

Portrait Pro User Manual

Version 19.0

Anthropics Technology Ltd

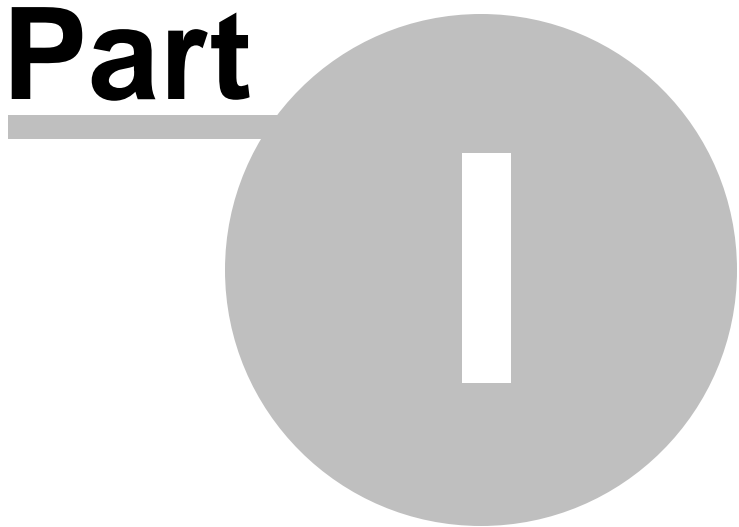
www.portraitpro.com

Table of Contents

Part I Getting Started	5
1 Quick Start Guide.....	6
2 Tips For Best Results.....	7
3 PortraitPro Editions.....	7
Part II Step By Step Guide	11
1 Open An Image.....	12
2 Check Face.....	13
3 Enhance Face.....	14
4 Save Result.....	14
5 Automatic Batch Processing.....	15
6 Manual Batch Processing.....	17
7 Manually Locate A Face.....	17
8 Adjust The Outlines.....	19
9 Full Body Enhancement.....	22
10 Plug-in Mode.....	22
11 Group Shots.....	23
12 Select Face.....	24
Part III Reference	27
1 Menu Commands Reference.....	28
File Menu	28
Edit Menu	30
Auto Batch	30
View Menu	31
Help Menu	31
2 Toolbar.....	32
3 Controls Panel Reference.....	34
Zoom Control	35
Presets	37
Snapshots	39
Slider Controls	39
Face Sculpt Controls	41
Skin Smoothing Controls	44
Skin Lighting & Coloring Controls	47
Makeup Controls	49
Eye Controls	53
Mouth & Nose Controls	57
Hair Controls	58
Picture Controls	60

Layers	62
View /Edit Background Mask.....	63
Change Background.....	67
Overlays	70
Skin Area Tools	70
Hair Area Tools	71
Effects Mask Tools	72
4 Dialogs Reference.....	72
Automatic Batch	73
Manual Batch	75
Select Gender	78
Save Image Options	78
Settings	79
General Settings.....	81
Color Settings.....	83
Language Settings.....	85
Plugin	87
GPU Settings.....	88
Save Preset	88
Manage Presets	89
5 Tools Reference.....	90
Pan Tool	90
Brush Tools	90
Area Brush Tools	92
Crop Tool	93
6 Plug-in Installation Guide.....	94
7 Third Party Credits.....	94
8 Supported File Types.....	110
9 Keyboard Shortcuts.....	112
 Index	 115

Part



1 Getting Started

Introduction

PortraitPro is the easiest and fastest way to re-touch portraits, allowing you to achieve professional results in minutes.

PortraitPro works in a completely different way to ordinary airbrushing and photo editing software that is available. PortraitPro has been trained with thousands of examples of human beauty, and as a result you can add as much or as little photo enhancement as required - by simply moving sliders.

Due to the innate knowledge of human beauty and expert lighting techniques that is built into PortraitPro, the highest quality photo touch-up can be achieved by anyone in just a few minutes.

PortraitPro is available in three [editions](#) ^[7], Standard, Studio and Studio Max. All editions are covered by this manual.

PortraitPro is available for Windows and Mac computers. This manual is for the Mac PortraitPro.

Getting Started

Take a look at the [Quick Start Guide](#) ^[6] to see a quick overview of how to use PortraitPro.

The [Step By Step Guide](#) ^[12] provides more detailed information about each step.

In addition, the application itself has built in tutorials that show you how to use most of the functionality available.

If you need further help, please visit www.portraitprofessional.com/support where you see the latest FAQ, and access our support ticket system. The support ticket system lets you send a question to our support staff.

1.1 Quick Start Guide

Tutorials

The quickest way to becoming an expert PortraitPro user is to follow all the tutorials available from the application home screen.

Enhancing an Image

These are the basic steps to follow when enhancing an image:

1. [Load the image you want to enhance](#) ^[12]
2. [Check the face has been detected correctly](#) ^[13]
3. [Apply presets or adjust the sliders](#) ^[14]
4. [Save the result](#) ^[14]

1.2 Tips For Best Results

[Don't push the sliders up too far](#)

Often, you can greatly improve a picture with fairly subtle changes.

Push the sliders up just far enough to get the results you want.

If you go too far, the result can look unnatural.

[Don't use the sliders to fix small blemishes](#)

You can avoid the need to push the sliders up too far by using the [Touch-Up](#)^[44] tool to clean up spots and blemishes. By correcting these areas specifically, you can leave the rest of the skin looking natural.

[Make sure the skin area is right](#)

PortraitPro automatically works out which areas in your picture are skin. However, you can sometimes improve the results by adjusting the skin area selected.

Use the skin [Extend and Cut Back](#)^[70] tools to refine the skin selection.

[Make sure the outlines are accurately placed](#)

You will get the best results if the outlines are accurately placed. Although the automatic face finder usually does a good job of placing the outlines, you can sometimes improve the results by adjusting the positions of the outlines. In particular, make sure the outlines around the outside of the face follow the edge of the face. This is especially important if any skin re-lighting or makeup is being applied.

The outlines can be adjusted in the **Before** view, or at the [Enhance Face](#)^[14] stage.

1.3 PortraitPro Editions

PortraitPro comes in three editions, Standard, Studio and Studio Max. The Standard edition is intended for more casual users or amateur photographers. The Studio edition is intended for enthusiast or professional users. The Studio Max edition has all the features of the Studio edition, and adds an automatic batch facility for photographers who process a lot of images.

This manual covers all editions, with features that are only available in some editions indicated in one of these ways:

[Studio Max Edition Only](#)^[71]

[Studio & Studio Max Editions Only](#)^[71]

[Studio Edition Only](#)^[71]

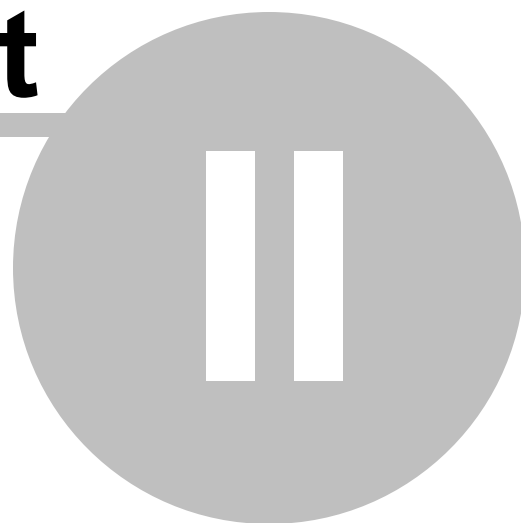
The following table shows the main features of PortraitPro, and which editions they are in.

Standard	Studio	Studio Max	
----------	--------	------------	--

✗	✗	✓	Automatic batch facility
✗	✓	✗	Manual batch facility
✗	✓	✓	Available as a Photoshop plug-in with Smart Filter capability.
✗	✓	✓	Available as a Lightroom plug-in
✗	✓	✓	Read camera RAW format
✗	✓	✓	Read Adobe DNG format
✗	✓	✓	Read & write TIFFs and PNGs containing 48 bits per color
✗	✓	✓	Support for JPEG, PNG and TIFF embedded color profiles
✗	✓	✓	Supports conversion between different color spaces
✗	✓	✓	Supports setting monitor and working color spaces
✓	✓	✓	Skin smoothing
✓	✓	✓	Skin re-lighting
✓	✓	✓	Skin re-coloring
✓	✓	✓	Face sculpting
✓	✓	✓	Eye enhancing
✓	✓	✓	Hair enhancing
✓	✓	✓	Mouth enhancing

✓	✓	✓	Apply makeup
✓	✓	✓	Manual touch-up brush
✓	✓	✓	Picture controls
✓	✓	✓	Background editing controls
✓	✓	✓	Unlimited fully customizable presets
✓	✓	✓	Enhance more than one person in a photo
✓	✓	✓	Read and write JPEG, PNG and TIFF format images
✓	✓	✓	Free online support

Part



2 Step By Step Guide

This section of the manual describes the various stages that you may need to go through when you use PortraitPro.

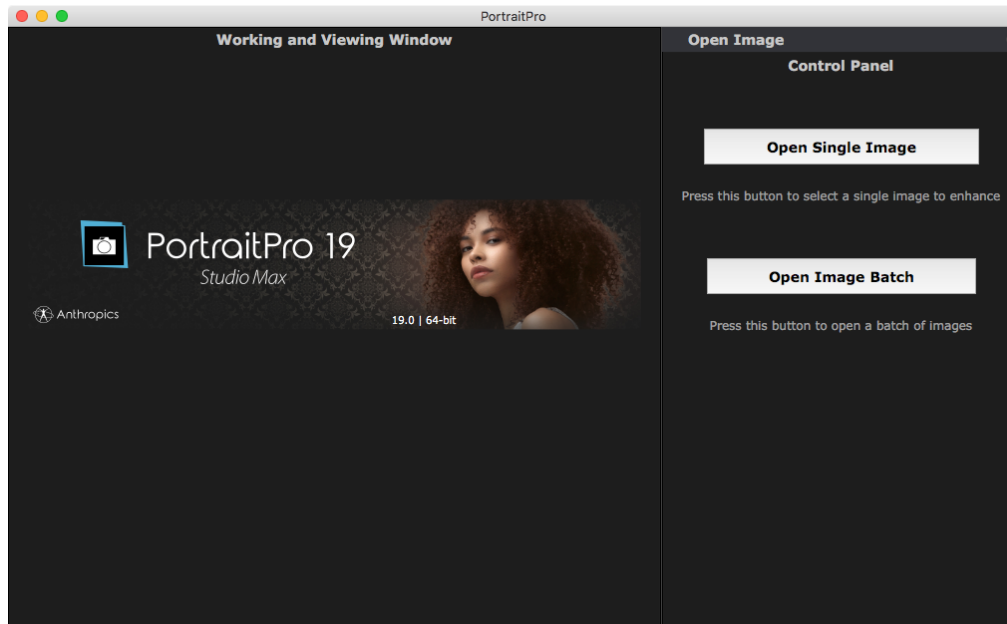
The most important stage is the [Enhance Face](#)^[14] stage, which is where you view and can adjust the enhanced image.

Most of the other stages are only needed if the automatic face detector did not find the face in your image correctly.

2.1 Open An Image

[The PortraitPro Welcome screen](#)

When you run PortraitPro, it begins with the welcome screen:



[Open a single image](#)

To open an image to enhance, either:

- Press the **Open Single Image** button, or
- Select the *Open* command in the [File menu](#)^[28].

This will bring up the File Open panel.

Browse to the file you want to enhance, and press the Open button.

[Image types that PortraitPro can open](#)^[110]

Once the image has been opened, PortraitPro will automatically detect all faces in the image, and determine their gender.

If any faces are found, then you will be taken to the [Enhance Face](#)^[14] stage.

If no faces are found, you will be asked to [manually locate the face](#)^[17].

If the faces are not automatically detected, check that you haven't turned this off in the [Settings dialog](#)^[81].

Open a batch of images

If you have the **Studio** or **Studio Max** [edition of PortraitPro](#)^[7], you will be able to open batches of images for faster working.

The **Studio Max** edition has [automatic batch processing](#)^[15].

The **Studio** edition has [manual batch processing](#)^[17].

2.2 Check Face

When a face has been automatically detected, there are three things that should be checked: the positions of the outlines, the skin & hair masks, and the gender/age.

If there is more than one face in the image, you should check these things for each face. Only the current face can be edited. [Change the current face](#)^[23] to check or edit a different face.

Outline Positions

The outlines will have been automatically placed around the face. These are shown over the face in the **before** view, so make sure the **View Before Only** or **View Before and After** tab is selected.

If the outlines do not appear, move the mouse into the **Before** view to make them reappear.

The outlines should follow the edges of the features, and the edge of the face. If any are wrongly positioned, move them into the correct place by moving the control points. To move a control point, move the mouse over it until you see an orange cross, then click and hold down the mouse left button. Move the mouse to reposition the point, and then release the button.

If you're making significant changes to the outlines, or if you find the software is quite slow when you move points, you may find it quicker to edit the point positions in the [Adjust Outlines](#)^[19] stage.

Skin & Hair Masks

The skin and hair areas will have been automatically detected. To check these, use the [skin area](#)^[70] and [hair area](#)^[71] tools.

These masks are used to control where the skin and hair processing are applied.

Gender/Age

Each face is classified as **Female**, **Male** or **Child**. This is shown in the header above the face. If this is wrong, move the mouse into the header to open it (if it is not already open), and you will be shown a set of radio buttons that let you change the gender/age.

This setting is used to help create the best result when enhancing the face. It has a minor effect on some of the processing that is performed, but the main effect is to determine which [preset](#)^[37] is applied by default.

Note: this setting cannot be used to change the appearance of the face to be the opposite gender or to change the apparent age.

2.3 Enhance Face

After you have opened an image and the face has been detected, you are ready to start enhancing the face.

[Viewing the result](#)

You can choose whether you want to see the before and after image side by side, or whether you just want the before or the enhanced image as large as possible. Use the tabs above the images to select which option you prefer.

Whichever option you use, you can always flip the enhanced ("after") image back to the original ("before") image to see the changes by pressing and holding the **Enter** key.

[Changing the result](#)

PortraitPro will automatically enhance your image when you reach this stage. See [presets](#)^[37] for how to configure this default enhancement.

Presets

PortraitPro comes with a library of [presets](#)^[37], which set some or all of the sliders to predefined values to get a particular effect. Try a few of these to see some of the enhancements possible for your photo.

The [Snapshot](#)^[39] function allows you to save your work at the current point and revert back to it later. Note that, unlike Presets, these are temporary and are not retained when opening a new image.

Sliders

For complete control over how the image is enhanced, you can use the sliders in the [controls panel](#)^[34].

The sliders are grouped into sections that control various aspects of the face. Sections can be opened or closed by clicking on their title button. This has a small triangle pointing down if the section is open, or right if the section is closed. To toggle the effects of a whole section on or off, click the power symbol next to its title.

Try moving the **Master Fade** slider in each section to get an idea of the overall effect controlled by that section.

The lower sliders in each section give you finer control over the effect.

2.4 Save Result

[Saving the enhanced image](#)

To save the enhanced image:

- press the **Save** button in the [toolbar](#)^[32], or
- select the *Save Jpg/Tiff/Png* command in the [File menu](#)^[28].

This will bring up the [Save Image Options](#)^[78] dialog which lets you select the file format you want to save in.

The **Save** command in the [File menu](#)^[28] saves the enhanced image in the same format that you previously selected, or the same format as the original file if you have not already selected a format.

Note: you must be in the [Enhance Image](#)^[14] stage to save an image.

[Saving the session](#)

If you would like to save all the settings so that you can reload your image and continuing adjusting the sliders, select the *Save Session* command from the [File Menu](#)^[28]. This saves the original image, all the point positions, the skin and hair areas, all the sliders values and any snapshots into a proprietary ".ppx" file.

To load the session back into PortraitPro, use the same commands as you would when [opening an image](#)^[12], but select the .ppx file instead.

2.5 Automatic Batch Processing

[Studio Max Edition Only](#)^[74]

The Studio Max edition has automatic batch processing that lets you load a batch of images and have them all processed automatically.

It lets you easily view each one to make any adjustments needed.

[Opening a batch of images](#)

To open a batch of images to process automatically, press the **Open Image Batch** button on the start screen.

This will bring up a File Open panel.

Browse to the folder containing the files you want to enhance, and select the images you want to enhance.

You can select more than one image in the File Open panel by holding down the CMD key while clicking on each image you want to add, or by dragging a box around several images.

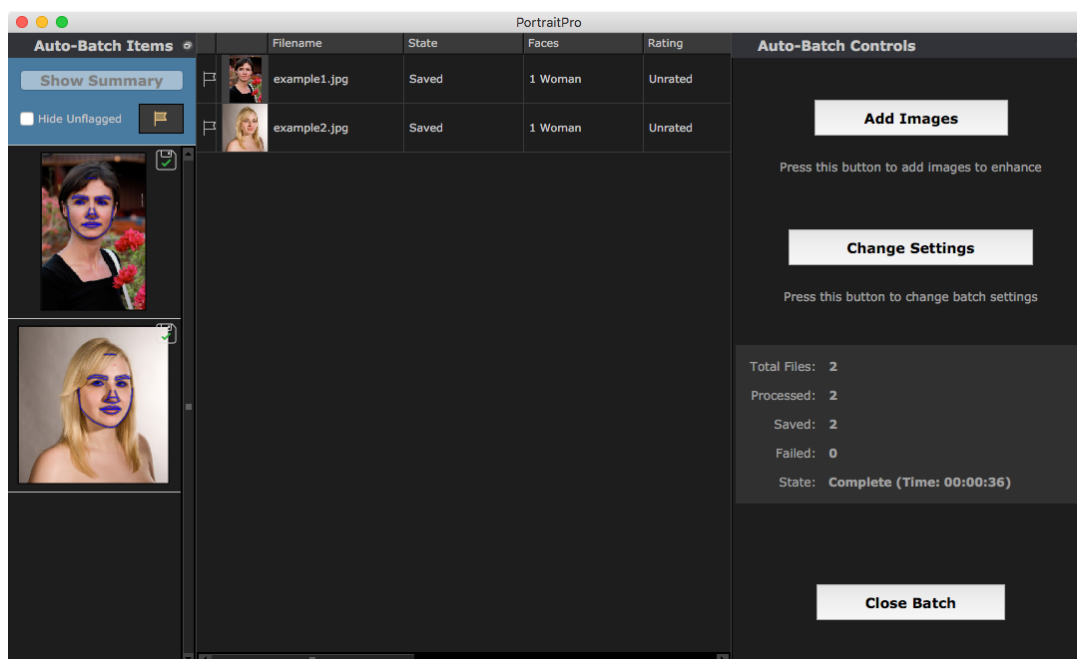
[Set the save options](#)

Once you have selected one or more images to open, you will see the [Auto Batch Save Options](#)^[73] dialog. Use this to set where and how the enhanced images should be saved, and defaults for gender, age and the preset to use.

Press **OK** on this panel to continue. Note, if you cancel the panel at this stage, the auto-batch will be closed.

[Processing](#)

While an automatic batch is open, you will see a film strip panel that shows thumbnails of all the images in the batch.



The screen-shot above shows the film strip on the left. It also shows the summary view in the main window, and the auto-batch controls in the control panel.

The images will be processed automatically. If the **Auto Save** check-box on the [Auto Batch Save Options](#)^[73] dialog is checked, then each image is saved once it has been processed.

At all times, this summary screen shows the state of each image.

Checking the results

Click on an image in the filmstrip view to select it. You will then see that image in the main window. If the image has been processed, you will be able to [view and adjust the enhanced face](#)^[14] (or faces if there is more than one).

It is best to [check each image](#)^[13], since the automatic face finder can sometimes misplace the outlines which can cause problems with the enhanced image.

When you are happy with the result for an image, clicking on another image or going back to the summary view and the image you were just viewing will be saved.

To get back to the summary screen shown in the screen-shot above, either click on the **Show Summary** button at the top of the film-strip, or select the **Show Summary** menu command in the [Auto Batch menu](#)^[30].

Flagging images

Each image in the filmstrip can be flagged or unflagged. If the **Hide Unflagged** box near the top of the filmstrip is checked, then all unflagged images will be hidden from the filmstrip. This can be used to narrow the set of images you are working on if you have a large batch.

There are a number of ways to flag or unflag an image:

- Right click on an image in the film strip and use the command in the pop-up menu.
- Right click on an image (or a selection of images) in the summary view and use one of the commands in the pop-up menu.

- Press the Flag button near the top of the filmstrip view to bring up the **Automatically Flag Items** dialog. This lets you automatically set the flag on all the images based on the meta data of each image.

2.6 Manual Batch Processing

[Studio Edition Only](#)^[74]

The Studio edition has manual batch processing that lets you load a batch of images and easily work through them.

To use the manual batch processing, select the *Open Batch* command from the [File menu](#)^[28].

This will bring up the [Batch dialog](#)^[75] that lets you add files to the batch, and set the options for how the images will be saved when you move to the next image in the batch.

When you use the manual batch processing, each image is loaded as if you had opened it in the usual way, but without having to keep continually bringing up the file open dialog.

In addition, each image is saved to the folder selected in the Batch dialog without having to use the file save dialog for every image.

This is done by using the **Save And Open Next** command after each image has been enhanced. This command is in the [File menu](#)^[28], and is also by pressing the **Save And Open Next** button on the toolbar when [enhancing a face](#)^[14]. This command is only shown if a manual batch session is active.

2.7 Manually Locate A Face

If the face in your image was not detected automatically, you will need to locate it semi-automatically or manually.

To locate a face semi-automatically at the [Select Face](#)^[24] stage, you just need to click on the nose, and then click on the chin. The features should then be automatically detected.

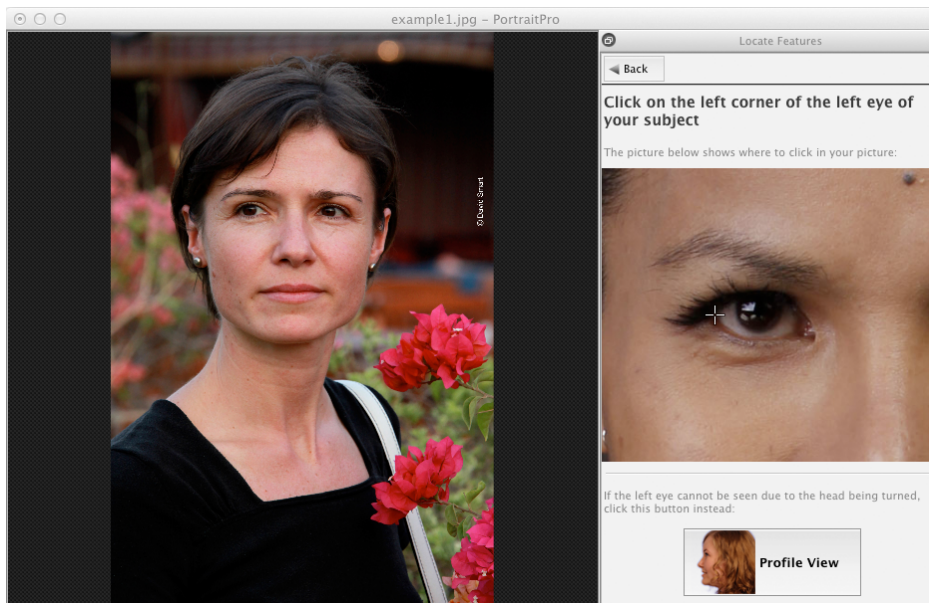
If the features are still not located properly, as a last resort you can locate the face manually. This can be useful if, for example, you are trying to locate a non-human face.

To locate a face manually, you first need to press the **Manually Locate Face** button at the [Select Face](#)^[24] stage.

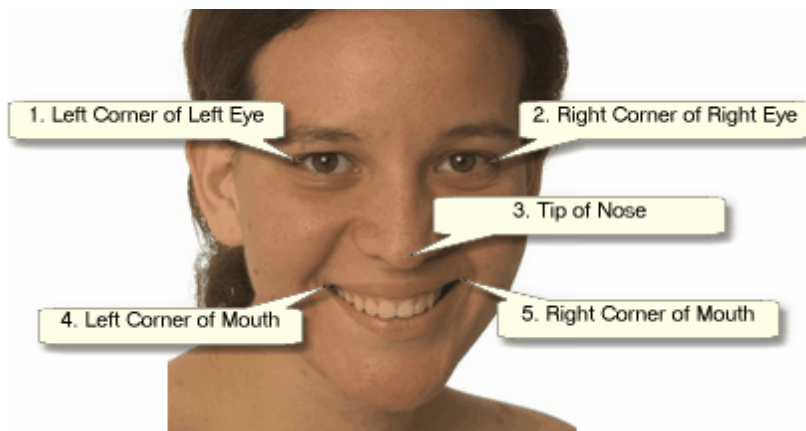
This will bring up the [Select Gender](#)^[78] dialog to let you set the gender for the new face.

