Linux sur Thinkpad T440

Une puce wifi Realtek et non une intel...

Normalement tout devrait fonctionner **out of the box** avec ce modèle

Mais j'ai rencontré cependant un gros soucis **avec la puce WIFI**

```
03:00.0 Network controller: Realtek Semiconductor Co., Ltd. RTL8192EE PCIe Wireless Network Adapter (rev ff)
```

Étonnamment ce n'est pas une puce Intel mais le PC est reconditionné donc...

Dans un premier temps et après documentation, cette puce devrait fonctionner : - kernel 4 : avec le paquet **firmware-realtek** - kernel 5 : prise en charge par le noyau

Mais bon quelque soit le kernel utilisé, impossible de la faire fonctionner que ce soit sous Debian stable, testing, sid, xubuntu ou mint... Le wifi décroche au bout de quelques secondes.

Le plus bizarre c'est que lors de l'install en stable, le wifi fonctionne durant toutes les mises à jour de la phase d'installation et plante lors du boot.

```
$ lsmod
    Module                  Size  Used by
    rtl8192ee             110592  0
    rtl_pci                32768  1 rtl8192ee
    rtlwifi                77824  3 rtl8192ee,rtl_pci,btcoexist
    mac80211              778240  3 rtl8192ee,rtl_pci,rtlwifi
    cfg80211              622592  2 mac80211,rtlwifi
    video                  40960  2 thinkpad_acpi,i915
```

Hé oui j'ai installé **firmware-realtek** car je pensais qu'ils allaient fonctionner...

Un firmware-realtek qui plante....

Et un extrait du **dmesg** avec les erreurs

```
[    4.744083] Bluetooth: hci0: RTL: rtl: examining hci_ver=06 hci_rev=000a lmp_ver=06 lmp_subver=8761

[    4.745574] Bluetooth: hci0: RTL: rom_version status=0 version=2

[    4.745577] Bluetooth: hci0: RTL: rtl: loading rtl_bt/rtl8761a_fw.bin

[    4.746542] bluetooth hci0: firmware: direct-loading firmware rtl_bt/rtl8761a_fw.bin
```

```
[    4.746561] Bluetooth: hci0: RTL: rtl: loading rtl_bt/rtl8761a_config.bin

[    4.746573] bluetooth hci0: firmware: failed to load
rtl_bt/rtl8761a_config.bin (-2)
[    4.746605] firmware_class: See https://wiki.debian.org/Firmware for
information about missing firmware
[    4.746641] bluetooth hci0: Direct firmware load for
rtl_bt/rtl8761a_config.bin failed with error -2
[    4.746646] Bluetooth: hci0: RTL: cfg_sz -2, total sz 22176

[    4.755810] systemd[1]: Received SIGRTMIN+20 from PID 178 (plymouthd).
[    4.756229] systemd[1]: plymouth-read-write.service: Succeeded.
[    4.756729] systemd[1]: Started Tell Plymouth To Write Out Runtime Data.
[    4.763454] systemd[1]: plymouth-start.service: Succeeded.
[    4.763938] systemd[1]: Started Show Plymouth Boot Screen.
[    4.764161] systemd[1]: Condition check resulted in Dispatch Password
Requests to Console Directory Watch being skipped.
[    4.797523] systemd[1]: Started Journal Service.
[    4.807015] systemd-journald[244]: Received client request to flush
runtime journal.
[    4.957516] psmouse serio2: trackpoint: IBM TrackPoint firmware: 0x0e,
buttons: 3/3
[    5.012742] input: TPPS/2 IBM TrackPoint as
/devices/rmi4-00/rmi4-00.fn03/serio2/input/input10
[    5.040716] intel_rapl_common: Found RAPL domain package
[    5.040719] intel_rapl_common: Found RAPL domain core
[    5.040720] intel_rapl_common: Found RAPL domain uncore
[    5.040721] intel_rapl_common: Found RAPL domain dram
[    5.339873] Bluetooth: BNEP (Ethernet Emulation) ver 1.3
[    5.339875] Bluetooth: BNEP filters: protocol multicast
[    5.339882] Bluetooth: BNEP socket layer initialized
[    8.716175] broken atomic modeset userspace detected, disabling atomic
[   11.064445] rtl8192ee: Init MAC failed
[   11.124044] rtl8192ee: Init MAC failed
[   11.183611] rtl8192ee: Init MAC failed
[   11.243235] rtl8192ee: Init MAC failed
[   11.302872] rtl8192ee: Init MAC failed
[   11.362468] rtl8192ee: Init MAC failed
[   11.422049] rtl8192ee: Init MAC failed
[   11.481624] rtl8192ee: Init MAC failed
[   11.541210] rtl8192ee: Init MAC failed
[   11.600785] rtl8192ee: Init MAC failed
[   34.065425] rtl8192ee: Init MAC failed
[   34.125517] rtl8192ee: Init MAC failed
```

