



SD Cards – Selection and Formatting

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Selecting the right SD Card for the Swift Recorder

When selecting an SD card for use with the Swift recorder, there are several parameters you'll want to consider. These are namely manufacturer and storage capacity

Manufacturer

We've tested many brands of SD cards from a range of manufacturer's and have yet to find one that doesn't work. However some brands are better than others from the standpoint of power consumption and reliability. Cards with high power consumption result in reduced runtimes because of battery depletion.

SanDisk Extreme Pro SD cards seem to offer the best combination of reliability and low power draw of the cards we've tested.



At the time this document was written, SD cards with 500GB and 1TB capacities are starting to appear on the market. We have only tested cards up to 256GB in capacity and cannot guarantee that larger cards will work.

Storage capacity and runtime

The recorders runtime is primarily limited by two variables: Available SD Card storage and battery capacity. Both of these variables are directly affected by the selected audio sample rate.

- The recorder uses more power at higher sampling rates, therefore running down batteries faster.
- The recorder generates more data at higher sampling rates, therefore filling the SD card faster.

With the above two facts in mind, please refer to the following tables to get an idea of the expected runtime of the Swift recorder at the five supported sample rates

Continuous recording at 8kHz sample rate

Sample Rate:	8,000	samples/sec
Approximate runtime in hours:	1,065	Hours
Approximate runtime in days:	44	Days

Bytes stored every hour:	57.6	Megabytes
Bytes stored every day:	1.4	Gigabytes
Bytes stored over approximate runtime:	61.3	Gigabytes

Continuous recording at 16kHz sample rate

Sample Rate:	16,000	samples/sec
Approximate runtime in hours:	1,006	Hours
Approximate runtime in days:	42	Days

Bytes stored every hour:	115.2	Megabytes
Bytes stored every day:	2.8	Gigabytes
Bytes stored over approximate runtime:	115.9	Gigabytes

Continuous recording at 32kHz sample rate

Sample Rate:	32,000	samples/sec
Approximate runtime in hours:	891	Hours
Approximate runtime in days:	37	Days

Bytes stored every hour:	230.4	Megabytes
Bytes stored every day:	5.5	Gigabytes
Bytes stored over approximate runtime:	205.2	Gigabytes

Continuous recording at 48kHz sample rate

Sample Rate:	48,000	samples/sec
Approximate runtime in hours:	799	Hours
Approximate runtime in days:	33	Days

Bytes stored every hour:	345.6	Megabytes
Bytes stored every day:	8.3	Gigabytes
Bytes stored over approximate runtime:	276.2	Gigabytes

Continuous recording at 96kHz sample rate

Sample Rate:	96,000	samples/sec
Approximate runtime in hours:	656	Hours
Approximate runtime in days:	27	Days

Bytes stored every hour:	691.2	Megabytes
Bytes stored every day:	16.6	Gigabytes
Bytes stored over approximate runtime:	453.4	Gigabytes

The above runtimes were achieved using fresh alkaline D Cell batteries and the Sandisk Extreme Pro SD cards mentioned previously. Your actual runtimes may vary, but the tables above will provide a ballpark figure of the SD card capacity you'll require for a given recording duration.

SD Card formatting

The Swift requires the SD card be formatted with FAT32 filesystem. Unfortunately Microsoft Windows does not natively support formatting cards larger than 32GB in FAT32. Therefore a third party software program is required. We've tested several such programs including EaseUS Partition Master and Fat32format. Both will work but we recommend Fat32format because its small and easy to use. If you choose to use another program be sure the following conditions are met:

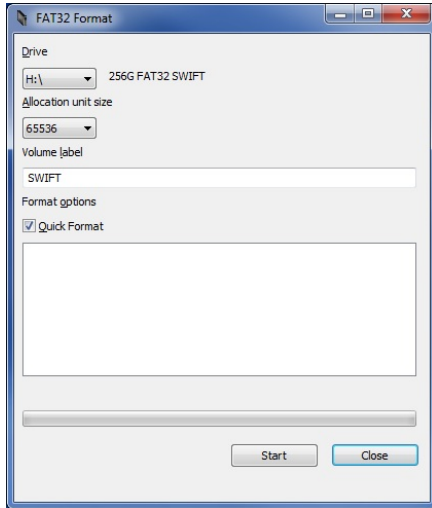
- Make sure FAT32 filesystem is used
- Format the card with one "primary" partition
- Preferably choose a cluster or allocation unit size of 64KB (65,536 bytes). Smaller cluster sizes will work, but data will not be written as efficiently during recording

Fat32format

Fat32format is free to download and can be found at the following link:

<http://www.ridgecrop.demon.co.uk/index.htm?guiformat.htm>

After downloading, follow the simple installation process and run the program. The following screen should appear:



Please note that FAT32format requires all open Windows Explorer windows be closed before the formatting can complete. If any windows remain open you may get the following error: Failed to open device. The process cannot access the file because it is being used by another process

From the Drive menu select the correct drive letter corresponding to the SD card you'll use with the Swift. Next select an Allocation unit size of 65536 and type in a volume label of your choosing ("SWIFT" is shown above as an example). The "Quick Format" button can be checked to speed the process. Finally click the "Start" button to format the card. If the card formats successfully, you should see something similar to the following screenshot:

