
WLAN Pi 2.0
wlanpi.com

WLAN Pi Overview

WLAN Pi Project

- Community driven open source project
- Started in 2016
- Portable and versatile toolset for Wi-Fi Pros
- Built on Armbian

- More info: wlanpi.com

Community Driven

WLAN Pi 2.0 Dev Team

Jerry, CWNE# 238
Wi-Fi Engineer

Nigel, CWNE# 135
Wi-Fi Engineer

Jiri
Wi-Fi Engineer

Daniel
Wi-Fi Engineer &
Linux Guru

Josh
Wi-Fi Engineer

Colin
Wi-Fi Engineer

Adrian
Actual Developer
& Wi-Fi guru

Joel, CWNE# 233
Wi-Fi Engineer +
3D Printing Guru

WLAN Pi 2.0 Objectives

Objectives:

- ❑ Overhaul development process - make it scalable and easier to collaborate
- ❑ Improve usability and refocus toolset

WLAN Pi 2.0 Summary

- ✓ Rebuilt from the ground up
- ✓ Toolset revamped
- ✓ Usability improvements
- ✓ Hardware support expanded

Development Process

WLAN Pi 1.x

WLAN Pi 2.0

Development Process

- Old method
  - Hand-rolled image
  - Challenges:
    - Time and labour intensive
    - Difficult to collaborate
    - No way to maintain packages

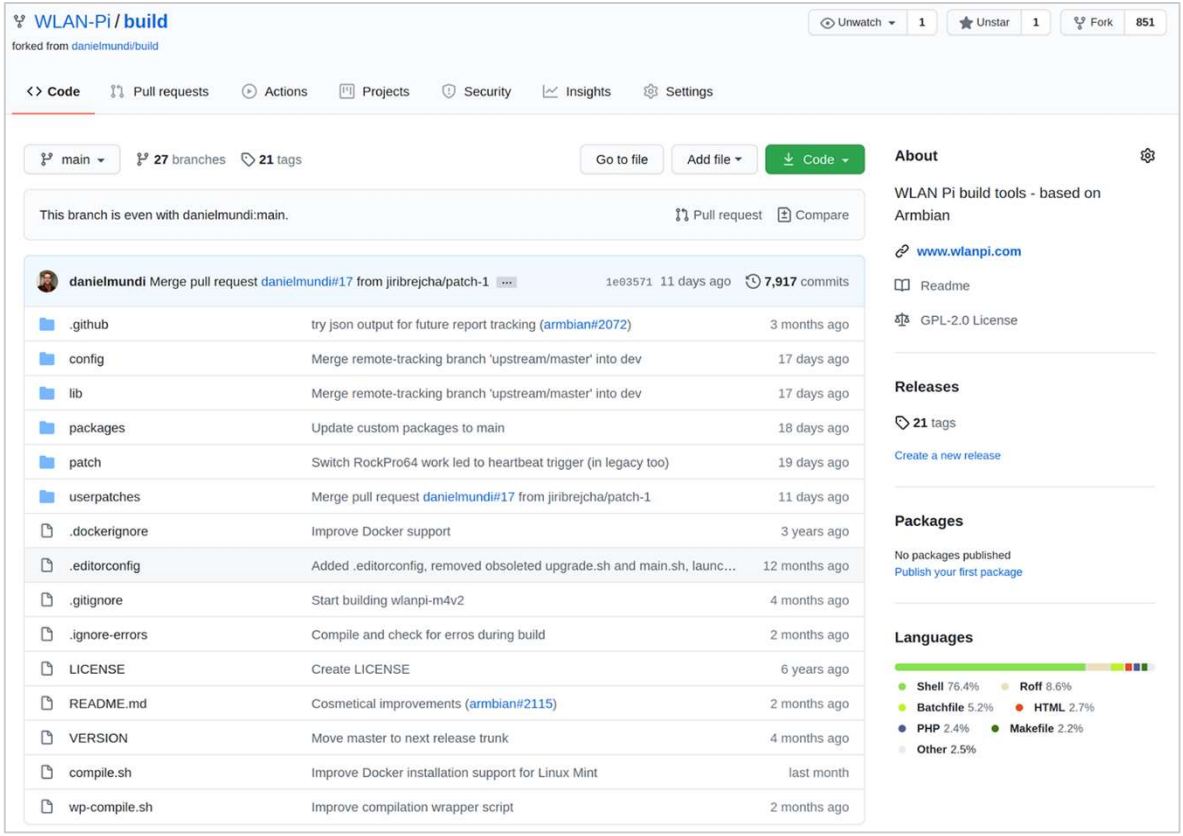
Development Process

- New method
  - Completely overhauled
  - Automated build process using Armbian build tools
  - Improved collaboration using GitHub
  - Scalable
    - Ability to support multiple hardware platforms
    - Easier to maintain
  - Using Python3 & “virtual environments”

