PhotoGrav 3.0

Overview and What's New
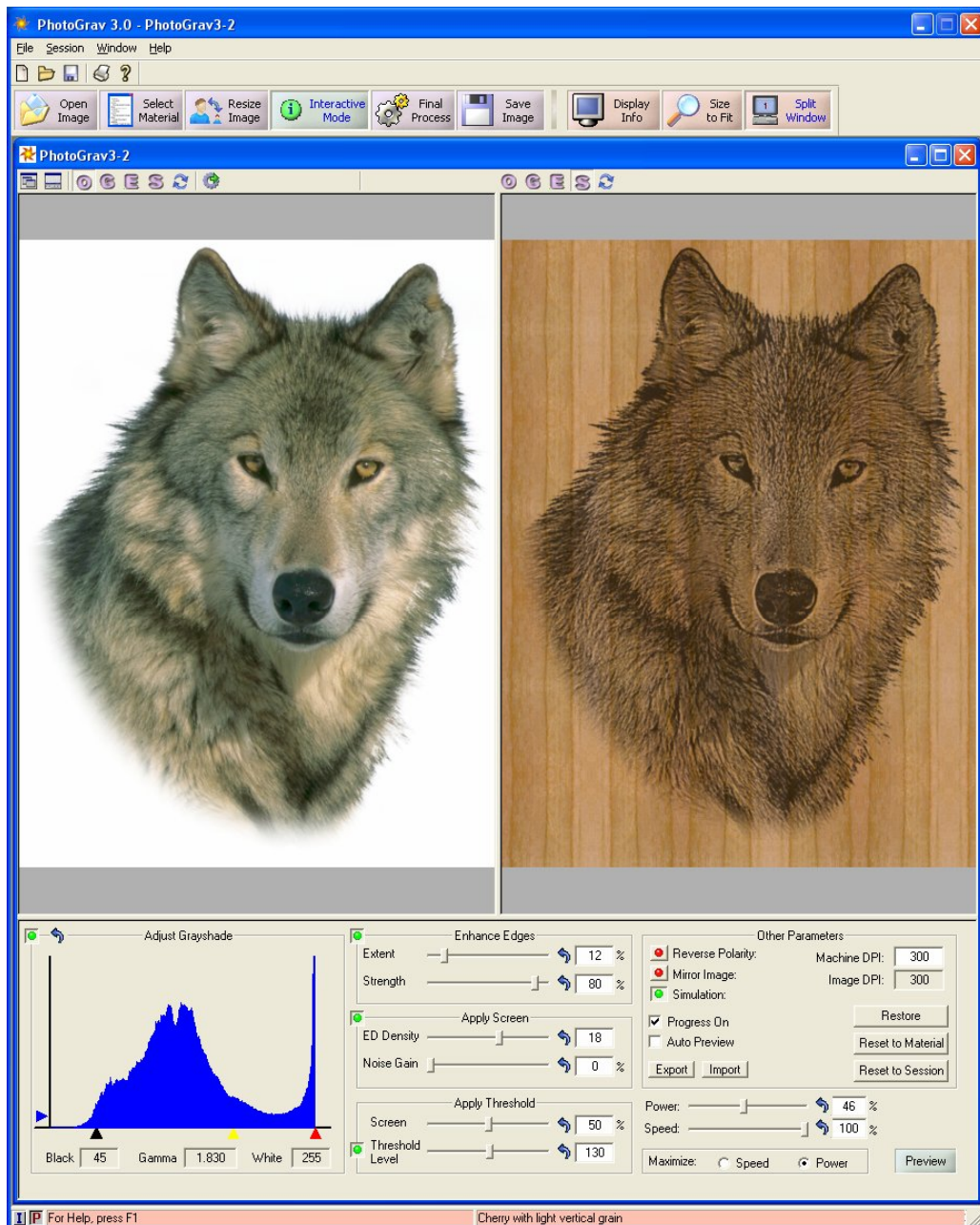
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Introduction

PhotoGrav 3.0 seeks to build on and improve the demonstrated success of PhotoGrav 2.11 to the laser engraving industry. This document is intended to give a brief overview of PhotoGrav 3.0 and its most important new and additional features. It also describes how the new user interface's features relate to version 2.11.   PhotoGrav version 3.0, like version 2.11, was designed first and foremost for simplicity of use. It is intended that by far the most common use of PhotoGrav is listed in the following 8 steps:

1. Launch PhotoGrav 3.0
2. Open the source color or grayscale image (jpg, tif, bmp, png).
3. Select the material of choice or import existing parameters from version 2.11.
4. Resize/Resample the image to the appropriate size (inches) and resolution (dpi).
5. Final Process (formerly Auto Process).
6. Save or Export the image or images in any of the supported image types. The binary/engraved image can only be saved as a tif/bmp/png; saving in jpg format is not permitted for binary image types.
7. Print and/or Save the Engraving Session Information.
8. Shutdown PhotoGrav 3.0

That's all there is to it! These 8 steps outline the overall approach to using PhotoGrav 3.0. Now, there are a number of other tools and techniques built into PhotoGrav 3.0 that one can learn to use which can significantly increase your productivity. Let's take a look at some of the new and/or enhanced features in more detail.

