Internet Pictures Corporation

iPIX Photography with Nikon Digital Cameras

Coolpix 4500, 5000 models

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LEGAL NOTICE

iPIX images are a means of viewing a totally immersive, unbounded image created from two fisheye photographs. Based on the following U.S. Patents RE 36,207; 5,384,588; 5,764,276; 5,877,801; and 5,903,319 (others pending).

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Welcome to iPIX® Imaging

Thank you for your purchase of an iPIX® Camera Kit featuring the Nikon Coolpix digital camera. With your kit, you can shoot and build immersive iPIX images in a matter of minutes. iPIX images enable you to "step inside" an environment—exploring up, down, and all around. It is a solution that has proven valuable for many markets, including real estate, travel, publishing, education, training, and journalism.

This book describes the steps to set up your equipment, optimize your camera for iPIX photography, and download the images to your computer.

The fisheye lens and rotator are two of the most important camera kit components. The lens attaches to your camera and broadens the field of view (FOV) of your camera's fixed lens. The rotator lets you turn your camera exactly 180°—capturing one 180° picture, or "hemisphere." Two hemispheres are used to create an iPIX image.

Supported digital cameras capture hemisphere images using a supported digital camera, fisheye lens, and rotator.

General Notes

It is important that you familiarize yourself with your new camera and software first. Make sure you have installed the Nikon and iPIX software packages by following the instructions in the Nikon manual and iPIX user manual included on the iPIX CD-ROM. Without installing the software packages, you will not be able to transfer the images to your computer and create iPIX images.

Supported Camera Models

This manual supports the Nikon Coolpix 4500 and 5000 digital camera models. Other books for the Nikon Coolpix models 700, 800, 880, 885, 900, 950, 990, and 995 are available from the iPIX Web site, http://www.ipix.com/support.

Technical Support

The iPIX Web site offers basic technical support for iPIX products. Answers to frequently asked questions can be found on the FAQ page by visiting http://www.ipix.com/support/faq/faq.shtml.

Technical support is available for assistance with any iPIX product by visiting the iPIX Web site at http://www.ipix.com/support/camsoft/index.shtml or by calling toll-free (888) 425-0048 or emailing technical_support@ipix.com.

Before You Begin

Before you work with your camera, familiarize yourself with your new equipment. Most kits will include software, rotator, fisheye lens, and fisheye lens adapter for your camera.

Every digital camera supposed by Internet Pictures uses a fisheye lens and rotator. Some cameras also require a lens adapter.

Before you begin taking pictures, make sure you have everything you need:

- Freshly charged batteries and a spare set. Digital cameras use batteries very quickly. Even if you are using the best batteries, they may run down before you are finished taking pictures.
- The flash must be disabled when you use your Nikon digital camera for iPIX photography. When you set the camera to Fisheye Lens mode, the flash is automatically disabled.

For the best results, it is strongly recommended that you familiarize yourself with the Nikon Coolpix manuals included with your camera.

Photography Tips for iPIX Images

iPIX photography follows four basic steps, as outlined below. You can choose to use point-and-shoot settings, or you can manually control every aspect of the photographs. The choice is up to you.

1. Select a location and place the camera close to an area of interest.
2. Take the first picture using the settings outlined in this Guide.
3. Rotate the camera 180°.
4. Take the second picture.

Composing the Image

Composing an iPIX image involves two major decisions: seam placement and image viewpoint.

First, choose where the seam will fall. For example, if you are shooting a living room that features a complex and detailed dried flower arrangement, avoid placing the seam on this area. If you are shooting journalistic or action-packed subjects, such as a sporting event, avoid placing the seam in the areas where most of the action is taking place.

Second, determine the point of view by deciding where to place the camera and tripod. iPIX images place the viewer in the middle of the picture, and can make objects appear farther away than they really are.

- Don't place the tripod exactly between two areas of interest in the scene. Instead, position the tripod such that an area of interest is in the foreground of your scene.
- Determine the point of view of your shot and adjust the tripod to the appropriate height.

- Remember that the fisheye lens has over 180° of coverage. Make sure that you remain well behind the tripod when pictures are taken.
- When you take your first set of pictures, be aware of where you are in relation to the camera's field-of-view and the order in which pictures are taken. Sequencing pictures (front/back, back/front) helps to locate matching hemispheres when creating iPIX images.
- Try to avoid capturing people at the edge of the field of view. Take care to not place the iPIX image seam on visually important regions of the image.

Use of Lighting

Lighting plays a crucial role in how your hemispheres look as a completed iPIX image. If you take a picture of a room facing the brightest light source, a window for example, then that hemisphere will appear dark in the area surrounding the window. The opposing hemisphere will have a normal exposure. When you build the iPIX image using these two hemispheres, the lighting will be unbalanced, with one half of the image dark, and the other half light.

