LightPhase
User Guide

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PHASE ONE

1 Contents

1 Macintosh: Getting Started

The LightPhase has been designed for ease of installation and use. There are just a few easy steps to follow, from unpacking the LightPhase to developing the first shot.

- Connect hardware, install software
- Launch the LightPhase application
- Determine the exposure and shoot
- Select images to develop from Capture Collection
- Gray Balance
- Crop desired image
- Adjust Gradation Curve/Tonal Range
- Set any desired Color Management, naming, etc.
- Click Develop

The following sections have all of the basic information you need for getting started, step by step.

Hardware Setup

Set Up

The LightPhase/Phase One H 20 connects to the computer via an IEEE 1394 connection. This new, extremely fast connection does not have many of the limitations of the SCSI technology used in previous digital cameras. Many of the problems related to SCSI such as setting ID numbers, termination, and not being able to "hot-plug" (having to shut down before unplugging the device) are nonexistent with 1394. The cable length can be extended using the Phase One Power Conditioners to move the camera far from the computer.

Install the PCI IEEE 1394 card (if required)
While the owner's manual for the particular computer should be consulted, the basic steps to installing the card are as follows:

1) Shut down and unplug the computer.

2) Remove the cover, exposing the motherboard.

3) Choose an empty PCI slot and remove the screw and cover.

4) Gently place the card into the slot with the 1394 connectors facing through the opening.

5) Press straight down and slightly rock the card until it is firmly seated in the slot.

6) Replace the screw to hold the card in place.

7) Replace the case, restart the computer

Photographic Equipment Set-up

In addition to setting up the computer, the camera must be prepared for working with the LightPhase/Phase One H 20.
This involves a few simple steps:
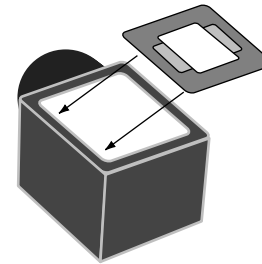
1) A Ground Glass Mask is included. This must be installed in the viewfinder to ensure correct framing. Remove the camera viewfinder and focusing screen (refer to the camera users manual for detailed instructions). Insert the Ground Glass Mask and replace the viewing screen and the viewfinder.

2) If a Mamiya RZ67 Pro II is used, connect the mounting plate to the camera and then connect the cable from the mounting plate to the connector on the front of the Mamiya. Be sure that the cable is connected and locked properly; the latching mechanism will be on the bottom.
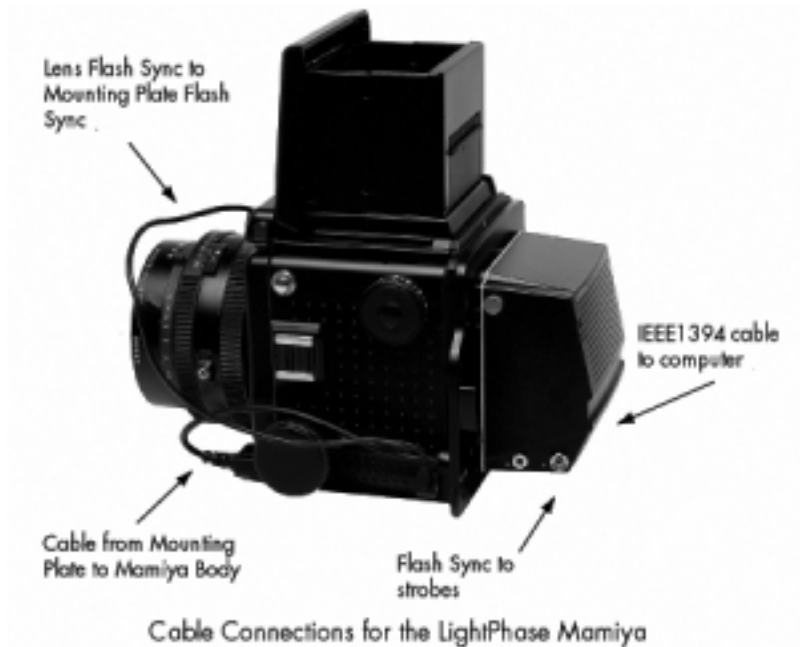
Cable Connections for the LightPhase Mamiya

3) Connect the LightPhase/Phase One H 20 to the camera or mounting plate. Be sure that the back is firmly connected to the camera before releasing! The small screw on the top of the LightPhase can be tightened with the supplied screwdriver to prevent it from being accidentally removed.

4) Connect the included Sync Cable from the lens' flash sync to either the connector on the LightPhase marked "C" or the Mamiya Mounting plate.

5) If a motorized camera is used, connect the included Motor Cable to the connector on the right side of the back, marked "M".

6) If flash is used, connect the Flash Sync Cable (not included) from the strobes to the connector on the right side of the camera back, marked "F".

7) Finally, connect one end of the included IEEE 1394 cable to any one of the empty ports on the newly installed card, or the built-in port. Connect the other end to the back of the LightPhase/Phase One H 20. These cables can only be inserted one way and may require a little pressure to insert.

8) Please note: For the Mamiya RZ the camera must be set to take multiple exposures in order to use the LightPhase/Phase One H 20. The multiple exposure selector (M) is combined with the film back revolve switch (R).

Updating the Camera Software/Firmware
Phase One generally recommends that updating the LightPhase with the newest camera software in order to benefit from the latest stability and performance improvements. Information concerning the installed camera software version can be accessed in the pull-down menu Camera/Info.
The Camera Updater program will indicate if the latest camera software is installed. If it is not installed, it automatically downloads the camera software into the camera.
The Camera Updater is located on the CD-ROM under LightPhase/Goodies/Camera Updater/"Camera Updater".

Before running the Camera Updater

Shut down all programs including the LightPhase Image Capture Software
Remember to disconnect all third party FireWire (IEEE 1394) devices that were NOT delivered by Phase One

The Camera Updater must not be interrupted when running as the camera back can lose the camera software. Clear indications of the loss of camera software are that both the green and red LEDs are lit and the text "N/A" appears under Primary Code and Secondary Code in the Camera Updater program. In this case the Camera Updater must be run again.

Installing the camera software/firmware

Run the Camera Updater Software and follow the instructions displayed on the screen. Only certain Macintosh computers can be used for updating the LightPhase. The serial number located on the base of the LightPhase indicates which Macintosh can be used:

BB021132 or higher - Any Macintosh can be used in order to update the LightPhase camera software.

All other serial numbers — To update the LightPhase camera software use a Power Mac, not faster than a G3 350 MHz, with virtual memory set to "on". Virtual memory is set in Control Panels/Memory. Remember to restart the Mac after changing the memory settings. Once the camera update has been successfully executed, the original memory settings can be restored.
Please note that as soon as the LightPhase camera has been updated it can once again be connected to a Power Mac faster than a G3 350MHz.

Other Photo Equipment

While the LightPhase has been made as compatible as possible with photographic equipment, there are a few issues to be aware of:

1) When using the LightPhase with a Hasselblad 555ELD, the setting on the front of the Hasselblad needs to be in the "Film" position.

2) When using the LightPhase on a view camera use the "Two Shot Mode". This means that the shutter release is activated twice. To shoot an image, release the shutter, reset it, and shoot another frame. The first shot wakes the camera up, and the second is the actual exposure. Alternatively pressing the "Capture" button in the preview window will wake the camera up and then the shutter can be fired once to take a photo. The camera will remain "awake" for 20 s econds or until the next capture.

3) When used on a Mamiya RZ67 Pro II the selector on the right side of the camera body must be in the "M" position.

4) The LightPhase/Phase One H 20 fully conforms to the ISO 10330 Standard for Photographic Strobe Systems; unfortunately not all strobe manufacturers comply with this standard. Check with the manufacturer of your strobe system to prevent damage to the LightPhase.

5) The "Strobe Equipment" section of this guide provides a list of devices that have been tested.

2 Install the LightPhase Software

After the computer is restarted, the software that will control the IEEE 1394 card must be installed, as well as the software for the LightPhase. We have included one easy-to-use installer that will place all of the necessary software on the computer. Follow these steps to install the software.

1) Place the included CD-ROM into the CD drive.

2) Double-click the item marked "Install LightPhase."

3) Read the software license, and, if in agreement, click the "Agree" button to continue with the installation. Otherwise, click "Cancel" to quit the installation.

4) When prompted for the Adobe ® Photoshop® "Plug-Ins" folder, choose the correct folder from the list. Be sure to choose the Photoshop folder, as there may be many different plug-in folders on the hard disk.
If installation is made on a non-English Macintosh, the installer may not be able to locate the Photoshop® plug-ins folder, so be sure to select the proper plug-in location.
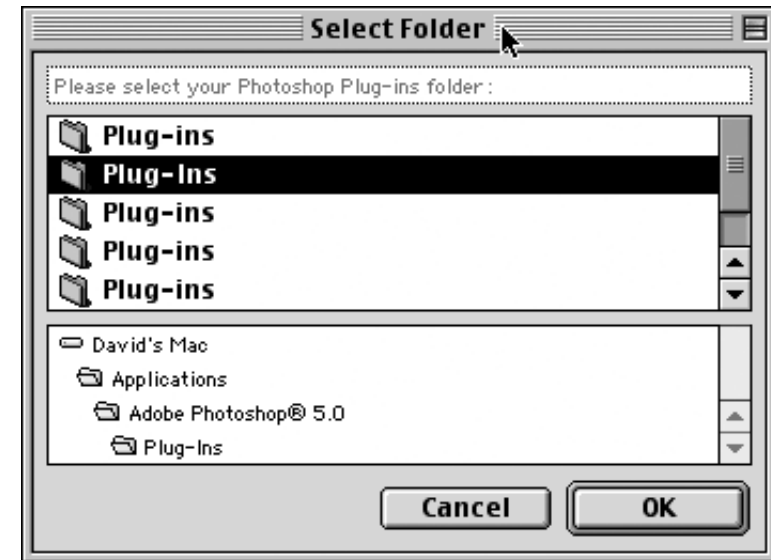
5) Follow the on-screen prompts. When the installation is completed, restart the computer.

Installed Items
The installer creates a folder on your hard disk called "LightPhase." This folder contains the LightPhase application as well as several sub-folders. They are:

Captures

As photographs are taken with the LightPhase, this is the default location where raw capture files are stored. This folder can be changed by choosing a different "Capture Collection" Folder as described later in this manual.

Previews

The LightPhase application automatically creates a low resolution (approximately 1MB) preview image to use for color and tonal adjustments. All preview files are stored in the "Previews" folder. If any files are deleted from here the program will automatically generate new previews the next time the LightPhase application is started.

Images

By default developed images will be placed in this folder. Again, the LightPhase preferences can be used to change where developed files will be placed.

Goodies

The "Goodies" folder holds aliases to files on the install disk as well as other related files.

Using the LightPhase

Phase One has made using the LightPhase/Phase One H 20 as close to using film as digital photography can be. The first step to using the LightPhase is to start the application. Double-click the folder called "LightPhase Application" on the hard drive and then double click the "LightPhase" icon. This will start the program that controls the LightPhase camera. After a few seconds the software will make a small "click" sound and the camera will beep. These two sounds indicate that everything is ready.

In practice the LightPhase can now take pictures. However before shooting it is a good idea to ensure that the software settings are optimal. This will ensure the best possible image quality and workflow.

3 Software Setup

At this point it may be a good idea to set-up Photoshop and the system for Color Management. A brief guide to Color Management and Profiles is provided in the Tools section of this manual. For detailed information on Color Management and Profiles please consult the Color Management User Guide.

Taking Photographs

The camera back is designed for ease of use and high performance. First time digital photographers, as well as experienced digital photographers, can immediately begin taking images of excellent quality. The LightPhase can capture one image every 1. 5 seconds, or once every 3 seconds for the Phase One H 20. The camera makes a small "beep" when it is ready to capture the next image.
If an attempt is made to shoot too quickly the camera will still respond, but images will not be recorded.

Technical note:

The camera has a choice of two sensitivities: 50 ISO or 100 ISO. As a rule, when working with long exposures, an exposure based upon 50 ISO at 16 seconds will yield a better quality image than an exposure based upon 100 ISO at 8 seconds. ISO values are selected in the Camera Settings dialogue box. Settings can only be changed when the camera is connected to a computer.

Take a light reading. Just as with traditional film photography, exposure is critical. Because of the wide dynamic range (similar to the "exposure latitude" of film) the LightPhase application can compensate for a certain amount of underexposure, but not overexposure. Once an image is overexposed, there is no detail for the software to work with and no hope of correcting the image. For this reason it is important never to unintentionally overexpose.
The LightPhase software offers several tools to help evaluate the exposure of an image. Compatible shutter speeds range from 16 seconds to 1/20,000 sec. For general strobe photography it is recommended to use an exposure speed between 1/60 sec and 1/500 sec. Finally, select the desired aperture.

Composition Mode
Composition mode is very useful when setting up and adjusting the lighting and framing, prior to shooting. It is activated from the Camera pull-down menu. Warning triangles appear, to indicate that composition mode is activated.
Composition mode only saves the last captured image, which means no deletion of unwanted capture files.

Selecting film curves
A film curve can be compared to a gradation curve. It shows how light values, recorded by the CCD, will be converted to light values in the image data file. Four different film curves can be selected in the LightPhase application. Before each photo session, select the correct film curve for the type of work you are doing.

Film standard: A default film curve, which can be applied for general purpose photography.

Film extra shadow: A curve similar to the Film standard, with increased shadow detail.

Film outdoor: A film curve suitable for high contrast outdoor photography, with increased highlight detail. 100 ISO only.

Linear response: Film curve that gives exact linear response. It is especially useful for scientific photography with very low contrast scenes. This film curve should be used with care, as there is an inherent risk of over exposure in highlight areas.

Selecting landscape or portrait orientation
The LightPhase can be mounted on a wide range of professional medium format cameras, technical cameras (also referred to as view cameras) and other camera systems where image orientation is not automatically detected. Here camera orientation must be determined manually in the LightPhase Image Capture Software. Select the desired camera orientation in the Camera Settings dialogue box. Images will automatically be rotated to landscape or portrait orientation.

Organizing Images
Creating folders to hold captures and choosing session names, before or during shooting, will save time during the processing stage.

If, for instance, you have a photo session of a model with three different colored outfits, three separate folders can be created in advance. When shooting, just click the Capture Folder button in the Capture Collection, and select one of the three folders for image storage. Organizing files as you are shooting will save time later when you want to print a contact sheet or archive files.
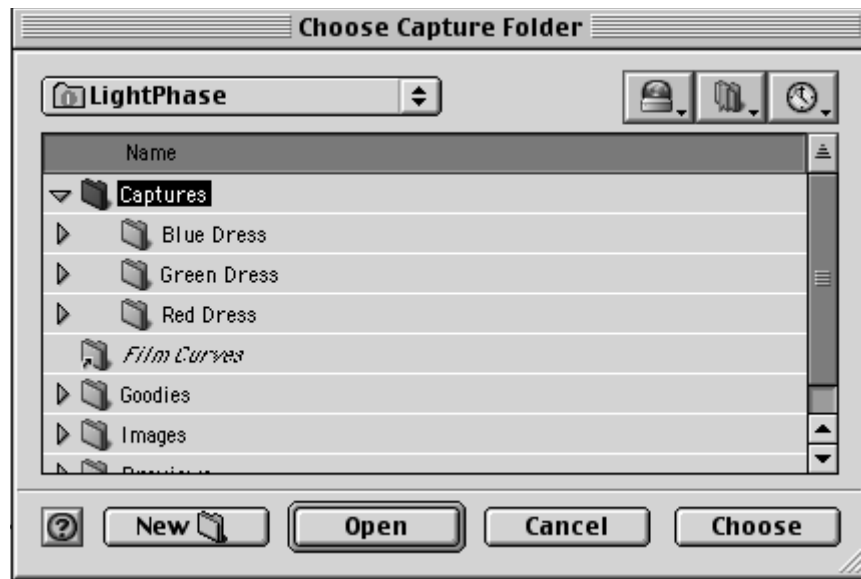
Any number of capture collections can be added. Click on the "+ folder" icon in the Capture Collection window to add a new collection. Click on the "x folder" icon to remove a collection. Files can be moved from one collection to another, or to the Trash, by dragging and dropping them with the mouse.

Files can also be named and numbered automatically. Enter a name in the "Session" field of the Capture Collection window. All subsequent captures will now be named accordingly. To automatically add a number to each capture, open the Capture Session Preferences window and enter a number in the "Unique suffix" field. There is a maximum of six digits. Check the box next to "Always include unique suffix" and a sample of the naming and numbering will appear. The capture name is also used for the developed images unless the box is unchecked.
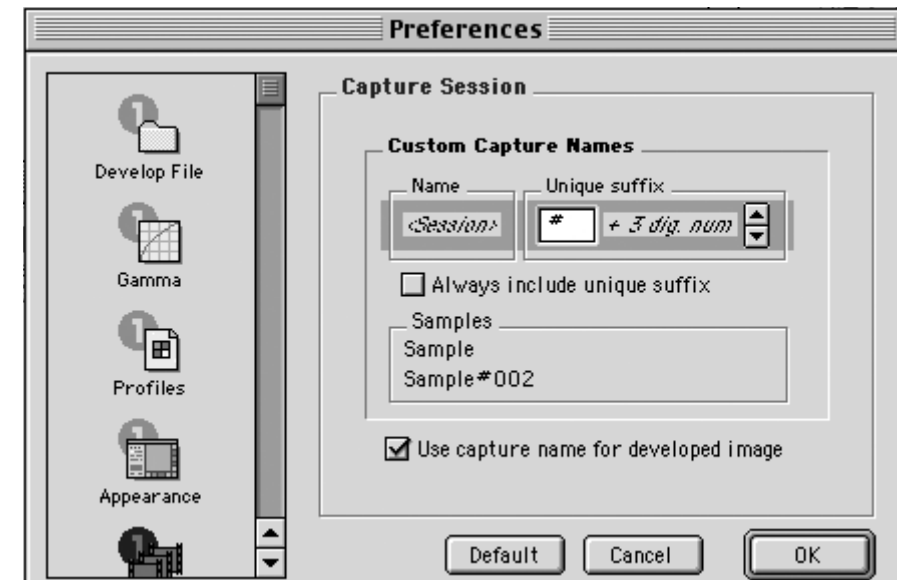
Workflow optimisation

If your Mac is connected to a network, capture collections can be created on another Mac. Using a network to improve workflow allows one photographer to concentrate on shooting whilst another photographer edits and develops the session.