[Locate 5 key features on the face](#)

After you have selected the gender, the next step is to locate the positions of 5 key features on the face.



The 5 key features are:



Locating the feature points

As you click on each point, PortraitPro will automatically move on to the next point.

You will be shown an example image to help you know where to place each point.

You can adjust the position of any points you have already marked by clicking on one of those points and dragging it.

The cursor will have a small text label next to it to remind you which point you are locating. These labels can be turned off if you don't like them using the [General Settings](#) panel.

Zooming In

To help you to position the points more accurately, you can hold down the CMD key to zoom in on the cursor.

Profile views

If the face is viewed side on, press the **Profile View** button at the bottom of the control panel.

If you are not sure whether the face is being viewed in profile or not, the main test is whether you can see both eyes. If you can't see one of the eyes due to the head being turned, press the **Profile View** button.

When you press the **Profile View** button, you will only need to locate one eye point, the nose tip, and one mouth point.

[Adjust the outlines](#)

After you have located the 5 key features, PortraitPro will automatically place the outlines over the face and show you the outlines in the [Adjust Outlines](#)^[19] stage.

If any of the outlines are misplaced, correct these by moving the control points, before pressing the **Next** button to go to the [Enhance Face](#)^[14] stage where you can view and adjust the enhanced image.

2.8 Adjust The Outlines

[Viewing and moving the outlines](#)

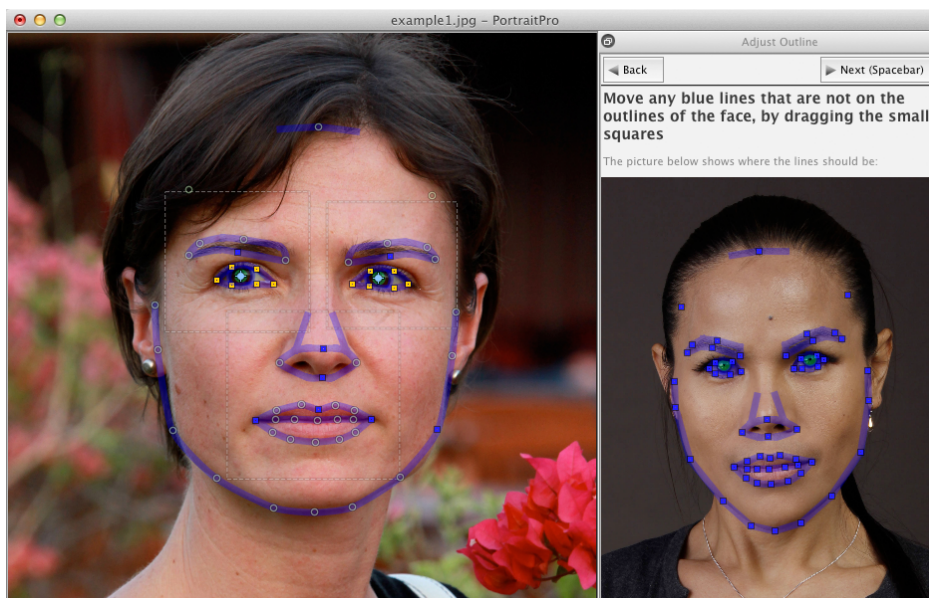
The **Adjust Outlines** stage shows the outlines around the current face, and lets you adjust their positions.

Note that this stage is optional, since the outlines will be automatically placed around each face when you load an image. If any of the outlines are misplaced, these can be moved at the [enhance image stage](#)^[14] in the **before** view. However, if the automatic face finder has failed to find a face in your image, this stage lets you position the outlines manually.

This stage is reached in one of these ways:

- Select the *Adjust Outlines* command in the [File menu](#)^[28], or
- Press the **Adjust Outlines** button over a face at the [Select Face](#)^[24] stage, or
- While [manually locating a face](#)^[17].

If any of the outlines are not shown correctly around the features of the face, they should be moved to the correct place. A reference image in the control panel shows how the outlines should be positioned.



Adjusting the outline

The outline is shown as blue lines overlaid over your image in the main working view. The lines can be moved by dragging the control points.

The control points are shown differently depending on how they were set:

- The **small yellow squares** - these are points that have been placed by the automatic feature finder. If any of these points are in the wrong place, you will need to move them manually to the correct place.
- The **small blue squares** - these are points that you have placed.
- The **light green circles** - these are points that have been automatically placed based on where the other points are. Any of these points may move if any other points are moved.

Whenever you drag a control point, it will turn into a blue square to let you know that it is a point that you have positioned.



For best results:

- Try to move as few points as possible to line up the outline.
- Any points you do move, try to move as little as possible. If you spend a long time carefully adjusting every point, not only are you wasting time, but you are likely to end up with a worse result.
- Start by moving points that are already fixed - those shown as small yellow or blue squares. The more points you can leave as small green circles, the better.

To adjust the outlines around the eyes or mouth more accurately, click inside the dotted rectangles to zoom in on that feature. Click again to zoom back out.

Once the outlines are correctly positioned (or if no adjustment is necessary), press the space bar or click on the Next button.

► Next (Spacebar)

Adjusting the iris and pupil outlines

Two circles are shown inside the eye. The smaller (green) circle should fit around the pupil (the black part in the middle of the eye). The larger (blue) circle should fit around the iris (the colored part of the eye). These circles are positioned automatically, so you will not usually need to adjust them.

To move the circles, drag the point in the center of the circles.

To resize the circles, drag the outline in or out.

If the iris is not exactly circular, you can drag on the four small blue squares on the iris outline to make it an ellipse.

If the center of the iris and the pupil are not exactly the same, you can move the pupil independently of the iris by first clicking on the pupil circle, and then dragging the center point. To go back to moving the iris and pupil together, either click on the iris circle, or move the cursor away from the eye and back again.

Adjusting the outline for each feature

For greater accuracy, you can ask PortraitPro to show a zoomed in view of the main parts of the face to make it easier to check the positions of the outlines. This is done by clearing the **Skip Zoomed In Steps When Adjusting Outlines** check-box in the [General Settings](#)^[8] panel.

This will happen automatically for profile (side-on) faces regardless of this setting, since the automatic feature finder does not support profile views.

PortraitPro will take you to each of the features in turn so that you can check, and if necessary, adjust the positioning of the selected outline of each feature.

The features are shown in the following order.

Left eye and eyebrow

The left eye outline is set automatically. If it does not go correctly around the eye, adjust it by moving the control points.

Depending on the shape of the eyebrow, it can be difficult to get the outline to fit around the eyebrow. In these cases, it is best to not worry about it and just get the position roughly correct. Even if you are able to get the outline to fit around the eyebrow reasonably well, if you had to move the points a lot to get it to fit, you may get a better result by moving the points less even if the eyebrow outline no longer goes around the eyebrow accurately.

Right eye and eyebrow

The same comments about the left eye and eyebrow apply to the right eye and eyebrow.

Nose and Mouth

When you get to this stage the Mouth Open Or Closed panel will appear, provided it has not been turned off in the [General Settings](#)^[8]. This panel has two buttons:

Mouth Open	Press this button if the mouth of the face you are enhancing is open. You will then see four lines between the corners of the mouth. The top two should be positioned around the upper lip, and the bottom two around the lower lip. If the line along the bottom of the top lip is placed close to the line along the top of the bottom lip, you will see the line along the top of the bottom lip disappear leaving just the control point in the middle. The mouth will then be treated as closed anyway.
Mouth Closed	Press this button if the mouth is closed. You will then see only three lines between the corners of the mouth. The center line should be placed along the line where the lips meet.



If you are used to pressing the spacebar to quickly move on to the next stage, note you can also use this to dismiss the dialog asking if the mouth is open or closed. If this happens, the mouth will be selected as being open. If the mouth is in fact shut, you can either press the Back button followed by the Next button, and the panel will appear again, or you can simply move the middle two lines together.

Face outline

Try to avoid moving the face outline points around the face, just move them towards or away from the center of the face.

Once you have been through all the features, press the Next button one more time to start PortraitPro processing your image. You will then be taken to the [Enhance Image](#)^[14] stage, where the fun begins!

2.9 Full Body Enhancement

PortraitPro is designed to enhance portrait photos. Please check out our product [PortraitPro Body](#) which is specifically designed for full body enhancement.

However, if your photo includes other parts of the body, then you can use the skin enhancement tools on other parts of the skin that can be seen.

To do this, all you need to do is make sure that the PortraitPro knows which parts of the photo are skin. This is done using the skin area tools, as described in [Skin Area](#)^[70].

2.10 Plug-in Mode

[Using the PortraitPro Plug-in](#)

[Studio & Studio Max Editions Only](#)^[71]

The Studio edition of PortraitPro can enter a "plug-in mode". This is intended for use when PortraitPro has been launched by another application (such as Photoshop) to enhance an image that is being managed by the other application. PortraitPro then behaves like a plug-in to the other application.

After the plug-in has been successfully installed as outlined in the [Plug-in Installation Guide](#)^[94], you will be able to use PortraitPro as a plug-in in any of the supported photo editing applications.

When PortraitPro is run as a plug-in from another application, the image or layer in the other application will automatically be loaded into PortraitPro where you can enhance the faces in the usual way. Once you are happy with your results, press the **Return From Plugin** button on the toolbar at the [Enhance Face](#)^[14] stage. This will close PortraitPro and return the enhanced image to the original application.

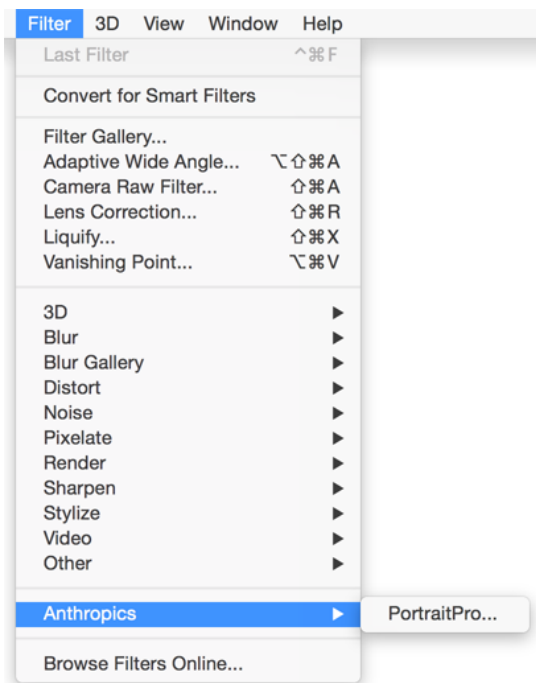
When PortraitPro is in plug-in mode, the following changes occur:

- The only command in the [File menu](#)^[28] is *Return From Plugin*.
- The [crop tool](#)^[93] is not available when in plug-in mode, since the other application will generally expect the image to still be the same size after it has been enhanced by PortraitPro.

[Using PortraitPro from Photoshop](#)

When the plug-in has been installed, PortraitPro will appear as a filter in Photoshop. In the Photoshop *Filter* menu, you will find a sub-menu called *Anthropics*, and in that you will find *PortraitPro*.

The PortraitPro filter works like other Photoshop filters in that it is applied to the current selection (or the whole area if there is no selection) on the current layer. When you select the filter, the image being filtered will automatically be opened in PortraitPro.



Plug-in Location: Filter > Anthropics > PortraitPro

2.11 Group Shots

Working with group shots

If there is more than one face in your image, all the faces will be detected and enhanced automatically.

You can only make changes to one face at a time, so there is always a current face, which is the face that will be affected when you change any sliders or apply any presets.

The current face is indicated by a blue oval in the [zoom control](#) ^[35]. If there is only one face in the image, the blue oval is not shown.

Changing the current face

You can change the current face in one of these ways:

- Pan or zoom the view to the other face. Provided the old face is mostly out of the view, the current face will automatically switch to the other face.
- Click on the oval around the other face in the **Before** view.
- Click on the **Other Faces** button in the [toolbar](#) ^[32] (or use the CMD+E keyboard shortcut) to switch to the [Select Face](#) ^[24] stage, and then select the face you want to edit.

When the current face changes, you will see the blue oval in the zoom control update so that you can easily see which is the current face.

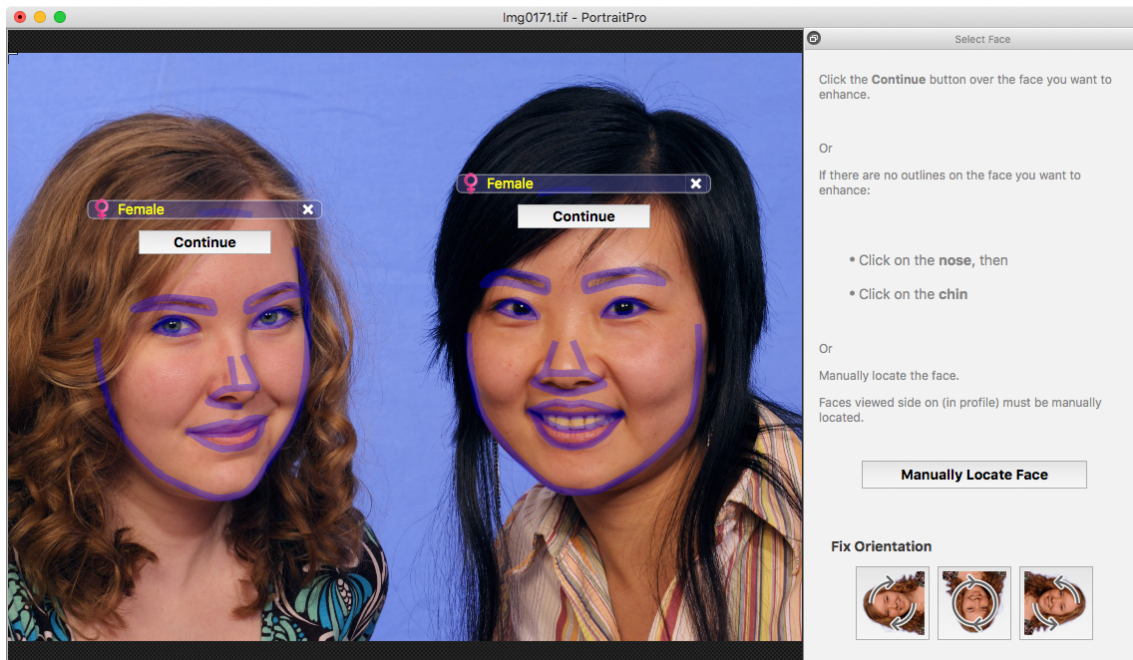
Missed faces

If the automatic face finder missed any faces in the group shot, go to the [Select Face](#) ^[24] stage, and then click on the nose and chin to add the missing face.

2.12 Select Face

After you have opened an image, PortraitPro shows the image in the Select Face stage if no faces were found.

You can also go to this stage at any time by selecting the *Enhance Another Face In This Photo* command in the [File menu](#) ^[28], or by pressing the **Other Faces** button in the toolbar at the [Enhance Face](#) ^[14] stage.



Outlines are shown around each face. Check the gender and age category for the face, and then press the **Select** button over the face to enhance that face. You will be taken to the next stage where you can check and [adjust the outlines](#) ^[19].

If you come back to this stage after a face has already been enhanced, you will see an extra button over the face called **Adjust Outlines**. Press this button to go the stage where you can adjust the outlines. The **Select** button will take you straight to the [Enhance Face](#) ^[14] stage when the face has already been enhanced.

Sometimes, you may find that a face has been detected in part of the image where there is no face. Delete these mislocated faces by clicking on the cross at the top right of the face.

Enhancing a face that was not detected automatically

If the face you want to enhance was not detected (so there are no outlines around it), you just need to click on the nose, and then the chin.

You will see that the cursor has a label next to it that says "Click on nose" until you have clicked on the nose. When you click on the nose, a cross appears that you can drag to reposition the nose point. You can delete the nose point by pressing the ESC key.

The cursor changes to "Click on chin" once the nose has been clicked to make it clear that you now need to click on the chin.

Once you have clicked on the nose and chin, the face outlines will automatically be placed on the face.

Manual face location

Faces that are viewed in profile (side on) cannot be located automatically by PortraitPro. For these faces, you need to press the **Manually Locate Face** button. You will then have to [manually locate all the outlines](#) ^[17] around the face.

Controls for each face

For each face that has been located (whether automatically or manually), the outlines will be shown around that face.





In addition, a header bar will be shown above the face, and below this, the **Select** and **Adjust Outline** buttons.

The header bar will be blue for faces that have not yet been enhanced, and green for those that have.

Control	Description
Gender Indicator/Selector	This is shown in the header bar. When you move the mouse into the header bar, it will open to let you set the gender and age category of the face. PortraitPro needs to know the gender of the face since it has been trained separately on what makes female and male faces attractive.
Delete Button	This is the cross at the right of the header bar. Press this to delete all the data that PortraitPro has stored for this face.
Continue Button	Selects the face to be enhanced. The first time a face is selected, this will take you to the Adjust Outlines ^[19] stage where you can view and adjust the outlines. If the face has already been enhanced, you can press this button to make further changes.
Adjust Outlines Button	This button only appears if the face has already been enhanced. It lets you make changes to the outlines around the features. Note that you can also adjust the outlines at the Enhance Image ^[14] stage, but you may prefer to make these changes in the Adjust Outlines ^[19] stage where you are also shown how the outlines should be positioned in a reference image.

Gender/age symbols

The gender is shown using one of the following symbols:

-  Gender and age not set. If either the Select or Adjust Outlines buttons are pressed when the gender is not set, the [Select Gender](#) ^[78] dialog will be shown so that you can set the gender and age before going to the stage requested.
-  Face is adult is female.
-  Face is adult is male.
-  Face is child, younger than about 12 years old.

When the age is set to "child", this will reduce the changes that can be applied to the shape of the face, since generally changing the shape of a child's face is undesirable.

[Rotating the image](#)

If the image is in the wrong orientation, you can rotate it by pressing the buttons at the bottom of the control panel.

Note: if the Select Gender dialog is shown, you will need to cancel it before pressing the rotate buttons.

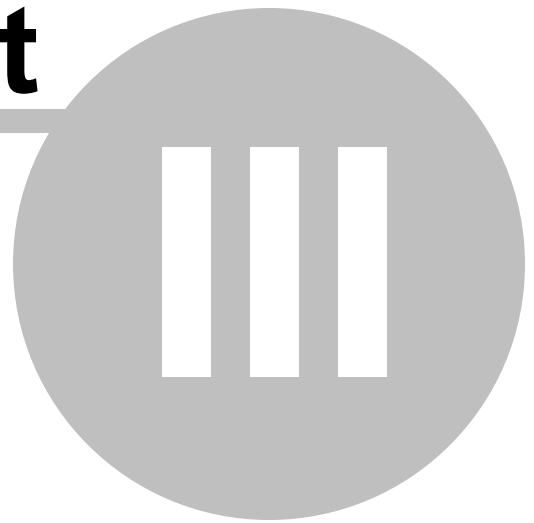
[Enhance Skin Only](#)

If no faces have been located, an extra button will appear in the control panel called **Enhance Skin Only**.

This lets you use just the skin enhancing parts of PortraitPro. This lets you use PortraitPro even when there are no faces in the image.

Note that when you are in enhance skin only mode, none of the controls that require a face will be available.

Part



3 Reference

This section provides information about the different menu commands and controls in PortraitPro.

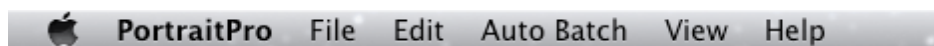
The [Menu Commands Reference](#)^[28] describes each menu command.

The [Controls Reference](#)^[34] describes each of the controls available when you [enhance an image](#)^[14].

The [Dialogs Reference](#)^[72] describes the main dialogs that are used by the application.

3.1 Menu Commands Reference

These are the commands available on the menu bar in PortraitPro.



File Menu ^[28]	Commands to open and save files, print, or change settings
Edit Menu ^[30]	Undo & Redo
Auto Batch ^[30]	Studio Max Edition Only ^[7] This only appears when an automatic batch ^[15] is active. It contains commands to add and remove images from the batch, and to change settings.
View Menu ^[31]	Commands to control the view of the image
Help Menu ^[31]	Commands to launch help, check for updates, get support, or view about box

3.1.1 File Menu

The File menu contains the following commands:

Open...	Opens a file (see Supported File Types ^[110]). If a file is already open with unsaved changes, you will be prompted to save or discard the changes before the new file is opened. If you have the Studio Max edition, you will be able to select multiple files to open as a batch.
Open Batch...	Studio Edition Only ^[7] Opens the Batch ^[75] dialog.
Save And Open Next	Studio Edition Only ^[7] This command only appears when working on an image opened from the Batch ^[75] dialog.

	<p>Saves the current image, and opens the next one in the batch.</p> <p>The folder where the file is saved, and the file format is set from the Batch dialog.</p> <p>This command may appear as just "Open Next" if an image is opened from the batch but is then closed using the File > Close command.</p>
Save	<p>Saves the current file. The first time this command is used after opening a file, the following rules apply:</p> <p>If you opened a JPEG file, the enhanced image will be saved as a JPEG.</p> <p>If you opened a PNG file, the enhanced image will be saved as a PNG.</p> <p>If you opened a TIFF file or any RAW file type (Studio or Studio Max editions only), the enhanced image will be saved as a TIFF.</p> <p>If you opened a session file (.ppx extension), the session file will be saved.</p> <p>From then on, this command will save the same type of file as previously saved.</p> <p>If this command is being used for the first time and a new file is being created, a File Save panel will appear to let you select where to save the file.</p> <p>This command is only available at the enhance image stage^[14].</p>
Save As...	<p>Saves the current file. This is similar to the Save command, except that a File Save panel is always shown to let you select where to save the file.</p> <p>This command is only available at the enhance image stage^[14].</p>
Save Jpg/Tiff/Png...	<p>Brings up the Save Image Options^[78] panel to let you save the enhanced image as a JPG, TIFF or PNG image file, and to set save options.</p> <p>A File Save dialog will then appear to let you select where to save the file.</p> <p>This command is only available at the enhance image stage^[14].</p>
Save Session...	<p>Saves the current session so that it can be opened again in PortraitPro.</p> <p>PortraitPro sessions files are saved in a proprietary format that cannot be loaded into any other applications. The file extension is ".ppx". They include the image along with all the point positions, slider settings and masks. They also include any snapshots^[39] that have been saved for the image.</p> <p>This command is only available at the enhance image stage^[14].</p>
Close	<p>Closes the current session. If there are any unsaved changes, you will be prompted to save or discard these.</p> <p>The Close command returns you to the Welcome screen^[12].</p>
Enhance Another Face In This Photo	<p>Goes to the Select Face^[24] stage so that another face in the same image can be enhanced.</p> <p>The same command is available on the Other Faces button in the toolbar^[32] at the enhance image stage^[14].</p>

Adjust Outlines	Goes to the Adjust Outlines ^[19] stage for the current face. Although the outlines can be adjusted in the before view, if you need to move a number of points it may be quicker to do this in the Adjust Outlines stage, depending on the resolution of the picture and the speed of your Mac.
Settings...	Brings up the Settings ^[83] dialog. Note: On Macs, this command is called "Preferences" and is in the PortraitPro application menu.
Print...	Brings up the Print dialog that lets you print out the enhanced image.
Exit	Closes the application. If there are any unsaved changes, you will be prompted to save or discard these. Note: On Macs, this command is called "Quit PortraitPro" and is in the PortraitPro application menu.

Plug-in Mode

If the application is in [plug-in mode](#) ^[22], then the only command in the File menu is **Return From Plugin**, which returns the enhanced image to the calling application and closes PortraitPro.

3.1.2 Edit Menu

The Edit menu contains the following commands:

Undo	Provides undo for changes to slider values and changes made with the brush tools. This means it is safe to experiment with different saved settings, or try moving any sliders, since you can always go back to the result you had earlier if you don't like the changes. This command is only available at the enhance image stage ^[14] .
Redo	Lets you redo an operation that has been undone with the <i>Undo</i> command.

