

# ENROUTE QUICKSTITCH 360

## Introduction

Enroute Imaging's QuickStitch 360 easily combines digital images into high quality QuickTime VR panoramas. Let it work automatically, or manually set the brightness, contrast and overlap for any image. Great tool for Web page enhancement, presentations, interactive tours and panoramic scenes. Enjoy professional results quickly and simply.

## Editor's Note

Enroute's QuickStitch 360 for Macintosh was in final product testing as of the printing of this manual. Please complete and return the coupon enclosed with your RDC-4300 digital camera to obtain this software.



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# Enroute QuickStitch 360

## Minimum System Requirements

### Windows Platforms

Windows 95/98 or NT 4.0 with Pentium Processor  
16 MB RAM  
40MB Disk Space  
256 Screen Colors  
Screen Resolution of 640x480 required (800x600 recommended)

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## Getting Started

### Windows Installation:

To install QuickStitch 360 on your computer, execute Setup.exe from the distribution directory. This will invoke the InstallShield setup for QuickStitch 360.

QuickTime 3.0 will also be installed as part of this process. QuickTime is a separate product from Apple Computer, distinct from QuickStitch 360. Installing QuickTime is required for writing output panoramas from QuickStitch 360 as QuickTimeVR files.

When installation is complete, you may close all windows opened by the installation process and run QuickStitch 360 from the Start menu under Programs.

See the Known Problems section of this file if you have trouble installing.

### Windows Deinstallation:

To remove QuickStitch 360 from your computer, execute the Add/Remove Programs utility in the Control Panel folder. Select QuickStitch360 and press the Remove button.

### Known Problems:

Under Windows NT, some users may see an error box on executing Setup.exe that says "Can't run 16-bit Windows program." This is a known bug under Windows NT 3.5 and 3.51 (see Microsoft Knowledge Base article Q143388), but has also been reported on Windows NT 4.0 systems after installing other software packages. A workaround to try is to create a temporary directory with an 8.3 compliant path (e.g. c:\qsinst), copy the contents of the installation directory from the CD to that directory, and execute Setup.exe from there. If that fails, the software may be installed manually by copying the contents of the Disc subdirectory to the desired installation directory. Execute AI33Y87qais.exe to install QuickTime 3.0 for QuickTimeVR output capabilities.

Next button on Demo presentations is difficult to press. Click carefully on the center of the word.

On the Import Images dialog, if more than one image is selected and included by pressing the Include button, the dialog is dismissed. If you have more images to include, bring the dialog up again with the Import Images button on the main window.

Undo of certain operations, such as Rotate All, may take some time (generally about as long as it took to perform the action). Please be patient.

Automatic cropping occasionally crops more from the image than is necessary. If the automatic cropping on a panorama is not acceptable, use the Stitch Options dialog to turn this feature off. Manual cropping may be done in the Viewer window.

## Using Enroute QuickStitch 360 Taking Optimum Pictures

The process of generating panoramas matches elements in a picture with common ones in another. The following suggestions help ensure that there are enough common elements between scenes to allow a seamless stitch.

1) The wider the scene you're capturing, the more you'll want to use a tripod. With just a few photographs over a narrow range, holding the camera to your eye and rotating your body around a fixed position is fine. Remember to keep the camera level!

For a much wider scene (especially full 360-degree panoramas) you will need a tripod to insure stability all the way around. For best results, you might want to consider a "VR Tripod Head."

2) Overlap images between 35% and 65% (50% recommended)

3) Avoid scenes with lots of things in motion.

4) Either Portrait or Landscape photos are fine, depending on how tall you want the final image to be. But pick one or the other for a specific panorama.

### Filename Display

When you are manipulating images in Step 2, e.g. reordering, adjusting contrast, etc., the individual picture's file name will be displayed when you move the cursor over the image and pause for a moment. The "Filename Display" option controls how this information is displayed, according to the level you select.

None:

No file name is displayed.

