**Prerequisites**

* PC running Linux with 32-bit libraries installed
* USB – TTL Cable
* https://github.com/nitroshift/wrt1900ac/
  + kwboot.tar
  + u-boot-nand.kwb and u-boot-uart.kwb
    - *One is for booting from* ***UART****; the other for transferring to router and writing to* ***NAND***

**How To**

1. Terminal root access:
   * *sudo –i*
2. Install *kwboot*
   * cd /home/kwboot/
     + Unzip the archive, then: tar –xvf kwboot.tar
     + Actual compilation of kwboot: gcc kwboot.c
   * Save u-boot-nand.kwb and u-boot-uart.kwb in /home/kwboot/
3. Set *kwboot* as executable:
   * Chmod 777 kwboot
4. Connect USB-TTL to router and PC (don’t power on router), and issue the following command
   * dmesg | grep USB
     + Make note of the number after /dev/ttyUSB (it’s usually 0), then:
   * chmod 666 /dev/ttyUSB0
5. Getting the router to boot from the UART image:
   * ./kwboot –a –t /dev/ttyUSB0 –b u-boot-uart.kwb  **and** *Power On* *Router*
     + Note arguments used above:
       - **-a** = *use Armada XP timings*
       - **-t** = *open a terminal in the same window after transfer completes*
       - **-b** = *file that is to be booted from*
6. After the transfer finishes, you should be at the Marvell>> prompt
   * **If you are not:**
     + *Power Off Router - Disconnect USB-TTL Cable from PC - Go Back to* ***Step 3***
   * **If you are:**
     + Set up TFTP server on PC *(such as Ubuntu’s tftpd package)*
       - Put u-boot-nand.kwb in it’s tftpboot folder
7. Set PC IP Address: 192.168.1.2 and issue the following commands at the Marvell>> prompt:
8. setenv ipaddr 192.168.1.1
9. setenv serverip 192.168.1.2
10. tftp 2000000 u-boot-nand.kwb
11. nand erase 0 e0000
12. nand write 2000000 0 e0000
13. If the above commands complete successfully, reboot router via:
    * reset
      + You should see the router booting and stopping at the Marvell>> prompt
14. Download the firmware image for WRT1900ac and save it to tftpboot
    * At the Marvell>> prompt issue the following commands:
      + tftp 192.168.1.2
      + get *<firmware image name>*
15. **IMPORTANT**
    * After transfer completes successfully, **DO NOT** issue
      + run flash\_pri\_image **or** run flash\_alt\_image
        - *Either will* ***brick*** *the router again sending you back to Step 3*
    * ***Instead:***
      + linksysnandboot
        - If it fails, issue: run\_linksysaltnandboot
16. Allow the router to boot fully
    * Verify it’s up and running correctly via the web management interface
    * Finally, *Power Off Router - Disconnect USB-TTL Cable - Power Back On*