Raspberry Pi based Wireless Access Point

Embedded Linux:
Final Presentation

Adam Secovnie

RTL8188

The wireless network adapter pictured at left uses a RealTek RTL8188 microprocessor. In order to operate this with the Raspberry Pi, the proper linux specific drivers had to be installed.

- Downloaded drivers from manufacturer
- Edited Makefile so as to make the driver/module compatible with the Raspberry Pi’s processor: ARM1176JZFS
- Created a new file within the RPi’s kernel in which to store the driver/module

- Attempted make of the module suggested the need for a new kernel source tree
- This had to be downloaded and linked into the existing kernel and makes run
- This solved one compilation error.

- Another attempt to make the module resulted in an error relating to the driver files included.

- Despite an indication in the driver Makefile, the designation of the chip as Little Endian was not being read by the compiler, so this had to be hard coded within the include file which would check for Endian type.

- The next error involved the ARM chip’s architecture version. This was eventually solved by adding more information to the driver’s Makefile, which made clear which version was being used, and therefor which assembly commands could be used in the driver compilation.

- Once that error was resolved, another make had to be run within the new, clean kernel source tree to produce a Module.symvers file, thereby clearing another error. This make took several hours.
- With that accomplished, (and myriad other tweaks, directory deletions, makes and remakes, etc…) finally I had...

A MODULE!!!

wlan.ko

- However, after repeated attempts, every attempt to insert the module resulted in error, stating that the module format was “invalid”
- Despite many attempts to reconcile the format of the module with what the kernel expected, no attempts were successful, leaving the Pi without a wireless dongle, and therefor, without wireless access.

Advice: Do not attempt to use this dongle when creating a wireless router from your Raspberry Pi model B running Raspbian 3.6.11+. As of today, they remain incompatible.