



IPWAVE DRAFT

ISOC-Hackathon | 19-20 June 2019

Africa Internet Summit 2019 – Hackathon @ AIS

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ABOUT

- IPWAVE (IP WIRELESS ACCESS IN VEHICULAR ENVIRONMMENTS)
- Draft
- IPv6 for vehicular Network

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Versions: ([draft-petrescu-ipv6-over-80211p](#))

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IPWAVE Working Group
Internet-Draft
Intended status: Standards Track
Expires: December 9, 2019

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June 7, 2019

**Basic support for IPv6 over IEEE Std 802.11 Networks operating Outside
the Context of a Basic Service Set (IPv6-over-80211-OCB)
draft-ietf-ipwave-ipv6-over-80211ocb-46**

Abstract

This document provides methods and settings, and describes limitations, for using IPv6 to communicate among nodes in range of one another over a single IEEE 802.11-OCB link with minimal change to existing stacks. Optimizations and usage of IPv6 over more complex scenarios is not covered and is subject of future work.

OBJECTIVE OF THE IPWAVE TRACK

To test the draft (draft-ietf-ipwave-ipv6-over-80211OCB-45) for Connectivity between two nodes on IPv6 over OCB mode.

TOOLS USED

- OS : UBUNTU desktop18.04
- Wireless network card: OCB card and PCIe Adaptor
- Network Monitoring : Wireshark
- Linux kernel: 4.9.61
- Patch for the linux kernel ath9k driver on OCB mode

TASKS ACCOMPLISHED

- Installed UBUNTU on the desktop
- Installed the Wireless Network Card
- Installed Wireshark
- Captured Ipv6 packets for connectivity between two nodes
- Download and compile the Linux kernel 4.9.61
- Applied the patch for OCB mode (80211ocb)
- Recompiling the kernel
- Logged Ipv6 packets over OCB and compare packet flames.

CHALLENGES EXPERIENCED AND SOLUTIONS

Getting a good performing desktop computer with PCI Express slots.

Used the two (2) desktop PCs with the required PCI express slots.

Obtaining Linux kernel 4.9.61

Lots of google search 

The PCIe adaptor with loose antenna connections

Build custom antenna (Thanks to Jije)

The recommended patch file was incomplete

Look for a different patch

The patch file had bugs

Fixed the code of the patch by commenting out duplicated lines




```
LD [M] drivers/net/wireless/ath/ath6kl/ath6kl_core.o
CC [M] drivers/net/wireless/ath/ath6kl/sdio.o
LD [M] drivers/net/wireless/ath/ath6kl/ath6kl_sdio.o
CC [M] drivers/net/wireless/ath/ath6kl/usb.o
LD [M] drivers/net/wireless/ath/ath6kl/ath6kl_usb.o
CC drivers/net/wireless/ath/ath9k/beamcon.o
CC drivers/net/wireless/ath/ath9k/gpio.o
CC drivers/net/wireless/ath/ath9k/init.o
CC drivers/net/wireless/ath/ath9k/main.o
drivers/net/wireless/ath/ath9k/main.c: In function 'ath9k_vif_iter':
drivers/net/wireless/ath/ath9k/main.c:961:2: error: duplicate case value
  case NL80211_IFTYPE_OCB:
  ~~~~~
drivers/net/wireless/ath/ath9k/main.c:958:2: note: previously used here
  case NL80211_IFTYPE_OCB:
  ~~~~~
scripts/Makefile.build:293: recipe for target 'drivers/net/wireless/ath/ath9k/main.o' failed
make[5]: *** [drivers/net/wireless/ath/ath9k/main.o] Error 1
scripts/Makefile.build:544: recipe for target 'drivers/net/wireless/ath/ath9k' failed
make[4]: *** [drivers/net/wireless/ath/ath9k] Error 2
scripts/Makefile.build:544: recipe for target 'drivers/net/wireless/ath' failed
make[3]: *** [drivers/net/wireless/ath] Error 2
scripts/Makefile.build:544: recipe for target 'drivers/net/wireless' failed
make[2]: *** [drivers/net/wireless] Error 2
scripts/Makefile.build:544: recipe for target 'drivers/net' failed
make[1]: *** [drivers/net] Error 2
Makefile:991: recipe for target 'drivers' failed
make: *** [drivers] Error 2
```

```
LD [M] drivers/net/wireless/ath/ath6kl/ath6kl_core.o
CC [M] drivers/net/wireless/ath/ath6kl/sdio.o
LD [M] drivers/net/wireless/ath/ath6kl/ath6kl_sdio.o
CC [M] drivers/net/wireless/ath/ath6kl/usb.o
LD [M] drivers/net/wireless/ath/ath6kl/ath6kl_usb.o
CC drivers/net/wireless/ath/ath9k/beamcon.o
CC drivers/net/wireless/ath/ath9k/gpio.o
CC drivers/net/wireless/ath/ath9k/init.o
CC drivers/net/wireless/ath/ath9k/main.o
drivers/net/wireless/ath/ath9k/main.c: In function 'ath9k_vif_iter':
drivers/net/wireless/ath/ath9k/main.c:961:2: error: duplicate case value
  case NL80211_IFTYPE_OCB:
  ~~~~~
drivers/net/wireless/ath/ath9k/main.c:958:2: note: previously used here
  case NL80211_IFTYPE_OCB:
  ~~~~~
scripts/Makefile.build:293: recipe for target 'drivers/net/wireless/ath/ath9k/main.o' failed
make[5]: *** [drivers/net/wireless/ath/ath9k/main.o] Error 1
scripts/Makefile.build:544: recipe for target 'drivers/net/wireless/ath/ath9k' failed
make[4]: *** [drivers/net/wireless/ath/ath9k] Error 2
scripts/Makefile.build:544: recipe for target 'drivers/net/wireless/ath' failed
make[3]: *** [drivers/net/wireless/ath] Error 2
scripts/Makefile.build:544: recipe for target 'drivers/net/wireless' failed
make[2]: *** [drivers/net/wireless] Error 2
scripts/Makefile.build:544: recipe for target 'drivers/net' failed
make[1]: *** [drivers/net] Error 2
Makefile:991: recipe for target 'drivers' failed
make: *** [drivers] Error 2
```



John Seur <john.seur@gmail.com>

4:25 PM (53 minutes ago)



to its ▾

Hello IPWavers,

During the Hackathon@AIS2019 (<https://hackathon.internetsummitafrica.org/>), the team in IPWave track (led by Nabil Benamar) was patching the Linux kernel 4.9.61 with OCB mode and discovered the following bugs in the patch file (<https://drive.google.com/file/d/0BxK6WTQZ97QVWF9tRURjOGhBU2c/view>).

```
drivers/net/wireless/ath/ath9k/main.c:961:2: error: duplicate case value
case NL80211_IFTYPE_OCB:
drivers/net/wireless/ath/ath9k/hw.c:1241:2: error: duplicate case value
case NL80211_IFTYPE_OCB:
```

The duplicated lines of code were commented out and the patch file works!



WHAT'S NEXT?

- Testing IPv6 connectivity under the OCB mode using ath10k driver instead of ath9k driver.