Filename only (default):

The name of the individual graphics file is displayed.

Full path:

The name of the individual graphics file is displayed with full path directory information

### File Selector Type

The "Import Images" button in Step 1 will bring up a window in which you can select graphics files you want to stitch together. You can change the appearance of this window as follows.

Previewing File Selector:

This is the custom QuickStitch 360 file import window, complete with graphical Preview of images and the ability to "Insert All" with one button click.

Standard File Selector:

If you feel more comfortable with a standard Windows interface, select this option. Within the Standard Windows File Import Interface, you'll see some familiar Windows buttons and pulldown menus, along with a few QuickStitch 360 specific ones as described below.

Select the individual images you want to import in the left window and then click the Include button to include them in your panorama (they will appear in

the right window after you Include them. If you want to exclude an image you've included by mistake, select it in the right window and then use the Exclude button.

After you're done Including images, hit Import and QuickStitch 360 will load the images into the QuickStitch 360 workspace.

### Step 1: Import Images

- Using the Previewing File Selector
- Using the Standard File Selector

Clicking on the "Import Images" button in the Step 1 box will bring up a file selection window. Find the folder that your pictures are in using the dropdown list on the left.

As you are searching for the right graphics files, you can **Preview Images** simply by highlighting the bitmap (.bmp) or jpeg (.jpg) file and the picture will automatically be displayed in the "Image Preview Area."

To disable this feature, just uncheck the "Show Preview" box.

Once you have located the pictures you want to stitch together, you can either individually include them using the "Include" button (you can select multiple pictures in a group by holding down the <Ctrl> key), and then click the "Done" button to return to the main interface, or just "Include All" pictures if all of your images are in the same dedicated directory. You'll automatically be returned to the main interface after clicking "Include All."

### JPEG Compression Options

If the JPEG (.jpg) file type is selected, you will be prompted to choose an image quality (Windows only). Lower numbers will use more compression, which will therefore create a smaller file. Larger numbers will provide less compression, but generally provide better image quality.

### Step 2: Process Images to get them ready for stitching

- Sorting/Reordering Images
- Excluding Images
- Rotating Images
- Brightness/Contrast Control
- Overlapping Images (optional)
- Manual/Automatic Mode

In most cases, you won't have to do anything to get your pictures ready to stitch together into a panorama, but the following image manipulation options are available:

**Reordering Images**—The order of the images is important because QuickStitch 360 will attempt to stitch the pictures together in the order they appear



on the screen. If you took your pictures in a continuous sequence, then this will automatically be the case.

Also, you will need to make sure you have the concise image orientation. If you took your pictures in Portrait mode, then you will probably have to Rotate your images 90 degrees.

If you need to change the order of the pictures, just drag-and-drop the pictures into the proper order.

As a general guideline, just make sure that what you see approximates how the final scene is supposed to look.

**Excluding Images**—If there are images you want to exclude from the panorama, just select an image and pick the “**Exclude**” button. There is an “**Exclude All**” button for removing all images from the main window so you can import them again or import a different set of pictures. Note that this does *not* delete the image from disk, only from the QuickStitch 360 sorting window.

**Rotating Images**—If you need to rotate your images, pick the “**Rotate All**” button and all of the pictures will be rotated 90 degrees. Remember that you want the images to be aligned consistently with the way the final image will look.

**Brightness/Contrast Control**—Minor lighting anomalies can be corrected by selecting the image you want to alter and then picking the “**Brightness ...**” button. You will then be presented with both brightness and contrast controls. As you adjust the controls, you will be able to see the result on the image you select in real time.

**Overlapping Images**—You can generally go ahead and “**Stitch Panorama**” after ordering your images in the “Sort Images” area, but if you want to manually overlap your photos, you can do that via the “**Overlap Images**” tab.

