

## How to use RAK2247 on your X86 Linux PC

In order to use RAK2247 as a concentrator module and turn your x86 machine into a LoRaWAN Gateway you need the following:

RAK2247 LoRa Gateway Concentrator Module  
mPCIe to USB board

1. Insert the RAK2247 mPCIe board into the USB carrier board and into a free USB port (refer to the Figure below). Your Linux should pick it up as an USB device.



Figure 1 | RAK2247 with the mPCIe board

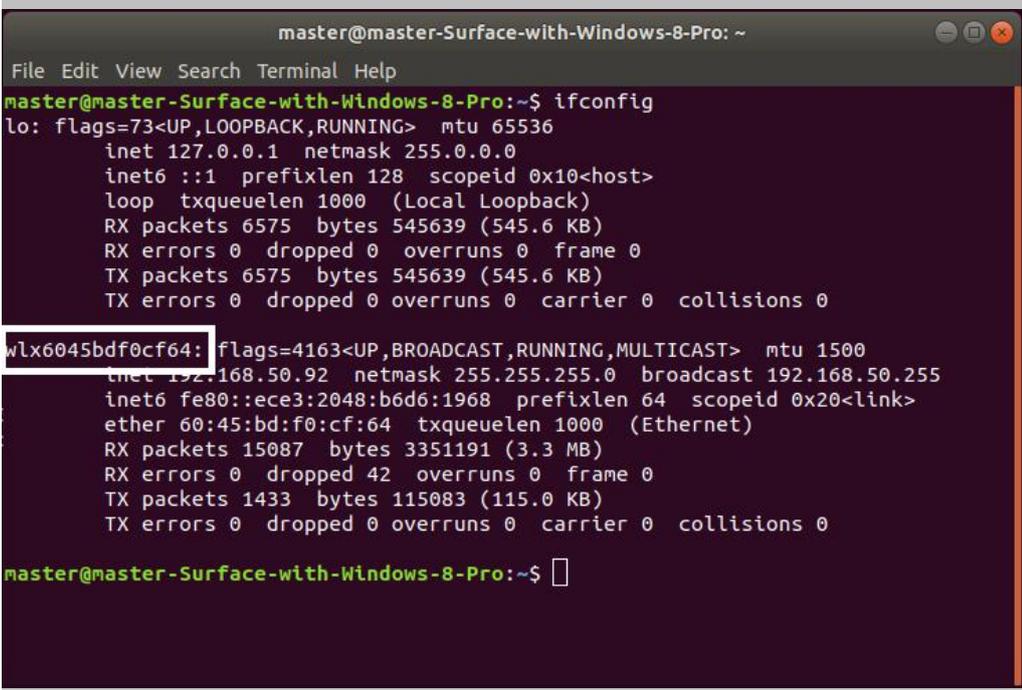
2. Open a command line and enter the command below in order to clone the Github repository that is required for the process to be completed:

```
git clone https://github.com/RAKWireless/rak_common_for_gateway.git
```

3. Get the name of the interface you are using to connect to the internet by using the command:

```
ifconfig
```

In the example in Figure 2 this is the name of the wireless interface “wlx6045bdf0cf64”.



```

master@master-Surface-with-Windows-8-Pro: ~
File Edit View Search Terminal Help
master@master-Surface-with-Windows-8-Pro:~$ ifconfig
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 6575 bytes 545639 (545.6 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 6575 bytes 545639 (545.6 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

wlx6045bdf0cf64: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.50.92 netmask 255.255.255.0 broadcast 192.168.50.255
    inet6 fe80::ece3:2048:b6d6:1968 prefixlen 64 scopeid 0x20<link>
    ether 60:45:bd:f0:cf:64 txqueuelen 1000 (Ethernet)
    RX packets 15087 bytes 3351191 (3.3 MB)
    RX errors 0 dropped 42 overruns 0 frame 0
    TX packets 1433 bytes 115083 (115.0 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

master@master-Surface-with-Windows-8-Pro:~$

```

Figure 2 | Network interface name

```
cd rak_common_for_gateway/lora/rak2247
```

4. You need to insert the nae you got in the previous step for your interface in the following files:

```

rak_common_for_gateway/lora/rak2247/install.sh
rak_common_for_gateway/lora/set_eui.sh
rak_common_for_gateway/lora/update_gwid.sh

```

You need to replace the following line:

```
GATEWAY_EUI_NIC="eth0"
```

With the line

```
GATEWAY_EUI_NIC="wlx6045bdf0cf64h0"
```

Again, the values are just an example. Remember to do this for all 3 files in step 4.

5. Add the following lines of code to the end of the install.sh file (in addition to the inserting the name of the interface from the previous step)

```
cp ../set_eui.sh packet_forwarder/lora_pkt_fwd/  
cp ../update_gwid.sh packet_forwarder/lora_pkt_fwd/  
cp ../start.sh packet_forwarder/lora_pkt_fwd/
```

```
mkdir -p /opt/ttn-gateway/  
cp -rf packet_forwarder/opt/ttn-gateway/
```

Note: If you want the packet forwarder to start on boot, you need to also add the lines below:

```
cp ../ttn-gateway.service/lib/systemd/system/  
systemctl enable ttn-gateway.service
```

6. Save the “install.sh” file and execute it in order to install:

```
sudo ./install.sh
```

7. Wait for the installation to complete.  
Using the commands below go and run the newly created process (lora\_pkt\_fwd):

```
cd /opt/ttn-gateway/packet_forwarder/lora_pkt_fwd  
sudo ./lora_pkt_fwd
```

Note: If you added the additional lines in step 5 it will execute every time on boot.

8. The regional parameter configuration for all the supported regions are located in the folder </opt/packet\_forwarder/lora\_pkt\_fwd/global\_conf>. In case you need to adjust the region frequency band for example, do so before running the process (EU868 is the default).
9. You should now see your Gateway in TTN.