

# Making a bootable SD card (Windows 7)

If your SD card does not already contain a bootable (active) FAT32 partition, you can use the Windows 7 Disk Management utility to create one.

## Creating FAT32 partition in a Windows 7 environment

The default Windows formatting option that appears when you insert a blank (or unrecognized) SD card into a Windows PC is not sufficient to format the SD card with a bootable partition. While it can create a DOS/FAT32 partition, it does not provide an option for making this partition "Active", or bootable. If your SD card does not already contain a bootable (active) FAT32 partition, you can create one with the Windows 7 Disk Management utility, as follows:

1. Open the Windows Control Panel, and run **Administrative Tools**.
2. Run the **Computer Management** application.
3. On the left pane, under the **Storage** category, select **Disk Management**.
4. Insert the SD card that you will use to put the firmware files on, and identify the correct volume as it appears in the "Disk Management" window.
5. Select the correct drive by right-clicking on it, and choose the **Format** option. Once the format operation is complete, under the "Status" column, it should show something like: Healthy (Active, Primary Partition).

## Marking the FAT32 bootable partition active

If the SD card doesn't show the partition as "Active", you will need to set it to active. With many SD cards, all you need to do is:

1. Right-click on the partition icon.
2. Select **Mark Partition as Active**.

With some SD cards, however, after you have performed the steps to format the card, the option to **Mark Partition as Active** will not be available. (It will be greyed out). If this is the case for your SD card, you will need to complete some additional steps to make the bootable FAT32 partition active:

Open a DOS command prompt (Start Menu > All Programs > Accessories > Command Prompt).

Run the **diskpart** utility and run the **list disk** command to get a list of available drives, then identify your SD card on this list (in this example, Disk 3):

```
DISKPART> list disk

Disk ###      Status       Size         Free          Gyn          Gpt
-----      -
Disk 0        Online       40 GB        20 GB
Disk 1        No Media    0 B          0 B
Disk 2        No Media    0 B          0 B
Disk 3        Online       14 GB        0 B
```

Select the disk to target for additional activities, by running the following command:

```
DISKPART > select disk 3
```

```
Disk 3 is now the selected disk.
```

Run the **list partition** command, to see a list of the available partitions (we'll use Partition 1):

```
DISKPART > list partition
```

Partition ###	Type	Size	Offset
-----	-----	-----	-----
Partition 1	Primary	14 GB	4096 KB

Select this partition:

```
DISKPART> select partition 1
```

```
Partition 1 is now the selected partition.
```

Make the partition active:

```
DISKPART> active
```

```
DiskPart marked the current partition as active.
```

Verify that the partition is active:

```
DISKPART> list partition
```

Partition ###	Type	Size	Offset
-----	-----	-----	-----
*Partition 1	Primary	14 GB	4096 KB

The "\*" beside the partition name indicates that the partition is active. You can now eject the SD card, and proceed with copying files to the DOS/FAT32 partition on the disk.

# Making a bootable SD card under Mac OS X

If your SD card does not already contain a bootable (active) FAT32 partition, you can use the Mac disk utility to create one.

## Creating FAT32 partition in a Mac OS X environment:

### **1a. Plug in your SD card and format it using Disk Utility:**

- Open Disk Utility (Applications -> Utilities-> Disk Utility) and choose your device from the list on the left.
- Find the SD card in the left side of the window.
- Click the Partition tab in the middle of the window.
- Choose Partition Layout: 1 Partition.
- Call it 'BOOT' (no spaces, all caps).
- Click Options and make sure Master Boot Record is selected.
- Next, click on the "Format" dropdown menu. Select "MS-DOS (FAT)" if the card is 32 GB or smaller.
- Click Apply and your disk will format.

# Making a bootable SD card under Mac OS X El Capitan

### **1b. Plug in your SD card and format it using Disk Utility:**

- Open Disk Utility (Applications -> Utilities-> Disk Utility) and select the SD card.
- Click the Erase tab.
  - Under the Name field type in BOOT.
  - Under the Format field set it to MS-DOS(FAT).
  - Under the Scheme Field select Master Boot Record.
  - Select Erase and click Done once completed.
- To view the newly created BOOT partition you'll need to quit and re-launch Disk Utility.

### **2.0 Verify the new partition:**

- Choose the BOOT partition from the list on the left.
- Select First Aid and Verify Disk.
- Check the "Show Details" box and get the device path for your disk, ex: /dev/disk2s1.
- Unmount the **partition** by clicking "Unmount" in the top menu.

### **3.0 Marking the FAT32 bootable:**

- Open Terminal (Applications -> Utilities -> Terminal).
- Now you'll need the raw disk device name.. so if your partition device path was /dev/disk2s1, the raw device name is /dev/rdisk2, basically you drop the s1 off the end (that's the partition number) and add in a r before disk. **Note: If the device path already contains the letter "r" before the word "disk" then the device name will be: /dev/rdisk2.**
- Type the following command, substituting <device name> for your raw device name ex: /dev/rdisk2 and press enter.

```
sudo fdisk -e <device name>
```

You will be prompted for the administrator password.

**Note: With some Mac OS you'll encounter the following error:**

**fdisk: could not open MBR file /usr/standalone/i386/boot0:No such file or directory.**

**Simply ignore this message and continue to the next step.**

- At the prompt type the following commands and press enter between each one of them:

#### **flag 1**

Once entered it should state: Partition 1 marked active.

#### **write**

Once entered it might state Device could not be accessed exclusively. A reboot will be needed for changes to take effect. OK? [n]. Simply type "Y" and hit enter to accept.

Otherwise the message should state: Writing MBR at offset 0.

#### **exit**