3.1.3 Auto Batch

[Studio Max Edition Only](#) ^[7]

The Auto Batch menu appears when a batch is open. It contains the following commands:

Show Summary	Switches to the summary view which shows information about all the images in the batch.
--------------	---

Change Settings	Brings up the Auto Batch Save Settings ⁷³ dialog.
Add Images	Brings up a file open dialog that lets you add more images to the batch.
Remove Current Image	Removes the current image from the batch.
Remove Failed Images	Removes all failed images (if any) from the batch. Failed images are those that could not be loaded due to problems with the image file, or those where no faces were found.
Remove Completed Images	Removes all completed images (if any) from the batch. Completed images are those that have been processed and saved.

3.1.4 View Menu


The View menu contains the following commands:

Full Screen	Makes the application fill the entire screen, to maximize the working area. To restore the application to it's windowed state, select this command again.
Dock Control Panel	Lets you select whether the control panel is docked to the main window, or a separate floating window. Occasionally, the control panel can get lost off screen when it is undocked. This command provides an easy way to bring it back.
Faster Rendering	Increases the speed at which the enhanced image is calculated. This is done by reducing the number of working pixels in the enhanced image. This option is useful if the sliders are particularly sluggish on your machine. If you find that the enhanced image looks too soft, you should turn this option off. <i>Note:</i> this option only affects how the enhanced image appears within the application. It will make no difference to the quality of the image saved when you use the File > Save Jpg/Tiff menu command.

3.1.5 Help Menu

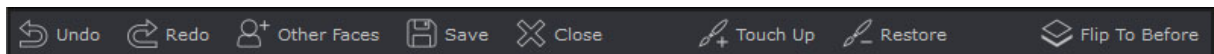
The Help menu contains the following commands:

Contents	Launches the online help, showing the table of contents.
Quick Start Guide	Launches the online help showing the Quick Start Guide ⁶⁴ .



Keyboard Shortcuts	Launches the online help showing the Keyboard Shortcuts  .
Disable All Pop-up Help	Turns off all pop-up help messages. This command only appears if any pop-up help messages are enabled.
Re-Enable Pop-up Help	Turns on all pop-up help messages that have been disabled. This command only appears if you have disabled any pop-up help messages.
Show Background Tutorial	Plays a short tutorial video demonstrating the best ways to use the Background tools.
Check For Updates...	Launches the default web browser to show whether you have the latest version of PortraitPro. If updates are available, links will be provided for you to download them.
Support...	Launches the default web browser to show the PortraitPro support pages. You can use this to find answers to common questions, or to contact the PortraitPro support team.
Forum...	Launches the default web browser to show the PortraitPro user forum. This is where you can join the PortraitPro community in discussions about the product and photography in general.
About PortraitPro	Brings up the About Box, which shows the version of PortraitPro that you have. Note: on Macs, this command is in the PortraitPro application menu.







3.2 Toolbar

The toolbar is shown at the top of the main application window when an image is loaded and ready to adjust.



The following buttons are available on the toolbar:

 Undo	Provides undo for changes to slider values and changes made with the brush tools. Same as <i>Edit > Undo</i> menu command
 Redo	Lets you redo an operation that has been undone with the <i>Undo</i> command. Same as <i>Edit > Redo</i> menu command

 Other Faces	<p>Goes to the Select Face^[24] stage so that another face in the same image can be enhanced.</p> <p>Same as <i>File > Enhance Another Face In This Photo</i> menu command.</p>
 Save	<p>Brings up the Save Image Options^[78] panel to let you save the enhanced image as a JPG, TIFF or PNG image file, and to set save options.</p> <p>Same as <i>File > Save Jpg/Tiff/Png...</i> menu command</p>
 Close	<p>Closes the current session. If there are any unsaved changes, you will be prompted to save or discard these.</p> <p>Same as <i>File > Close</i> menu command.</p>
 Return From Plugin	<p>Saves the image and closes the application.</p> <p>This button is only shown when the application is plug-in mode^[22].</p>
 Touch Up	<p>Selects the Touch-Up Brush^[90]. Use this to paint over spots or blemishes in the skin that have not been eliminated automatically or which need further correction.</p>
 Restore	<p>Selects the Restore Brush^[90]. Use this to paint over spots in the skin that have been removed, but that you would like to bring back.</p>
 Flip To Before	<p>Flips the image shown in the After view back to show the original, to let you easily see the difference between the enhanced and original image.</p> <p>The original image is shown only while the mouse button is held. When you release the mouse button, the view flips back to the enhanced image.</p>

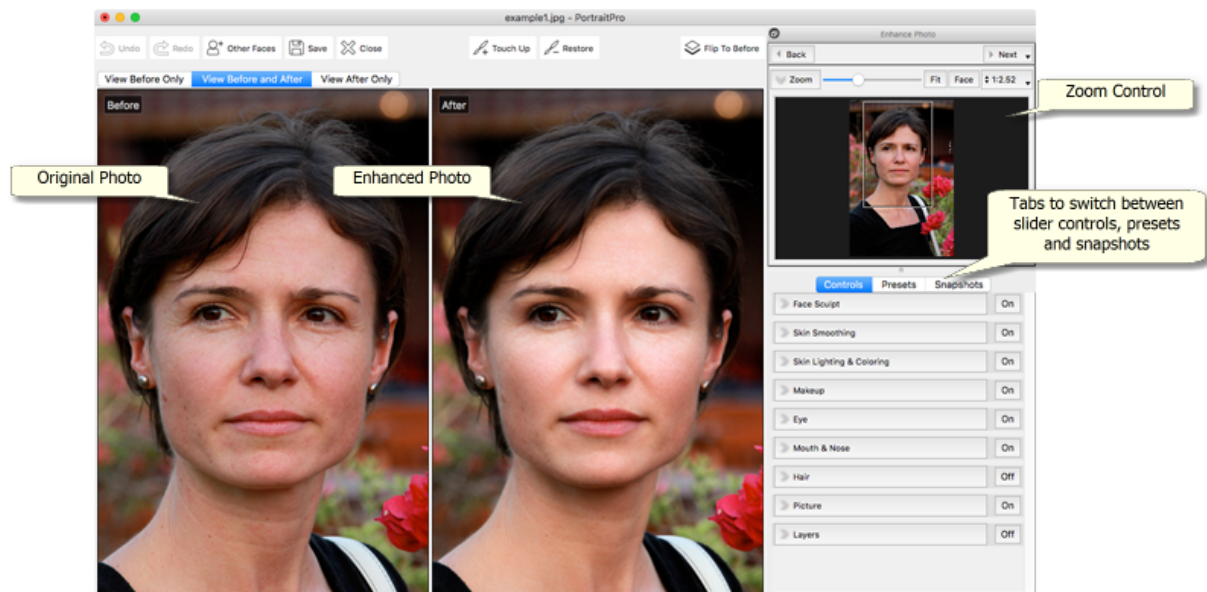
The text labels on these buttons will only be shown if the window is wide enough for them to fit.

It is also possible to always hide these labels by using the *Show Labels For Toolbar Buttons* option in the [settings dialog](#)^[87].

3.3 Controls Panel Reference

This section describes the main controls available when you are enhancing an image.

Enhance Image Controls Overview



[Zoom Control](#) ^[35] - Lets you select the area of the image that is shown

Under the zoom control are three tabs that let you view the main slider controls, the presets or the snapshots.

[Slider Controls](#) ^[39] - Click on the "Controls" tab to view the main slider controls (keyboard shortcut **F9**). These give you total control over the way the image is enhanced.

They are grouped into the following sections:

- [Face Sculpt](#) ^[41] - Let you control how the shape of the face is altered
- [Skin Smoothing](#) ^[44] - Let you control how the skin is enhanced
- [Skin Lighting & Coloring](#) ^[47] - Let you adjust the lighting on the skin and its color
- [Makeup](#) ^[49] - Let you add makeup to the face
- [Eye](#) ^[53] - Let you control how the eyes are enhanced
- [Mouth & Nose](#) ^[57] - Let you control how the mouth, lips and nose are enhanced
- [Hair](#) ^[58] - Let you control how the hair is enhanced
- [Picture](#) ^[60] - Controls that affect the whole image, such as brightness/contrast, and cropping
- [Background](#) ^[62] - Controls that let you set a background mask and set what happens in the background area

[Presets](#) ^[37] - Click on the "Presets" tab to view the presets (keyboard shortcut **F10**). Presets let you quickly apply predefined settings to the face. You can also save your own presets.

[Snapshots](#) ^[39] - Click on the "Snapshots" tab to view the snapshots (keyboard shortcut **F11**). These are very similar to presets, except they are stored for the current image only.

Before Photo - Shows the original image

After Photo - Shows the enhanced image

Viewing the controls

The main sections in the controls panel (on the right in the screenshot above) can be opened or closed by clicking on the buttons in the header of each section. These buttons have a small triangle next to them which points down if the section is open, or to the right if the section is closed.

Resizing the controls

The control panel can be made wider or narrower by dragging the left-hand edge of the control panel.

Docking & undocking the controls

The controls panel can be undocked (made into a separate window) by double clicking on the header at the top.

When it is undocked it can be freely moved around the screen.

It can be docked by double clicking on the header again.

Viewing the enhanced image

The default view when the application is first installed is for the original and enhanced images to be shown side by side, as shown in the screenshot above.

The tabs above the images control the layout of the working view.

- Click on the **View Before Only** tab to have only the original image shown. When the cursor is over this image, the outlines around the face are shown, and can be dragged to reposition them.
- Click on the **View After Only** tab to have only the enhanced image shown. If a brush tool is selected, you can paint in this view to apply the brush.
- Click on the **View Before And After** tab to return to the side by side layout. This tab is only shown if the window is wide enough to allow two images to be shown side by side.

Flipping between the enhanced and original image

Whichever layout you have, you can press the ENTER key at any time to switch the enhanced image view to show the original image. The original image is only shown while you hold down the ENTER key.

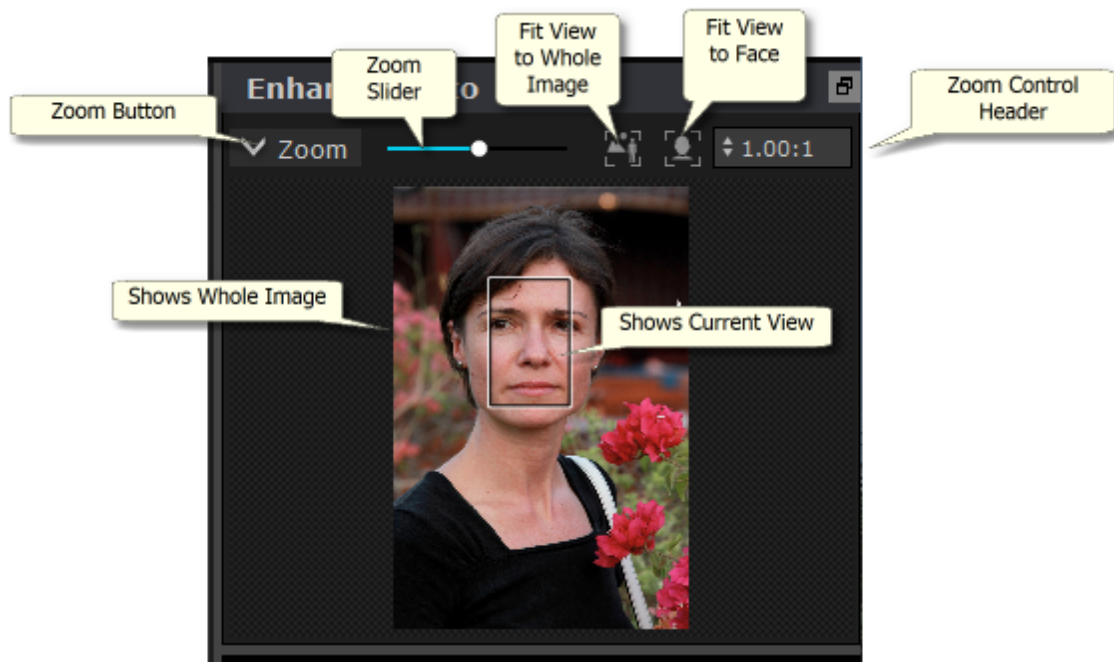
This lets you flip between the enhanced and original image which is a great way to see the changes.

Alternatively, you can click and hold the mouse button down on the button above the images that says **Flip To Before**.

3.3.1 Zoom Control



The Zoom Control Panel is part of the control panel in the enhance photo stage.

It lets you see what part of the whole image is visible in the working view. It also provides controls to let you zoom in and out, or pan the current view.



The screenshot above shows the Zoom Control Panel.

The Zoom Control Panel contains the following controls:

Zoom Button	Lets you collapse the Zoom control so that the image window is hidden. Click again to expand the Zoom control.
Zoom Slider	Lets you zoom in (slide to the right) or out (slide to the left).
	Fit view to whole image. Press this button to make the whole image visible and as large as possible in the view. Keyboard shortcut: F7
	Fit view to face. Press this button to make the current face fill the view. Keyboard shortcut: F8
Zoom In/Out Button	Shows a drop-down menu with various zoom scales. The current zoom scale is checked. The ratios are image pixels to screen pixels, as shown by these examples: <ul style="list-style-type: none"> • 4:1 means 4 screen pixels are filled by 1 image pixel (the image is zoomed in by a factor of 4). • 1:4 means 1 screen pixel is covered by 4 image pixels (so the image is zoomed out by a factor of 4).

The rectangle in the Zoom Control can be dragged to pan the view.

Clicking outside the rectangle will center the view on that point.

The view can also be panned by using the [Pan Tool](#)^[90].

Resizing the Zoom Control

The whole control panel (including the Zoom Control) can be made wider by dragging the right edge of the control panel.

The Zoom Control can be made taller or shorter by dragging the space between the Zoom Control and the Saved Sliders Control.

Keyboard Shortcuts

+	Zoom in.
-	Zoom out.

3.3.2 Presets

To view the presets, click on the **Presets** tab, which is below the navigator in the controls panel (keyboard shortcut **F10**).

Presets let you quickly set the values of several or all sliders.

Presets are divided into sections, which match the sections available in the [main slider controls](#)^[39]. The presets in each section only affect the sliders in the corresponding section in the main slider controls.

In addition, there is a section for *Global* presets. Presets in this section affect all the sliders in all the sections.

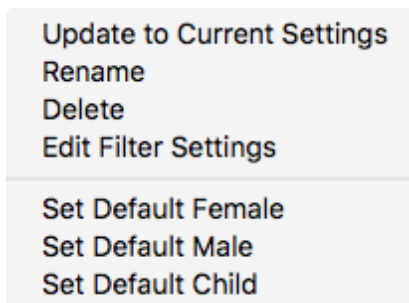
Each preset has a name, and also shows an image showing the result of applying that preset to the current face.

When PortraitPro is installed, it comes with a number of presets ready for you to use.

One of the global presets is used to set the initial slider values when a face is enhanced. The preset used can be different depending on whether the face is female, male or child. To change which preset is the default for new faces, use the [Manage Presets](#)^[89] dialog.

Presets context menu

Right click on a preset to bring up its context menu.



Update to Current Settings	Stores the current settings in the selected preset. If the selected preset is a global preset, then all settings are saved. For other presets, only the settings for the section for that preset are saved.
Rename	Brings up a dialog that lets you rename the preset.
Delete	Deletes the preset.
Edit Filter Settings	Brings up a dialog that lets you change the filter settings for the preset. The filter settings let you hide presets that are not appropriate for the current face, based on the gender or age of the face.
Set Default Female	Sets this preset as the default preset for female faces. Only one face can be the default for female faces, so this preset will replace the previous default. This option is only available for global presets.
Set Default Male	As Set Default Female , except that it sets the default preset for male faces.
Set Default Child	As Set Default Female , except that it sets the default preset for child faces.

Note: there is no undo/redo for changes made using the presets context menu commands.

[Saving and managing presets](#)

There are two buttons at the top of the presets panel:

Save	Brings up the Save Presets ^[88] dialog. This lets you save the current slider values as a new preset. Keyboard shortcut: F2
Manage	Brings up the Manage Presets ^[89] dialog. This lets you rename, re-order or delete presets. It also lets you change the default female and male presets.

[Reset to original preset](#)

One of the built-in global presets is **Reset to Original**. This resets all sliders to 0 so that all enhancements are turned off.

Keyboard shortcut: **F4**

You can use this keyboard shortcut to reset all the sliders to 0 without having to navigate to the presets and find the **Reset to Original** preset. This shortcut will still work even if the **Reset to Original** preset has been deleted using the [Manage Presets](#) ^[89] dialog.

Copying presets between users

Presets saved from PortraitPro are stored per user. The presets are stored in files, so it is possible to copy a preset saved by one user to allow it to be used by another user.

Presets are stored under the user's *Library* folder. The *Library* folder in the user's home folder is normally hidden by the **Finder** application. To find it, you need to open the **Go** menu in **Finder**, and then hold down the **alt** key. You should see the *Library* folder appear in the **Go** menu. Select this to open the *Library* folder, and then navigate to *Library/Application Support/Anthropics/PortraitPro/UserPresets*.

Presets are stored in the files with a **.ppr** extension.

The preset files can be copied from one user's *UserPresets* folder to another's. The copied presets should then appear in the other user's presets list in PortraitPro. Note: if PortraitPro is already running, you will need to restart it if you copy presets to the *UserPresets* folder.

3.3.3 Snapshots

To view the snapshots, click on the **Snapshots** tab, which is below the navigator in the controls panel (keyboard shortcut **F11**).

Snapshots are very similar to global [presets](#)^[37], except that they are only stored for the current image. They provide a way to store several sets of settings for the current image, that you can then quickly switch between.

To save a snapshot, switch to the Snapshots tab and then press the **Save** button. Alternatively, you can press the keyboard shortcut **F3**. When you save a snapshot, you can optionally give it a name. This will be shown under the snapshot image when you view the snapshots.

If you save a PortraitPro session (using the **Save Session** command in the [File](#)^[28] menu), then the snapshots will be saved with that session and restored when you reload the session. Otherwise, snapshots are lost when you close the session.

To convert a snapshot to a preset, simply apply the snapshot to the current face, then save the current settings as a preset.

3.3.4 Slider Controls

To view the slider controls, click on the **Controls** tab, which is below the navigator in the controls panel (keyboard shortcut **F9**).

Sliders are the main way of controlling how your image is enhanced.












Sliders have no effect if they are set to 0, and an increasing effect as they are moved to the right (and left if they have 0 in the center).

You can double click on a slider to reset its value to 0.

Slider Sections

The sliders are organized into a number of sections.

Face Sculpt 	Subtly reshape the face to beautify facial features.
Skin Smoothing 	Improve the appearance of the skin. Also provides tools to let you refine the areas that PortraitPro treats as skin.
Skin Lighting & Coloring 	Lets you enhance or correct the lighting on the subject. Also lets you adjust the color of the skin.
Makeup 	Apply makeup to the face.
Eye 	Improve the appearance of the eyes. Also provides an option to enable red-eye removal.
Mouth & Nose 	Improve the appearance of the mouth and nose.
Hair 	Improve the appearance of the hair. Also provides tools to let you refine the areas that PortraitPro treats as hair.
Picture 	Control various aspects of the whole image, such as brightness and contrast. Also provides a tool that lets you crop the image.
Layers 	Lets you set a background mask and set what happens in the background and foreground areas. Also lets you add overlay layers.

To reduce clutter on the screen, each section can be opened or closed by clicking on it's title button. The arrow next to the title points right when the section is closed, and down when the section is open.

Each section can also be turned on or off by pressing the on/off button to the right of the section's title button. When a section is turned off, it has no effect on the enhanced image. This can be useful to see what effect a section is having.

If you move a slider while a section is turned off, the section will automatically turn back on with all the other sliders set to 0. This is a useful way to turn off all the sliders in a section except one.

Slider Organization

Sliders are organized in a hierarchy.

Some sections have a **Master Fade** slider that controls all the main sliders in that section. This lets you quickly see how the controls in that section affect your image.

Underneath each master slider is a hierarchy of sliders that give you fine control over all aspects of the enhancement.

If a slider has more sub-sliders underneath it, then the slider's label will be a button with a triangle to the left of the label. Press this button to open the sub-sliders.

When you move a slider that has sub-sliders underneath it, the sub-sliders will move too.

When you move a sub-slider, you will also see the parent slider moves too, but to a lesser extent. This is because the parent sliders always show a weighted average of the sliders underneath. This gives a rough indication of the values of the sub-sliders even when the sub-sliders are closed.

Using Sliders

Each slider controls the effect described by its label.

For most sliders, you increase the effect by moving the slider to the right and decrease the effect by moving the slider to the left. The exception is those sliders that allow negative values and have 0 in the center. For these sliders, move the slider away from the center to increase the effect or back towards the center to decrease the effect.

As you drag a slider, the enhanced image is updated in real-time so you can see what effect it has.

If a slider is at 0, then the effect it controls will make no change to the image.

Sliders with 0 in the center will "snap" to 0, which means they go to 0 if they are moved near 0. If you want to get a value near to 0 but are finding the slider is snapping to 0, you can hold the CMD key to prevent the slider from snapping to 0.

Instead of dragging a slider, you can click on its number value and use the up/down control to change the slider position, or type a numeric value, or use the up/down cursor keys.

To find out what an individual slider does, hover over it with the mouse.

3.3.5 Face Sculpt Controls

PortraitPro gives you the ability to subtly reshape and enhance facial features, simply by moving sliders. Some people regard this as going too far when enhancing a portrait. For those people, the shape sliders can simply be left at 0 and PortraitPro will not change the shape.

However, before dismissing this tool, we urge you to try it - you will be amazed at how much a subtle change to the shape can lead to a dramatic improvement in your portrait. One good trick is not to do too much - you're aim is usually to make the subject look their very best, not like someone different. A great example of this is eye widening, which makes your subject look alert and confident and draws attention towards the eyes.

Sliders

Master Fade	This slider is connected to the other sliders in this section that perform general enhancement to the shape of the face and facial features. You will see the other sliders move as this one is moved. The sliders that are not connected to the master fade slider are those that control effects that are likely to work well only on specific faces, such as the lip plumping and eye widening sliders.
Face Shape	Enhances the shape of the face. Pressing the Face Shape button opens the following sub-sliders: <div> <div>Forehead</div>Enhances the shape of the upper head. <div>Jaw</div>Enhances the shape of the jaw. </div>

Eyes	<p>Enhances the shape and position of both eyebrows and eyes. Pressing the Eyes button opens the following sub-sliders:</p> <p>Left Eye Enhances the shape of the left eye only - useful for evening out eye shape and size.</p> <p>Right Eye Enhances the shape of the right eye only.</p> <p>Eyebrow Shape Enhances the shape of the eyebrows. Pressing the Eyebrow Shape button opens two sub-sliders that let you control the left and right eyebrow shapes independently.</p> <p>Cross Eyed Moves the eyes further apart (or closer together). Pressing the Cross Eyed button opens two sub-sliders that let you control the left and right eyes independently.</p>
Eye Widening	<p>Widens (or narrows) the subject's eyes. Pressing the Eye Widening button opens two sub-sliders that let you widen the left and right eyes independently.</p>
Mouth Shape	<p>Enhances the overall shape of the mouth. Pressing the Mouth Shape button opens the following sub-sliders:</p> <p>Smile Changes the mouth shape to make it look like a smile.</p> <p>Upper Lip Enhances the shape of the upper lip only.</p> <p>Lower Lip Enhances the shape of the lower lip only.</p> <p>Expression Changes the mouth expression.</p> <p>Blur Lip Line Blurs the line between the teeth and the lips to prevent a jagged look that can occur when face sculpting. This slider does not appear if the mouth is closed.</p>
Plump Lips	<p>Makes the lips fatter. Pressing the Plump Lips button opens two sub-sliders that let you control the upper and lower lips independently.</p>
Nose	<p>Enhances the shape of the nose. Pressing the Nose button opens the following sub-sliders:</p> <p>Shorten Nose Shortens (or lengthens) the nose by changing the size of the head.</p>

	<p>Shorten Philtrum Shortens (or lengthens) the philtrum, which is the gap between the bottom of the nose and the top of the upper lip, by changing the length of the nose.</p> <p>Slim Tip Shrinks (or enlarges) the tip of the nose.</p> <p>Slim Nose Narrows (or widens) the whole nose.</p>
Neck	Lengthens the neck.
Lens Correct	When photographs are shot with a wide-angle lens (commonly seen with cellphones) this can have the undesirable effect of distorting the facial features. This slider can correct those problems.
Head Forward	Moving the head towards the camera can have a flattering effect on the appearance of the jaw. This slider simulates this.
Expressions	<p>The expressions slider can be used to add (or increase) a smiling expression to the subject.</p> <p>Press on the Expressions button to open a number of sub-sliders that let you add various other expressions.</p>
Hair Volume	Increases the volume of the hair. This slider will have no effect if there is no hair area set, for example if the subject is bald.