Finalement, pour ce Thinkpad, voilà ce que j'ai installé en toile d'arrière fond :

```
# aptitude install firmware-ralink intel-microcode amd64-microcode acpi
acpi-support  acpid acpitool openrc rfkill
```

Normalement avec ces paquets, il n'a plus d'erreur au boot, tout est pris en charge sauf le wifi.

Voilà donc le dmesg avec les autres erreurs corrigées malgré tous les switchs sur ON

```
root@Tinuviel-debianStable:~#  rfkill list
0: tpacpi_bluetooth_sw: Bluetooth
    Soft blocked: no
    Hard blocked: no
1: hci0: Bluetooth
    Soft blocked: no
    Hard blocked: no
2: phy0: Wireless LAN
    Soft blocked: no
    Hard blocked: no
```

```
[   83.462375] rtlwifi: rtlwifi: rtl_hal_pwrseqcmdparsing Polling count
exceeded, value = 0xff, expected = 0x0, mask = 0x
[   83.462380] rtl8192ee: Init MAC failed
[   83.523487] rtlwifi: rtlwifi: rtl_hal_pwrseqcmdparsing Polling count
exceeded, value = 0xff, expected = 0x0, mask = 0x\xff
[   83.583361] rtlwifi: rtlwifi: rtl_hal_pwrseqcmdparsing Polling count
exceeded, value = 0xff, expected = 0x0, mask = 0x
[   83.643856] rtlwifi: rtlwifi: rtl_hal_pwrseqcmdparsing Polling count
exceeded, value = 0xff, expected = 0x0, mask = 0x
[   83.643862] rtl8192ee: Init MAC failed
```

Le git lwfinger

Après plusieurs lectures, je découvre qu'il existe un git proposant une alternative à **firmware-realtek** : lwfinger/rtlwifi_new

Avant de travailler sur les paquets de ce git, les paquets suivants seront nécessaires à la compilation.

```
aptitude install bc linux-headers-4.19.0-6-amd64 linux-headers-generic
build-essential git linux-headers-4.19.0-6
```

(pensez à adapter le linux-headers à votre kernel (uname -a))

Puis on clone et compile le nouveau driver $ git clone https://github.com/lwfinger/rtlwifi_new.git -b extended $ cd rtlwifi_new/ $ make # make install

Et c'est là que ça se complique, ça ne va pas mieux... Après plusieurs recherches, je vois que la compilation à créer un dossier : rtl8192ee_revised.tar.bz2. Je tente ma chance :

$ bunzip2 rtl8192ee_revised.tar.bz2 $ tar xvf rtl8192ee_revised.tar rtl8192ee_revised/ $ cd rtl8192ee_revised/ $ make # make install

Un nouveau driver est créé : **8192ee** au lieu de **rt8192ee**

Je le tente, on ne sait jamais. Donc avant de rebooter, je blackliste l'ancien module instable # cd /etc/modprobe.d/ # nano blacklist.conf

