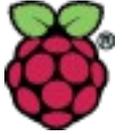




# A Tour of the Apps

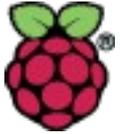
(Programs make it real!)

Tim Wenzig, N5TEI  
Rick Commo, K7LOG



## Tour of Apps

- There are many ham radio related apps available for the Raspberry Pi.
  - Programs across 27 Categories.
  - Most are contained on your micro-sdhc card.
- The problem for many new to the Pi is which ones are easy to install, configure and run!
  - Many are preinstalled on the SeaPac version of Compass Linux.
- In this presentation we hope to expose you to some of areas covered by these Apps.
  - And yes, some are a lot easier to install and set up than others.

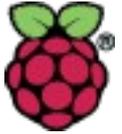


## Tour of Apps

- Categories

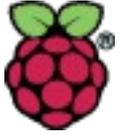
- See handout for more information on each category.

Antennas	APRS	AX.25
BBS client	digital mode	digital receive
fax	file management	file sharing
forms	libraries	license study
IRLP	logging	logging, contests
logging, net control	morse	path analysis
remote access	rig control	rig programming
satellite	sdr	telnet
TNC	web server	Winlink



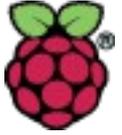
## Tour of Apps

- This session will give a quick look at:
  - d-rats
  - cqrlog
  - trustedqsl
  - chirp
  - lighttpd
- There will be a demonstration of lighttpd.
- Following sessions will cover these in more detail:
  - xastir, direwolf
  - fldigi (suite)
  - wsjt-x
  - paclink-unix, linux-rms-gateway



## Tour of Apps

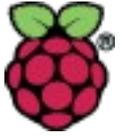
- Some general comments on Linux apps:
  - Most are developed on the Intel and AMD architectures.
  - Daily builds focus on these architectures.
  - Versions for ARM can lag versions for Intel/AMD.
    - ARM version may even be built by different developers.
    - Often determined by OS distro packaging.
  - Some examples:
    - trustedqsl: 2.2-2 for Intel / 2.0.3-2 for ARM
    - d-rats: 0.3.3-4 for Intel / 0.3.3-3 for ARM
    - chirp: “chirp-daily” for Intel / 0.4.0-1 for ARM
    - cqrlog: 1.9.0-5 for Intel / 1.8.2.1-1 for ARM / 2.0.5 is latest
    - lighttpd: 1.4.35-4 for both Intel & ARM



## Tour of Apps / d-rats (1)

### **d-rats**

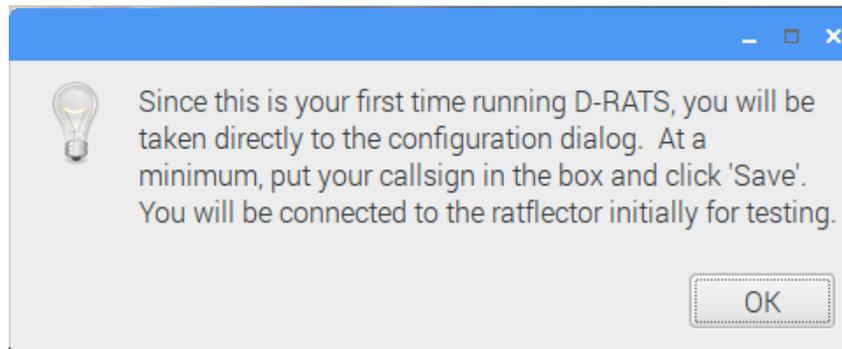
- <http://www.d-rats.com/download/>
- A program that let's you interface to the D-Star network via the Internet.
- Does not require a D-Star capable radio for full digital access via internet connection.
- Does require a D-Star capable radio to merge a phone conversation with data transfer.

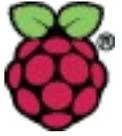


## Tour of Apps / d-rats (2)

- Configuration 1

- The first time you will be prompted, and taken, to a dialog to enter the information needed.





## Tour of Apps / d-rats (3)

- A minimum of your callsign is needed.

Config

Preferences

- Paths
- GPS
- Appearance
- Chat
- Sounds
- Messages

Radio

- Transfers

Network

- TCP Gateway
- TCP Forwarding
- Outgoing Email
- Email Accounts
- Email Access

Callsign: N5TEI

Name: Tim

Sign-on Message:  Enabled Online (D-RATS)

Sign-off Message:  Enabled Going offline (D-RATS)

Units: Imperial

Show time in UTC:  Enabled

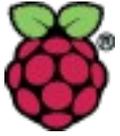
Ping reply: Version and OS Info

Language: English

Blink tray on

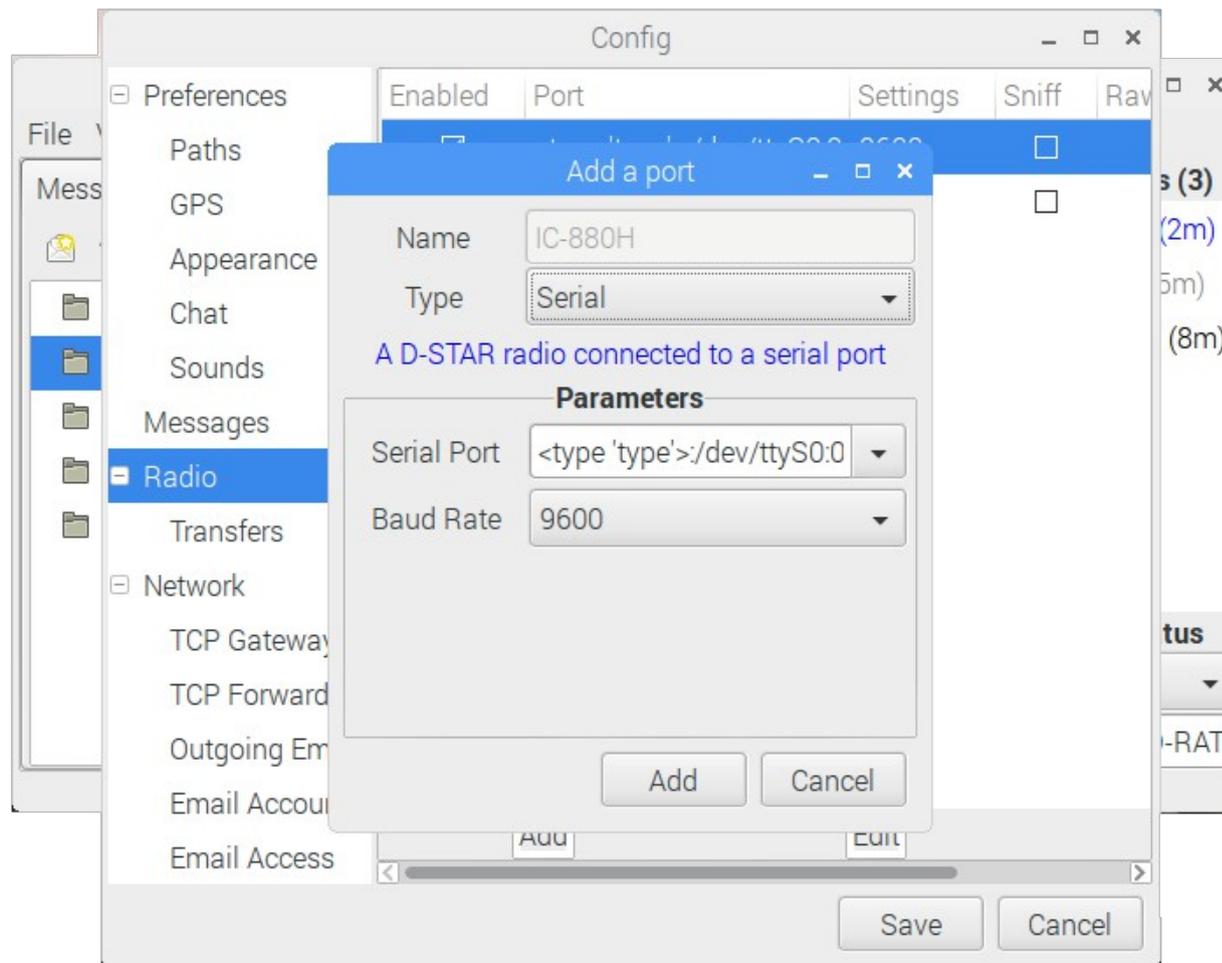
- Incoming Messages:  Enabled
- New Chat Messages:  Enabled
- Incoming Files:  Enabled
- Received Events:  Enabled