Development Process

```
wlanpi@wlanpi:~$ sudo apt upgrade
Reading package lists... Done
Building dependency tree
Reading state information... Done
Calculating upgrade... Done
The following packages will be upgraded:
  fpms wiperf wlanpi-webui
3 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
Need to get 2,408 kB of archives.
After this operation, 261 kB disk space will be freed.
Do you want to continue? [Y/n] y
Get:1 https://apt.fury.io/dfinimundi  fpms 2.0.2-armbian20.11.0-trunk1 [529 kB]
Get:2 https://apt.fury.io/dfinimundi  wiperf 2.0.0-beta3-4-armbian20.08.0-trunk1 [1,752 kB]
Get:3 https://apt.fury.io/dfinimundi  wlanpi-webui 1.0.0-beta1-1-armbian20.11.0-trunk1 [127 kB]
Fetched 2,408 kB in 3s (724 kB/s)
(Reading database ... 83685 files and directories currently installed.)
Preparing to unpack .../fpms_2.0.2-armbian20.11.0-trunk1_arm64.deb ...
Unpacking fpms (2.0.2-armbian20.11.0-trunk1) over (0.1-1-armbian20.08.0-trunk1) ...
Preparing to unpack .../wiperf_2.0.0-beta3-4-armbian20.08.0-trunk1_all.deb ...
Unpacking wiperf (2.0.0-beta3-4-armbian20.08.0-trunk1) over (2.0.0-beta2-1-armbian20.08.0-trunk1) ...
Preparing to unpack .../wlanpi-webui_1.0.0-beta1-1-armbian20.11.0-trunk1_arm64.deb ...
Unpacking wlanpi-webui (1.0.0-beta1-1-armbian20.11.0-trunk1) over (1.0.0-beta1-1-armbian20.08.0-trunk1) ...
Setting up wiperf (2.0.0-beta3-4-armbian20.08.0-trunk1) ...
Setting up wlanpi-webui (1.0.0-beta1-1-armbian20.11.0-trunk1) ...
Setting up fpms (2.0.2-armbian20.11.0-trunk1) ...
```

Development Process



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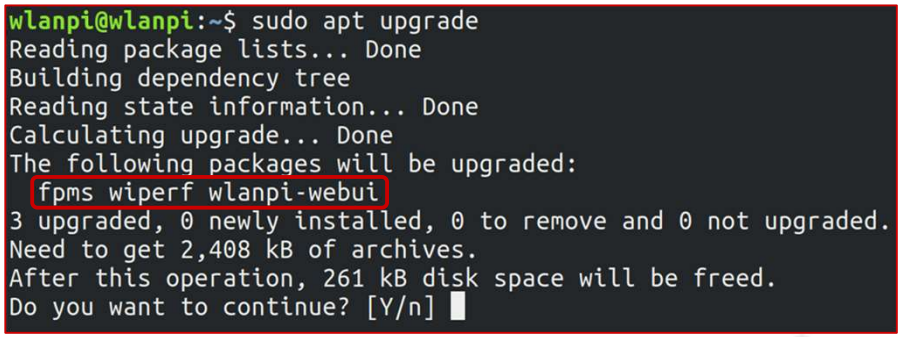