Avec ce contenu

Le reboot

Et là nickel, tout roule et le dmesg indique la bonne prise en charge de la puce

```
[    7.378594] RTW: cfg80211_rtw_get_txpower
[    7.380866] IPv6: ADDRCONF(NETDEV_UP): wlp3s0: link is not ready
[    7.380924] RTW: rtw_ndev_notifier_call(wlp3s0) state:13
[    7.380927] RTW: _netdev_open(wlp3s0) , bup=0
[    7.380928] RTW: =======>rtl8192ee_hal_init()
[    7.381281] RTW:  power-on :REG_CR 0x100=0xea.
[    7.381281] RTW: =======>InitMAC_8192EE()
[    7.381282] RTW: ==>_InitPowerOn_8192EE
[    7.386175] RTW: SetHwReg: bMacPwrCtrlOn=1
[    7.386189] RTW: InitMAC_8192EE() <====
[    7.386943] RTW:  ===> FirmwareDownload88E() fw source from Header.
[    7.386944] RTW: FirmwareDownload8192E fw:NIC, size: 32286
[    7.386945] RTW: FirmwareDownload8192E: fw_ver=35 fw_subver=7 sig=0x92e1
[    7.387488] RTW: =====> _8051Reset8192E(): 8051 reset success .
[    7.389859] RTW: polling_fwdl_chksum: Checksum report OK! (1, 0ms),
REG_MCUFWDL:0x00070605
[    7.389871] RTW: =====> _8051Reset8192E(): 8051 reset success .
[    7.418120] RTW: _FWFreeToGo8192E: Polling FW ready OK! (9532, 28ms),
REG_MCUFWDL:0x000706c6
[    7.418121] RTW: FWDL success. write_fw:1, 32ms
[    7.418123] RTW: FwLoad SUCCESSFULLY!!!
[    7.418123] RTW: 8192ee MAC Config Start!
[    7.418673] RTW: 8192ee MAC Config Finished!
[    7.418673] RTW: BB Config Start!
[    7.419058] RTW: BB Config Finished!
[    7.419059] RTW: RF Config started!
[    7.957001] RTW: RF Config Finished!
[    7.961003] RTW: InitializeAdapter8812E(): Turn on  ----------
[    7.962339] RTW: ***** ASPM Capability *****
[    7.962342] RTW: CLK REQ: Enable
[    7.962342] RTW: ASPM L0s:    Enable
[    7.962342] RTW: ASPM L1: Enable
[    7.962357] RTW: ASPM L1OFF:Enable
[    7.962357] RTW: ***** ASPM CTRL Reg *****
[    7.962359] RTW: CLK REQ: Enable
[    7.962360] RTW: ASPM L0s:    Disable
[    7.962360] RTW: ASPM L1: Enable
[    7.962375] RTW: ASPM L1OFF:Enable
[    7.962375] RTW: ***** ASPM Backdoor *****
[    7.962390] RTW: CLK REQ: Disable
[    7.962404] RTW: ASPM L0s:    Disable
[    7.962419] RTW: ASPM L1: Disable
[    7.962434] RTW: ASPM L1OFF:Disable
```

```
[    7.962434] RTW: ************************
[    8.173250] RTW: phy_SpurCalibration_8192E =>AFE_PHASE_SEL
[    8.232816] RTW: ===FixSpur NOT Pass!
[    8.292361] RTW: === PathA=1, PathB=1
[    8.292362] RTW: ===FixSpur Pass!
[    8.292632] RTW: read[REG_MGQ_TXBD_DESA_8192E] = 350c3000
[    8.292634] RTW: rtw_hal_set_macaddr_port wlp3s0- hw port(0) mac_addr
=ac:b5:7d:b3:79:4f
[    8.292646] RTW: rtw_hal_get_macaddr_port wlp3s0- hw port(0) mac_addr
=ac:b5:7d:b3:79:4f
[    8.292647] RTW: wlp3s0- hw port(0) mac_addr =ac:b5:7d:b3:79:4f
[    8.292827] RTW: MAC Address = ac:b5:7d:b3:79:4f
[    8.292867] RTW: +pci_intf_start
[    8.292867] RTW: -pci_intf_start
[    8.292869] RTW: rtw_cfg80211_init_wiphy:rf_type=2
[    8.292870] RTW: [HT] HAL Support STBC = 0x01
[    8.292876] RTW: -871x_drv - drv_open, bup=1
