



## **A CASE STUDY ON PIDORA**

Pidora is a Fedora Remix optimized for the Raspberry Pi computer.

**Pidora** is a Linux software distribution for the Raspberry Pi computer. It contains software packages from the Fedora Project (specifically, the Fedora ARM secondary architecture project) compiled specifically for the ARMv6 architecture used on the Raspberry Pi, packages which have been specifically written for or modified for the Raspberry Pi, and software provided by the Raspberry Pi Foundation for device access.

For the most part, Raspberry Pi users have only had one or two really strong operating systems to work with. If you're looking to try something different, Pidora is an OS built on the Linux system Fedora.

Pidora is slightly different than something like Raspbian in a few ways. It comes with a handful of different software than Raspbian, including a ton of text editors, programming languages, and more. You also get a "headless mode" to operate your Pi without a monitor attached (and with the clever feature to say your IP address out loud when speakers are attached). As you'd expect, you can also download a ton of additional software from the Fedora repository. Pidora has a slightly different look and feel than Raspbian, but if you're looking to try out a new OS on your Raspberry Pi it's worth checking out. You'll find everything you need over on the Pidora page.

## What is Raspberry Pi?

The Raspberry Pi is a creditcard sized computer that plugs into your TV and a keyboard. It's a capable little PC which can be used for many of the things that your desktop PC does, like spreadsheets, wordprocessing and games. It also plays highdefinition video. We want to see it being used by kids all over the world to learn programming.

As of now there are two models of the Raspberry Pi, and A and a B. Model A has been redesigned to have 256Mb RAM, one USB port and no Ethernet (network connection). Model B has 512Mb RAM, 2 USB port and an Ethernet port.

## Pidora 2014 (Raspberry Pi Fedora Remix)

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Pidora 2014 (Raspberry Pi Fedora Remix) will be the fifth version of the Remix released.

Release date: (July 24, 2014)

Fedora package collection version: 20

Kernel version: (3.12.23)

Architecture: armv6hl

## What is Pidora

Pidora is a combination of Fedora software, with or without thirdparty software, that any community member can create at any time (More Info in the source link)

### Setting up the Raspberry Pi for the First Time

This is the recommended system configuration for first time startup:

- Connect the Raspberry Pi to a highdefinition monitor or TV using the HDMI output (HDMI and DVID are basically the same signals, so an HDMIDVI adapter can be used).
- Connect a USB keyboard (and, optionally, a USB mouse).
- Plug in an ethernet cable connected to an IPv4 network with a DHCP server and Internet gateway. Pidora will use this connection to set the system clock.

- Insert the SD card.
- Apply power.

### SD Card Installation Using the Installer (WARNING: Installer Network Installation Down)

The easiest way to install the Remix is to use the installer program.

Needed:

A computer with at least 5 GB of free disk space, running one of these operating systems:

- Fedora
- Windows Vista or Windows 7
- Other Linux
- An SD or SDHC card, with a capacity of 2GB or more. (Goodquality class 4 cards usually work well).
- An SD/SDHC card writer, either built in to the computer or connected to a USB port.
- An Internet connection.

### INSTRUCTIONS:

- Download the latest Pidora 2014 image.
- Run the installer.
- Select the Pidora 2014 image on your computer. (WARNING: Installer Network Installation Down)
- Select the device on which you wish to install the image (WARNING: all data on this device will be deleted! be sure you have selected the correct device).

- Click "Install".
- Wait until the program states that the installation is complete before removing the card.