Session Files

One of the design improvements in version 3.0 is the addition of "Session Files". A session file is a file that is designed to **save** the current state of ones work including all parameter settings, user preferences, machine and material info, as well as the source image. Permitting the source image to be saved with the session alleviates the need to remember where the "original" image file is located. One can simply reopen the session file and perform any necessary modifications and/or adjustments without having to relocate the original image. On the other hand the image is not required to be saved with the session which is the default setting.

If one happens to be using PhotoGrav for multiple engravers the machine information will be stored in the session file as well. This permits one to save **machine/material** "templates" such that the user can just open up the session "template" pertaining to that particular machine/material and begin using PhotoGrav with the machine and material info already selected.

Due to the new session file design format, however, one must keep in mind that there are now **two** modes of selecting a machine and/or material. These two modes are selecting the "session" machine/material (Figure 1) and setting the "system" material/machine (Figure 2). The "session" selection stays with that particular session and the "system" selection sets the default material/machine type so that any **new** session that is created will default to the machine/material type that is selected in the "system" settings.
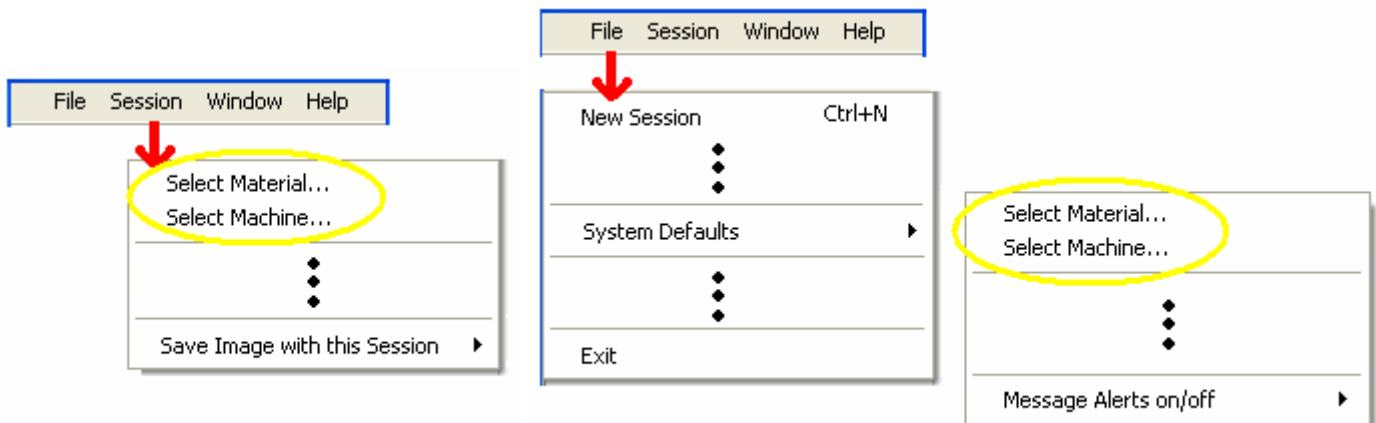

Figure 1

Figure 2

Almost everything else in this document pertaining to PhotoGrav 3.0 is in the context of a PhotoGrav session file (.pgs).

Information Views and Panels

PhotoGrav 3.0 provides a few options for displaying information about the image, session, machine, parameters, etc. The session window is divided up into 2 primary views. The first is the "Image" view. This is where the images are displayed and image commands such as zoom in, zoom out, pan, etc. are performed. Due to the numerous sizes and resolutions of existing monitors PhotoGrav 3.0 offers the ability to view the images in either single or split view mode. This allows for a larger viewing area where the images can be cycled one at a time in single view mode. On the other hand it also permits one to compare side-by-side the resulting images in split screen mode (Figure 3).
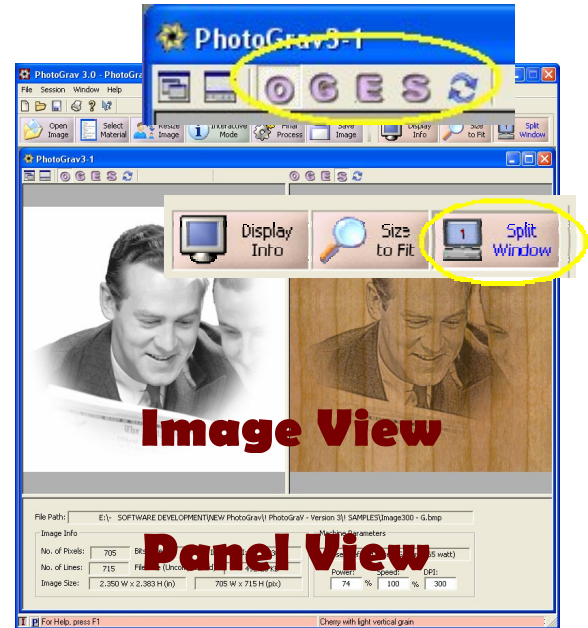

Figure 3

The second view that provides information is called the "Panel" view. The "Panel" view is further divided into 2 subsequent views named "Image Info" and "Parameter Info". Either of the "Panel" views can be displayed or hidden by clicking the button as indicated in Figure 4. The "Image Info" panel can be displayed by

