



Intellihance

User Manual

Version 2.0

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Introduction

Welcome to Extensis Intellihance. You've just purchased an intelligent tool that makes Adobe Photoshop work faster, easier, and more efficiently than ever before.

Intellihance improves the way your digital images appear in print or on the screen by automatically applying filters for contrast, brightness, saturation, sharpness, and despeckle. You can customize the way Intellihance applies filters—choose from menus of predefined preferences or use the Fine Tune option for absolute control.

After you determine the way you want your output to appear, you can save your preferences and get the same results when applied to multiple images.



Before Intellihance

After Intellihance

We've tested Intellihance for compatibility with other applications that use Adobe Photoshop Plug-ins. For example, if your QuarkXPress (with QX-Tools) or PageMaker 6.0 document includes images from another source, you can run Intellihance on those images from inside PageMaker.

Note: While Intellihance should be compatible with all applications that accept Adobe Photoshop Plug-ins, not all applications have been thoroughly tested.

System and Software Requirements

To use Intellihance, you need the following equipment and software:

- An Apple Macintosh with a 68030-25MHz processor or faster, or any Power PC-equipped Macintosh.
- System software version 7.1 or later.
- Adobe Photoshop 2.5.1 or later, or other applications that accept Photoshop Plug-ins.

Note: If you're using Adobe Photoshop 2.5.1 or non-Photoshop applications, allocate enough additional RAM to equal 1.4 times the image size.

Software Installation

► To install Intellihance:

1. Insert the Intellihance disk into the disk drive.

2. Double-click the “Intellihance Installer” icon to open it.

The Intellihance introduction screen appears.

3. Click the Continue button.

The Welcome to Intellihance dialog box appears. The release notes in this dialog box contain important information not included in the manual. It's a good idea to save or print these release notes before continuing with the installation.

4. Click the Continue button.

The Intellihance Standard Install dialog box appears. You can choose the complete installation that includes a color separation tables folder, a bad pictures examples folder, and all Intellihance filters: GS (grayscale), RGB, and CMYK. You can also choose a Custom installation where you install only what you need.

5. Click the Install button.

The disk selection dialog box appears.

6. Select the application into which you want to install Intellihance. Then click the Install button.



The installation program will locate the appropriate Plug-in folder and begin installing. After installation is complete, the successful installation dialog box appears. You can choose to quit the Installer or continue to install Intellihance filters to other applications.

7. Click the Quit button.

Registration

It is important to register your copy of Intellihance so we can provide you with service. Registered users of Intellihance are eligible for technical support, information regarding new versions and products, and discounts and special offers on new products.

Intellihance includes electronic registration, so registering has never been easier! The first time Adobe Photoshop is launched after Intellihance is installed, the Intellihance Personalize dialog box appears. To personalize Intellihance, type your name, company, and Intellihance registration number. Your product registration number is located on your Intellihance disk. If you choose not to personalize your copy, Intellihance will run in a demonstration mode that lets you process five images.

After you have personalized Intellihance, a dialog box appears asking if you would like to register. To register Intellihance, click the Register Intellihance button and an electronic registration screen appears. After you've completed the registration screen, a Market Research screen and a System Configuration screen will follow. The Market Research screen asks basic questions which enable us to better understand your needs. The System Configuration screen provides a "snapshot" of your system configuration which enables Extensis to support you more effectively. Sending the Market Research and System Configuration information is optional, if you don't want to send this information to Extensis, you may check the checkbox at the bottom of these screens.

If you have a modem connected to your computer, you can register toll-free by modem. If you do not have a modem, you can print the registration sheet and register either by faxing it to (503) 274-0530 or mail it using the postage-paid envelope provided. If you don't have access to a modem or printer, you can still register by filling out a registration sheet located at the end of this manual.

Tip

You can send us a Fax at **503-274-0530**, or contact us through one of these online services:

CompuServe: 70242,33

America Online: EXTENSIS

AppleLink: EXTENSIS

Eworld: Extensis1

Technical Support

If you have a question or problem that is not addressed in this manual, please call technical support at **503-274-7030** Monday through Friday, between the hours of 8:00 a.m. to 5:00 p.m., Pacific time.

When calling Technical Support, please be at your Macintosh and have the following information available.

- Your Intellihance registration number.
- Your Macintosh configuration.
- Your question or a description of the difficulty you're experiencing—what specifically occurs and when. Write down any displayed error numbers or messages and any other information you think may be helpful.

Suggestions

We'd love to hear your comments about Intellihance, ideas for new plug-ins, or improvements to Intellihance. A suggestion sheet is included at the end of this manual. Please fax or mail your comments and suggestions to Extensis.

Using Intellihance

Intellihance improves the way your images appear in print or on the screen by automatically adjusting the contrast, brightness, saturation, sharpness, and despeckle of your output images. Intellihance measures the amount of these effects in your original image, compares the measurements with the preferences table, and then automatically processes the image to match the preferences.

The Intellihance default preferences are based on the way most people like to view images in print or on the screen. The best way for you to decide if you like the default settings is to try them. Process three or four images with Intellihance and look at the results. If you like what you see, the default settings are fine for you.

The following table lists the Intellihance default settings. If you want to change the default preferences, go on to the next section, “Customizing Intellihance.”

Intellihance Filter	Default setting
Contrast	Normal
Brightness	Balanced Tone
Saturation	Off
Sharpness	Medium Sharpness
Despeckle	Off

The following procedure tells you how to use Intellihance with its default settings—simply open an image in Adobe Photoshop, select the Intellihance filter, and click OK. That’s all there is to it!