WLAN Pi 2.0 Toolset

Revamped Toolset

WLAN Pi v1.9

WLAN Pi v2.0

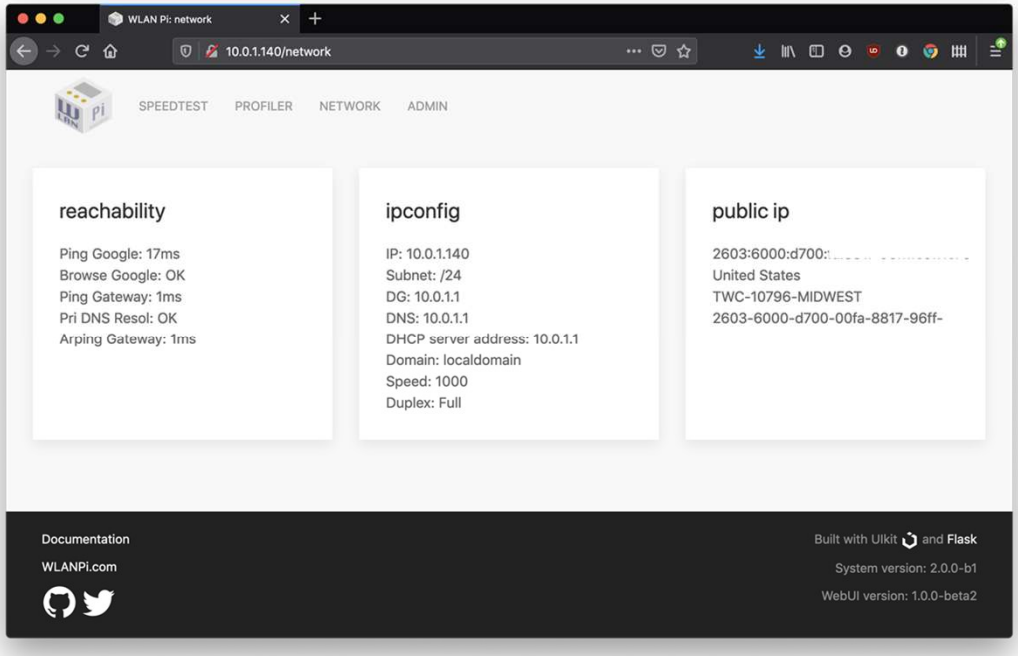
Revamped Toolset

- WebUI - completely overhauled using Flask
- Web Admin Interface - using Cockpit
- New Server Mode - many new use cases
- Profiler - rewritten in python3
- Front Panel Menu System (FPMS) - multiple new utilities and improvements
- Wiperf mode - now supports grafana
- Wi-Fi drivers - updated, full support for MediaTek chipsets

New WebUI

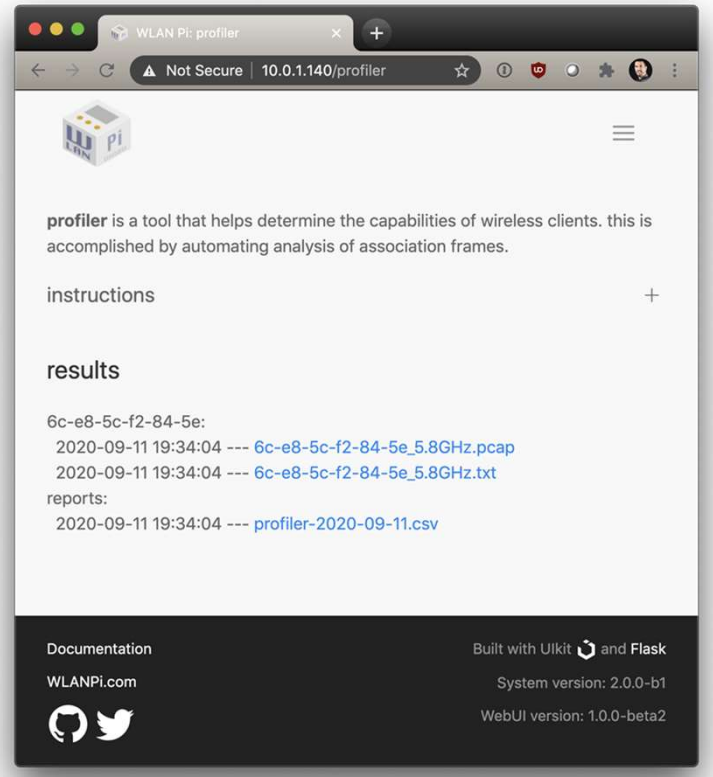
New WebUI

- Extensible framework built on Flask
- Network information includes:
  - Reachability
  - IP Config
  - Public IP
  - CDP and LLDP neighbor (coming soon)
- Profiler results
- LibreSpeed test improved