Figure 4

clicking the "I" as indicated in Figure 6 and simply shows basic information about the image and the currently selected machine. The next sub panel is the "Parameter Info" panel which can be displayed by clicking the "P" as indicated in Figure 5 and displays a fixed summary of the current parameter settings. This "Parameter Info" view changes to permit adjustments and modifications to the parameters when in "Interactive Mode" which will be discussed shortly.
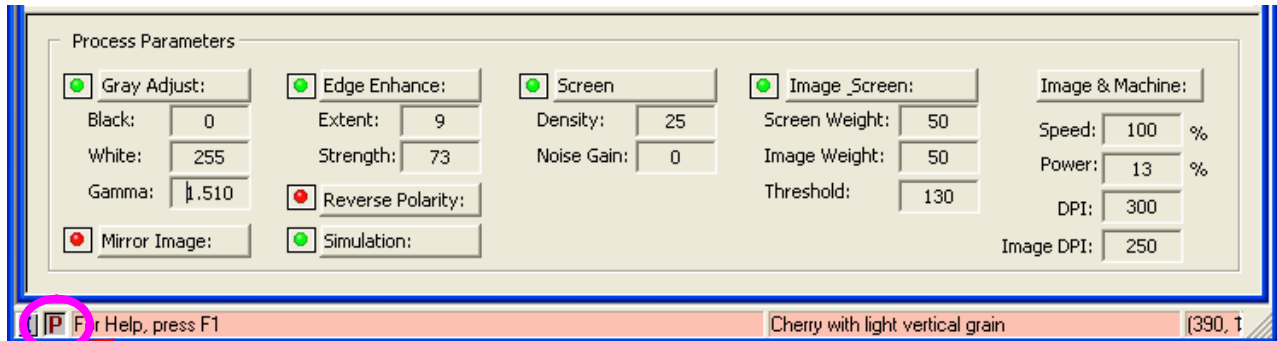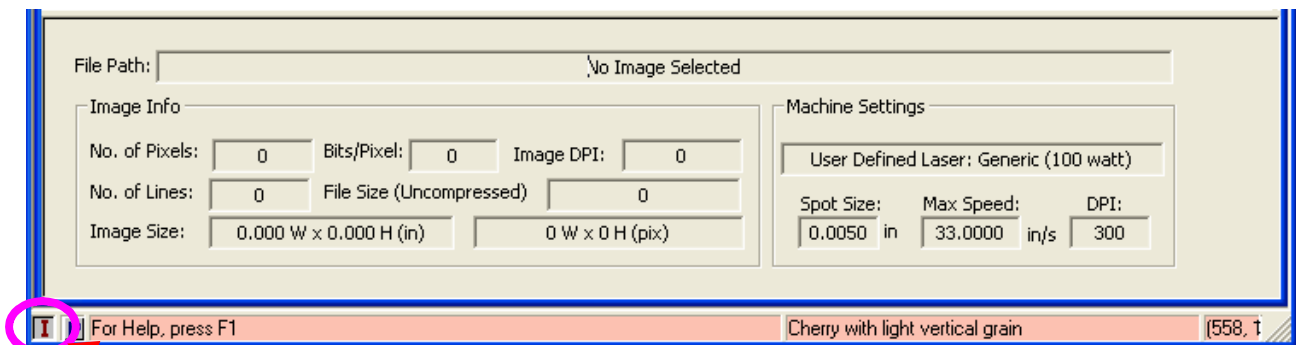
Figure 5

Figure 6

Another source for information is the "PhotoGrav Report" or "Session Info" (Figure 18). This is a formatted report of the parameters, machine, and image settings for a particular session that can be viewed or printed. The "Session Info" can be displayed by clicking the "Display Info" button as shown in Figure 7 and can be closed as can be seen in Figure 8.

Figure 7

This report also includes thumbnail images of the original and simulated image types. This provides an opportunity to print and file every job performed while having quick access to all the data that was used for that job. One can also use it to quickly view all the relevant settings for a session in a neatly organized fashion.
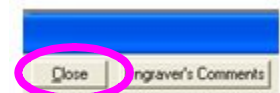

Figure 8

Interactive Mode

In PhotoGrav version 3.0 an attempt was made to completely redesign the "Interactive Mode" with the intention that more PhotoGrav users could move through the hurdle from casual user to a much more advanced user with relative ease and efficiency. The developers of PhotoGrav have discovered that by far the majority of users have never learned to use all the advanced features that PhotoGrav has to offer. Due to this fact PhotoGrav 3.0 consolidated all the different screen settings into a single "interactive mode, parameter panel view" (Figure 9).
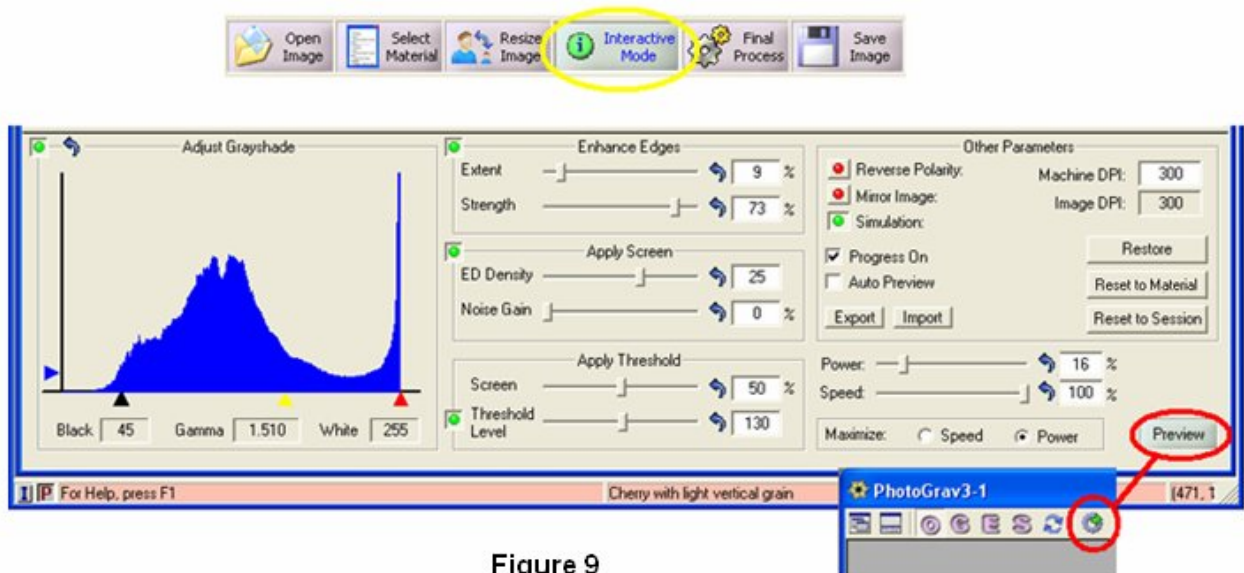