As you drag each image over an adjacent one, you’ll be able to see both images match together with the top image being translucent. Remember that you need to adjust from left to right, in other words, you need to start by dragging the image second-from-the-left onto the *left-most image* and then drag the third-from-the-left onto the second-from-the-left, and so on. Note that all images to the right of the one you’re moving tag along to preserve their layout.

**Manual/Automatic Mode**—If you want QuickStitch 360 to overlay as many photos as it can before you start manual image manipulation, then just pick the “**Automatic**” button.

Remember that you normally don’t need to visit this area in order to create your final panoramic image. Once you’ve sorted your images, just click “Stitch Panorama” to let QuickStitch 360 do all of the overlapping and stitching work for you.

### Step 3: Stitch Images

- Stitch Panorama
- Stitch Options
- Panorama Type
- Output Image Size
- Crop Type
- Lens Type
- Exposure Correction

**Stitch Panorama**—Even though this is the hardest part of the process for QuickStitch 360, it’s actually the easiest part for you! Simply press the “**Stitch Panorama**” button and then sit back and relax while QuickStitch 360 creates your final panoramic image.

**Stitch Options**—There are stitching options available by picking the “**Stitch Options...**” button. In most cases, the default settings will be fine, but if you want more control over your output, feel free to explore the following:

**Panorama Type**—Check the “**360 degree pano**” box if you’re creating a full 360 degree panoramic image. If you’re just creating a wide angle panorama, remove the check from this box. QuickStitch 360 will automatically guess which type of panorama you’re trying to create, so you won’t usually have to visit this area.

**Output Image Size**—Change the output resolution of your image by selecting one of the following output image sizes:

- Small—Maximum output size of 76,800 pixels, the equivalent of a 320x240 image. Good for World Wide Web applications and other situations where small file sizes are needed.
- Medium—Maximum output size of 480,000 pixels, the equivalent of an 800x600 image. Appropriate for most uses.
- Large—Maximum output size of 1,310,720 pixels, the equivalent of a 1280x1024 image. Preserves high resolution but consumes more memory and results in much larger files.
- Jumbo—Maximum output size of 3,145,728 pixels, the equivalent of a 3-megapixel image. Best for applications requiring very high-resolution output, and should only be used on fast computers with large amounts of RAM.

**Crop Type**—QuickStitch 360 will automatically crop your panorama to a rectangular image. If you don’t want this to happen, remove the check from the “**Automatic Cropping**” Box. When you hit the “**Select Crop**” button, you will see a dashed-rectangle with red squares at the four corners and at the middle of the sides. You can grab (with the mouse cursor) any of these red boxes and resize the cropping window.

Then hit the “**Crop**” button and whatever was included in the dashed lines will remain, while everything outside the rectangle will be “**Cropped**”

off. You can always hit **“Undo”** if you don't like the result.

#### **Undo**

QuickStitch 360 provides a **“cumulative undo”** feature which allows you to backtrack over your steps if you decide you headed down the wrong path. For example, if you want to **“Undo”** the last change you made, just hit **“Undo”** once. If you want to **“Undo”** the last two changes, hit **“Undo”** twice, etc.

**Lens Type**—QuickStitch 360 will work with almost all standard camera lens types. If you're using a Very Wide Angle lens, then select the **“Very Wide Angle”** option for best results. This setting refers to non-digital camera lenses with a focal length of less than 28mm.

It sounds confusing, but **“focal length”** is not related to the term **“35mm camera.”** Non-digital cameras are often called **“35mm”** because their film is 35mm in size, while **“focal length”** refers to the length of the lens' focusing mechanism when the picture is taken. For example, many of today's point-and-shoot cameras come with a zoom lens that has a range of, say, 38mm to 70mm. This means that the lens has a focal length of 38mm with no zoom, and a focal length of 70mm at maximum zoom.

QuickStitch 360 automatically adjusts for pictures taken (and scanned) with non-digital camera lenses above 28mm, and most off-the-shelf cameras come with a 28mm or greater focal length lens.

