally don't want to be concerned about bit patterns and character cells, **BLAZING PADDLES** uses a technique called "bit optimization." This allows as many colors on the screen as possible and minimizes unwanted color shifts. When you first run **BLAZING PADDLES**, you are automatically in the bit optimization mode. For most applications, this is the preferred mode because it is easy to use and draws the cleanest picture.

There are some applications, however, where you may want to have direct control over which color corresponds to a given bit pattern. If you are designing a hi-res screen for a game program, the color bit patterns can be important to the program execution (collision detection, scrolling, etc.). For this type of application, **BLAZING PADDLES** offers a second color selection technique called "register selection."

To use the **REGISTER SELECTION** mode, select the color icon on the main menu. When the color menu appears, you will see **BIT OPTIMIZATION** and a small box right above the color swatches. Move the cursor inside this box and press the **ACTION BUTTON**. This will bring the **REGISTER SELECTION** color menu. This looks just like the other color menu except now there are 3 boxes labeled **COLOR 1**, **COLOR 2**, and **COLOR 3**. These boxes correspond to the bit patterns 01, 10 and 11. To change the color in a box, move the cursor to the box and press the **ACTION BUTTON**, then select the desired color from the 16 color swatches.

The **MIX** options are the same as before plus a third **ERASE** option. In the **MIX OFF** mode, the last color

selected will appear as the current drawing color. In the MIX ON mode, the last two colors selected are mixed together. In the ERASE mode, the current background color will appear in the COLOR icon, and the drawing will be done in bit pattern 00.

When you are in the register selection mode, the CLEAR and ZOOM menus also allow you to choose specific bit patterns.

To get back to the BIT OPTIMIZATION color menu, select the small box in the upper right corner of the REGISTER SELECTION color menu.

If this all sounds a bit complicated, don't worry about it too much. The best way to learn is through practice and experimentation. You can always "undo" things that you don't like. Accidents often turn out to be better than intentions.