Figure 9

Interactive mode is designed for the primary purpose to provide a quick and efficient preview of the final image, since with average size images it would simply take too long to run through the entire PhotoGrav processing pipeline every time a small change is made to a parameter. With this in mind PhotoGrav 3.0 distinguishes between "Preview" and "Final Process". The "Final Process" button (formerly called "Auto Process" in version 2.xx) takes the raw image data along with the current material, parameter, and machine settings and completely processes the image producing the binary or engraved image ready to be saved and engraved. On the other hand the "Preview" button (only available in "Interactive Mode" see Figure 9) processes a scaled version of the image (NOT THE ORIGINAL IMAGE) suitable for rapid viewing as one adjusts and modifies the parameters in almost if not real time.

In PhotoGrav 2.xx one is limited to a fixed display size whereas in PhotoGrav 3.0 one is not restricted to a fixed display size. The removal of this restriction provides for a larger viewing area for a more accurate representation of the resulting image. However, a larger viewing area requires more processing

speed in order to maintain real time performance. The real time performance of interactively adjusting the parameter settings is directly correlated to the size of the image and the size of the display screens viewing area. Although it is undoubtedly a better option to remove the fixed display restrictions which better prepares PhotoGrav to adapt to the increasing speeds of modern computers. Even with existing average to high end computers one can expect almost real time performance when interacting with the parameters while in "Interactive Mode".

Due to the plethora of monitor and display types, resolutions, and sizes that exist in the market place today PhotoGrav 3.0 offers a couple of options to facilitate the advanced user who relies on the "Interactive Mode" in their production cycle. The first option is the "Auto Preview" check box (Figure 9). This is provided to give the user the ability for PhotoGrav to regenerate the preview image automatically after each parameter adjustment without the user having to manually click on the "Preview" buttons. The user may select to turn this on or off depending on the image size and/or display screen size to increase performance. The second option is the "Progress On" check box. This option offers the user the option of increasing performance by turning this off. When the progress bar is turned off then PhotoGrav will process the "Preview" image slightly faster; however, with larger images and depending on the speed of the users' computer one may want to turn this on. By turning this on it gives a "heads up" as to what PhotoGrav is doing followed by an indication when the "Preview" image is ready for display.

Once the image and parameters are determined either in "Interactive Mode" or otherwise then the user can select to process the image using the "Final Process" button. Clicking on the "Final Process" button inherently assumes that the user is now ready to prepare and process the image for engraving and exporting. Once the final processing is complete one can export/save the images or compare the images to other sessions (see *Comparison of Results* later on).

While working in "Interactive Mode" the user may want to restore the parameters to a previous value. PhotoGrav 3.0 provides parameter restoration at 3 different levels. The first is "Restore" which restores the parameters settings of the current session to the values it carried along the last time that the image was processed using the "Final Process" button. The second method of restoration is "Reset To System". This resets the parameters to the default settings of the base material selected for that session. And finally the third level of restoring the parameters is "Reset To Last Saved". When one clicks this button it resets the parameters back to the settings since the session was last saved.

One may want to export/import some parameter settings while in "Interactive Mode" and therefore PhotoGrav 3.0 offers these capabilities through the selection of the respective buttons (Figure 9). PhotoGrav 3.0 allows the user to import parameter settings from version 2.xx (.prm files) or version 3.0 and later (.pgp files), however, one can only export parameter settings in version 3.0 and above formats (.pgp files).

Working with Images

One of the significant new features in PhotoGrav 3.0 is the ability to handle multiple file formats. In version 2.xx 8-bit grayscale images were the only image type accepted. PhotoGrav 3.0 now has the capability to handle and process images directly from color to binary. PhotoGrav 3.0 supports the 4 most popular image types available today which are jpeg, tiff, bmp, and png image formats.

Figure 10

In version 2.xx one could cycle through the various images, namely grayscale input, binary output, and color simulated. Since PhotoGrav 3.0 now handles color images as the input there are 4 images that one can select for viewing, namely **O**riginal input, **G**rayscale, **E**ngraved/binary, and the **S**imulated images (Figure 10). Moreover, PhotoGrav has built in "hot" keys, for those who prefer to use the keyboard, to switch between the four different images. The "hot" keys for the Original, Grayscale, Engraved, Simulated images are **F6, F7, F8, F9** respectively. If one has "Split Screen" selected then the existing images can be selected independently for each screen. The "hot" keys for the second viewing pane are **CTRL+F6, CTRL+F7, CTRL+F8, CTRL+F9** for the Original, Grayscale, Engraved, Simulated respectively.

Figure 11

To open an image one can select the "Open Image" button on the primary command bar. This button can be selected even if there is no session window open in which case a new session window will be created and the respective image inserted into that session. If, on the other hand, an existing session is open then the selected image will replace the existing image if an image exists. In other words, if the user already has a session open, then he or she should create a "New" session prior to opening the image to prevent the replacement of the existing session's image.

Once the image is opened, with the size and resolution adjusted as needed, and the appropriate material selected one is ready to "Final Process" (formerly Auto Process) the image. The image can be inspected either before or after the image is processed. PhotoGrav 3.0 offers similar zoom and pan options as in PhotoGrav 2.xx (Figure 11). Since PhotoGrav uses and processes the "actual" data on each zoom or pan window display one can notice a bit of a delay. This is a trade off that exists in order to achieve as accurate viewing results as possible. By left or right clicking of the mouse button one can incrementally zoom in or out respectively. It is also possible to drag a zoom "box" or rectangle around the desired area for closer inspection of the images. Another image command is the "pan" command. This command centers the image at the point where the mouse button was clicked. Holding down the [Space Bar] will activate this command. Finally there is a "Size to Fit" command located on the primary command bar. This command resets the image to the size of the image display window.

Now that the image has been processed it is ready to be saved to disk for engraving (Figure 12). To do this simply select "Save Image" and save the appropriate images to disk in any of the PhotoGrav supported file formats. The only exception is the "Engraved" image which cannot be saved as a jpeg due to the fact this format usually uses a lossy compression type scheme which would create dire effects on the engraved image. One can elect to save the images while flipping either horizontally, vertically or both. One may find the "Flip Horizontal" check box to be turned on depending on the material type selected due to the fact that some material types such as acrylic engrave better on the back side, therefore requiring the image to be flipped or mirrored.
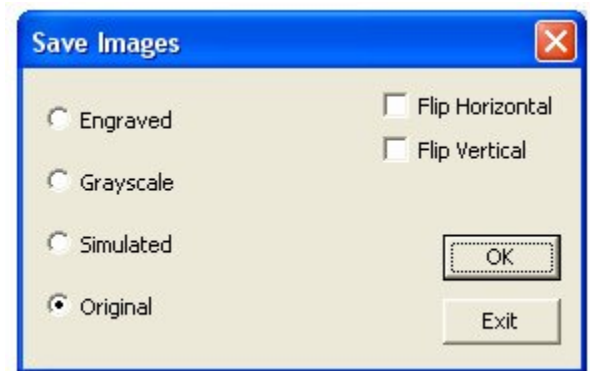
Figure 12

After the "Save Image" dialog is opened one must select the "Exit" button to close out of this dialog screen. The reason for this is that often one may want to save more than just the "Engraved" image so this goes into a continuous loop until all images are saved as needed.

Comparison of Results

The comparison of images whether simulated or otherwise can be an efficient time saving procedure when it comes to preparing the image for engraving. PhotoGrav 3.0 offers two different methods by which one can compare the processed image. The first is to compare the various images solely within a particular session (Figure 13) and the second is to compare the results of two sessions with each other (Figure 14).
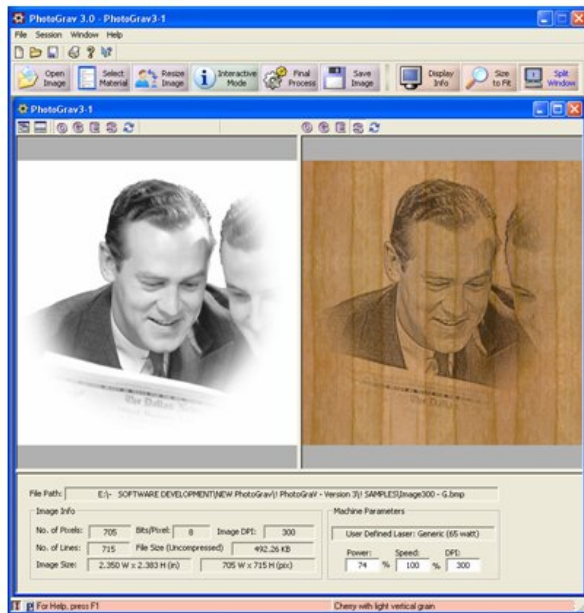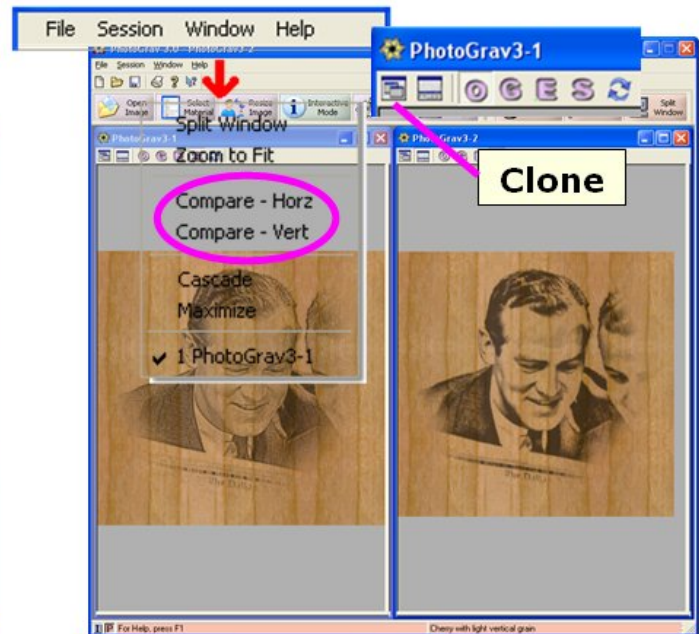

