Contents

1 Introduction

This is a manual for the installation and use of the application ‘Giffer’. The program is a Windows application, for creating attractive images from an image, particularly a .gif image by manipulating and changing the pixels representing the colours. In addition it is possible to plot the boundaries of the different regions of colour. The combinations and possible colours and effects are almost unlimited.

In addition to images it is possible to create videos each frame of which has the prescribed amendment with respect to colouring and boundaries.

The program is particularly suited for images which have a limited number of colours and well-defined regions of colour. A .gif file, which has a palette of up to 256 colours (1 byte’s worth) is particularly suited to this application.

As a simple example of the things you can do, look at the before and after images of this image, representing the insertion of the boundaries of the three regions of colour:

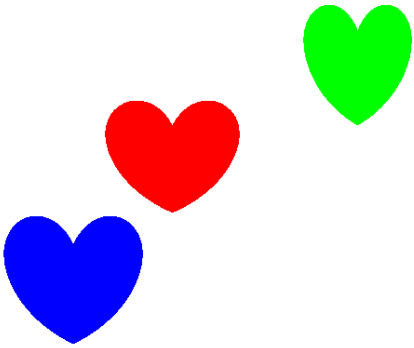


Figure 1 - Before amendment.

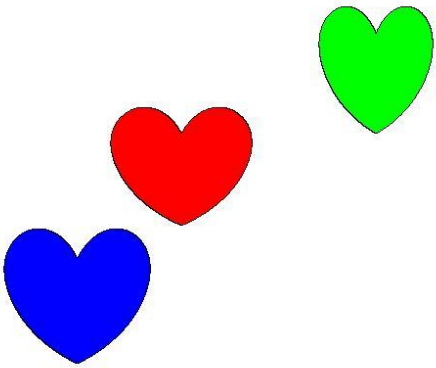


Figure 2 After amendment with this program.

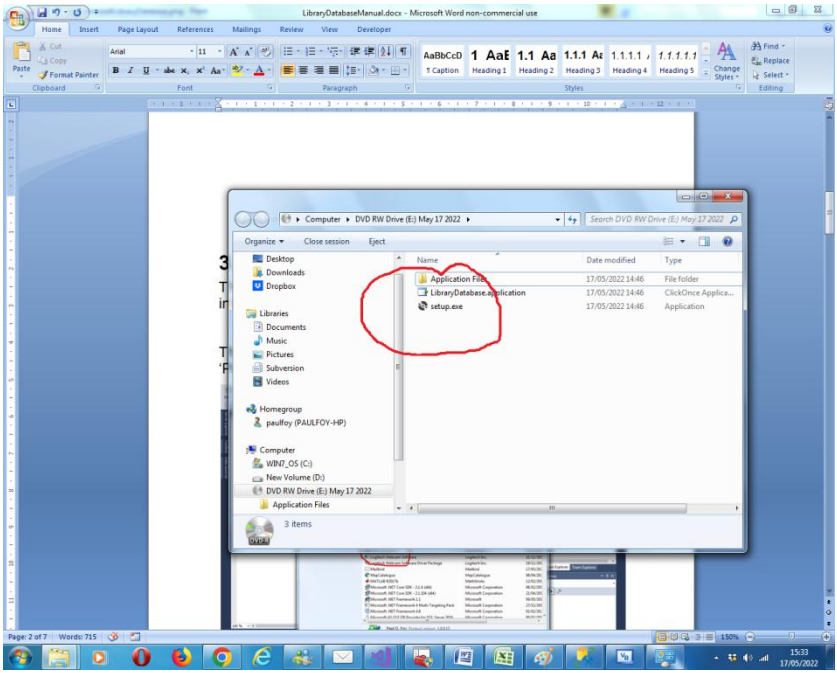
2 Pre-requisites.

1. A PC running Windows 7 or above.

2. A USB stick or optical drive containing the program setup files, together with this manual (available online).

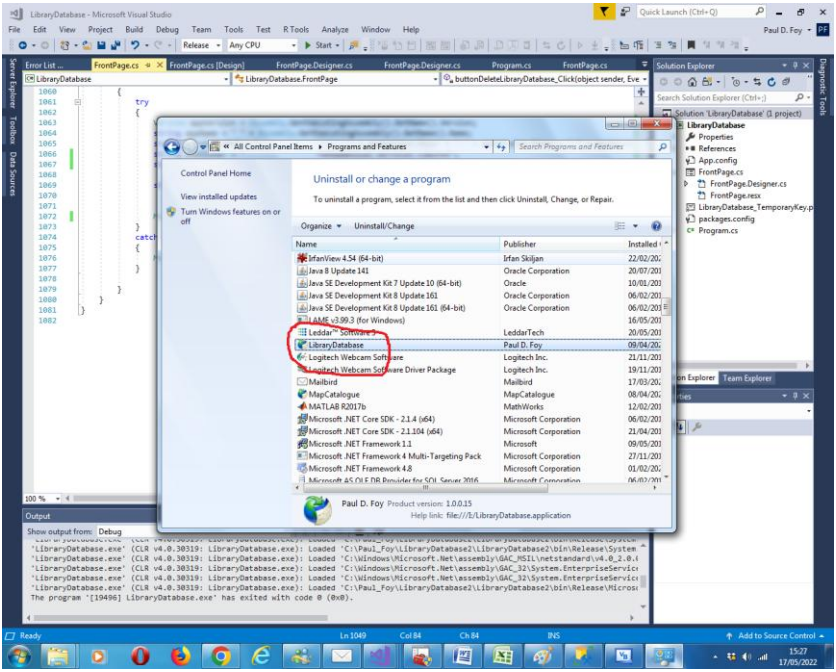
3 Installation/Removal

The program is installed by inserting the supplied stick or disc into the PC and running the ‘setup.exe’ program on it.



The program can be removed from the PC, by using the ‘Program & Features’ menu from within Control Panel.

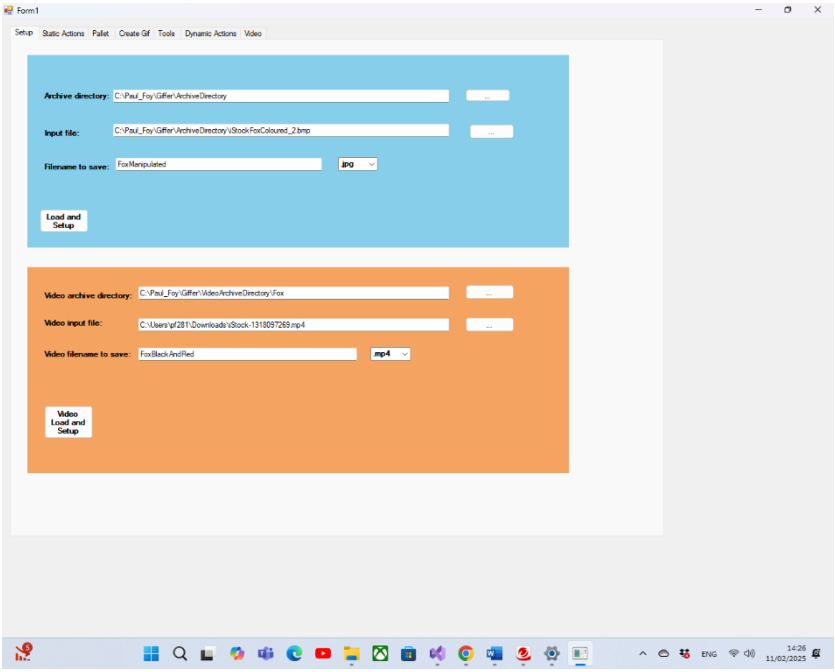
The program is robust to erroneous parameter input, but not completely fool proof.



4 Giffer

The application has several tabs:

4.1 Setup



The text box **Archive directory** is the directory where files created will be saved. This must be selected before the application will function.

The text box **Input file** is the file that the amendment is based upon.

The text box **Filename to save** is the name (without filetype) of the created image. The permitted filetypes are as selected by the adjacent combo box. A file on disc is only created on the