## Changes For Pidora 2014

In Regards to this Raspberry Pi Fedora Remix the following changes have been made for this release:

- Fixed support for different keyboard languages
- Added DVI adapter support for older monitors
- RootfsResize now works with logical partitions
- Raspberrypi kerneldevel package has been added
- New Pidora 2014 splash screen
- New Pidora logos
- Improved Headless Mode can be used with setups lacking a monitor or display
- Much faster boot speed
- Faster and smoother graphical usability, with Xorg fbturbo driver
- Almost all of the Fedora 20 package set available via yum (thousands of packages were built from the official Fedora repository and made available online)
- Compiled specifically to take advantage of the hardware already built into the Raspberry Pi
- Graphical firstboot configuration (with additional modules specifically made for the Raspberry Pi)
- Compact initial image size (for fast downloads) and autoresize (for maximum storage afterwards)

- Auto swap creation available to allow for larger memory usage C, Python, & Perl programming languages available & included in the SD card image
- IP address information can be read over the speakers and flashed with the LED light
- For graphical operation, Gedit text editor can be used with plugins (python console, file manager, syntax highlighting) to serve as a minigraphical IDE
- For console operation, easytouse text editors are included (nled, nano, vi) plus Midnight Commander for file management
- Includes libraries capable of supporting external hardware such as motors and robotics (via GPIO, I2C, SPI)

The flavors of Linux for Raspberry are Debian (Raspbian), Fedora (Pidora), RISC OS 5, Arch Linux ARM (derivate de Arch Linux). All in this article is dedicated to PIDORA.

## WHAT A RASPBERRY PI DOES NOT HAVE?

- Don't have Hard Disk but have SD Card, which is enough for Raspberry.
- Don't have real time clock, but we can make one with ntp (network time protocol) server.
- Don't have a case included, you must buy apart.
- The fact of don't have mechanical parts, such us fan coolers or hardisk makes Raspberry strongest, with null hardware maintenance, and with very low electrical consumption (It's Ecological).

## WHAT CAN I DO WITH RASPBERRY?

- Develop programs in languages like C, Java, Python, Perl. It's ideal for learning.
- Use General Purpose Input / Output (GPIO) Ports for control.

- Use in communications Ethernet, serial port, SPI, I2C.
- Send Emails since command lines.
- MySQL Server for Databases.
- Apache Server for websites server.

## HOW CAN I INSTALL PIDORA LINUX

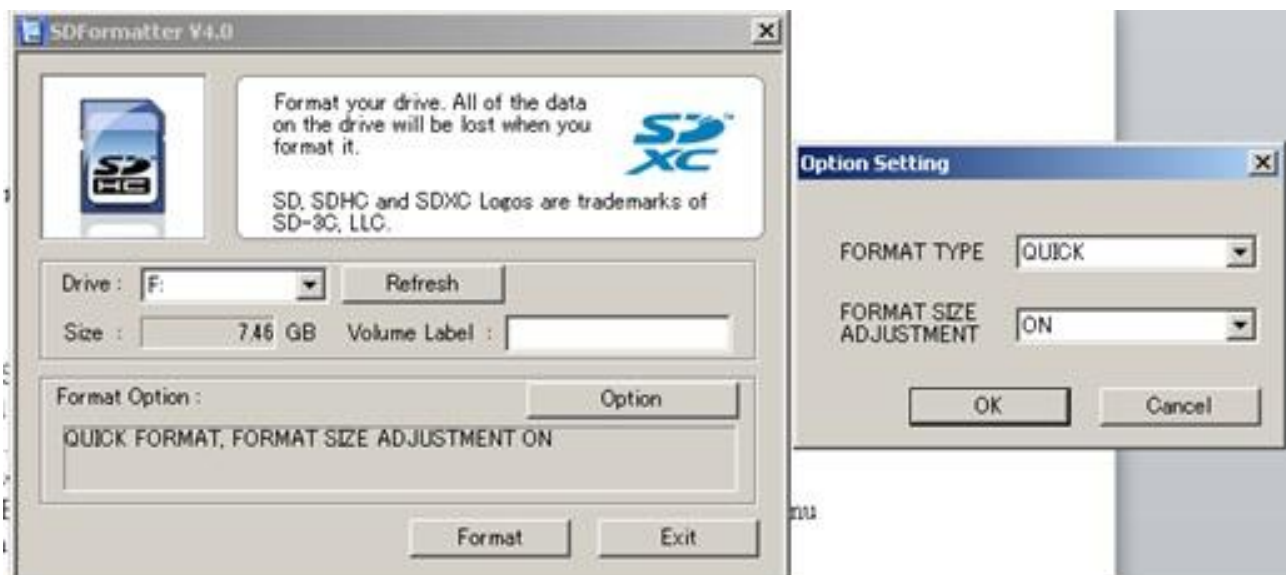
We need a SD card of 4GB or greater in

1. Download the SD Formatting Tool from

[https://www.sdcard.org/downloads/formatter\\_4/eula\\_windows/](https://www.sdcard.org/downloads/formatter_4/eula_windows/)