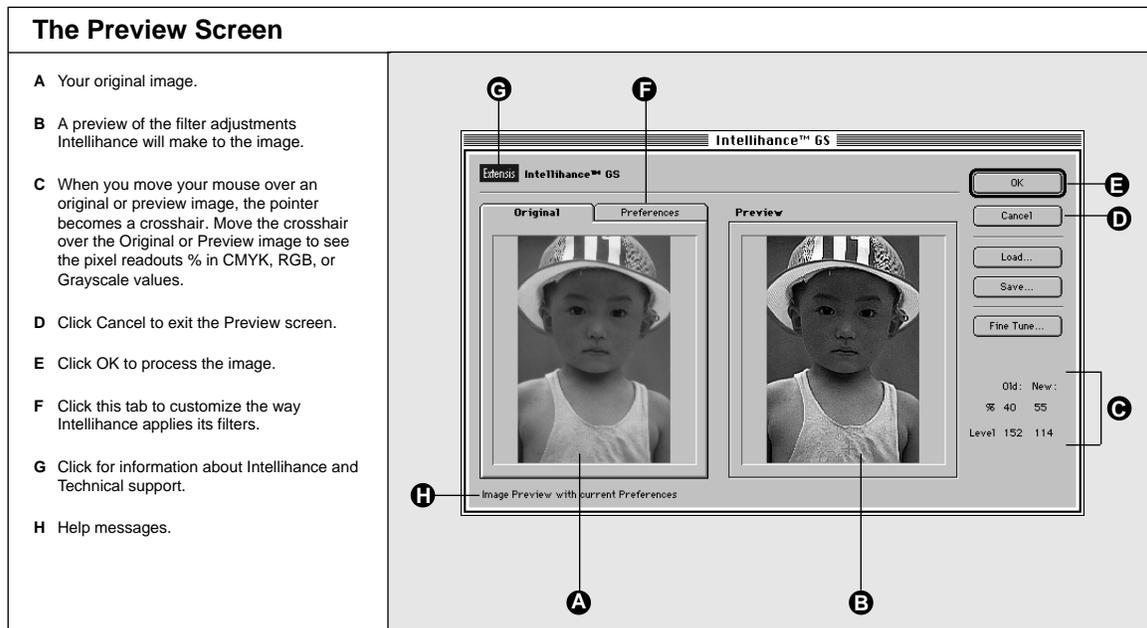
► **To process an image with Intellihance default settings:**

1. **From Adobe Photoshop, open an image you'd like to process.**
2. **Bring up the Intellihance Preview screen by choosing Filter > Intellihance > RGB or CMYK or GS.**

Intellihance automatically makes available the appropriate Grayscale, RGB, or CMYK filter for your image in the pull-down menu (the other filters are not available).

3. **From the Intellihance Preview screen, click OK to process the image.**

The Preview screen shows you the original image and the enhancements that Intellihance proposes to make when you process it.



Customizing Intellihance

You can customize the way Intellihance applies the contrast, brightness, saturation, sharpness, and despeckle filters. Choose from popup menus of predefined effects or use the Fine Tune option for manual control.

Intellihance compares your original image to the output settings you've chosen—and then automatically processes the image to match your preferences. You determine the way you want your output to appear, make those selections from the menus in the Intellihance Preferences screen, and click OK to apply the changes. Then you can apply the same set of preferences to multiple images. You can also save different preference settings and load them at a later time.

The Preferences Screen

A Click to display menus that determine how your output image will look.

B Intellihance will start processing the current image with the output settings defined in the Preferences panel (Return).

C Exits Intellihance with no changes (Command-period).

D Selects a file of previously saved settings and load them in the Intellihance Preferences screen (Command-L).

E Saves the current preference into a folder and file of your choice (Command-S).

F Displays the Fine Tune screen that allows you to manually adjust your image (Command-F).

G To always go directly to the Fine Tune screen when you open Intellihance, select this checkbox.

H Click for information about Intellihance and Technical Support.

Adjusting Intellihance Filters

You can adjust five separate filters from the Intellihance Preferences screen. Each filter has a menu of predefined effects.

- Contrast
- Brightness
- Saturation (available with RGB and CMYK only)
- Sharpness
- Despeckle

Contrast



The Contrast filter gives you four options for adjusting tonal correction. The **Normal** option will brighten highlights, darken shadows, and establish midtones for best overall contrast. Select the **Soft** option if you want to maintain maximum shadow and highlight detail or if you want to lower contrast overall. Select the **Snappy** option if you want your image to have solid blacks and solid whites or to increase contrast. Select the **Hard Contrast** option if you want images with high contrast or if you want a posterized effect. If you don't want any correction, you can turn this filter **Off**.

Two additional options are available for special publishing applications. **Flatten Highlights** may be useful when printing on newspaper to allow you to use the paper itself to represent the highlight in the image. **Flatten Shadows** may be useful when you want to push some shadow noise into the blacks.



Soft Contrast



Hard Contrast

For a color example of this filter, refer to the inside front cover of this manual.

- Off
- Deeper Shadows
- Shadow Emphasis
- **Balanced Tone**
- Midtone Emphasis
- Highlight Emphasis

Brightness

The Brightness filter adjusts or shifts various tonal groups. You can shift shadows, midtones, or highlights, or balance the overall tone of the image. This means, for example, that Intellihance can darken overexposed photographs and lighten underexposed photographs. If you don't want any correction, you can turn this filter **Off**.