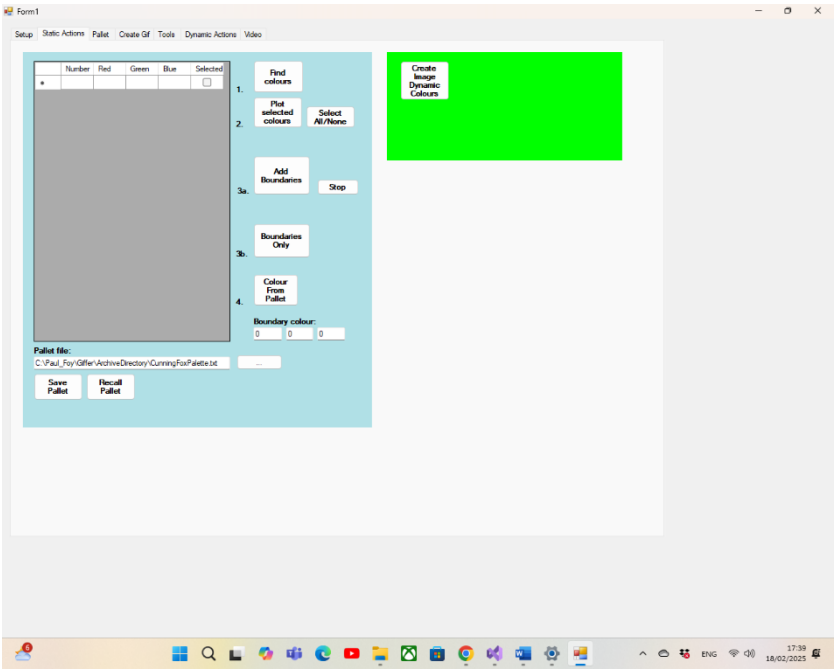
hard disk if the button **Save** on the Pallet tab is hit. The possible file types that can be selected are .jpg,.png, .tiff and .bmp.

The button **Load and Setup** loads the Input file into memory and displays it on the Pallet tab.

The lower panel is for video related functionality. The **Video archive directory** textbox is used for saving created videos. The **Video input file** is the video file upon which subsequent processing is based. The **Video filename to save** is the root of the name for the video. The filetype is selected separately.

The button **Video Load and Setup** loads the video file into memory.

4.2 Static Actions



This tab permits plotting of regions of colour and the boundaries of the regions of colour from the loaded input file.

1. The button **Find colours** identifies all the distinct colours in the input file (according to their RGB values) and lists them in the Flex Grid.
2. The regions of colour corresponding to only the colours selected in the Flex Grid are plotted with the button **Plot selected colours**. All colours in the Flex Grid can be selected with the **Select All/None** button.
3. (a) The boundaries of the selected colours can, in addition, be drawn by using the **Add Boundaries** button. As this process may take some time the calculation can be aborted by using the **Stop** button.

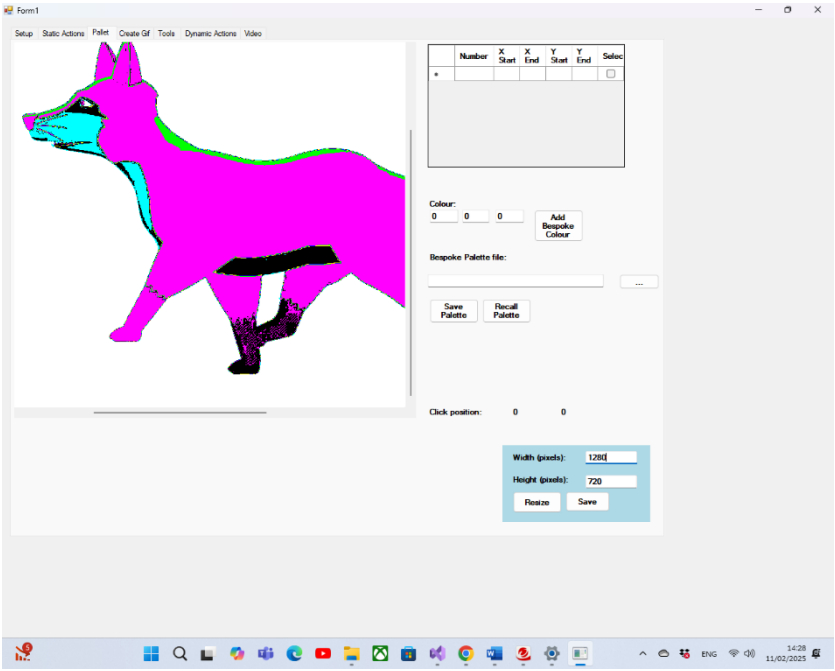
(b) The boundaries only are drawn by using the **Boundaries Only** button.
In each of cases (a) and (b) the boundary colour can be selected below.

4. The colours in the Flex Grid may be amended manually and then these colours can be drawn, *in the same location as the amended colour*, using the **Colour From Pallet** button. The default is black.