[    8.292926] IPv6: ADDRCONF(NETDEV_UP): wlp3s0: link is not ready
[    8.292929] RTW: cfg80211_rtw_set_power_mgmt(wlp3s0) enabled:1,
timeout:-1
[    8.292930] RTW: rtw_ndev_notifier_call(wlp3s0) state:1
[    8.293074] RTW: cfg80211_rtw_get_txpower
[    8.293117] RTW: rtw_ndev_notifier_call(wlp3s0) state:9
[    8.293141] RTW: netdev_close(wlp3s0) , bup=1
[    8.293142] RTW: (2)871x_drv - drv_close, bup=1, hw_init_completed=_TRUE
[    8.293143] RTW: -871x_drv - drv_close, bup=1
[    8.293165] RTW: rtw_ndev_notifier_call(wlp3s0) state:2
[    8.293252] RTW: LeaveAllPowerSaveModeDirect.....
[    8.293254] RTW: rtw_hal_set_macaddr_port wlp3s0- hw port(0) mac_addr
=96:b6:58:db:8c:c1
[    8.293255] RTW: rtw_net_set_mac_address(wlp3s0): Set Mac Addr to
96:b6:58:db:8c:c1 Successfully
[    8.293263] RTW: rtw_ndev_notifier_call(wlp3s0) state:8
[    8.293437] RTW: rtw_ndev_notifier_call(wlp3s0) state:13
[    8.293438] RTW: _netdev_open(wlp3s0) , bup=1
[    8.293441] RTW: -871x_drv - drv_open, bup=1
[    8.293460] IPv6: ADDRCONF(NETDEV_UP): wlp3s0: link is not ready
[    8.293462] RTW: cfg80211_rtw_set_power_mgmt(wlp3s0) enabled:1,
timeout:-1
[    8.293463] RTW: rtw_ndev_notifier_call(wlp3s0) state:1
[    8.309243] RTW: cfg80211_rtw_get_txpower
[    8.309262] RTW: cfg80211_rtw_get_txpower
[    8.309437] RTW: cfg80211_rtw_get_txpower
[    8.309453] RTW: cfg80211_rtw_get_txpower
[    8.309839] RTW: cfg80211_rtw_get_txpower
[    8.309868] RTW: rtw_ndev_notifier_call(wlp3s0) state:4
[    8.328862] RTW: cfg80211_rtw_flush_pmksa(wlp3s0)
[    8.367918] RTW: rtw_ndev_notifier_call(wlp3s0) state:4
[    8.368194] IPv6: ADDRCONF(NETDEV_UP): wlp3s0: link is not ready
[    8.369657] RTW: cfg80211_rtw_scan(wlp3s0)
[    9.146090] fuse init (API version 7.27)
```

```
[    9.724874] RTW: survey done event(13) band:0 for wlp3s0
[    9.724897] RTW: rtw_indicate_scan_done(wlp3s0)
[    9.731207] RTW: rtw_ndev_notifier_call(wlp3s0) state:9
[    9.731394] RTW: netdev_close(wlp3s0) , bup=1
[    9.731395] RTW: (2)871x_drv - drv_close, bup=1, hw_init_completed=_TRUE
[    9.731397] RTW: -871x_drv - drv_close, bup=1
[    9.731468] RTW: rtw_ndev_notifier_call(wlp3s0) state:2
[    9.731624] RTW: LeaveAllPowerSaveModeDirect.....
[    9.731628] RTW: rtw_hal_set_macaddr_port wlp3s0- hw port(0) mac_addr
=ac:b5:7d:b3:79:4f
[    9.731631] RTW: rtw_net_set_mac_address(wlp3s0): Set Mac Addr to
ac:b5:7d:b3:79:4f Successfully
[    9.731664] RTW: rtw_ndev_notifier_call(wlp3s0) state:8
[    9.731894] RTW: rtw_ndev_notifier_call(wlp3s0) state:13
[    9.731896] RTW: _netdev_open(wlp3s0) , bup=1
[    9.731900] RTW: -871x_drv - drv_open, bup=1
[    9.732006] IPv6: ADDRCONF(NETDEV_UP): wlp3s0: link is not ready
[    9.732048] RTW: cfg80211_rtw_set_power_mgmt(wlp3s0) enabled:1,
timeout:-1
[    9.732148] RTW: rtw_ndev_notifier_call(wlp3s0) state:1
[    9.743860] RTW: cfg80211_rtw_scan(wlp3s0)
[    9.743866] RTW: rtw_cfg80211_set_probe_req_wpsp2pie(wlp3s0) listen