Figure 13

Figure 14

Learning how to use this feature along with the simulation of results should once again increase productivity. While the simulation is attempting to get as close as possible to the final results there are many variables that affect the actual versus the simulated results. Therefore, it is recommended that one think of this more as a relative comparison of the simulated images rather than an absolute final result. This essentially means that once one learns how a particular "simulated" image compares to the actual engraved image for a specific material and machine type; then a "relative" difference or pattern should emerge giving the user a sense of how to adjust the parameters to improve the actual engraving. This simulation feature was significantly relied upon during the design of PhotoGrav to improve performance and efficiency.

In PhotoGrav 3.0 there is a "Clone" button to further assist in comparing processed results (Figure 14). This "Clone" button assumes that the user wants to spin off or clone another session based on the current active session. This provides an exact duplicate of the current selected session or active session. Now one can quickly process another session and compare the two (if desired) without having to go through the whole process of reopening the same image in another session.

Automatic Updates

One of the major drawbacks of PhotoGrav version 2.xx is the inability for additional materials and machine types to be added to the list of materials/machines to choose from (Figure 15). PhotoGrav 3.0 has many more materials and machines included out of the box _with the capability to automatically download any new materials and/or machine types once they become available._ This does not prevent one from still saving/exporting and loading/importing parameter files from both PhotoGrav 3.0 and version 2.xx or custom configuring the machine settings as required. To check for and download any new machines and materials go to **[Help]→[Check for Updates]**.
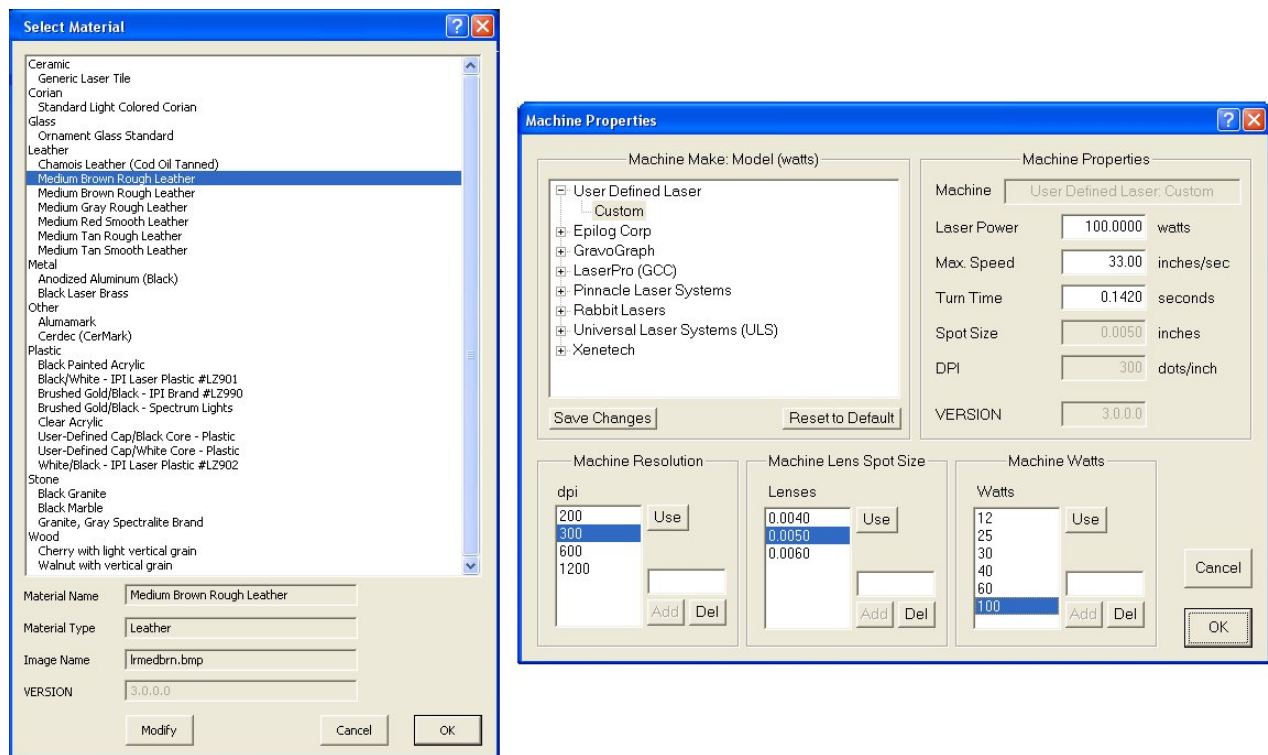

Figure 15

Resize/Resample Images

Resizing or Resampling the original image is almost always a requirement because one rarely receives the image in the actual size needed for engraving (this does vary some depending on the engravers policy). PhotoGrav 3.0 offers the ability to resize or resample an image to the desired size and resolution without having to depend on other software.