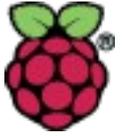
Save Cancel



## Tour of Apps / d-rats (4)

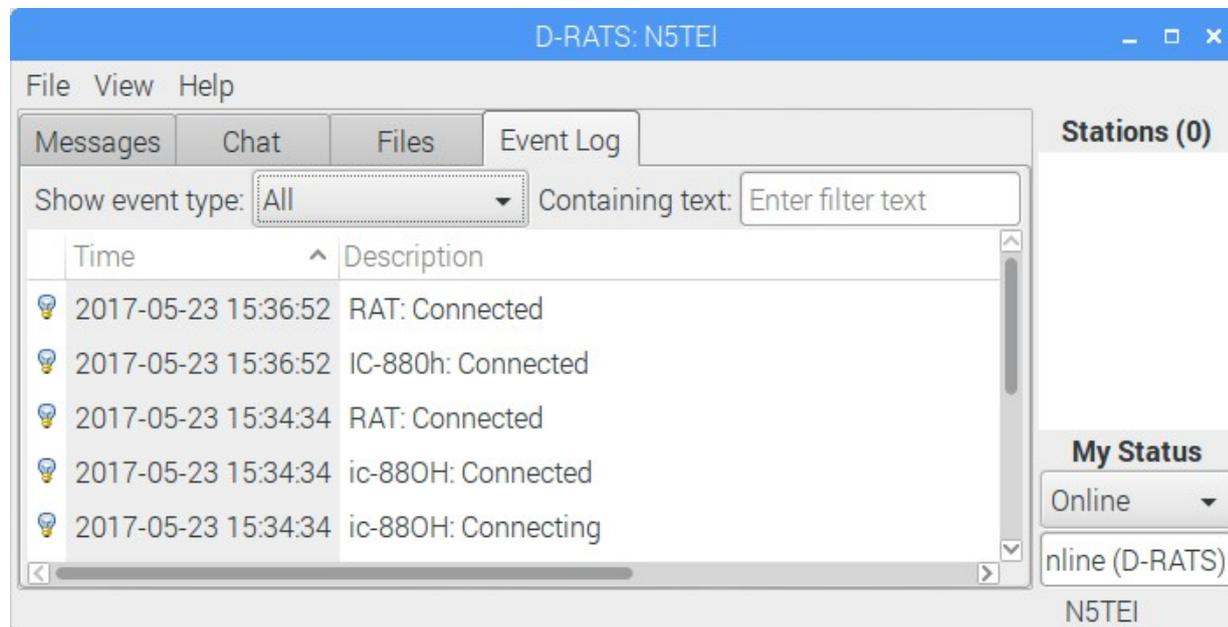
- You need to add the port that talks to the radio.

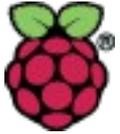




## Tour of Apps / d-rats (5)

- After configuration: Event log shows both radio (IC-880h) and RAT (pi) connected to the d-rats D-Star system.





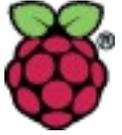
## Tour of Apps / d-rats (6)

- After a couple of minutes the event log begins displaying your, and other stations, activity.
- From here you can chat with, or send messages or files to other stations on the d-rats system.

The screenshot shows the D-RATS: N5TEI application window. The title bar reads "D-RATS: N5TEI". The menu bar includes "File", "View", and "Help". Below the menu bar are tabs for "Messages", "Chat", "Files", and "Event Log". The "Event Log" tab is active, showing a table of events with columns for "Time" and "Description". The table contains five entries:

Time	Description
2017-05-23 15:55:12	Station PD7A is now Online: Maybe at keyboard
2017-05-23 15:55:12	Station K3ATI is now Unattended: Online (D-RATS)
2017-05-23 15:55:10	N5TEI replied to ping from W9SBE with: Running D-R
2017-05-23 15:55:07	W9SBE pinged CQCQCQ [RAT] (Request)
2017-05-23 15:46:19	KC7WVS-2 reporting 40.6268,-111.8326@4498 ft at

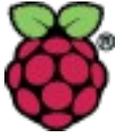
Below the table is a search filter section with "Show event type: All" and "Containing text: Enter filter text". To the right of the event log is a "Stations (4)" list showing "K3ATI (7m)", "PD7A (7m)", "W9SBE (7m)", and "KC7WVS-2 (16)". Below the stations list is a "My Status" section with a dropdown menu set to "Online" and a button labeled "nline (D-RATS)". The bottom right corner of the window shows "N5TEI".