To fully exploit the benefits of workflow networking, and the RAM installed in the host computer, an adjustment must be made to memory allocation. Under Camera Setup, in the Preferences window, the Burst capacity can be increased (see the technical notes below). The maximum number of captures (Burst) that can be stored in short-term memory is limited by the amount of RAM installed in the Mac. More RAM can be automatically allocated to the LightPhase capture software by checking the box for memory requirement. Please note that the LightPhase software must be restarted before any changes take effect.
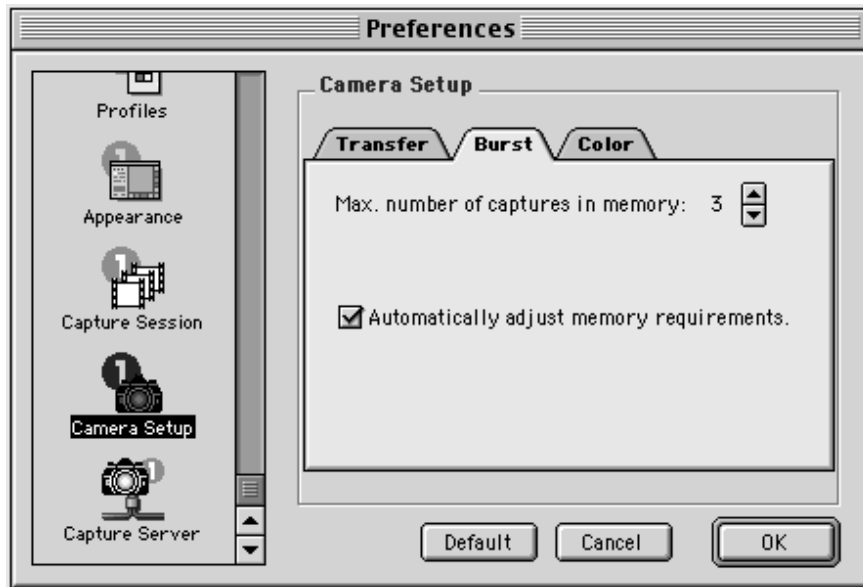
Technical notes:

Capture files are stored in the RAM before being moved to the capture collection folder on the hard disk or the Capture Server. Above the Capture button, in the Preview window, is a row of green lamps. These lamps indicate the number of RAM buffers ready to receive a new capture file. One green lamp indicates sufficient RAM for one capture. When a buffer is busy the green lamp turns yellow.

To optimise the capture rate, there are four factors to consider:
> The image transfer time.
> The number of RAM buffers available.
> Host computer speed.
> Preview generation.

Image transfer time:

The image transfer time is set to 1.5 sec. as default (Preferences/Camera Setup/Transfer tab). This is the time it takes to transfer images from the back to the host computer.

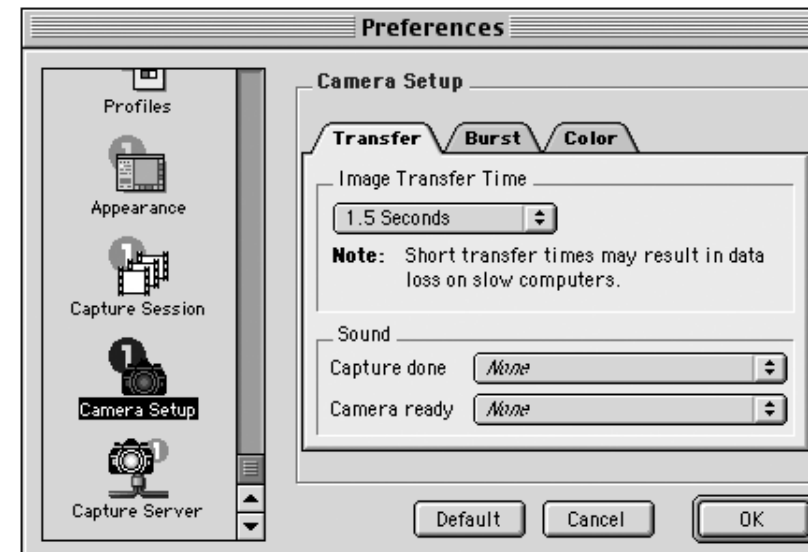Image transfer time controls the capture rate. Newer Macintosh computers, which include fast OHCI FireWire ports, can reduce image transfer times to 1.0 second.
However, if data dropout is experienced, please increase the image transfer time.

Maximum number of RAM capture buffers:

As described above, before captures are transferred to the capture collection folder on the hard disk, they are stored in a RAM buffer. If a hard disk is relatively slow, a high capture rate can be maintained, for a limited number of captures, by increasing the maximum number of RAM capture buffers.

With older Macintosh computers the maximum number of RAM capture buffers is the second most important capture rate controller.

Host computer speed:

The speed of the host computer influences the capture rate.
If the capture collection folder is stored on a slow hard drive, increasing the maximum number of RAM buffers will only improve burst performance. To capture images at full speed over a longer period of time a faster hard drive is needed
(min. 20MB/sec.)

Preview generation:

Preview generation is time consuming for the computer.
Viewing previews after a session allows the computer to work faster.
Enter the Camera Menu and select Generate Previews to uncheck it (hide the check mark). To enable preview generation select Generate Previews again and the check mark becomes visible. To generate the missing previews click on the Refresh button in the capture collection window (a folder shown with a "*").

Disabling preview generation on older Macintosh computers enhances capture rates, whereas as on newer models the capture rate difference is barely noticeable.
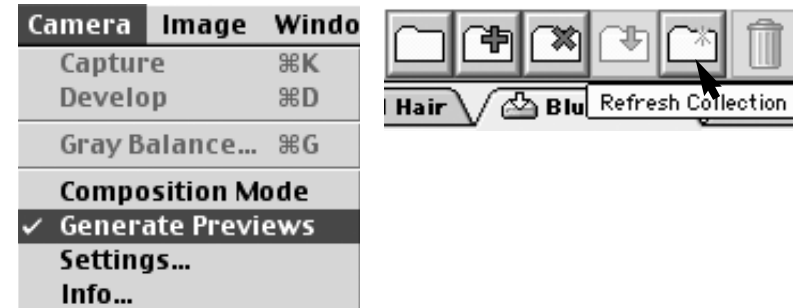
For further details, please consult the **Capture Server** section of this manual.

Editing and Selecting Images

Editing

After taking photographs, the next step in the process is to choose which images to keep and develop. In the LightPhase application select "Capture Collection" from the "Window" menu at the top of the screen. ("Command-2").

The Capture Collection is similar to a contact sheet. It displays thumbnail images of all of the photos taken with the LightPhase.

Deleting

To delete an image, simply click on the thumbnail to select it.
A blue box will appear around the image to show that it is selected.
Click the "Trash Can" icon at the top of the Capture Collection
window.

Multiple images can be selected by clicking on the first image
thumbnail, and then "Shift-clicking" on any other images you wish to
select (hold down the "shift" button on the keyboard and click on the
next image). Each image will have a blue box around it to show that
it is selected. After selecting all of the images to be deleted, click the
Trash Can icon to remove them.

A deleted image is moved to the "Trash" folder of the Capture
Collection. If an image is mistakenly deleted it can be restored to it's
original location by clicking on the trash icon marked with a red "X".

The trash is emptied by selecting the images in the Trash folder and
clicking on the Trash Can icon. Deleted images are stored in the
Mac's "Trash Can". They can be manually deleted from the LightPhase
application (as described above) or deleted via the Special menu in
the Macintosh Finder.

Previewing

While the Capture Collection is a good place to judge images quickly,
the Preview Window will provide a much better view of an image. To
preview an image, choose one of the images from the Capture
Collection and double-click it.

The thumbnail will then open in the larger Preview Window. The
Preview Window provides improved image evaluation, as well as
tools for adjustment of exposure, contrast, sharpness and color of the
photo.

To move a new image into the Preview Window, return to the Capture
Collection (remember the keyboard shortcut "Command –2") and
double-click a new image. The Capture Navigator tool can also be
used to preview images.

The Preview Window in detail

The Preview Window is divided into several sections to help evaluate
and control the development of images. The file name of the current
preview is shown at the top of the Preview Window for easy
reference. On the right of the window, at the top, is a row of buttons
used to access the tools that control the image. These tools will be
covered individually later in this guide. Below the tools section is a
display providing information on exposure, development, color and
gray balancing. A description of their function and use follows below.

Exposure Monitor

The Exposure Monitor is located below the Tools. This is a basic
graphical gauge of the overall exposure of the image in the Preview
window. If the indicator line is in the green area, the exposure is
considered acceptable. If the pointer is in the red area it is
overexposed.

If it is in the white area it is underexposed.

The LightPhase is sensitive to overexposure. Avoid shooting images when the indicator line is in the red area. Here are examples of what the meter will look like with different exposures:

Over

Correct

Under
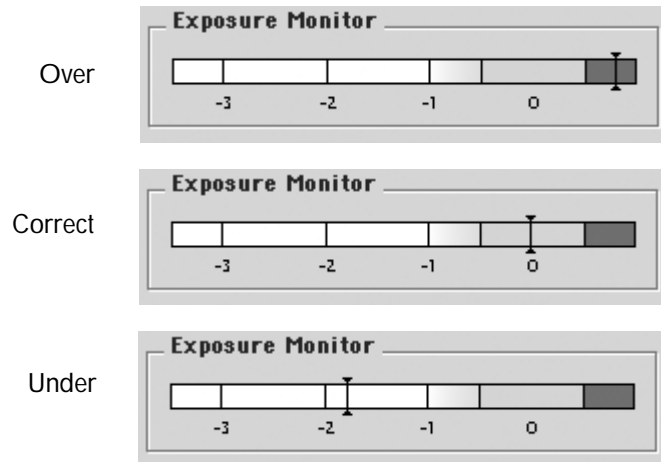
Develop Specification

This section of the LightPhase application is used to control the final output size of the image to be developed. A full image, with no cropping will read approximately 26x17 cm (10x7 inches) at 300 pixels (dots) per inch. The file size of this is approximately 18MB, as listed in the "File Size" section (in 8 bit/channel mode).

If a crop is made, the output size of the cropped area will be listed in the Width, Height and Resolution fields. If you know what size the image will be in its final printed form, you can enter the measurements here and save the resizing step later. By adjusting the size of the image at the developing stage you save time and get a higher quality final image, as all changes will be done at 16 bits/channel.

For easy reference, the amount of free hard disk space on the computer is displayed next to the file size. Be sure that there is always sufficient space on the hard disk.

Each image can be named in the "Next image:" field. Naming your images will make it easy for you to find and identify the photos later. If no name is assigned, the LightPhase application will pick a name for you based on the preferences you have set in the "Name" tab of the "Develop File" section.
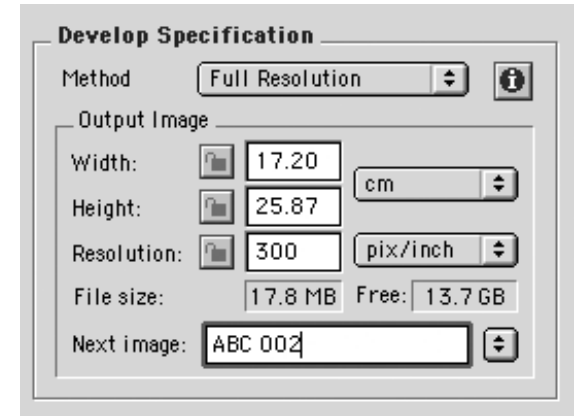
Color Info

One of the most important displays of the Preview Window is the "Color Info" window. This panel shows the individual **R**ed, **G**reen and **B**lue (or **C**yan, **M**agenta, **Y**ellow and blac**K**) channel information. With film photography the evaluation of final exposure and development levels is a manual, and often subjective, process. With digital photography accurate evaluation is made using the Color Info picker. By pointing the on-screen cursor at any point in the image you can read the precise values of that point in the Color Info window.

Knowing the precise values of any part of the image is useful when full control of the printing process is needed. As printers, and printing processes, have individual characteristics, exposure levels can be adjusted to ensure a predictable and perfect result.

Values in the Color Info window are represented as a numerical scale from 0 to 255. A completely black pixel is represented as 0, a completely white pixel as 255. Again, it is important not to overexpose an image; if any of the Red, Green or Blue (RGB) values approach overexposure (a value of 255) adjust the exposure level. Keep image highlights (areas that should record as white with detail, not as specular reflection) between 225 to 250.

Gray Balancing

With film photography color bias in light sources, or film emulsion, can be corrected using color correction filters. With the LightPhase we correct color bias by using the gray balance. Unlike many other digital camera systems Phase One has made the Gray Balance feature easy to use.

Simply follow these steps:

1) Open the image to be corrected in the Preview Window.

2) Choose "Gray Balance" from the Camera menu.

3) Click the pointer on an area, which must be neutral gray in the final image. If the image contains no white or gray, repeat the shot and include something such as the Kodak Q14 Step Wedge.
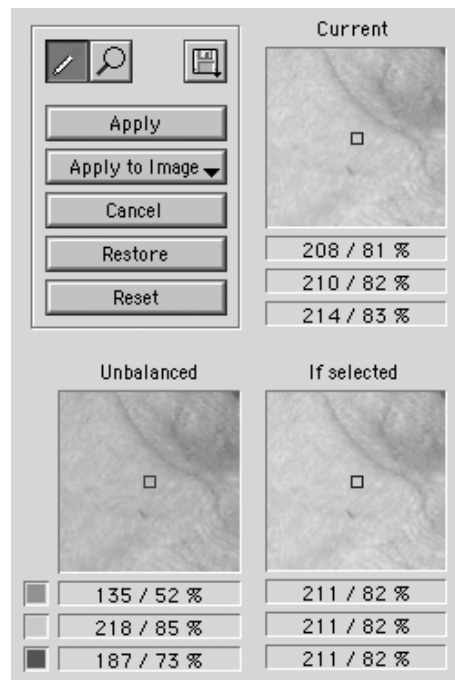
Select the step with an RGB value of between 200 and 225, this will yield a well-balanced image.

4) Click "Apply". The gray balance will now be applied to all consecutive images.

Other gray balancing options available to ensure flexibility and to improve workflow. They are "Apply to Image:"
"Current Capture" and "All Selected Captures."
Finally "Color Adjustment" allows the photographer to apply and save individual settings.

Apply to Image
When selected, the chosen gray balance will be applied to the current image and all subsequent images, until a new gray balance is set.

Current Capture
This only changes the gray balance of the current capture.
All subsequent captures retain the gray balance set under Apply to Image.

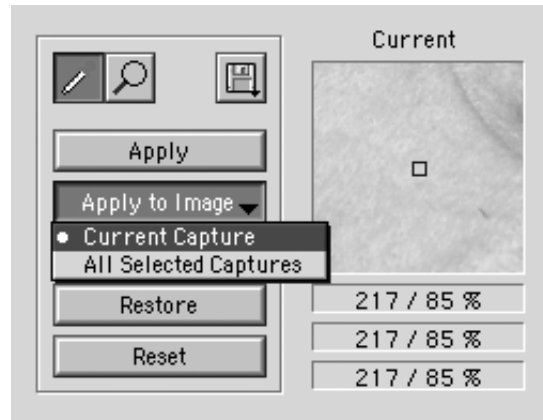### All Selected Captures
Include a gray card in the first shot, and apply the gray balance setting to all other selected images.

To use the All Selected Captures option, first open the image with the step wedge in the Preview window. Then return to the Capture Collection and select all the other images to be balanced.
Now return to the Preview window and select "Gray Balance" from the "Camera" menu.

Finally click on the step wedge and choose "All Selected Captures" from the pop-up menu.

Finally there are three options designed to help in the gray balancing process.

Restore
All adjustments to the gray balance are cancelled and previously defined values are used.

Reset
All color balancing is cancelled.

Pick Position
With the gray balancing tool active, hold down the command key. A lock is now visible next to the gray balancing tool. Click on a neutral area in the image. The exact position is now locked and recorded next to the Pick Position button. To release the tool click on the Pick Position button.

Color Adjustment
Individual gray balance settings can be applied, and saved, to meet the requirements of a particular job, or to obtain particular effects such as evening or morning light.

Developing Images
Images captured by the LightPhase/Phase One H 20 camera are stored as raw calibrated files. They must by processed by the Phase One LightPhase application before they can be used in any other program. The raw files can be archived and processed at a later time, or processed immediately. Archiving raw files saves space and allows access to raw, un-manipulated, 16 bit data.
Using raw files makes it possible to process one single image for various purposes; a high resolution color image for a printed page, a low resolution image for a web site and a third copy to be used in black and white.

To process an image, it first must be opened in the preview window. If you think of the development stage as similar to printing in the darkroom, it may help. After loading the image into the Preview Window the first step will be to gray balance and crop the image.

Then adjust the brightness, contrast and color. Finally the image is developed by clicking on the Develop button.

On average it should take between 40 seconds and 1.5 minutes to develop an image. Development speed is entirely dependent on speed of the computer.

There are two ways to develop images.

Method one: Individual control of each image

> Open an image in the Preview window.
> Name, crop and adjust the color settings as desired.
> Then click "Develop". Repeat these steps with all the images to be developed. Image development is performed in the background and will not affect the speed of the computer while shooting or performing other tasks.

Method two: Batch Development

> To develop multiple images to the same specifications select them in the capture collection and click the "Develop" button. *When using this method, the cropping and adjustment settings applied to the first image will be applied to all selected images.*

It is possible to open developed files in Photoshop, or another application, automatically.
Open Preferences/Develop File/Attributes to set this option.
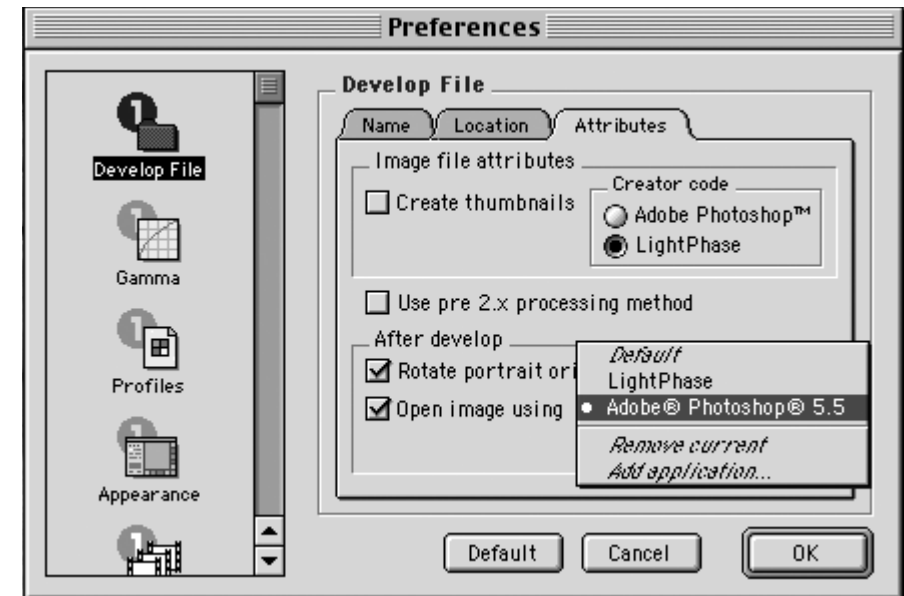
4 Tools

Many of the tools in the Phase One LightPhase application act in much the same way as the tools of popular image editing applications such as Adobe Photoshop. Many of these tools actually come from the traditional world; the cropping tool is the first example of this, mimicking the cropping "L's" used by artists and photographers.

Cropping

Select the Crop Tool (by clicking once on the tool button) from the upper right side of the Preview Window.
Move the on-screen pointer to the image to be cropped. Click and drag the mouse so that a box is drawn surrounding the area of the image to be kept. Then release the mouse button.
The rectangular box, which now surrounds part of the image, can be adjusted in size and position. There are points at the corners of this box that can be clicked and dragged, to change size and position.
Double-clicking this tool allows you to set the crop box size and units.
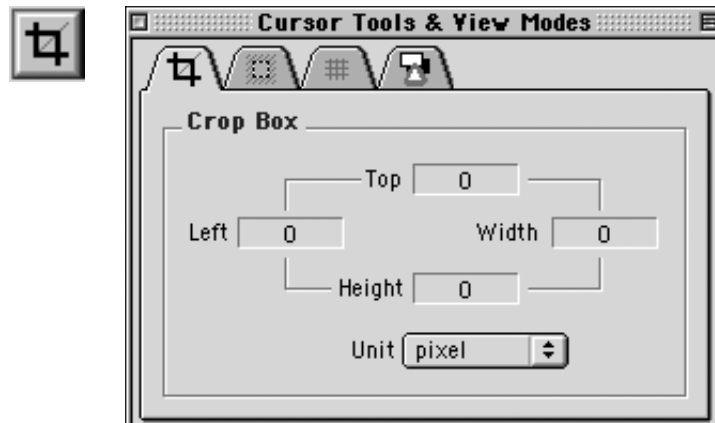
Crop Mask Tool

When turned on, the Crop Mask Tool will mask the area of the preview image that is outside the selected crop area.
Double-clicking this tool allows you to set the color and opacity of the crop mask. This tool is a useful feature when showing images on-screen, as the cropped area is clearly shown.
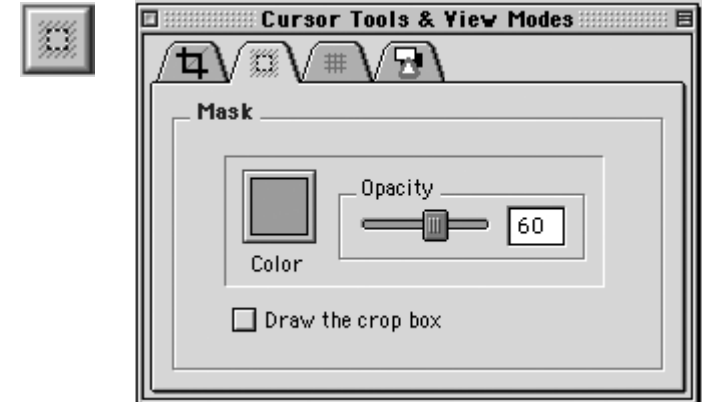
Eyedropper

The Eyedropper tool is used to read the RGB values of a paticular area of an image. Change the sample size by double clicking the tool icon. The default size is a 5x5 pixel area.
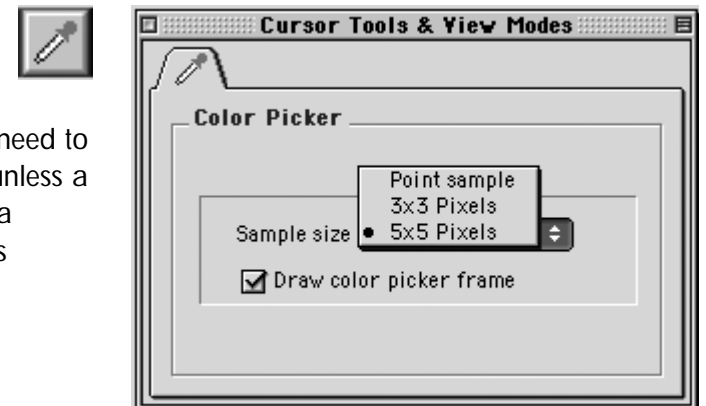
This does not need to be changed, unless a reading from a smaller area is required.

Zoom Tool
Select the Zoom tool and click on the preview image to zoom in. Use option-click (Alt key) to zoom out. Remember, the preview image is only a low-resolution image and will quickly pixilated when enlarged.

Grid Tool
Two different grids can be used to help align and measure the objects in images. Click the Grid Tool to turn the grid "on".
Double click the tool to toggle between the two types of grids and to set different grid options.
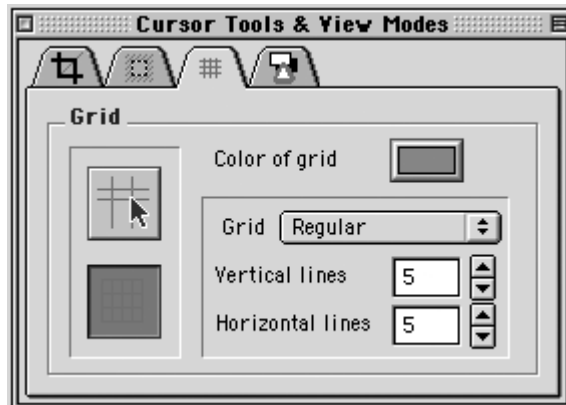
Exposure Warning Tool
This tool quickly shows which areas of the image are either over or under exposed. Much like Photoshop's "Gamut Warning" tool, when the "Exposure Warning Tool" is activated a colored mask will be applied to the image showing which areas of the image are above or below a set exposure value.
Double-click the tool icon to set the over and under exposure values and to change the highlight colors.

In general, if the exposure warning is shown over a large area of the selected image, it indicates that the exposure level may need to be adjusted. Highlight areas are more critical than the shadows. Preserve highlight detail by not allowing values greater than 240.
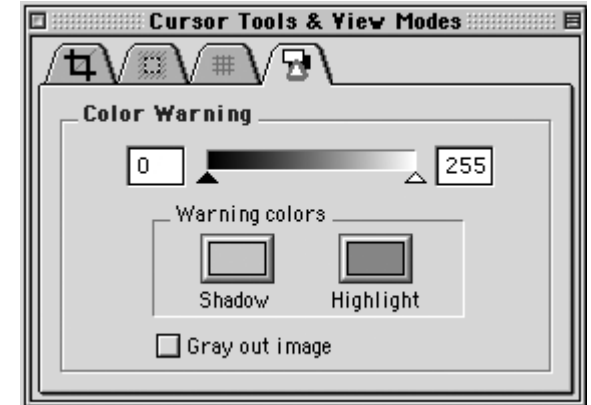
Tonal Range/Gradation Curves/Film Curve
Clicking on the Tonal Range/Gradation and Film Curves button opens the window to the Tonal Range tool. Switch back and forth between Tonal Range, Gradation and Film Curves by using the tabs at the top of the window.

The Tonal Range and Gradation tools act much like the Levels and Curves tools in Photoshop. The Tonal Range pane of the window shows a Histogram, a graphical representation of the brightness of the pixels in the image. The darker areas of an image are made darker by sliding the dark triangle to the right. The lighter parts of an image are made lighter by sliding the white triangle to the left. This compresses the tonal range of an image, and either lightens or darkens the highlights and shadows.

Further control of the tonal range is possible by unchecking the "Preserve Color Balance" box. Each color channel can then be adjusted individually.

A particular color is defined for the lightest, or darkest, part of the image by checking the "Target Colors" box. This reveals a sliding scale and two color selection buttons. A single click on the light, or dark, color selection buttons enables selection of a target color. The sliding scale enables adjustment of color saturation.
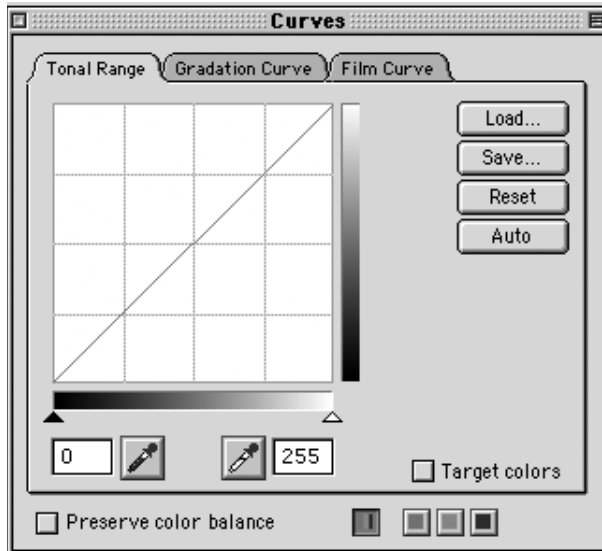
The Gradation Curves pane allows the control of an infinite number of points along the curve of an image (compared to the two points of the Tonal Range pane). The curve starts out as a linear curve. By clicking on the curve a point can be added that can be adjusted to control the image tone.
To observe the effect of this tool, place a point on the middle of the curve and pull it up slightly. The midtones of the image become lighter. Other areas of the image are also lightened to some extent, so it may be necessary to place other point on the curve to control this. There are also easy to use up/down buttons to adjust brightness and contrast. Experiment with the buttons to quickly control the image curve.

The Gradation Curve pane also reads Input and Output values. These numbers show the "before" and "after" values of the pixels at the point you placed on the curve. The Input value shows the brightness of the pixel before the curve is applied, and the Output value shows the brightness of the pixel after the curve is applied.
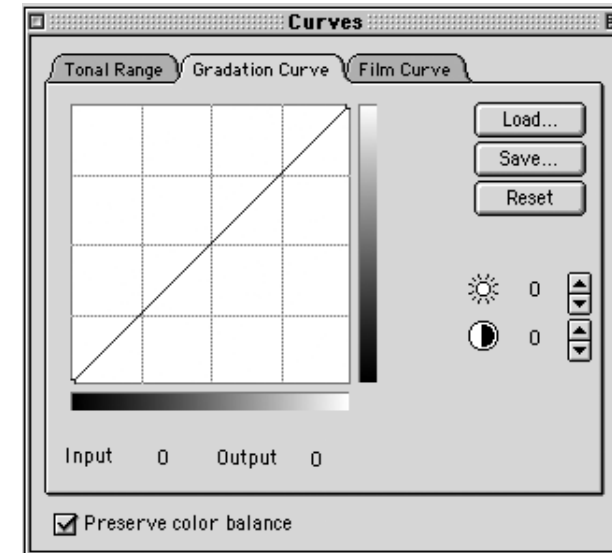
The key to both Tonal Range and Gradation Curves is to be conservative with their use. Using these tools to attempt to correct an image that was poorly exposed will not result in a high quality image.

Film curves
The configuration of the LightPhase is dependent upon the chosen film curves and ISO values. It is important that the correct settings are made before shooting. Please read **Software Set-up / Selecting film curves.**

On occasion it may be necessary to alter film curves after shooting, to improve contrast or detail. Select the Film Curve tab, and drop out menu, in the Curves dialogue box to see the options.
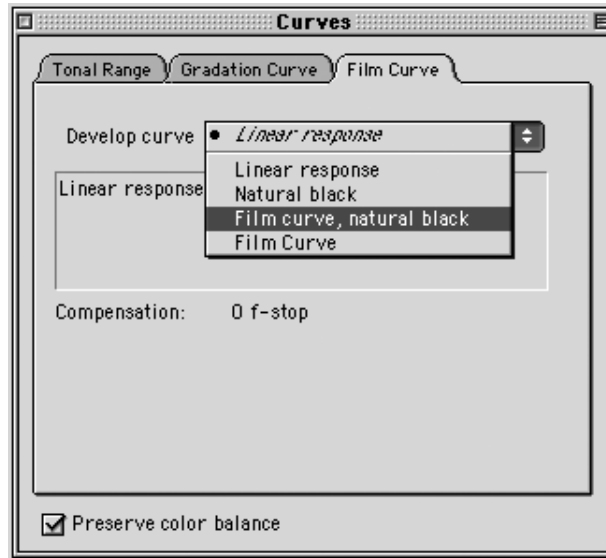
Curves

Tonal Range | Gradation Curve | Film Curve

Develop curve *Linear response*

- Linear response
- Natural black
- Film curve, natural black
- Film Curve

Linear response

Compensation: 0 f-stop

☑ Preserve color balance

Unsharp Mask

The name "unsharp mask" (USM) can be misleading. Using this tool actually gives an apparent increase in image sharpness by enhancing the edge differences between pixels of different colors.

When applied to an image, the software evaluates the contrast differences between pixels and either enhances the difference or not, based on your settings.
There are two controls over the USM:

Amount

The amount of change is entered here as a percentage. The higher the setting, the more sharpening will be applied.

Threshold

The threshold level controls at what level the sharpening will begin. At the default "0" setting the sharpening amount is applied to every pixel.

A third option found in many imaging programs, Radius, is fixed in the LightPhase application at about 1 pixel.

Unsharp Masking

☑ Apply unsharp masking

Amount
━▭━━━━━━ 25

Threshold
▭━━━━━━━ 0

Using this tool to attempt to sharpen an image that is clearly out of focus will not give a pleasing result. However an image that appears to be soft, with low color contrast, can be significantly enhanced by careful application of USM.

Color Management

The LightPhase is designed to work as part of an ICC color management workflow.

The camera, monitor and printer can be specified in the LightPhase application, and the processed image will be customized for that specific input and output configuration. If the final images are to be printed, then the results, as they would appear in the final print, can be previewed on screen.
In this way images can be adjusted to give optimal results, and costly errors can be avoided.
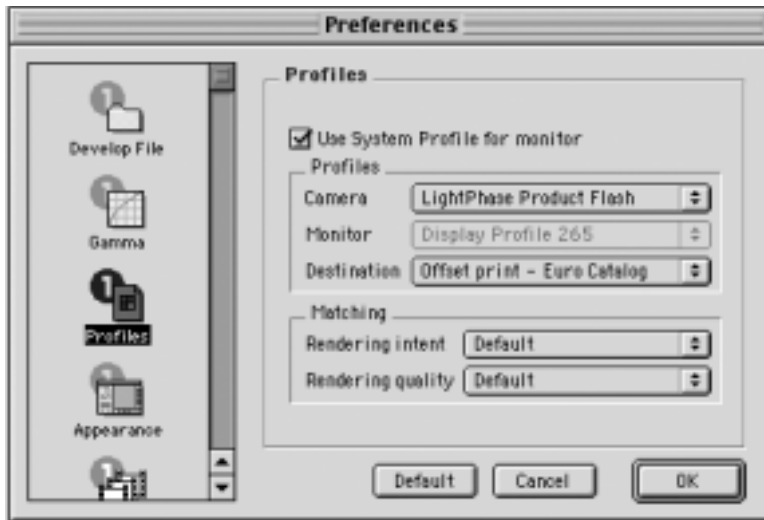
To use this feature first set the Profiles in the Preferences window.

Refer to the Profiles section of this manual for guidance. For more information on Color Management please refer to the Color Management User Guide

Open the Color Management window. Three options are available:

Apply to image data
The LightPhase software converts the colors of the image, using the specified settings.

In the above example the "LightPhase Product Flash" camera profile and the "Offset print - Euro Catalog" printer profile are selected. Firstly, the image is captured using a profile suited for flash photography. Secondly, after development the image will be specifically adjusted for the CMYK printing standards based on the "Euro Catalog" profile."

The Color Management window will also display "CMYK" in the "Output data" window to show that you are creating a CMYK file and the on-screen preview image will change to simulate the final printed photograph.

Embed camera profile
This option can be used to embed the ICC camera profile into the developed TIFF image. Use this option when the images are going to be edited on a computer that does not have the LightPhase software installed.
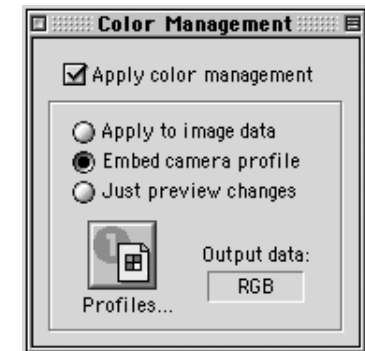
When a profile is embedded in an image, and the image is opened by Photoshop (or other ICC aware programs) the program will recognize the color characteristics of the camera back and ensure accurate color reproduction.

Just preview changes
When this option is selected, the on-screen image will change to simulate the printer or monitor set in the preferences, but the actual image data will not be adjusted when the image is developed.

This option is used to preview how an image will look in CMYK, without converting the image color data.

Because the LightPhase application is fully ICC compliant, it is an "open" system. Any ICC profile for any printer or monitor can be used. Place the desired profile in the "Color Sync Profiles" folder in the "System Folder". Restart the LightPhase program and the new profile will appear in the Preferences pop-up menu.

Using third-party software, customized printer or monitor profiles can be made and installed. This gives greater color management control of the work flow environment.

Develop Progress
The Develop Progress Tool is used to monitor development status. When opened a progress bar shows how much of the image has been developed and the name of the saved file.
The development can be paused, by checking the "Suspend processing" box, or cancelled, by clicking the "Cancel" button.
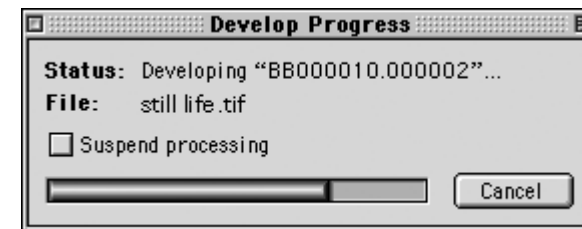
Camera Settings
The Camera Settings control is used to set the orientation of the image, if this is not set automatically, the ISO sensitivity, and the camera capture curve.

Sensitivity
There is a choice between 50 and 100 ISO. Changes can only be made when a camera is connected.
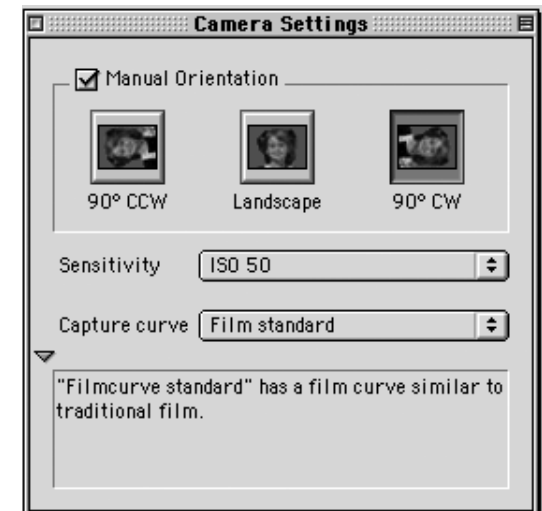
Capture curve

This tool enables a curve to be applied to the image without having to use the levels or curves control. For details on selecting curves please refer to **Software Set-up / Selecting film curves** for details.

Verifying focus via the focus tool

The tool is selected by clicking on the Binocular icon. While shooting, the focus tool can be used to verify the camera focusing and sharpening (USM) of the image. The focus tool performs an instant development of a small area of the selected image. This provides a very fast feedback on final image quality, in terms of focus, USM and Color Management settings.