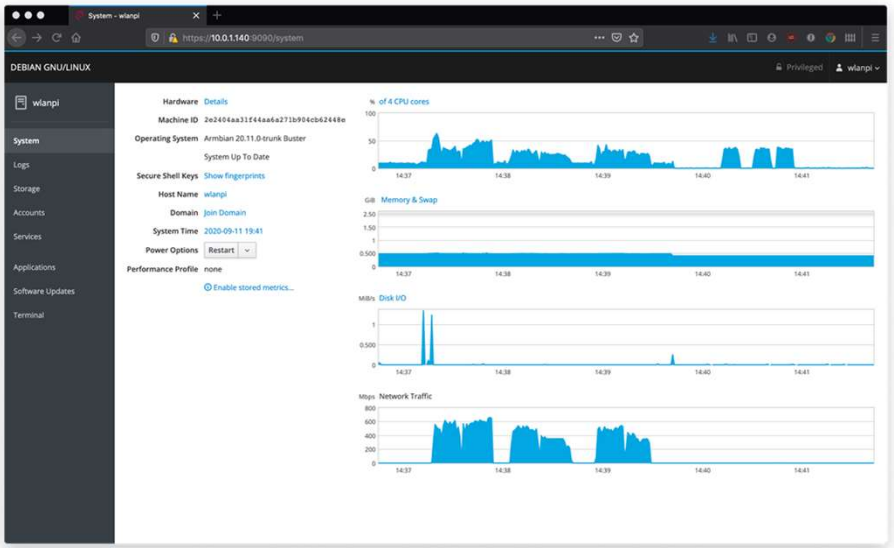
Profiler2

- Profiler got a MAJOR upgrade:
  - Complete rewrite of the codebase
    - Python 2 to 3
    - Integrated and customized fakeap scapy code
    - Improved performance
  - Packaged and isolated in its own Python environment
  - Dozens of minor improvements



Admin Web Interface

- Cockpit Project
- User friendly
- Set time zone
- Manage services
- Monitor and administer multiple WLAN Pi's at the same time
- Embedded terminal



Front Panel Menu System (FPMS)

FPMS Improvements

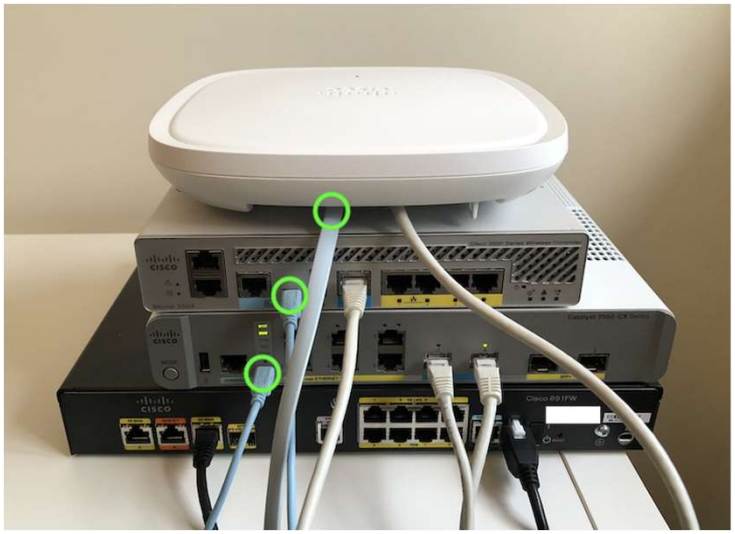
- Button clicks are 50% more responsive! No more double pressing buttons :)
- Button layout options - choose your preferred button layout
- CDP neighbour - now also shows software version if advertised
- Port blinker - identify switch port number on the far end of the Ethernet cable by blinking switch port LEDs
- Mist cloud test - verify connectivity to the cloud

Server Mode

- Ideal for lab, provisioning, staging and software upgrades of network devices
- Enables all services on the WLAN Pi like DHCP server, TFTP server, Wi-Fi console, wireless access to the WLAN Pi and more coming soon
- Safety first: this mode is non-persistent and WLAN Pi will switch back to its default “Classic” mode after reboot
- Many use cases:
  - Build a lab network, demonstration or a Proof the Concept (PoC) setup
  - Software upgrade of a switch, controller or AP using the TFTP server
  - Point APs to their controller by configuring Option 43 on the WLAN Pi DHCP server http://bit.ly/wlanpi-option43
  - Easily convert hundreds of APs from Mobility Express or Embedded Wireless Controller mode to Lightweight mode https://bit.ly/convert-to-lightweight