Tour of Apps / cqrlog (1)

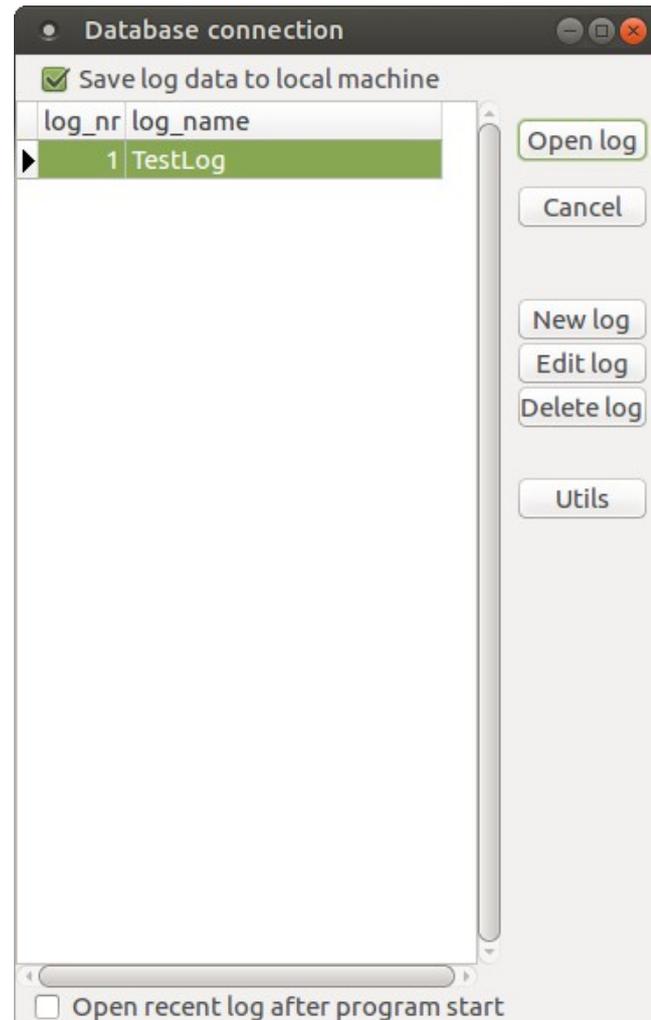
## cqrlog

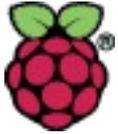
- <http://www.cqrlog.com>
- A full featured logging program that can
  - Read data from a number of radios.
  - Track your awards.
  - And much more.
- The cqrlog screenshots were done on Ubuntu Linux running on a PC.
  - Need to show the capabilities of the app.
  - Problems were encountered installing it on Compass.



## Tour of Apps / cqrlog (2)

- When opening select a log to use.





## Tour of Apps / cqrlog (3)

- Top level window for QSO entry:

The screenshot shows the CQRLOG application window titled "New QSO ... (CQRLOG for Linux), database: TestLog". The window has a menu bar with "File", "View", "Window", "Statistics", "Online log", and "Help". Below the menu bar is a table with columns: qso date, time on, callsign, freq, mode, rst\_s, rst\_r, name, qth, qsl\_s, and qsl\_r. The table contains three rows of data, with the third row (2017-05-30, 02:48, W7FU, 1.8000, CW, 599, 599, John, Sammaish) highlighted in green. Below the table are various input fields and controls for QSO entry, including "QSO nr. 0", "QTH profile:", "Call:", "Frequency:", "Mode:", "AUTO RST sent", "RST rcvd", "Name:", "QTH:", "GRID", "PWR", "QSL S", "QSL R", "ITU", "WAZ", "IOTA", "State", "County", "Award", "DXCC ref.", "Comment to QSO:", "QSL VIA", "Comment to callsign:", "Date:", "Start time", "End time", "Offline" checkbox, and "DXCC stat." table. The "DXCC stat." table has columns for SSB, CW, and DIGI. On the right side, there are sections for "DXCC info" (Country, WAZ, ITU, LAT, DIST, Cont, DXCC, LONG, AZIM) and "Local:" (05:17:07, 20:58:10). At the bottom right, there are buttons for "Save QSO [enter]" and "Quit program". The status bar at the bottom shows "My grid (to change press CTRL+L) CN8..." and "Ver. 2.0.5 (001)".

qso date	time on	callsign	freq	mode	rst_s	rst_r	name	qth	qsl_s	qsl_r
2017-05-30	02:46	W7QC	10.1000	CW	599	599	Steve	Sammamish		
2017-05-30	02:48	K7LOG	7.0000	CW	599	599	Rick	Redmond		
2017-05-30	02:48	W7FU	1.8000	CW	599	599	John	Sammaish		

QSO nr. 0    QTH profile:

Call:     Frequency:  1.800    Mode:  CW    AUTO RST sent     RST rcvd  599

Name:     QTH:     GRID     PWR  100    QSL S     QSL R

ITU     WAZ     IOTA     State     County     Award

DXCC ref.  ...    Comment to QSO:     QSL VIA  ...

Comment to callsign:

Offline

Date:  2017-05-30    Start time  02:48    End time  02:48

DXCC stat.

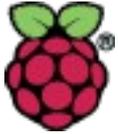
SSB																				
CW																				
DIGI																				

Local:  05:17:07     20:58:10

Callbook (HamQTH.com)

Save QSO [enter]    Quit program

My grid (to change press CTRL+L) CN8...    Ver. 2.0.5 (001)



# Tour of Apps / cqrllog (4)

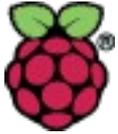
- File Menu

The screenshot shows the CQRLOG application window titled "New QSO ... (CQRLOG for Linux), database: TestLog". The "File" menu is open, listing various actions such as "Open or create new log", "New QSO", "Show QSO list", "Remote mode for fldigi", "Remote mode for wsjt", "Show/edit long note", "Send spot (~ or CTRL+W)", "Add to band map (+, Ctrl+A)", "CW Messages", "Reload CW interface", "Comment to callsigns", "Refresh TRX/ROT control", "Tune", "Preferences", and "Close".

The main interface includes a QSO list table with columns: freq, mode, rst\_s, rst\_r, name, qth, qsl\_s, and qsl\_r. The table contains three entries:

freq	mode	rst_s	rst_r	name	qth	qsl_s	qsl_r
10.1000	CW	599	599	Steve	Sammamish		
7.0000	CW	599	599	Rick	Redmond		
1.8000	CW	599	599	John	Sammaish		

Below the table are various control fields including "AUTO RST sent" (checked), "RST rcvd" (599), "PWR" (100), "QSL S", "QSL R", "Award", "QSL VIA", and "Comment to callsign:". On the right, there are sections for "DXCC info" (Country, WAZ, ITU, LAT, DIST, Cont, DXCC, LONG, AZIM), "Local" (05:17:07, 20:58:10), and "Callbook (HamQTH.com)". At the bottom, there are buttons for "Save QSO [enter]" and "Quit program", and a status bar with "My grid (to change press CTRL+L) CN8..." and "Ver. 2.0.5 (001)".