[Restore Glasses' Shape](#)

If the subject is wearing glasses, there may be distortions to the shape of the frames when editing the shape of the eyes. To fix this, check the **Restore Glasses' Shape** box.

[Example](#)

These pictures show how face sculpting can improve the appearance of a face.









3.3.6 Skin Smoothing Controls

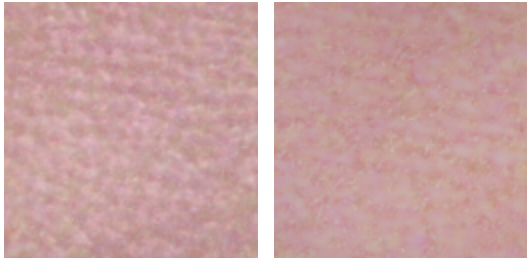
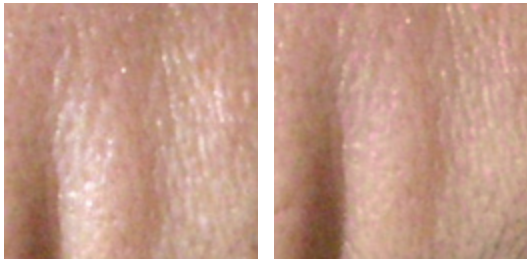
The skin smoothing controls let you selectively remove or reduce wrinkles, spots, shine, shadows and other skin defects while retaining a natural skin texture.

PortraitPro automatically determines the skin area, but you will get better results if you [check and fix the skin area](#).

Sliders

Master Fade	This slider is connected to the other sliders in this section that perform general enhancements to the skin. You will see the other sliders move as this one is moved.	
Around Eyes	<p>Reduces bags under the eyes, and reduces "crows feet", the wrinkles that appear next to the outer corners of the eyes. Pressing the Around Eyes button opens the following sub-sliders that let you control these enhancements independently:</p> <div> <div> Lighten Eye Bags <p>Reduces the appearance of bags under the eyes by lightening the skin color in the area where eyebags appear. Click the triangle next to Lighten Eye Bags to access sliders that let you control the left & right eyes independently.</p> </div> <div> Smooth Eye Bags <p>Reduces the appearance of bags under the eyes by lightening the skin color in the area where eyebags appear. Click the triangle next to Smooth Eye Bags to access sliders that let you control the left & right eyes independently.</p> </div> </div>	

	Smooth Crows Feet Smooths the areas to the left of the left eye and to the right of the right eye where crows feet appear. Click the triangle next to Smooth Crows Feet to access sliders that let you control the left & right eyes independently.
Imperfections	<p>Subtly removes redness and reduces small skin blotchiness within the skin area.</p> <div></div> <p>Before After</p>
Thin Wrinkles	<p>De-emphasizes wrinkles by making them thinner and lighter within the skin area.</p> <div></div> <p>Before After</p>
Fine Shadows	<p>Fades away dark specks and fine wrinkles within the skin area.</p> <div></div> <p>Before After</p>
Remove Pores	<p>Removes pores within the skin area giving a smooth, airbrushed effect.</p>

	 <div> <div>Before</div> <div>After</div> </div>
Remove Shine	<p>Corrects small areas of shine within the skin area.</p>  <div> <div>Before</div> <div>After</div> </div>
Remove Grease	<p>Corrects larger areas of shine within the skin area.</p>
Sharpen	<p>Sharpens the skin area. Press the Sharpen button to open the Scale sub-slider, which affects the scale at which the sharpening is applied.</p>
Trim Eyebrows	<p>Removes stray hairs from around the eyebrows.</p>
Around Mouth	<p>Quickly clears up faults such as wrinkles from around the mouth.</p>
Non-Face Skin	<p>Smooths skin that is not on the face.</p>
Texture	<p>Maintains a natural look by applying realistic skin texture in areas where skin texture is being corrected. This texture goes into touch-up brush strokes and areas where the sliders have had an effect. You will need to zoom in the picture to see the effect of changes to the skin texture. Clicking on the triangle next to Texture opens the following sub-sliders:</p> <div> <div> Brightness </div> <div>Finer control over skin texture brightness.</div> </div> <div> <div> Saturation </div> <div>Finer control over skin texture saturation. The greater the saturation, the more intense the color.</div> </div> <div> <div> Size </div> <div>Makes the skin texture pattern larger or smaller.</div> </div>

[Skin texture type.](#)

There are a selection of skin textures to choose from. You will need to zoom in on a skin area to see the effect of changing the skin texture.

[Removing Spots](#)

PortraitPro automatically removes spots by default.

You can adjust the degree to which PortraitPro removes spots using the **Spot Removal** drop-down menu at the bottom of the Skin Controls.

If you find that PortraitPro has not removed a spot, you can manually touch-up an area using the **Touch-Up** brush.

If PortraitPro has removed a spot that you want to keep, you can manually restore it using the **Restore** brush.

[More information about using brush tools](#) ^[90].

[Example](#)

The Before and After pictures below show an example of how wrinkles were removed automatically by PortraitPro:



3.3.7 Skin Lighting & Coloring Controls

PortraitPro lets you change the lighting on the subject's face via simple controls. These controls can provide a very effective way to enhance the appearance of the face.

Note that some of these controls are quite sensitive to the positions of the outlines around the face. If you are not getting a good result, try [adjusting the outlines](#) ^[14] shown over the **before** view so that they line up with the edges of the face.

Note: the sliders and other controls in this section only affect those parts of the picture that are in the [skin area](#) ^[70]. Press the [View/Edit Skin Area](#) ^[70] button to change the skin area.

Lighting Direction

The general lighting direction can be changed by moving the circle in the control at the top of this section. Leave it in the center if you don't want to change the lighting direction.

Sliders

Contrast	Changes the lighting contrast.
Modeling	Relights the image to make the features of the face appear more sculpted or defined.
Fix Lighting	Applies lighting similar to "beauty lighting" that makes skin and features appear smoother.
Cheekbones	Gives more definition to the cheekbones. Pressing the Cheekbones button opens two sub-sliders that let you change the left and right cheeks independently.
Left Shadow	Adds shadow to the left side of the face.
Right Shadow	Adds shadow to the right side of the face.
Left Kick	Adds a kick light to the left side of the face.
Right Kick	Adds a kick light to the right side of the face.
Smokey Eyes	Darkens the area above the eyes to simulate smokey eyeshadow or a stronger brow.
Pout	Adds shadow below the lips to make them appear fuller.
Sculpt nose	Adds definition to the nose.
Skin Color	See the Skin Color sliders description below.

Skin Color

These are the sliders if you open the Skin Color section.

Skin Color Adjustment (Color Correct and more)	<p>This slider can do different things depending on the setting of the drop down menu on the left of the slider.</p> <p>Color Correct: A very general color correct that will fix badly colored skin.</p> <p>Other options: Will change the skin color to match a particular style of coloring.</p> <p>Two other sliders are affected by the skin color adjustment:</p>
---	---

	<p>Brightness Contrast This controls how much the slider changes the brightness and contrast (as opposed to just the hue and saturation).</p> <p>Color Correct Outside Face Copies the recoloring that was applied to the face onto the rest of the picture. This will correct the white balance of the picture using knowledge about the correct colors of skin.</p>
Temperature	Manually adjusts the color of the skin to remove any temperature (red-blue) color cast.
Tint	Manually adjusts the color of the skin to remove any tint (green-purple) color cast.
Tan	<p>Gives the skin area a tanned look. Pressing the Tan button opens the following sub-sliders:</p> <p>Saturate Gives the skin area a richer color.</p> <p>Darken Subtly darkens the skin area.</p> <p>Gold Gives the skin a golden color if moved to the right, or reduces the amount of gold color in the skin if moved to the left.</p>

3.3.8 Makeup Controls

Makeup controls allow you to add realistic looking makeup after your picture has been taken. This can be done to make your subject look better, or just to explore different looks.

To start adding a makeup Element, just slide up the master slider (next to the element name) to increase the opacity of that element. All makeup elements come with sensible defaults that can be altered as described here.

Hair covering the face: Because makeup shouldn't appear over the top of hair, if there is hair covering any area where makeup is applied, adjust the Hair Area (found in the Hair controls) to paint away makeup in areas where there is hair.

Objects covering the face: Sometimes glasses, accessories or hands may be covering an area where makeup is being applied. To prevent this, use the **Restore Brush** set to Restore To Original image to paint over the area.

Profile faces: please note that makeup is not supported for faces that are viewed in profile, so the makeup section will not appear for those faces.

Makeup Elements

Lipstick	Lipstick isn't just for giving the appearance of lipstick, it can also be used to cover faults on the lips (using the coverage slider).
-----------------	---

	<p>Master slider</p> <p>The master slider controls the opacity of the entire lipstick. All the controls under it are affected by the opacity. Because you won't see any difference to the lipstick when the opacity is at 0, it will automatically jump to 75% when adjusting any of the other controls.</p> <p>Texture</p> <p>Use this to control the material property of the lipstick. The best way to understand this is just to scroll through the different options to see what they do.</p> <p>Color</p> <p>The color of the lipstick is controlled using the brightness slider and the hue and saturation picker underneath. Drag the "plus" around to alter the hue and saturation.</p> <p>Shine</p> <p>This is used to tweak the amount of shine added to the lipstick.</p> <p>Coverage</p> <p>This affects how much of the original shine from the lips is visible. When applying to already shiny lips, a low coverage can result in overly shiny lips. A higher coverage can cover faults in lips better, but can end up looking artificial as the original lighting is discarded.</p>
<p>Mascara</p>	<p>Mascara can be used to draw attention to the eyes.</p> <p>Master slider</p> <p>The master slider controls the opacity of the mascara. All the controls under it are affected by the opacity. Because you won't see any difference to the mascara when the opacity is at 0, it will automatically jump to 75% when adjusting any of the other controls.</p> <p>Application</p> <p>Use this to choose what style the mascara appears in.</p> <p>Softness</p> <p>Because sometimes eyes are slightly out of focus, Portrait Pro measures the focus of the original pictures eyes and tries to match the mascara softness to it. This slider can be used to manually tweak the default focus detection.</p> <p>Nudge lashes</p> <p>Portrait Pro uses the eye markup in the "before" panel to place the mascara. The markup should be placed where the waterline meets the eyeball. Lashes come out of the outside of the waterline,</p>

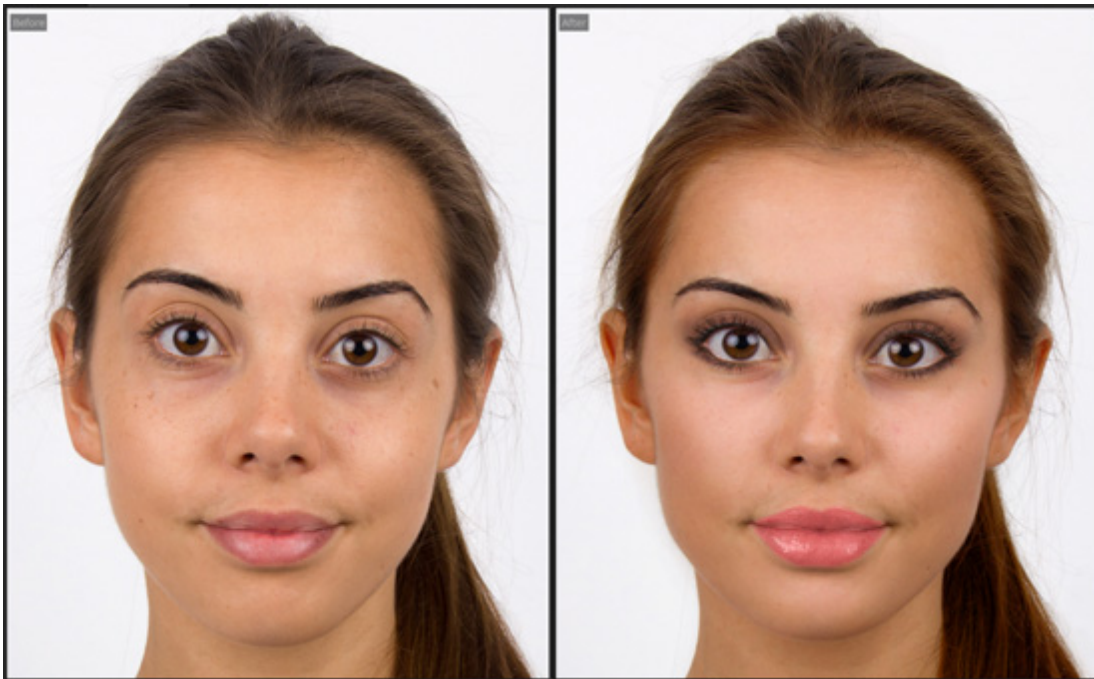
	<p>so there is a gap between the markup and the roots of the mascara. However if the head is tilted, the waterline can be larger or smaller. This slider lets you adjust the position of the mascara to compensate in these situations.</p> <p>Texture Adds a texture to the mascara.</p>
Eyeshadow (upper and lower)	<p>Eyeshadow can be used to draw attention to the eyes.</p> <p>Master slider The master slider for the eyeshadow element controls the opacity of the entire eyeshadow. All the controls under it are affected by the opacity. Because you won't see any difference to the eyeshadow when the opacity is at 0, it will automatically jump to 75% when adjusting any of the other controls.</p> <p>Texture Use this to control the material property of the eyeshadow. The best way to understand this is just to scroll through the different options to see what they do.</p> <p>Color The color of the eyeshadow is controlled using the brightness slider and the hue and saturation picker underneath. Drag the "plus" around to alter the hue and saturation.</p> <p>Shine This is used to tweak the amount of shine added to the eyeshadow.</p> <p>Inner/Outer opacity This is used to change the opacity of the inside or outside parts of the makeup.</p>
Eyeliner	<p>Eyeliner can be used to draw attention to the eyes.</p> <p>Opacity Controls the opacity of the eyeliner.</p> <p>Application Controls the shape of the eyeliner.</p> <p>Texture Adds a texture to the eyeliner.</p>
Blusher	<p>Blusher is used to give cheeks a rosy glow.</p> <p>Master slider The master slider controls the opacity of the blusher. All the controls under it are affected by the opacity. Because you won't see any difference</p>

	<p>to the blusher when the opacity is at 0, it will automatically jump to 75% when adjusting any of the other controls.</p> <p>Face shape</p> <p>You can adjust the blusher to flatter different face shapes.</p> <p>Color</p> <p>The color of the blusher is controlled using the brightness slider and the hue and saturation picker underneath. Drag the "plus" around to alter the hue and saturation.</p>
Bronzer	<p>Bronzer is way to sculpt the face while giving a tanned look.</p> <p>Master slider</p> <p>The master slider controls the opacity of the bronzer. All the controls under it are affected by the opacity. Because you won't see any difference to the bronzer when the opacity is at 0, it will automatically jump to 75% when adjusting any of the other controls.</p> <p>Color</p> <p>The color of the bronzer is controlled using the brightness slider and the hue and saturation picker underneath. Drag the "plus" around to alter the hue and saturation.</p>
Highlighter	<p>Highlighter is used to sculpt the face while making it glow.</p> <p>Master slider</p> <p>The master slider controls the opacity of the highlighter. All the controls under it are affected by the opacity. Because you won't see any difference to the highlighter when the opacity is at 0, it will automatically jump to 75% when adjusting any of the other controls.</p> <p>Color</p> <p>The color of the highlighter is controlled using the brightness slider and the hue and saturation picker underneath. Drag the "plus" around to alter the hue and saturation.</p>
Eyebrow Pencil	<p>When using the eyebrow pencil controls, make sure the eyebrow outlines are correctly positioned over the eyebrows. If they are not correctly positioned, you can move them in the "before" view.</p> <p>Master slider</p> <p>The master slider controls the opacity of the eyebrow pencil. All the controls under it are affected by the opacity. Because you won't see any difference to the eyebrow pencil when the</p>

	<p>opacity is at 0, it will automatically jump to 75% when adjusting any of the other controls.</p>
Color	<p>The color of the eyebrow pencil is controlled using the brightness slider and the hue and saturation picker underneath. Drag the "plus" around to alter the hue and saturation.</p>
Left and right	<p>Use this to individually adjust the left and right opacity.</p>

Example

These pictures show how makeup can subtly improve the appearance of a face.



3.3.9 Eye Controls

PortraitPro can automatically brighten, whiten and sharpen the eyes. The Eye controls allow you to adjust exactly how much effect you get. You can also change the color of the eyes.

Partially obscured eyes: The eye sliders look bad when applied over hair that covers eyes. If there is hair covering the eyes, use the Hair Area brush (found in the Hair controls) to paint away the effect of eye sliders by marking pixels as hair.

If another object (such as a hand or glasses) is covering the eye, you can use the **Restore Brush** to prevent edits being made to that item. Simply select Restore To Original Image and paint over the object.

Totally obscured eyes: If one of the eyes is completely obscured, you can turn off all changes to that eye using the **Eye On/Off** buttons at the top of the Eye menu. If both eyes are obscured, simply turn off the eye menu entirely using the power button next to its header.

Sliders

Master Fade	This slider is connected to some of the other sliders in this section that perform general enhancements to the eyes. You will see the other sliders move as this one is moved.
Whiten Eyes	<p>Whitens and brightens the white part of the eyes. The area affected is controlled by the Whitening Area slider.</p> <p>Whitening takes any color out of the whites of the eyes leaving them a shade of gray when the slider is at the top.</p> <p>Pressing the Whiten Eyes button opens two sub-sliders that let you whiten the left and right eyes independently.</p>
Clean Eyes	<p>Cleans up veins and other discolorations in the whites of the eyes. The area affected is controlled by the Whitening Area slider.</p> <p>Pressing the Clean Eyes button opens four sub-sliders that let you control the left and right eyes independently. The sub-sliders Left Eye and Right Eye let you control the overall effect for each eye, from 0 (no effect) to 100 (maximum effect). The sub-sliders Left Curve and Right Curve can be used to either increase the apparent curvature of the eye by moving the slider to the right, or make the eye appear flatter by moving the slider to the left. The curve sliders work by adjusting the cleaning effect added, so they will have no effect if the corresponding left/right eye slider is 0.</p>
Whitening Area	<p>Changes the area of the eye that will be whitened or cleaned by the Whiten Eyes or Clean Eyes sliders.</p> <p>Pressing the Whitening Area button opens two sub-sliders that let you change the area for the left and right eyes independently.</p>
Darken Pupil	<p>Darkens the pupil (the black part in the middle of the eye) in the eyes.</p> <p>Pressing the Darken Pupil button opens two sub-sliders that let you darken the left and right pupils independently.</p>
Darken Pupil Size	<p>Use to change the size of the pupil when darkening.</p> <p>Pressing the Darken Pupil Size button opens two sub-sliders that let you change the left and right pupils independently.</p>
Sharpen Eyes	<p>Sharpens the subject's eyes.</p> <p>Pressing the Sharpen Eyes button opens the following sub-sliders that let you control the amount of sharpening applied to different parts of the eyes.</p> <p>Upper L Lash Sharpens the upper left eye lashes.</p>

	<p>Lower L Lash Sharpens the lower left eye lashes.</p> <p>Left Eye Sharpens the left eye.</p> <p>Left Lash Area Changes the size of the area that the left eye sharpening influences.</p> <p>Upper R Lash Sharpens the upper right eye lashes.</p> <p>Lower R Lash Sharpens the lower right eye lashes.</p> <p>Right Eye Sharpens the right eye.</p> <p>Right Lash Area Changes the size of the area that the right eye sharpening influences.</p>
Sharpen Eyebrows	<p>Sharpens the subject's eyebrows.</p> <p>Pressing the Sharpen Eyebrows button opens two sub-sliders that let you sharpen the left and right eyebrows independently.</p>
Brighten Iris	<p>Brightens or darkens the iris (the colored part of the eye).</p> <p>Pressing the Brighten Iris button opens two sub-sliders that let you brighten or darken the left and right irises independently.</p>
Change Eye Color	<p>Press the Change Eye Color button to open the sub-sliders that let you change the color of the irises.</p> <p>Amount of Change If this slider is 0, the color of the eyes will be unchanged (the Color and Intensity sliders will be ignored).</p> <p>Set this to 100 to set the eye color selected by the Color and Intensity sliders. Lower values will blend between the selected color and the original eye color.</p> <p>If this slider is at 0, it is automatically set to 100 whenever the Color or Intensity sliders are moved.</p> <p>Press the Amount of Change button to open two sub-sliders that let you set the amount of change for the left and right eyes independently.</p> <p>Color Sets the color of the eyes (provided the Amount of Change slider is not 0).</p>

	<p>Press the Color button to open two sub-sliders that let you set the color for the left and right eyes independently.</p> <p>Intensity</p> <p>Sets the intensity of the eye color.</p> <p>Press the Intensity button to open two sub-sliders that let you set the intensity for the left and right eyes independently.</p>
Add Contact Lens	You can choose from a list of contact lens options to be applied to the eye. There is an opacity slider to fade it in and out and a scale slider to change the size.
Add Eyelid	Accentuates the line above the eye where the eyelid starts.
Remove Pupil Reflection	<p>This slider blackens the pupil area to remove reflections. This can be used with the Add Reflection drop down list to add new eye reflections.</p> <p>Pressing the Remove Pupil Reflection button opens two sub-sliders that let you remove catch-light reflections from the left and right pupils independently.</p>
Add Reflection	You can choose from a selection of reflection images (catch-lights) to be added to the eyes.
Reflection Opacity	<p>You can adjust the opacity of the reflection images.</p> <p>If this is set to 0, the reflection will not appear.</p> <p>If this is set to 100, the reflection is shown at its maximum intensity.</p> <p>If you cannot see the reflection even when this slider is set to 100, it is possible the reflection is outside the eye area. Move the nudge reflections sliders to bring the reflection into view.</p>
Nudge Reflections	<p>If you have added a reflection to the eye, you can press the Nudge Reflections button to open up sliders that let you move the position of the reflections in the eyes.</p> <p>These sliders do not appear if the Reflection Opacity is 0.</p> <p>Left Eye Horiz. Moves the reflection in the left eye horizontally (left & right).</p> <p>Left Eye Vert. Moves the reflection in the left eye vertically (up & down).</p> <p>Right Eye Horiz. Moves the reflection in the right eye horizontally.</p>

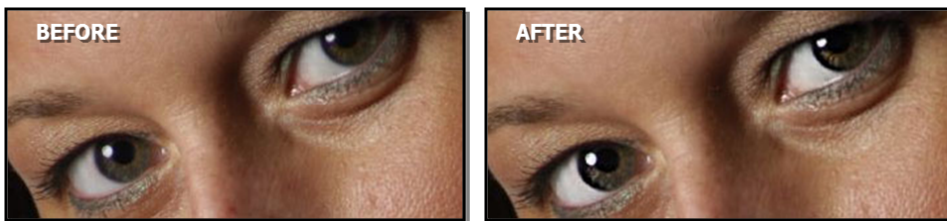
	Right Eye Vert.	Moves the reflection in the right eye vertically.
--	------------------------	---

Red Eye Removal

If your photo has "red-eye" (caused by a flash illuminating the insides of your subject's eyes), this can be automatically removed by checking the **Red Eye Removal** box at the top of the Eye controls.

Example

The Before and After pictures below show an example of how the model's eyes were whitened and sharpened automatically by PortraitPro.



3.3.10 Mouth & Nose Controls

PortraitPro automatically whitens the teeth and enhances the color of the lips. The Mouth & Nose controls allow you to adjust these effects to get exactly the look you want.

Sliders

Master Fade	This slider is connected to some of the other sliders in this section that perform general enhancements to the mouth and nose areas. You will see the other sliders move as this one is moved.
Whiten Teeth	Removes any color from the teeth. The area affected is controlled by the Whiten Area slider. This control is not shown if the mouth is closed.
Clean Teeth	Cleans the teeth. The area affected is controlled by the Whiten Area slider. This control is not shown if the mouth is closed.
Whiten Area	Changes the teeth area affected by the Whiten & Clean Teeth sliders. This control is not shown if the mouth is closed.
Lip Saturation	Makes the lips more colorful.
Lip Darken	Move this slider to the right to darken the lips, or to the left to make them lighter.
Lip Contrast	Increases the contrast within the lip area, giving the lips more impact.