Capture Navigator

Click on the "Capture Navigator" button to bring up the "Capture Navigator" palette. The capture collection can be quickly previewed by using the next, previous, first or last image buttons. Use the "ctrl" and arrow keys to navigate between capture files. Images can be deleted from the capture collection by clicking on the "Trash" button.
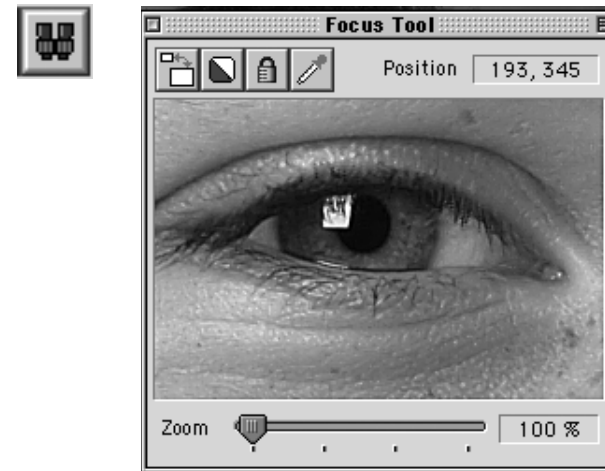
5 Preferences

Under the "File" menu is an option called "Preferences". Select an option from the left-hand side of the window and then set preferences on the right. It is also possible to change the appearance of the user interface.
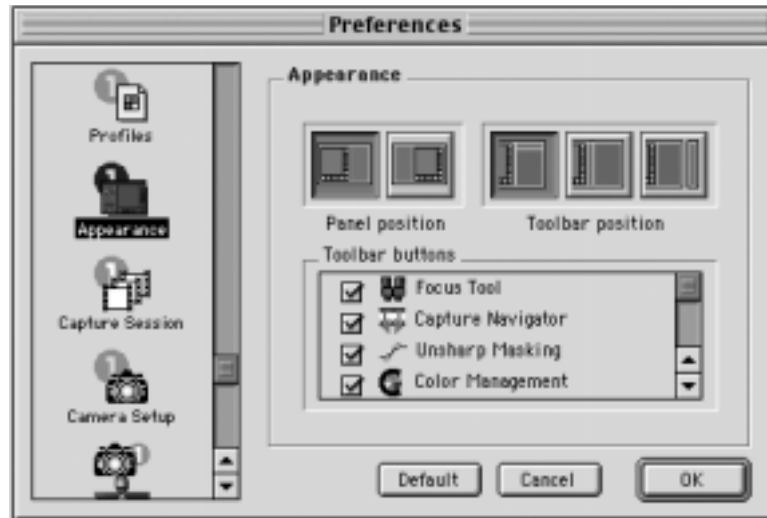
Develop File
The Develop File Section controls the naming, file location and other attribution settings.

Name Tab
The "Name" tab defines how the developed files are named. The LightPhase application can automatically name and number images as they are developed.

After the Name, a unique suffix can be added, followed by a number and finally a file extension, if desired.
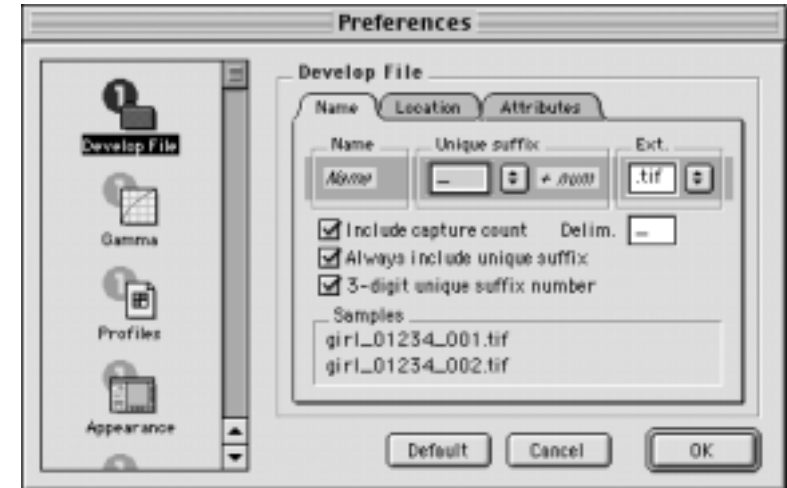
Three options are available and are previewed in the Samples window:

"Include Capture Count" will append the last five digits, of the capture number, to the file name. Further numbers can be added by using the Deliminator option. This gives accurate and easy identification of developed capture files.

"Always include unique suffix" adds a suffix and digit to the file name. This is a useful supplement to the default setting. Normally captures are identified with a pre-defined number, or name, and subsequent captures are numbered consecutively – for example "capture name", "capture name.2", "capture name.3", and so on. When the "Always include unique suffix" option is selected the developed files will be identified as "capture name 1 suffix", "capture name 2 suffix", "capture name 3 suffix", and so on. Finally it is possible to add the file extension in the Ext. field – for example " "capture name 1 suffix. tiff".

"3-digit unique suffix number" changes the naming from "capture name2" to "capture name002." This is useful when developing a series of images that must stay in sequence (36 images for a QuickTime VR object movie, for instance). When the images are named "001", "002", "003", etc, the Mac will display them in the correct order in Finder windows.

Location Tab
The "Location" tab is used to control where the developed images are stored. The default location for processed images is in the "Images" folder inside the "LightPhase" folder on the hard drive. A new folder can also be created or selected.
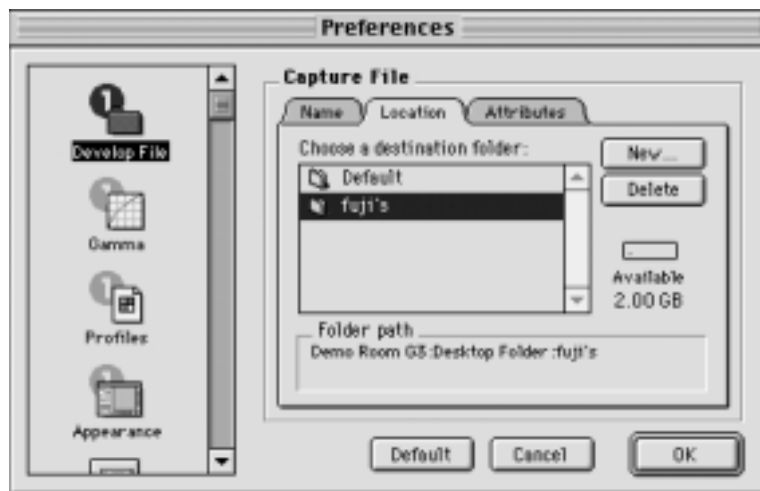
Attributes Tab
The following options are available:

"File Thumbnails" If checked, the LightPhase software will create a small thumbnail icon image of the file when viewed in the Finder of the Macintosh.

"Creator Code" The Macintosh uses a hidden creator code to control which program will be used to open a file when the icon is double-clicked. Select either Adobe Photoshop or LightPhase.

"After Develop" This setting is used to open the image, and change orientation, immediately after development.
To add an application to the list choose "Add application..." from the pop-up menu and then navigate to the desired program.

Finally it is possible to check "Use pre 2.x processing method". Capture files are then developed as if an earlier version of the LightPhase software were being used.
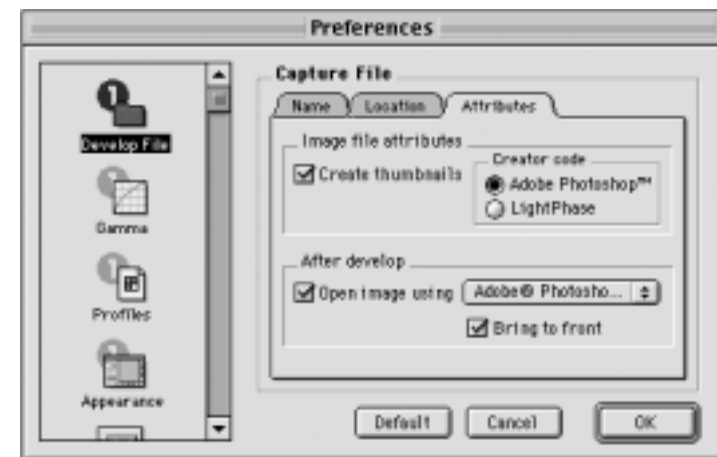
Gamma

The LightPhase application can apply a gamma curve to the file as it is developed. This is often needed for images that are going to be used in Photoshop or other imaging applications; a standard 1.8 Gamma curve is applied to all images by default.
However, some color management programs require images with a 1.0 Gamma curve.
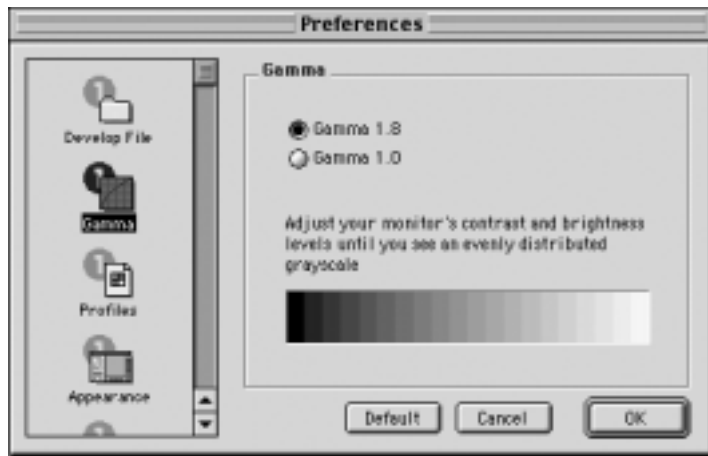
Profiles

To use Color Management effectively, the profiles of the camera, monitor and destination must be defined. If all three devices are not correctly specified there is a risk that the final image will not correspond to the captured image.

The LightPhase installs basic profiles for Phase One cameras as well as a generic monitor profile (Trinitron 1.8) and several CMYK printer profiles and RGB color space profiles.

Help in selecting the correct Color Management workflow and preference settings is provided in the Color Management User Guide.

A brief guide to preference settings is provided here:

Use System Profile for monitor – check to select the system monitor profile, or un-check to specify a monitor profile.
Camera – select a suitable profile for the current lighting and photography conditions.

Monitor – the option to specify a monitor profile. Phase One recommends that you use the generic "Trinitron 1.8" as your default ICC monitor profile.

Destination – select a printer (CMYK) profile, if the image is to be reproduced using a printing process, or select a screen (RGB) profile if the image is to be edited in Adobe Photoshop, or similar editing software.

The "Rendering Intent" and "Rendering Quality" settings should be left on "Default." The default setting allows the creator of the profile to choose the best setting.
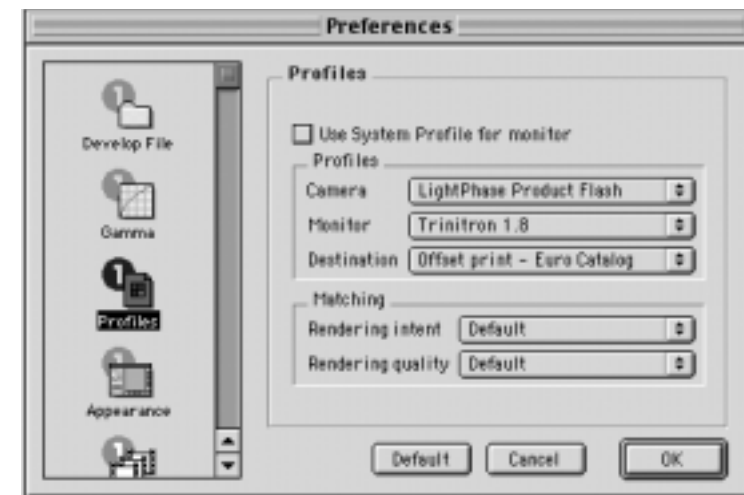
Any ICC compliant profiles can be used with the LightPhase. Once the preferences have been set select the "Color Management" icon from the Preview Window and choose "Apply Color Management".

Setting up ICC profiles in Adobe Photoshop 6.0
The recommended color set up in Abobe Photoshop 6.0 is defined by a color settings file called PhaseOne PS60 Defaults.csf. This color settings file is found on the enclosed CD-ROM under LightPhase Install/LightPhase/Goodies/Color Management Goodies/Photoshop 6.0 — Settings.

To install the settings file close Photoshop 6.0 and copy the file to the root directory under System Folder/Application Support/ Adobe/ Color/Settings. Then restart Photoshop and go to Edit/ Color Settings/Load and choose PhaseOne PS6.0 Defaults.

Further details are available in the Color Management User Guide

Camera Setup
The "Camera Setup" preference is used to control several basic camera functions. See the "Workflow optimisation" section of this guide for details.

Transfer Tab
The default transfer time, form camera to computer, is 1.5 seconds. If data loss is experienced slower transfer times should be specified.

System alert sounds can be specified to indicate when a capture is done and when the camera is ready to shoot another image.

Burst
The maximum number of captures – also expressed as a Burst - that can be stored in RAM, is dependent on the amount of physical RAM installed in the Mac

Color Tab
The color tab allows a change in the overall saturation level of images developed from the LightPhase software. The "Neutral" setting will yield images of neutral color balance, while the "Saturated" setting increases overall image color saturation. The "Saturated" options mimics the capturing colors of the LightPhase 1.02, while the "Neutral" option is a new, less saturated, option.

6 Capture Server

Being able to move captured photographs from computer to computer quickly is an important part of a workflow. This allows one photographer to be in the studio shooting while another connects to the capture computer and develops the images.

Phase One has written special software that allows the transfer of capture files over the IEEE1394 (FireWire) bus. This allows for almost seamless integration of two workstations. To set this system up two workstations must be connected together via IEEE1394 (FireWire) cables.

Preparing both workstations
After installing the LightPhase application on each workstation, disable the "LightPhase Driver" extension on the workstation that is to be used for developing. This prevents the developing station from trying to control the camera back. To disable the extension, move it from the "Extensions" folder in the "System Folder", to the "Extensions (Disabled)" folder on the hard drive.
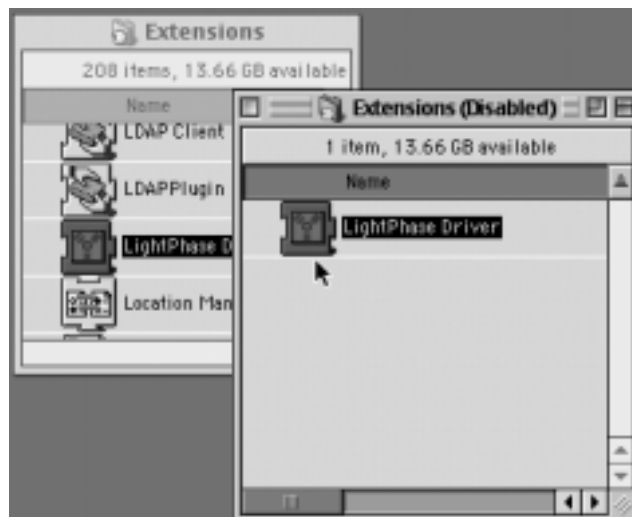
Once the software has been installed, and the camera back has been connected to one computer, both workstations must be restarted. The next step is to publish the capture folder on the capture station. This shares the capture folder with the developing workstation. The procedure is described below.

Setting up the capture workstation
From the LightPhase preferences, choose "Capture Server" from the options on the left. Click the "Add" button and then choose the main capture folder. Any sub-folder that contains captures will automatically be published at the same time. Select the folder from the list and then click the "Choose" button to publish the folder and return to the Capture Server preferences.
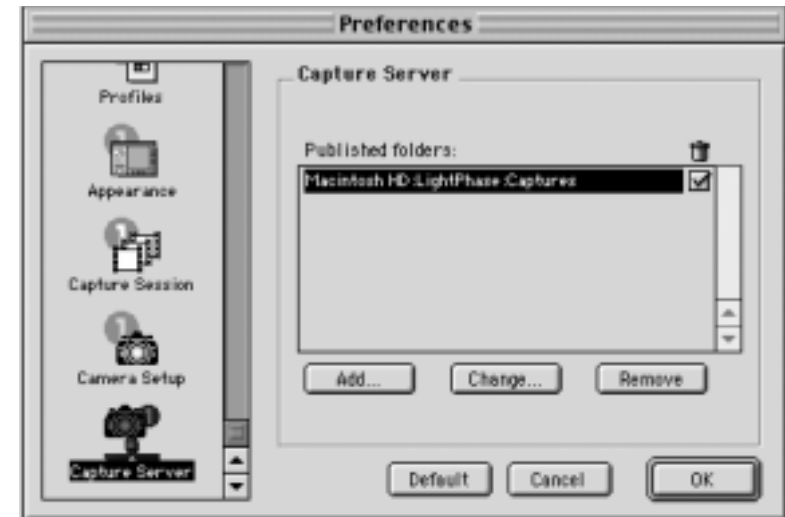
Refer to the "Organizing Images" section of this manual to determine the best way to organize capture files.

The selected folders are now published and will appear in the list. To specify additional capture folders click "Add" again, select the folders and click "OK" to return to the LightPhase program and begin shooting.

If the box in the "Trash" column is checked it allows a connected user to delete files from the specified capture file.

Setting up the develop workstation

Move to the develop workstation and launch the LightPhase program. An icon representing the capture workstation appears on the desktop.

There is now a new tab in the Capture Collection window that represents the capture workstation. Click on the "Select Folder" button and specify which published folder you wish to view.
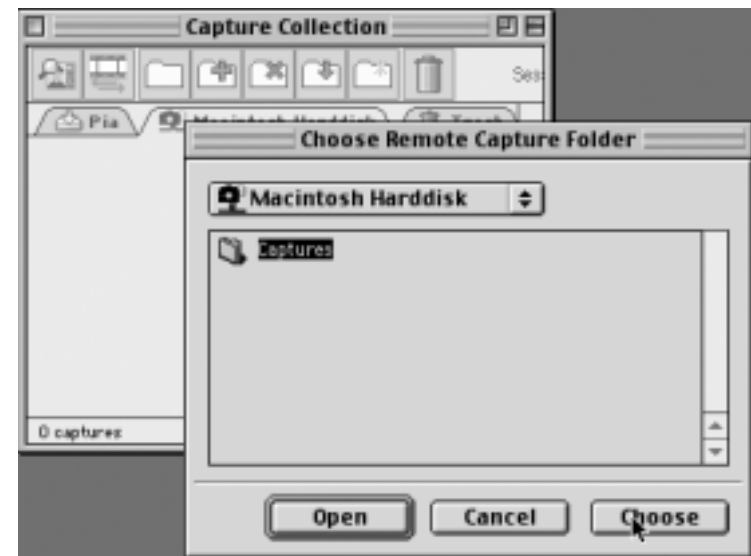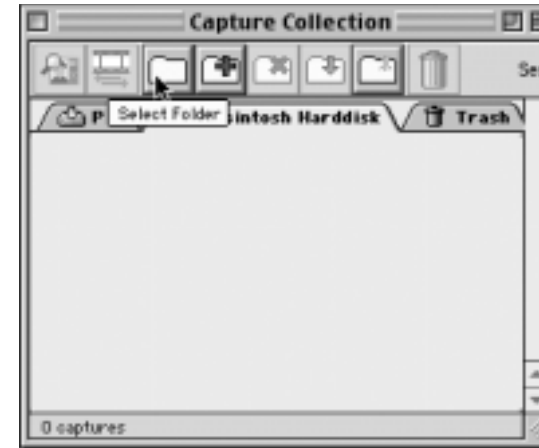
To develop an image you must transfer it to the developing station by clicking on the small icon at the top of the window.
After a few seconds the raw capture file will have been transferred and will appear in the local capture folder tab. The file can then be developed as normal.

