Flirc USB Manual

Flirc Second Generation USB Receiver

User Guide v1.4.0

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What is Flirc?

Flirc allows you to pair any remote control with your computer or media center. Just walk through our super simple cross platform pairing application, and you're done. Use your previously paired remote with no additional software on any machine with flirc.

How Flirc Works

Most applications and devices support keyboards. So why not make our device and software think your remote control is just a keyboard? That's exactly how we do it. Flirc shows up to your device as a keyboard, or a generic HID device. Use our cross platform pairing application and walk through pairing your remote control. We've figured out all the keyboard shortcuts for various devices and applications, and we hide all that in our applicaiton. We present a familiar interface, and pairing is as simple as point and click.

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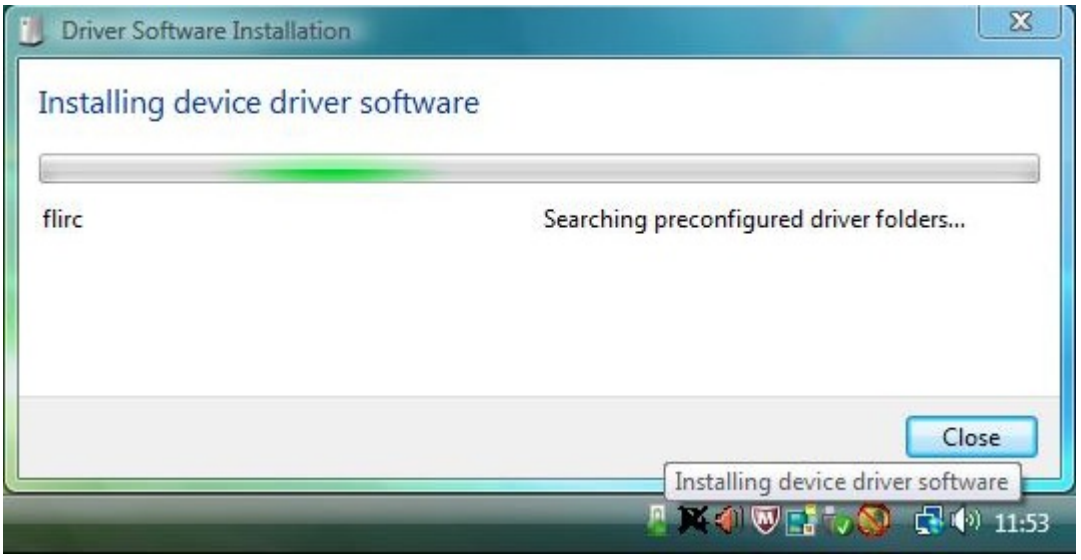
Windows Installation Guide

Double click the Flirc.exe, which will run the automated installer.

Follow the installer steps, the installer will install the flirc drivers which enable us to to program Flirc generation 1, this may result in a security pop-up. Flirc Gen2 will work without any drivers, the installer will install drivers for only the plastic first generation of flirc.

Click "install this driver software anyway" and continue. If the driver fails to install for any reason, and Flirc Gen2 is being used, the pairing software will still work, as the driver is no longer needed.

When the installer is complete plug in the Flirc device and Windows will complete the install of the driver.



After the driver has been installed you may need to restart the computer (you may be prompted to do this). Installation is complete.

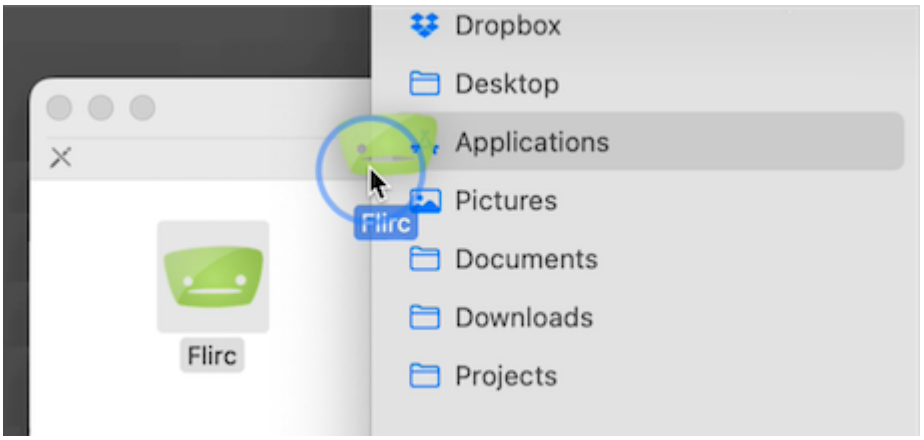
Software Updates

Windows software updates are unfortunately not automatic. We recommend subscribing to our blog or twitter where we announce regular updates. Updates need to be downloaded and installed.