PhotoGrav will raise a notification if it detects a discrepancy between the selected machine resolution and the resolution of the image (Figure 16). The image should be resampled to the same resolution (or an integer multiple of) as the desired engraving resolution (machine dpi setting).
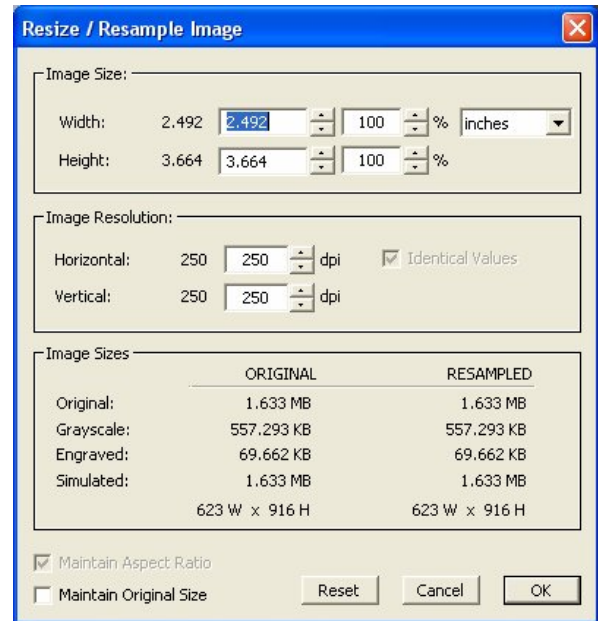

Figure 16

PhotoGrav uses the machine settings exclusively to prepare and simulate the image to give the user an estimate or relative difference of what to expect when the actual engraving is performed. Therefore, PhotoGrav does not adjust the "actual engraver" setting which is usually modified through the software driver that comes with the engraver, but rather only adjusts the machine setting in PhotoGrav 3.0 which is used to prepare the image for engraving.

Licensing and Security

PhotoGrav version 3.0 incorporates a "PhotoGrav Activation System" (Figure 17). This provides an opportunity to activate the software by Web, Email, or Phone. The PhotoGrav 3.0 license allows for installation on up to 2 different machines and reactivation on the same machine as often as needed. After installation the user has 15 days to activate the software and once the activation is complete the software may be used indefinitely. If one has any issues regarding this procedure please give us a call and we will be happy to address any specific needs.
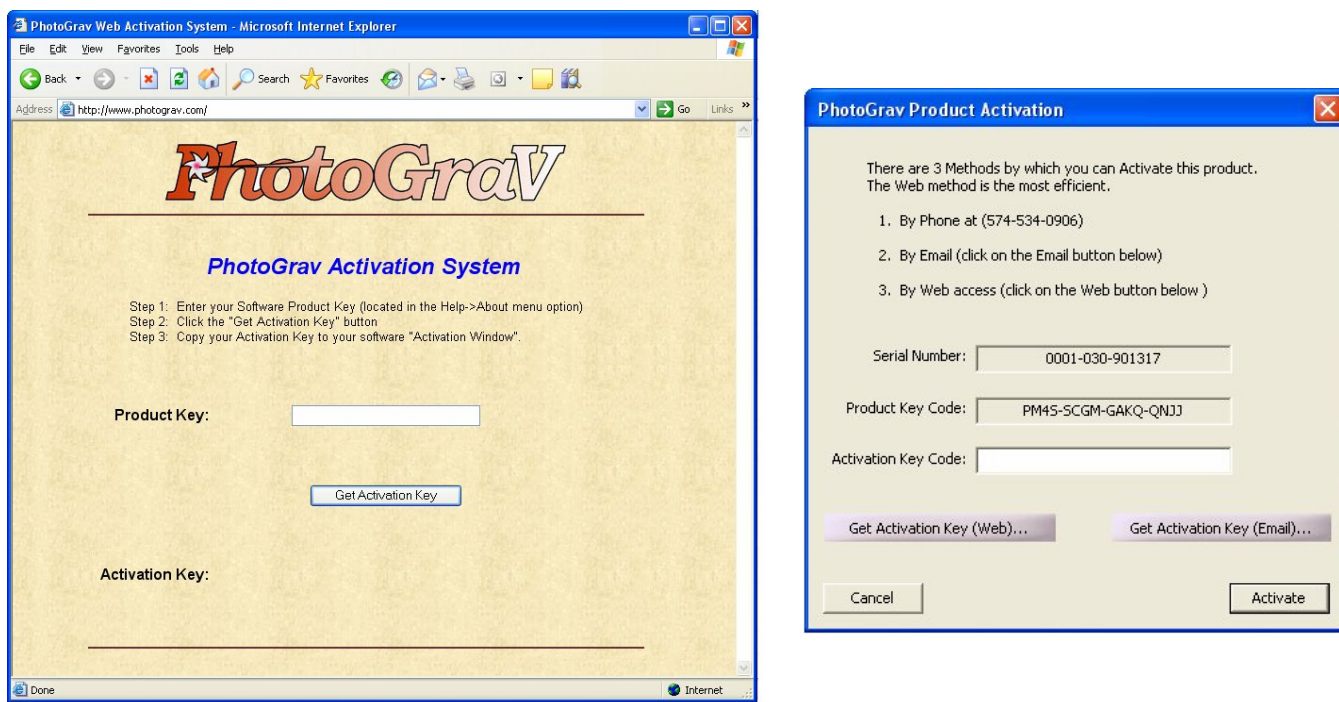
Figure 17

