Quick Start

This guide is for people who just want the basics for getting started with StereoData Maker (SDM) to take digital stereo photos. There are other guides that will give you intermediate and advanced information on using the program and equipment, but this is what you will need to do to get well synchronised pairs of photos with the minimal amount of knowledge and equipment.

If you are only using one camera to take stereo photos, read this guide first then go to the 'Stereo images with a single camera' guide in the zip folder for more information.

From here on this guide assumes you will be using two Canon cameras from the 'Supported Cameras List' on the SDM website. The camera models and their firmware versions must be on the list or the cameras will not work with SDM (firmware is the computer program that is installed by the factory on your camera that tells it what to do when the different buttons are pressed). We will discuss the importance of the firmware version and SDM later in the guide.

Start your cameras up, open the Canon menu and make sure that all of the menu settings are the same on both cameras. The fewer automatic features that you use, the closer the two images are likely to match when using SDM. Make sure you turn the Touch Icons off, or they will keep popping up over your SDM menus when you go to set them.

Next you will need to connect the two cameras together. This is done with two camera USB out cables (often referred to as 'USB mini-cables') and a battery operated switch spliced together. If you are good at basic electrical work, go to the guide for 'Preparing Your Switch Unit' for detailed instructions on building your own switch. For the rest of us, there are several people who will do that for us. See the 'Suppliers' link on the StereoData Maker website for their information.

The cameras need to sit on a rigid platform next to each other. For most types of stereo photos you will want the camera lenses to be as close together as they physically can. You can buy a commercially made slide-bar or z-bar, or you can make your own out of various materials. The Yahoo SDM users group is a good place to get more information on what you need.

Installing the SDM Program

Now you need to get the SDM program into your cameras. This is done through the cameras' SD memory cards, so you will need an SD card reader connected to your computer and the appropriate drivers installed.
Note: Although some cameras can use 8GB or bigger SD cards, these instructions are for SD cards that are 4GB or smaller. If you want to use cards with more memory go to the guide 'Using SDM' for more information.

First download the zipped common files, then download the SDM zip file for your particular Canon cameras from the list on the SDM website. Here is where the camera's firmware version is important. Most cameras only have one version of the firmware, but a few have received upgrades over time, so specific versions of the SDM program have be written to address any changes in operation. If your model of camera has more than one firmware version number you can find it by going to the CHDK Wiki website (http://chdk.wikia.com/wiki/FAQ) and follow the instructions there.

However, if you do not wish to go to the trouble, simply try the various download versions available for your camera model. There are 3 possible outcomes: it will work, the camera will turn-off, or the camera will 'hang' (even the power button will stop working). In this last case, simply remove the batteries and SD cards, then put the batteries back in and everything will be restored to normal. You can then load a different SDM version on your SD cards and try again.

An installer (Windows only) is provided with the download to assist in installing the SDM program for both the left and right cameras.
Note: If you do not use Windows, it is recommended that you enlist the aid of a Windows user to install the program on the cards for you; this is by far the simplest method. However, knowledgeable Mac users can give it a try by following the instructions posted by "Docteur Christophe" in the Yahoo SDM users group files section:
http://tech.groups.yahoo.com/group/StereoDataMaker/files/SDM%20Installation%20on%20MAC%20OS%20X/

Unzip the common files download to a folder, and check that the following files and folders are present:

- CHDK folder
- CONFIGS folder
- DCIM folder
- CFGSDMEDIT.jar
- CHDK.CFG.L
- CHDK.CFG.R
- sdminste.exe

Then unzip your camera specific cameras' SDM zip file to the same folder. You should see a file named DISKBOOT.BIN there.

Warning! Ensure that there are no other removable media plugged into a USB port on your computer, otherwise you may destroy the operating system on that media (also WinXP SP3 may give you a warning message regarding 'Vista').

