



Installation Guide For Linux Driver



TP-LINK Statement for Linux driver

TP-LINK has released Linux driver for some TP-LINK USB wireless adapters to support Linux system. The driver file has included an installation guide about how to install and use the adapter on Linux OS.

The driver is recommended to be installed on Linux OS which applies the kernel version that we have listed on TP-LINK official website.

Archer_T2U_V1_150901 	Published Date	01/09/15	Language	English	File Size	6.29 MB
	Operating System	Linux (Kernel version 2.6~3.16)				
	Notes	For Archer T2U V1				

Since Linux is developed at an open system with various branches, we cannot guarantee that our driver could work on your Linux system.

Given the specificity of the Linux system, we are very sorry that we cannot provide more guidance on the installation, except the existing one, so we sincerely recommend you to seek instruction on the related forums.

We have updated some FAQs about installing driver, please click this link:

<http://www.tp-link.com/en/faq-1076.html>

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1. Development Environment

System version: Ubuntu 14.04.1
Kernel version: 3.16.0-30-generic
Gcc version: 4.8.2

2. Compile the Driver

Before you compile the driver, please make sure you have the correct compile tool and kernel sources.

We can install compile tool gcc by command “**apt-get install gcc**”

Note : We recommend you use a suitable compile tool to compile our driver.

For example:

```
tplinku@tplinku-Vostro-3900:~$ cat /proc/version
Linux version 3.13.0-35-generic (buildd@roseapple) (gcc version 4.8.2 (Ubuntu 4.8.2-19ubuntu1) ) #62-Ubuntu SMP Fri Aug 15 01:58:01 UTC 2014
tplinku@tplinku-Vostro-3900:~$
```

According to the command “**cat /proc/version**”, we could see your linux system is compiled by gcc4.8.2. So we recommend you use gcc4.8.2 to compile our driver if possible.

To compile the driver:

1. Access the directory of driver.
2. Before compile, make sure the the path in makefile.c is suitable for your compile environment of your Linux system.

```
ifeq ($(WIFI_MODE),)
RT28xx_MODE = STA
else
RT28xx_MODE = $(WIFI_MODE)
endif
ifeq ($(TARGET),)
TARGET = LINUX
endif
```

```
#PLATFORM: Target platform
PLATFORM = PC
```

```
ifeq ($(PLATFORM),PC)
# Linux 2.6
LINUX_SRC = /lib/modules/$(shell uname -r)/build
# Linux 2.4 Change to your local setting
#LINUX_SRC = /usr/src/linux-2.4
LINUX_SRC_MODULE = /lib/modules/$(shell uname -r)/kernel/drivers/net/wireless/
CROSS_COMPILE =
endif
```

3. Type **“sudo make”** to compile the driver file.

[illegible]

3. Load the Driver

- 1) Go to the directory of the original driver file to run the command `sudo bash load.sh`

```
root@tplinku: /home/tplink/Downloads/t2u#  
root@tplinku: /home/tplink/Downloads/t2u#  
root@tplinku: /home/tplink/Downloads/t2u#  
root@tplinku: /home/tplink/Downloads/t2u#  
root@tplinku: /home/tplink/Downloads/t2u#  
root@tplinku: /home/tplink/Downloads/t2u#  
root@tplinku: /home/tplink/Downloads/t2u#  
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root@tplinku: /home/tplink/Downloads/t2u#  
root@tplinku: /home/tplink/Downloads/t2u#  
root@tplinku: /home/tplink/Downloads/t2u#  
root@tplinku: /home/tplink/Downloads/t2u#  
root@tplinku: /home/tplink/Downloads/t2u# sudo bash load.sh  
  
mt7650u_sta_net          40960    0  
mt7650u_sta              905216   1 mt7650u_sta_net  
mt7650u_sta_util         81920    2 mt7650u_sta_net,mt7650u_sta  
root@tplinku: /home/tplink/Downloads/t2u#
```

If it's fail to run the **load.sh**, please type:

```
“rm -rf /etc/Wireless/RT2870STA/”
```



```

"mkdir /etc/Wireless/RT2870STA"
"cp ./MODULE/conf/RT2870STA.dat /etc/Wireless/RT2870STA/RT2870STA.dat"
"chmod 777 -R /etc/Wireless/RT2870STA"
"insmod ./UTIL/os/linux/mt7650u_sta_util.ko"
"insmod ./MODULE/os/linux/mt7650u_sta.ko"
"insmod ./NETIF/os/linux/mt7650u_sta_net.ko"
"lsmod | grep "mt7650""
"ifconfig ra0 up"