channel - country:XX, class:81, ch:6
[   11.092955] RTW: survey done event(14) band:0 for wlp3s0
[   11.092975] RTW: rtw_indicate_scan_done(wlp3s0)
[   11.095283] RTW: =>cfg80211_rtw_connect(wlp3s0) - Start to Connection
[   11.095289] RTW: privacy=1, key=          (null), key_len=0, key_idx=0,
auth_type=0
[   11.095297] RTW: ssid=freebox_RKUHVG, len=14
[   11.095302] RTW: bssid=68:a3:78:78:86:f4
[   11.095304] RTW: rtw_cfg80211_set_wpa_version, wpa_version=1
[   11.095306] RTW: rtw_cfg80211_set_auth_type, nl80211_auth_type=0
[   11.095309] RTW: cfg80211_rtw_connect, ie_len=30
[   11.095311] RTW: set wpa_ie(length:30):
[   11.095316] RTW: 0xdd 0x16 0x00 0x50 0xf2 0x01 0x01 0x00
[   11.095321] RTW: 0x00 0x50 0xf2 0x02 0x01 0x00 0x00 0x50
[   11.095325] RTW: 0xf2 0x04 0x01 0x00 0x00 0x50 0xf2 0x02
[   11.095330] RTW: 0x3b 0x04 0x51 0x51 0x53 0x54 0x00 0x00
[   11.095334] RTW: got wpa_ie, wpa_ielen:22
[   11.095345] RTW: rtw_cfg80211_set_cipher, ucast=1, cipher=0xfac04
[   11.095348] RTW: rtw_cfg80211_set_cipher, ucast=0, cipher=0xfac02
[   11.095350] RTW: rtw_cfg80211_set_key_mgt, key_mgt=0xfac02
[   11.095364] RTW: rtw_set_802_11_connect(wlp3s0)  fw_state=0x00000000
[   11.095374] RTW: [by_bssid:1][assoc_ssid:freebox_RKUHVG][to_roam:0] new
candidate: freebox_RKUHVG(68:a3:78:78:86:f4, ch11) rssi:-40
[   11.095379] RTW: rtw_select_and_join_from_scanned_queue: candidate:
freebox_RKUHVG(68:a3:78:78:86:f4, ch:11)
[   11.095384] RTW: link to new AP
[   11.095400] RTW: [HT] HAL Support STBC = 0x01
[   11.095403] RTW: [HT] Declare supporting RX STBC = 1
[   11.095411] RTW: set ssid:dot11AuthAlgrthm=2, dot11PrivacyAlgrthm=4,
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```
dot11d021XGrpPrivacy=2
[   11.095414] RTW: <=cfg80211_rtw_connect, ret 0
[   11.095518] RTW: rtw_chk_start_clnt_join(wlp3s0) req: 11,0,0
[   11.095522] RTW: rtw_chk_start_clnt_join(wlp3s0) union: 11,0,0
[   11.095529] RTW: rtw_hal_set_bssid wlp3s0- hw port -0 BSSID:
68:a3:78:78:86:f4
[   11.125842] RTW: OnBeacon: beacon keys ready
[   11.125862] RTW: link to new AP
[   11.125884] RTW: start auth
[   11.125892] RTW: issue_auth
[   11.127962] RTW: OnAuthClient
[   11.127965] RTW: auth success, start assoc
[   11.127973] RTW: network.SupportedRates[0]=82
[   11.127974] RTW: network.SupportedRates[1]=84
[   11.127975] RTW: network.SupportedRates[2]=8B
[   11.127976] RTW: network.SupportedRates[3]=96
[   11.127977] RTW: network.SupportedRates[4]=2C
[   11.127978] RTW: network.SupportedRates[5]=0C
[   11.127979] RTW: network.SupportedRates[6]=12
[   11.127980] RTW: network.SupportedRates[7]=18
[   11.127980] RTW: network.SupportedRates[8]=24
[   11.127981] RTW: network.SupportedRates[9]=30
[   11.127982] RTW: network.SupportedRates[10]=48
[   11.127983] RTW: network.SupportedRates[11]=60
[   11.127984] RTW: network.SupportedRates[12]=6C
[   11.127986] RTW: _issue_assocreq(): the rate[4]=2C is not supported by
STA!
[   11.127987] RTW: bssrate_len = 12
[   11.131657] RTW: OnAssocRsp
[   11.131666] RTW: report_join_res(5)
[   11.131669] RTW: rtw_joinbss_update_network
[   11.131674] RTW: +rtw_update_ht_cap()
[   11.131682] RTW: rtw_alloc_macid(wlp3s0) if1, mac_addr:68:a3:78:78:86:f4
macid:0
[   11.131683] RTW: rtw_joinbss_update_stainfo
[   11.131686] RTW: rtw_get_sta_tx_nss: 2 SS
[   11.131687] RTW: rtw_get_sta_rx_nss: 2 SS
[   11.131689] RTW: STA - MAC_ID:0, Tx - 2 SS, Rx - 2 SS
[   11.131690] RTW: STA - MAC_ID:0, SM_PS 3
[   11.131693] RTW: ht_mcs_set=ff ff 00 00, nss=2, bitmap=0000ffff
[   11.131695] RTW: ### Set STA_(0) info ###
[   11.131698] RTW: rtw_cfg80211_indicate_connect(wlp3s0)
[   11.131718] RTW: assoc success
[   11.131755] RTW: HW_VAR_BASIC_RATE: 0x15f->0x15f->0x15f
[   11.131763] RTW: WMM(0): 0, a42b
[   11.131766] RTW: WMM(1): 0, a44f
[   11.131768] RTW: WMM(2): 0, 5e4322
[   11.131771] RTW: rtw_ndev_notifier_call(wlp3s0) state:4
[   11.131772] RTW: WMM(3): 0, 2f3222
[   11.131774] RTW: wmm_para_seq(0): 0
[   11.131775] RTW: wmm_para_seq(1): 1
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[   11.131777] RTW: wmm_para_seq(2): 2
[   11.131778] RTW: wmm_para_seq(3): 3
[   11.131779] RTW: HTOnAssocRsp
[   11.131955] ============ STA [68:a3:78:78:86:f4]  ===================
[   11.131956] mac_id : 0
[   11.131957] wireless_mode : 0x0b
[   11.131958] mimo_type : 2
[   11.131959] bw_mode : 20MHz, ra_bw_mode : 20MHz
[   11.131960] rate_id : 2
[   11.131961] rssi : -1 (%), rssi_level : 0
[   11.131962] is_support_sgi : Y, is_vht_enable : N
[   11.131963] disable_ra : N, disable_pt : N
[   11.131964] is_noisy : N
[   11.131965] txrx_state : 0
[   11.131966] curr_tx_rate : CCK_1M (L)
[   11.131967] curr_tx_bw : 20MHz
[   11.131968] curr_retry_ratio : 0
[   11.131969] ra_mask : 0x000000000fffffff
[   11.131984] RTW: +rtl8192e_set_FwJoinBssReport_cmd(wlp3s0): hw_port=
mstatus(1)
[   11.131992] RTW: HalDownloadRSVDPage(): There is an Adapter is sending
beacon.
[   11.131997] RTW: _rtw_hal_set_fw_rsvd_page PageSize: 256, RsvdPageNUm: 8
[   11.132001] RTW: LocPsPoll: 1
[   11.132002] RTW: LocNullData: 2
[   11.132004] RTW: LocQosNull: 3
[   11.132006] RTW: _rtw_hal_set_fw_rsvd_page PageNum(4), pktlen(1064)
[   11.132014] RTW: _rtw_hal_set_fw_rsvd_page: Set RSVD page location to Fw
,TotalPacketLen(1064), TotalPageNum(4)
[   11.132015] RTW: RsvdPageLoc: ProbeRsp=0 PsPoll=1 Null=2 QoSNull=3
BTNull=0
[   11.132028] RTW: wlp3s0: 1 DL RSVD page success! DLBcnCount:1, poll:2
[   11.132034] RTW: Set RSVD page location to Fw.
[   11.132227] RTW: =>mlmeext_joinbss_event_callback - End to Connection
without 4-way
[   11.132954] RTW: recv eapol packet
[   11.133336] RTW: send eapol packet
[   11.135685] RTW: recv eapol packet
[   11.135841] RTW: send eapol packet
[   11.135907] RTW: cfg80211_rtw_add_key(wlp3s0) adding key for
68:a3:78:78:86:f4
[   11.135909] RTW: cipher=0xfac04
[   11.135910] RTW: key_len=0x10
[   11.135911] RTW: seq_len=0x6
[   11.135912] RTW: key_index=0
[   11.135913] RTW: pairwise=1
[   11.135915] RTW: rtw_cfg80211_set_encryption
[   11.135917] RTW: rtw_cfg80211_set_encryption, : param->u.crypt.set_tx ==1
[   11.135918] RTW:  ~~~~set sta key:unicastkey
[   11.135926] RTW: rtw_cfg80211_set_encryption, ret=0
[   11.135940] RTW: set pairwise key camid:4, addr:68:a3:78:78:86:f4, kid:0,
```

```
type:AES
[   11.135955] RTW: cfg80211_rtw_set_default_key(wlp3s0) key_index=0,
unicast=1, multicast=0
[   11.139543] RTW: recv eapol packet
[   11.139643] RTW: cfg80211_rtw_add_key(wlp3s0) adding key for
(null)
[   11.139644] RTW: cipher=0xfac02
[   11.139645] RTW: key_len=0x20
[   11.139645] RTW: seq_len=0x6
[   11.139646] RTW: key_index=2
[   11.139646] RTW: pairwise=0
[   11.139647] RTW: rtw_cfg80211_set_encryption
[   11.139648] RTW:  ~~~~set sta key:groupkey
[   11.139649] RTW: ==> rtw_set_key algorithm(2),keyid(2),key_mask(0)
[   11.139653] RTW: rtw_cfg80211_set_encryption, ret=0
[   11.139660] RTW: set group key camid:5, addr:68:a3:78:78:86:f4, kid:2,
type:TKIP
[   11.139672] RTW: send eapol packet
[   11.139721] IPv6: ADDRCONF(NETDEV_CHANGE): wlp3s0: link becomes ready
[   11.139741] RTW: rtw_ndev_notifier_call(wlp3s0) state:4
[   11.139802] RTW: cfg80211_rtw_get_txpower
[   11.139931] RTW: cfg80211_rtw_change_station(wlp3s0)
[   11.152102] RTW: rtw_ndev_notifier_call(wlp3s0) state:4
[   11.760769] RTW: hw_rate_to_m_rate(): Non supported Rate [ff]!!!
[   15.512631] Bluetooth: RFCOMM TTY layer initialized
[   15.512638] Bluetooth: RFCOMM socket layer initialized
[   15.512646] Bluetooth: RFCOMM ver 1.11
[   23.856687] RTW: rtw_set_ps_mode(wlp3s0) Enter 802.11 power save - WIFI-
TRAFFIC_IDLE
[   23.856693] RTW: rtl8192e_set_FwPwrMode_cmd: Mode=2 SmartPS=2
[   29.904596] RTW: rtw_set_ps_mode(wlp3s0) Leave 802.11 power save - WIFI-
TRAFFIC_BUSY
[   29.904600] RTW: rtl8192e_set_FwPwrMode_cmd: Mode=0 SmartPS=2
[   33.936609] RTW: rtw_set_ps_mode(wlp3s0) Enter 802.11 power save - WIFI-
TRAFFIC_IDLE
[   33.936616] RTW: rtl8192e_set_FwPwrMode_cmd: Mode=2 SmartPS=2
[   68.208696] RTW: rtw_set_ps_mode(wlp3s0) Leave 802.11 power save - WIFI-
TRAFFIC_BUSY
[   68.208703] RTW: rtl8192e_set_FwPwrMode_cmd: Mode=0 SmartPS=2
[   68.997325] RTW: OnAction_back
[   68.997327] RTW: OnAction_back, action=0
[   68.998756] RTW: issue_addba_rsp_wait_ack(wlp3s0) ra=68:a3:78:78:86:f4
status:=0 tid=0 size:64, acked, 1/3 in 0 ms
[   69.203043] RTW: rtw_issue_addbareq_cmd, p=0
[   69.203059] RTW: BA_starting_seqctrl = 255 for TID=0
[   69.203063] RTW: issue_addba_req(wlp3s0) ra=68:a3:78:78:86:f4 tid=0
[   69.205124] RTW: OnAction_back
[   69.205125] RTW: OnAction_back, action=1
[   69.205126] RTW: agg_enable for TID=0
[   86.340312] RTW: rtw_set_ps_mode(wlp3s0) Enter 802.11 power save - WIFI-
TRAFFIC_IDLE
```

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[   86.340320] RTW: rtl8192e_set_FwPwrMode_cmd: Mode=2 SmartPS=2
```

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