

# Installing Magic Lantern 0.2 for Canon 550D, Firmware 1.0.9 (draft, not released)

December 15, 2010

## WARNING

```
*****  
*                                                                 *  
* THIS IS DANGEROUS AND MIGHT DAMAGE YOUR CAMERA. *  
* NO WARRANTIES. NO GUARANTEES. DO NOT TAUNT. *  
*                                                                 *  
*****
```

If you are not comfortable with this, stop reading and delete the software before you are tempted to try running it on your camera.

To repeat this important point:

```
*****  
*                                                                 *  
* THIS IS DANGEROUS AND MIGHT DAMAGE YOUR CAMERA. *  
* IF IT BREAKS, YOU GET TO KEEP BOTH PIECES. *  
*                                                                 *  
*****
```

## Introduction

There is 2 ways of running user code on the 550D/T2i/Kiss X4:

1. using the update process with a **.fir** file, which must be digitally signed.
2. using the bootdisk process: the **autoexec.bin** file is loaded and executed. This file does not have to be signed, but the bootdisk flag must be enabled in the camera.

To install Magic Lantern on your camera, you must download the right magiclantern for your firmware: 1.0.8 or 1.0.9. The recommended way is to upgrade your camera to 1.0.9 in order to get the latest features.

No development will be done on 1.0.8 any more. Magic Lantern does not work at all with earlier firmware versions.

## Installing Magic Lantern for 550D firmware version 1.0.9 (current)

**Make sure you have the Canon Firmware 1.0.9 first! Running Magic Lantern on an incorrect firmware version may brick your camera!**

### Step 0. Downloading

- Download this release [...uploading...]
- Read the discussion thread for more info: [...uploading...]

### Step 1. Enabling bootflag

- Format the SD card
- Copy **magiclantern.fir** from the zip archive on the SD card
- Launch the firmware update process. For this, start the camera and select **Firmware ver 1.0.9** from the ‘Wrench 3’ menu (must be in manual or P mode to select)
- The installer (**magiclantern.fir**) will enable the bootdisk flag in NVRAM by calling the **bootdisk\_enable()** function from Canon firmware. This is the **only** persistent change to your camera, which can be reverted.
- Once the drive light has gone off and stays off for a few seconds, remove the battery.

### Step 2. Making the SD card bootable

The file **autoexec.bin** can be launched if the bootdisk is enabled AND the sdcard is ”prepared” with special values written in boot sector:

- for FAT16 cards: ‘EOS\_DEVELOP’ written at offset 43 and ‘BOOTDISK’ at offset 64
- for FAT32 cards: ‘EOS\_DEVELOP’ written at offset 71 and ‘BOOTDISK’ at offset 92

## Linux

[does it work on Mac too?]

You can use this script

## Windows

You can use:

- **CardTricks** tool from CHDK, for cards smaller than 4 GB: here
- **bootCF** for larger cards: here

To run **bootCF**, either drag the card's icon from the **My Computer** screen onto the **BootCF.exe** icon, or run **bootCF** from command prompt.

You can verify whether the boot sector has been modified using HxD.

## Step 3. The last one :)

Delete **magiclantern.fir** (sure?) and copy **autoexec.bin** and **cropmark.bmp** on your SDCard.

Switch on your camera, and Magic Lantern (**autoexec.bin**) will boot.

As long as you had enabled the bootdisk flag once, your card is "prepared"; the camera will try to load any "autoexec.bin". The **.fir** file is not needed any more.

```
/* Novice users do launch ML with "Update firmware" if their autoboot does not work.
This might lock their camera if they do it too many times. I propose to delete the FIR
as a safety measure. */
```

## Troubleshooting

- If Magic Lantern does not work (i.e. no new features are noticed), repeat Step 2.

**\* Again, NEVER let a prepared card without a working autoexec.bin on it, remove the battery immediately during 5 secs, switching off is not enough !!!**

## Older versions (archived)

### 550D/1.0.9

- 3 Dec 2010: magiclantern-0.1.9-rc0.550d\_fw109.zip

### 550D/1.0.8

No further development will be done on the 1.0.8 firmware.

### Official builds from Trammell Hudson

- Announcing pre-alpha firmware
- RC1 release: magiclantern-550d.rc1.zip
- 8 Aug 2010: Update 550D beta, now with gain control

### Unofficial (experimental) builds

- 11 Nov 2010: magiclantern for 550D, compiled with shorter config file
- 23 Nov 2010: Recording Internal and external audio simultaneously
- 7 Dec 2010: fixed cropmarks
- 9 Dec 2010: enabled zebras and histogram
- 11 Dec 2010: GUI menus & lots of extras
- 12 Dec 2010: enabled QScale and spotmeter

## Risks

- This firmware does a (very small) (semi-)permanent change to your camera: it changes the DISKBOOT flag, which is stored in NVRAM. This change can be reverted (see the mailing list and bootflags.c).
- I am not aware of anyone who had permanent damage with the 550D. However, there are reports on the CHDK forums that some users bricked their 350D, most probably by installing a hack on the wrong firmware version.
- The biggest risk is when experimenting with source code without knowing what you are doing.

- Risks are low with pre-built binaries, since we test them on our cameras before making them public.
- Risks are minimal with official versions (from the main repo), since they get tested by many users before releasing them.

## Source code

You can build your own 'AUTOEXEC.BIN' files with the 550d branch of the source code:

```
hg clone -r 550d https://bitbucket.org/hudson/magic-lantern
```

There is "no" Canon source or object code in the Magic Lantern tree and we do "not" distribute ROM dumps since they contain code that is copyright by Canon. If you have the camera in hand, you can make your own dump for analysis and use this IDC database to add symbols to it.

If you want to compile your own 'AUTOEXEC.BIN', check the following wiki pages:

[For Developers ]

[Build instructions/550D ]

[550d dev ]