Brightness is a subjective adjustment. Try each of the settings for the Brightness filter and see what you like best. After running the settings on several images, you'll discover which setting provides the most desirable results.



Balanced Tone



Deeper Shadows



Highlight Emphasis

For a color example of this filter, refer to the inside front cover of this manual.

- Off
- Low
- Medium Low
- Medium
- Medium High
- High

Saturation

The Saturation filter (available with RGB and CMYK only) is a color correction filter for automatically adjusting the purity of the color. The **Medium** option provides excellent results for most images. Intellihance automatically examines the saturation of the input image and then will increase or decrease the saturation according to the setting for this filter. This is very useful with Photo CD images that are often oversaturated. If you don't want any saturation correction, you can turn this filter **Off**.

Saturation processing will increase the computing time. Unless you have a powerful Macintosh, you might want to allow extra time to process images that need more saturation.

- Off
- Soft
- Medium Sharpness
- Hard Sharpness
- Extra Hard

Sharpness

The Sharpness filter sharpens soft images by increasing the contrast of adjacent pixels. Like Brightness, Sharpness is also subjective. Try each of the settings for the Sharpness filter on several images and see what you like best. If you don't want any correction, you can turn this filter **Off**. Remember, the Sharpness filter will not sharpen noisy images.

Note: On large images, the Preview screen may exaggerate the sharpening effects.



Soft Sharpness



Extra Hard Sharpness

For a color example of Saturation and Sharpness filters, refer to the inside front cover of this manual.

- Off
- Overall
- Dark Tones Only
- Light Tones Only

Despeckle

The Despeckle filter removes noise, such as photograin or scanner-induced noise, while preserving detail. Intellihance detects the edges in an image (the areas where significant color changes occur) and gently smooths all of the selection except those edges.

If you want to reduce image noise, this filter has three options that will process only noisy pixels without changing highlights or other details.

The **Overall** option is useful for situations where the image may contain speckles or photograin noise in the image. The **Dark Tones Only** option is for images where you're satisfied with your light tones and only need to adjust dark tones. The **Light Tones Only** option is for images you might enlarge such that the photograin in the highlights becomes evident. These last two options allow you to limit the filtering to the darker or lighter areas of the image. If you don't want any correction, you can turn this filter **Off**.

See "Scanning Tips" later in this manual for a simple method to assess scanner noise.

Note: On large images, the Preview screen may exaggerate the Despeckle effects.

Using the Intellihance Fine Tune Option

Although the power of Intellihance lies primarily in its ability to automatically correct and enhance images with little or no user intervention, you may want specific control of the filter adjustments. You can use the Fine Tune screen to accomplish this. The preview window shows you the effect of each adjustment. You can preview your original image—without the effects—by holding down the Option key.

Note: Intellihance processes the image with the automatic settings before you make any adjustments in the Fine Tune screen.

The Fine Tune Screen

- A** Click these tabs to display controls for each filter.
- B** Click for information about Intellihance or Technical Support.
- C** Click to apply adjustments to the image (Return).
- D** Exits Intellihance with no changes (Command-period).
- E** Returns to the settings of the original image, before running Intellihance (Command-C).
- F** Returns to the settings in effect when the Fine Tune screen was selected (Command-R).
- G** Press the Option key to preview the original image (before Intellihance).
- H** Help messages.

► To manually fine tune an image:

Tip

To display the Fine Tune screen every time you open Intellihance, select the Fine Tune Always checkbox from the Preferences settings in the Intellihance Preview screen. Then, every time you press Command-F to open Intellihance, the Fine Tune screen appears.

1. Bring up the Intellihance Preview screen by choosing Filter > Intellihance > RGB or CMYK or GS.

You can also press Command-Option-F.

2. Click the Fine Tune... button or press Command-F.

The Fine Tune screen appears.

3. Select the tab for the filter you want to adjust.

4. Move each slider to your desired position.

Intellihance will filter the image using the measurements from the slider positions—while you watch.

The order in which you apply the filters affects the output. We recommend you use the following order.

1. Set the Tone. Set the white point as low as you can without flattening important highlights. Set the black point as high as you can without flattening the shadow data. Set the gamma or midtone point for a balanced tone or to emphasize a key element in the image.

2. Adjust the Sharpness. Sharpness can amplify noise if not applied correctly. Set the radius at 2 or 3 depending on the ppi of the scan, set the Amount % between 30-120%, and set the Threshold between 0-20. Note that on large images, the Preview screen will exaggerate the sharpening effects.
3. Remove noise. The Despeckle filter reduces image noise. Set the lower limit and upper limit to determine when noise removal begins and ends. Typically, this filter is applied in the shadows. Note that on large images, the Preview screen will exaggerate the blurring effects.
4. Adjust Saturation.

For more information about each of the controls in the Fine Tune screen, see “Enhancement Tips” later in this manual.

Color Separation Table

When you want to convert RGB images to CMYK, you can use the PixelCraft ColorAccess professional color separation table included with Intellihance. RGB scanners, Photo CD disks, and stock photography disks produce RGB images that must be converted to CMYK for printing. If you’ve ever performed these separations using other CMYK separation tables, you may have noticed:

- Color shifts in color you thought would be pure.
- Posterization, or a flattening of highly saturated colors.
- Overall image darkness and a lack of definition in the shadows or dull highlights.
- An overall magenta cast.
- A brownish cast in the shadows.

The PixelCraft separation table, included on the Intellihance disk, produces better separations because the separation table maps the RGB color gamut to the most printable CMYK colors. This reduces common problems with CYMK separations that print too much ink.

