Raspberry Pi and the DVAP Dongle

This is a quick-start for configuring a Raspberry Pi to work with an Internet Labs D-Star DVAP Dongle and run it 'headless' aka without a keyboard/mouse/monitor.

My current Pi Hardware configuration:

1. Raspberry Pi Version B and power supply.
2. Edimax Nano Wi-Fi (USB) adapter.
3. 8 Gb SDHC.
4. D-Star DVAP Dongle, 2 Meter version.

Pi Software Configuration:

1. Raspbian Wheezy 2013-02-09
2. TightVNCServer

Mac OSX running RealVNC Client or Windows 7 Laptop running RealVNC Client.

I'm assuming the reader has a Raspberry Pi and a working knowledge of the hardware, software and operating Linux, the Raspberry Pi and the DVAP Dongle.

If you need details regarding the Raspberry Pi and operation http://learn.adafruit.com has some excellent tutorials to get you started from the board up.

First off you'll need to get the .img file downloaded from http://www.raspberrypi.org/downloads the version you need is **Raspbian Wheezy 2013-02-09**. Start that downloading. Load this on to your SD Card and boot up your RaspPi.

Running your Raspberry Pi 'headless'

If you're using a keyboard/monitor/mouse and would like to run without, or 'headless' you can start here,
(If you want to Skip ahead and setup the DVAP drop down a few lines)
http://learn.adafruit.com/adafruit-raspberry-pi-lesson-7-remote-control-with-vnc/overview
Step through this tutorial to install TightVNCServer on the Raspberry Pi.

Before you unplug

You will need a network connection to the RaspPi to, and it will need to be setup prior to disconnecting the keyboard/monitor/mouse, this is particularly important if you're using Wi-Fi on the RaspPi.
If you are connecting to your Pi via Ethernet or Wi-Fi and it's connected to a router, you can use the VNC Client to connect to and manage the Pi once you have TightVNCServer installed.

Get your Client

There are several VNC clients available online, I chose RealVNC from www.realvnc.com they offer a free license (Windows and Mac OSX), without support or encryption, that you can use to remote to the Pi and easily manage the desktop GUI.

I use a Mac to connect/control/update my Raspberry Pi so all of the commands listed in the install steps can be cut and pasted into Mac OSX terminal.
If you are connecting to the Raspberry Pi with a Windows OS most seem to use Putty or another SSH terminal emulator to run headless.

Install DVAPTool on the Pi

Follow the steps below to install/run DVAPTool on the Pi

1) Make sure you are running Raspbian Wheezy 2013-02-09 and are connected to the Internet with your Pi.

2) Open an LXTerminal window and run:
"sudo apt-get install qt4-dev-tools". Answer "Y" when prompted.

3) In terminal window run:
"curl -O http://opendstar.org/tools/DVAPTool-1.04-rpi.tgz"

4) In terminal window run "sudo tar xzPf DVAPTool-1.04-rpi.tgz"

5) In terminal window run DVAPTool with "./DVAPTool" from your home directory.

Note from Robin aa4rc:

Note that this is a full GUI version. I'm working on a text only daemon.
There are no current plans to compile DVAPTool for any distribution other than Raspbian. It may or may not work on others.

Getting your DVAP Dongle to talk to the Pi

The DVAP Install steps were provided by Robin aa4rc, basically he has us installing tools for runtime, connecting to and pulling the DVAP .tgz file, then unpacking it into a directory and from there you can execute DVAPTool from the Pi Desktop GUI.

startx and get your GUI up if you're running keyboard/monitor/mouse or VNC to the Pi and get the GUI up there.

At this point you need to configure DVAPTool with the usual's, Callsign, Frequency etc. Connect your DVAP, it make cause the Pi to reboot.

I've seen some of this behavior when hot-plugging USB devices into the Pi, particularly USB thumb drives.

Test your Pi/DVAP it should be able to connect to the D-Star Network.

Auto starting the DVAP Dongle when you boot your RaspPi

Ed kb6tho, has provided a method for starting DVAPTool when the Pi boots up and opens the DVAP Port, it's important that you have it configured prior, because this will enable you to run the Pi 'headless' essentially connecting the DVAP to the Pi and plugging in the power and having it ready to receive commands from your radio.

It also assumes you have a functioning Ethernet or Wi-Fi connection on the Pi.

It may not be the most artful, but this works here...
Add the following to the "rc.local" file (in /etc)

```
# Start X Server so DVAPTool can start...
su pi -c startx
```

Create the following ".xinitrc" file in /home/pi and make it executable (chmod 755 .xinitrc)

```
#!/bin/sh
#.xinitrc
# Start DVAPTool
```

exec /home/pi/Desktop/DVAPTool -open

This starts an xserver session at boot and then runs DVAPTool and "opens" it so you are ready to connect via RF.

As soon as you see the blue LED light up, you can key up to connect…

Notes and ramblings

I have my Pi setup to connect via Ethernet (at Home) via Wi-Fi if I'm using my Verizon MiFi and needless to say I get better throughput on the home router.

This essentially makes a D-Star DVAP Hotspot of sorts that can be powered with my Trent Power 11000mAh USB battery pack, coupled with my Verizon MiFi Hotspot and it's battery power, I have a fairly portable unit provided I have 3G or better service on the MiFi, the D-Star audio isn't too bad.

I'm also working on D-Rats on the same Pi as well as Citadel Mail/BBS server, I'm trying to find the point at which the Pi will saturate and the right mix of applications to run on one Raspberry Pi.

I'm available to answer questions and will do my best with my limited knowledge of Linux, I'm learning as I go. I've found a wealth of information online and in Google and yahoo groups.