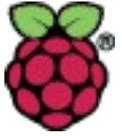


# Tour of Apps / cqrlog (5)

- Window Menu

The screenshot shows the CQRLOG application window titled "New QSO ... (CQRLOG for Linux), database: TestLog". The "Window" menu is open, displaying the following options: Grayline, TRX control, DXcluster, xplanet, Band map (highlighted), CW Fx keys, CW type (F12), Propagation, Detail info (Ctrl+H), Super Check Partial, Rotor Control, QSO list, Online log upload status, and RBN monitor. The background shows a QSO list table and various input fields for call, name, frequency, and time.

qsodate	freq	mode	rst_s	rst_r	name	qth	qsl_s	qsl_r
2017-05-30	10.1000	CW	599	599	Steve	Sammamish		
2017-05-30	7.0000	CW	599	599	Rick	Redmond		
2017-05-30	1.8000	CW	599	599	John	Sammaish		



# Tour of Apps / cqrlog (6)

- Statistics Menu

The screenshot shows the CQRLOG application window titled "New QSO ... (CQRLOG for Linux), database: TestLog". The "Statistics" menu is open, displaying a list of options: DXCC, WAZ, ITU, IOTA, Detail info (Ctrl+I), WAC, WAS, and Big squares. The background interface includes a table of QSOs, a form for entering QSO details, and various status panels.

qsodate	time	DXCC	mode	rst_s	rst_r	name	qth	qsl_s	qsl_r
2017-05-30	02:4		000 CW	599	599	Steve	Sammamish		
2017-05-30	02:4		000 CW	599	599	Rick	Redmond		
2017-05-30	02:4		000 CW	599	599	John	Sammaish		

QSO nr. 0 QTH pro

Call: [ ] Freq: 7.025 [ ] CW RST sent: 599 RST rcvd: 599

Name: [ ] QTH: [ ] GRID: [ ] PWR: 100 QSL S: [ ] QSL R: [ ]

ITU: [ ] WAZ: [ ] IOTA: [ ] State: [ ] County: [ ] Award: [ ]

DXCC ref.: [ ] Comment to QSO: [ ] QSL VIA: [ ]

Comment to callsign: [ ]

Offline

Date: 2017-05-30 Start time: 03:05 End time: 03:05

DXCC stat.

SSB	
CW	
DIGI	

DXCC info

Country: [ ]

WAZ: [ ] Cont: [ ]  
ITU: [ ] DXCC: [ ]  
LAT: [ ] LONG: [ ]  
DIST.: [ ] AZIM: [ ]

Local: [ ] 05:17:08 [ ] 20:58:11

Callbook (HamQTH.com)

[ ]

Save QSO [enter] Quit program

My grid (to change press CTRL+L) CN8... Ver. 2.0.5 (001)



# Tour of Apps / cqrlog (7)

- Online log Menu

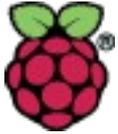
The screenshot shows the CQRLOG application window titled "New QSO ... (CQRLOG for Linux), database: TestLog". The "Online log" menu is open, showing options: "HamQTH", "Clublog", "HRDLog.net", and "Upload changes to all logs". A sub-menu for "HamQTH" is also visible, containing "Upload all changes" and "Upload changes to all logs".

The main interface displays a QSO entry form with the following fields:

- QSO nr. 0, QTH profile: [dropdown]
- Call: [input], Frequency: 1.800, Mode: CW, AUTO RST sent: , RST rcvd: 599
- Name: [input], QTH: [input], GRID: [input], PWR: 100, QSL S: [dropdown], QSL R: [dropdown]
- ITU: [input], WAZ: [input], IOTA: [dropdown], State: [input], County: [input], Award: [input]
- DXCC ref.: [input], Comment to QSO: [input], QSL VIA: [input]
- Comment to callsign: [input]
- Offline:
- Date: 2017-05-30, Start time: 02:54, End time: 02:54

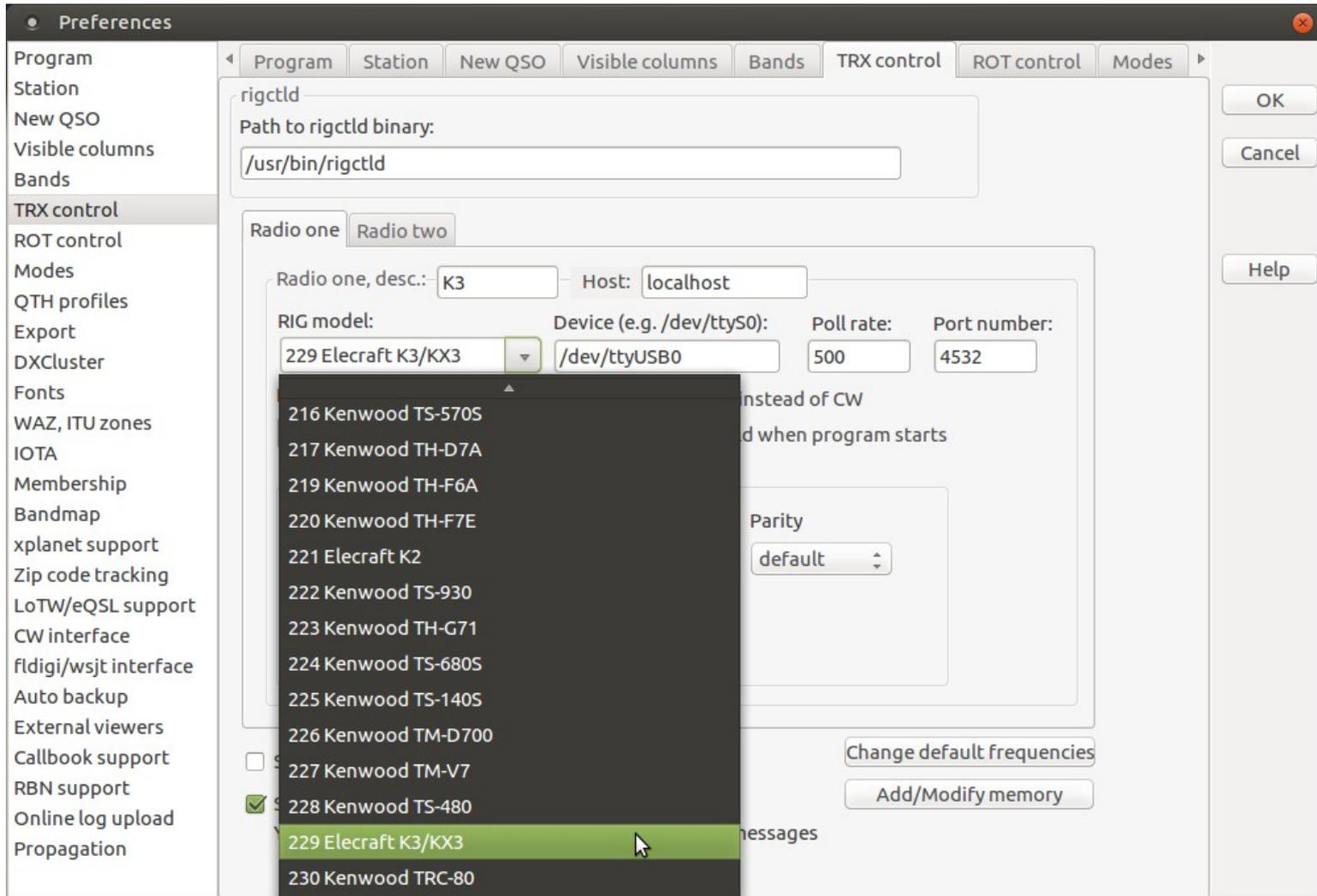
On the right side, there is a "DXCC info" section with fields for Country, WAZ, ITU, LAT, DIST, Cont, DXCC, LONG, and AZIM. Below it is a "Local" section showing a sun icon, 05:17:07, a crown icon, and 20:58:10. At the bottom right, there is a "Callbook (HamQTH.com)" section and buttons for "Save QSO [enter]" and "Quit program".