The PixelCraft color separation table was set up especially for Intellihance. PixelCraft separation tables are based on industry-standard “Skeletal Black” black generation algorithms and industry standard ink sets. The table included with Intellihance emulates a sheet-fed offset press using a commercial ink set on coated paper stock.

Tip

The Separation Tables dialog box also converts CMYK images to RGB for viewing CMYK data on the screen.

► To use the color separation table:

1. From the File menu, choose Preferences > Separation Tables....

The Separation Tables dialog box displays.

2. Click the Load button.

The File Load dialog box displays.

3. Find the PixelCraft separation table in the Plug-ins folder on your hard drive.**4. Select the PixelCraft separation table and click OK.**

This table name displays next to the Use Table radio buttons and will be used in all RGB to CMYK separations and to view all CMYK data instead of Adobe Photoshop's Printing Inks Setup whenever you use Adobe Photoshop.

5. Select Mode > CMYK color.

You'll watch the image change from RGB to CMYK color space.

► To improve color separation results:

1. Calibrate the Printing Inks Setup in Adobe Photoshop.

Follow the calibration procedure in *Calibrating Your System*, in the Adobe Photoshop manual for entering the Printing Inks Setup information.

2. Calibrate your monitor for tone correction.

Follow the calibration procedure in *Calibrating Your System*, in the Adobe Photoshop manual.

► To improve Photo CD results:

1. From the Intellihance Preference screen, set the Saturation filter to Medium.

A Medium Saturation filter will compensate for Photo CD images that are typically oversaturated and overexposed.

2. Open your Photo CD image and convert it to a Lab image in Adobe Photoshop (Mode > Lab Color).

3. **Select the L channel by pressing Command-1.**
4. **Run the Intellihance GS (grayscale) filter on the L channel.**
5. **View the entire image by pressing Command-0.**
6. **If needed, run the appropriate Intellihance filter on the entire image.**

Saving and Loading Intellihance Filter Settings

After you set up Intellihance Filters with the specific adjustments you want, you can save these settings and then use them automatically.

► **To save filter adjustments:**

1. **Bring up the Intellihance Preview screen by choosing Filter > Intellihance > RGB or CMYK or GS.**

You can also press Command-Option-F.

2. **Make sure all the popup menus display the settings you want.**
3. **Click the Save Settings button or press Command-S.**
4. **Select a folder and a name for the settings file.**
5. **Click Save.**

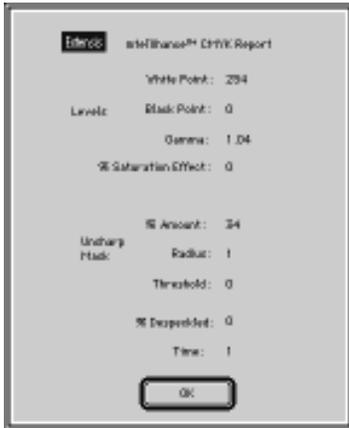
► **To load filter adjustments previously saved:**

1. **Bring up the Intellihance Preview screen by choosing Filter > Intellihance > RGB or CMYK or GS.**

You can also press Command-Option-F.

2. **Click the Load Settings button or press Command-L.**
3. **Select the folder and name of the settings file to use.**
4. **Click Open.**

The Intellihance Preferences screen now displays your saved settings in the popup menus.



Generating a Report of Changes to the Image

If you would like to see what IntelliHance has done to the image, you can generate a report by holding down the Option key as the filter finishes processing. The report gives you parameters that emulate (although not exactly) Adobe Photoshop Levels and Unsharp Mask settings.

Notice the Saturation Factor value. This is an indication of how much the saturation increased or decreased. A value of 1.0 indicates Saturation was unchanged. Desaturation occurs when this value is less than 1.0. To use this value in Adobe Photoshop, multiply this number by 100 and copy into the Hue/Saturation dialog box.

The % Despeckled value indicates what percentage of the image's pixels were filtered as noise pixels.

Advanced Tips

While Intellihance is perfectly suited for most users right out of the box, advanced users can benefit from the full set of Intellihance features.

This section tells you how to process multiple images; improve the quality of your scanned images; further enhance your output images; calibrate your monitor to more accurately display images on-screen; process images for duotones, tritones, and quadtones; and improve the printed quality of your output images.

Tip

If you have either QuicKeys or PhotoMatic macro application, you can convert a batch of RGB images to CMYK. Use the IntelliCMYK3 macro for Photoshop 3.0 and IntelliCMYK2 macro for Photoshop 2.5.1.

Processing Multiple Images

If you have a macro-generating software application, such as QuicKeys or PhotoMatic, you can use one of the templates that comes with Intellihance to convert RGB images to CMYK or to automatically process several different images at the same time. Procedures for using Intellihance with each macro application follow.

The images must be saved from Adobe Photoshop as a Macintosh TIFF or EPS format. Make sure you choose the template that matches your version of Adobe Photoshop.

Note: For more information about using macros with Intellihance, refer to the manual that came with your macro application.

Using QuicKeys to process multiple images

To use the macro application QuicKeys, you'll first prepare the images for processing before you actually process them.

► To prepare multiple images for QuicKeys processing:

- 1. Place the images you want to process into a separate folder and give it a title, such as "RGB Images."**

These images should all be of the same filter set, for example, RGB.