However, some cameras allow you to attach separate lenses that have lower focal lengths such as 20mm, 15mm or even 8mm. These are known as **“Very Wide Angle”** lenses, and they capture a much wider field of view in each shot. Check the **“Very Wide Angle”** setting in the Stitch Options box when using these lenses with non-digital cameras.

If you think you might have pictures taken with a **“Very Wide Angle”** lens but aren't sure, then just try stitching your panorama without the box checked. If it looks horizontally stretched out, then you'll want to try checking the box.

#### **When Using a Digital Camera**

Most, if not all digital cameras will work fine without checking the **“Very Wide Angle”** box, regardless of what the digital camera focal length specification is. This is because digital cameras use a different method of measuring focal length than non-digital cameras.

**Exposure Correction**—Remove the check from the **“Automatic”** box to stitch your image without having QuickStitch 360 automatically compensate for individual image exposure anomalies.

Remember that you normally don't need to visit this area to create your final panoramic image! Once you've sorted your images, just click **“Stitch Panorama”** to let QuickStitch 360 do all of the overlapping and stitching work for you.

#### **Step 4: Export Panorama**

- Cropping and Saving Your Image
- Selecting an Output Image Type
- QTVR Output
- Printing
- Selecting Crop Type
- Sharpening the Image

**Cropping and Saving Your Image**—In the Viewer Window you can crop your photo if you want, and then save it as a graphics file or QTVR movie.

If something looks odd at this point, try Manual Overlap. Also, you might want to try and see if your problem is described in the FAQ. Other places to check are Stitch Options and the general Technical Support page.

If you want to crop your panoramic image (normally it's not necessary, especially for full 360 degree panoramas), first pick the **“Select Crop”** button to bring up the resizable cropping window, then resize the window to include the area you want to save. Pick the **“Crop”** button to crop your image. If it's not what you expected, you can Undo by selecting the **“Undo”** option in the Edit menu.

Picking the **“Save”** button will bring up a standard File-Save interface window which you can use to write your image to disk.

Saving as a Bitmap (.bmp) file is the default option, but you can also save as a JPEG (.jpg) file, or a QTVR movie (.mov) file. If you're saving to a JPEG (.jpg) file, you'll be prompted for some compression options. If you're saving to a QTVR movie (.mov) file, then you'll be prompted for some QTVR options.

#### **QTVR**

**“QTVR”** stands for QuickTime® VR which is a Trademark of Apple Computer, Inc.

QTVR is a tool which inserts the user into a **“virtual reality”** environment, allowing them to experience a panoramic scene from a virtual three-dimensional viewpoint instead of just a flat two-dimensional one. QuickStitch 360 provides a means of creating these **“panoramic scenes”** for use with QTVR.

You can find out more about QTVR on Apple's website: <http://www.apple.com/quicktime/authors/vronweb.html>

#### **QTVR Links**

For instructions on how to integrate QTVR movies into your website, try Apple's extensive QTVR Web Page site at:

<http://www.apple.com/quicktime/authors/vronweb.html>.

#### **QTVR Options**

This dialog box can be imposing because of the many technical options available. Fortunately, just hitting the **“OK”** button will work well much of the time.

#### **Compression Type**

Specify Cinepak, JPEG, or Sorenson compression.

### **Cinepak, JPEG, and Sorenson compression**

**Cinepak**—Cinepak compression was designed to complement mid-range (the higher speed 486 Intel and 68040 Macintosh processors are considered "mid-range") and faster machines, as well as low CD-ROM speeds (e.g. 2x). This method is the least useful choice for today's high data rate applications, such as web page graphics or high speed CD-ROM (4x and above) uses.

**JPEG**—JPEG compression was designed for compressing static high-resolution images such as digital photographs and 8-bit grayscale images. A major advantage of JPEG compression is that it has a "lossless mode" (QuickStitch Quality Setting 10) where no image information is lost in the compression process (the trade off being a larger output image size). JPEG compression typically requires a faster computer to take advantage of the advanced compression features.