Insert an unlocked SD card (little tab on the left side of the card, up for unlocked, down for locked) into the card-reader and close the window for the new device that pops-up.
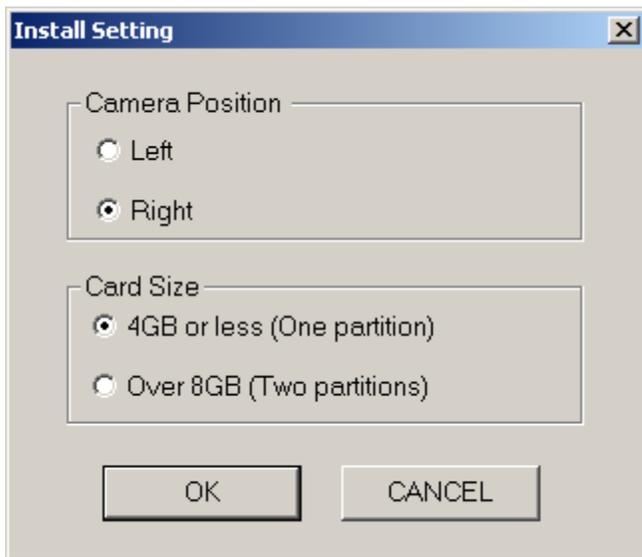
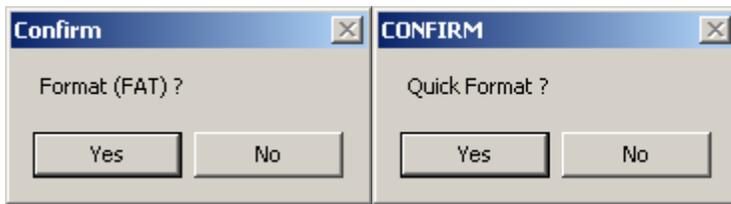Double-click the 'sdminst.exe' file and the Installer program will launch.
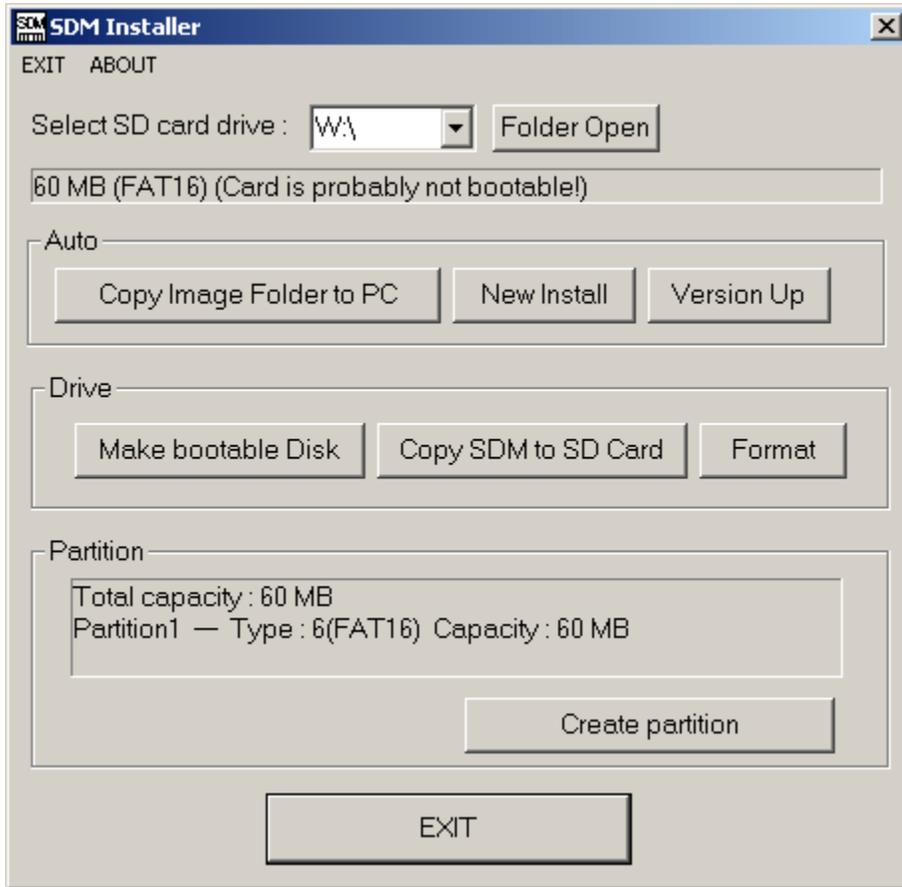
Select the SD card drive letter and click 'New Install'.