Conclusion

This has been a brief overview and introduction to the new, enhanced and improved features of PhotoGrav 3.0. It also illustrates and outlines some of the primary functions one is expected to perform while using PhotoGrav. While PhotoGrav 2.xx has been shown to be very successful and well received within the laser engraving industry, we believe that PhotoGrav 3.0 not only addresses the inconveniences that existed in Version 2, but also offers substantial improvements in and extensions to almost all of the functions that PhotoGrav performs.

Please don't hesitate to give us a call or email us with any feedback or questions regarding the PhotoGrav Software Product. We would like to help you achieve the best results possible for laser engraving photographs on a wide range of materials. We at ImageLaz hope that you find PhotoGrav 3.0 helpful to your engraving endeavors, and that you can become increasingly more efficient yet maintain a superb laser engraving product. Thank you for your support.

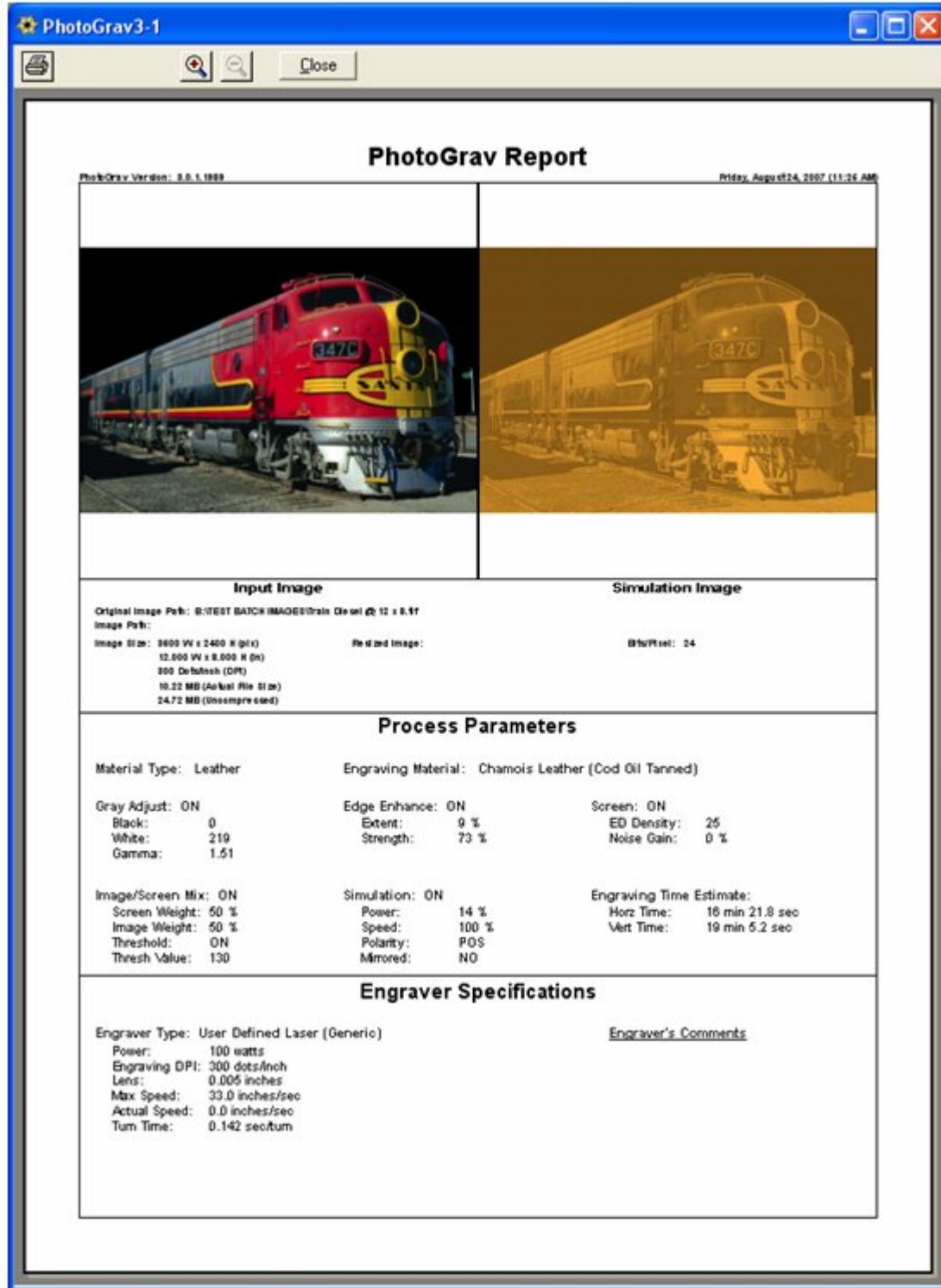*Jerry L Troyer*

Jerry L Troyer, President, ImageLaz LLC

Figure 18