1. PANORAMIC STITCH MANUAL

Guidelines to shooting panoramic images

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I. CREATING THE PANORAMIC

1.1 360° DIGITAL CAMERA PANORAMIC SHOOTING

1. With the use of a digital camera you can create 3000 environment panoramics. First, scout out a location suitable for a scenario to take place. Position the tripod in an open area where there are no obstructions within an 8.0 ft. (2.43 m) diameter of the tripod. For example: crates, shelves, desks, bushes, etc... This is done to avoid objects in the scene from looking out of proportion. Some situations may not be avoided and the location will have to do. See Fig: 1 below.

![Fig: 1 – Obstructions 8 ft Rule](image-url)
2. Once in position, attach the digital camera to the tripod head. With the camera secured to the tripod, adjust the neck and legs to position at a height of 3.5 ft. (1.06 m). Then using the leveler, adjust the tripod so that it is level. An uneven tripod will result in panoramic image distortion. Fig: 2

![Camera Tripod Height and Level](image)

Fig: 2 - Camera Tripod Height and Level

3. Once you have finished adjusting the camera, it is time to take some pictures. Start by rotating the camera to position it for your first shot. Always remember the direction you were facing for your first shot. Your last picture will overlap the 1st pictures field of view. This overlap is a cue for the completion of a full 360° rotation and you are now ready for the next step.

4. Look through the viewfinder and familiarize yourself with what you see. Take note of what landmarks you see on either side of the image. A landmark can be anything that can be easily identified when setting up an image to shoot. Fig: 3
5. Now snap the picture. Keep in mind the landmark you identified on the left and right sides of the image. Rotate the camera clockwise by swiveling the neck of the tripod until the landmark you chose on the right side of the image is now lined up on the left side. (You do not have to line up the landmark exactly. It is suggested to leave plenty of overlap. There is no such thing as too much overlap). Once the second camera position is locked into place, snap that image. Fig: 3 & 4

![Fig:3 - Identify Landmarks](image)

![Camera Rotation](image)

6. Using the previous method, repeat those steps until the camera has made a complete 360° rotation. The result should be around 8 images. If you are left with less than 8 images, you will have to start over again. Less than 8 images indicate not enough overlap was given.

** It is highly recommended that more than one pass is taken at each location. It helps having options when stitching the images together in the software AutoPano. Repeat this step positioning the camera tilt upwards for a high pass and another tilted downwards for a low pass. This should give you an end result of 24 pictures. 8 from the first pass, 8 from the high pass, and 8 from the low pass. This gives you more room to work with when later positioning your panoramic in the simulator.
1.2 CAPTURING IMAGES FROM THE DIGITAL CAMERA TO THE COMPUTER

1. With the camera turned off, plug in the USB cable to the camera. Then, plug the other end of the cable from the camera to any open USB slot on your computer. Turn on the camera and set it to the image viewing mode. (This mode is the same as if you were to view your photos on the camera).

Windows will notify you that a new device has been identified and should automatically install the driver needed to capture the images to your computer. (Auto driver install/update will only happen if connected to the internet).

If running Windows 7, a dialogue box will prompt you with the information needed to import the images from your camera. Fig: 5

![Image Import](image-import.jpg)

Fig: 5 - Image Import

2. Once prompted, double click the “Import pictures and videos icon”. This will automatically import and save the images to a folder in the Pictures Library on your computer. Fig: 6

![Pictures Library](pictures-library.jpg)

Fig: 6 - Pictures Library
3. Once you have located that folder, go ahead and copy the .JPG images from it over to the “Raw Images” folder created for this training lesson. You may also rename the project something that is familiar other than “Your Project_01”. Fig: 7

![Fig: 7 - File Structure]

4. If by chance you were not prompted with a dialogue box, click the windows icon at the bottom left and select the “Computer” option. Under “Portable Devices”, you will notice it has identified your camera and its name should appear. Fig: 8

![Fig: 8 - Portable Devices]
5. Once located, double click the camera icon and another box should appear with an icon for the cannon hard drive. Fig: 9

![Cannon Hard Drive](image1.png)

*Fig: 9 - Cannon Hard Drive*

6. Double click that drive and you will be prompted with two folders. One is named “DCIM” and the other is “MISC”. Fig:10

![Folder Structure](image2.png)

*Fig: 10 - Folder Structure*
II. PANORAMIC STITCHING

2.1 KOLOR AUTOPANO GIGA

1. Open the program Kolor Autopano Giga to build your panoramic stitch. Once Autopano is open, go ahead and click the icon that resembles folders and magnify glass named “Select Images”. Fig: 12

![Select Images](image1)

*Fig: 12 - Select Images*

2. This will open a dialogue box where you can select images from a specific location. Locate the folder where you saved your images to and click “open”. This will load the images into the software program. Fig: 13

![Image Load](image2)

*Fig: 13 - Image Load*
3. If you have yet to take images for your panoramic, you may use the images provided for you in this training lesson. They can be found here. Fig: 14

![Fig: 14 - File Structure](image14)

4. Once images are imported, go ahead and click the "Group Settings" button. This icon resembles a tool. Fig: 15

![Fig: 15 - Group Settings](image15)
2.2 KOLOR AUTOPANO GIGA: GROUP SETTINGS

The group settings section is where you define and set up parameters to stitch the panoramic. Follow along and mimic the figure provided for reference. Fig 16

### 2.21 Detection Tab

1. Check the detection box from “Automatic” to “Manual” and set the quality of detection to “High”
2. In the Detection tab, change the “Number of Control Points” section from 50 to 100.
3. In the “Links” section, select the check box to “Force every image to be in one panorama” if not selected already.
4. Under the “Automate” section, check “Auto crop”, “Auto color correction” and “Auto color histogram” if not selected already. These features help blend color differences between images which stack next to each other. Fig: 16

![Detection Settings](image-url)
2.22 Panorama Tab

1. In the panorama tab, select the “Preferred Projection” drop down menu and choose the “Mercator” option from the list. Fig: 17. Select “OK” when you are done.

![Preferred Projection](image_url)
2.23 Process the Stitch

1. Once you have returned to the main screen of the application you are ready to process this stitch. Go ahead and select the “Detect” icon at the top left. This icon resembles a green play button. Fig: 18

2. Once the software has finished the stitch, you should see the final outcome on right side of screen.

3. If you are satisfied with the stitch, select the “Render Panorama” icon to open the render settings dialogue box. The render settings icon looks like a gear and is located on the top left of the panoramic preview. Fig: 19
2.24 Render Tab

In the render tab, go ahead and apply these settings:

1. Under “Format” select the following:
   - Format: Tiff
   - Depth: 8 bits
   - DPI: 300

2. Under “Folder” select the following:

   Folder: Choose the “Stitch” folder either in the Sample Projects or Your Projects folder.

   Filename: Choose a filename for your panoramic.

   Refer to the settings in Fig: 20.

3. Once you have matched your settings to the ones in the figures provided, click “Render” and your panoramic will render a finalized stitch.

Fig: 20 – Render Output Settings
III. CONTACT VIRTRA

If you have any questions with the Panoramic Stitching process, please see contact below:

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To download an electronic copy of this manual, please scan the QR code below with your smartphone device or visit:

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