OnionPi

This project spawned off of a Defcon talk about creating a self-contained low cost access point / Tor router that could be used for traveling or other insecure locals. Apparently there have been numerous attempts at getting various devices (TP-link 703n, TP-link 722, Beagle Bone, Raspi, etc) configured with HostAPd, ISC-DHCP sever and Tor server. The problem seems to be that hostAPd is finicky about the wireless cards it will support on these scaled downed devices and the general lack of cpu muscle needed to run the necessary services. Adafruit offers the ability to buy a preconfigured Raspberry device for Approx $100, but I thought I could follow their instructions on how to put a OnionPi together with Raspi supported wireless card running Raspian. The result took a sh!t ton more work than I thought it would but, I now have a reusable image for Tor AP router.

Needs:

I used the $10 wireless USB card from ebay that stated that it was Raspi compatible. Lsusb shows the card as a “RTL1882CUS” HostAPd works with these cards relatively well. Other cards can be used. Apparently, the most widely supported are the RealTek so I suggest using one of the.

Raspberry Pi B or B+

4gb or Greater SdCard

If you are using this image, use 7Zip to extract the .img file to a location of your choosing.

Use SDFormatter to format your sdcard so it’s clean.

Use your method of choice to push the .img file over to your card. I use win32Imager.exe which seems to be very good and well supported. It also allows for creating backups of your images so you can play with configuration settings without having to worry about rebuilding a device.

Configuration:

The Raspian image will boot. Use the defaults to get into the Pi. The user is pi and password raspberry.

The device should be setup so eth0 is connected to your existing network and wlan0 is acting as an Access Point. Yes, I thought about making it so there are two wireless connectors, one acting as a client bridge to an existing AP and the other acting as an access point. I’d love to try it out.

Personalizing it:

You will want to change the SSID and password stored in /etc/hostapd/hostapd.conf

If you don’t change them the defaults will be an SSID of “OnionPi” and a password of “ChngPwuNSAcholster” 🡨- get it?

By default the core Tor, HostAPd, ISC-DHCPd will be started. You can validate with running

“service –status-all”

I created a little script called Onionstart.sh in /root. This script will bring down the wlan0 interface and bring it back up, start hostAPd, ISC-DHCP and then Tor services.

TroubleShooting:

Most of the troubles I had were with the wireless USB card. While there are many that will work with Raspi there aren’t that many that will work for HostAPd. If you are running into problem with the AP not showing up even when HostAPd start without error, it’s possible you need to recompile hostapd with the driver for your wireless card. Google is your friend if you need to do that.

Good luck!

WJ