- 2. Move the IntelliBatch macro from the IntelliBatch folder into your new RGB Images folder. Then view the contents by Name.**

Make sure you use IntelliBatch3 for Photoshop 3.0 and IntelliBatch2 for Photoshop 2.5.1. The IntelliBatch macro has a space before its name to guarantee it appears at the beginning of the list.

- 3. Open one of the images you want to process from Adobe Photoshop.**

- 4. From the Filter menu, choose the Intellihance filter that matches the filter set of the images you want to process.**

The Intellihance Preview screen displays.

- 5. Choose the setting you want for each filter in the Preferences screen. Then click OK.**

Run Intellihance once to establish your preferences in global memory, which also makes Intellihance the current filter.

- 6. Choose Save As... from the File menu, enter the filename "dummy image," and click OK.**

Make sure you are saving in the RGB Images folder that you created.

- 7. From the Finder, throw away the dummy image.**

This sets the current Save as... directory. You are now ready to begin processing all the images in your RGB Images folder.

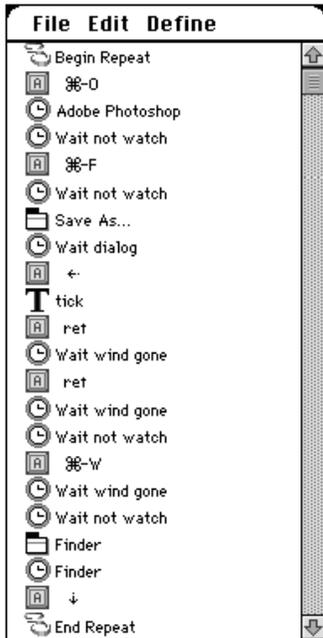
► To process multiple images with QuicKeys:

- 1. Make sure you have enough room on your disk to save a new processed copy of each image.**
- 2. Double-click the IntelliBatch macro icon in your RGB Images folder.**

The Repeat Extension dialog box displays asking for the number of times you want to run the macro.

- 3. Enter the number of images you want to process and click OK.**

The macro will now process each image. Saved copies of each processed image have a tick mark (✓) at the beginning of the filename. Intellihance will now automatically process the remaining images. If you want to add other steps to the macro, or if you need to modify the macro for your environment, go on to the next procedure.



► **To change the QuicKeys IntelliBatch macro:**

1. **Bring up the QuicKeys Main dialog and select Open set...**
2. **Find the IntelliBatch folder and select the IntelliBatch Keyset file.**

Make sure you are viewing the user sequence macros. You should see four IntelliBatch macros in this folder.

3. **Double-click the macro you want to change.**
4. **Modify the macro the way you want.**

► **To save the new macro as an icon file:**

1. **Bring up the QuicKeys Main dialog from the Apple menu.**
2. **Select the macro you want to save.**
3. **From the File menu, select the Make Icon command.**
A Save as... dialog box appears.
4. **Rename the macro with a leading space in the name.**
5. **Check the Save shortcut data in OK Icon checkbox and click the Save button.**

Your new macro is now ready to use.

Note: For more information about using macros with Intellihance, refer to the QuicKeys manual.

Using PhotoMatic to process multiple images

PhotoMatic 2.0 from Daystar is an Apple Script-based batch processing system. You can get the latest version of PhotoMatic for no charge from the DayStar web site: <http://www.daystar.com>. You can use the PhotoMatic template included on your Intellihance disk, or you can make your own script.

Refer to the PhotoMatic manual for instructions to make your own script. You can include Intellihance as part of your script along with other Adobe Photoshop commands.

Note: PhotoMatic only operates with Adobe Photoshop, whereas QuicKeys can be used with any application.

► **To prepare multiple images for PhotoMatic processing:**

1. Move the PhotoMatic IntelliBatch scripts into the Adobe Photoshop > Scripts folder.

This makes them available for use from the PhotoMatic Play Back menu.

2. Open an image in Photoshop that matches the type of images (GS, RGB, or CMYK) you want to process.

3. Bring up Intellihance by choosing Filter > Intellihance > RGB or CMYK or GS. Set the preferences the way you want them and click OK to process the image.

This sets up Intellihance preferences and makes Intellihance the current filter.

4. Choose Edit > Undo to undo the Intellihance processing from step 3.

5. From the PhotoMatic menu, select Play Back > IntelliBatch Macro. Then close the macro without saving it.

This tests the script. Make sure you use IntelliBatch3 for Photoshop 3.0 and IntelliBatch2 for Photoshop 2.5.1. Also, make sure you use the correct mode for the type of images you're processing.

6. Place all the images you want to process into a separate folder.

Make sure all the images are the same type (GS, RGB, or CMYK).

7. Move the IntelliBatch macro from the IntelliBatch folder into your new folder.

Make sure you use IntelliBatch3 for Photoshop 3.0 and IntelliBatch2 for Photoshop 2.5.1. Also, make sure you use the correct mode for the type of images you're processing.

8. Open the PhotoMatic folder. Drag and drop the folder of images onto the PhotoMatic icon.

If PhotoMatic asks you to select a copy of Photoshop, select the copy that is currently running.

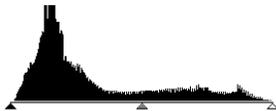
9. Look for the processed images in the Done folder.

The images will be processed and put into the Done folder inside your Photoshop folder.

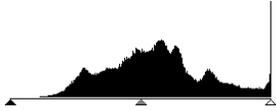
Note: For more information about other batch processing methods or making your own scripts with Intellihance, refer to the manual that came with PhotoMatic.

