How to port wireless driver to Google Chromium OS

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Introduction

This guide describes things about porting Realtek wireless driver to Google chromium OS. We assume x86-generic is our target board. ChromiumOS 33.0.1709.2(235044).

Install Chromium OS

Please visit Google Chromium web page for Chromium OS installation.
http://www.chromium.org/chromium-os
Following Chromium user guide to build Chromium OS and make sure it works correctly on your target board.

Install Realtek wireless driver

Decompress wireless driver.
$ cd chromiumos/src/third_party/kernel/files/drivers/net/wireless/
$ tar zxvf rtl8821AS_linux_v4.2.x_xxxx.xxxxxxxx.tar.gz

$ vim
chromiumos/src/third_party/kernel/files/drivers/net/wireless/Makefile
Adds following information to Makefile.

```
obj-$(CONFIG_RTL8821AU) += rtk_wifi_driver/
```

$ vim
chromiumos/src/third_party/kernel/files/drivers/net/wireless/Kconfig
Adds following information to Kconfig
.

```
source "drivers/net/wireless/rtk_wifi_driver/Kconfig"
```

Enable CFG80211 in autoconf.h

$ vim chromiumos/src/third_party/kernel/files/drivers/net/wireless/rtk_wifi_driver/include/autoconf.h

```
    #define CONFIG_IOCTL_CFG80211 1
```

$ vim chromiumos/src/third_party/kernel/files/drivers/net/wireless/rtk_wif_driver/Makefile

```
    CONFIG_PLATFORM_I386_PC = y
```

Compiler

$ cd chromiumos
$ ./chromite/bin/cros_sdk

# create local copy of kernel source
$ cros_workon --board=x86-generic start sys-kernel/chromeos-kernel
$ repo sync
$ cd ~/trunk/src/third_party/kernel/files
$ chromeos/scripts/kernelconfig oldconfig (select m on wireless driver. ie., rtl8821)

Build Packages and Image
$ cd ~/trunk/src/scripts
$ ./build_packages --board=x86-generic
$ ./build_image --board=x86-generic

Copy the image to a USB key
./image_to_usb.sh --board="x86-generic"

Connect to AP

Boots up Chromium OS login to the Chrome browser. Press Ctrl-Alt-T to open a terminal. Type "shell" on terminal to launch a shell

environment. Type "/sbin/ifconfig" to make sure wlanx (usually wlan0) is up.

If wlanx exists. Click Settings soft key on right side bottom to configure wireless card. You may observe an off-line status in Wi-Fi network. Click to select your favorite AP and connect to it. Enjoy!

Note: If Wi-Fi network display "Disable", it means Network manager reject to inform UI the wireless hardware is ready. Network manager locates in chromiumos/src/platform/shill.

To build local copy of shill, you have to enable following packages:

```
$ cros_workon --board=x86-generic start chromeos-base/shill
$ cros_workon --board=x86-generic start chromeos-base/platform2
```