```

2) Type **"lsmod"** to check if the driver is successfully loaded.

```

root@tplinku: /home/tplink/Downloads/t2u
mt7650u_sta          905216  1 mt7650u_sta_net
mt7650u_sta_util      81920  2 mt7650u_sta_net,mt7650u_sta
root@tplinku: /home/tplink/Downloads/t2u#
root@tplinku: /home/tplink/Downloads/t2u#
root@tplinku: /home/tplink/Downloads/t2u#
root@tplinku: /home/tplink/Downloads/t2u#
root@tplinku: /home/tplink/Downloads/t2u#
root@tplinku: /home/tplink/Downloads/t2u# lsmod
Module                Size  Used by
mt7650u_sta_net        40960  1
mt7650u_sta            905216  1 mt7650u_sta_net
mt7650u_sta_util        81920  2 mt7650u_sta_net,mt7650u_sta
crs80211               524288  0
rfcomm                 69632  0
bnep                   20480  2
bluetooth              491520  10 bnep,rfcomm
intel_rapl             20480  0
iosf_mbi               16384  1 intel_rapl
x86_pkg_temp_thermal  16384  0
intel_powerclamp       20480  0
coretemp               16384  0
kvm                    479232  0
snd_hda_codec_realtek   81920  1
snd_hda_codec_generic   69632  1 snd_hda_codec_realtek

```

Driver of T2U

If you want to unload the driver, run the following command in the same directory.

```

sudo bash unload.sh

```

4. Join the Wireless Network

4.1.1. Identify the device

After the driver is successfully loaded, insert the USB adapter and type **"lsusb"** to check if the adapter is identified.

```

root@tplinku: /home/tplink/Downloads/t2u# lsusb
Bus 002 Device 007: ID 148f:761a Ralink Technology, Corp.
Bus 002 Device 003: ID 093a:2510 Pixart Imaging, Inc. Optical Mouse
Bus 002 Device 002: ID 8087:0024 Intel Corp. Integrated Rate Matching Hub
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 001 Device 002: ID 8087:0024 Intel Corp. Integrated Rate Matching Hub
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub

```

4.1.2. Create the interface

Type **"ifconfig -a"** to check if the wireless network interface is created.



4.1.3. Change the interface status to up

Check if the WLAN interface is up. If not, type “**ifconfig ra0 up**”.