7 Camera Info

The LightPhase has an "info" function that displays important information about the LightPhase. This information can be invaluable in troubleshooting problems. If you ever need to contact technical support, be sure to have this information available. To access this data choose "Info..." from the "Camera" menu. The following information box will appear:

8 Additional Features

Demoirize plug-in

The Phase One Demoirize plug-in for Adobe Photoshop is now introduced in a new and improved version, which allows the removal of moiré patterns from images by means of three different filtering modes: Advanced, Unicolor Textiles and Skin and Hair.

The plug-in is enclosed on the CD-ROM and will be placed in Adobe Photoshop's plug-ins folder when installing LightPhase Image Capture Software version 2.6.
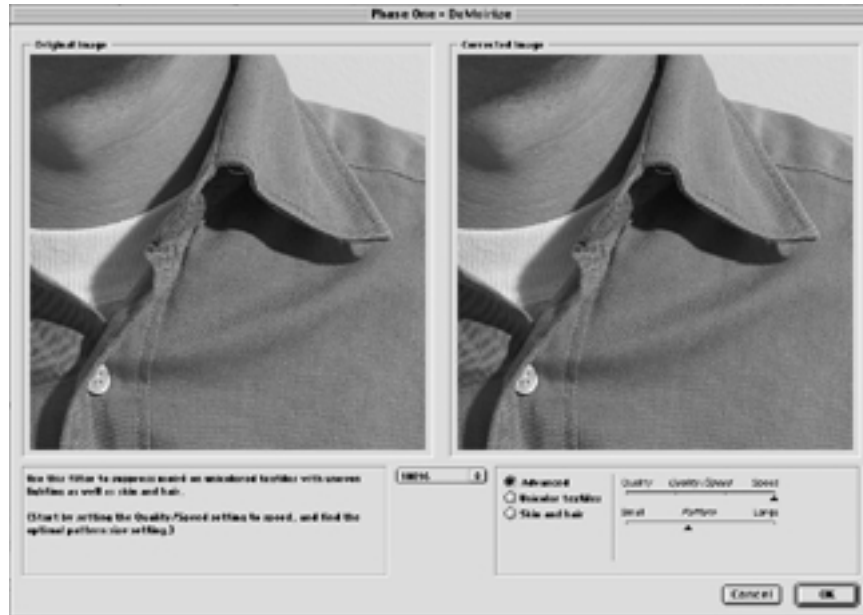
The Demoirize plug-in window is divided into two separate previews: Original Image, which displays the image before correction and Corrected Image, which displays the image after correction.

Advanced mode

Advanced mode is a new filter tool. It is also the default mode of the Demoirize plug-in. In advanced mode the filter estimates colors by means of the Quality/Speed slider and the Pattern Size slider. Often the color moiré is visible by multiple red/green or blue/yellow areas of discoloration. These areas of discoloration are seen as bands or stripes. The larger the band or stripe, the larger the pattern size setting should be.

Pattern size

The best way of finding the optimal pattern size is by setting the Quality/Speed slider to Speed while moving the Pattern Size slider towards Large. While moving the slider the effects of corrections are seen on the screen. Selecting a larger than necessary pattern size will not generally enhance the result.
A circular arrow icon that turns indicates that the Demoirize filter is currentlycalculating image data.

Quality/Speed

When large areas of moiré stripes and bands are present the Quality/Speed slider should be set towards Quality, at the cost of Speed. Use the Quality setting when details smaller that the selected pattern size should be less affected by the filtering.

Using advanced mode on skin and hair

For skin and hair surfaces the optimal settings for the advanced filter would be to position the Quality/Speed slider at Speed and the Pattern Size slider very close to Small. Please note that large color moiré areas in hair may require a larger pattern size setting.

Using advanced mode on textiles

On textile the optimal settings for the advanced filter would be to position the Quality/Speed slider towards Speed, or in an intermediate position. Then move the Pattern Size slider to the smallest possible setting.

In many cases the masking of unicolored, or nearly unicolored areas, may be carried out less accurately with the advanced filter compared to the Unicolor textiles filter. Since masking depends very much on the type of image, it is recommended to test different masking and filter settings.

9 Trouble shooting

If technical problems are experienced when working with the LightPhase or Phase One H 20 it may be necessary to contact Phase One's Technical Support department.

Phase One recommends that you do a screen dump of your system configuration. This can be done in the menu Camera - Info, then press Apple-Shift-3 to generate a screen dump of the current settings. This screen dump file can be found in the root of the main hard drive and is named Picture #.

Also, please make a system report of the Macintosh computer system. This can be done with the Apple System Profiles found in the Apple menu. Fax or e-mail your Camera Info and the Apple System Profile to Phase One's Technical Support department.
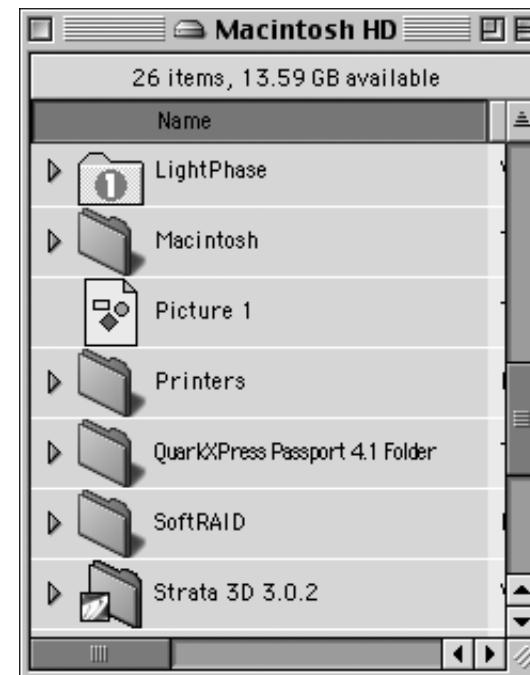
10 Strobe Equipment

Strobe Equipment Compatibility

Phase One's single shot digital imaging systems support photographic strobe equipment that is regulated by the ISO standard 10330. However, since some strobe equipment does not comply with this standard, Phase One has expanded the LightPhase /Phase One H 20 tolerances past those of the ISO standard.

If your strobe system does not comply with the above-mentioned ISO standard please use the tolerances in the below tables as reference.

Trigger specifications for older LightPhase units (S/N # BB00/01)

LP Batch 0/1	ISO Standard Max.	LightPhase Max.
Voltage*	24V DC	300V DC
Current**	100mA	130mA
Fall time***	1ms	20ms

Trigger specifications for new LightPhase/ Phase One H 20 (S/N # BB02/03, BK, BM, BQ)

LP Batch 2/3	ISO Standard Max.	LightPhase Max.
Voltage*	24V DC	500V DC
Current**	100mA	1A
Fall time***	1ms	1ms

Notes:

* Voltage across the sync terminals of the camera and the ignition terminals in the flash

** Current through camera sync terminal

*** The time it takes for the camera to short-circuit

Also, please note that many of the strobe systems in the below tables have not been thoroughly tested by Phase One. However, if they carry a "+" under status, then they either comply with the above-mentioned ISO standard or stay within the max./min. limits below.

Strobe compatibility with all LightPhase/ Phase One H 20 (S/N #: BB00/01/02/03, BK, BM, BQ)

Strobe Systems	Status	Strobe Systems	Status
Balcar P4 pack	-*	Lumidyne Voltage Regulator	+
Bowens Estime 3000	-	LPA Design LVT Trigger	+
Bowens Estime 250(old)	+	Metz 60ct-4 Handheld	+
Broncolor IRI (old)	-	MultiBlitz Varilux	+
Broncolor IRS 2 (old)	-	MultiBlitz Compact 300	+
Broncolor Graphite	+	Norman P40/40	+
Broncolor Fashion	+	Norman P24/24	+
Broncolor Opus4	+	Norman P800D	+
Comet S-2400A	+	Norman P404	+
Comet ALS-2400A	+	Norman 808	+
Comet SS-600	+	Norman Monolite	+
Comet CA-1600	+	Norman P2000	+
Comet CX-124T	+	Norman P1250D	+
Comet CX-124III	+	Norman 2000PS	Warning
Comet CB-2400III	+	PocketWizard Radio Link	+*
Comet CRW-1200	+	Profoto ProCompact	+*
Comet CT-150	+	Profoto ProPack	+*
Comet PMT-1200	+	Profoto Acute 12A	-*
Comet CT-08	+	Profoto Pro 6	-*
Comet ILS-800D	+	Profoto Pro 7	+*
Dynalite M1000XR	+	Quantum Radio Slave IV	+
Elinchrom 1500 Classic	+	Speedotron 1205 Pack	-
Elinchrom 3000 Classic	+	Speedotron 2405cx Pack	-
Elinchrom 6000 Classic	+	Speedotron Black Line	-
Elinchrom Micro Compact	+	Speedotron Braun Line	-

Elinchrom Micro 1500AS	+	White Lightning 5000 (old)	+
Elinchrom Micro 3000AS	+	White Lightning 10000	+
Elinchrom Micro 6000AS	+	White Lightning Ultra 600 (old)	+
Godard Sotexi 160	+	White Lightning Ultra 1200 (old)	+
Hasselblad Visatec Solo 1600	+	White Lightning Ultra 1800 (old)	+
Hedler	+		
Hensel Monomax	+		
Hensel Nova	+		
Hensel Linea	+		
Hensel Logica	+		
Hensel 500	+		
Hensel 1000	+		

Notes:

Warning: Norman 2000PS produces strong voltage should never be used with LightPhase

* = More tests need to be carried out - if in doubt please contact Phase One or send the above trigger specifications to the strobe manufacturer

Strobe compatibility with new LightPhase/ Phase One H 20 (Only S/N #: BB02/03, BK, BM, BQ)

Strobe Systems	Status	Strobe Systems	Status
Bowens Estime 3000AMF	+	PowerLight PL 300DR	+
Bowens Estime 3000ASC	+	PowerLight PL 1250	+
Bowens Esprit 2 125	+	PowerLight PL 1250DR	+
Bowens Esprit 2 250	+	PowerLight PL 1250DRG	+
Bowens Esprit 2 500	+	PowerLight PL 2500DR	+
Bowens Esprit 2 1000	+	StudioMax PG 4001ML	+
Bowens Esprit 2 1500	+	StudioMax PG 3001MLB	+
Bowens Duo	+	White Lightning Ultra Zap 800	+
Bowens Equipe	+	White Lightning Ultra Zap 1600	+
Bowens Redwing	+	White Lightning Ultra Zap 2400	+
Bowens Travelite	+	White Lightning X800	+
Bowens Prolite (old)	+	White Lightning X1600	+
Bowens Traveller "G" (Old)	+	White Lightning X2400	+
Broncolor IRX 2	+	White Lightning X3200	+
Broncolor IRQ	+		

For further information please contact Phase One or your local Phase One dealer.

11 Windows: Getting Started

The LightPhase/Phase One H 20 has been designed for ease of installation and use. There are just a few easy steps to follow, from unpacking the LightPhase to developing the first shot.

- Connect hardware, install software
- Launch the LightPhase application
- Determine the exposure and shoot
- Select images to develop from the Capture Collection
- Gray Balance
- Crop desired image
- Adjust Gradation Curve/Tonal Range
- Set any desired Color Management, naming, etc.
- Click Develop

The following sections have all of the basic information you need for getting started, step by step.

Hardware Setup

Set Up
The camera back connects to the computer via an IEEE 1394 connection. This new, extremely fast connection does not have many of the limitations of the SCSI technology used in previous digital cameras. Many of the problems related to SCSI such as setting ID numbers, termination, and not being able to "hot-plug" (having to shut down before unplugging the device) are nonexistent with 1394. The cable length can be extended using the Phase One Power Conditioners to move the camera far from the computer.

Install the PCI IEEE 1394 card (if required.)
While the owner's manual for the particular computer should be consulted, the basic steps to installing the card are as follows:

1) Shut down and unplug the computer.

2) Remove the cover, exposing the motherboard.

3) Choose an empty PCI slot and remove the screw and cover.

4) Gently place the card into the slot with the 1394 connectors facing through the opening.

5) Press straight down and slightly rock the card until it is firmly seated in the slot.

6) Replace the screw to hold the card in place.

7) Replace the case, restart the computer

8) On a Windows computer after restarting, a dialog box appears indicating that Windows found new hardware (the IEEE 1394 card). There may be a prompted for the Windows 98/2000 CD if Windows cannot find the driver.

Optimising IEEE 1394 transfer speed
The default transfer speed is set to 60% or 80% bandwidth depending on the IEEE 1394 controller and the LightPhase model. On most computers (400 MHz and beyond) the transfer rate can easily be increased to 100%. If data dropout or lost frames is experienced - for instance if the LightPhase Image Capture Software warns of lost frames or if the captured images appears to be damaged in any way - then transfer speed must be reduced. See **Image transfer time.**

Photographic Equipment Set-up

In addition to setting up the computer, the camera must be prepared to work with the LightPhase/Phase One H 20. This involves a few simple steps:

1) A Ground Glass Mask is included. This must be installed in the viewfinder to ensure correct framing. Remove the camera viewfinder and focusing screen (refer to the camera users manual for detailed instructions).
Insert the Ground Glass Mask and replace the viewing screen and the viewfinder.
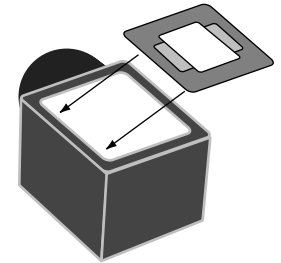
2) If a Mamiya RZ67 Pro II is used, connect the mounting plate to the camera and then connect the cable from the mounting plate to the connector on the front of the Mamiya.
Be sure that the cable is connected and locked properly; the latching mechanism will be on the bottom.

3) Connect the camera back to the camera or mounting plate.
Be sure that the camera back is firmlyconnected to the camera before releasing! The small screw on the top of the camera back can be tightened with the supplied screwdriver to prevent it from being accidentaly removed.

Cable Connections for the LightPhase Mamiya

4) Connect the included Sync Cable from the lens' flash sync to either the connector on the camera back marked "C" or the the Mamiya Mounting plate.

5) If using a motorised camera, connect the included Motor Cable to the connector on the right side of the camera back marked "M".

6) If flash is used then connect the Flash Sync Cable (not included) from the strobes to the connector on the right side of the LightPhase marked "F".

7) Finally, connect one end of the included IEEE 1394 cable to any one of the empty ports on the newly installed card, or the built-in 1394 port. Connect the other end to the camera back. These cables can only be inserted one way and may require a little pressure to insert. Consult the section of this manual on the usage of the Phase One IEEE1394 Power Conditioner/Repeater if required.

8) Please note: For the Mamiya RZ the camera must be set to take multiple exposures in order to use the LightPhase or H 20.
The multiple exposure selector (M) is combined with the film back revolve switch (R).

Updating the Camera Software/Firmware
Phase One generally recommends upgrading the LightPhase with the latest camera software (also referred to as firmware) in order to benefit from stability and performance improvements.The Camera Updater program will indicate if the latest camera software is already installed. If an update is needed, it automatically downloads the camera software into the LightPhase camera. There is a dedicated Camera Updater program for each LightPhase model.
The appropriate updater is enclosed on the CD-ROM in the Camera Updater folder. If the LightPhase's serial number begins with BB02, then select the BB02Updater, and so forth.

Before installing the Camera Updater
Shut down all other programs including the LightPhase Image Capture Software. Disconnect all third party IEEE 1394 devices that were NOT delivered by Phase One.

Installing the camera software/firmware
Select the Camera Updater that corresponds to the LightPhase model. Note that the LightPhase model BB02 requires BB02Updater, as previosly described. Connect the LightPhase, run the Camera Updater software and follow the instructions displayed on the screen.

Please note
The Camera Updater should not be interrupted. If intteruption occours please repeat the procedure. The camera update may take several minutes to complete. Re-connect the LightPhase once the update is completed

Other Photo Equipment

While the LightPhase has been made as compatible as possible with photographic equipment, there are a few issues to be aware of:

1) When using the LightPhase with a Hasselblad 555ELD, the setting on the front of the Hasselblad needs to be in the "Film" position.

2) When using the LightPhase on a view camera use the "Two Shot Mode". This means that the shutter release is activated twice. To shoot an image, release the shutter, reset it, and shoot again. The first shot wakes the camera up, and the second is the actual exposure. Alternatively, pressing the "Capture" button in the preview window will wake the camera up and then the shutter can be fired once to take a photo. The camera will remain "awake" for 20 seconds or until the next capture.

3) When used on a Mamiya RZ67 Pro II the selector on the right side of the camera body must be in the "M" position.

4) The LightPhase fully conforms with the ISO 10330 Standard for Photographic Strobe Systems; unfortunately not all strobe manufacturers comply with this standard. Check with the manufacturer of your strobe system to prevent damage or inoperability of the LightPhase.

5) The "Strobe Equipment" section of this guide provides a list of devices that have been tested with the LightPhase.

LED Indicators Lights
On the back of the LightPhase are two sets of LED indicator lights. A red and green light on the left and a red and green light on the right. The left and right pairs are identical and should always display the same thing. These lights indicate the camera back status.

The list below describes what the status lights indicate:

Green Lights Steadily On
This means that the LightPhase is receiving power and is ready to capture images.

Green Lights Flickering
After capturing an image the green lights will flicker on and off while transfering the image to the computer.

Both Red and Green Lights Steadily On
If the camera is improperly shut down or an error occurs both sets of lights may stay lit. If this happens, quit the LightPhase software, unplug the camera back and wait ten seconds, then replug the camera.

No lights On
If the camera is properly plugged in and receiving power and their are no lights on, the camera back has shut down or may be damaged.
Unplug all connectors, inspect all cables for damage, examine the IEEE 1394 card (if in use) for proper installation and reconnect everything. If the problem persists, contact your Phase One distributor for assistance.

12 Install the LightPhase Software

After the computer is restarted, the software that will control the IEEE 1394 card must be installed, as well as the software for the LightPhase. We have included one easy-to-use installer that will place all of the necessary software on the computer.
Follow these steps to install the software.

