

Packages - Packaging Request #3311

[rtl8812au-ng] Realtek Wi-Fi chip drivers

2022-07-17 05:37 PM - UltrasonicMadness

Status:	fixed	% Done:	0%
Priority:	wish		
Assignee:	bill-auger		
Category:			
Description			
I recently bought a wireless adapter after checking on h-node (https://www.h-node.org/wifi/view/en/2242/TP-Link-802-11ac-WLAN-Adapter/1/1/undef/undef/undef/undef/wifi-works/undef) that it worked on libre systems such as Parabola (my device ID in lsusb matches the corrected one in that h-node page's description), though I can't find the driver and it doesn't appear to be included in linux-libre-firmware or linux-libre-firmware-whence. Would it be possible to add github8 aircrack-ng/rtl8812au to Parabola?			

History

#1 - 2022-07-18 02:46 AM - bill-auger

- Priority changed from bug to wish

there is an AUR package for that device - have you tried it? - are you familiar with makepkg?

#2 - 2022-07-18 07:56 AM - bill-auger

- Status changed from open to in progress

#3 - 2022-07-18 07:57 AM - bill-auger

the licensing looks good; so i packaged it - not sure if it will work or not because i do not have the hardware; but you could try it

the package name is 'rtl8812au-dkms'

#4 - 2022-07-18 12:37 PM - UltrasonicMadness

I tried installing it - there seems to be a problem in the install process.

```
==> dkms install --no-depmod rtl8812au/5.6.4.2.20220606 -k 5.15.41-gnu-1-lts
Error! Bad return status for module build on kernel: 5.15.41-gnu-1-lts (x86_64)
Consult /var/lib/dkms/rtl8812au/5.6.4.2.20220606/build/make.log for more information.
==> WARNING: `dkms install --no-depmod rtl8812au/5.6.4.2.20220606 -k 5.15.41-gnu-1-lts' exited 10
```

make.log contains this text, followed by the output of `make --help`:

```
DKMS make.log for rtl8812au-5.6.4.2.20220606 for kernel 5.15.41-gnu-1-lts (x86_64)
Mon 18 Jul 12:51:24 BST 2022
make: unrecognized option '--uname_r=5.15.41-gnu-1-lts'
```

#5 - 2022-07-19 03:35 AM - bill-auger

could you try this experiment

edit the file (with sudo) /usr/src/rtl8812au-5.6.4.2.20220606/dkms.conf

change this line:

```
MAKE[0]="make --uname_r=$kernelver"
```

to:

```
MAKE[0]="make KVER=${kernelver}"
```

then try building the module like:

```
$ sudo dkms install --no-depmod rtl8812au/5.6.4.2.20220606
```

#6 - 2022-07-19 03:45 PM - UltrasonicMadness

I've just tried it now - I get this error when running:

```
Sign command: /usr/lib/modules/5.15.41-gnu-1-lts/build/scripts/sign-file
Signing key: /var/lib/dkms/mok.key
Public certificate (MOK): /var/lib/dkms/mok.pub
```

```
Building module:
Cleaning build area...
make -j2 KERNELRELEASE=5.15.41-gnu-1-lts KVER=5.15.41-gnu-1-lts... (bad exit status: 2)
Error! Bad return status for module build on kernel: 5.15.41-gnu-1-lts (x86_64)
Consult /var/lib/dkms/rtl8812au/5.6.4.2.20220606/build/make.log for more information.
```

The log file contains this:

```
DKMS make.log for rtl8812au-5.6.4.2.20220606 for kernel 5.15.41-gnu-1-lts (x86_64)
Tue 19 Jul 15:40:35 BST 2022
Makefile:2175: /hal/phydm/phydm.mk: No such file or directory
make: *** No rule to make target '/hal/phydm/phydm.mk'. Stop.
```

However, the path looked off (I've never seen /hal as a root folder on a Unix-like system) so I did some digging in the Makefile and found that it referred to \$(src)/hal/phydm/phydm.mk - I set the src variable to /usr/src/rtl8812au-5.6.4.2.20220606 - the location of the hal folder with phydm and then I got this error in make.log:

```
DKMS make.log for rtl8812au-5.6.4.2.20220606 for kernel 5.15.41-gnu-1-lts (x86_64)
Tue 19 Jul 15:51:58 BST 2022
Generating a RSA private key
.....+++++
.+++++
writing new private key to 'MOK.priv'
-----
make: mokutil: No such file or directory
make: *** [Makefile:2342: sign] Error 127
```

I looked at the Makefile and it appeared to be running a program so I looked for mokutil - it appears that this program is designed for (U)EFI systems - the computer I'm running Parabola on is a BIOS system but I tried it anyway and sure enough (still in make.log):

```
DKMS make.log for rtl8812au-5.6.4.2.20220606 for kernel 5.15.41-gnu-1-lts (x86_64)
Tue 19 Jul 16:00:04 BST 2022
Generating a RSA private key
.....+++++
.....+++++
writing new private key to 'MOK.priv'
-----
EFI variables are not supported on this system
make: *** [Makefile:2342: sign] Error 1
```

Uninstalled mokutil and changed the configuration file with KVER to additionally set NO_SKIP_SIGN so that it wouldn't run that bit:

```
DKMS make.log for rtl8812au-5.6.4.2.20220606 for kernel 5.15.41-gnu-1-lts (x86_64)
Tue 19 Jul 16:18:01 BST 2022
echo "Skipping key creation"
Skipping key creation
At main.c:291:
- SSL error:02001002:system library:fopen:No such file or directory: crypto/bio/bss_file.c:69
- SSL error:2006D080: BIO routines: BIO_new_file: no such file: crypto/bio/bss_file.c:76
sign-file: 88XXau.ko: No such file or directory
make: *** [Makefile:2345: sign] Error 1
```

