



This document describes the steps required to record/flash a BISmark Raspberry PI (RPI) image to a 8GB, 16GB or 32GB SDCard class 10 (RPI compatible) using the OS X operational system (Apple Computers). Using equivalent tools, this procedure should be possible to be executed on different operational systems such as Linux or Windows.

Requirements:

- OS X based computer with SDCard reader.
- 1 RPi device.
- 1 8GB, 16GB or 32GB micro SDCard Class 10 + adapter (figure 1)



Figure 1. Micro SDCard + Adapter

Step 1. Erase the content of SDCard and select MS-DOS (FAT) as format using the visual version of the Disk Utility program (Make sure you select the SDCard to erase, **not the SSD!**).

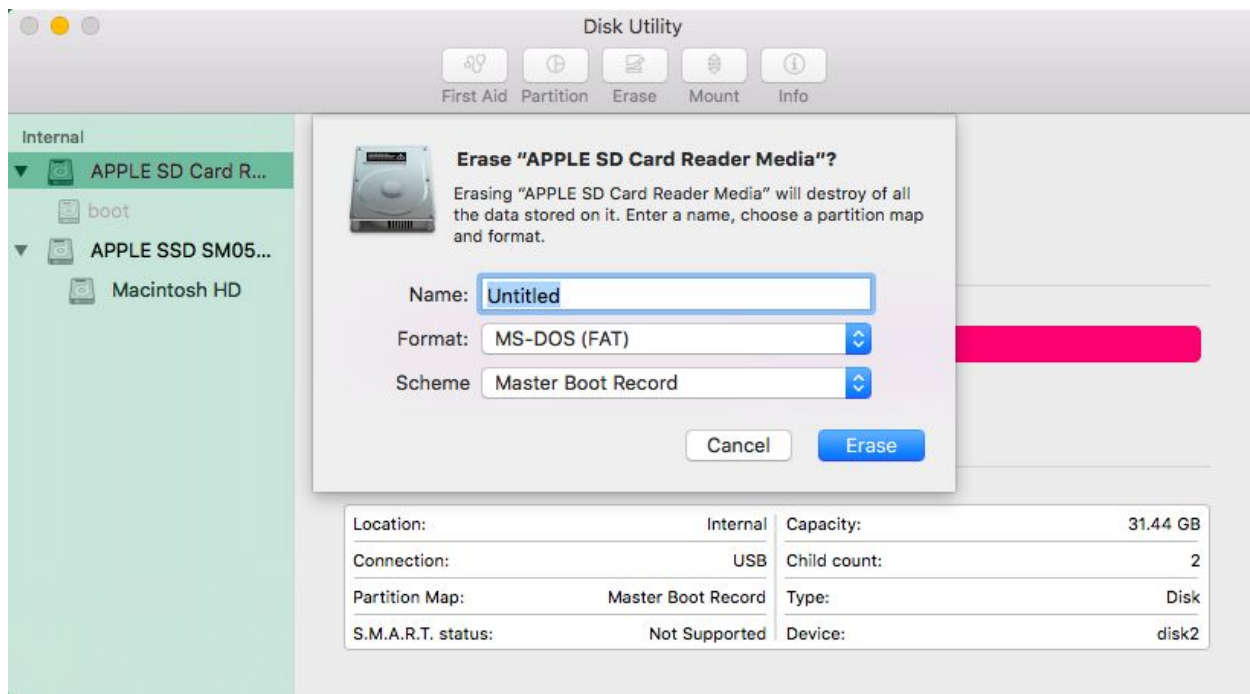


Figure 2. Disk Utility



Step 2. Use the terminal version of the Disk Utility program (**diskutil**) to identify the device name for your SDCard. In this example the SDCard is named **disk2**.

```
$ diskutil list
/dev/disk0 (internal, physical):
    #:                                TYPE NAME                      SIZE
IDENTIFIER
    0: GUID_partition_scheme                *XXX.3 GB    disk0
    1:                                EFI EFI                XXX.7 MB
disk0s1
    2:      Apple_CoreStorage Macintosh HD    XXX.4 GB
disk0s2
    3:      Apple_Boot Recovery HD            XXX.0 MB
disk0s3
/dev/disk1 (internal, virtual):
    #:                                TYPE NAME                      SIZE
IDENTIFIER
    0:      Apple_HFS Macintosh HD            +XXX.1 GB    disk1
        Logical Volume on disk0s2
        EA712B0A-XXXX-XXXX-XXXX-XXXXXXXXXXXX
        Unlocked Encrypted
/dev/disk2 (internal, physical):
    #:                                TYPE NAME                      SIZE
IDENTIFIER
    0:FDisk_partition_scheme                *31.4 GB     disk2
    1:      DOS_FAT_32 UNTITLED                31.4 GB
disk2s1
```

Step 3. Unmount the disk using the same **diskutil** program.

```
$ diskutil unmountDisk /dev/disk2
Unmount of all volumes on disk2 was successful
```

Step 4. Download the latest image from <http://downloads.projectbismark.net/> (2GB total transfer) and use the **tar** command to decompress the file and recover the image file.

```
$ wget http://downloads.projectbismark.net/rpi/bismarkrpi-2016.07.08-8GB.img.tar.gz
Resolving downloads.projectbismark.net... 130.207.97.66
Connecting to downloads.projectbismark.net|130.207.97.66|:80... connected.
```



...

```
$ tar xvzf bismarkrpi-2016.0708-8GB.img.tgz
```

...

Step 5. As superuser (root), copy the image to the empty SDCard using the **dd** command.

Warning: This process may take up to 3 hours to complete.

```
$ sudo dd bs=1 if=bismarkrpi-2016.07.08-8GB.img of=/dev/disk2
```

..

```
7580+0 records in
```

```
7580+0 records out
```

```
7948206080 bytes transferred in 9100.542831 secs (873377 bytes/sec)
```

...

Step 6. Re-insert the SDCard into the RPi slot, connect the Ethernet cable and finally the mini-usb power cable. Please ensure the following:

1. The ethernet connects to a DHCP server (commonly found on routers and modems);
2. Once powered for the first time, the devices stays connected for at least 10min.
3. The green light will blink indicating network traffic activity.

Please, contact the BISmark team and request the status of your device once connected.



BISmark - Broadband Internet Service Benchmark



Use the **USB power adapter** to provide an always-on USB power outlet. It's not necessary if your router or cable modem has any available USB port to be used instead.

A required standard **micro-USB to USB cable** for powering the device.

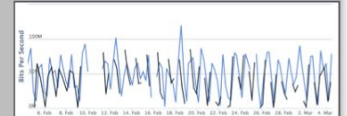
Your internet source / connection.

The **BISmark network measurement device**. It periodically runs network performance tests. The 100 Mbps Ethernet port is used to connect the device to any available source of internet. Expect the left **yellow led** turned **on** when a 100 Mbps link is established. When successfully connected to the internet the right **green led** should **blink** indicating network traffic. If no internet traffic activity is reported after 10 min, please restart the device by reconnecting the **USB power cable** to the device.

What to Expect

After a few days connected, your device should be able to collect important information about your internet connectivity performance, more specifically about your throughput and latency overtime. There are many performance indicators that can be used to diagnose poor internet connectivity, but in general, flat steady lines (for both throughput and latency) indicate a more reliable

connectivity. While trembling lines is often associated to a poor internet experience. Your network performance will be available at <http://networkdashboard.org>



Volunteer now at <http://projectbismark.net!>



Your internet **router** or **cable modem**. It must have an available Ethernet port. It must as well support and provide DHCP IPv4 address leasing for connecting devices.

Thank you for participating!
The BISmark Team