MacOS Installation Guide

After downloading Flirc.dmg, locate the file in your downloads folder.

Drag the Flirc application to your Applications folder.



That's it! 🎉 🎉 🎉

Once in your application folder, the Flirc app is installed and ready to run.

Software Updates

On OSX, Flirc uses Sparkle for automatic updates. A changelog is presented to the user, and updates are automatically downloaded and installed.

Linux Installation Guide

Installation Instructions Ubuntu i386:

```
Add 'deb http://apt.flirc.tv/arch/i386 binary/' to /etc/apt/sources.list
apt-get update
apt-get install flirc
```

Installation Instructions Ubuntu x64:

```
Add 'deb http://apt.flirc.tv/arch/x64 binary/' to /etc/apt/sources.list
apt-get update
apt-get install flirc
```

> Note If you are having font issues: apt-get install ttf-mscorefonts-installer

Software Updates

Linux software updates are automatic once the Flirc source list is added. Your Debian system will automatically prompt of software updates. If not, you can force check and force an update using the following method.

```
bash # sudo apt-get update
bash # sudo apt-get upgrade flirc
```

Graphical User Interface

The graphical user interface (GUI), is the heart of the Flirc application. The application allows you to pair your Flirc with your remote. Regular updates are provided, and the application works on Windows, Mac, and Linux.

Supported Controllers

The following are supported controllers. More are always being added. To request another, please send an email to the Flirc team.

- **Minimal - The basic most fundamental controls needed for any media center**
- **Channels**
- **NVIDIA Shield - One of the most popular Android set top boxes, powered by NVIDIA Tegra**
- **NVIDIA Shield GEN2 - One of the most popular Android set top boxes, powered by NVIDIA Tegra**
- **PS3 / PS4- PlayStation 3 and PlayStation 4. This controller should work for both devices. Caveats listed here.**
- **Full Keyboard - Pair any keyboard key or combination with Flirc**
- **Boxee - A platform extremely popular prior to 2014 that was purchased by Samsung**
- **Kodi - Also known as XBMC, the most popular open source media center software in the world**
- **Windows Media - Keyboard shortcuts for Windows Media Center**
- **Media Keys - Computer media keys that control various functions without needing Windows focus**
- **FireTV - Amazon's set-top box (If using the FireTV Stick, our FireTV Edition Flirc USB is recommended!)**
- **XBOX 360 - Microsofts latest and greatest game console**
- **Flirc Streacom Edition**

> **Note:** Later Xbox media remotes are not supported

How the Flirc GUI Works

Remember that Flirc shows up to the device it's connected to as a keyboard or HID device. The user interface presents pictures of different 'controllers'. These controllers hide the details. For example, to control Kodi, keyboard combinations are needed. Our Kodi controller will present an on-screen display of Kodi controls. The Play key, as shown below, is just a keyboard key 'P'. When pairing a remote control

button with the 'play' button, successive presses of this remote button will send the letter 'p' to the computer, in turn playing the media on Kodi.

Missing Keys on a Controller

If a controller is missing a key, not to worry. Since these are all keyboard keys, you can use the keyboard controller to pair any key, or combination of keys.

Versioning

There are separate versioning schemas for both the GUI and the firmware. The firmware has two components: the runtime application known as Flirc and a special piece of firmware called the bootloader, which has only one purpose: to upgrade the application image. The bootloader and application are both independently versioned. The bootloader can never be upgraded; however, the application version can be upgraded and is updated very often.

All versioning schema's conform to the open semantic versioning schema. More information about semver can be found here.