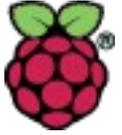
At the bottom left, there is a "DXCC stat." table with columns for SSB, CW, and DIGI. At the bottom center, there is a status bar with the text "My grid (to change press CTRL+L) CN8...". At the bottom right, there is a version number "Ver. 2.0.5 (001)".



# Tour of Apps / cqrlog (8)

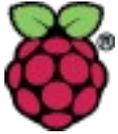
- Rig Control Dialog





# trustedqsl

- <https://sourceforge.net/projects/trustedqsl/files/TrustedQSL/>
- Lets you upload your log to LOTW (Logbook of the World).
- Uses a public/private key system to insure that you are who you say you are.
- Logs are signed with your public key; uploaded to LOTW; and authenticated with your private key.
- The keys or certificates are generated by LOTW.



## Tour of Apps / trustedqsl (2)

- On first run it will present the Help dialog and check to see if there is a certificate, prompting you acquire one if none exists.

The screenshot shows the TQSL application's help window and an alert dialog. The help window, titled "Help: TQSL Introduction", displays the "Introduction" section. The alert dialog, titled "Alert", asks: "You have no callsign certificate installed on this computer with which to sign log submissions. Would you like to request a callsign certificate now?" with "No" and "Yes" buttons.

**Help: TQSL Introduction**

Contents Index Search

(bookmarks) + -

+ TQSL Help

### Introduction

TQSL is an application used to [digitally sign](#) and upload QSOs to the ARRL's [Logbook of the World \(LoTW\)](#) online service, and to manage the [Callsign Certificates](#) used when digitally signing.

TQSL accepts QSOs in a [log file](#) whose format is either [ADIF](#) or [Cabrillo](#), which many logging applications can export. TQSL also includes a simple [QSO Data Editor](#) that can be used to create and edit log files in ADIF format.

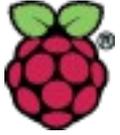
To digitally sign the QSOs in a log file, TQSL requires you to present a [Callsign Certificate issued to you by the ARRL](#), and requires you to specify the location from which you operated when making every QSO in that log file. To make this easy, TQSL lets you [define and name a](#)

Done

**Alert**

? You have no callsign certificate installed on this computer with which to sign log submissions. Would you like to request a callsign certificate now?

No Yes



## Tour of Apps / trustedqsl (3)

- If you click “No” you are led through a series of dialogs to gather your information.

Request a new Callsign Certificate

Name

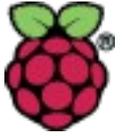
Address

City

State

Zip/Postal

Country



## Tour of Apps / trustedqsl (4)

Request a new Callsign Certificate

Name

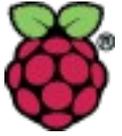
Address

City

State

Zip/Postal

Country



## Tour of Apps / trustedqsl (5)

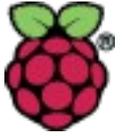
Request a new Callsign Certificate

Your e-mail address

Note: The e-mail address you provide here is the address to which the issued certificate will be sent. Make sure it's the correct address!

Help

< Back   Next >   Cancel



## Tour of Apps / trustedqsl (6)

Request a new Callsign Certificate

You may protect this callsign certificate using a password. If you are using a computer system that is shared with others, you should specify a password to protect this callsign certificate. However, if you are using a computer in a private residence, no password need be specified.

Leave the password blank and click 'Next' unless you want to use a password.

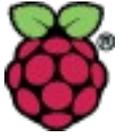
Password:

Enter the password again for verification:

DO NOT lose the password you choose!  
You will be unable to use the certificate without this password!

Help

< Back   Next >   Cancel



## Tour of Apps / trustedqsl (7)

Request a new Callsign Certificate

Since you have no callsign certificates, you must submit an 'Unsigned' certificate request. This will allow you to create your initial callsign certificate for LoTW use. Click 'Finish' to complete this callsign certificate request.