Sharpen Mouth	<p>Sharpens the outline and details of the mouth. Press the Sharpen Mouth button to open the following sub-sliders that let you control the amount of sharpening applied to the different parts of the mouth independently.</p> <p>Top Lip Sharpens the top lip only.</p> <p>Bottom Lip Sharpens the bottom lip only.</p>
Sharpen Teeth	Sharpens the teeth.
Nose Contrast	Increases the contrast within the nose to draw attention to it.
Moisten Lips	Adds some shine to the lips.
Lip Hue	Changes the color of the lips.

Example



3.3.11 Hair Controls

PortraitPro lets you enhance the hair of the subject by moving sliders. Please note that before doing this, it is important to have the hair area set reasonably accurately – see [Hair Area](#) ^[71].


Sliders



Hair Recolor Amount	<p>Controls how much hair recoloring to apply.</p> <p>The color is set by selecting one of the hair swatches.</p> <p>This slider will be automatically set to 75 if it is at 0 when a hair color is selected in the Hair Recolor drop-down list.</p>
Shine	<p>Makes the hair more shiny. Pressing the Shine button opens two sub-sliders, Shine Amount and Shine Softness.</p> <p>Shine Amount lets you set how much shine to add.</p> <p>Shine Softness controls the softness of the shine added. This has no effect if Shine Amount is set to 0.</p>

Auto Levels	Automatically improves the contrast and colors in the hair area.
Fill Light	Adds a fill light to the hair area, which will brighten shadow areas.
Blacks	Darkens or lightens the black areas within the hair.
Contrast	Adjusts the contrast of the hair area.
Vibrance	Increasing the vibrance will make the color of the hair more intense.
Saturation	Adjusts the saturation of the colors in the hair area.
Temperature	Adjusts the temperature (red-blue) of the colors in the hair area.
Tint	Adjust the tint (green-purple) of the colors in the hair area.
Sharpen	Increase or decrease contrast in dark areas if needed.

[Hair Tidying Mode](#)

Further controls are located in Hair Tidying Mode. Click on **Go to Hair Tidying Mode** to access these sliders.


Fill Hair Shadows	<p>Fills out shadows within the hair caused by hair clumping.</p> <div data-bbox="581 1087 1107 1344">  </div> <div data-bbox="672 1358 748 1383">Before</div> <div data-bbox="953 1358 1008 1383">After</div> <p>Press the Fill Hair Shadows button to open the following sub-sliders to give finer control over the enhancement:</p> <div data-bbox="581 1503 807 1533">Shadow Brightness</div> <div data-bbox="950 1503 1438 1562">Controls how bright to make the shadows brightened by the "Fill Hair Shadows" slider.</div> <div data-bbox="581 1604 771 1631">Shadow Texture</div> <div data-bbox="950 1604 1414 1690">Controls how much texture to reveal in the shadows brightened by the "Fill Hair Shadows" slider.</div>
Smooth Hair	Makes hair appear smoother and tidier.

	 	
	Before	After
	<p>Press the Smooth Hair button to open the following sub-slider that gives further control over the way the hair is smoothed:</p> <p>Smoothing Softness Alters the degree to which the Smooth Hair slider makes the hair appear soft.</p>	

Leave Hair Tidying Mode by pressing the **OK** button.

3.3.12 Picture Controls

These controls affect the whole image and allow you to adjust the overall look of the picture, controlling things like the contrast and color temperature.

You can also crop the image using the [Crop tool](#) .

Sliders

Auto Levels	Automatically improves the contrast and colors of the whole image. Note: this slider may have little effect on some images.
Flatten Histogram	Adjusts the colors in the image to flatten the histogram.
Exposure	Adjusts the overall exposure (brightness) of the whole image.
Fill Shadows	Simulates adding a fill light, which brightens the darker areas of the image.
Blacks	Darkens or brightens the very dark areas of the image.
Contrast	Increases or decreases the contrast of the image.
Dehaze	Increases or decreases the contrast in dark areas if needed.
High/Low Key	Makes the image more <i>high key</i> (more brighter tones) or <i>low key</i> (more darker tones).
Vibrance	Adjusts the overall vibrance of the colors in the whole image. Increasing vibrance will make muted colors more intense, but has less effect on colors that are

	already saturated. This helps preserve skin tones.
Saturation	Adjusts the saturation of the colors in the whole image. Increasing the saturation will make the colors in the picture more intense. Decreasing the saturation will make the colors less intense (more gray).
Temperature	Use this slider to adjust the color of the whole image to remove any temperature (red-blue) color cast.
Tint	Use this slider to adjust the color of the whole image to remove any tint (green-purple) color cast.
Black And White	By default, this slider converts the image into black and white. If you press on the Black And White button, it opens three color wells that let you set the color for the dark tones, the color for the mid tones, and the color for the bright tones. These default to black, mid gray and white, but by changing these you can get a variety of effects.
Shine	Makes the image more "shiny". Pressing the Shine button opens two sub-sliders, Shine Amount and Shine Softness . Shine Amount lets you set how much shine to add. Shine Softness controls the softness of the shine added. This has no effect if Shine Amount is set to 0.
Vignette	The vignette controls let you add a classic vignette effect over the image. <div> <div>Vignette</div> <div>The main vignette slider controls the opacity of the vignette effect. If this is at 0, no vignette is applied. At 100, the vignette effect will be opaque at the edges.</div> </div> <div> <div>Radius</div> <div>Controls the radius of the oval used to create the vignette effect.</div> </div> <div> <div>Color</div> <div>Sets the color for the vignette.</div> </div> <div> <div>Hardness</div> <div>Sets the size of the soft part of the vignette.</div> </div> <div> <div>Horizontal Offset</div> <div>Moves the center of the vignette left and right.</div> </div> <div> <div>Vertical Offset</div> <div>Moves the center of the vignette up and down.</div> </div>

3.3.13 Layers

PortraitPro lets you add extra image layers over your image.

PortraitPro also lets you make changes to the background, including replacing the background completely or adding additional elements between the background and foreground parts of the image.

The [background mask](#)^[63] identifies which parts of the image are background and which are foreground. PortraitPro will automatically create a background mask. Tools are provided so that you can modify the background mask as required.

Changing the background

To change the background of your image, press the **Layers** button to open the Layers section.

The Layers section will contain a sub-set of these buttons:

Create Background Mask	When you press this button, PortraitPro will automatically create a mask and then switch to the Background controls, with the View/Edit Background Mask ^[63] controls section open. This button is only shown if the background mask has not yet been created.
View/Edit Background Mask	Switches to the Background controls, with the View/Edit Background Mask ^[63] controls section open. This button is only shown if the background mask has been created, or if the original image loaded had an alpha channel.
Change Background	Switches to the Background controls, with the Change Background ^[67] controls section open. This button is only shown if the background mask has been created, or if the original image loaded had an alpha channel.
Add Overlay	Switches to the Overlay controls ^[70] . This button is only shown if no overlays have already been added.
View/Edit Overlays	Switches to the Overlay controls ^[70] . This button is only shown if one or more overlays have already been added.

Before pressing the **Create Background Mask** button, you should make sure all the faces in the image have been found, and the face outlines correctly shown around them. Press the **Other Faces** button in the toolbar if any faces have not been located properly. This is necessary since PortraitPro needs to know the location of the faces to make the initial background mask.

Don't spend much time adjusting the background mask initially. Once the mask is roughly correct, press the **Next** button to open the other section, **Change Background**.

When the Background controls are shown, you can switch between the [Background Mask](#)^[63] controls and the [Background Image](#)^[67] controls by clicking on the header for that section.

After you have changed the background image, go back to the **Background Mask** section and use the tools there to refine the mask.

Note that the accuracy needed for the background mask depends greatly on the change made to the background. If the new background is very similar to the original background, then you usually don't need to be very accurate with the background mask. However, if the new background is very different from the original, then a highly accurate mask will probably be needed.

Adding Overlays

Press the **Add Overlay** or **View/Edit Overlays** button (whichever is visible) to open the [Overlays controls](#)^[70]. You can use these controls to add image elements over your image.

A selection of overlay images is provided. You can also select your own images. For an image to be useful as an overlay, it should normally have an alpha channel that sets part of the image to be transparent.

3.3.13.1 View/Edit Background Mask

Introduction

The background mask covers the areas of the picture that contain the background. This is the part of the picture that will be affected by the [background controls](#)^[67].

The controls and tools in the **Edit Background Mask** section let you set the background mask.

Most of the tools are in pairs, to let you set areas to be background or foreground. Note that although you can view and edit either the background or foreground, there is only one mask. The foreground area is just the inverse of the background and vice versa.

Getting Started

When you first enter the **Edit Background Mask** section, the background mask will have been automatically created. It will usually need to be adjusted to get a good result.

If the image loaded already has an alpha channel, then this will be used as the foreground mask. In addition, the background area will be automatically marked as transparent (see *Transparency* section in the [Change Background](#)^[67] page).

These are the recommended steps when adjusting a newly created mask:

- Use the **fill tools** to correct any large areas that are wrong.

These tools let you quickly fill large areas by scribbling over them. The area filled automatically extends out to edges detected in the picture.

- Press **Next** (at the bottom right of the controls panel) to open the [Choose Background](#)^[67] controls, and set the background that you want.

The reason for setting the background you want before getting the mask exactly right, is that the accuracy you need will depend greatly on the change you are making to the background. You can save a lot of time by only fixing the areas that are visibly wrong.

- Press on the **Background Mask** section header to go back to the **Edit Background Mask** controls.
- Use the **smart brush tools** over areas near the edges of the mask that are wrong.

These tools try to automatically determine where the boundary between the background and foreground is within the area painted, so they do not set the entire area painted to be background or foreground.

- Use the background and foreground tools if you have an area that the smart brushes do not work well on.

You can zoom in (using the [zoom control](#)^[35]) and then use the background or foreground brush tools to paint an area.

The other tools can be useful in certain cases. For example, the **Find Detail** tool often works well for stray hairs around the edges of the hair.

If you find colors bleeding through around the edges of the mask, this can sometimes be quickly fixed by using one or more of the **Adjust Whole Mask** sliders.

Mask Tools

The buttons at the top of the controls panel provide 12 different tools that can be used to adjust the background mask.

To use these tools, move the cursor over the image. For most tools, a preview of the effect will be shown while you move the mouse over the image. Press and hold the left mouse button while moving the mouse over the image to apply the tool to the mask.

The size of the brush can be adjusted using the **Brush Size** slider under the tool buttons.

Some of the tools also have a strength setting. When one of these tools is selected, a **Strength** slider will appear under the **Brush Size** slider.

Fill Background	Scribble in areas that should be background. This brush will automatically fill out the area scribbled in. Keyboard shortcut: S
Fill Foreground	Scribble in areas that should be foreground. This brush will automatically fill out the area scribbled in. Keyboard shortcut: D
Smart Background	Sets part of the area painted to background. This tool tries to automatically determine which areas should be set to background by comparing the colors in nearby parts of the image that are foreground and those that are background. Keyboard shortcut: F
Smart Foreground	Sets part of the area painted to foreground. This tool tries to automatically determine which areas should be set to foreground by comparing the colors in nearby parts of the image that are foreground and those that are background. Keyboard shortcut: G
Background	Sets the mask to background. Keyboard shortcut: H
Foreground	Sets the mask to foreground (i.e. not background).

	Keyboard shortcut: J
Expand Background	Makes the background area a little larger. This only has an effect when it is painted over an edge in the mask. The edge will be moved towards the foreground area to make the background area larger. Keyboard shortcut: K
Expand Foreground	Makes the foreground area a little larger. This only has an effect when it is painted over an edge in the mask. The edge will be moved towards the background area to make the foreground area larger. Keyboard shortcut: L
Soften Mask Edge	Blurs the mask edge. This tool only has an effect if it is painted over an edge in the mask. It can be useful if you don't want a hard edge where the new background starts.
Sharpen Mask Edge	Sharpens the mask edge. This tool also only has an effect if it is painted over an edge in the mask.
Find Hard Edges	This tool can be used to align a mask edge with a hard edge in the original image. This tool only has an effect if it is painted over an edge in the mask. It should be used where the original image has a hard edge, and you want the mask edge to be aligned with that edge. Start by getting the mask roughly right using the other tools, then use this Find Hard Edges tool to align the mask edge exactly with the edge in the original image.
Find Detail	This tool should be used in areas that have lots of fine detail. It tries to automatically set both the foreground and background in the area painted over. This tool is effectively a combination of the Smart Foreground and Smart Background tools.

Mask Views

When editing the mask, it can be viewed in a number of ways to make it easier to see what you are doing.

The view mode can be selected by clicking on one of the buttons that shows a small image of how the mask will be shown when that mode is selected.

As you hover over each button, the name of the mode is shown above the buttons.

Show Result	This is generally the most useful view, since it shows exactly what you will get when you have finished. It shows how the new background will appear on the original image. Keyboard shortcut: 1 (6 for left hand view)
Show Foreground Only	This shows the foreground of the original image, with the background shown as a checkerboard. This view shows exactly which parts of the original image will be unchanged when the background is replaced.

	Keyboard shortcut: 2 (7 for left hand view)
Show Background Only	This shows the background of the original image, with the foreground shown as a checkerboard. This view can be useful to see if parts of the original image that you want to be in the foreground are currently part of the background. Keyboard shortcut: 3 (8 for left hand view)
Show Mask Overlay	This shows the original image with the background mask overlaid as a semi-transparent color. The color used for the overlay can be selected from the drop down list. Keyboard shortcut: 4 (9 for left hand view)
Show Mask Only	This shows just the mask. The background is shown as white, and the foreground as black. Keyboard shortcut: 5 (0 for left hand view)

It can sometimes be useful to see more than one view of the mask at once. This can be done by selecting the **Dual Views** tab above the image, which shows two views side by side. When this tab is selected, two sets of mask view mode buttons are shown in the controls panel, so that a different view mode can be set in the left and right views.

When you first view a newly created background mask, the left view will be set to **Show Background Only**, and the right view to **Show Foreground Only**. This is because the **Show Result** view is not useful before any changes have been made to the background image.

When you return to view an existing background mask, the left view will default to **Show Background Only**, and the right view to **Show Result**. However, if you have changed these view options, these will be remembered when you return.

Adjust Whole Mask

At the bottom of the controls panel, there are three sliders that can be used to quickly make changes to the whole mask.

Note that these sliders all affect just the edges of the mask.

Blur/Sharpen	Move this slider to the left to blur all the edges in the mask. Move this slider to the right to sharpen all the edges in the mask.
Grow/Shrink	Move this slider to the left to grow the background mask (shrinking the foreground). Move this slider to the right to shrink the background mask (growing the foreground).
Shift Edge	Move this slider to the left to move the mask edges inwards. Move this slider to the right to move the mask edges outwards.

Keyboard shortcuts

CMD	While held, temporarily switches to pan tool. This lets you move the image in the view.
------------	---

SHIFT	While held, temporarily switches to the opposite tool. This switches from a tool affecting the background to the one performing the same operation on the foreground and vice versa. Also switches between the soften mask and sharpen mask tools.
S, D, F, G, H, J, K, L	Switches the current tool. The descriptions of the tools above show which shortcut is for which tool.
1, 2, 3, 4, 5	Changes how the mask is shown. The descriptions of the mask views above show which shortcut is for which view mode. If the Dual Views tab is selected, these keys affect the right view.
6, 7, 8, 9, 0	Changes how the mask in the left view is shown. These keys only have an effect if the Dual Views tab is selected.
[,]	Make the brush size smaller or larger.

3.3.13.2 Change Background

The controls in this stage let you select what you want to do to the background areas.

The background image can be changed in two ways:

- Additional layers can be added between the background from the original image and the foreground from the original image.
- Sliders can be used to apply effects such as blurring to the background image.

Adding layers

The three buttons at the top of the Background Image controls let you add the following types of layer:

Flat Color	<p>Adds a layer that fills the entire background area with a flat color.</p> <p>The color to use can be set using the color selector control.</p> <p>There is also an opacity slider that lets you fade out the color layer. Set this slider to 100 if you want to flat color to be opaque, which will completely hide any layers below it, including the background from the original image.</p>
Color Gradient	<p>Adds a layer that fills the entire background area with a color gradient.</p> <p>The gradient is set by two colors and two positions within the image. The colors are set using the color selector controls. The positions of these two colors are shown by circles in the image, which can be dragged to move the color gradient.</p>

	<p>When dragging the color positions in the image, they will snap to various positions such as the edges of the original image, or when they are vertically, horizontally or diagonally aligned. To turn off the snap, hold down the ALT key while dragging.</p> <p>There is also an opacity slider that lets you fade out the gradient color layer. Set this slider to 100 if you want to flat color to be opaque, which will completely hide any layers below it, including the background from the original image.</p>
Background Image	<p>Adds a new image layer.</p> <p>Press the Select Image button to bring up a file dialog that lets you choose the new image. If Open Built-in Backgrounds Folder is checked, then the file dialog will open in the application folder that contains a selection of backgrounds that are provided with PortraitPro. Otherwise, the file dialog will open in the last folder you chose a file from.</p> <p>Once the new image is loaded, you can position it in the image. A rectangle is shown around the new image. Drag within the rectangle to move it, or drag a corner or edge to resize it. You can also rotate the image by dragging outside the rectangle.</p> <p>When dragging to reposition the image, it will snap to various positions to help you align it accurately. To turn off the snap, hold down the ALT key while dragging.</p> <p>There is also an opacity slider that lets you fade out the image layer.</p> <p>Press the Set Crop To This Image button to set the crop rectangle to the current bounds of this image. Note that if you subsequently move the image, the crop rectangle will not be updated so you will need to press this button again if you want to also adjust the crop.</p>

Viewing and Editing Layers

New layers are always added above any layers that have already been added. The first layer is added above the original image.

The layers added are shown in the Background Layers section below the buttons. Click on one of the layers to open the controls it contains, that allow it to be edited.

Layers can be re-ordered by pressing the up and down arrows in the header bar for each layer. The background from the original image must always be the lowest layer.

Layers can be deleted by pressing the X in the header bar.

Transparency

Check the **Make Background Transparent** checkbox to make the background area transparent. Transparent areas are shown using a checkerboard pattern.

When [saving the result](#) ¹⁴, if there are any transparent areas then an alpha channel will automatically be saved with the image, provided the image file format supports this. The JPEG image file format does not support transparency.

Adjust Background

The whole background, consisting of all the background layers composited together, can be adjusted using the **Adjust Background** sliders.

Blur	<p>Blurs the background area.</p> <p>If a blur is applied, then the Depth of Field slider becomes enabled, which can be used to simulate a depth of field effect. If the Depth of Field slider is 0, then no depth of field effect is applied.</p> <p>The depth of field effect uses the simple assumption that the background is a flat plane receding into the distance. To simulate a focus point and depth of field, a horizontal line along the background is left un-blurred, and the blur increased either side of this until it reaches the blur amount set by the Blur slider. The Depth of Field slider controls the size of the un-blurred area (simulating the depth of field of a lens).</p> <p>If the Depth of Field slider is greater than zero, then the Focus Plane Position slider becomes enabled, and it can be used to set the height at which the un-blurred line is set, which simulates the distance into the scene that the focus point is set.</p>
Brightness	Brightens or darkens the background area.
Contrast	Increases or decreases the contrast of the background area.
Exposure	Increase or decreases the exposure of the background area.
Flash Recovery	Reduces the brightness of very bright areas that might have been over exposed by a flash.
Blacks	Decreases the brightness of dark areas to enhance the black area in the image.
Tone Curves	Open the Tone Curves section to show sliders that let you selectively adjust the brightness of different parts of the image based on their brightness.
Temperature	Adjusts the color temperature of the background. Move the slider left to reduce the color temperature (making it more blue) or to the right to increase the color temperature (making it more yellow).
Tint	Adjusts the color tint of the background. Move the slider to the left to make the image more magenta, or to the right to make it more green.

Adjust Foreground

Most of the sliders available in the **Adjust Background** section are also available for adjusting the foreground image. This is the part of the original image that is not part of the background.

3.3.13.3 Overlays

PortraitPro allows you to add overlay images to your image.

These are added after all other effects and processing, so will not be affected by any other sliders.

To add an overlay:

- Press the [Layers](#) ^[62] button to open the Layers controls
- Press the **Add Overlay** button to switch to the **View/Edit Overlay** controls
- Press the **Add Overlay Image Layer** button to add an overlay image
- Press the **Select Image** button to bring up the dialog where you can select an image

Once you have added an image, you can move, rotate and resize it by dragging the control points in the main view.

Layers can be re-ordered and deleted in the same way as the layers in the [Background Image](#) ^[67] controls.

3.3.14 Skin Area Tools

PortraitPro automatically determines which areas of the picture are skin. This is the area that will be affected by the skin smoothing and skin lighting sliders. For some pictures, PortraitPro may not get the skin area exactly right, so you should always check the skin area and fix it if necessary.

To check and fix the skin area, click the **View/Edit Skin Area** button which is at the top of each of the sections that contain sliders that enhance the skin area. These sections are: [Skin Smoothing](#) ^[44] and [Skin Lighting & Coloring](#) ^[47].

This will switch to the skin area selection tools. The skin area will be shown by default as a translucent blue overlay over the enhanced image. If this color does not make it easy to see the skin area in your picture, you can choose another color from the **Color** drop down list.



If the skin area is wrong, manually adjust it using the [Skin Area Brushes](#) ⁹².

You can also get PortraitPro to recalculate the skin area by clicking on the **Recalculate Skin Area** button.

Press the **OK** button to return to the slider controls.

3.3.15 Hair Area Tools

PortraitPro automatically finds the area in the image that is hair. This is the area that will be affected by the hair sliders. It is important to get this area fairly accurate otherwise the hair sliders will not work as well as they can.

To check and fix the hair area:

Press the **Show Hair Controls** button to open the [Hair](#) ⁵⁸ section.

Click on the **View/Edit Hair Area** button at the top of the Hair Controls. This will switch to the hair area selection tools. The hair area will be shown as a colored overlay over the enhanced image. If the automatic color does not make it easy to see the hair area in your picture, you can choose another color or adjust the opacity using the drop down lists.



If the hair area is wrong, manually adjust it using the [Hair Area Brushes](#)^[92].

Press the **OK** button to return to the hair controls.

3.3.16 Effects Mask Tools

The *effects mask* allows you to set areas where effects will be applied. This can be useful to prevent effects such as skin smoothing or makeup being applied to areas of the face that are obscured.

Please note that shape changes due to changes in the [Face Sculpt](#)^[41] section ignore the effects mask.

To view or edit the effects mask, hover over the [Restore](#)^[90] brush button in the toolbar above the main view, and then click **View/Edit Effects Mask** to switch to the [Effects Mask brush tools](#)^[92].

3.4 Dialogs Reference

This section describes the dialogs in PortraitPro.

Automatic Batch Save Options ^[73]	Studio Max Edition Only ^[7] Options when using automatic batch processing
Manual Batch ^[75]	Studio Edition Only ^[7] Controls for using manual batch processing
Select Gender ^[78]	Manual selection of gender and age of a face
Save Image Options ^[78]	Options when saving image as JPEG, TIFF or PNG

General Settings ^[81]	Settings that control various parts of PortraitPro
Color Settings ^[83]	Color Profile settings (Studio edition only)
Language Settings ^[85]	User interface language setting (Multi-lingual versions only).
Save Sliders ^[88]	Used to save the current slider values.
Manage Saved Sliders ^[89]	Manage the Saved Sliders settings (rename, re-order, or delete).

3.4.1 Automatic Batch

[Studio Max Edition Only](#) ^[74]

This dialog appears when you start a new [automatic batch](#) ^[15].

You can also bring it up after a batch has started:

- Select the **Change Settings** menu command from the Auto Batch menu.
- Click the **Change Settings** button in the control panel when viewing the automatic batch summary.

Auto Batch Save Options

☒ Auto Save

Save Folder

☒ Save to Subfolder of Source Folder

☐ Save to Specific Folder

Enhanced Image Filename

Add Prefix: Add Suffix:

Saved Image Type

Gender/Age of All Faces

Apply Presets

Default Preset for Female Faces:

Default Preset for Male Faces:

Default Preset for Child Faces:

Background Options

☐ Automatically Find Background and Make Transparent

Face Finder Options

☐ If No Faces Found, Use Skin Only Mode

Auto Save

If this check-box is checked, then each image will be saved automatically after it has been enhanced. The enhanced image will be saved to the folder set in the **Save Folder** section, and with the named set in the **Enhanced Image Filename** section.