Tip

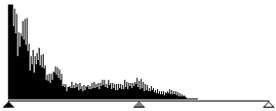
Turning off your scanner's automatic features will capture all the available data in the image. If this makes the image dark, Intellihance will automatically compensate.



A good scan. Notice the smooth tapering of the shadow and highlight data.



The white point is too low. Notice the spike at the whitest point, indicating that highlight data has been flattened. This means the highlight data was scanned as white because these values were whiter than the scanner's white point.



The white point is too high. Notice the bunching of data at the darkest point, indicating that the shadow data has been flattened.

Scanning Tips

You can use your scanner interface to control your scanner's brightness, color cast, white point, and scan resolution.

Most scanner interfaces have various controls to set brightness, contrast, gamma, highlight, and shadow points. These controls, if used improperly, can add noise or flatten the highlights and shadows of the image. That's why it's best to turn off your scanner's automatic features.

► To evaluate your scanner's capabilities:

1. Open an image from Adobe Photoshop.
2. Choose Adjust > Levels from the Image menu.

The Levels dialog box displays showing the distribution of pixel values in your image.

Checking your scanner's white point

You can improve scans by properly setting your scanner's white point, that is, the reflective value the scanner sees as white or 0%. If your picture is overly bright and the scanner's white point is low, you may be flattening your highlight data. This is especially noticeable when scanning a calibration strip or an image with a broad tonal range.

Refer to the documentation provided in your scanner's manual to set the white point. Sometimes the brightness control can be used to set the white point of the scanner. If you can't seem to adjust the white point properly, you may have a scanner that doesn't allow you to set the white point; these scanners typically perform the manipulation in software.

Determining whether to use the Despeckle filter

You can view speckles or noise to determine whether to use the Intellihance Despeckle filter. Noise can be previewed directly by turning up or increasing the contrast in the tones to an extreme. If the speckles are severe, set the Despeckle filter menu to Dark Tones Only from the Intellihance Preference screen. This will suppress shadow noise. If you are processing a batch of images with severe photo grain noise, set the Despeckle filter menu to Overall.

Determining the scan resolution

Tip

Use this formula to calculate the pixels per inch:

$$\text{ppi} = \text{lpi} \times 1.5 \times \text{scale factor}$$

The capability of your output device determines the correct resolution for a scan. As a general rule, to produce a high-quality halftone image, the image resolution (measured in pixels-per-inch or ppi) should be 1.5-2 times the lines-per-inch (lpi) value of the halftone screen used to print the image. For example, to print a high-quality image using a 133-lpi screen, you would need an image resolution between 200 and 266 ppi (133 x 1.5 to 2.0). In some cases, however, depending on the image and the output device, ratios of as low as 1.25 produce excellent results.

The size of the final image compared to the original image is also a consideration in setting scan resolution. If the final output size is not known, then overscan by a larger factor. For more information about determining the final output size, refer to your scanner's manual.

If you see excessive noise in your scans, your scanner may be taking short cuts. Even though you want a scan at 225 ppi, many scanners will scan the picture at 300 ppi and remove pixels electronically. In the case of high resolution scans, it is common for a scanner to scan at 600 ppi and add pixels to get 1200 ppi. This may result in speckle artifacts or blurring. If you see excessive scanner noise, try scanning at 300 or 600 dpi and then scale the image in Adobe Photoshop. Remember the scale factor affects the scan ppi.

For more information about determining the scan resolution, refer to *Scanning, Importing, and Exporting Images* in the Adobe Photoshop manual.

Enhancement Tips

After you have processed an image with Intellihance, there are three ways to further enhance the image.

1. Run Intellihance on the image again.
2. Use the Fine Tune adjustments.
3. Use other Adobe Photoshop filters and tools. Refer to the Adobe Photoshop manual for more information about image enhancement.

Running Intellihance on the image again

When Intellihance processes an image, it compares the input to the settings in the Preferences screen and decides which filters to run to make the output conform to those settings. Sometimes you can run Intellihance again to gradually bring the image closer and closer to your preferences.

You can also run Intellihance again to bring out the effects of a specific filter. For example, maybe the sharpness of the image is good, but you want more brightness. If you set the Sharpness filter to Off and run Intellihance again, the Brightness filter continues to improve the brightness of the image.

Try running Intellihance with the Despeckle filter set to Dark Tones Only, and all other filters turned Off. This will clean up shadow speckles caused by excessive scanner noise.

Using the Fine Tune adjustment

When you click the Fine Tune... button in the Intellihance Preview screen, you can adjust sliders for Tone, Saturation, Sharpness, and Despeckle.

Tone

When you select the Tone tab, the Tone panel appears. The first slider adjusts the shadow (dark tone) values in your image to become black, or the Black Point. The available numerical values are 0 to 253, where 0 is black (or 100% solid). Notice that if you adjust the Black Point to a value higher than the Mid Point, the mid point value slides up also.

The second slider adjusts the middle tone values in your image. You can adjust this slider from 0 to 254. If your image contains middle tones (say, 25-75%) that you would like to darken or lighten overall, adjust this slider. Mid Point, normally considered to be 50%, is represented by the value 128.

The third slider adjusts the light tone values in your image to become white, or the White Point. You can adjust this slider from 2 to 255, where 255 is white (or 0% tone).

Saturation

When you select the Saturation tab, the Saturation panel appears. The slider bar is calibrated in percentage with 0% in the center, -100% on the left side, and +100% on the right side. A positive percentage value increases the color, but not the neutral or gray value in your image. A negative value decreases the color saturation. In other words, a saturated color tends to be brighter, and a desaturated color tends to stay the same.