Sign Request

Unsigned

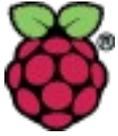
Signed

tQSL Certificates

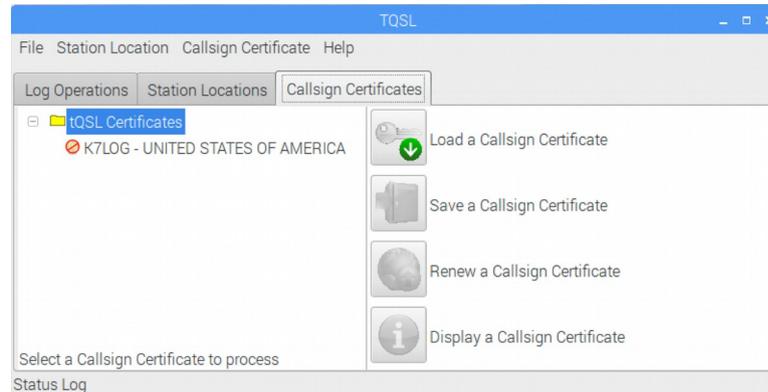
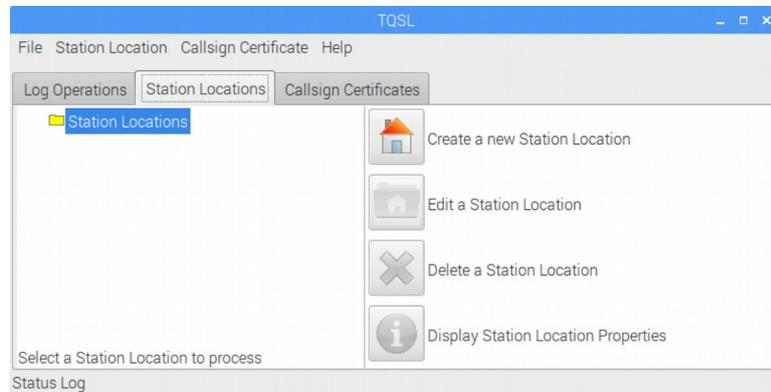
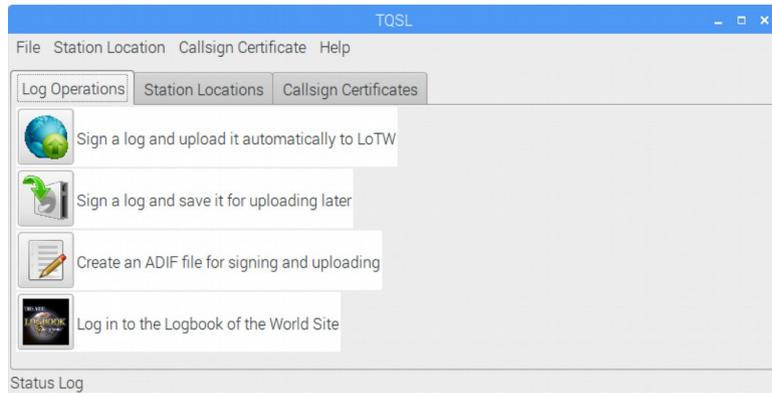
Click 'Finish' to complete this callsign certificate request.

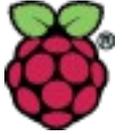
Help

< Back Finish Cancel



# Tour of Apps / trustedqsl (8)

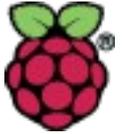




## Tour of Apps / chirp (1)

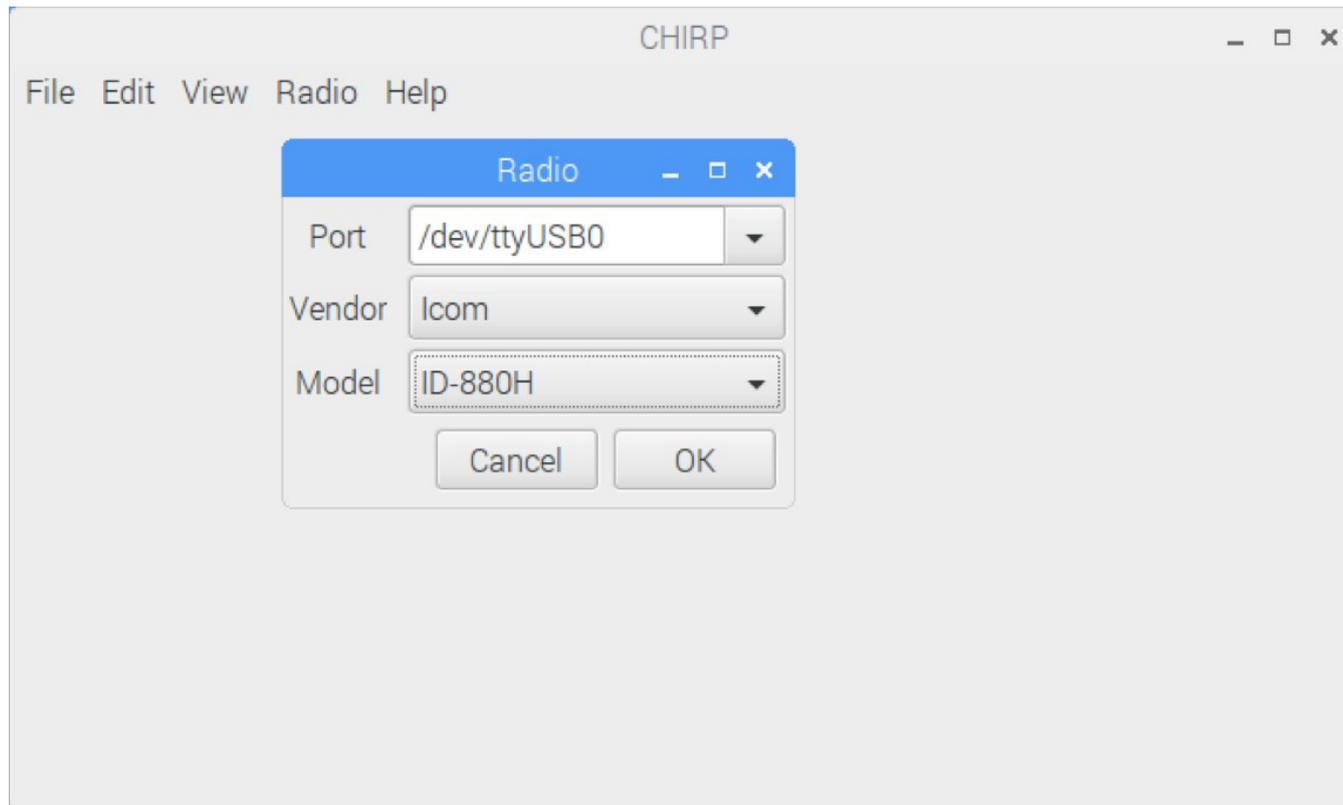
# chirp

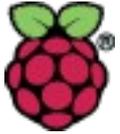
- <http://chirp/danplanet.com/projects/chirp/wiki/Download>
- A programmer for a number of different radios.
  - Frequency entry.
  - Configuration entry: offset, duplex, tone etc.
  - Global settings for the radio.