If the card is locked you will be prompted to unlock it and try again.

Choose camera position as 'Left' or 'Right' and select card size is '4GB or less'.

If the card is not already formatted, you may do so at this stage.

You will be asked to confirm formatting (as any existing data or photos will be deleted) and then asked if 'Quick Format' is acceptable. 'Quick Format' is fast because it does not test the card for bad sectors. This may be preferred with Windows Vista which can otherwise be slow.

During formatting, you will be given the option to enter a volume label. Enter SDM_LEFT or some similar name to help you recognize which card you are working with when downloading photos or updating SDM files.

All required files will be copied to the card together with a configuration file (CHDK.CFG in the CHDK folder). The configuration file is used to store the SDM menu options that you have selected (the configuration of your camera) and will reload those choices every time you restart your cameras. There is a default left and right camera configuration created by SDM, so it is important that you put the correct card in the correct camera (we suggest that you write L or R on the SD card labels to more easily identify them).

You then simply lock the cards and insert them into your cameras.
Note: When the card is locked, the Canon firmware will look for and execute certain files when the camera is turned on. The file that starts SDM is one of the files the firmware is looking for. To save picture files and configuration file updates on the locked card, SDM overwrites the 'locked' status 100 times a second. The Canon firmware now thinks the card is unlocked!

Checking-Out Basic Shooting Operations

Now that you have loaded SDM onto your SD memory cards, mounted the cameras on an appropriate camera bar, plugged your USB plugs from your Ricoh/ordinary switch unit into each camera's USB port, then what? Taking synchronised stereo photos using SDM is easy, and this section will walk you through the basics of SDM stereo photography.

Some Canon cameras normally turn-on in Playback mode, but SDM starts all cameras in the Recording mode, so you are ready to shoot as soon as your cameras power-up. There is no need to enter any SDM menus or scripts, the cameras are ready to take synchronised stereo photos. When turning the cameras on you should see the red SDM info-bars on the left camera and the blue SDM info-bars on the right camera.

To take a stereo photograph with flashes turned off:

With a Ricoh CA-1 switch, half-press the switch to focus, and then fully press the switch to blank the LCD screen, and determine the exposure settings. When both cameras' blue LED indicator lights are lit, release the switch to fire the shutters. (If you need to refocus on another item after the first half-press, just re-aim your cameras and half-press the switch again.) Alternatively, you can just full press the switch and hold which will focus, blank the LCD screen, and determine the exposure settings. When the cameras' blue LED indicator lights are lit, release the switch and fire the shutters.

With an ordinary switch, briefly press-and-release (less than ½ sec for the presses) to focus and determine the exposure settings, then press and hold the switch to blank the LCD screen and light the blue LED's. When you are ready to take the photo, release the switch and the shutters will fire. Alternatively, your can just press and hold the switch. The cameras will focus and the screens will go blank. When both blue LED's are lit, release the switch the shutters will fire. (Unfortunately, there is no refocus option with the ordinary switch.)

And there you have taken your first SDM controlled stereo photo!

Problems?

If one or both shutters did not fire, then you may have a faulty USB switch assembly or your switch battery may be low. To check that the cameras are functioning as they should with the SDM program, you can perform a test.