1) Place the included CD-ROM into the CD drive. Double-click the CD-ROM icon.

2) Double-click the item marked "LightPhaseInst.exe"
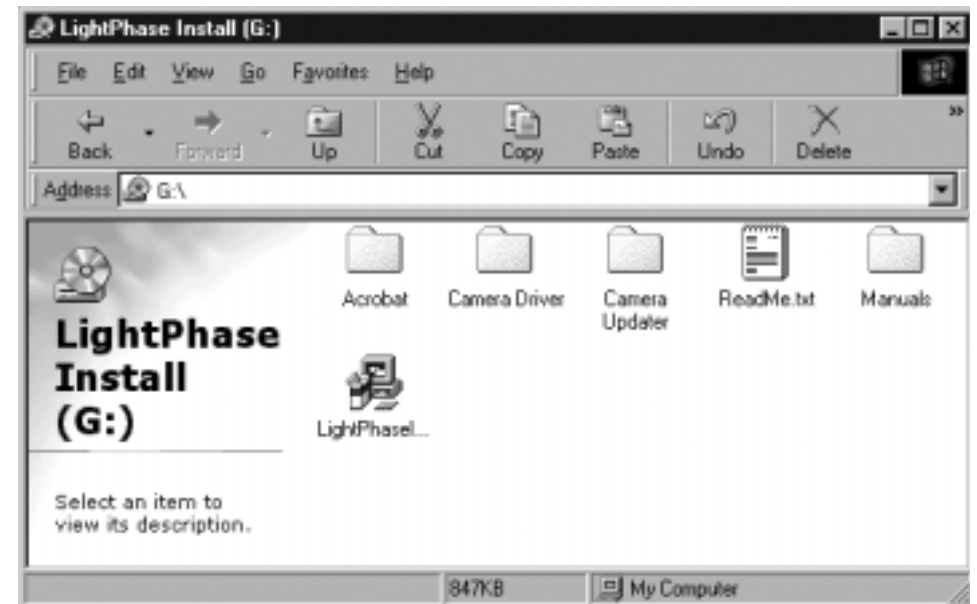
3) Read the software license, and, if in agreement, click the "Agree" button to continue with the installation. Otherwise, click "Cancel" to quit the installation

4) When prompted for the Adobe ® Photoshop® "Plug-Ins" folder, choose the correct folder from the list. Be sure to choose the Photoshop folder, as there may be many different plug-in folders on the hard disk. If installation is made on a non-english PC, the installer may not be able to locate the Photoshop® plug-ins folder, so be sure to select the proper plug-in location.

5) Follow the on-screen prompts. When the installation is completed, restart the computer.

Once restarted, plug the camera back into the IEEE1394 port. The driver for the LightPhase/Phase One H 20 is automatically copied into the Windows driver directory during installation and this should ensure that the Driver Wizard does not appear when the camera back is connected for the first time. If Windows does detect new hardware (the camera back) and asks for a driver, then click on the "Browse" button and direct the Driver Wizard to the "c:/lightphase/" directory for the correct driver file.

Floppy disk installation for portable solution

If the LightPhase portable solution is used, then installation can be performed from a floppy disk instead of from a CD-ROM.
Copy the file LightPhaseInst.exe from the CD-ROM to a floppy disk and run LightPhaseInst.exe on the portable computer.
Install the LightPhase Capture Transfer, which is located in the Capture Transfer folder on the CD-ROM, the same way as with LightPhaseInst.exe.
Restart the computer after installation.

Installed Items
The installer creates a folder on your hard disk called "LightPhase." This folder contains the LightPhase application as well as several sub-folders. They are:

Captures
As photographs are taken with the camera, this is the default location where raw capture files are stored. This folder can be changed by choosing a different "Capture Collection" Folder as described later in this manual.

Previews
The LightPhase application automatically creates a low resolution (approximately 1MB) preview image to use for color and tonal adjustments. All preview files are stored in this "Previews" folder. If any files are deleted from here the program will automatically generate new previews the next time the LightPhase application is started.

Images
By default developed images will be placed in this folder. Again, the LightPhase preferences can be used to change where developed files will be placed.

Using the LightPhase/Phase One H 20
Phase One has made using the LightPhase/Phase One H 20 as close to using film as digital photography can be. The first step to using the camera back is to start the application.
Double-click the LightPhase shortcut.

If preferred open the folder called "LightPhase Application" on the hard drive and then double click the "LightPhase" icon.

LightPhase
Image
Capture 2.6

This will start the application that controls the camera back. After a few seconds the software will make a small "click" sound and the camera will beep. These two sounds indicate that everything is ready.

In practice the LightPhase can now take pictures. However before shooting it is a good idea to ensure that the software settings are optimal. This will ensure the best possible image quality and workflow.

13 Software Setup

At this point it may be a good idea to set-up Photoshop and the system for Color Management. A brief guide to Color Management and Profiles is provided in the Tools section of this manual. For detailed information on Color Management and Profiles please consult the Color Management User Guide.

Taking Photographs

The LightPhase/Phase One H 20 is designed for ease of use and high performance. First time digital photographers, as well as experienced digital photographers, can immediately begin taking images of excellent quality. The LightPhase can capture one image every 1.5 seconds, or once every 3 seconds for the Phase One H 20.
The camera makes a small "beep" when it is ready to capture the next image. If an attempt is made to shoot too quickly the camera will still respond, but images will not be recorded.

Technical note:

The camera back has a choice of two sensitivities: 50 ISO or 100 ISO. As a rule, when working with long exposures, an exposure based upon 50 ISO at 16 seconds will yield a better quality image than an exposure based upon 100 ISO at 8 seconds. ISO values are selected in the Camera Settings dialogue box. Settings can only be changed when the camera back is connected to a computer.

Take a light reading. Just as with traditional film photography, exposure is critical. Because of the wide dynamic range (similar to the "exposure latitude" of film) the software can compensate for a certain amount of underexposure, but not overexposure. Once an image is overexposed, there is no detail for the software to work with and no hope of correcting the image. For this reason it is important never to unintentionally overexpose.

The LightPhase software offers several tools to help evaluate the exposure of an image. Compatible shutter speeds range from 16 seconds to 1/20,000 sec. For general strobe photography it is recommended to use an exposure speed between 1/60 sec and 1/500 sec. Finally, select the desired aperture.

Selecting film curves

A film curve can be compared to a gradation curve. It shows how light values, recorded by the CCD, will be converted to light values in the image data file. Four different film curves can be selected in the LightPhase application. Before each photo session, select the correct film curve for the type of work you are doing.

Film standard: A default film curve, which can be applied for general pupose photography.

Film extra shadow: A curve similar to the Film standard, with increased shadow detail.

Film outdoor: A film curve suitable for high contrast outdoor photography, with increased highlight detail. 100 ISO only.

Linear response: Film curve that gives exact linear response. It is especially useful for scientific photography with very low contrast scenes. This film curve should be used with care as there is an inherent risk of over exposure in highlight areas.

Selecting landscape or portrait orientation

The LightPhase can be mounted on a wide range of professional medium format cameras, technical cameras (also referred to as view cameras) and other camera systems where image orientation is not automatically detected. Here camera orientation must be determined manually in the LightPhase Image Capture Software. Select the desired camera orientation in the Preferences dialogue box. Images will automatically be rotated to landscape or portrait orientation.

Organizing Images

Creating folders to hold captures and choosing session names, before or during shooting, will save time during the processing stage.

If, for instance, there is a photo session of a model with three different colored outfits, three separate session folders can be created in advance. When shooting, just select one of the three folders for image storage. Organizing files as you are shooting will save time later when you want to print a contact sheet or archive files.

Creating sessions

The Session Creator is a new feature that enables the photographer to create a capture folder, associate this capture folder with a new collection tab and assign a dedicated develop folder, in one simple operation.
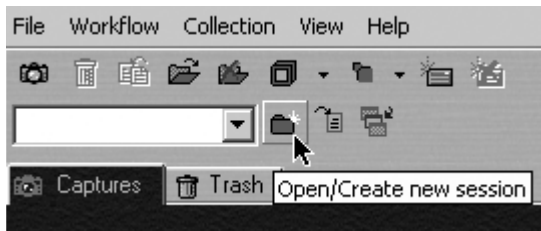
The Session Creator becomes even more effective if all captures are stored relative to a fixed location. In this case the path to the fixed location is C:\LightPhase\Captures\Red.
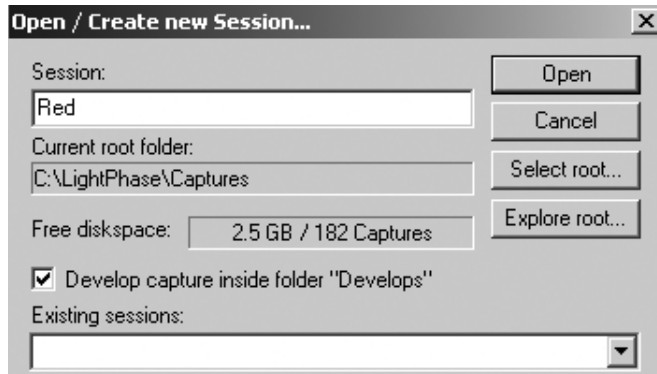
All developed capture files are stored in a sub folder called Develops (C:\LightPhase\Captures\Red\Develops), which is automatically created by checking the box Develop capture in the Session Creator dialogue box.


The capture folder thus created is automatically set as the current capture folder and capture files are named according to the session name — in this case "Red". The name can be altered at any time during shooting.

If exporting previews, the Preview Exporter will create an additional folder called Exported Previews
(C:\LightPhase\Capture\Red\Exported Previews).

Please note

The Session Creator is an alternative to the traditional collection creation method, it does not replace it. Capture folders and collections can still be created outside the so-called root folder of the hard drive. For fast creation of a new collection tab a folder can be dragged from the Explorer directly into the LightPhase Image Capture Software.
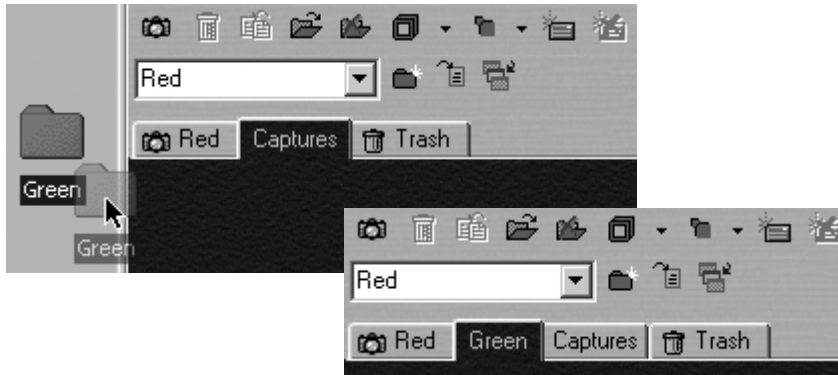
Note that the path to this particular session is C:\Documents and Settings\rha\Desktop\Green. This is because it was dragged from the computer "desktop" directly into the Capture window.

Files can also be named and numbered automatically. The Capture naming tab is located under the File/Preferences. Enter a name in the "Session" field of the Capture Collection window. All subsequent captures will now be named accordingly. To automatically add a number to each capture, open the Capture Session Preferences window and enter a number in the "Unique suffix" field. There is a maximum of six digits. Check the box next to "Always include unique suffix" and a sample of the naming and numbering will appear.

The capture name is also used for the developed images unless the box is unchecked.
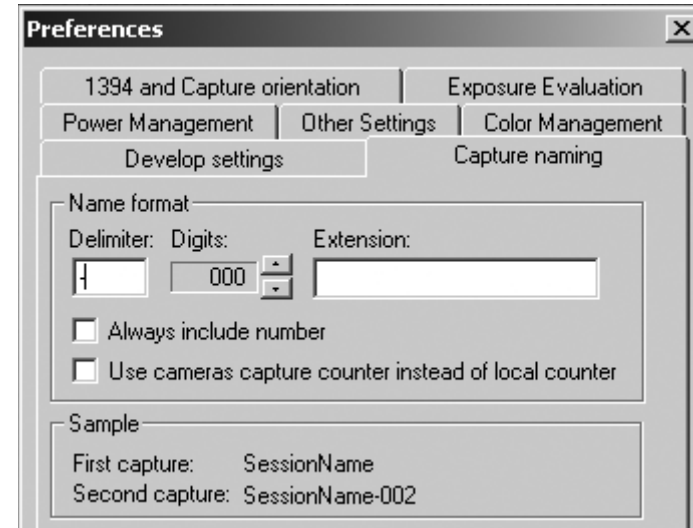
Image names can be altered at all times by clicking on the capture name field at the bottom of each preview.

Workflow optimisation

If the PC is connected to a network, capture collections can be created on another computer. Using a network to improve workflow allows one photographer to concentrate on shooting whilst another photographer edits and develops the session. For details, please consult the 1394 Capture Transfer section of this manual.

Technical notes:
To optimise the capture rate, there are three factors to consider:

The image transfer time.
Host computer speed.
Preview generation.

Image transfer time
The image transfer time is set to 1.6 seconds as default.
The transfer time refers to the time it takes to transfer images between the camera back and the host computer. With a fast computer e.g. 400MHz Pentium II or more, with an OHCI-based IEEE 1394 adapter, the transfer time may be reduced to 1.0 second. However, if data dropout, or lost frames, is experienced then reduce the transfer time. The image transfer time can be changed by selecting the **1394 and Capture Orientation** tab, which is located under File/Preferences.

Host computer speed:
The speed of the host computer influences the capture rate.
The best way to ensure a reliable capture rate (number of captures per minute) is by using a fast hard drive with an average speed of 20MB/second and sufficient RAM to minimise paging or operating system interference. 256MB RAM is recommended for stationary computers whereas for notebooks, for example a Sony Vaio, 128MB RAM is sufficient.

Preview generation:
Preview generation is time consuming for the computer. Viewing previews after a session allows the computer to work faster.
Disable preview generation by selecting Rapid capture mode from the toolbar.

Re-generate all missing previews at a later time by simply clicking on the Refresh button in the capture collection window.
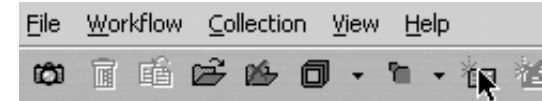
Although no preview is generated in Rapid capture mode the software still displays a memory-based preview of the captured image and performs exposure evaluation. On a fast stationary computer the capture rate improvement is barely noticeable, however, on notebooks it could amount to 5 captures per minute.

14 Editing and Selecting Images

The Phase One LightPhase software main window is divided into three sections that make it functional and easy to use.
The sections are:

Capture Collection

The Capture Collection is located on the left side of the interface screen and will show a small thumbnail of the images in the currently selected capture directory. The size of the thumbnails can be changed by using the drop-down menu in the toolbar.

Preview Window

The preview window shows an enlarged version of the image in the Capture Collection. To move an image from the Capture Collection to the Preview Window, simply click on it's thumbnail in the Capture Collection.

Function Window/Function Tabs

On the right hand side of the main interface is the Function Window. The options in this area change depending on which of the function tabs is selected. The tabs are: Preview, Gray Balance, Exposure, Focus and Develop. The use of these tabs will be covered later in this manual.

Editing

The Capture Collection is similar to a contact sheet. It displays thumbnail images of all of the photos taken with the camera.
Two captures can be evaluated side by side. This is done by selecting the side by side icon from the tool bar.

The main purpose of side by side evaluation is to make it easy to select the best capture from a range of almost identical capture files.

Deleting Images

To delete an image, simply drag the thumbnail into the "Trash" tab or click the thumbnail and

press the "Delete" key on the keyboard. The image will now be held in the Trash Capture Collection. Click the "Trash" icon at the top of the screen to remove all of the trashed images.
This safety measure helps prevent accidental deletion of images.
To "un-delete" an image, drag it out of the Trash tab and back into one of the Capture Collections.
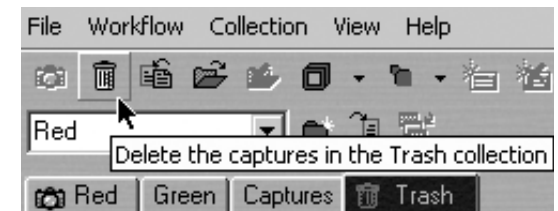
Once the trash has been emptied the images are gone for good, so be careful!

Images can be instantly and permanently deleted by selecting them and then pressing "Control-Delete" on the keyboard; be careful when using this feature! Once an image is deleted it is gone forever.

Previewing

While the Capture Collection is a good place to evaluate images quickly, the Preview Window will provide a much better view of an image. To preview an image, choose one of the images from the Capture Collection and click it.

The thumbnail will then open in the larger Preview Window. The Preview Window provides improved image evaluation, as well as tools for adjustment of exposure, contrast, sharpness and color of the photo.

Function Tabs and Window

The Function Tabs add features to the LightPhase software without adding the clutter of multiple dialog boxes. Click on a tab to change the contents of the Function window and to enhance and evaluate the image before developing. The tabs are arranged in a logical workflow sequence.

Capture Tab

The Capture tab is the option used most while shooting. This tab shows basic information about the most recently captured image. The top part of the window displays a histogram.

Exposure Window

A histogram is simply a graphical representation of where the pixels are distributed in an image. The right hand side of the graph represents white or light colored pixels, while the left is dark or black pixels. If the image is of a light colored scene (or is overexposed) then most of the pixels (and the graph data) will be to the right.
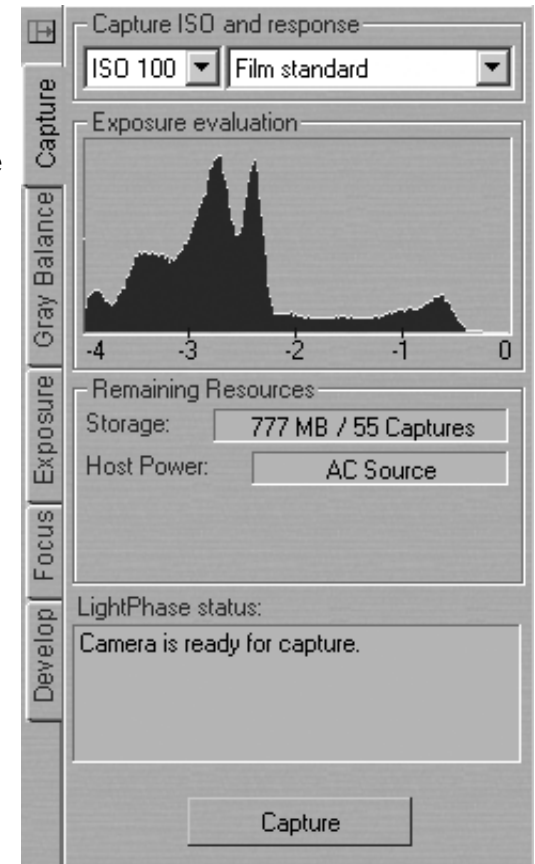
Conversely, if the image is a dark subject (or is underexposed) then the data will all be to the left side of the graph. A well exposed image of a "normal" scene will have most of the graph data spiked in the middle with some highlight and shadow pixels to the right and left.
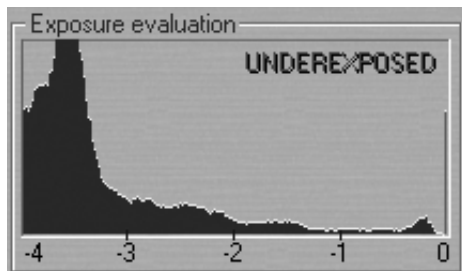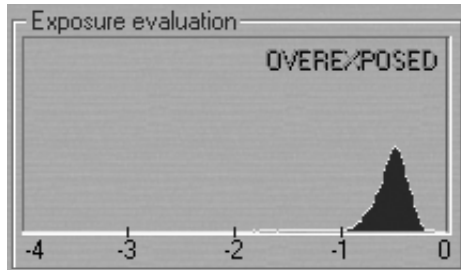
The Exposure area also has a powerful feature that can warn of overexposed, and underexposed, images.