- If there is a primary light source, place it on the seam. This will balance the light between the hemispheres and keep overexposure to a minimum.
- When not shooting in manual mode, always use the Exposure Lock setting to capture equal lighting between hemisphere pictures.
- To even out the lighting on sunny days, blinds or curtains should be closed and all room lights turned on.
- Do not turn on the flash function.

iPIX photography never involves the use of your camera's flash. Using the flash can cause uneven image exposure between hemispheres. Even if the room is darkened, you will have more consistent results if you do not use the flash.

Lens, Tripod, Camera

The following instructions in this section will work with any supported Nikon Coolpix digital camera models. Exact instructions for inserting batteries and opening and closing the battery compartment doors can be found in the documentation shipped with your digital camera.

Assembling Your iPIX Camera Equipment

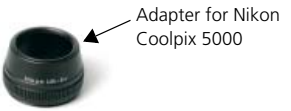
Careful assembly of your camera equipment and tripod will ensure high iPIX image quality. Make sure your tripod is firmly set up and that you pay close attention to avoid bumping or moving it between pictures.

Step 1: Assemble the Tripod and Rotator

1. Remove the rotator.
2. Extend each tripod leg by starting at the bottom, loosening the twist bolts, and extending it to its full length.
3. Tighten the bolt.
4. Repeat the process for the remaining legs.
5. Turn the base of the rotator clockwise to firmly attach it to the tripod.

Step 2: Attach the Fisheye Lens Adapter

1. Remove the fisheye lens from the case.
2. Remove the back lens cap from the fisheye converter lens, being careful not to touch the lens glass. Nikon 5000: Attach the adapter tube to the fisheye converter lens.
3. Leave the front fisheye lens cap on until you are ready to shoot.
4. Attach the back of the fisheye converter lens to the threaded camera lens.



Step 3: Attach the Camera to the Rotator

1. Place the camera on the rotator.
2. Align the threaded mount on the bottom of the camera with the thumb screw on the rotator.
3. The camera body will sit differently on the rotator depending upon your camera model. The front of the camera lens should sit directly over the rotator's center.
4. Gently turn the thumb screw on the rotator clockwise to secure the camera.
5. Turn the rotator until it clicks softly into place.
6. Rotate the camera clockwise by gripping the rotator base until it clicks into place.

To avoid image misalignment or camera/lens damage, rotate the camera clockwise using the rotator base only. Whenever you rotate the camera, make sure the rotator remains securely attached to the tripod.

2

Nikon Coolpix 4500

The instructions in this chapter explain how to use your Nikon Coolpix 4500 to take iPIX immersive images. Some settings are not retained after the camera is turned off, while others, like image quality settings, remain unless the batteries are removed.

There are two setting levels you can use with your Nikon Coolpix 4500 digital camera: basic settings (point-and-shoot) and manual settings. The *Basic* method lets you create consistent quality photographs with the least amount of steps. The *Manual* method lets you control every aspect of your camera to create the highest possible quality images.

Camera Menu Settings

The following camera settings must be changed or confirmed before you can take iPIX photography. Settings that need to be changed are shown in bold.

Table 1: Camera Menu Settings

Option	Default	iPIX Change
White Balance	A-WB Auto	**Set for each scene**
Metering	Matrix	**Center Weighted***
Continuous	Single	
Best Shot Selector	Off	
Image Adjustment	Auto	**Normal**
Saturation Control	Normal	
Image Quality	Normal	**Fine**
Image Size	2272x1704	
User Setting	1	
Image Sharpening	On	**Off**
Lens	Normal	**Fisheye1**
Exposure Options (AE Lock)	Off	**On (Reset)**

*Selecting the Fisheye1 lens option automatically change sthe metering in the camera from Matrix to Center Weighted.

Basic Method

The simplest method of capturing iPIX images is by placing the camera in Aperture-Priority Auto. In this mode, you control aperture by rotating the command dial while the camera automatically adjusts shutter-speed.

To place the camera in Aperture Priority Auto mode, press the Mode button and rotating the command dial. In Aperture Priority Aperture mode, you can control aperture by rotating the command dial while the camera automatically adjust the shutter speed. If the selected aperture would lead to an exposure outside of the camera's range the aperture will flash on both displays when the shutter release button is pressed halfway.

The drawback to taking the images in the Aperture Priority Mode is that the exposure difference between the two images taken for the iPIX image may be significant. This may result in a noticeable difference in color and brightness between the two hemispheres.

To minimize the difference, iPIX recommends setting the White Balance and Locking the Exposure before taking the pictures.

Taking Pictures

1. Place the camera in Aperture Priority-Auto by pressing the Mode button and rotating the command dial.
2. Turn the thumb dial until F-5.3 is displayed.
3. Optional: Set the White Balance according to the lighting conditions. (See below.)
4. Recommended: Reset AE lock. (See below.)
5. Take the picture, rotate the camera, and take the second picture.
6. Repeat steps 3-5 above for each iPIX immersive image pair.