The colours (and their order) in the Flex Grid may be saved in a provided Pallet file (which can be selected) and then recalled using the **Save Pallet** and **Recall Pallet** buttons respectively.

The button in the right-hand panel uses the flex grids of the 'Tools' and 'Dynamic Actions' tabs and the descriptions of the actions to perform as in the 'Dynamic Actions' tab to amend the input file (as it did for each frame in the 'Dynamic Actions' tab). The resulting file is displayed in the Pallet tab where it may be saved according to the selections in the 'Setup' tab.

4.3 Pallet



This tab contains a picture box control for receiving the created image. The image may be resized with a new or original size by using the **Width (pixels)**, **Height (pixels)** text boxes and **Resize** button. The image is saved with the **Save** button.

There is extensive support for making an amendment to the existing image (either on the original image or after selected

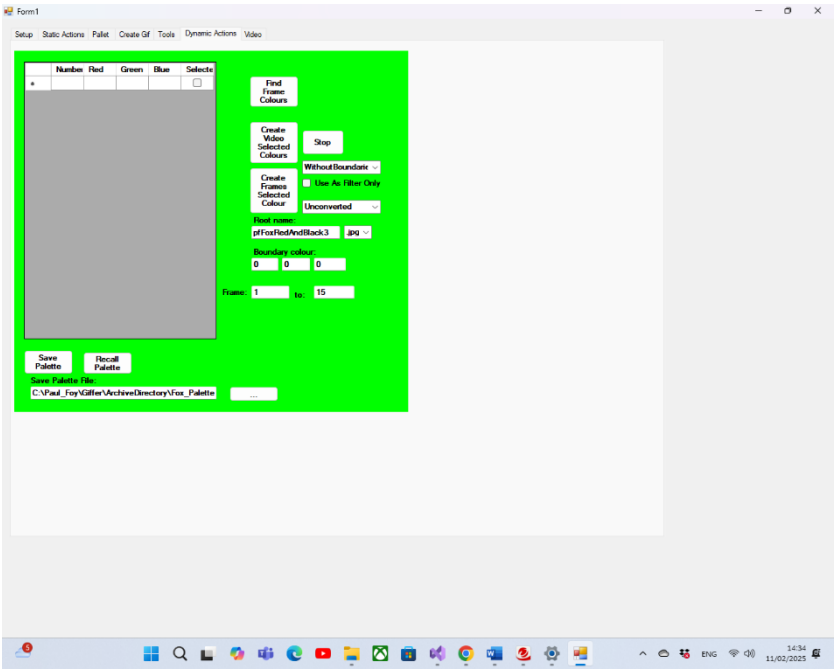
colours and boundaries are plotted). A rectangle may be described in the flex grid and a colour selected may be used to fill in this rectangle. The rectangles provided in the flex grid may be saved in a palette for recall later.

When the user clicks on the picture box control the click position is indicated. This is useful for filling in the coordinates of the flex grid. Picture box coordinates are from the top left corner. X is positive to the left, and Y is positive downwards. Using the bespoke colour provided, and by clicking then drawing the cursor around on the picture box to form a closed curve and then clicking in the closed curve a bespoke area of colour may be created.

When working in this drawing mode capacity it is important to ensure the width and height of the picture box corresponds to width and height of the underlying image (otherwise there is a mismatch between image position and screen position).

Double clicking anywhere in the picture box image shows the RGB values of the underlying colour in the three **Colour** text boxes.

4.4 Dynamic Actions



This is a tab for creating videos from the original video selected in the setup screen. The application works by populating the Flex grid with a colour palette and then working with these colours.

Separate colours may be selected and then to each frame (between the frames) this colour may be added to a newly created video with or without a boundary. This is the function of the **Create Video Selected Colours** button. The amendment to each frame may be ‘WithoutBoundaries’. ‘WithBoundaries’ or ‘OnlyBoundaries’ as selected in the adjacent comboBox. These mirror the functions of the button in the Static Actions tab, yet to each frame of the video separately. The boundary colour is as prescribed. A *selected* colour is included if it is *nearest* to one of

the colours in the original video. The criteria are a least square one by comparing the original video colour to a flex grid colour.

