WLAN Hacking Workshop

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Agenda

- What is “OpenLink™”?
- Workshop intro
- Board setup
- Getting WLAN to work on BeagleBoard
- The OpenLink Challenge
- Wrap-up
  - Demo – Ubuntu
  - Prizes
  - What’s next

OpenLink

What is “OpenLink™”?

- An open source initiative
- Wireless connectivity technologies
  - Wi-Fi™
  - *Bluetooth®*
  - FM
  - Roadmap:
    - *Bluetooth* Low Energy
    - ANT
    - Zigbee®
    - NFC

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What is “OpenLink™”?

- Open link drivers available today
- Part of mainline Linux kernel
- Easily attach to open source development platform such as BeagleBoard and PandaBoard

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What is “OpenLink™”?

- Website – **OpenLink.org**
  - Community
  - News
  - Projects
  - Support
  - Platforms
  - Resources

… And more to come…

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Workshop Outline

- Short hands-on demo
- Learn how to connect to an AP from the CLI
- Your chance to get your own BeagleBoard with a WLAN daughter card!

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Board Setup

- Pre-requisite: minicom (or another terminal app)
- Insert the micro-SD card
- Connect the USB-serial adapter
- Connect the USB cable (power supply)

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Serial Console

- Start minicom
  - minicom -s -o
    - /dev/ttyUSB0
    - 115200 8N1
    - No HW/SW flow control
- Log in to the serial console
    - user: root
    - pwd: rootguri

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BeagleBoard boot basics

- Two-phase boot
  - X-Loader (MLO)
  - u-boot.bin
    - Environment setup
    - Kernel parameters
- Kernel
  - Mainline-based (2.6.39-rc1)
  - One patch for the WLAN daughtercard

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Connecting to an open Access Point

- Set your own MAC address

```
ifconfig wlan0 hw ether 08:00:28:00:00:<number>
ifconfig wlan0 up
```

- Using the iw tool to scan

```
iw wlan0 scan
```

- Connecting to an open AP

```
iw wlan0 connect -w OpenLink
dhclient wlan0
ping 192.168.1.1
```

- Disconnect

```
iw wlan0 disconnect
```

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Connecting to a WEP AP

- Connecting with iw using a pre-defined key

```
iw wlan0 connect -w OpenLinkWEP key 0:00deadbeef
```

- Connecting with wpa_supplicant

```
vim wep.conf
    ctrl_interface=DIR=/var/run/wpa_supplicant
      network={
            ssid="OpenLinkWEP"
            scan_ssid=1
            key_mgmt=NONE
            wep_key0=00deadbeef
    }
wpa_supplicant -B -i wlan0 -c wep.conf
wpa_cli status
dhclient wlan0
ping 192.168.1.1
```

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The OpenLink™ Challenge

- Connect to “OpenLinkWPA” using WPA2
  - wpa_supplicant
  - PSK=“openlink.org”
  - DHCP
- Winners – First **3** setups to be assigned an IP address by the AP (dhcp)
- Prize – you get to keep your BeagleBoard + WLAN card
  Note: winner will be the owner of the laptop in use

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WRAP UP

Demo – Ubuntu w/ OpenLink

Prizes

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What's Next

- Demo table outside
  - register your project to win a BeagleBoard + WLAN card
- BeagleBoard workshop – tomorrow at 9am

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Additional Resources

- Register your project to win a BeagleBoard + Wi-Fi™ card
  http://OpenLink.org
- Linuxwireless.org – visit for additional information
  http://wireless.kernel.org/en/users/Drivers/wl12xx
- Linuxwireless.org – visit for additional BeagleBoard related
  Ubuntu - http://elinux.org/BeagleBoardUbuntu
  Debian - http://elinux.org/BeagleBoardDebian
- PandaBoard related
  http://www.pandaboard.org/content/resources/software
- wl12xx.git
  git://git.kernel.org/pub/scm/linux/kernel/git/luca/wl12xx.git

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THANK YOU 

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QUESTIONS?

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