4.1.4. Scan AP and see results

Run the following command to scan the signals.

```
sudo iwpriv ra0 set SiteSurvey=1
sudo iwpriv ra0 get_site_survey
```

```
tplinku@tplinku-Vostro-3900:~/Downloads/t2u$ sudo iwpriv ra0 set SiteSurvey=1
tplinku@tplinku-Vostro-3900:~/Downloads/t2u$ sudo iwpriv ra0 get_site_survey
ra0 get_site_survey:
Ch  SSID                                BSSID                                Security                            Signal(%)W-Mode  ExtCH  NT
1   WWW                                64:66:b3:93:b4:87                    WPA2PSK/AES                        100          11b/g/n  ABOVE  In
1   hello                             10:fe:ed:e9:71:76                    WPA1PSKWPA2PSK/TKIPAES            100          11b/g/n  ABOVE  In
11  TP-LINK_41B1                         e8:de:27:d3:41:b1                    WPA2PSK/AES                        100          11b/g/n  NONE   In
1   TP-LINK_wpa281                      f8:d1:11:a5:2e:a2                    WPA1PSKWPA2PSK/TKIPAES            78           11b/g/n  ABOVE  In
3   ssid1                              c4:e9:84:59:4b:59                    WPA1PSKWPA2PSK/TKIPAES            100          11b/g/n  NONE   In
3   ssid2                              06:e9:84:59:4b:59                    WPA1PSKWPA2PSK/TKIPAES            100          11b/g/n  NONE   In
3   ssid3                              16:e9:84:59:4b:59                    WPA1PSKWPA2PSK/TKIPAES            44           11b/g/n  NONE   In
4   TP-LINK_C2_2.4G                     c4:6e:1f:73:19:04                    WPA2PSK/AES                        94           11b/g/n  ABOVE  In
5   TP-LINK_AP_1234                     f4:f2:6d:8c:8a:76                    NONE                                100          11b/g/n  BELOW  In
5   TP-LINK_93C170                      64:66:b3:93:c1:70                    WPA1PSKWPA2PSK/TKIPAES            100          11b/g/n  BELOW  In
5   TP-LINK_EDD15E                      64:70:02:ed:d1:5e                    WPA1PSKWPA2PSK/TKIPAES            89           11b/g/n  BELOW  In
5   TP-LINK_2.4GHz_A2EB4B               f8:1a:67:a2:eb:4b                    WPA1PSKWPA2PSK/AES                100          11b/g/n  NONE   In
5   TP-LINK_130969                      00:0a:eb:13:09:69                    NONE                                100          11b/g/n  ABOVE  In
5   123                                c4:e9:84:77:cf:56                    WPA2PSK/AES                        100          11b/g/n  BELOW  In
5   Cathy                              60:e3:27:29:d9:0e                    WPA2PSK/AES                        89           11b/g/n  NONE   In
5   AP_vlan1                           e8:94:f6:79:b1:e0                    WPA1PSKWPA2PSK/AES                100          11b/g/n  ABOVE  In
7   AP_vlan2                           6e:66:b3:64:20:e6                    NONE                                100          11b/g/n  BELOW  In
7   AP_vlan3                           62:66:b3:64:20:e6                    NONE                                100          11b/g/n  BELOW  In
9   TP-LINK_2408                        60:e3:27:58:24:08                    WPA2PSK/AES                        86           11b/g/n  BELOW  In
10  TP-LINK_3592                         c4:e9:84:9b:35:92                    WPA2PSK/AES                        89           11b/g/n  BELOW  In
11  666                                60:e3:27:f1:7a:c5                    WPA2PSK/AES                        99           11b/g/n  NONE   In
11  xiaozhu                             60:e3:27:3b:f5:ad                    WPA2PSK/AES                        100          11b/g/n  NONE   In
11  AP500                               f4:f2:6d:6a:b2:4d                    WPA2PSK/AES                        100          11b/g/n  BELOW  In
11  TP-LINK_AAF8                         c0:4a:00:0a:aa:f8                    WPA1PSKWPA2PSK/AES                96           11b/g/n  NONE   In
11  IPcameraTest2.4                     e8:de:27:70:15:55                    WPA1PSKWPA2PSK/TKIPAES            100          11b/g/n  NONE   In
```

4.1.5. AP Connect to the AP

- 1) Config STA to link with AP which is WPA2PSK/AES(Authentication/Encryption)

```
iwpriv ra0 set NetworkType=Infra
iwpriv ra0 set AuthMode=WPA2PSK
iwpriv ra0 set EncrypType=AES
iwpriv ra0 set SSID="AP's SSID"
iwpriv ra0 set WPAPSK="AP's wpa-preshared key"
iwpriv ra0 set SSID="AP's SSID"
```

Take SSID “IpcameraTest2.4” as an example:

```
tplinku@tplinku-Vostro-3900:~/Downloads/t2u$ sudo iwpriv ra0 set NetworkType=Infra
tplinku@tplinku-Vostro-3900:~/Downloads/t2u$ sudo iwpriv ra0 set AuthMode=WPA2PSK2
tplinku@tplinku-Vostro-3900:~/Downloads/t2u$ sudo iwpriv ra0 set EncrypType=AES
tplinku@tplinku-Vostro-3900:~/Downloads/t2u$ sudo iwpriv ra0 set SSID="IPcameraTest2.4"
tplinku@tplinku-Vostro-3900:~/Downloads/t2u$ sudo iwpriv ra0 set WPAPSK="12345678"
tplinku@tplinku-Vostro-3900:~/Downloads/t2u$ sudo iwpriv ra0 set SSID="IPcameraTest2.4"
tplinku@tplinku-Vostro-3900:~/Downloads/t2u$
```

- 2) Config STA to link with AP which is OPEN/NONE(Authentication/Encryption)

```
iwpriv ra0 set NetworkType=Infra
iwpriv ra0 set AuthMode=OPEN
iwpriv ra0 set EncrypType=NONE
iwpriv ra0 set SSID="AP's SSID"
```