The check box **Use As Filter Only**, if selected, works in the following way: If a selected colour is nearest to an original colour in the video, then rather than draw this colour, the colour of the corresponding position in the Flex grid on the Colours tab is used instead. In this way the user may substitute 'natural' colours with provided ones. The Flex grid of the Dynamic Actions tab is used as a filter to identify natural colours to be replaced by the colours in the Colours Flex grid. When the colours are known, limited and easily identifiable it is not necessary to use this technique as the colours can be spotted easily in the frames of the video.

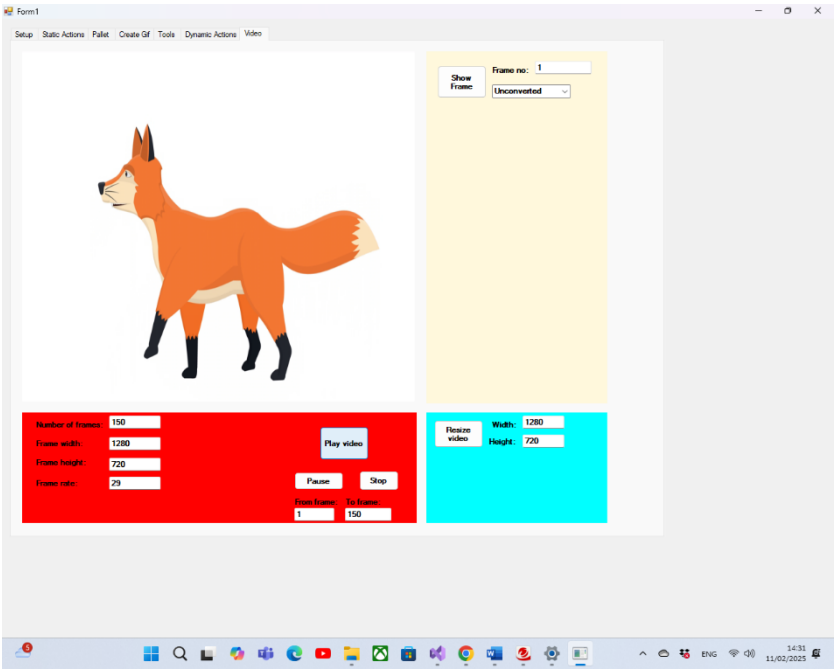
As a way of working it is often easy to obtain an image (related to the video in some way) and list the colours using the Static Actions tab, which also populates this Flex Grid and the Flex grid in the colours tab. For example use the related application 'Artist' to create a stylized video based on the same original video but with a limited number of colours. An individual frame is then exported and used in the Static Actions tab to list the colours which are used in this tab.

By using the colours Flex grid and the reference colours Flex grid of the tools tab it is possible to export all the frames of the changed video into the Video archive directory. This is with the button **Create frames Selected colour**. Each frame may be converted ('Without boundaries', 'With boundaries' or 'Only boundaries') as before or simply exported unconverted according to the selection in the adjacent combo box. The root name of the video is as provided in the **Root name** text box along with the selected extension.

As the process of creating the video or frames can take some time the action can be stopped with the **Stop** button.

The palette of colours in the Flex grid can be saved and recalled using the **Save Palette** and **Recall Palette** buttons respectively.

4.5 Video

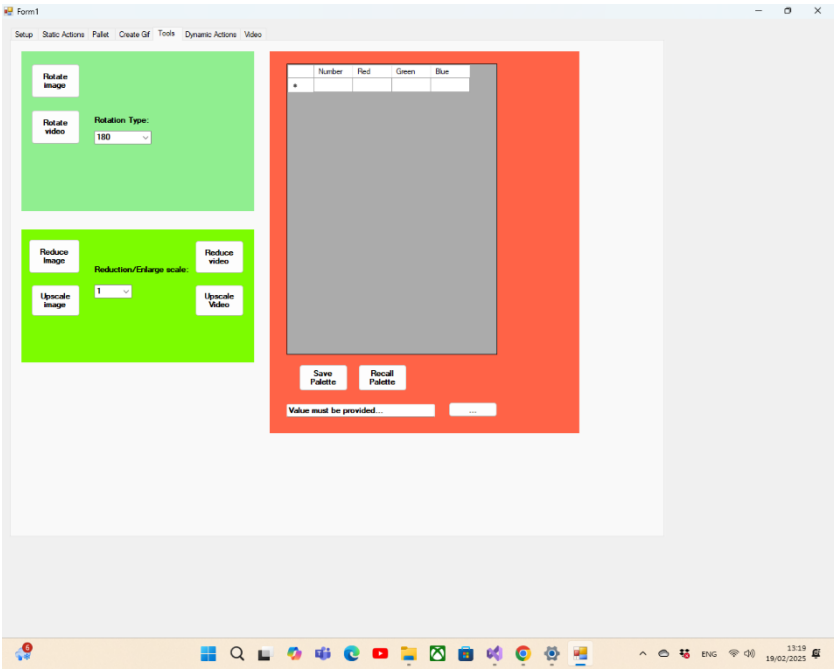


This tab is used for playing the loaded video via the **Play Video** button, between the frames selected. The video replay may be **Pause**d or **Stop**ped.