If it is not checked, then the images will be enhanced, but won't be saved out automatically. This can be useful if you want just a few of the images loaded to be saved. To do this, make sure this check-box is not checked when you first load all the images. You can then review all the image and remove those that you don't want. The bring up this panel again and check this box.

Save Folder

The folder where the enhanced images are saved can either be specified exactly, or you can make it a subfolder of the folder where the original image is stored.

To save to the same folder as the original image, select Save to Subfolder of Source Folder and clear the text box next to that option. However, note that PortraitPro will not allow the original image to be overwritten by the enhanced image, so if you set this option, you must also enter either a prefix or suffix in the next section.

Enhanced Image Filename

The enhanced images will be saved with the same filename as the original image unless some text is entered in the prefix or suffix boxes.

If the prefix box is not empty, this is added to the start of the filename.

If the suffix box is not empty, this is added to the end of the filename.

Saved Image Type

Press the Change button to select the file format to use when saving the enhanced images.

Gender/Age of All Faces

This should usually be left on automatic for both gender and age. However, if you know that all the faces in all the images have the same gender or are all in the same age category, then you can set this here to avoid the risk of the automatic gender finder or age finder getting it wrong.

Apply Presets

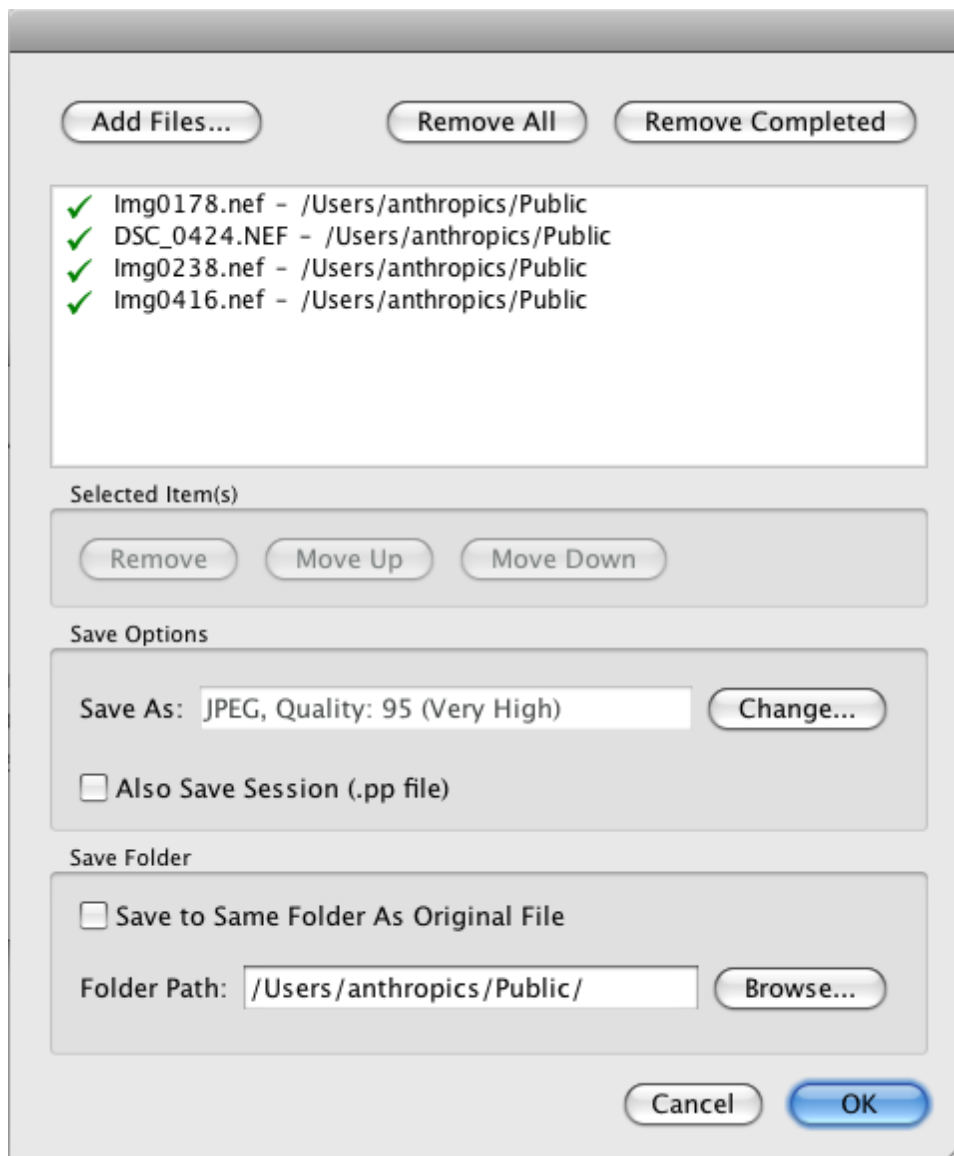
Use the drop-down controls to select which preset to apply to each female, each male and each child face that is enhanced.

You can [select a face in the film strip view](#)¹⁵⁾ after it has been processed to view it in the [enhanced face stage](#)¹⁴⁾, and then change the preset applied if you want different presets for different faces.

3.4.2 Manual Batch

[Studio Edition Only](#)⁷⁾

To bring up this dialog, select **File > Open Batch...** menu command.



This dialog lets you set up a list of files to work through. You can also set the save options to use when each file is saved.


[Adding Files](#)

To add files to the batch list, press the Add Files button. This brings up a file open dialog that you can use to select the files to add.

The files in the batch are shown in the list at the top of the dialog.





[Using the Batch List](#)

When you press the OK button, your changes are saved and the first file in the list that has not already been completed will be opened.

When you have finished enhancing that image, select the **Save And Open Next** command from the [File](#)  menu. This will save the current image using the options selected, and then automatically open the next file in the list.

If you open the Batch dialog again, you will see a check against the file you have just completed.

The following icons can appear next to the files in the list:

	Pending - file is waiting to be processed
	Completed - file has been enhanced and saved
	Failed - file could not be opened
	Skipped - file was closed without saving

You can reset a file's status back to "pending" by right clicking on the file, and selecting **Reset Status** from the pop-up menu.

Once you have completed all the files in the batch, press the **Remove Completed** button to remove them from the list.

The files in the batch and the batch settings are saved when PortraitPro is closed, so you can carry on working on the files in the batch the next time you run PortraitPro.

Reorganizing the Files

The files will be opened in the order shown in this list. If you want to re-order the files, select one or more files in the list and press the Move Up or Move Down button.

You can also remove the selected items by pressing the **Remove** button. Note that this only removes the files from the list, it does not delete the files from the disk.


To select more than one file in the list, hold down the CMD key when selecting another file. Alternatively, you can hold down the SHIFT key to add all files between the current file and the one clicked on.

Save Options

Files are saved in the format shown in the Save Options section. Press the **Change** button to bring up a dialog that lets you change the save format.

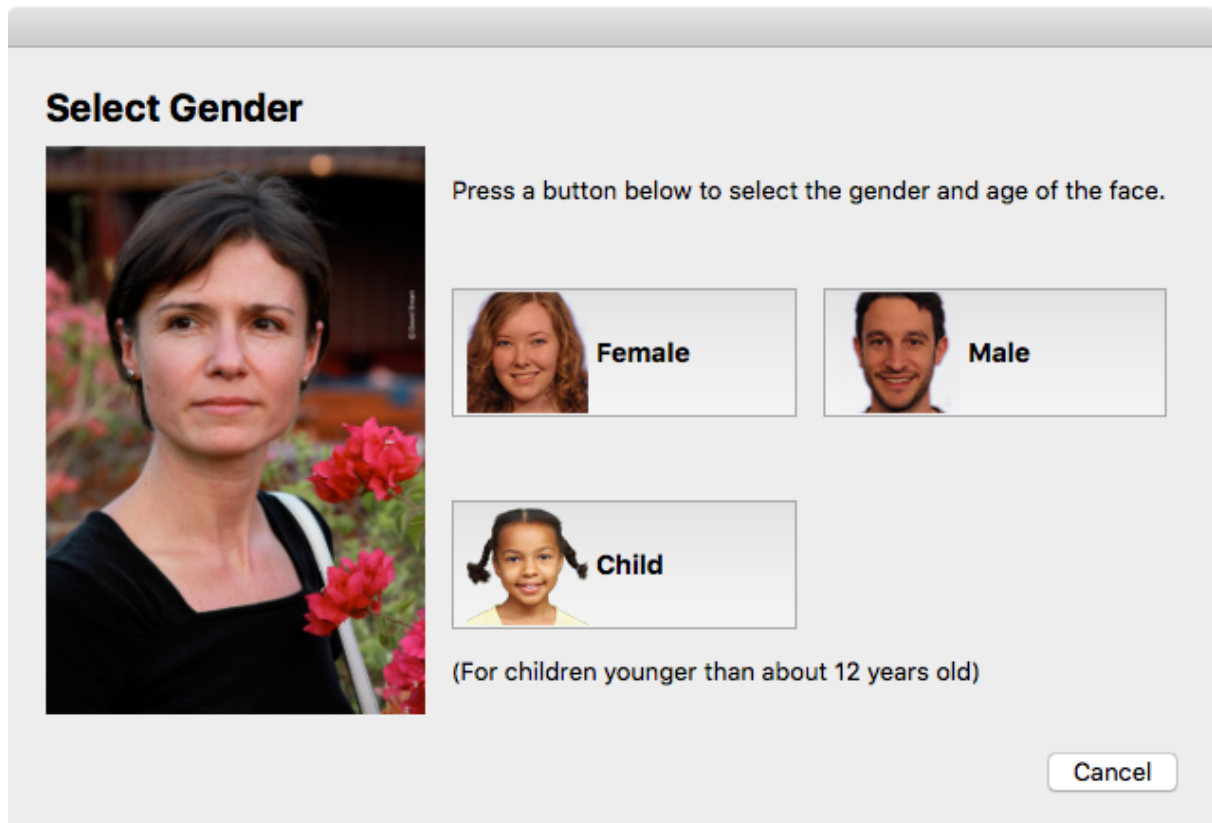
If you check the **Also Save Session** box, then a PortraitPro session file (.pp extension) will also be saved, which will save the image along with all the point positions and all the slider values. You can open a session file to continue enhancing an image without having to position the face points again. The session file will be saved in the same folder and with the same name as the enhanced image, but it will have a .pp extension.

The files will be saved to the same folder as the original file if **Save to Same Folder As Original File** is checked. If you want to save the enhanced images to a different folder, uncheck the box and enter a path in the **Folder Path** field. You can press the Browse button to bring up a folder dialog that lets you select a folder to save to.

The enhanced image will be saved to a file with the same name as the original file. If you have specified a suffix to add in the [File Save Settings](#) , this will also be added.

3.4.3 Select Gender

This dialog appears when the gender and age of a face has not been set.



Press the **Female** or **Male** buttons to set the gender (or **Child** if the face is of a young child). This will dismiss the panel and let PortraitPro continue to the next step.

Press the Cancel button if you do not want to set the gender, and this will return to the previous step.

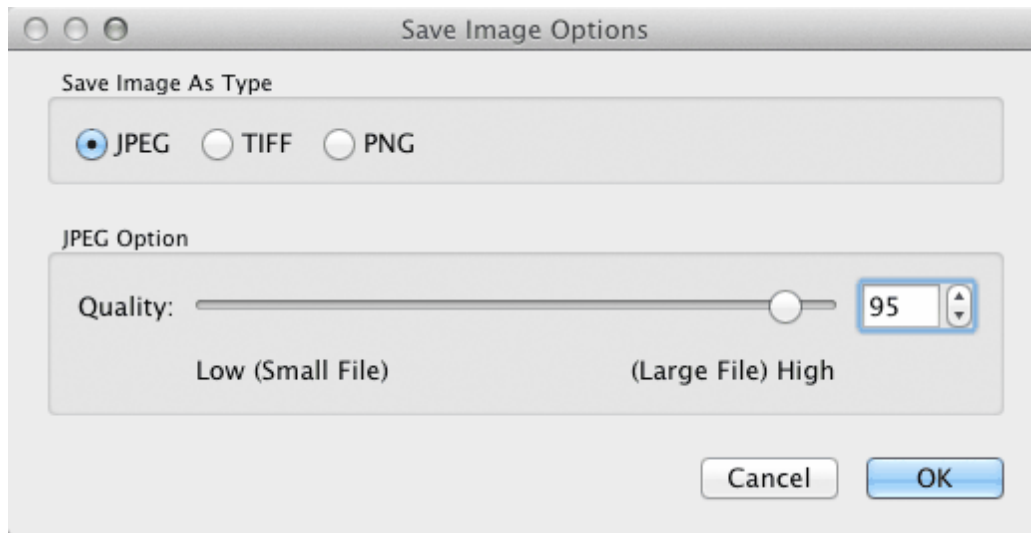
If the dialog was shown automatically when a single face was detected, it will also have the **Discard Outlines** button, in case the face was not detected properly.

This dialog can appear at the following times:

- After [loading an image](#)^[12], when one face has been found.
- When pressing the **Select** button on a face at the [Select Face](#)^[24] stage, if the gender for that face is not already set.

3.4.4 Save Image Options

When you save an image using the **File > Save Jpg/Tiff/Png** menu command, the Save Image Options dialog will appear.



This lets you select whether you want to save the image as a JPEG, TIFF or PNG file.

JPEG Format

If you select JPEG, you can control the quality of the image saved. The advantage of choosing a lower quality is that the file size can be much smaller. JPEG is usually the best option if you don't plan to do any more editing of the image after you have saved it.

TIFF Format

Saving an image as a TIFF will usually result in a larger file than saving it as a JPEG. However, TIFF stores the exact image, there is never any loss in quality. This is the best option if you plan to open the image to edit further in another image editor.

TIFF images can be stored either uncompressed or losslessly compressed. The recommended setting is for compressed, because the only reason for not selecting this would be if you wanted to open the TIFF file in another application that did not support compressed TIFFs (although it is unlikely any modern software would not support this format).

PNG Format

PNG is another format that uses lossless compression.

Bits Per Color Sample setting






Studio & Studio Max Editions Only

TIFFs and PNGs can store either 8 or 16 bits per color sample (which is 24 or 48 bits per pixel respectively). If you can see artefacts such as banding in the enhanced image, this can usually be fixed by using 16 bits per color sample instead of 8. However, using 16 bits per color samples will generally double the file size compared with 8. Also, not all programs can read images with 16 bits per color sample.

3.4.5 Settings

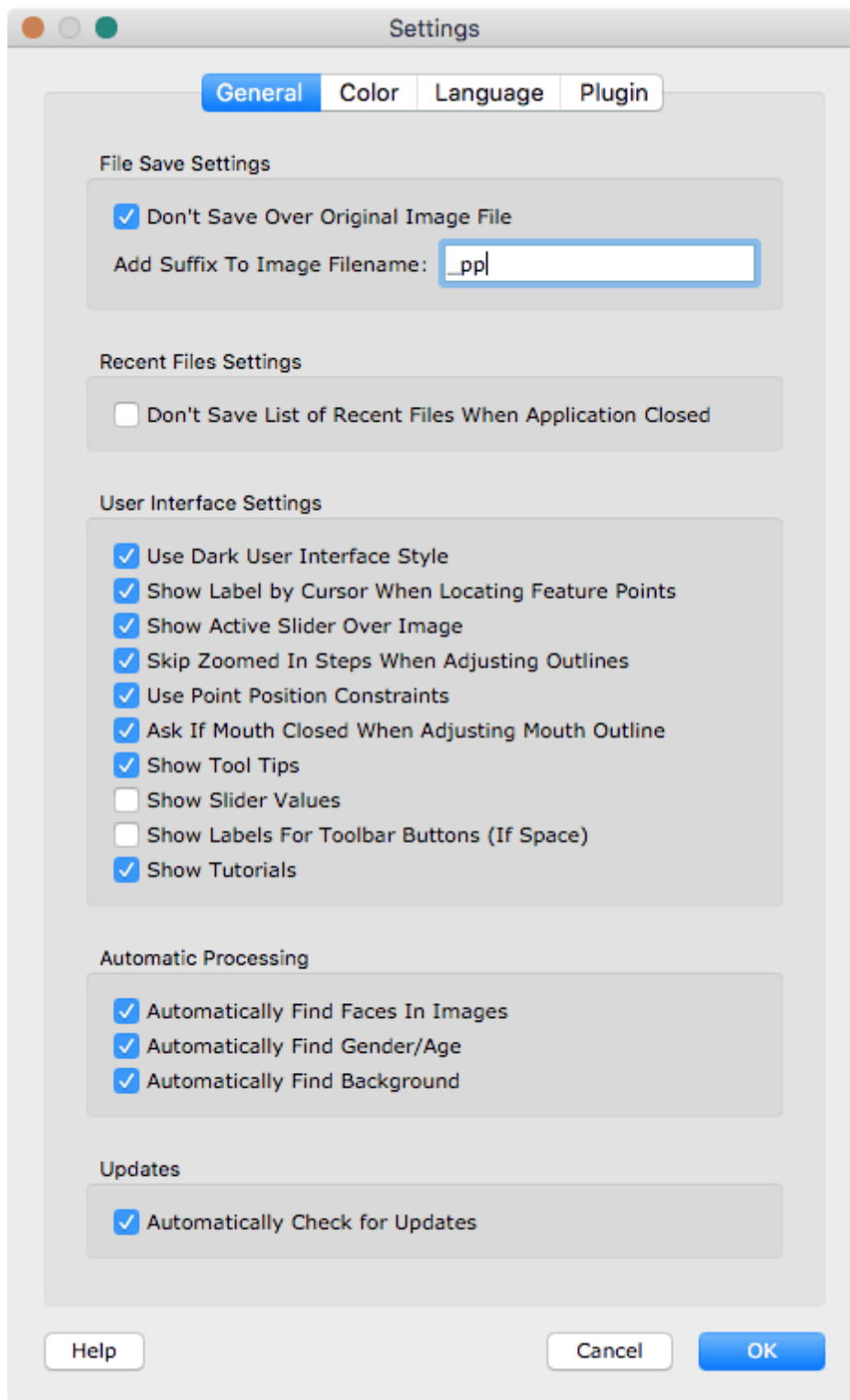
To bring up this dialog, select **File > Settings** menu command.

General	General Settings
-------------------------	------------------

Color 	Color Settings
Language 	Language Settings
Plugin 	Lets you install the Photoshop filter plug-in that lets PortraitPro be used as a filter from Photoshop.
GPU 	Studio Max Edition Only  Lets you enable or disable GPU acceleration.

3.4.5.1 General Settings

To bring up this dialog, select the **PortraitPro > Preferences** menu command.



File Save Settings

Don't Save Over Original Image File - check this box and when saving a picture PortraitPro will create a default filename that is different from the original file name.

Add Suffix to Image Filename - with the above option turned on, the new filename for saved files will be the same as the old filename with the text here added to it. By the default the suffix added is "_pp" so for example, if a file called picture.jpg is loaded, then the default saved file would be picture_pp.jpg

Recent Files Settings

Don't Save List Of Recent Files When Application Closed - check this box and no history of files opened will be saved when the application is closed.

User Interface Settings

Use Dark User Interface Style - check this box to use a dark color scheme, or uncheck this box for a more conventional Mac style.

Show Label by Cursor When Locating Feature Points - check this box and when placing the main 5 points on the face, the cursor will have extra text next to the points to help you.

Show Active Slider Over Image - check this box to have the slider currently being adjusted temporarily shown over the main image. This helps you see where the slider is in its range without having to look away from the main image.

Skip Zoomed In Steps When Adjusting Outlines - check this box to skip the steps where the image is zoomed in to the left eye, right eye, and nose & mouth after the first 5 points have been located. Note: this does not affect profile views (where the face is side on).

Use Point Position Constraints - check this box to force some points to lie along particular lines when they are being moved. This can help prevent points from being positioned in the wrong place, although experienced users may get better results if this is turned off.

Ask If Mouth Closed When Adjusting Mouth Outline - check this box and when adjusting the points on the mouth PortraitPro will prompt you with a question about whether the mouth is open or closed. Note that even with this option on, you can press the spacebar to select that the mouth is open and move on to the stage of actually moving the mouth points. After doing this, if the mouth really is closed, just move the lip points together and they will merge to form a closed mouth shape.

Show Tool Tips - uncheck this box to turn off all the tool tips (the pop-up help that appears when you hover the mouse over a control).

Show Slider Values - check this box to always show the current numeric value of each slider to its right. If this option is not selected, the numeric value is only shown while you are adjusting a slider.

Show Labels For Toolbar Buttons (If Space) - check this box to show the text in each button on the toolbar, if there is space for it.

Show Tutorials - check this box to show the tutorials on the application home screen.

Automatic Processing Settings

Automatically Find Faces In Images - check this box to have faces automatically found in images when they are opened. If this box is unchecked, you will need to manually locate all faces in your images before they can be enhanced.

Automatically Find Gender/Age - check this box to have the gender and age (adult or child) automatically determined for all faces that are found in an image when it is opened. If this box is unchecked, you will need to manually select the gender and age for each face before it can be enhanced.

Automatically Find Background - check this box to have the background mask of the image automatically found when it is opened. If this box is unchecked, you will need to press the **Create Background Mask** button in the [layers section](#)^[62] to find the background mask.

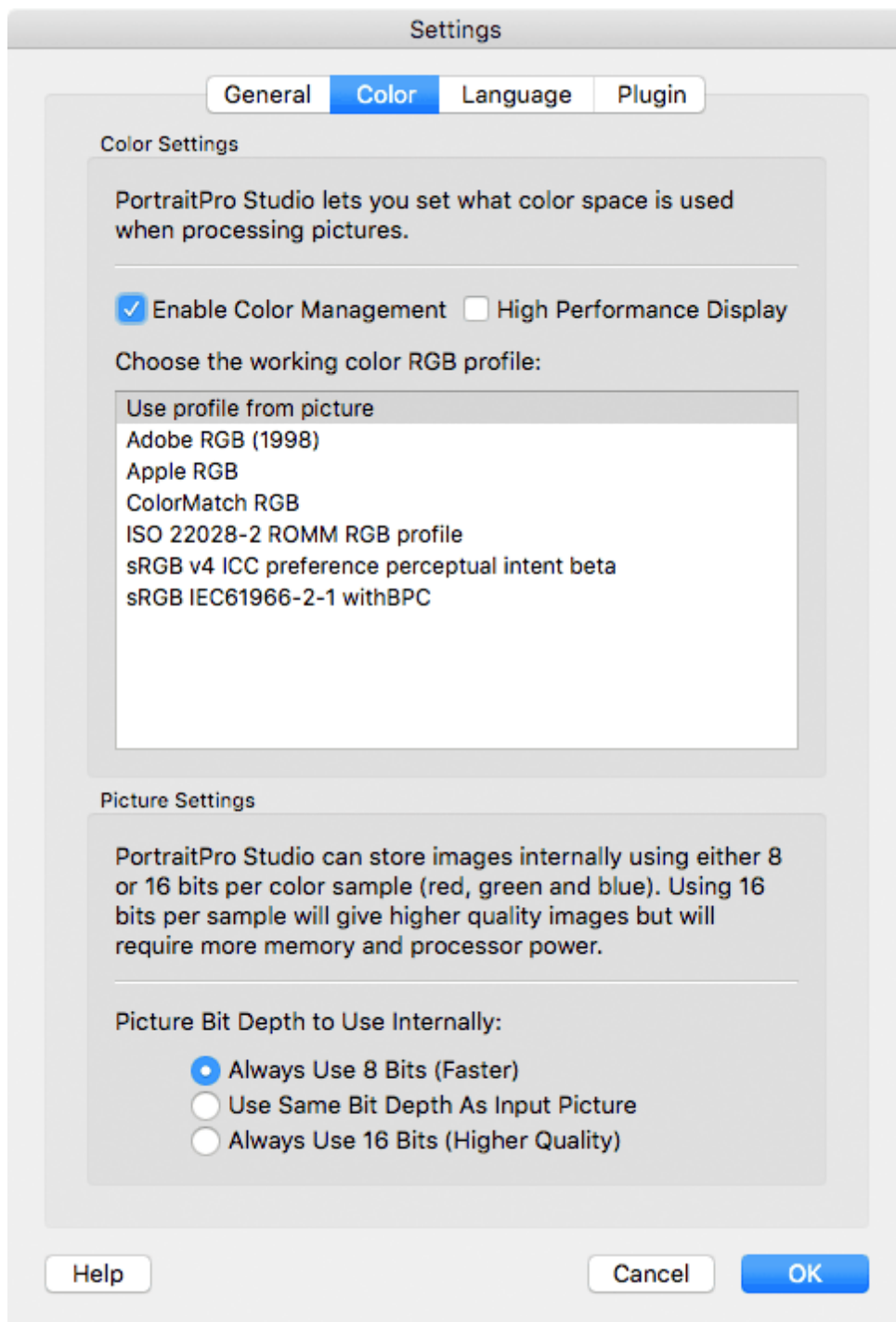
[Updates Settings](#)

Automatically Check for Updates - if this is checked, then PortraitPro will periodically check to see if a new version of PortraitPro is available. If an update is available, a button will be shown on the Welcome screen. When you click the update button, your web browser will be opened showing information about the update that is available.