**Sorenson**—Sorenson compression is a good overall choice for web application and CD-ROM video and provides a good balance between output image size and output image quality. The trade off here is that Sorenson Compression, like JPEG compression, typically requires a faster computer to take advantage of the advanced compression features.

#### **Image Quality**

Minimum (towards the left) settings will result in the minimum image quality (and therefore the maximum compression and the smallest file size). Maximum (towards the right) settings will result in the highest image quality (minimum compression, largest file size).

#### **Starting Panning Angle**

50% represents looking at the horizontal center of the panorama when you start QTVR. 0% would be the extreme right edge of the 2-D panorama. 100% would be the extreme left edge. (For a 360 degree panorama, 0% and 100% look at the same spot).

#### **Starting Tilting Angle**

0% represents looking at the vertical center of the panorama when you start QTVR. 100% would be the extreme top edge of the panorama, -100% would be the extreme bottom edge of the Panorama.

#### **Window Width/Height**

You can specify the size of the QTVR viewing window here. For optimum clarity, choose a height equal to or less than the height of your panorama. Then choose a width that is roughly 4/3 of the height. For example, if the height is 300 pixels, you might want to choose a width of  $4/3 * 300 = 400$  pixels.

#### **Window Field of View (FOV)**

Here you can specify the field of view (in degrees) of the QTVR viewing window when someone first opens your file. A lower field of view shows less of the panorama in the QTVR window, and therefore has a "zoomed in" appearance. A higher field of view shows more of the panorama and is like zooming out.

Regardless of the setting you choose, the user can zoom in and out normally (using the QTVR interface) through the complete range of motion.

The maximum setting is limited by the field of view captured in one shot with the camera used. For instance, if your lens captures a 38 degree field of view, then entering a number higher than this will have no effect. The result will be the same as entering 38. But entering 20 will result in a panorama that is "zoomed in" when it is first opened (see example below).

**File-Print**—Print your image to your local or network printer.

**Edit-Crop Type**—Select either Vertical Cropping or Rectangular Cropping.

**Image-Sharpen**—Sharpen the final image.

## **Frequently Asked Questions (FAQ)**

Topics:

- Software Troubleshooting
- Picture Taking
- Importing Images
- Preparing and Sorting Images prior to Stitching
- The Stitching Process
- The Panorama!
- QTVR

### **Software Troubleshooting**

**Q: QuickStitch 360 doesn't install or doesn't run! What's wrong?**

A: Check here for a list of system requirements

**Q: What cameras and lenses does QuickStitch 360 support?**

A: Pictures must be taken from a digital camera or scanned from a photograph using a distortion-free lens. Most regular cameras with regular lenses (including zoom) are fine, but fisheye lenses are inappropriate, and "barrel" distortion is characteristic of all but the best wide angle lenses (below 28mm). To correct for wide angle lens distortion, QuickStitch 360 has a "wide angle lens" setting.

**Q: Do I really need to use a tripod if my image sequence contains more than six shots?**

A: Tripods provide a stable and level means of holding your camera steady. It's mainly necessary because it's very difficult to maintain a consistent camera orientation when taking more than just a few pictures. QuickStitch 360, however, is pretty smart, so if you're in a situation where you don't have a tripod, just try your best to keep steady and see if QuickStitch 360 can figure things out later. The "Death Valley 360 Panorama" provided in the Sample Images directory was shot without a tripod (mainly because there are very few tripods available in Death Valley).

**Q: Is there anything specific I should keep in mind when using a tripod?**

A: First and foremost, the tripod should be level and on a stable surface. A "bubble level" is useful in determining if the camera and tripod combination is level. Also, you can use special tools designed to facilitate panoramic picture taking, such as a VR Tripod Head .