## Tour of Apps / chirp (2)

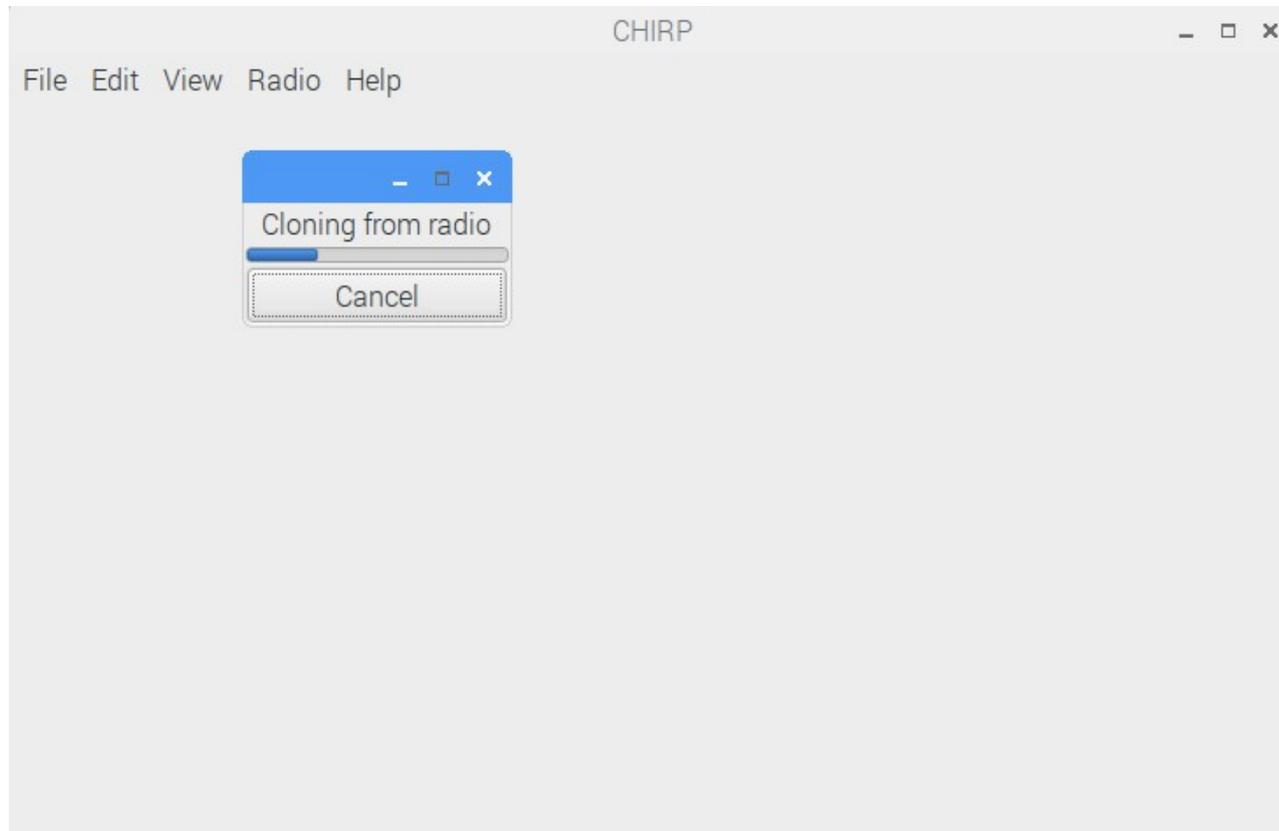
- Top level screen comes up blank.
  - Data must be downloaded from the selected radio first, here, an IC-880H.

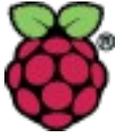




## Tour of Apps / chirp (3)

- Here data is being downloaded (“cloned”) from the IC-880H.





## Tour of Apps / chirp (4)

- Here is the data from the IC-880H.

CHIRP

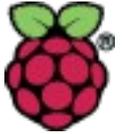
File Edit View Radio Help

Icom ID-880H: (Untitled)\* X

Memories Memory range: [ ] - [ ] Go  Special Channels  Show Empty

Banks	Loc	Frequency	Name	Tone Mode	Tone	ToneSql	DTCS Code	DTCS Pol	Duplex	Offset	Mod
Bank Names	0	145.290000	Home	(None)	88.5	88.5	023	NN	-	0.600000	FM
D-STAR	1	0.000000		(None)	88.5	88.5	023	NN	(None)	0.600000	FM
Settings	2	147.455000	DV2n T	(None)	94.8	94.8	023	NN	(None)	0.600000	DV
	3	147.455000	DV2n E	(None)	88.5	88.5	023	NN	(None)	0.600000	DV
	4	147.455000	DV2n I	(None)	88.5	88.5	023	NN	(None)	0.600000	DV
	5	147.455000	DV2n U	(None)	88.5	88.5	023	NN	(None)	0.600000	DV
	6	0.000000		(None)	88.5	88.5	023	NN	(None)	0.600000	FM
	7	146.610000	WB7DZG T	(None)	94.8	94.8	023	NN	-	0.600000	DV
	8	146.610000	WB7DZG E	(None)	94.8	94.8	023	NN	-	0.600000	DV
	9	146.610000	WB7DZG I	(None)	94.8	94.8	023	NN	-	0.600000	DV
	10	146.610000	WB7DZG U	(None)	94.8	94.8	023	NN	-	0.600000	DV
	11	444.312500	WB7DZG T	(None)	94.8	94.8	023	NN	+	5.000000	DV
	12	444.312500	WB7DZG E	(None)	94.8	94.8	023	NN	+	5.000000	DV
	13	444.312500	WB7DZG I	(None)	94.8	94.8	023	NN	+	5.000000	DV
	14	444.312500	WB7DZG U	(None)	94.8	94.8	023	NN	+	5.000000	DV

[0] Completed Getting radio settings (idle)

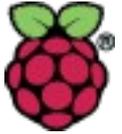


## Tour of Apps / chirp (5)

- Here is an example of global data from a Baofeng UV-5R.

Baofeng UV-5R: (Untitled)\* ✕

Memories		Firmware Message 1:	HN5RV01
Settings	Basic Settings	Firmware Message 2:	1FB297
	Advanced Settings	6+Power-On Message 1:	160328N
	<b>Other Settings</b>	6+Power-On Message 2:	
	Work Mode Settings	Power-On Message 1:	K7LOG
	FM Radio Preset	Power-On Message 2:	
	DTMF Settings	Power-On Message:	Message
	Service Settings	VHF Lower Limit (MHz):	130
		VHF Upper Limit (MHz):	179
		VHF TX Enabled:	<input checked="" type="checkbox"/> Enabled
		UHF Lower Limit (MHz):	400
		UHF Upper Limit (MHz):	520
		UHF TX Enabled:	<input checked="" type="checkbox"/> Enabled

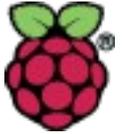


## Tour of Apps / chirp (6)

- Properties of a selected memory channel can be edited.

The screenshot displays the 'Other' tab of a software interface for editing a memory channel. The 'Frequency' field is highlighted in green and contains the value '145.310000'. Other fields include 'Name' (VHF310), 'Tone Mode' (Tone), 'Tone' (103.5), 'ToneSql' (88.5), 'Cross mode' (Tone->Tone), 'DTCS Code' (23), 'RX DTCS Code' (23), 'DTCS Pol' (NN), 'Duplex' (-), 'Offset' (0.600000), and 'Mode' (FM). Each field has a small up/down arrow icon to its right, indicating it is a dropdown menu.