Suggested Steps

AUTO EXPOSURE LOCK

Before taking each pair of iPIX immersive hemispheres, reset the Exposure Lock (AE Lock). Select the Exposure Options again, press the right arrow, press the right area for AE Lock, and select the Reset Option.

- Press the Menu button and scroll down until the third menu page is displayed.
- Use the arrow buttons to select Exposure Options, and press the right arrow button to select it.
- Press the right arrow button again to display the AE Lock menu.
- Select On or Reset, and press the right arrow button to activate it.

"Reset" should be used before taking the next pair of iPIX immersive image shots.

WHITE BALANCE

- Press the Menu button once to display the Shooting menu.
- Press the down arrow and scroll down to White Balance, then press the right arrow button to display the White Balance menu.

Manual Method

Your camera's Manual mode lets you set the exposure level and the shutter speed to ensure the highest quality iPIX Immersive image. Every time you take a picture, you will need to select the best exposure level, as described on the next page. Every picture, however, should be taken with the Aperture set to 5.3.

In manual mode you can select both shutter speed and aperture (switch between the two by tapping the MODE button). A display on the LCD monitors indicates how much the image would be under or over exposed with a particular exposure setting. Also, available in Manual exposure mode are BULB exposures, with this, the shutter will stay open for as long as the shutter release button is held, up to a maximum of 5 minutes.

Setting the Aperture

Set the camera to Manual by holding the mode button down and turning the thumb wheel until the "M" appears in the lower left corner of the LCD screen, indicating Manual mode.

Press the mode button until the aperture setting is highlighted in green. The aperture setting is displayed at the lower edge of the monitor and preceded by the letter “F”. When the setting is highlighted in green, turn the thumb wheel until F5.3 is displayed.

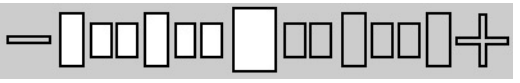
Taking Pictures

Repeat the following for each scene:

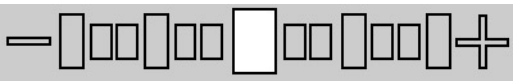
1. Press the Mode button to set the shutter speed.
2. When the shutter speed is highlighted in green, use the thumb wheel to set the shutter speed to a correct exposure setting as indicated by the camera’s light meter.

3. The amount the photograph would be under or over exposed at the selected setting is displayed in the control panel exposure count display and in the exposure display in the monitor.

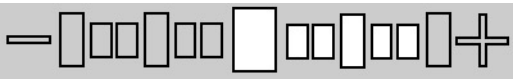
Underexposed



Proper Exposure



Overexposed



When using the light meter, point the camera towards a part of the scene which is receiving average illumination- not toward the brightest or darkest parts of the scene.

4. Finally, press the menu button and set the White Balance to a setting suitable for the scene you are photographing.

You can program the FUNC button to adjust the White Balance without accessing the camera menus. The FUNC button settings are changed from the Set-Up menu. The White balance can then be set by pressing the FUNC button and rotating the command dial.

5. Shoot the first hemisphere, turn the iPIX rotator 180 degrees, and without changing any settings shoot the second hemisphere.

3

Nikon Coolpix 5000

The instructions in this chapter explain how to use your Nikon Coolpix 5000 to take iPIX immersive images. Some settings are not retained after the camera is turned off, while others, like image quality settings, remain unless the batteries are removed.

There are two setting levels you can use with your digital camera: basic settings (point-and-shoot) and manual settings. *Basic* settings let you create consistent quality photographs with the least amount of steps. *Manual* settings let you control every aspect of your camera to create the highest possible quality images.

Camera Menu Settings

The following camera settings must be changed or confirmed before you can take iPIX photography. Settings that need to be changed are shown in bold.

Table 1: Camera Menu Settings

Option	Default	iPIX Change
User Setting	Blank	
White Balance	A-WB Auto	**Set for each scene**
Continuous	Single	
Best Shot Selector	Off	
Image Adjustment	Normal	
Saturation Control	Normal	
Image Quality	Normal	**Fine**
Image Sharpening	Normal	**Off**
Metering	Matrix	**Center Weighted***
Lens	Normal	Fisheye1
Auto Exposure Lock	Off	On (Reset)
Image Sharpening	Auto	

*Selecting the Fisheye1 lens option automatically change sthe metering in the camera from Matrix to Center Weighted.

Basic Method

The simplest method of capturing iPIX images is by placing the camera in Aperture-Priority Auto. In this mode, you control aperture by rotating the command dial while the camera automatically adjusts shutter-speed.