Remaining Resources

Also in the Preview Tab window is the section called Remaining Resources. This section helps gauge how much hard disk space is available. Some laptop computers also support a battery display which indicates the charge level.

The Power status indicator will display battery strength, AC source status, as well as the status of the LightPhase battery, if used.
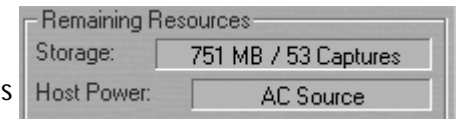
For this feature to work correctly, settings must be altered in the Windows Power Management Control Panel. (Start > Settings > Control Panels > Power Management/Options). Set the "Power Scheme to be a "Portable/Laptop"

Gray Balance Tab

When shooting film under various light sources, such as flourescent or tungsten lighting, compensation for color cast is made by using filters. With the LightPhase compensation is made by changing the gray balance.
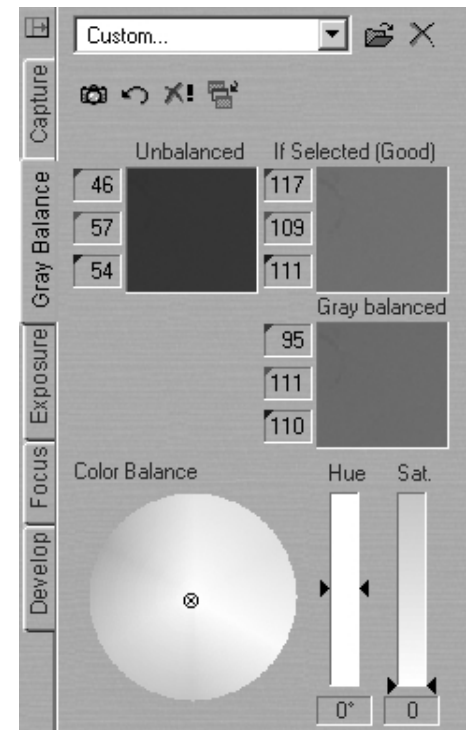
Unlike many other digital camera systems Phase One has made the Gray Balance feature of the LightPhase application easy to use. Simply follow these steps:

1) Open the image to be processed in the Preview Window.

2) Choose the "Gray Balance" tab

3) Click the pointer on an area of the image that should be neutral gray. If there is nothing in the scene that is white or gray, include something such as a Kodak Q14 Step Wedge.

4) To help select a suitable area for gray balancing, if no Kodak Q14 Step Wedge is available, the **If Selected** image area will indicate either Poor or Good.

After completing these steps the image is completely neutral with no color cast.

There may be conditions where perfect nuetrality is not always desirable. For instance, when shooting in the late afternoon the warm reddish glow from the setting sun may be an asset. To adjust the gray balance use the Color Balance selector at the bottom of the Graybalance window. There are three controls in this section based on the HSB color model: Color Balance, Hue and Saturation. The appropriate gray balance is set by using the slider controls.

Finally there are four options designed to help in the gray balancing process.

Set as Capture gray balance
The selected gray balance is applied to all future captures.

Restore
All adjustments to the gray balance are cancelled and previously defined values are used.

Reset
All color balancing is cancelled.

Apply gray balance to current captures
The selected gray balance is applied only to current captures.

Color Info

One of the most important displays of the Exposure Window is the "Color Info" window.

This display shows the individual **R**ed, **G**reen and **B**lue (or **C**yan, **M**agenta, **Y**ellow and blac**K**) channel information. With film photography the evaluation of final exposure and development levels is a manual, and often subjective, process. With digital photography accurate evaluation is made using the Color Info picker. By pointing the on-screen cursor at any point in the image you can read the precise values of that point in the Color Info display. Knowing the precise values of any part of the image is useful when full control of the printing process is needed. As printers, and printing processes, have individual characteristics, exposure levels can be adjusted to ensure a predictable and perfect result.

Values in the Color Info display are represented as a numerical scale from 0 to 255.
A completely black pixel is represented as 0, a completely white pixel as 255.

Again, it is important not to overexpose an image when using the LightPhase/Phase One H 20; if you see any of the Red, Green or Blue (RGB) values approaching overexposure (a value of 255) you need to adjust the exposure level. Keep image highlights (areas that should record as white with detail, not as specular reflection) between 225 to 250.

Exposure Tab

The next tool we will use before developing an image is the Exposure Tab. This tab allows us to control the brightness and contrast of the image by using two standard tools: Levels and Curves.

Levels

The first part of the Exposure Tab is the Levels control. This is a standard levels box similar to that of Adobe Photoshop.
To make an adjustment drag the black or white slider left or right to either darken the shadows or lighten the highlight. Alternativly, click on the black or white eyedropper and select an area of the image to set as the shadow or highlight point. Beneath the display are preview windows showing the "before and after" of the changes.

At the top of the window settings and tonal adjustments can be loaded, or saved for future use.
The "Preserve Balance" option ensures that all three color channels are adjusted simultaniously. If this option is un-checked the three color channels can be controlled independently.
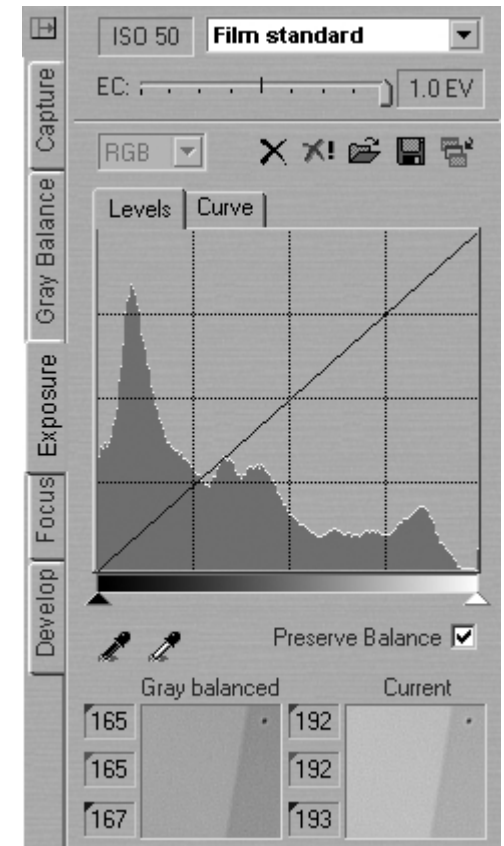
Curves

The next window in the Exposure tab is the Curves control, again this is a standard Curves control that may look familiar to those of other imaging programs.

The Curves control is extremely powerful and can be used to control every tone in the image. An imaging curve is a graph that represents the original data along the bottom and the output or developed data along the side. The dark tones are to the left, while the light colors are on the right. The default curve is a straight line, which means that the image data is not changed by the curve. To use the curves, click anywhere along the line to add a point and then drag the point up or down to affect the tone in the image.
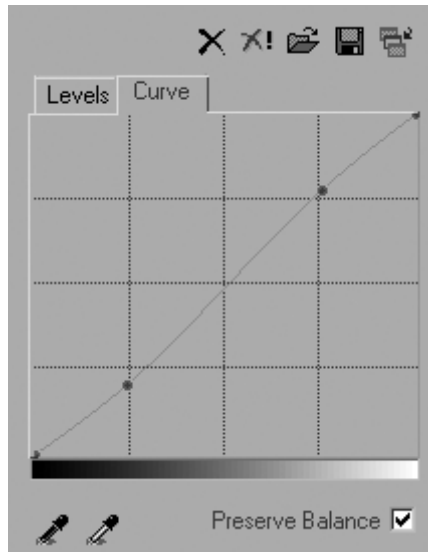
In the example a point has been added in the lower (darker) end of the curve (called the three-quarter tone) and pulled down.
This will make that point darker in the developed image.
A second point was added in the quarter-tone (light end of the curve) and pushed up. This will make that point lighter.
In addition to darkening and lightening these two selected points, because the entire curve was shifted between these points an overall increase in contrast will occur from this "minor" change.

Curves are extremely powerful but should be used with caution and discretion. Again, as with the Levels control, RGB channels can be controlled individually, and settings saved and loaded.

At the top of the Exposure tab is a drop-out menu. This is used to control what kind of default curve is applied to each image. In this way a curve is applied to the image without having to use the levels or curves control. By selecting a curve and then clicking the camera icon, the selected Curve is applied to all future captures. There are three different curves that can be applied.

The configuration of the LightPhase/Phase One H 20 is dependent upon the chosen film curves and ISO values.
It is important that the correct settings are made before shooting.
Please read **Software Set-up / Selecting film curves.**

On occasion, it may be neccassary to alter film curves after shooting. Select the Film Curve tab, and the film curve drop-out menu, to see the options.

Reasons for altering film curves can be:

More detail in the shadows is needed.
Compensate by changing the current film curve from "Film standard" to "Film extra shadow"

Images lack contrast.
Compensate by changing the current film curve "Film extra shadow" to "Film standard"

At the top of the exposure window is the standard "Apply to Selection" button. When there are several images selected in the Capture Collection the same levels or curves can be applied to all of them by clicking on this button.

In addition the exposure compensation slider can be used to raise or lower the overall exposure level.

Focus Tab

The focus tool does an instant development of a selected area of the image, which can be used for checking focus and sharpness (USM). In order to make image navigation easier and improve the focus tool new features have been added to the focus tool. One is the ability to choose between three different view sizes; small, medium or large. Another feature is the square orientation frame.

The image displayed in the focusing window corresponds to the position of the orientation frame. Click on the focusing window to display the position of the orientation frame. The area shown in the focus window can be moved, either by moving the orientation frame directly in the preview window, or by dragging in the focusing window.

The orientation frame can be hidden automatically after a few seconds. Check the box "Hide focus orientation frame automatically" under the Other Settings tab in the Preferences dialogue box.

Focus Preview
To evaluate the focus of an image simply click on the area of the image (in the main Preview Window) and the LightPhase software will zoom in to a 1:1 final image of that part of the photo. Zoom in more than 100% by using the slider below the Focus Window.

Sharpening
Also found in the Focus function tab is a preview of the Unsharp mask settings (also discussed later in this user guide). Experiment with different values to determine the correct setting for each image. Control the Amount (based on percentage values) from 0% up to 400% and the Threshold (the cut-off point where the sharpening will stop or start) from 0 to 50.
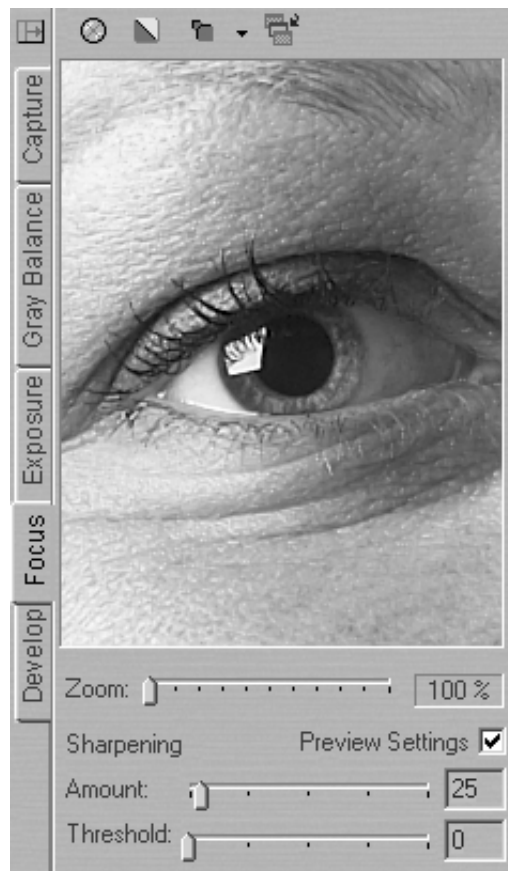

A third option found in many imaging programs, Radius, is fixed in the Phase One LightPhase program at about 1 pixel.
As the settings are adjusted they are updated in the preview image. This feature can be turned off by un-checking the "Preview Settings" box.

Automatic Focus Update
At the top of the focus window is the "Automatic Focus Update" button. When activated the LightPhase software will automatically update focus window when subsequent images are taken. This is especially useful when setting up for a shot, and when used in conjunction with the "Composition Mode".
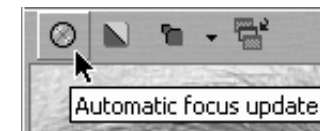
Show focus in grayscale
To make it easier to judge whether or not the focus is acceptable, click the "Show focus in grayscale".
This does not affect the developed file, it simply makes it easier to see the focus preview.

Developing

Images captured by the LightPhase digital camera are stored as raw calibrated files. They must by processed by the Phase One LightPhase application before they can be used in any other program.
The raw files can be archived and processed at a later time, or processed immediately. Archiving raw files saves space and allows access to raw, unmanipulated, 16 bit data. Using raw files makes it possible to process one single image for various purposes; a high resolution color image for a printed page, a low resolution image for a web site and a third copy to be used in black and white.

To process an image, it first must be opened in the preview window. It may help to think of the development stage as similar to printmaking in the darkroom. After loading the image into the Preview Window the first step will be to gray balance and crop the image. Then adjust the brightness, contrast and color. Finally the image is devolped by clicking on the Develop button.
This section of the LightPhase application is used to control the final output size of the image to be developed.
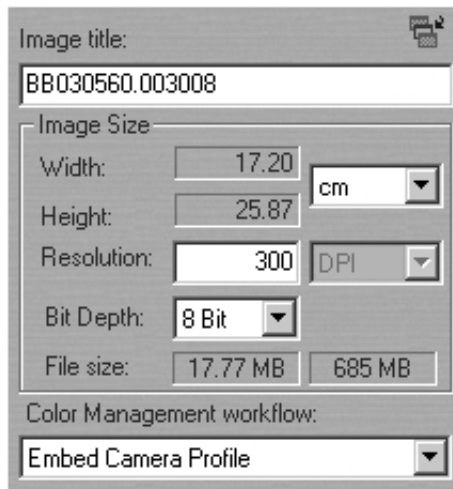
A full image, with no cropping will read approximately 26x17 cm (10x7 inches) at 300 pixels (dots) per inch.

The file size of this is approximately 18MB, as listed in the "File Size" section (in 8 bit/channel mode).

If a crop is made, the output size of the cropped area will be listed in the Width, Height and Resolution fields. If it is known what size the image will be in its final printed form, the measurements can be entered here. By adjusting the size of the image at the developing stage time is saved and a higher quality final image is obtained, as all changes are done at 16 bits/channel.

Clicking the "Soft Proofing" button will apply the color settings, selected in the preferences.

Images can also be named in the "Image title" field.
Naming images at this stage will make it easier to find and identify the photos later. If no name is assigned, the LightPhase application names images automatically, based upon selected preferences.

A row of buttons in the Batch Editor section control when images will be developed. The buttons are:

Develop Image
When clicked the currently selected image will be developed immediately using the current settings.

Add Image to Batch
The LightPhase application can develop a group of images in a batch mode. This allows the photographer to queue several images and develop them later. To add an image to the list click this button. The name of the image is added to the batch list.

Remove Image from Batch
To delete an entry from the develop list, choose the item from the list and then click the "Remove" button

Begin Developing Batch
To develop queued images, click the "Begin" button and the LightPhase application will begin processing the files.

Stop Developing Batch
This button cancels the development of the list of images.
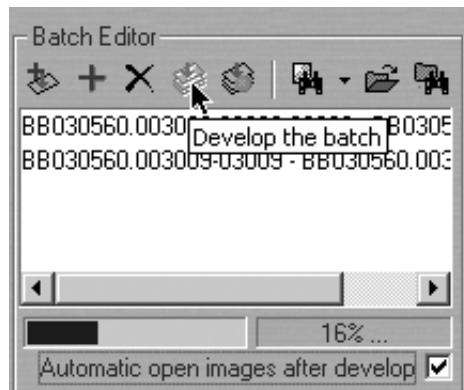
View Recently Developed
To access a list of the recently developed images use the
"View Recently Developed" button.

Set Develop Folder
Select where developed images will be stored by clicking on this
button and navigating to the desired folder.

Browse Develop Folder
Clicking on this button will open the currently selected develop folder.

At the bottom of the Develop tab is a status bar that shows a
development progress bar and the percentage of the image that has
been developed and the approximate time left to develop the image.
After development images can be automatically opened in Photoshop.
Images shot in portrait mode must be rotated using Photoshop's
"Rotate" command.

15 Tools

Many of the tools in the Phase One LightPhase application act
in much the same way as the tools of popular image editing
applications such as Adobe Photoshop. Many of these tools
actually come from the traditional world; the cropping tool is
the first example of this, mimicking the cropping "L's" used by
artists and photographers.

Where tool preferences can be set, right-clicking on the
tool icon gives access to the preferences dialog box.

Eyedropper
The Eyedropper tool is used to read the RGB values of a
particular area of an image. The area measures 3x3
pixels.

Zoom Tool
Select the Zoom tool and click on the preview image to
zoom in. Use option-click (Alt key) to zoom out.
Remember, the preview image is only a low resolution image
and will quickly pixelate when enlarged.

Cropping
Select the Crop Tool, located above the Preview
Window. Move the on-screen pointer to the image in
the preview window. Click and drag the mouse so that a box
is drawn surrounding the area of the image to be selected.
Then release the mouse button.

The rectangular box, which now surrounds part of the image, can be adjusted in size and position. There are points at the corners of this box, that can be clicked and draged, to change size and position.