- 3) Config STA to link with AP which is SHARED/WEP(Authentication/Encryption)

```
iwpriv ra0 set NetworkType=Infra
iwpriv ra0 set AuthMode=SHARED
iwpriv ra0 set EncrypType=WEP
iwpriv ra0 set DefaultKeyID=1
iwpriv ra0 set Key1="AP's wep key"
iwpriv ra0 set SSID="AP's SSID"
```

- 4) Config STA to link with AP which is WPAPSK/TKIP(Authentication/Encryption)

```
iwpriv ra0 set NetworkType=Infra
iwpriv ra0 set AuthMode=WPAPSK
iwpriv ra0 set EncrypType=TKIP
iwpriv ra0 set SSID="AP's SSID"
iwpriv ra0 set WPAPSK="AP's wpa-preshared key"
iwpriv ra0 set SSID="AP's SSID"
```

- 5) Config STA to link with AP which is WPAPSK/AES(Authentication/Encryption)

```
iwpriv ra0 set NetworkType=Infra
iwpriv ra0 set AuthMode=WPAPSK
iwpriv ra0 set EncrypType=AES
iwpriv ra0 set SSID="AP's SSID"
iwpriv ra0 set WPAPSK="AP's wpa-preshared key"
iwpriv ra0 set SSID="AP's SSID"
```

- 6) Config STA to link with AP which is WPA2PSK/TKIP(Authentication/Encryption)

```
iwpriv ra0 set NetworkType=Infra
iwpriv ra0 set AuthMode=WPA2PSK
iwpriv ra0 set EncrypType=TKIP
iwpriv ra0 set SSID="AP's SSID"
iwpriv ra0 set WPAPSK=12345678
iwpriv ra0 set SSID="AP's SSID"
```


Note: if you want to establish a 11AC connection, type “iwpriv ra0 set WirelessMode=14” or “iwpriv ra0 set WirelessMode=15” before type “iwpriv ra0 set SSID=“AP's SSID””.

4.1.6. Enable DHCP client

- 1) Type “iwconfig ra0” to check if your AP is connected successfully.

```
root@tplinku:/home/tplink/Downloads/t2u# iwconfig ra0
ra0    RateLink STA   ESSID: IPCameraTest5   Nickname: M170100_STA
Mode:Managed  Frequency=5.765 GHz  Access Point: E8:DE:27:70:15:54
Bit Rate=135 Mb/s
RTS thr:off   Fragment thr:off
Encryption key:0AFF-9D56-5FFF-46EE-DBF4-8DA0-D55F-ED36   Security mode
open
Link Quality=96/100  Signal level:-48 dBm  Noise level:-59 dBm
Rx invalid nwid:0  Rx invalid crypt:0  Rx invalid frag:0
Tx excessive retries:0  Invalid misc:0  Missed beacon:0
```

- 2) Type “dhclient ra0” to get an IP address.

After running the command, the adapter will get an IP assigned by the AP. Then you can run the ping command to check if the wireless connection is successful.

```
tplink@tplink-Inspiron-N4010:~/driver$ ifconfig
lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:295 errors:0 dropped:0 overruns:0 frame:0
          TX packets:295 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:22543 (22.5 KB)  TX bytes:22543 (22.5 KB)

wlan1     Link encap:Ethernet  HWaddr c4:e9:84:1f:df:3c
          inet addr:192.168.1.102  Bcast:192.168.1.255  Mask:255.255.255.0
          inet6 addr: fe80::c6e9:84ff:fe1f:df3c/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:16 errors:0 dropped:699 overruns:0 frame:0
          TX packets:66 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:2068 (2.0 KB)  TX bytes:11368 (11.3 KB)

tplink@tplink-Inspiron-N4010:~/driver$ ping 192.168.1.1
PING 192.168.1.1 (192.168.1.1) 56(84) bytes of data:
64 bytes from 192.168.1.1: icmp_seq=1 ttl=254 time=11.8 ms
64 bytes from 192.168.1.1: icmp_seq=2 ttl=254 time=7.05 ms
64 bytes from 192.168.1.1: icmp_seq=3 ttl=254 time=1.97 ms
^C
--- 192.168.1.1 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2003ms
rtt min/avg/max/mdev = 1.971/6.968/11.882/4.046 ms
tplink@tplink-Inspiron-N4010:~/driver$ route
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
default         192.168.1.1    0.0.0.0         UG    0     0        0 wlan1
192.168.1.0     *              255.255.255.0   U     0     0        0 wlan1
```

Note: Run the commands under the root account.