2. Install and run the Formatting Tool on your machine

3. Set "FORMAT SIZE ADJUSTMENT" option to "ON" in the "Options" menu



4. Check that the SD card you inserted matches the one selected by the Tool



5. Click the “Format” button

6. Download Pidora From " <http://www.raspberrypi.org/downloads> "

7. Unzip pidora-18-r1c.zip

8. Download the software Win32DiskImager.exe and copy the image of pidora in the SD card for to do that select the unit in witch is the SD card.

<http://sourceforge.net/projects/win32diskimager/>

9. Introduce the SD card in Raspberry and switch ON the power, then automatically starts to install.

## CONTROL WITH GPIO

|                    |    |    |                           |
|--------------------|----|----|---------------------------|
| POWER +3,3V        | 1  | 2  | +5V POWER                 |
| GPIO 0 (SDA I2C)   | 3  | 4  | +5V POWER                 |
| GPIO 1 (SCL I2C)   | 5  | 6  | GROUND                    |
| GPIO 4             | 7  | 8  | GPIO 14 (TXD) SERIAL PORT |
| GROUND             | 9  | 10 | GPIO 15 (RXD) SERIAL PORT |
| GPIO 17            | 11 | 12 | GPIO 13 (PCM CLK)         |
| GPIO 21            | 13 | 14 | GROUND                    |
| GPIO 22            | 15 | 16 | GPIO 23                   |
| POWER +3,3V        | 17 | 18 | GPIO 24                   |
| GPIO 10 (MOSI SPI) | 19 | 20 | GROUND                    |
| GPIO 9 (MISO SPI)  | 21 | 22 | GPIO 25                   |
| GPIO 12 (CLK SPI)  | 23 | 24 | GPIO 6 (SPI CE0)          |
| GROUND             | 25 | 26 | GPIO 7 (SPI CE1)          |



### GPIO Pins on Raspberry Pi

GPIO is General Purpose Input Output, so for example we can control relays with it's outputs or we can read the state of a switch with it's inputs.

Watch out the maximum input voltage is +3,3V, if you apply +5V or more, you will burn the GPIO. Check the Circuit Diagram tab to get an example on how to use GPIO Pins.

### Layout of P1 pin header GPIO

## HOW CAN I INSTAL SOFTWARE FROM THE REPOSITORIES

In PIDORA we use the command “yum” for download and install software.

As root --> #yum install package

If you don't know the exact name of the package you can use:

# yum search name and then all the packets that contain that name will be shown.

## HOW CAN I INSTALL NTP (Network Time Protocol)

This is for to have a real time clock, that synchronize with a real time server in internet.

As root

#yum install ntp For install

#ntpd -qg

Set up to execute in the start

#chkconfig ntpd on

#service ntpd start

Test it

#date

## HOW CAN I INSTALL MYSQL

As root:

#yum install mysql-server      Install mysql server

```
#yum install mysql          Install mysql client
```

Activate service and start it

```
#!/sbin/chkconfig mysqld on
```

```
#!/sbin/service mysqld start
```

```
# mysql -u root mysql
```

```
mysql> UPDATE user SET Password=PASSWORD('your_new_password')  
where USER='root';
```

```
mysql> FLUSH PRIVILEGES;
```

```
#mysql -u root -p
```

```
mysql> exit
```

Create for example database with name oscommerce

```
#mysql -u root -p
```

```
mysql>SET PASSWORD FOR root@localhost=PASSWORD('password');
```

```
mysql>create database oscommerce;
```

```
mysql> GRANT ALL ON oscommerce.* TO root@localhost IDENTIFIED BY  
"password";
```

```
mysql>exit;
```