Sharpness

When you select the Sharpness tab, the Sharpness panel appears. The Amount % slider bar has numerical values from 0 to 200%. The Amount % increases relative sharpness of the image. The Radius slider bar has values that range from one pixel to three pixels. Radius establishes the width of the sharpened edges. The Threshold slider bar has values that range from 0 to 255. Higher Threshold settings reduce sharpening of pixel and photo grain noise. We recommend values no greater than 20.

Despeckle

When you select the Despeckle tab, the Despeckle panel appears. The Amount % slider bar has numerical values from 0 to 200%. This slider sets the amount of pixel noise removed. The Lower Limit slider bar has values from 0 to 254. This value establishes the lowest level (darkest tone) at which despeckling or noise removal *begins*. The Upper Limit slider has values from 2 to 255. This value establishes the highest level (lightest tone) at which noise removal *ends*. For example, if you want to despeckle or remove noise in the shadow tones only, set the lower limit to 0 and the upper limit to 64.

Monitor Calibration Tips

If you want to use your monitor to evaluate halftones and color images on the screen (commonly referred to as “soft proofing”), you must calibrate your monitor. To reliably soft proof an image can save time and money in proofs and printing jobs.

Calibration is the process of adjusting your monitor with the color conversion parameters to compensate for various factors that affect both the on-screen image and its conversion to printed output. These factors include room lighting conditions, the type of viewing light source, and the quality and settings of your monitor and display card.

For a comprehensive instructions about how to calibrate your monitor, refer to *Calibrating Your System* in the Adobe Photoshop User Guide.

Printing Tips

After you’ve processed your image so that you’re satisfied with it, the next step is to prepare the image for your output device. You need to set the lpi of your output image and then of your output device.

Setting the lpi of your output image

Selecting the lpi of your printer or imagesetter has a dramatic effect on the quality of your printed image. The human eye needs to see at least 64 gray levels for good tonal evaluation. This is why you should consider your output printing requirements before you begin setting the ppi of your scanner. If you plan to photocopy, laser print, or quick print, don’t use line screens over 100 lpi.

Note: In most cases, you can use the setting for your printer’s default screen ruling located in your graphics application.

If not, calculate the best lpi for your printer based on the resolution of the printer (dpi), the line screen frequency (lpi), and the number of shades in your halftone.

Tip

$$\# \text{ of shades} = (\text{dpi}/\text{lpi})^2$$

$$\text{lpi} \approx \text{dpi} / \sqrt{\# \text{ of shades}}$$

Setting the lpi for your laser printer

Use the following table for setting the lpi of your laser printer.

Printer dpi	lpi	# shades	optimal for
300	53	32	
600	72	65	600 dpi laser proofing
600	85	50	newsprint proofing
800	100	64	
800	85	88	newsprint proofing
1000	133	56	high resolution
1000	120	69	better tone
1000	100	100	
1200	150	64	high resolution
1200	133	81	better tone
1200	100	120	

For example, if you have a 600 dpi laser printer, you should use 72 lpi. This provides 64 shades of gray. A setting of 85 lpi could also be used in proofing newsprint, which provides about 50 shades of gray.

Setting the lpi for your imagesetter

Imagesetters typically have a dpi of 2400 or greater. At this resolution level, it is the press that will determine the lpi. A sheet-fed, offset press can reproduce screens as fine as 200 lpi or higher. Since many factors determine the maximum lpi of the press, you should consult your print vendor for this information.

Multitone Tips

Duotones, Tritones, and Quadtones (multitones) are useful in creating sepia, old photo, and other colorization and special effects. Using two, three, or four inks to reproduce a single channel image not only creates these wonderful effects, but also increases the tonal depth of the image. In either case, Intellihance can be used to increase the effectiveness and consistency of Duotones, Tritones, and Quadtones.

Processing an image for Multitone reproduction

When processing an image for Multitone reproduction, it is often desirable to spread the tone of the image over the entire dynamic range, sharpen it, and then remove noise from the image. Intellihance does all this for you automatically.

If the image is old, you should set the Despeckle filter to Dark Tones Only. You might want to preserve some of the image's softness by setting the Contrast filter to Soft. Now the image is ready to print as a Multitone.

Converting an image to Multitone

The Adobe Photoshop manual describes several ways to convert an image to a standard Duotone, Tritone, or Quadtone. You can continue to use Intellihance on these images after they've been converted.

Glossary

bitmapped An image formed by a rectangular grid of pixels. The computer assigns a value to each pixel, from one bit of information (black or white), to as much as 24 bits per pixel for full color images.

calibration Setting equipment to a standard measure to produce reliable results from input to output. See also *monitor calibration*.

CMYK (Cyan, Magenta, Yellow, Black) The subtractive primaries, or process colors, used in color printing. Black (K) is usually added to enhance contrast and to print a true black.

color correction The process of adjusting an image to compensate for scanner deficiencies or for the characteristics of the output device, or the original film.

contrast The relationship between the lightest and darkest areas of an image.

dpi (dots per inch) A common measurement for describing the resolution of input and output devices. See also *ppi*.

duotone See *multitone*.

gamma Measures the contrast that affects the midlevel grays (midtones) of an image. Adjusting the gamma lets you change the brightness values of the middle range of gray tones without dramatically altering the shadows and highlights.

grayscale The depiction of gray tones between black and white.

halftone screen A pattern of dots of different sizes used to simulate a continuous tone photograph, either in color or black and white.