GUI Versioning

The GUI version is found in the title bar. The GUI version will always be the same on Linux, Windows, or a Mac. One system is never updated without the others. An update for a bug on Windows will result in a new version for all operating systems.

Firmware Versioning

The firmware version is always shown in the bottom left corner. There are three components to the version: Major.Minor.Patch.

For example, v4.0.16:

- **Major = 4**
- **Minor = 0**
- **Patch = 16**

The meanings are as follows:

```
A Major Firmware Version - denotes a new major feature release.
A Minor Firmware Version - denotes an update to a fundamental internal working of
the firmware which would render the previous version of the GUI incompatble with
this new firmware
A Patch Firmware Version - denose an update to a bug. No upgraded GUI is needed
```

The firmware version is revision locked to the GUI. If the firmware Minor or Major version is incremented, it will not be compatible with previous versions of the GUI.

Bootloader Versioning

Unlike the firmware version, the bootloader is not version-locked to the GUI. The bootloader will never be updated, and users need not be concerned about it. The bootloader version is in the same location as the firmware version and shows up only during an upgrade. Currently, there is no other means to get the bootloader version outside of issuing a firmware upgrade.

The bootloader version will never change. There are no bootloader upgrades; otherwise, we would need a bootloader loader. And that's too much inception for me.

Basic Pairing

The most basic keys on almost all applications can be paired with the first controller in the Flirc GUI, as identified below in the minimalist controller.

Automated

To help simplify the pairing process, some of the GUI is automated. For example, the minimalist controller has a 'go' button. Pressing that will start the automated pairing process.

The keys on the GUI are highlighted one at a time. They will blink and wait indefinitely for you to hit a button on your remote to pair with the highlighted key.

Once this button is pressed on your remote, the GUI will notify you that the button was succesfully recorded, and proceed to the next button.

If there is a problem recording the remote button, an appropriate error code will be displayed and a dialog will be prompted.

Error Codes

> - **Start Over** - **This will reset the automated process and start back at the first key in the sequence while formatting your device. If there are other keys recorded outside of the automated process, they will be deleted too.**
> - **Skip** - **Ignore this specific button, and move on to the next button**
> - **Redo** - **Try hitting another button on your remote instead of the one used. Perhaps you accidentally hit the wrong one to begin with**

Manual Pairing

The automated process is completely optional and may not be present on certain GUI controllers. Pairing keys can be done manually by clicking a key on the GUI once. The key will blink green indefinitely, and the Notification Area will instruct you to press a button on your remote control. The user notification will let you know of a success or error in recording.

As an example, hit 'enter' on the minimalist controller, and the user will be prompted to pair a remote button.

Advanced Pairing

A provided pairing profile might not be enough for some users' needs. It's also possible that some users would like to drill down into certain advanced features or configurations.

Keyboard Keys

The second best way to do any advanced pairing is through the keyboard controller. Remember, any application or device always supports keyboard keys. Hook up a keyboard, figure out how keys are mapped, and write them down. Use the keyboard controller to pair those keys manually with your remote. Then, email us or start a forum thread and share what you've found. We'll bring official support for your device or application into the GUI.

Modifiers

Like all keyboards, there are modifiers keys which include:

1. **Control (left)**
2. **Alt (left)**
3. **Command/Windows (left)**
4. **Shift**
5. **Caps Lock**
6. **Control (right)**
7. **Alt (right)**
8. **Command (right)**

Any or all modifiers can be combined with any keyboard key; however, only one keyboard key can ever be paired. For example, the following is a valid pairing: `LEFT_CONTROL + SHIFT + 'A'`

Just like a regular keyboard, this is a valid input. An ***invalid*** input is: `LEFT_CONTROL + 'A' + 'F'` or just `'A' + 'F'`

Just like a regular keyboard, a user can not send two letters at a time.

Modifiers Advanced

The modifiers are defined as follows. This is helpful if a user wants to use the `flirc_util record_api` command

```
#define MOD_CTRL_LEFT           (1<<0)
#define MOD_SHIFT_LEFT          (1<<1)
#define MOD_ALT_LEFT            (1<<2)
#define MOD_COMMAND_LEFT        (1<<3)
#define MOD_CTRL_RIGHT          (1<<4)
#define MOD_SHIFT_RIGHT         (1<<5)
#define MOD_ALT_RIGHT           (1<<6)
#define MOD_COMMAND_RIGHT       (1<<7)
```

More information on the record_api command can be found in the command line interface guide of this document.