Crop Mask Tool

When turned on, the Crop Mask Tool will mask the area of the preview image that is outside the selected crop area. Right-clicking the Cropping Tool allows the color and opacity of the crop mask to be set. This tool is a useful feature when showing images on-screen, as the cropped area is clearly shown.
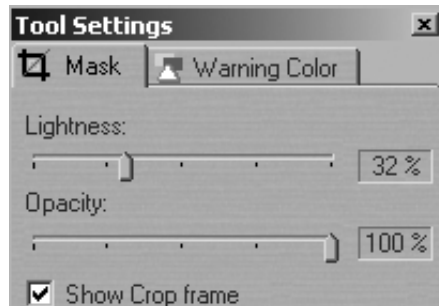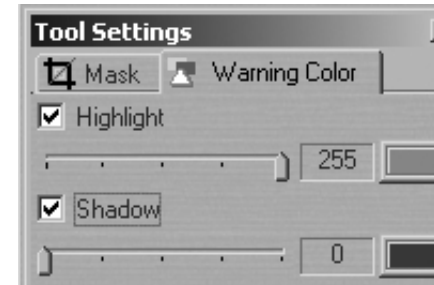

Exposure Warning Tool

This tool quickly shows which areas of the image are either over or under exposed.

Much like Photoshop's "Gamut Warning" tool, when the "Exposure Warning Tool" is activated a colored mask will be applied to the image showing which areas of the image are above or below a set exposure value.

Right-click the tool icon to set the over and under exposure values and to change the highlight colors.

In general, if the exposure warning is shown over a large area of the selected image, it indicates that the exposure level may need to be adjusted. Highlight areas are more critical than the shadows. Preserve highlight detail by not allowing values greater than 240.

Gray scale viewing

The preview is shown in grayscale. This does not affect the developed file.

Soft Proofing and Color Management

The LightPhase is designed to work as part of an ICC color management workflow.

The camera, monitor and printer can be specified in the LightPhase application, and the processed image will be customized for that specific input and output configuration.

If the final image is to be printed on a CMYK printer then preview images of the result, as they would appear in the final print, can be viewed on screen. In this way images can be adjusted to give optimal results, and costly errors can be avoided.

To use this feature first set the Profiles in the Preferenceswindow. For further details on Color Management please read the Color Management User Guide.

It is important to select the appropriate ICC profiles before shooting, however, if required changes can be made to the profile settings from one capture to another. This is done by means of the ICC profile pull-down menus in the Tool Settings dialogue box. The effects of the changes are seen immediately in the preview and collection views.
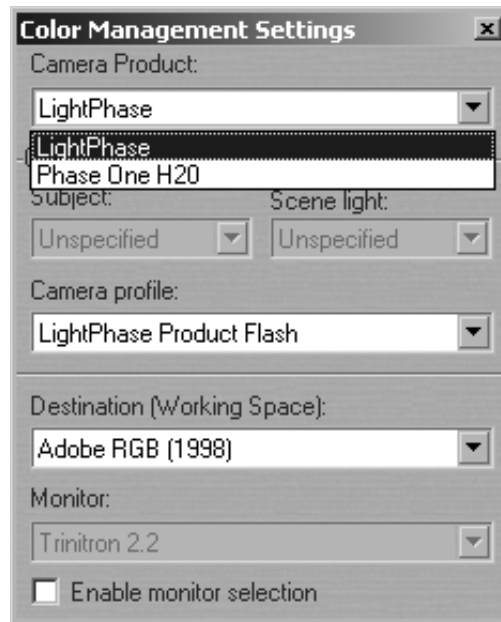
To use Color Management effectively, the profiles of the camera, monitor and destination must be defined. If all three devices are not correctly specified there is a risk that the final image will not correspond to the captured image.

> The LightPhase installs basic profiles for Phase One cameras as well as a generic monitor profile (Trinitron 2.2) and sever al CMYK printer profiles and RGB color space profiles.
>
> To set ICC profiles right-click on the Color Management button.
>
> A brief guide to preference settings is provided here:
>
> **Camera** – select the correct profile
>
> **Subject & Scene Light**: select the appropriate settings for the current lighting and photography conditions.
>
> **Destination** – select a printer (CMYK) profile, if the image is to be reproduced using a printing process, or select a screen (RGB) profile if the image is to be edited in Adobe Photoshop, or similar editing software.
>
> **Monitor** – the option to specify a monitor profile. Phase One recommends that you use "Trinitron 2.2" as your default ICC monitor profile.
> Enable monitor selection – check to specify a monitor profile.
>
> When setting up ICC profiles select from the Develop tab/Color Management workflow either Embed Camera Profile or Match to Destination.

If **Embed Camera Profile** is selected the software will automatically embed the selected ICC camera profile in the developed TIFF file. The embedded profile then serves as a conversion table that can be used by other applications, e.g. Adobe Photoshop, in order to convert the image into a specific workspace, or to perform a color conversion e.g. RGB to printable CMYK later on.

```
Color Management workflow:
┌─────────────────────────────┬───┐
│ Embed Camera Profile        │ ▼ │
├─────────────────────────────┴───┤
│ Match to Destination            │
│ Embed Camera Profile  ⬓         │
└─────────────────────────────────┘
```

Match to Destination automatically embeds the selected ICC destination profile in the developed TIFF file.
The LightPhase application will convert the image on-the-fly to either printable CMYK or to an RGB workspace depending on which type of ICC destination profile selected prior to development.

Embed Camera Profile or Match to Destination can be selected as the default in the File /Preferences/Color Management/Defaultworkflow. The default setting is activated the next time the application is started.

Because the LightPhase application is fully ICC compliant, it is an "open" system. Any ICC profile for any printer or monitor can be used.

For Windows 2000 place the desired profile in the "Color" folder under WinNT/System32/Spool/Drivers.

For Windows 98 place the desired profile in the "Color" folder underWindows/System

Restart the LightPhase application and the new profile will appear in the Preferences pop-up menu.

Using third-party software, customised printer or monitor profiles can be made and installed. This gives greater color management control of the work flow environment.

Help in selecting the correct Color Management workflow and preference settings is provided in the Color Management User Guide.

Simulate sharpening settings
The image is previewed with the specified USM settings.
To alter the USM settings open the Preferences/Other Settings dialog box.

Unsharp Mask
The name "unsharp mask" (USM) can be misleading. Using this tool actually gives an apparent increase in image sharpness by enhancing the edge differences between pixels of different colors. When applied, the software evaluates the contrast differences between pixels and either enhances the difference or not, based on setting made in the preferences. There are two controls over the USM:

Amount -The amount of change is entered here as a percent. The higher the setting, the more sharpening that will be applied.

Threshold -The threshold level controls at what level the sharpening will begin.
At the default "0" setting the sharpening amount is applied to every pixel.
As you adjust the setting up, you control where the sharpening will begin.
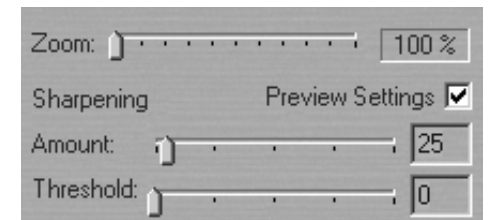
Compare captures side by side

The active capture file is marked with a white frame, and is the one that can be edited with a change of gradation curve, gray balance, color balance or exchanged with a new capture file from the capture collection. Click on the other capture file to activate it. Files from different collections can also be compared. Use F2 to access the active capture files within the collection. The layout of the two captures is automatically adjusted to make full use of the preview area. However, if there is lack of space then hide the function tabs by pressing F6 (see also Expand Preview).

Composition Mode

Composition mode is very useful when setting up and adjusting the lighting and framing, prior to shooting. Warning triangles appear, to indicate that composition mode is activated. Composition mode only saves the last captured image, which means no deletion of unwanted capture files.

Rapid capture mode

Disable preview generation by selecting Rapid capture mode from the toolbar. Viewing previews after a session allows the computer to work faster. This feature is particularly designed for notebook computers. Although no preview is generated in Rapid capture mode the software still displays a memory-based preview of the captured image and performs exposure evaluation. Missing previews can be regenerated at a later time by simply clicking on the Refresh button in the capture collection window.

Zoom to fit Preview

Click to fill the preview window with the image

Expand Preview

Click to minimize the Function Tabs and expand the Preview window. To restore the original settings click on the button again, or click on the Function Tabs.

16 1394 Capture Transfer for Windows Me and 98

Being able to quickly move captured photographs from computer to computer is an important part of a workflow.

This allows a photographer to be in the studio shooting while another person connects to the capture computer and develops the images. This utility also makes it easy to move files from a slow portable laptop computer to a fast desktop processing station.

Phase One has written special software that allows the transfer of capture files over the IEEE1394 bus. This allows for almost seamless integration of two workstations. To set this system up you must have two workstations connected together via 1394 cables.

After installing the LightPhase applications (Capture program, 1394 Server software, 1394 Transfer software) on each workstation connect the two machines together via the 1394 cable. After the computers are connected click the default buttons allowing Windows to install the drivers. Please note, when using the 1394 Capture Transfer utility the LightPhase must be disconnected from the 1394 bus.

When using 1394 to transfer LightPhase captures, one machine acts as the "server" while the other runs the "LightPhase Capture Transfer Utility" (found in the "Start—> Programs" menu). After starting the program it will say "Connected" in the status indicator showing that the application is connected to a remote server and is ready to transfer captures.
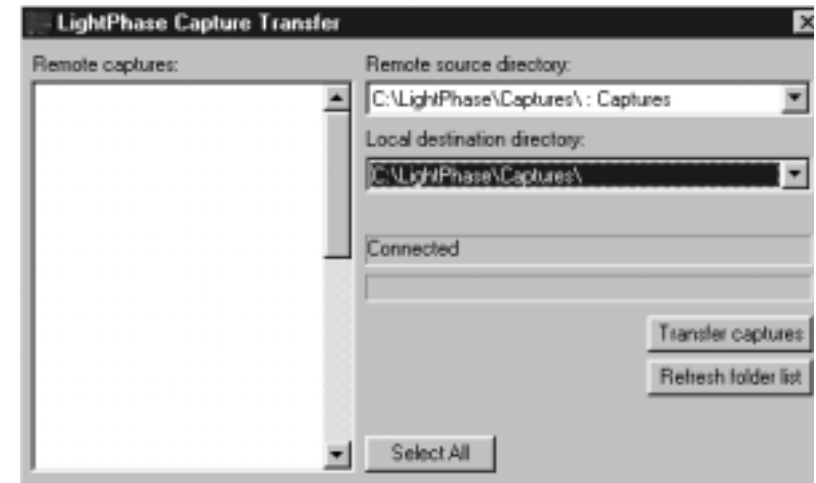

Use the "Remote source directory:" pop-up menu to choose the capture directory from the remote machine (there will be one entry in the menu for each capture tab in the LightPhase application on the remote machine). Use the "Local destination directory:" tab to choose the "to" folder where you wish the capture files to be copied to. There will now be a list of all of the capture files available on the remote computer on the left hand side of the window. You can select the desired files manually or click the "Select All" button to choose all files.

Click the "Transfer captures" button to begin the transfer.
As the captures are transferred the status indicator will show how many files have been moved. When finished, open the Phase One LightPhase application and you can process the images as if they were captured on the local computer.
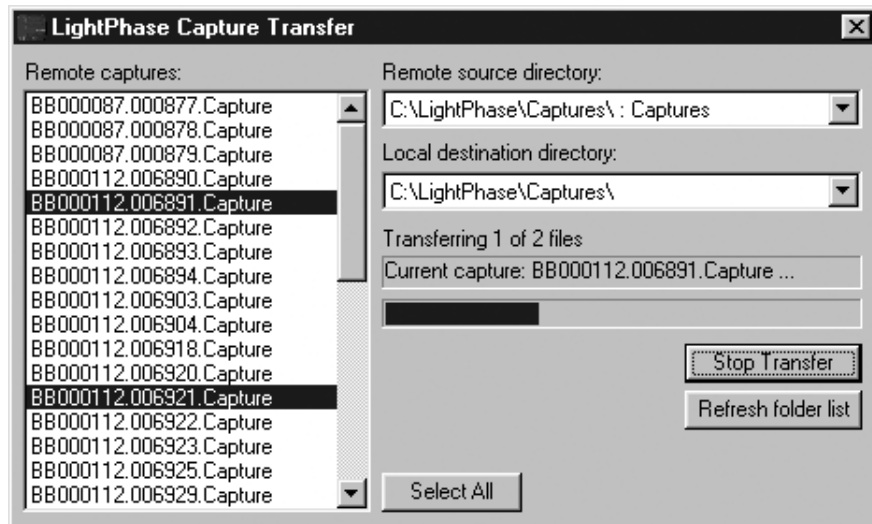
17 Camera Info

The LightPhase has an "info" function that displays important information about the LightPhase. This information can be invaluable in troubleshooting problems. If you ever need to contact technical support, be sure to have this information available. To access this data choose "About LightPhase" from the "Help" menu.
See also Trouble Shooting.
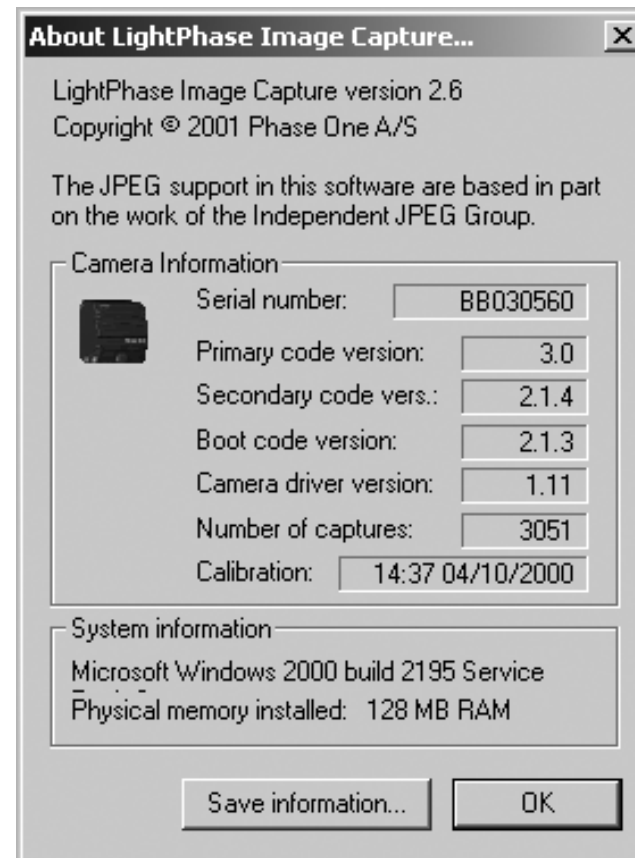
18 Additional features

Demoirize plug-in
The Phase One Demoirize plug-in for Adobe Photoshop is now
introduced in a new and improved version, which allows you to
remove moiré patterns from your images by means of three different
filtering modes: Advanced, Unicolor textiles as well as Skin and Hair.

The Demoirize plug-in window is divided into two separate previews:
Original Image, which displays the image before it was corrected
(to the left) and Corrected Image, which displays the image after it
was corrected (to the right).
The plug-in is enclosed on the CD-ROM and will be placed in Adobe
Photoshop's plug-ins folder when you install the LightPhase Image
Capture Software.

Advanced mode
Advanced mode is a new filter tool. It is also the default mode of the
Demoirize plug-in. In advanced mode the filter estimates colors by
means of the Quality/Speed slider and the Pattern Size slider.
Often the color moiré is visible by multiple red/green or blue/yellow
areas of discoloration. These areas of discoloration are seen as bands
or stripes. The larger the band or stripe, the larger the pattern size
setting should be.

Pattern size
The best way of finding the optimal pattern size is by setting the
Quality/Speed slider to Speed while moving the Pattern Size slider
towards Large. While moving the slider the effects of corrections are
seen on the screen. Selecting a larger than necessary pattern size will
not generally enhance the result. A circular arrow icon that turns
indicates that the Demoirize filter is currently calculating image data.
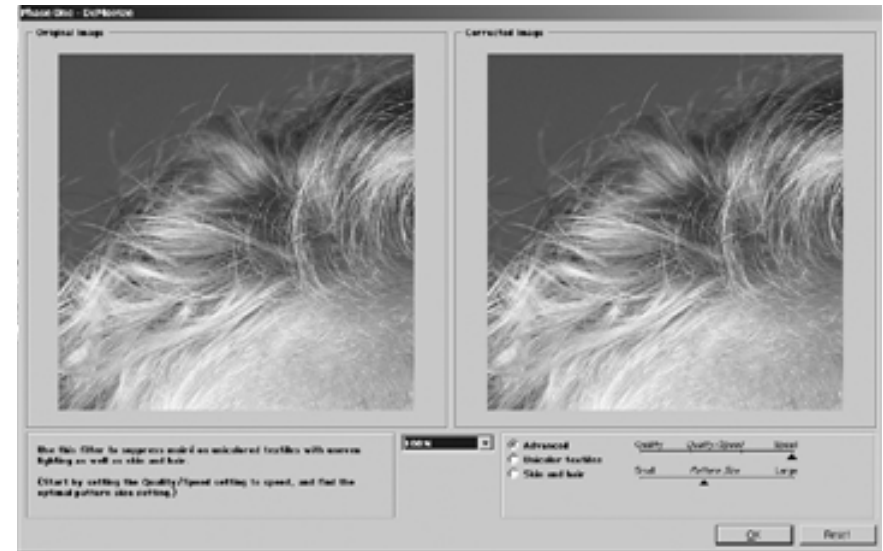
Quality/Speed
When large areas of moiré stripes and bands are present the
Quality/Speed slider should be set towards Quality, at the cost of
Speed.
Use the Quality setting when details smaller that the selected pattern
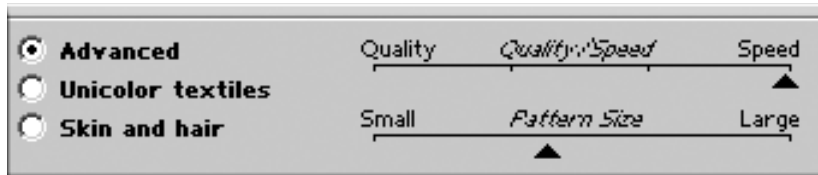size should be less affected by the filtering.

Using advanced mode on skin and hair
For skin and hair surfaces the optimal settings for the advanced filter
would be to position the Quality/Speed slider at Speed and the
Pattern Size slider very close to Small.
Please note that large color moiré areas in hair may require a larger
pattern size setting.

Using advanced mode on textiles

On textile the optimal settings for the advanced filter would be to position the Quality/Speed slider towards Speed, or in an inter mediate position. Then move the Pattern Size slider to the smallest possible setting.

In many cases the masking of unicolored, or nearly unicolored areas, may be carried out less accurately with the advanced filter compared to the Unicolor textiles filter. Since masking depends very much on the type of image, it is recommended to test different masking and filter settings.

19 Trouble shooting

If technical problems are experienced when working with the LightPhase Image Capture Software it may be neccessary to contact Phase One's Technical Support department.
Phase One recommends that you do a screen dump of your system configuration. This can be done in the menu Camera /Info, then press Print Screen to generate a screen dump of the current settings. Then open and save the screen dump in any image editing software.

Fax or e-mail your Camera Info and the System Profile to Phase One's Technical Support department.