3.4.5.2 Color Settings

[Studio & Studio Max Editions Only](#)^[71]

To bring up this dialog, select the **PortraitPro > Preferences** menu command and then select the **Color** tab.



Color management helps to ensure that the colors you see on your monitor are as close to how they should appear as possible.

In addition, you can configure what working color profile PortraitPro Studio uses internally. This affects the *color gamut*, which is the range of colors that can be represented.

For maximum speed, select the "High Performance" option. This allows PortraitPro Studio to optimize the use of color profiles for the screen when being used interactively. Regardless of this setting, your chosen working profile will be used when saving files.

You can also configure the *color depth* used by PortraitPro Studio. This is the number of bits used to represent each color sample.

Each pixel consists of 3 color samples (red, green and blue), so:

- 8 bits per color sample is 24 bits per pixel.
- 16 bits per color sample is 48 bits per pixel.

Note: this dialog is only available in the Studio editions of PortraitPro. The standard edition of PortraitPro works with Color Management turned off and 8 bits per color sample. What this means is that colors displayed on the screen may not be accurate, however color profiles are preserved which means that the images saved from PortraitPro will have the same color profiles as the images that were originally loaded. If using these images in other color managed programs the colors will look correct.

[An explanation of color management](#)

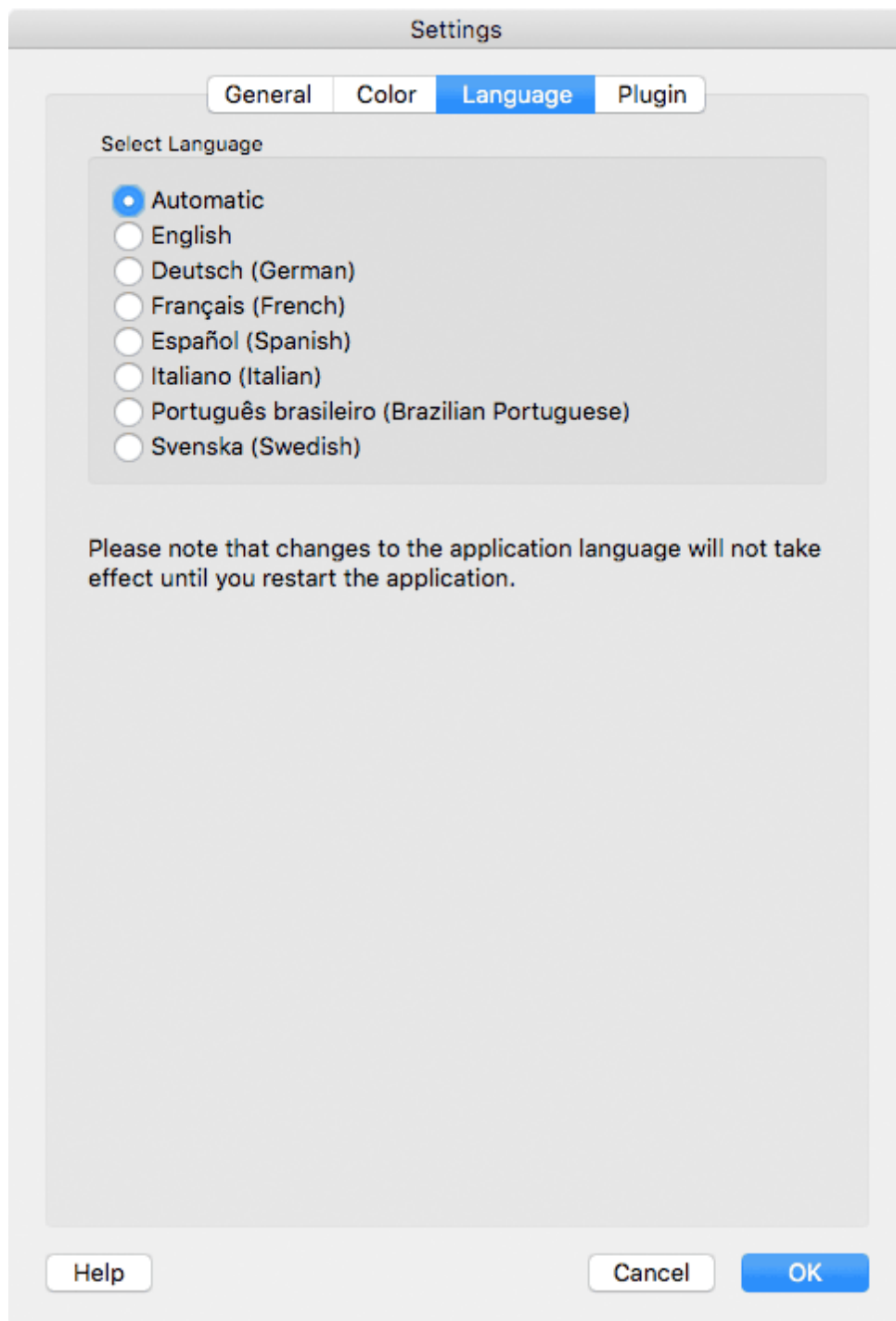
When color management is turned on, PortraitPro will ensure that the colors on the screen are correctly displayed according to the color profile specified in the image and your monitor profile. For the very best results, calibrate your monitor rather than using the profile that is provided by the manufacturer of the monitor.

For example, if you have a picture on your disk that you have saved with an sRGB profile and you also have the same picture saved with an Adobe (1998) profile, then they will be displayed with slightly different colors with color management turned off, but when color management is on they will look the same. In fact with color management on the two pictures could still look slightly different due to out of gamut colors being lost when the images were created, or rounding errors caused by the different color profile conversions in the process of displaying the images. However any changes would be very slight and normally not noticeable.

If you print a lot then a good rule of thumb is to use Adobe (1998) as your working profile, or if you mainly view images on your monitor then sRGB is more suitable. In either case it is best not to convert from one color profile to another without a reason, because during the conversion there may be colors that become out of gamut (i.e. they cannot be represented in the new color space) and so they will be lost, and also rounding errors could be introduced which would appear as color banding over smooth gradients in the image.


3.4.5.3 Language Settings

To bring up this dialog, select the **PortraitPro > Preferences** menu command and then select the **Language** tab.

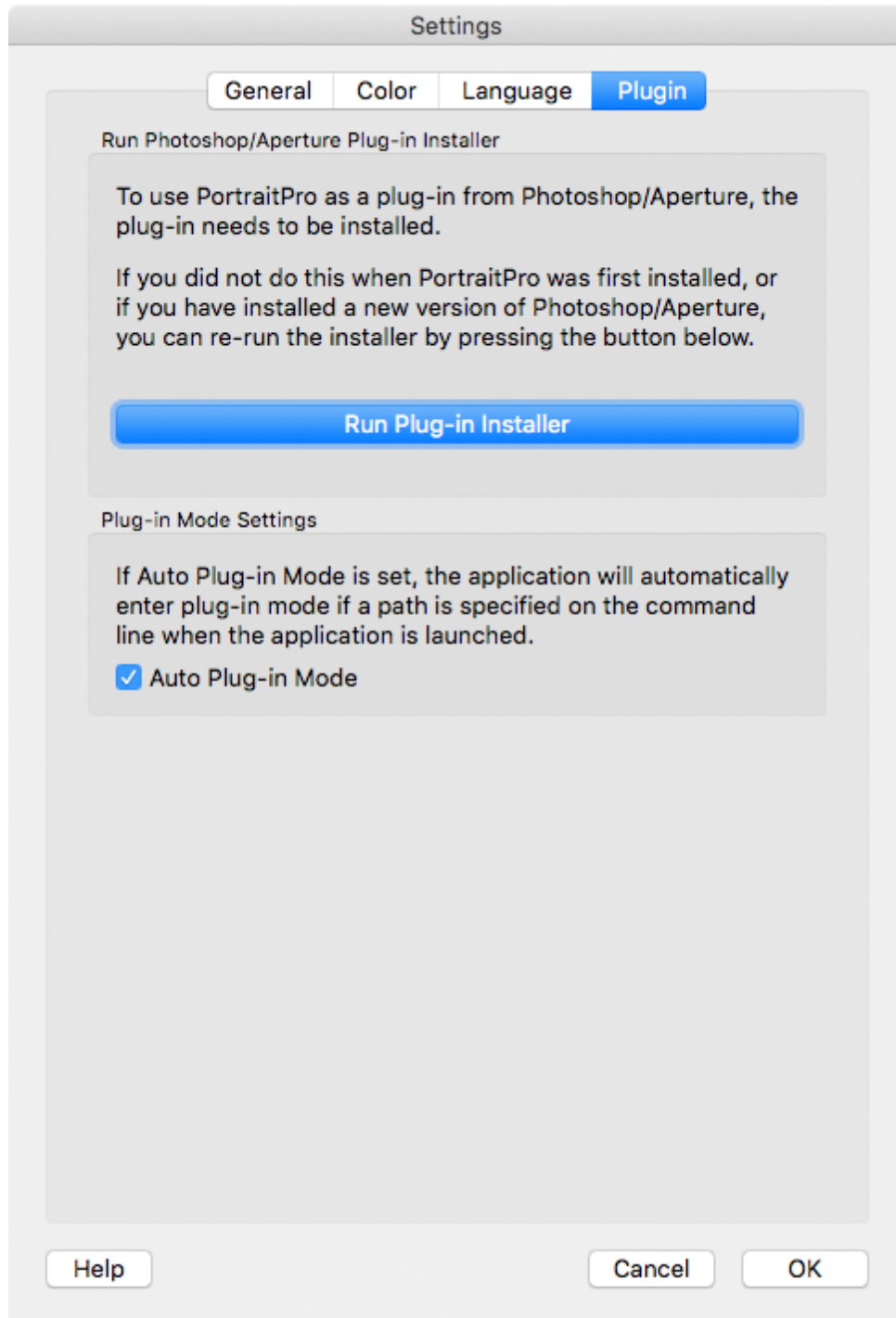


If you select the option *Automatic*, the language will be automatically set to the same as the language of your computer if that language is supported, otherwise English will be selected.

3.4.5.4 Plugin

[Studio & Studio Max Editions Only](#) 

To bring up this dialog, select the **PortraitPro > Preferences** menu command and then select the **Plugin** tab.



This dialog lets you install the plug-in filter that makes PortraitPro available in Photoshop/Aperture.

You will have been offered the option to install the plug-in when PortraitPro was installed. This panel lets you re-run the plug-in installer. This lets you install the plug-in if you chose not to install it when PortraitPro was installed, or if you have since installed a new version of Photoshop/Aperture.

The plug-in installer will automatically detect which version(s) of Photoshop/Aperture you have installed. You just need to check the box next to each application that has been detected to install the plug-in for that application.

You will also be offered the option to select a folder into which to install the plug-in. This is useful if you want to install the plug-in for other applications that you know are compatible, or if you have an install of Photoshop/Aperture that was not detected automatically for some reason.

Plug-in Mode Settings

Auto Plug-in Mode - If this is checked, PortraitPro will enter [plug-in mode](#)^[22] if a path is specified on the command line when launching the application.

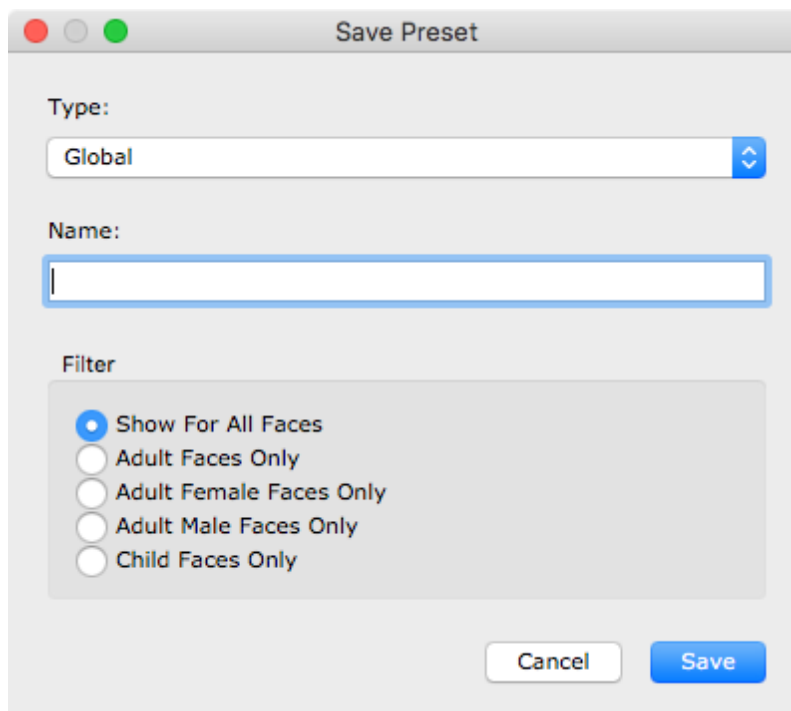
3.4.5.5 GPU Settings

[Studio Max Edition Only](#)^[7]

Unfortunately, GPU acceleration is only available for Windows PCs, since Macs do not have the type of GPU hardware required.

3.4.6 Save Preset

To bring up this dialog, press the **Save Preset** button in the [Presets Controls](#)^[37].



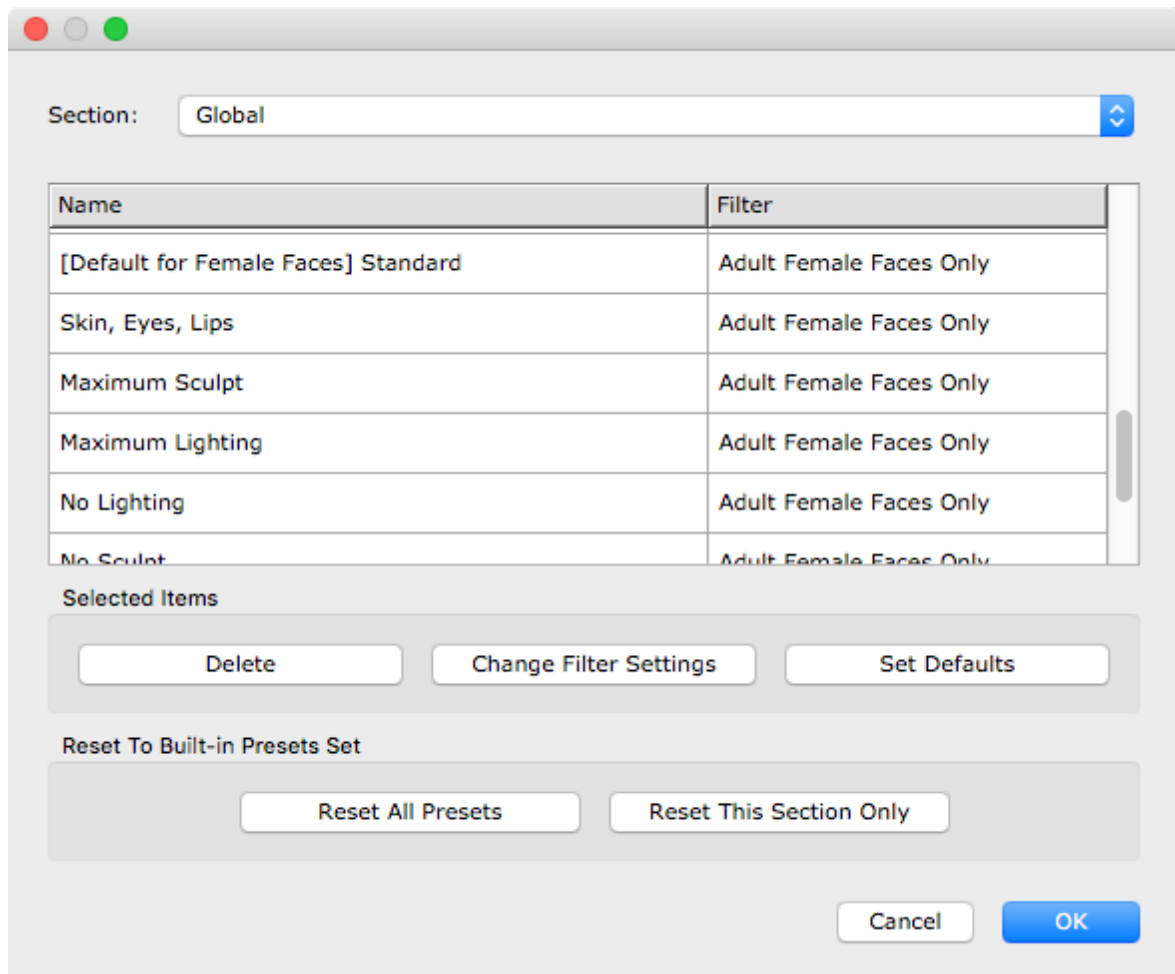
Select the type of preset to save. Global presets contain all sliders. The other types only contain the sliders for a single section.

Enter a name, and when you press the **Save** button the current slider values will be saved. If you enter the name of an existing preset, it will be replaced. Note: if you want to replace an existing preset, the easiest way to do this is by right clicking on that preset and selecting the *Update to Current Settings* command from the pop-up menu.

Select one of the filter options to control the types of faces for which the preset will be shown.

3.4.7 Manage Presets

To bring up this dialog, press the MANAGE button in the [Presets](#) ³⁷ Controls.



This dialog shows all the presets. These can be filtered using the dropdown menu to show presets for particular sections of the picture.

To rename a preset, double click it's name in the list, then type the new name.

To re-order the presets, you can drag them to new positions in the list.

To delete a preset, click on the one you want to delete so that it is highlighted and then press the **Delete** button.

To set a preset as the initial values to use when a new face is loaded, click on the one you want, then click Set Defaults. A menu will open allowing you to check which faces this should be set as default for.

To delete all of your presets click **Reset All Presets**. To delete only the presets in the current section, click **Reset This Section Only**. When you click OK to close the Presets dialogue, you will be asked to confirm this. Click OK to confirm or Cancel to go back to the presets menu. To continue without deleting the presets, close the Preset dialogue by clicking Cancel.

3.5 Tools Reference

This section describes the tools available in PortraitPro.

These tools are available when [enhancing an image](#)^[14], and work in the enhanced ("After") image view.

When you change tool, you change what will happen if you click in the enhanced image view.

Each tool has a different cursor shape, so that you can easily see which tool is selected.

Pan Tool ^[90]	Pans the view of the image. This is the default tool if no other tool is selected.
Brush Tools ^[90]	Let you paint in the enhanced image to touch-up or restore spots.
Area Brush Tools ^[92]	Let you paint in the enhanced image to refine the skin or hair areas.
Crop Tool ^[93]	Used to crop the picture.

3.5.1 Pan Tool

The Pan tool is available when you are [enhancing an image](#)^[14].

The Pan tool is the default tool when no other tool is selected.

To use the Pan tool, click and drag the image to change which part of the image is visible.

When the Pan tool is selected, you can use your mouse wheel or the + and - keys on your keyboard to zoom.

The Pan tool can be used as an alternative to the Zoom Control Window.

3.5.2 Brush Tools

The brush tools are available when you are [enhancing an image](#)^[14]. They are called brush tools since they work like a paintbrush. You need to move the cursor over the area where you want to "paint" with the brush, then press and hold the left mouse button while you drag the mouse over the area you want to affect.

There are two types of brush tools. This page describes the standard brush tools which are used for making changes to how the skin is enhanced in particular areas. The other type is the [Area Brush Tools](#)^[92], which are used for selecting the areas where the skin and hair enhancements are made.

[Touch-up and Restore Brushes](#)

The following brushes are available from the bar above the main image view.

Touch-Up Brush	<p>Use this to paint over spots or blemishes in the skin that have not been eliminated automatically or which need further correction.</p> <p>When you hover over the touch-up brush button, a controls panel pops up that contains sliders that let you change the size and strength of the touch-up brush.</p>
Restore Brush	<p>Use this to paint over spots in the skin that have been removed, but that you would like to bring back.</p> <p>When you hover over the restore brush button, a controls panel pops up that contains sliders that let you change the size and strength of the restore brush. It also contains a button that lets you view or edit the effects mask^[72].</p>

Brush Controls

To select a brush, press the appropriate button.

Press the button again to deselect the brush (goes back to the [Pan tool](#)^[90]).

The brush tools work like a paintbrush. You use them to paint an area on the enhanced image, to which the brush effect is applied.

To use a brush, press the mouse left button while the cursor is in the enhanced image, and drag the mouse while holding the button down. Release the mouse button to finish the brush stroke. The area that the cursor passes over while you do this is the area that you have "brushed".

Brush Size

The brush size controls how big an area is affected by the brush. You can see how big this area is from the size of the cursor circle when using the brush. You can also use the [and] keys to change the brush size.

Brush Strength

The brush strength (opacity) controls how strongly the brush effect is drawn. A strength of 100 means the full brush effect is applied in one stroke. You can set a smaller strength to make gradual changes.

For example, if you set the strength to 50 when using the Touch-Up Brush, then when you paint over a spot only half of the maximum spot removal effect will be applied. If you release the mouse and paint over the spot again, then 50% more spot removal processing will be applied. This lets you do just enough to remove the spot, but without applying too much effect which might over-blur the surrounding area.

When a brush tool is selected, controls to set the brush size and strength will appear near the button used to select it. You can also adjust the opacity using the numbers keys on your keyboard. The keys from 1 to 9 set the opacity to values from 10% to 90%, and the 0 key sets the opacity to 100%.

Brush Undo

When you use any brush tool, the last brush stroke can be undone using the [Edit Menu](#)^[30] Undo command, or by pressing **Control-Z** on the keyboard. Further undo will undo previous brush strokes and other actions that you have performed going back in the history of the current session. After an undo you can also redo to get back where you were from the [Edit Menu](#)^[30] Redo command or **Control-Y**.

Tablet Support

PortraitPro supports a tablet and stylus. If you have a tablet and stylus you will normally find this easier to use when drawing.

3.5.3 Area Brush Tools

The area brush tools are available when you are [enhancing an image](#)^[14]. The area brush tools are used to adjust the areas where the skin or hair enhancements are made. They can also be used to define an effects mask that can be used to prevent any effects being applied in particular areas. PortraitPro will automatically select the skin and hair areas, but depending on the picture it may not always get these areas exactly right. The area brush tools are provided to let you manually fix these areas.

The three types of areas that can be edited using brushes are:

Skin area ^[70]	To view or edit the skin area, by open the Skin Smoothing ^[44] or Skin Lighting & Coloring ^[47] section, and then press the View/Edit Skin Mask button. The skin area is used when applying skin effects to the picture.
Hair area ^[71]	To view or edit the hair area, open the Hair ^[58] section, and then press the View/Edit Hair Mask button. The hair area is used when applying hair effects to the picture.
Effects mask ^[72]	To view or edit the effects mask, hover over the Restore brush ^[90] button in the toolbar, and then press the View/Edit Effects Mask button. Cut away areas of the effects mask to prevent any effects being applied to those parts of the picture.

The area brush tools are "smart" brushes, in that they will automatically detect the edges of regions.

You will see when you select an area brush tool that the position of the brush is shown by two circles. The outer circle is the area where the brush will be applied. The inner area is the "detector" region. When you paint with the brush, the detector region is painted as normal. The region between the inner circle and the outer circle will only be painted for areas which are a similar color to the color in the inner region. This means that if you are painting along an edge, all you need to do is keep the detector region completely inside the area you are painting, and the brush will automatically paint up to the edge but not beyond it, even if the outer circle of the brush goes beyond the edge.

When painting with a smart area brush, you can press and hold the ALT key to lock the position of the detector. This is very useful when painting very fine detail such as strands of hair.

Brush Tools

There are two types of brush tool:

Extend	Use this to paint over areas that you want to add to the mask.
Cut Back	Use this to paint over areas of the photo that you want to remove from the mask.