Lab The Lab color model is based on the original color model proposed by the Commission Internationale d'Eclairage (CIE) in 1931 as an international standard for color measurement.

lpi (lines per inch) A measure of the frequency of a halftone screen (usually ranging from 55-200). Originally, halftones were made by placing an etched glass plate over an image and exposing it to produce dots. Lpi refers to the frequency of the horizontal and vertical lines.

monitor calibration The process of correcting the color rendition settings of a monitor to match the colors of printed output.

multitone Used to integrate one or more colors into a grayscale image for a design effect.

pixel (picture element) The smallest distinct unit of a bitmapped image.

pixelization If the image resolution is too low, the PostScript language may use the color value of a single pixel to create several halftone dots when printing. This results in *pixelization*, or blocky-looking output.

posterization A flattening of highly saturated colors.

ppi (pixels per inch) A measure of the amount of scanned information. The finer the optics of the scanner, the higher the scan resolution.

quadtone See *multitone*.

RGB (Red, Green, Blue) The additive primary colors used for computer monitor displays.

saturation The strength or purity of color. Saturation represents the amount of gray in proportion to the hue and is measured as a percentage from 0% (gray) to 100% (fully saturated).

screen frequency The number of lines or dots per inch on a halftone screen. Same as lpi.

tritone See *multitone*.

white point The reflective value that a scanner sees as white or 0%.

Common Questions

Will Intellihance process every image correctly?

Intellihance processes most images in an optimum way. Users have experienced a 1-7% fallout, although it is interesting to note that often it is hard to improve the fallout images beyond that of images processed by Intellihance, even when starting from scratch. If image quality degrades after running Intellihance with its default preferences, try turning Contrast and/or Brightness preference settings Off and running Intellihance again.

What Scanners does Intellihance work with?

Intellihance works with all scanners—you can optimize images from any source.

Will Intellihance work with my color management system?

Intellihance works well with color management systems both inside and outside of Adobe Photoshop.

Does Intellihance require that my scanner be calibrated?

Because Intellihance operates on color balance principles, it works with both calibrated and uncalibrated scanners.

Can I run Intellihance multiple times?

Yes, running Intellihance again will bring the image even closer to your preferences.

Must I calibrate my monitor when using Intellihance?

If you plan to use the monitor display to evaluate the quality of the image before you print, it is very helpful—although not required—to calibrate your monitor. If you are evaluating grayscale images on the monitor, then calibrate your monitor using the monitor preferences in Adobe Photoshop. If you are evaluating color images on your monitor, you should use a color calibration system.

My image looks good on the monitor, but not in print.

You may need to calibrate your output device or monitor, or both. Refer to Chapter 3, “Advanced Tips,” in this manual for more information.

My image lacks contrast.

Try reducing the Limits and Dot Gain from Adobe Photoshop. Also, try increasing the Contrast filter setting or decreasing the Brightness setting in the Intellihance Preferences screen.

Registration

If you haven't already registered, please complete the following registration information, tear along the perforation and fax to (503) 274-0530 or mail it in the postage-paid envelope provided. Your product registration number is located on the Intellihance disk.

Registration Number					
Name					
Organization					
Street Address					
City	State	Country	Zip/Postal Code		
Daytime Phone			Daytime Fax		
e-mail (optional)	CIS AOL	A-Link	GEnie	InterNet	Other

Hardware Configuration (check all that apply)

- PowerMac Quadra Mac II any QuarkXPress for Windows
 CD-ROM Modem Scanner Do you also use a PC running Windows?
 PowerBook Network

QuarkXPress Experience (check one)

- <6 months 6 mo. – 1yr. 1 yr. – 2 yrs. 3 – 5 yrs. >5 yrs.

Number of personal computers at site (check one)

- 1 2–5 6–10 11–25 26–50 >50

How did you learn about Intellihance? (check all that apply)

- Advertisement Review Bundle Demo Dealer
 Word-of mouth User Group Direct Mail Other _____

Where did you purchase Intellihance? _____

What publications do you read? (check all that apply)

- MacWorld MacUser MacWEEK Adobe Publish
 X-Ray Other _____

Other Graphics/Publishing Application Used? (check all that apply)

- Photoshop Illustrator FreeHand PageMaker Persuasion
 Kai's Power Tools KPT Bryce KPT Convolver KPT Vector Effects Fetch
 Live Picture Debabelizer Painter Texture Maker Premiere
 XPosure The Black Box Paint Alchemy Acrobat Word
 WordPerfect Write Now MacWrite ClarisWorks Excel
 MS Works Quicken FileMaker Cytopia Photolab Ofoto
 ScanPrepPro PhotoFlash PhotoMatic Specular Collage Canvas
 QuicKeys Gallery Effects KPT QuarkXPress

Other Utilities Applications Used? (check all that apply)

- AfterDark Now Utilities RAM Doubler MacTools Norton Utilities
 Compression Spell Checker Stock Photo Clip Art

Suggestions

We'd like to know what you think we could do to make Intellihance better. So if you have an idea for a new product feature, a modification to an existing one, or anything else you can think of that will help us make Intellihance better—we'd like to hear from you.

To help make Intellihance better, please...

1. Print your name, address, and phone number below and sign your name.
2. Describe your idea or comment.
3. Tear along the perforation and mail or fax this sheet to Extensis.

I understand that no compensation will be awarded for my suggestion.

My suggestion is...

Name

Street Address

City	State	Country	Zip/Postal Code
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Daytime Phone	Daytime Fax
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Thanks for your suggestions! Hopefully you'll see your ideas in future versions of Intellihance or other Extensis products.