Wi-Fi Console

Provides wireless or wired console access and now also internet connectivity at the same time so that you can research online or refer to a Configuration Guide while configuring

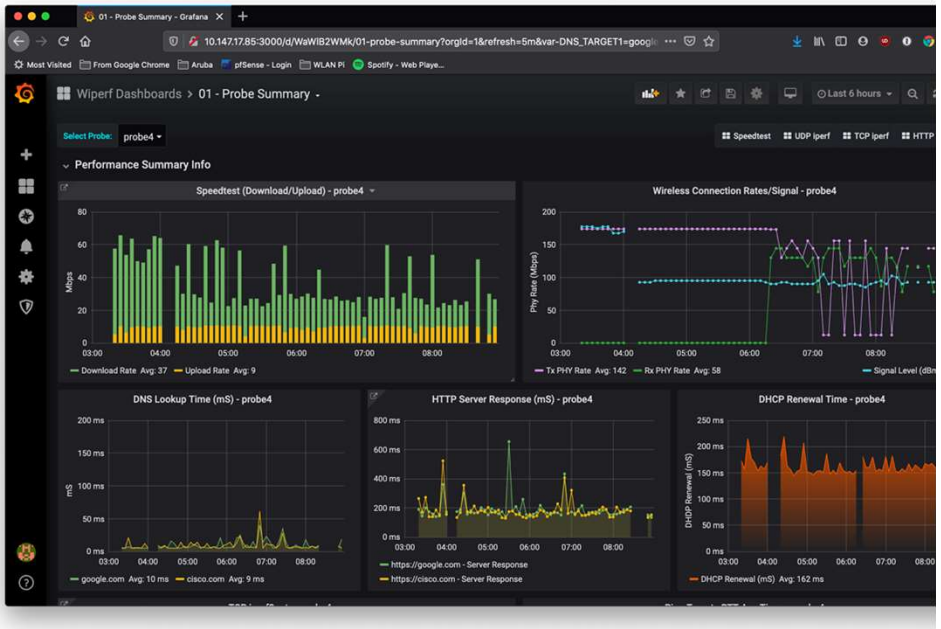


Wiperf

Wiperf Updated

Tools that got some an all-new shine:

- Wiperf:
  - Support for testing over Ethernet
  - Support for reporting in to Influx/Grafana
  - Canned dashboard report improvements



Retired tools

- Some tools that had limited take-up or had a high overhead to support have been retired
- Provides a leaner base of code to support as WLAN Pi grows
- (Not necessarily a one-way trip!)
- Package retired:
  - Horst
  - Kismet
  - iperf2 (available but not enabled by default)

The future of WLAN Pi hardware

- NEO2 no longer being manufactured
- Getting an off the shelf device with feature parity very difficult
- Options:
  - Lower spec off-the shelf hardware
  - Roll our own hardware
- 2 recommended USB Wi-Fi adapters

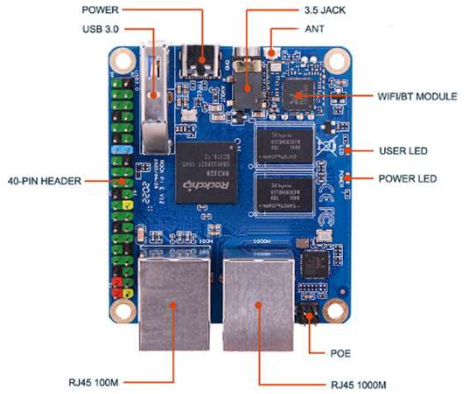
What’s Next

What's Next

Hardware

- NEO2 SBC no longer being manufactured
- Expand support for additional SBC's
- Custom built SBC or HAT?

NanoPi NEO2



Rock Pi E

Documentation

- Improve user documentation – docs.wlanpi.com

Links

More info:

- Website: www.wlanpi.com
- Documentation: docs.wlanpi.com
- 10 Easy Things To Do With a WLAN Pi: https://youtu.be/Ua2d4ajR0pk

Want to get involved?

- GitHub: https://github.com/WLAN-Pi
- Twitter: @WLANPi

Q&A