**Q: How close can I be to elements in my scene?**

A: We recommend that you stay at least 15 feet from your subject, but this is just an approximation—sometimes it is OK for scene elements to be closer. The 15-foot rule is designed to lessen an effect known as motion parallax. Motion parallax occurs when, by virtue of rotating your camera between shots, elements in the scene are uncovered or hidden by foreground elements. This is less likely to happen when using a tripod.

**Q: Can I take pictures indoors?**

A: Yes, but since indoor shots generally include nearby objects, it becomes even more important to hold the camera level and rotate it around one position. Motion parallax, described in the FAQ topic above, is generally more of an issue as well.

**Q: Can I take flash pictures?**

A: Don't use a flash when taking pictures for QuickStitch. A flash is only effective at short range (below the recommended minimum distance). Also, the flash creates highlights and shadows that can confuse QuickStitch.

**Q: How do I get pictures into my computer?**

A: If you are using pictures from a digital camera, see the manufacturer's instructions on loading these pictures onto your computer. This generally involves some software (and perhaps cables) that came with the camera.

**Q: But what if I'm using scanned images?**

A: To scan regular photographs, refer to the scanner manufacturer's instructions. Once your scanned images have been saved to disk in BMP or JPG format, QuickStitch can use them.

**Q: Where are my source pictures (the pictures I want to stitch)?**

A: Pictures imported from a digital camera are often saved into the folder holding the camera software. Use the Import Images box to navigate to the folder containing your camera software, or use Windows' Find command (on the Start menu) to locate your files.

**Q: I can't see certain image files in the Import Images file list. Where are they?**

A: QuickStitch 360 supports Windows Bitmap and JPEG images that end with BMP and JPG filename extensions, respectively. Files of other types will not show up in the Import Images window.

**Q: Why can't I see the images in my camera in the Import Images window?**

A: Certain digital cameras allow you to access images in the camera as if the camera were just

another folder on your computer's hard drive. Sometimes these folders do not show up in QuickStitch 360's Import Images window. If this happens, first make sure you have properly loaded any software that came with the camera and if this fails, try switching to the Standard File Selector.

**Q: Why does it take so long for the images to appear in the Preview Window?**

A: Factors which influence Preview display speed include the image size (the smaller, the faster), the speed of your hard disk, and the speed of your computer's processor. If you find that the images are coming up much too slowly, you can uncheck the "Show Preview" box in the "Import Images" window to disable this feature.

**Q: What is this "Sort Images" tab, and when do I use it?**

A: Use "Sort Images" when you want to change the sequence of the images to fix an ordering problem, rotate your images, or adjust an individual picture's contrast and brightness. Usually you won't need to do any of these things, and you can jump right to "Stitch Panorama".

**Q: Can I make the images in the "Sort Images" window any bigger?**

A: Sure! Just resize the QuickStitch 360 window.

**Q: What is this "Overlap Images" tab, and when do I use it?**

A: Click here for an explanation of the "Overlap Images" tab. You only need to visit this area in the unlikely event that QuickStitch 360 can't stitch your photos, or in the rare cases when you have a Portrait image you're trying to stitch together with a Landscape image (or something similar).

**Q: What does the "Automatic" button do in the "Overlap Images" Tab?**

A: In the event that QuickStitch 360 cannot stitch your panorama automatically, there will probably only be one or two stitches that require manual attention. Use the "Automatic" button to take a first cut at stitching and then clean up in the areas where the stitching doesn't work quite right.

**Q: If I decide to manually adjust the image overlap, do I need to do it for all my images?**

A: No. This is one of the nice things about QuickStitch 360; if you're having trouble with a few images, just manually adjust those images and leave the others alone. Then click "Stitch Panorama" and QuickStitch 360 will finish the job.

**Q: Why do I lose the manual adjustments I've made when I go back to the "Sort Images" tab after working in the "Overlap Images" tab?**

A: Manually overlapping your images and then trying to reorder them will confuse QuickStitch 360 because it cannot determine whether you want to move just the image you selected, or any image which overlaps it, or a combination of these. Therefore QuickStitch 360 just assumes you want to start over at the sorting stage when you return to the "Sort Images"





tab from the "Overlap Images" tab. Sort your images first, then select the "Overlap Images" tab if you want to manually overlap your pictures, then hit "Stitch Panorama" to finish the job.

