temba

Custom pseudofirmware with OpenWrt imagebuilder

author: community effort

Definitions

Firmware: something you put on your antenna (that requires effort)

Pseudofirmware: it does not require effort because is based on openwrt tools

Image builder: openwrt tool that allows you to use a generic or custom base to generate images for different devices

Temba: **tem**plate **ba**sed (pseudo)firmware. Template driven tool to build openwrt firmware

My personal motivation

To build a firmware compatible with qMp 3.2.1 (from ~2015) but using the latest stable Openwrt release

Avoid two layers of configuration (openwrt, and qMp that overrides openwrt) – sometimes unexpected things happen

Avoid manual configuration after flashing device

To develop a tool that empowers network operators and motivate users to learn and contribute

Benefits

After flashing device no manual configuration is required

When using squashfs based images the *Reset* goes to first-known-tested configuration

Very easy to adopt to any existing firmware or configuration

Avoids extra complexity, hence it stays close to original openwrt project

Enables migration to new firmware

Known problems

Problem 1. It is possible to flash the wrong image because openwrt does not completely validate

Problem 2. By default, flashing a new image, keeps the current configuration, but temba requires to delete the old configuration (in LUCI: uncheck *Keep settings*; in CLI: `sysupgrade -n <image.bin>`)

Solution to P1 and P2: develop a new automated program for validation and flash

Your implementation

Temba requires you to implement it on your own for your community network

You can customize the image builder for the whole community, or the particular files of a router using *an image builder*

Temba CLI

Temba uses templates to generate configurations and insert it into the firmware.

CLI tool uses yaml files:

- 10-globals.yml.example : global variables (here you can select openwrt image builder or a custom one)
- 15-packages.yml : sets of packages
- 20-devices.yml : roles and devices
- 30-nodes.yml.example : node(s) to compile

Use `rake`

Temba GUI

generate a temba node

select device ⌄

node name

wifi channel ⌄

IPv4

Build

temba 18.06.2 1d74965 [tree](#) [commit](#) | **[Bugs](#)** | Contribute to [templates](#)!

Imagebuilder.sh

Facilitates usage of custom openwrt image builder: procedure in imagebuilder.sh script and extra documentation

You can:

- Select Openwrt version or specific commit
- Compile image builder in multiple architectures
- Put custom packages
- Put custom patches

Future work

Merge old backup in a new new image (useful when doing fast migration)

Improve forms, more forms for other use cases

Ansible playbook to do massive upgrade in mesh network.   Work in progress => https://gitlab.com/pedrolab/guifi-tools-and-scripts/ blob/master/ansible/network/qmpup/

Ansible playbook to change wifi channel

URL of the project

https://gitlab.com/guifi-exo/temba