Key Definitions

Tooltips are used to help the user determine the meaning behind virtual keys. Hold the mouse over a given key for approximately 5 seconds, and a tooltip will be shown for the specific key. This is helpful if the specific icon of the key is not obvious.

Deleting a Pairing

In order to delete a button on FLIRC, the remote control button must have previously been paired. Deleting a key can be done by pressing the erase button on the GUI. The notification will prompt you to then press a button on your remote control that was previously paired. If the button wasn't previously paired, the GUI will let you know that nothing was deleted.

Saving a Configuration

Saving a configuration is simple and is recommended in order to backup your hard work, or simply to save it and put it on another device.

You should see a progress bar under the Flirc logo, and saving a configuration should take a matter of seconds.

Flirc Configuration File

Saving a configuration is simple and is recommended in order to back up your hard work or simply to save it and put it on another device. The file is in a proprietary format and has the suffix fcfg to denote 'Flirc configuration'.

More information is provided in the Flirc API documentation.

```
struct header_t {
    /* magic identifier */
    uint32_t magic;
    /* major version */
    uint16_t major;
    /* minor version */
    uint16_t minor;
    /* size of used space */
    uint32_t size;
    /* crc of eeprom not including header */
    uint32_t crc;
} __alias __packed;

struct settings_t {
    uint32_t alg;
    uint32_t timing;
    uint32_t general;
} __alias __packed;

struct ir_pattern_t {
    /* recorded hash */
    uint32_t hash;
    /* time elapsed to next pulse in ms */
    uint32_t te;
    /* not used yet, pointer to next key to send */
    uint32_t next;
    /* boolean if we should do a long press */
    uint8_t lp;
```

```
    /* usb report ID */
    uint8_t report_id;
    /* high byte in packet for USB */
    uint8_t modifier;
    /* low byte in packet for USB */
    uint8_t key;
} __alias __packed;
```

Restoring a Configuration

Restoring a configuration is as easy as saving it. Under the File menu, head to Load Configuration. You will be prompted to select the previously saved file on your computer. The dialog will only let you load a valid configuration ending in _fcfg _extension.

If the file ends in fcfg, but is not valid, the Flirc GUI will know, and the file will not load.

You should see a progress bar under the Flirc Logo and loading should take a matter of seconds.

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Specifications

Hardware Specifications

```
- Dimensions : 15mm x 16.6mm x 8mm (L x W x H)
- Weight     : 0.5 Ounce
```

Material Specifications

```
- ABS Plastic
- Laser Engraved Stainless Steel
- RoHS Compliant PCB
```

Certifications

Certification	Definition
	CE marking is is a mandatory conformity marking for certain products sold within the European Economic Area (EEA) since 1985.
	FCC Declaration of Conformity is a certification mark employed on electronic products manufactured or sold in the United States which certifies that the electromagnetic interferenec from the device is under limits approved by the Federal Communications Commission

Electrical Specifications

```
- Speed       : USB 2.0 Full Speed
- Max Power   : 100mA Peak Current
- Avg. Power  : 15mA
```

Infrared Receiver Specifications

```
- Range       : 50 Feet
- Angle       : 150 Degrees
```

Infrared Transmitter Specifications

```
- Range       : 50 Feet
```

Shipping Specifications

```
- Dimensions : 90mm x 60mm x 15.5mm (L x W x H)
- Weight     : 1.0 Ounce
```

Host Compatibility

All devices that support the USB standard are supported. Not limited to but these include:

- **Computers**
- **Media Centers**
- **Set-top Boxes**
- **PlayStation**
- **Xbox**

Legal

World Wide TradeMark

Flirc was issued a world wide trademark in 2015

Patent

Flirc was issued patent 9,257,040 in Februrary 2016

Free Flirc

If you've reached this, thank you for reading the entire Flirc Gen2 Guide. As a thank you, we'd like to offer you a free flirc. Please fill out this form accurately, and honestly, and we will send you your free flirc as soon as possible.