**Q: Why does it take so long for QuickStitch 360 to stitch my panorama?**

A: There are many factors which directly influence how fast QuickStitch 360 is able to stitch your images together. First, it heavily depends on the type of computer you have. Obviously if you've got a system with a fast processor and a lot of memory, then QuickStitch 360 will stitch faster than if you had a slower system. Another factor which could impact system speed is the number of programs you have running concurrently in the background (try to minimize the use of these when you run any processor intensive program). You can also reduce the output image size for faster results. Third, it depends on how many images are in your Panorama (the more you have the longer it takes), and how large the individual picture size is (the larger the image size (in bytes) the longer it takes). Interestingly, the complexity of the image doesn't really matter very much, so don't worry about scenes with lots of things in them (as long as those things aren't moving around when you take your pictures!)

**Q: My stitched panorama doesn't look right. What might have happened?**

A: If the output looks like some images did not fit together correctly, there are several possible causes:

- 1) The input images do not fit together well. Check out the Image Troubleshooting Checklist for some hints and suggestions.
- 2) You selected the 360 degree panorama stitch option when you have a field of view of less than 360 degrees (your panorama does not wrap all the way around).
- 3) You unselected the 360 degree panorama stitch option when you actually have a 360 degree panorama.
- 4) You are making a 360 degree panorama but you included too few or too many images.
- 5) A couple of the images just didn't stitch right. Try the Manual Overlap feature.

**Q: My stitched panorama looks a little blurry. Can I fix this?**

A: If objects are blurry, try sharpening the image.

**Q: There seems to be a lot of contrast/brightness variation in my panorama. Why?**

A: Contrast/brightness variation in the stitched panorama is caused by variation in the input images. Try equalizing the contrast/brightness of your input images using the contrast/brightness feature. You can also try turning the Auto Exposure Control feature off.

**Q: I chose a larger output option, why doesn't my image get bigger?**

A: The output image sizes (small, medium, large, and jumbo) specify the maximum number of pixels in

the output image, but output images will not always be this big. QuickStitch 360 cannot output a picture with finer detail than the input pictures, so it will not zoom the output beyond the pixel resolution of the input pictures. Once this limit is reached, setting larger output options will not increase the output size. You may save the image to a file and use your favorite image editing tool if you wish to resample the image to a larger size.

**Q: Can I make a QTVR movie using a non-360 panorama?**

A: Sure! QTVR files can have any horizontal field of view, up to and including 360 degrees. If the panorama is less than 360 degrees, then the QTVR image will allow panning over to the left edge and over to the right edge (and then stop).

**Q: Can others view my QTVR movies?**

A: Yes, if they have QuickTime 3 installed on their computer. You can download this software from Apple at:

<http://www.apple.com/quicktime/download/index.html>

**Q: How do I insert my QTVR movie into a web page?**

A: You can either embed the movie in a web page using the html "Embed" tag, or just link to it like you'd link to any graphics file. If you pick the latter, then the person looking at your web page will need to have a QuickTime Plug-In installed to see your movie.

Apple has assembled a comprehensive instruction page on the web at:

<http://www.apple.com/quicktime/authors/vronweb.html>.

## Technical Support

### Before You Call Technical Support...

Our experience has shown that the answers to most questions can be found in one or more of the following resources. Please review them before calling for support.

- Animated Demonstrations for:
- Taking Digital Photographs.
- Many of QuickStitch 360's commonly used features.
- Frequently Asked Questions (FAQ)
- On-line Resources
- Visit Enroute Imaging's home page on the World Wide Web, <http://www.enroute.com>, for up-to-the-minute information and other help.
- Enroute will offer free maintenance releases from our web site if and when they become available (there may be a charge for major upgrades).
- The Readme.txt file installed with QuickStitch 360 contains useful last-minute information.

