

# Magic Lantern 0.2 for Canon 550D, firmware 1.0.9 Installation

<http://magiclantern.wikia.com/550D>

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Installing Magic Lantern 0.2 for Canon 550D, Firmware 1.0.9

## 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. *
*
*****
```

## Important notes

- If you have a bootable SD card and have the DISKBOOT flag set in the camera (which the installer does), and you do not have an AUTOEXEC.BIN file on the card the camera **WILL NOT BOOT!** It will hang and not wake up until the battery is removed.
- If you encounter a "locked up" camera, **quickly remove the battery.** Otherwise the ARM might be in a tight-loop and get very hot, very quickly. Your battery will run down and your LCD might show some discoloration.
- When in doubt, remove the battery and reboot.
- **And, remember that this software can damage or destroy your camera.**

## 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!**

If you already use a previous version of Magic Lantern for 550D firmware **1.0.9**, it's easy. Download the latest ML and unzip everything on your SD card. Done. Enjoy!

If you already use Magic Lantern for 550D/1.0.8, format your card, upgrade camera firmware to 1.0.9 and follow the ML install steps.

### Step 0. Downloading

- Download this release: [magiclantern-0.2.0.rc1.550d.fw109.zip](#)
- Read this discussion thread for more info.

### Step 1. Enabling bootflag



- Format the SD card from the camera (**Wrench 1** menu)
- 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 SD card is "prepared" with special values written in boot sector:

- for FAT16 cards: `EOS_DEVELOP` at offset 43 and `BOOTDISK` at offset 64
- for FAT32 cards: `EOS_DEVELOP` at offset 71 and `BOOTDISK` at offset 92

**Do not put an "prepared" (bootable) card without `autoexec.bin` in the camera! (it won't boot and you'll have to take the battery out).**

## Linux and Mac OS X

You can use `make_bootable.sh`, which is included in the archive. You need to change the following line in order to indicate your SD card device:

```
# change this
dev=/dev/disk1s1
```

- To find the correct `/dev/` entry under **OS X** type:

```
diskutil list | grep FAT
```

That will list all mounted FAT disks, the `/dev/` entry is the last column. Note also that under OS X this script will leave the card unmounted, eject and reinsert it to re-mount it.

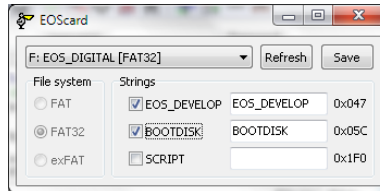
- To find the correct `/dev/` entry under **Linux** type:

```
mount | grep fat
```

and choose the one labeled `EOS_DIGITAL`. You may have to run this script as root.

## Windows

Use **EOScard** (thanks Pel!)



Select your SD card drive, check **EOS\_DEVELOP** and **BOOTDISK** and hit Save.

If the antivirus 'is complaining' <<https://bitbucket.org/hudson/magic-lantern/issue/207/problem-using-eoscardexe-with-bitdefender>>, put it on Game Mode or try another operating system ;)

## Step 3. The last one :)

Delete **magiclantern.fir** and copy **autoexec.bin**, **magic.cfg** and **\*.bmp** files on your SDCard. Put the card in the camera.

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, unless for some reason you will want to retry the installation process.

## Troubleshooting

- If Magic Lantern does not work (i.e. no new features are noticed), repeat Step 2. Also try with an older (FAT16) card.
- **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 !!!**
- Look in the issue tracker for similar problems; if you can't find the solution, create a new issue there.

## Video instructions

These videos are outdated, but might still be useful:

- This video shows the firmware upgrade process using `magiclantern.fir` (how to enable the `DISKBOOT` flag). It is for Magic Lantern for 550D/1.0.8, but the process is 90% the same for 1.0.9 (the latest version loads faster).
- This video shows how to prepare a bootable card with `bootCF` and run a custom `autoexec.bin`. This video shows an experimental build of Magic Lantern for 550D/1.0.8, but might still be useful.

## 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
- 07 Dec 2010: fixed cropmarks
- 09 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`).
- There are no confirmed reports of Magic Lantern doing permanent damage on 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. There are also lots of reports of camera refusing to boot after installing ML; this happens because they have tried to start the camera from a bootable (i.e. prepared) card without `autoexec.bin`. That's why you should read the install instructions carefully.
- Starting the camera with a bootable card without an `autoexec.bin` will cause symptoms similar to a bricked one (it will not boot). This may scare you. If it happens, **take the battery out quickly** and the camera should be fine.
- On certain cameras, there are power management issues (i.e. if you turn off the camera or let it go to standby, it won't start any more). Make sure you don't have these problems; if you do, take the battery out after each shooting session!
- Even if you don't have power issues, it's a good idea to take the battery out when you don't use the camera.
- The biggest risk is when experimenting with source code without knowing what you are doing. Calling certain functions or calling them at the wrong moment can be dangerous.
- 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](#)