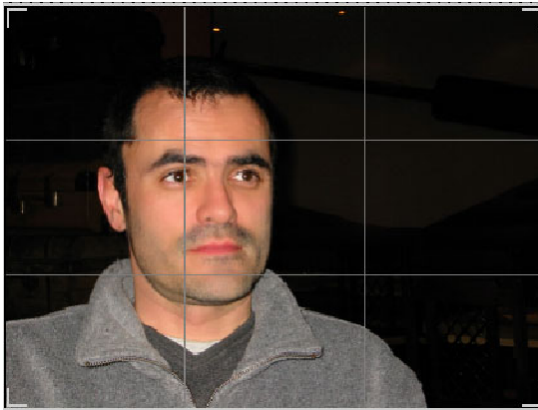
3.5.4 Crop Tool

The Crop tool is available when you are [enhancing an image](#)^[14].

To select the Crop tool, press the Crop tool button in the [Picture Controls](#)^[60] section.

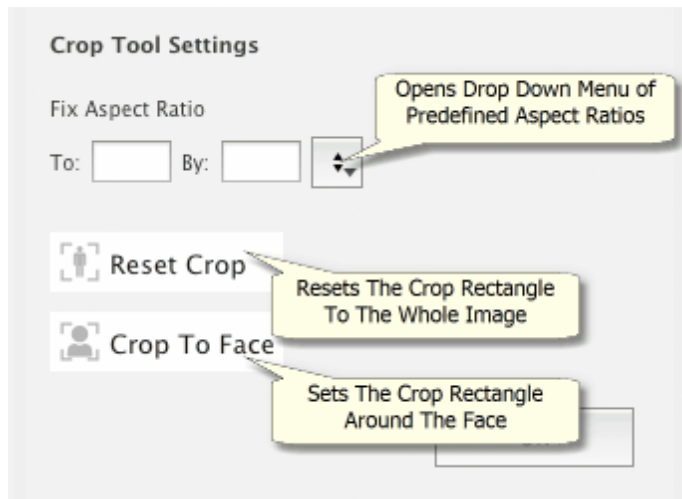
The Crop tool is used to adjust which area of the whole picture you are going to use for your portrait. You may need to do this to cut out distractions, so that the portrait focuses on the person in the picture. When you crop you don't actually lose anything from the picture, you just change the area displayed and you can always come back and re-adjust the crop if you have got it wrong.

Upon opening the tool, the crop grid will be overlaid on your picture.



This grid shows the part of the picture that will be displayed, divided into thirds for reference. Adjust the grid by clicking and holding on any point on the grid and dragging it to the position you want.

Once you are happy with the way the crop looks, click on **Commit** to make the changes. If you want to cancel the changes you have just made, click on **Discard**.



TIP: Professional photographers will usually place the eyes or the mouth in a portrait on the "third" lines. This gives a more pleasing balance to the picture.

You can also fix the aspect ratio of the crop using the **Fix Aspect Ratio** function in the crop control panel. For example you may want to print out a 6x9 inch picture (this is a standard photographic print size), so want to work in this aspect ratio. To do this set the Fix Aspect Ratio values by clicking in the To: and By: boxes and entering the ratio you want. Once you have done this the crop grid will automatically stay in the that ratio as you drag it around.

3.6 Plug-in Installation Guide

[Studio & Studio Max Editions Only](#)^[74]

[Installing the PortraitPro Photoshop Plug-in](#)

In the Studio & Studio Max editions of PortraitPro, you have the option to use PortraitPro as a [plug-in](#)^[22] from Photoshop and other compatible photo editing suites.

The plug-in installer is run as a separate installer once the main PortraitPro installer has finished

The installer will auto-detect any compatible applications. You can then select which applications for which you would like the plug-in installed.

(Note: The plug-in can be installed from PortraitPro at any time under **PortraitPro > Preferences > Plug-in > Run Plug-in Installer**).

[Re-installing plug-ins](#)

If you did not install the plug-ins when PortraitPro was installed, perhaps because you did not have the other application already installed at that time, you can install the plug-in later.

To do this, go the [Plugin Settings](#)^[87] dialog, from where you can re-run the plugins installer.

[Troubleshooting](#)

If the PortraitPro plug-in does not appear in Photoshop (or other compatible application), it may not have installed correctly. This can be caused by the plug-in being installed into the wrong folder.

To fix this, you need to find the correct folder for the plug-in to be installed into. Usually the plug-in install location is "/Applications/<APPLICATION-NAME>/Plug-Ins" for example, **"/Application/Adobe Photoshop CC/Plug-ins/"**. Once you have found the correct folder, run the plug-in Installer from the [Plugin Settings](#)^[87] dialog, and select the "Choose Install Path Manually" option.

3.7 Third Party Credits

PortraitPro uses a number of third-party libraries, which are acknowledged here. We offer our thanks to the authors for providing these valuable resources.

[dcraw](#)

RAW image reading is provided by [dcraw](#).

Copyright 1997-2012 by Dave Coffin, dcoffin a cybercom o net

[tiffib](#)

TIFF image reading and writing is provided by [libtiff](#).

Copyright (c) 1988-1997 Sam Leffler
Copyright (c) 1991-1997 Silicon Graphics, Inc.

Permission to use, copy, modify, distribute, and sell this software and its documentation for any purpose is hereby granted without fee, provided that (i) the above copyright notices and this permission notice appear in all copies of the software and related documentation, and (ii) the names of Sam Leffler and Silicon Graphics may not be used in any advertising or publicity relating to the software without the specific, prior written permission of Sam Leffler and Silicon Graphics.

THE SOFTWARE IS PROVIDED "AS-IS" AND WITHOUT WARRANTY OF ANY KIND, EXPRESS, IMPLIED OR OTHERWISE, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

IN NO EVENT SHALL SAM LEFFLER OR SILICON GRAPHICS BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES OF ANY KIND, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER OR NOT ADVISED OF THE POSSIBILITY OF DAMAGE, AND ON ANY THEORY OF LIABILITY, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

[jpeglib](#)

JPEG image reading and writing is provided by [jpeglib](#).

This software is based in part on the work of the Independent JPEG Group.

This software is copyright (C) 1991-2011, Thomas G. Lane, Guido Vollbeding.

[pnglib](#)

PNG image reading and writing is provided by [pnglib](#).

[zlib](#)

Zlib compression support is provided by [zlib](#).

(C) 1995-2012 Jean-loup Gailly and Mark Adler

[Adobe DNG SDK](#)

DNG reading is provided by the Adobe DNG SDK.

Lossless JPEG code adapted from:

Copyright (C) 1991, 1992, Thomas G. Lane.
Part of the Independent JPEG Group's software.

Copyright (c) 1993 Brian C. Smith,
The Regents of the University of California
All rights reserved.

Copyright (c) 1994 Kongji Huang and Brian C. Smith.
Cornell University
All rights reserved.

Permission to use, copy, modify, and distribute this software and its documentation for any purpose, without fee, and without written agreement is hereby granted,

provided that the above copyright notice and the following two paragraphs appear in all copies of this software.

IN NO EVENT SHALL CORNELL UNIVERSITY BE LIABLE TO ANY PARTY FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF THIS SOFTWARE AND ITS DOCUMENTATION, EVEN IF CORNELL UNIVERSITY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

CORNELL UNIVERSITY SPECIFICALLY DISCLAIMS ANY WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE SOFTWARE PROVIDED HEREUNDER IS ON AN "AS IS" BASIS, AND CORNELL UNIVERSITY HAS NO OBLIGATION TO PROVIDE MAINTENANCE, SUPPORT, UPDATES, ENHANCEMENTS, OR MODIFICATIONS.

Copyright © 2006 Adobe Systems Incorporated. All rights reserved.

Adobe is a registered trademark or trademark of Adobe Systems Incorporated in the United States and/or other countries. Windows is either a registered trademark or a trademark of Microsoft Corporation in The United States and/or other countries. Mac is a trademark of Apple Computer, Inc., registered in the United States and other countries. All trademarks noted herein are the property of their respective owners.

[Adobe XMP SDK](#)

The Adobe XMP SDK is used by the Adobe DNG SDK

Copyright 2009 Adobe Systems Incorporated and others. All rights reserved. The original version of this source code may be found at <http://adobe.com>.

[Icms library](#)

ICC color profile handling is provided by [Icms](#).

Little CMS

Copyright (c) 1998-2007 Marti Maria Saguer

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

[OpenCV](#)

Automatic feature finding makes use of the [OpenCV](#) library.

License Agreement

For Open Source Computer Vision Library

Copyright (C) 2000-2008, Intel Corporation, all rights reserved.

Copyright (C) 2008-2011, Willow Garage Inc., all rights reserved.

Third party copyrights are property of their respective owners.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- * Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

- * Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

- * The name of the copyright holders may not be used to endorse or promote products derived from this software without specific prior written permission.

This software is provided by the copyright holders and contributors "as is" and any express or implied warranties, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose are disclaimed. In no event shall the Intel Corporation or contributors be liable for any direct, indirect, incidental, special, exemplary, or consequential damages (including, but not limited to, procurement of substitute goods or services; loss of use, data, or profits; or business interruption) however caused and on any theory of liability, whether in contract, strict liability, or tort (including negligence or otherwise) arising in any way out of the use of this software, even if advised of the possibility of such damage.

Machine Learning Framework

A machine learning framework is provided by Darwin.

DARWIN: A FRAMEWORK FOR MACHINE LEARNING RESEARCH AND DEVELOPMENT

Copyright (c) 2007-2012, Stephen Gould

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- * Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

- * Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

- * Neither the name of the software's copyright holders nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED

TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

[Boost](#)

General classes are provided by [boost](#).

Boost Software License - Version 1.0 - August 17th, 2003

Permission is hereby granted, free of charge, to any person or organization obtaining a copy of the software and accompanying documentation covered by this license (the "Software") to use, reproduce, display, distribute, execute, and transmit the Software, and to prepare derivative works of the Software, and to permit third-parties to whom the Software is furnished to do so, all subject to the following:

The copyright notices in the Software and this entire statement, including the above license grant, this restriction and the following disclaimer, must be included in all copies of the Software, in whole or in part, and all derivative works of the Software, unless such copies or derivative works are solely in the form of machine-executable object code generated by a source language processor.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE AND NON-INFRINGEMENT. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR ANYONE DISTRIBUTING THE SOFTWARE BE LIABLE FOR ANY DAMAGES OR OTHER LIABILITY, WHETHER IN CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

[Delaunay Triangulation](#)

A delaunay triangulation function is provided by Ken Clarkson, AT&T

Ken Clarkson wrote this. Copyright (c) 1995 by AT&T.

Permission to use, copy, modify, and distribute this software for any purpose without fee is hereby granted, provided that this entire notice is included in all copies of any software which is or includes a copy or modification of this software and in all copies of the supporting documentation for such software.

THIS SOFTWARE IS BEING PROVIDED "AS IS", WITHOUT ANY EXPRESS OR IMPLIED WARRANTY. IN PARTICULAR, NEITHER THE AUTHORS NOR AT&T MAKE ANY REPRESENTATION OR WARRANTY OF ANY KIND CONCERNING THE MERCHANTABILITY OF THIS SOFTWARE OR ITS FITNESS FOR ANY PARTICULAR PURPOSE.

[Dlib](#)

[Dlib](#), a machine learning toolkit.

Boost Software License - Version 1.0 - August 17th, 2003

Permission is hereby granted, free of charge, to any person or organization obtaining a copy of the software and accompanying documentation covered by this license (the "Software") to use, reproduce, display, distribute, execute, and transmit the Software, and to prepare derivative works of the Software, and to permit third-parties to whom the Software is furnished to

do so, all subject to the following:

The copyright notices in the Software and this entire statement, including the above license grant, this restriction and the following disclaimer, must be included in all copies of the Software, in whole or in part, and all derivative works of the Software, unless such copies or derivative works are solely in the form of machine-executable object code generated by a source language processor.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE AND NON-INFRINGEMENT. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR ANYONE DISTRIBUTING THE SOFTWARE BE LIABLE FOR ANY DAMAGES OR OTHER LIABILITY, WHETHER IN CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

TensorFlow

[TensorFlow](#), an open source machine learning framework.

Copyright 2018 The TensorFlow Authors. All rights reserved.

Apache License
Version 2.0, January 2004
<http://www.apache.org/licenses/>

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.
4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You

meet the following conditions:

- (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

- 5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
- 6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
- 7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A

PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright 2017, The TensorFlow Authors.

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

Some of TensorFlow's code is derived from Caffe, which is subject to the following copyright notice:

COPYRIGHT

All contributions by the University of California:

Copyright (c) 2014, The Regents of the University of California (Regents)
All rights reserved.

All other contributions:

Copyright (c) 2014, the respective contributors
All rights reserved.

Caffe uses a shared copyright model: each contributor holds copyright over their contributions to Caffe. The project versioning records all such contribution and copyright details. If a contributor wants to further mark their specific copyright on a particular contribution, they should indicate their copyright solely in the commit message of the change when it is committed.

LICENSE

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

CONTRIBUTION AGREEMENT

By contributing to the BVLC/caffe repository through pull-request, comment, or otherwise, the contributor releases their content to the license and copyright terms herein.

Eigen

Eigen, a C++ template library for linear algebra: matrices, vectors, numerical solvers, and related algorithms.

Mozilla Public License Version 2.0
=====

1. Definitions

-
- 1.1. "Contributor"
means each individual or legal entity that creates, contributes to the creation of, or owns Covered Software.
- 1.2. "Contributor Version"
means the combination of the Contributions of others (if any) used by a Contributor and that particular Contributor's Contribution.
- 1.3. "Contribution"
means Covered Software of a particular Contributor.
- 1.4. "Covered Software"
means Source Code Form to which the initial Contributor has attached the notice in Exhibit A, the Executable Form of such Source Code Form, and Modifications of such Source Code Form, in each case including portions thereof.
- 1.5. "Incompatible With Secondary Licenses"
means
- (a) that the initial Contributor has attached the notice described in Exhibit B to the Covered Software; or
 - (b) that the Covered Software was made available under the terms of version 1.1 or earlier of the License, but not also under the terms of a Secondary License.
- 1.6. "Executable Form"
means any form of the work other than Source Code Form.
- 1.7. "Larger Work"
means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.
- 1.8. "License"
means this document.
- 1.9. "Licensable"
means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.
- 1.10. "Modifications"
means any of the following:
- (a) any file in Source Code Form that results from an addition to, deletion from, or modification of the contents of Covered Software; or
 - (b) any new file in Source Code Form that contains any Covered Software.
- 1.11. "Patent Claims" of a Contributor
means any patent claim(s), including without limitation, method, process, and apparatus claims, in any patent Licensable by such

Contributor that would be infringed, but for the grant of the License, by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version.

1.12. "Secondary License"

means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.

1.13. "Source Code Form"

means the form of the work preferred for making modifications.

1.14. "You" (or "Your")

means an individual or a legal entity exercising rights under this License. For legal entities, "You" includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

- (a) under intellectual property rights (other than patent or trademark) Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and
- (b) under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes such Contribution.

2.3. Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

- (a) for any code that a Contributor has removed from Covered Software;

or

- (b) for infringements caused by: (i) Your and any other third party's modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or
- (c) under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements in Section 3.4).

2.4. Subsequent Licenses

No Contributor makes additional grants as a result of Your choice to distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other equivalents.

2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

3. Responsibilities

3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications that You create or to which You contribute, must be under the terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not attempt to alter or restrict the recipients' rights in the Source Code Form.

3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

- (a) such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of

the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and

- (b) You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license for the Executable Form does not attempt to limit or alter the recipients' rights in the Source Code Form under this License.

3.3. Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice, provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers of warranty, or limitations of liability) contained within the Source Code Form of the Covered Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

3.5. Application of Additional Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

4. Inability to Comply Due to Statute or Regulation

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Termination

5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly and finally terminates Your grants, and (b) on an ongoing basis, if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing basis if such Contributor notifies You of the non-compliance by some reasonable means, this is the first time You have received notice of non-compliance with this License from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License prior to termination shall survive termination.

```
*****
*
* 6. Disclaimer of Warranty
* -----
*
* Covered Software is provided under this License on an "as is"
* basis, without warranty of any kind, either expressed, implied, or
* statutory, including, without limitation, warranties that the
* Covered Software is free of defects, merchantable, fit for a
* particular purpose or non-infringing. The entire risk as to the
* quality and performance of the Covered Software is with You.
* Should any Covered Software prove defective in any respect, You
* (not any Contributor) assume the cost of any necessary servicing,
* repair, or correction. This disclaimer of warranty constitutes an
* essential part of this License. No use of any Covered Software is
* authorized under this License except under this disclaimer.
*
*****
```

```
*****
*
* 7. Limitation of Liability
* -----
*
* Under no circumstances and under no legal theory, whether tort
* (including negligence), contract, or otherwise, shall any
* Contributor, or anyone who distributes Covered Software as
* permitted above, be liable to You for any direct, indirect,
* special, incidental, or consequential damages of any character
*
```


* including, without limitation, damages for lost profits, loss of *
 * goodwill, work stoppage, computer failure or malfunction, or any *
 * and all other commercial damages or losses, even if such party *
 * shall have been informed of the possibility of such damages. This *
 * limitation of liability shall not apply to liability for death or *
 * personal injury resulting from such party's negligence to the *
 * extent applicable law prohibits such limitation. Some *
 * jurisdictions do not allow the exclusion or limitation of *
 * incidental or consequential damages, so this exclusion and *
 * limitation may not apply to You. *
 * *****

8. Litigation

Any litigation relating to this License may be brought only in the courts of a jurisdiction where the defendant maintains its principal place of business and such litigation shall be governed by laws of that jurisdiction, without reference to its conflict-of-law provisions. Nothing in this Section shall prevent a party's ability to bring cross-claims or counter-claims.

9. Miscellaneous

This License represents the complete agreement concerning the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not be used to construe this License against a Contributor.

10. Versions of the License

10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section 10.3, no one other than the license steward has the right to modify or publish new versions of this License. Each version will be given a distinguishing version number.

10.2. Effect of New Versions

You may distribute the Covered Software under the terms of the version of the License under which You originally received the Covered Software, or under the terms of any subsequent version published by the license steward.

10.3. Modified Versions

If you create software not governed by this License, and you want to create a new license for such software, you may create and use a modified version of this License if you rename the license and remove any references to the name of the license steward (except to note that such modified license differs from this License).

10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses

If You choose to distribute Source Code Form that is Incompatible With Secondary Licenses under the terms of this version of the License, the notice described in Exhibit B of this License must be attached.

Exhibit A - Source Code Form License Notice

This Source Code Form is subject to the terms of the Mozilla Public License, v. 2.0. If a copy of the MPL was not distributed with this file, You can obtain one at <http://mozilla.org/MPL/2.0/>.

If it is not possible or desirable to put the notice in a particular file, then You may include the notice in a location (such as a LICENSE file in a relevant directory) where a recipient would be likely to look for such a notice.

You may add additional accurate notices of copyright ownership.

Exhibit B - "Incompatible With Secondary Licenses" Notice

This Source Code Form is "Incompatible With Secondary Licenses", as defined by the Mozilla Public License, v. 2.0.

3.8 Supported File Types

PortraitPro can read and write the following types of files:

Type	Extension	Description
JPEG	.jpg; .jpeg	Image file type that uses lossy compression
TIFF	.tif; .tiff	Image file type that is uncompressed or uses loss-less compression Note: TIFF files containing images that have 16 bits per color sample (48 bits per pixel) are only supported in the Studio edition.
PNG	.png	Another common image file format Note: PNG files containing images that have 16 bits per color sample (48 bits per pixel) are only supported in the Studio edition.
PPX	.ppx	Proprietary file type used by PortraitPro to store a session

Studio Editions


In addition, PortraitPro Studio and Studio Max editions supports reading the following camera RAW files:

Manufacturer	Type
Adobe	.dng
ARRI	.ari
Canon	.crw; .cr2
Epson	.erf
Fuji	.raf
Imacon	.fff
Kodak	.tif; .kdc; .dcr
Mamiya	.mef; .mos
Minolta	.mrw
Nikon	.nef
Olympus	.orf
Panasonic	.raw; .rw2
Pentax	.ptx; .pef
Phase One	.tif; .iiq
Red	.r3d
QuickTake	.qtk
Sony	.arw; .srf; .sr2

3.9 Keyboard Shortcuts

PortraitPro provides the following keyboard shortcuts at the various stages of the application.

Menu Commands

CMD+O	File > Open command.
F4	Studio Edition Only  File > Open Batch command.
CMD+S	File > Save command.
CMD+W	File > Close command.
CMD+E	File > Enhance Another Face In This Photo command.
CMD+A	File > Adjust Outlines command.
CMD+Z	Edit > Undo command.
CMD+Y	Edit > Redo command.

Start Screen

SPACE BAR	Brings up File Open dialog to let you select the file to open.
-----------	--

Select Gender

f	Sets face as female , then goes to Locate Features step.
m	Sets face as male , then goes to Locate Features step.

Locate Features

No keyboard shortcuts

Adjust Outline

SPACE BAR	Goes to the next feature to adjust.
.	Skip to the end of the Adjust Outline stage.

Enhance Photo

+	Zoom in.
-	Zoom out.
ENTER (while held)	Flips enhanced image view to show original image.
a	Shows/Hides Skin Area.

t	Selects Touch-Up tool.
r	Selects Restore tool.
s	Selects Extend Skin Area tool.
d	Selects Cut Back Skin Area tool.
h	Selects Extend Hair Area tool.
j	Selects Cut Back Hair Area tool.
c	Selects Crop tool.
[Make brush radius smaller (when a brush tool ⁹⁰ or area brush tool ⁹² is selected).
]	Make brush radius larger (when a brush tool is selected).
0-9	Change brush strength (when touch-up or restore brush tool is selected).
ESC	De-selects the currently selected tool.
SPACE BAR (while held)	When a brush tool is selected, temporarily switches to the pan tool.
SHIFT (while held)	When a brush tool is selected, temporarily switches to the opposite brush.
ALT (while held)	When a smart brush is selected, temporarily locks the detector. This is useful when brush fine detail such as strands of hair.
F2	Brings up the Save Preset ⁸⁸ dialog.
F3	Brings up the Save Snapshot ³⁹ dialog.
F4	Selects the Reset to Original preset, which sets the controls to leave the image unchanged.
F7	Zooms the view to show the whole image.
F8	Zooms the view to show the current face.
F9	Selects the Controls ³⁹ tab in the controls panel.
F10	Selects the Presets ³⁷ tab in the controls panel.
F11	Selects the Snapshots ³⁹ tab in the controls panel.

Index

- 1 -

1:1 button 35

- A -

adjust outline 19
aspect ratio 93
automatic batch 15

- B -

background mask 63
background replacement 62
bits per sample 79, 83
blusher 49
brightness slider 60
brush tools 90

- C -

change current face 23
color settings dialog 79, 83
contrast slider 60
controls panel 34
crop tool 93
cut back skin mask tool 92

- D -

default settings 37
delete presets 89
docking controls panel 34

- E -

edit menu 30
enhance image 14
enhance skin only 24
extend skin mask tool 92
eye sliders 53
eyeliner 49

eyeshadow 49

- F -

face button 35
face sculpt sliders 41
file extensions 110
file menu 28
file types 110
fit button 35
flipping between enhanced and original 34

- G -

gender 78
group shots 23

- H -

hair area 71
hair sliders 58
help menu 31

- I -

image orientation 24
introduction 6

- J -

jpeg 78

- K -

keyboard shortcuts 112

- L -

language dialog 85
lipstick 49

- M -

makeup 49
manage presets dialog 89

manual batch 17
mascara 49
mouth sliders 57
multiple faces 23

- N -

navigator 35

- O -

opacity (brush) 90
open image 12
overlays 70

- P -

pan tool 90
picture sliders 60
png 78
presets 37

- Q -

quick start guide 6

- R -

radius (brush) 90
raw images 110
red eye removal 53
rename presets 89
re-order presets 89
restore tool 44
rotate image 24

- S -

save image options 78
save preset dialog 88
save result 14
saved sliders 37
select gender 78
session 28
shape sliders 41
skin area 70

skin coloring controls 47
skin lighting 47
skin sliders 44
sliders 39
snapshots 39
start 6

- T -

tiff 78
touch-up tool 44
transparency 67

- V -

view after only 34
view before and after 34
view menu 31
view/edit skin area 70
vignette 60

- Z -

zoom control 35