To place the camera in Aperture Priority Auto mode, press the Mode button and rotating the command dial. In Aperture Priority Aperture mode, you can control aperture by rotating the command dial while the camera automatically adjust the shutter speed. If the selected aperture would lead to an exposure outside of the camera's range the aperture will flash on both displays when the shutter release button is pressed halfway.

The drawback to taking the images in the Aperture Priority Mode is that the exposure difference between the two images taken for the iPIX image may be significant. This may result in a noticeable difference in color and brightness between the two hemispheres.

Taking Pictures

1. Set the camera to Aperture Priority Mode by holding down the Mode button, and rotating the thumbdial until an “A” appears in the lower left corner of the top LCD screen.
2. Set the image quality to FINE by pressing the Size button on the rear of the camera. The Image size should set to the highest resolution by holding the Size button and rotating the Command dial.
3. Optional: Set the White Balance according to the lighting settings. (See below.)
4. Recommended: Reset AE lock. (See below.)
5. Take the picture, rotate the camera, and take the second picture.

6. Repeat steps 3-5 above for each iPIX immersive image pair.

Suggested Steps

AUTO EXPOSURE LOCK

Before taking each pair of iPIX immersive hemispheres, reset the Exposure Lock (AE Lock).

- Press the Menu button twice to display the second menu page.
- Press the right arrow button to select Exposure.
- Press the right arrow button again to display the AE Lock menu.
- Select On or Reset, and press the right arrow button to activate it.

Use the "Reset" option before taking the next pair of iPIX immersive image shots.

WHITE BALANCE

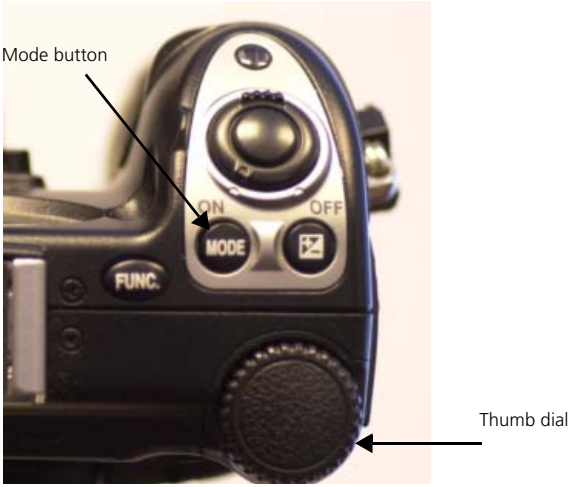
- Press the Menu button once to display the Shooting menu.
- Press the down arrow and scroll down to White Balance, then press the right arrow button to display the White Balance menu.
- Highlight the option which best matches the current lighting conditions.
- Press the right arrow button to choose the option.

Manual Method

The Manual method uses your camera's Manual mode. You will need to set the camera's shutter speed for each image. The aperture should stay at F8.0. You may also wish to adjust the white balance to be appropriate with the lighting conditions.

In manual mode you can select both shutter speed and aperture (switch between the two by tapping the MODE button). A display on the LCD monitors indicates how much the image would be under or over exposed with a particular exposure setting.

1. Set the camera to Manual Mode by holding the Mode button down and turning the thumbwheel until the "M" appears in the lower left corner of the LCD screen, indicating Manual mode.



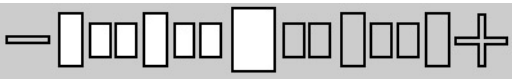
2. Press the mode button until the aperture setting is highlighted in green. The aperture setting is displayed at the lower edge of the monitor and preceded by the letter "F". When the setting is highlighted in green, turn the thumbwheel until F8.0 is displayed.

Taking Pictures

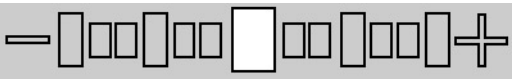
Repeat the following for each scene:

1. Press the Mode button to set the shutter speed.
2. When the shutter speed is highlighted in green, use the thumbwheel to set the shutter speed to a correct exposure setting as indicated by the camera's light meter.
3. The amount the photograph would be under or over exposed at the selected setting is displayed in the control panel exposure count display and in the exposure display in the monitor.

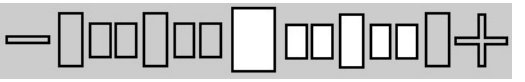
Underexposed



Proper Exposure



Overexposed



When using the light meter, point the camera towards a part of the scene which is receiving average illumination- not toward the brightest or darkest parts of the scene.

4. Finally, press the menu button and set the White Balance to a setting suitable for the scene you are photographing.

You can program the FUNC button to adjust the White Balance without accessing the camera menus. The FUNC button settings are changed from the Set-Up menu. The White balance can then be set by pressing the FUNC button and rotating the command dial.

5. Shoot the first hemisphere, turn the iPIX rotator 180 degrees, and without changing any settings shoot the second hemisphere.