1. Plug the USB cable supplied with the camera into the camera's mini USB connector.
2. Power-up the camera and then briefly plug and unplug the other end of the cable into your computer's USB port.
3. The camera's focusing LED will flash and the camera will autofocus.
4. Plug the USB cable in again. Both the focusing LED and the printer LED should light solid and the LCD screens blank.
5. Unplug the plug from the computer and the camera shutter should fire.
Note: If you do not remove the plug after ten seconds, the process will time-out and the photo will be taken.
6. Repeat test with your other camera.

If one or both cameras do not act as described above, you may have a script loaded that has changed the functioning of SDM, or you may have a faulty SD card or USB jack on your camera. See the Troubleshooting section in the 'Main User's Guide' or the SDM website for more information.

Using Flash with SDM

To shoot synchronised flash, three requirements need to be satisfied:-

1. The shutter speed (or shutter speed override) is the same on both cameras.
2. The Synch mode is enabled (it will say "Synch" on your LCD screens).
3. Flash ON or AUTO is selected in the Canon flash menu on both cameras.

If your cameras are in Manual mode the letter 'F' will be displayed immediately on the SDM info bar when flash ON is selected. With AUTO flash selected, you will need to half-press/first press the Ricoh/ordinary switch before you see the 'F'.

Note: In AUTO flash mode it is possible, but unlikely, that one camera will decide to use flash and the other not.

With a Ricoh CA-1 switch, half-press the switch to focus, then on full press both cameras will fire their pre-flash (to determine exposure and white-balance), and on switch-release (wait for the blue LED's) both shutters will fire.

With an ordinary switch, briefly press-and-release to focus, then quick press a second time for both cameras to fire their pre-flash (to determine exposure and white-balance). On the third press both shutters will fire. Alternatively, your can just press and hold the switch. The cameras will focus, the screens will go blank, and the cameras will fire their pre-flash. When both blue LED's are lit, release the switch the shutters will fire.

Using SDM in flash mode, the right camera flash will fire full while the left camera flash will be dimmed by -4 stops. The dimmed left flash will keep the camera in flash mode, while preventing double shadows.

Unless you override the shutter speed, the cameras uses 1/60 second for flash photos.

If the exposure on flash photos seems to be off, try changing the shutter-speed (on both cameras) to different values until you find a setting that gives you an acceptable percentage of successful shots.

Downloading Your Photos with the SDM Installer

Unlock your SD card, put it into your computer's card reader, and close the window for the new device that pops-up.

Go to your SDM folder and double-click 'sdminst.exe' to open the SDM Installer.

Click the 'Copy Image Folder to PC' button.

Select the destination folder and all images will be copied there.
Note: You have the option of deleting the images from the card by selecting the 'Delete image folders after copy' checkbox.

On completion, the destination folder will be opened for exploring.

If you simply wish to take single synchronised flash and non-flash stereo photos then that's it!

However, if you are interested in exploring the many features included in SDM then take the time to read the SDM website and the downloaded zip files thoroughly.

Some of the capabilities that SMD offers include:

- synchronized zooming

- shooting highly synchronised images of fast-moving subjects such as sports-action, vehicles in motion, birds in flight, water in its many forms (fountains, waterfalls, surf, etc)

- shutter-speed bracketing to acquire multiple images for high dynamic-range applications

- focus-bracketing to produce macro extended depth-of-field images (deep depth images)

- 3D movies (you can change their quality or bitrate setting to better than set by Canon)

- remote triggering for cameras mounted on a long pole, pair of kites, balloon, etc.

- several cameras may be synchronised for making lenticular prints of moving subjects or virtual reality (VR) 360 degree presentations of large objects.

- popup anaglyphs or phantograms using StereoPhotoMaker (SPM)

- advanced time-lapse with combined focus/shutter-speed bracketing, screen blanking, auto shutdown and USB remote start/stop.

And that is just the start!

If you have read this so far, we strongly advise you to join the Yahoo StereoDataMaker Group. They are a large group of experts and novices eager to assist anyone with an interest in SDM. Also, searches through the archives can bring quick answers to many of the questions you may have.