I don't know where that C file is but I do notice something odd in the Makefile:

```
ifeq ($(NO_SKIP_SIGN), y)
    @openssl req -new -x509 -newkey rsa:2048 -keyout MOK.priv -outform DER >
    @mokutil --import MOK.der
else
    echo "Skipping key creation"
endif
@$(KSRC)/scripts/sign-file sha256 MOK.priv MOK.der 88XXau.ko
```

I move that last line just above the else with indentation intact. Running DKMS again, the error is now simply:

```
DKMS make.log for rtl8812au-5.6.4.2.20220606 for kernel 5.15.41-gnu-1-lts (x86_64)
Tue 19 Jul 16:21:40 BST 2022
echo "Skipping key creation"
Skipping key creation
```

Though I noticed the DKMS install command is still printing MOK information

```
$ sudo dkms install --no-depmod rtl8812au/5.6.4.2.20220606
Sign command: /usr/lib/modules/5.15.41-gnu-1-lts/build/scripts/sign-file
Signing key: /var/lib/dkms/mok.key
Public certificate (MOK): /var/lib/dkms/mok.pub
```

```
Building module:
Cleaning build area...
make -j2 KERNELRELEASE=5.15.41-gnu-1-lts KVER=5.15.41-gnu-1-lts NO_SKIP_SIGN=no...
Error! Build of rtl8812au.ko failed for: 5.15.41-gnu-1-lts (x86_64)
Make sure the name of the generated module is correct and at the root of the
build directory, or consult make.log in the build directory
/var/lib/dkms/rtl8812au/5.6.4.2.20220606/build for more information.
```

I'm not quite sure what to try from here - I looked up how to disable MOK in DKMS but the main result was a Dell page detailing how to disable secure boot and the other results appeared to be guides on how to get DKMS to work with secure boot.

Edit: to be clear, the firmware for the device is still showing as missing in NetworkManager.

#7 - 2022-07-21 01:13 AM - bill-auger

the solution was suggested in the original error message

Make sure the name of the generated module is correct and at the root of the build directory

the built module in the root of the build directory, gets the file name: 88XXau.ko; so i changed BUILT_MODULE_NAME to '88XXau', and it installs now

rtl8812au-dkms 5.6.4.2.20220606-3 will have that change

#8 - 2022-07-21 12:23 PM - UltrasonicMadness

That's odd. I still seem to be having the same problems as detailed in the previous post. It doesn't seem to be outputting an 88XXau.ko file unless I run `sudo make` in the /usr/src/rtl8812au-5.6.4.2.20220606 - even if I copy this file to /var/lib/dkms/rtl8812au/5.6.4.2.20220606/build, it shows the same error. I can't find any generated .ko files in either /usr/src or /var/lib/dkms.

```
$ sudo dkms install --no-depmod rtl8812au/5.6.4.2.20220606
Sign command: /usr/lib/modules/5.15.41-gnu-1-lts/build/scripts/sign-file
Signing key: /var/lib/dkms/mok.key
Public certificate (MOK): /var/lib/dkms/mok.pub
```

```
Building module:
Cleaning build area...
make -j2 KERNELRELEASE=5.15.41-gnu-1-lts KVER=5.15.41-gnu-1-lts...
Error! Build of 88XXau.ko failed for: 5.15.41-gnu-1-lts (x86_64)
Make sure the name of the generated module is correct and at the root of the
build directory, or consult make.log in the build directory
/var/lib/dkms/rtl8812au/5.6.4.2.20220606/build for more information.
```

#9 - 2022-07-21 09:22 PM - bill-auger

i could not make it work either, with the original package (pkgrel=1) - try the updated package (pkgrel=3)

#10 - 2022-07-22 04:29 PM - UltrasonicMadness

It works. I'm currently accessing this forum through the new Wi-Fi card. For the record, I made sure the old version of the package was uninstalled before installing the new one - DKMS install took some time but this is normal in my limited experience with it. Rebooted and a green LED on the device came to life for the first time. Thank you very much for packaging this driver - I would mark this as solved but I don't think I have the relevant permissions to do so.

#11 - 2022-07-22 09:02 PM - bill-auger

- Assignee set to bill-auger

#12 - 2022-07-22 09:02 PM - bill-auger

- Status changed from in progress to fixed

#13 - 2022-08-22 04:28 PM - bill-auger

sry but we need to remove this package - it contains massive blobs, which i did not see originally

Most realtek recent drivers have a nonfree firmware as byte arrays in the C files. The files have GPL license headers; but the corresponding source code is apparently not available.
for example:

- hal/rtl8812a/hal8812a_fw.c

Someone would need to liberate/replace those firmwares. The architecture of the CPU of these WiFi chip is 8051; so it's already possible to de-compile the code with radare2, and we know the entry point.

#14 - 2022-08-23 10:44 AM - gap

[bill-auger](#) we have had massive blobs in the form of NVIDIA packages which I reported over 3 months ago in [#3293](#).

To quote myself from [#3293](#):

From now on, I also recommend that we don't add any kernel module packages unless the Linux-libre project has checked them first.

Now I see evidence in this issue that was the correct strategy to recommend.

#15 - 2022-08-25 11:26 PM - UltrasonicMadness

Hello everyone and sorry about this - I based this request entirely on the h-node page without checking the linked drivers for blobs.

#16 - 2022-08-26 02:51 AM - bill-auger

- Description updated

thanks for reminding - i just corrected the h-node entry