Internet Radio Linking Project (IRLP) Wiki

Keeping the Radio in Amateur Radio

Re-installing IRLP on a Raspberry Pi

This article describes the steps required to re-install IRLP and Debian onto a Raspberry Pi computer from an existing IRLP node.

If you would like a ready-built and configured system, consider ordering one direct from IRLP at http://irlp.net/order.html [http://irlp.net/order.html] they also have prefabricated and all necessary parts to complete your PiRLP project.

Prerequisites and Disclaimer

First thing, back up your existing install using the "backup_for_reinstall" script. It will create an irlp_backup.tgz file on a USB stick - More on this later.

Second thing - This is experimental and not supported. If it breaks something, the IRLP installs team can try to help, but we can not foresee all possible issues. IRLP will try to help where I can, but can not promise it will all work. If you are not able to troubleshoot the problem on your own, consider ordering a complete built and configured PiRLP node from the IRLP website: http://irlp.net/order.html [http://irlp.net/order.html]

Hardware Required

You will require the following hardware:

- IRLP Ver 3.0 board
- Raspberry Pi Model B, B+, or Pi2
- A **suitable** power supply. Please see Powering your Pi
- DB-25 to IDC 26 parallel cable (or similar)
- Compatible USB sound card. Please see IRLP Compatible USB Sound Cards
- 2G (min) SD card (larger is better, but not required)
- USB keyboard (for initial boot only)
- HDMI capable monitor, or an HDMI adapter to another style of monitor

Required USB Sound Card

The Raspberry Pi lacks a sound input device. Because of this, a USB sound card must be used. The best supported USB sound card is the Syba SD-CM-UAUD, based on Cmedia CM119.

Some other pics of the sound card: http://www.steila.com/USB4IO/Syba/Syba.html [http://www.steila.com/USB4IO/Syba/Syba.html]

Where you can get it from ($8.99 free shipping to US): http://www.newegg.com/Product/Product.aspx?Item=N82E16812186035 [http://www.newegg.com/Product/Product.aspx?Item=N82E16812186035]

Please see the list of IRLP Compatible USB Sound Cards

Be warned, there is a similar looking sound card on the market that is made by Syba that will NOT work. It is the Syba SD-AUD20066. The difference is the translucency of the case.

Hardware Modifications Required

The following hardware modifications are required:

- Please prepare the IRLP board/parallel cable as shown at: http://www.irlp.net/R_Pi/ [http://www.irlp.net/R_Pi/]

A schematic of the cable can be found at this link: http://wiki.irlp.net/lib/exe/fetch.php?media=raspberrypi_to_irlp_interface_schematic.pdf [http://wiki.irlp.net/lib/exe/fetch.php?media=raspberrypi_to_irlp_interface_schematic.pdf]

Alternately, you can view these two YouTube videos:

http://www.youtube.com/watch?v=1jOxalmll1o [http://www.youtube.com/watch?v=1jOxalmll1o]

http://www.youtube.com/watch?v=G-1VxMMATh0 [http://www.youtube.com/watch?v=G-1VxMMATh0]

If you are using a Pi2 or Pi B+ with a 40 pin header, you must cut pins 27 and 28 from the board in order to fit the GPIO cable on. See: http://www.irlp.net/R_Pi/P2010014.JPG [http://www.irlp.net/R_Pi/P2010014.JPG] It also shows pin 4 removed - this is not required. It is used as a key for systems ordered from IRLP.

Loading the Required Software

You will require the official Raspbian Jessie Lite release from the Raspberry Pi Foundation: http://www.raspberrypi.org/downloads [http://www.raspberrypi.org/downloads] (no support will be offered for this, besides what buttons to press) Follow the directions on the RPi site for creating the SD card.

SPECIAL NOTE ABOUT THE PI - Do not "hotplug" USB devices, as the unit tends to reset without warning when USB devices are plugged in. So if you are going to run an irlp-reinstall, I would suggest plugging your USB key with the backup file in before you boot the PC.

Boot your Pi, and perform the following steps in the config:

1. expand_rootfs Expand root partition to fill SD card
2. change_pass Change password for 'pi' user
3. change_locale Set locale (as required)
4. change_timezone Set timezone
5. memory_split Change memory split (set to 16)
6. ssh Enable ssh server
7. boot_behaviour DO NOT BOOT INTO DESKTOP

Then click Finish.

On initial boot, log in using user pi, and the password set above. The pi user is essentially a root user, and we want to create a root password, and carry on. That makes this more like other IRLP nodes…

At the prompt, type:

sudo su - passwd root (set a password)

Now in the future, you can log in as root, or you can also choose to remove the pi user (optional):

userdel -r pi

Now we download the IRLP "get-irlp-files" script, which will carry us through the rest of the install.

1. wget ftp://ftp.irlp.net/get-irlp-files [ftp://ftp.irlp.net/get-irlp-files]
2. chmod +x get-irlp-files
3. ./get-irlp-files

(This process will take several minutes (up to 20), as it basically strips the default install of about 200 unneeded packages, and configures your Pi for the packages it needs for IRLP to run). Lets be honest - the Pi is not the fastest beast on the block…. so this process takes time.

Then progress with your install as usual. All of the commands are the same as a normal node, and the installer automatically picks up the special binary files for the ARM processor.

Your node should work at this point.

Upgrading the Pi Firmware

The last step we will do is update the firmware on your Pi. This will help keep everyone on a "level" playing field, and will help instructions work for all users. As part of the install, the rpi-update program is installed by default.

Follow the directions at: https://github.com/Hexxeh/rpi-update/ [https://github.com/Hexxeh/rpi-update/]

Start at the step **"Updating"**, as the program and the timezone have already been set correctly. The command is:

rpi-update

This process will also take several minutes. Then reboot, and enjoy your new PiRLP node.

---

installing_pirlp.txt · Last modified: 2016/01/25 21:29 by k0kad