### QuickStitch 360 Help

If you haven't already, you are encouraged to check out QuickStitch 360's Demonstration modules, which will take you on a guided tour through QuickStitch

### 360's Simple Panoramic Image Creation Process!

If you don't have any images to stitch yet, you can use the Sample Image Sets included on your software CD.

#### **Error Message: Demo File Not Found**

You are reading this message because QuickStitch 360 was unable to locate a multimedia demo file. This error may occur in any of the following circumstances:

- 1) You are running an evaluation copy of QuickStitch 360 which does not contain the multimedia demo files.
- 2) Demo files were deleted from your computer. Reinstall QuickStitch 360 to the same location to restore them.
- 3) Demo files are corrupted on your disk drive. To fix this problem, run ScanDisk or a similar utility, then reinstall QuickStitch 360 to the same location.

#### **Image Troubleshooting Checklist**

Stitching problems are almost always caused by the input images not fitting together well. This is generally due to one or more of the following:

- Not enough overlap between successive photos.
- Too much movement of the camera between shots.
- Images are out of order.
- Camera was held too far from the eye.
- Too much tilt on the camera between shots.
- Not enough structure in the scene—scenes containing, for example, lots of blue sky, water, blank walls, or nondescript grassy fields don't have enough information for QuickStitch 360 to automatically match up corresponding image components. Try Manual Overlap.
- Movement in the scene, especially at the edge of one or more photos—if movement occurs at a critical place of overlap, QuickStitch 360 may be unable to determine how photos fit together.
- Different zoom levels in the same scene—if your camera has a zoom lens and the zoom was changed while taking shots for the same panorama, QuickStitch 360 will be unable to stitch your pictures.

Note: Some of the above problems can be corrected by eliminating one or two photos from the scene. Try experimenting by removing photos that may not fit well with others.

#### **If stitching fails completely, there are three possibilities:**

- 1) Source images did not fit together well (see above for reasons why).
- 2) Exposure was very different between matching images, and QuickStitch 360 was unable to determine how they fit together. Try Manual Overlap.
- 3) A fisheye lens (or other distortion-causing lens) was used

Unfortunately, the only option is to take another set of photos, this time following the hints on proper picture-taking.

#### **Technical Support**

Live technical support is available to registered users Monday through Friday between 8:00 am and 5:00 pm, Pacific Time.

But check here first!

If you're still having trouble, then you can try Technical Support at the number below.

Please have the following information available before calling. This makes it easier for us to diagnose your problem and will shorten the length of your call.

- Revision of QuickStitch 360 found on the Help Contents page of the QuickStitch 360 on-line help file (MANDATORY).
- Computer Operating system—e.g. Windows 95/98, Windows NT 4.0, Macintosh PowerPC
- Computer brand and model
- Camera brand and model number
- Size and number of input images
- Amount of RAM
- Other applications running at the time

You may reach live technical support operators by calling (503) 684-3142. Please note that this is a toll call within the United States and Canada.

When you call, you will be asked to register your software if you have not already done so. As a registered owner, you will receive free person-to-person support for one call. For subsequent calls, a charge of US \$14.95 per incident will apply.

#### **Why we charge for support.**

##### Technical Support Charges

At Enroute Imaging, our goal is to offer high quality software at a low price.

The first technical support call is free (toll charges may apply). By charging for support after the first call, we can keep prices low to avoid penalizing users who don't need live help.

We do not make money on technical support calls.

A single "free" call offsets the profit on a value-priced product.

Many other companies charge for all calls, or they charge after a certain time limit. By allowing one free call, we feel we have efficiently balanced the technical needs of typical users with providing a product which is attractively priced.

Again, We have invested a lot of time and effort in designing a very comprehensive Help (and Demo) system. Please check the list of other Help options before calling.

Thank you for your understanding!