Property	Value
Frequency:	145.310000
Name:	VHF310
Tone Mode:	Tone
Tone:	103.5
ToneSql:	88.5
Cross mode:	Tone->Tone
DTCS Code:	23
RX DTCS Code:	23
DTCS Pol:	NN
Duplex:	-
Offset:	0.600000
Mode:	FM



## Tour of Apps / chirp (7)

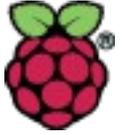
- Settings can from other sources.

Download From Radio	Alt+D	
Upload To Radio	Alt+U	
Import from data source		>
Query data source		>
Import from stock config		>
Channel defaults		
Stop	Escape	

US Calling Frequencies
NOAA Weather Alert
Marine VHF Channels
US 60 meter channels (Dial)
US 60 meter channels (Center)
US FRS and GMRS Channels
EU LPD and PMR Channels
US MURS Channels

Download From Radio	Alt+D	
Upload To Radio	Alt+U	
Import from data source		>
Query data source		>
Import from stock config		>
Channel defaults		
Stop	Escape	

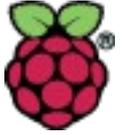
RadioReference.com
RepeaterBook
przemienniki.net
RFinder



## Tour of Apps / lighttpd (1)

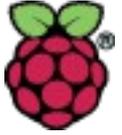
### lighttpd

- <https://www.lighttpd.net/download/>
- A small footprint, fast web server.
  - Useful for a small home web server.
    - Let's your see your site from all your devices.
- Must be manually installed.
  - `sudo apt-get update`
  - `sudo apt-get install lighttpd`



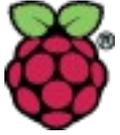
## Tour of Apps / lighttpd (2)

- Add your http files.
  - Perhaps most easily managed if top level page goes in `/var/www/` and the rest in their own directory/folder under that directory.
- Some changes will require editing the configuration file.
  - `sudo nano /etc/lighttpd.conf`
  - For example, if you want your web to be the default.



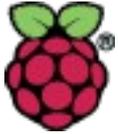
## Tour of Apps / lighttpd (3)

- Example from my web server.
  - The default on my server is an HTML file called RicksWeb
    - Its other files are in `/var/www/HTML_Files/`
- A quick and dirty SeaPac web site for this workshop will be created.
  - Its URL will be *`http://webpi/seapac.html`*
  - The top level file will go `/var/www/`
    - Its other files will be located in `/var/www/SeaPac_files/`



## Tour of Apps / Finding the port (1)

- Luke, “use the CLI!” (the “Force” of Linux)
- First, need to find if your USB device is seen by the OS.
  - `$ lsusb`
- Then find which USB device it is.
  - `$ ls -l /dev/ttyUSB*`
- Usually easiest if both commands are done before, and then after, plugging in the device. Look for what changed.

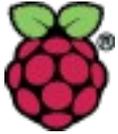


## Tour of Apps / Finding the port (2)

- The commands and their results before and after adding an FTDI based USB cable on a Pi with no console.

```
LXTerminal
File Edit Tabs Help
pi@rpi3b1:~$ lsusb
Bus 001 Device 003: ID 0424:ec00 Standard Microsystems Corp. SMSC9512/9514 Fast Ethernet Adapter
Bus 001 Device 002: ID 0424:9514 Standard Microsystems Corp.
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
pi@rpi3b1:~$
pi@rpi3b1:~$
pi@rpi3b1:~$ ls -l /dev/ttyUSB*
ls: cannot access /dev/ttyUSB*: No such file or directory
pi@rpi3b1:~$ █
```

```
LXTerminal
File Edit Tabs Help
pi@rpi3b1:~$ lsusb
Bus 001 Device 004: ID 0403:6001 Future Technology Devices International, Ltd FT 232 USB-Serial (UART) IC
Bus 001 Device 003: ID 0424:ec00 Standard Microsystems Corp. SMSC9512/9514 Fast Ethernet Adapter
Bus 001 Device 002: ID 0424:9514 Standard Microsystems Corp.
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
pi@rpi3b1:~$
pi@rpi3b1:~$
pi@rpi3b1:~$ ls -l /dev/ttyUSB*
crw-rw---- 1 root dialout 188, 0 May 30 07:32 /dev/ttyUSB0
pi@rpi3b1:~$ █
```

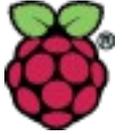


## Tour of Apps / Finding the port (3)

- The commands and their results before and after adding an FTDI based USB cable on a Pi with a console.

```
LXTerminal
File Edit Tabs Help
pi@rpi3b0:~$ lsusb
Bus 001 Device 011: ID 413c:2011 Dell Computer Corp. Multimedia Pro Keyboard
Bus 001 Device 010: ID 413c:1005 Dell Computer Corp. Multimedia Pro Keyboard Hub
Bus 001 Device 009: ID 046d:c408 Logitech, Inc. Marble Mouse (4-button)
Bus 001 Device 008: ID 0424:2504 Standard Microsystems Corp. USB 2.0 Hub
Bus 001 Device 003: ID 0424:ec00 Standard Microsystems Corp. SMSC9512/9514 Fast Ethernet Adapter
Bus 001 Device 002: ID 0424:9514 Standard Microsystems Corp.
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
pi@rpi3b0:~$
pi@rpi3b0:~$
pi@rpi3b0:~$ ls -l /dev/ttyUSB*
ls: cannot access /dev/ttyUSB*: No such file or directory
pi@rpi3b0:~$ █
```

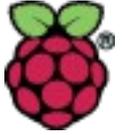
```
LXTerminal
File Edit Tabs Help
pi@rpi3b0:~$ lsusb
Bus 001 Device 012: ID 0403:6001 Future Technology Devices International, Ltd FT232 USB-Serial (UART) IC
Bus 001 Device 011: ID 413c:2011 Dell Computer Corp. Multimedia Pro Keyboard
Bus 001 Device 010: ID 413c:1005 Dell Computer Corp. Multimedia Pro Keyboard Hub
Bus 001 Device 009: ID 046d:c408 Logitech, Inc. Marble Mouse (4-button)
Bus 001 Device 008: ID 0424:2504 Standard Microsystems Corp. USB 2.0 Hub
Bus 001 Device 003: ID 0424:ec00 Standard Microsystems Corp. SMSC9512/9514 Fast Ethernet Adapter
Bus 001 Device 002: ID 0424:9514 Standard Microsystems Corp.
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
pi@rpi3b0:~$
pi@rpi3b0:~$
pi@rpi3b0:~$ ls -l /dev/ttyUSB*
crw-rw---- 1 root dialout 188, 0 May 30 07:41 /dev/ttyUSB0
pi@rpi3b0:~$ █
```



Tour of Apps

# Demonstration

*lighttpd*



Tour of Apps

# Questions ?