The bottom right panel is used for Resizing the picture box control to the desired width and height (in pixels).

The top right panel is used for displaying an individual frame either before or after conversion, via the **Show Frame** button. The conversion performed is as prescribed by the settings and selections as made in the Dynamic Actions and Tools tab.

4.6 Tools



The right-hand panel and flex grid of colours may be used in combination with the Dynamic Actions tab to colour an image (as described in that tab) when the **Use As Filter Only** check box is selected. Again the palette used here may be saved and recalled using the buttons.

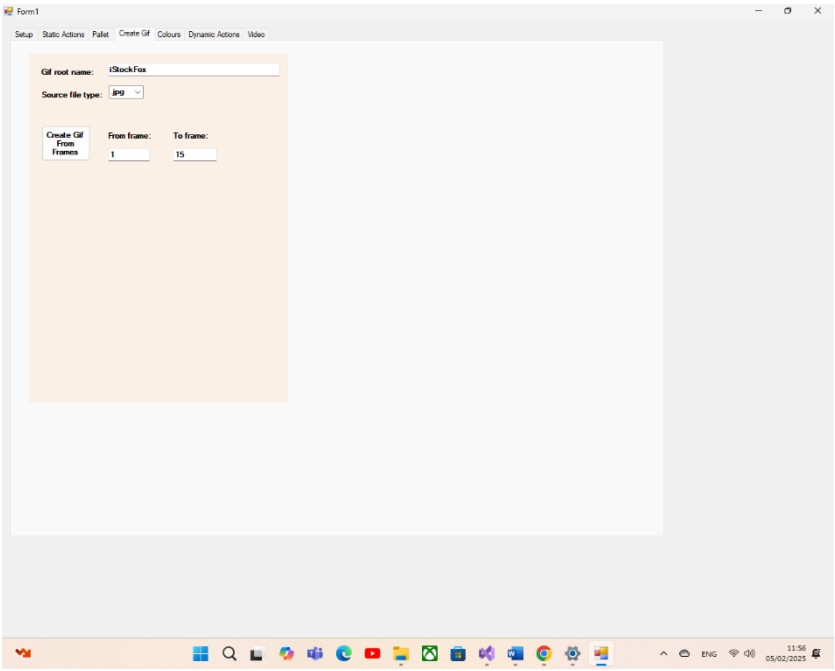
The left-hand panel may be used to

(a) Rotate the image to be processed via the **Rotate image** button.
(b) Create a new video in which each frame is rotated. The frame is with a filename and type as specified in the Video Setup panel of the Setup tab. The new video is placed in the video archive directory. This is using the **Rotate video** button.

In each case the rotation may be either to the left by 90 degrees, to the right by 90 degrees or upside down (by 180 degrees), as selected in the **Rotation Type** combo box.

The bottom left-hand panel is used to reduce or increase the dimensions of the input file, or frames of the video. The scaling factor is two to the power of the value selected in the combo box. Thus if 2 is selected the image is reduced (or enlarged) by a factor of four in each dimension.

4.7 Create Gif



Use the button **Create Gif From Frames** to create a video with the .gif filetype extension from the prescribed frames. The root name of the frames is as provided by the **Gif root name** textbox with the annotation '_n' for frame 'n'. The frames to be processed reside in the **Video archive directory**. The **Source file type** is as prescribed in the Filename to save filetype Combo box.

5 Example Workflow

A video is loaded into the program. Then using the colours palettes in the Dynamic Actions and Tools tabs respectively the video is converted into one having a more limited number of colours (if it was an .mp4 video initially). This can be saved as a .gif file, thus preserving the limited number of colours.

This .gif file can then be reloaded into the application for easier colour identification, change and manipulation. Remember if you want to preserve the limited number of pure colours it must be saved again as a .gif image or series of .bmp files.

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February 2025