YPLam (/)   ☰

Configuring 6lbr for Ubuntu and SensorTag CC2650

This post show you how to configure Ubuntu as 6LoWPAN router and bridge 6LoWPAN devices to the IPv4/IPv6 Internet.

Slip-radio

Because I do not have a CC2531 Dongle around, I use a SensorTag CC2650 with DevPack as Slip-radio.

First, change dir to contiki/examples/ipv6/slip-radio, run command:

```
make TARGET=srf06-cc26xx BOARD=sensortag/cc2650
```

Then flash slip-radio.bin to SensorTag using uniflash.

You need to validate that slip radio is running:

```
sudo minicom -s
```

Config minicom to use /dev/ttyACM0 with 115200 8N1. Your will see message like this after resetting SensorTag:

```
Starting Contiki-3.x-2102-g9f1376d
With DriverLib v0.44336
TI CC2650 SensorTag
 Net: slipnet
 MAC: nullmac
 RDC: ContikiMAC, Channel Check Interval: 16 ticks
 RF: Channel 25
Slip Radio started...
```

1) Edge Router

Follow the instructions on the following link to compile and install the 6lbr router:
https://github.com/cetic/6lbr/wiki/Other-Linux-Software-Configuration (https://github.com/cetic/6lbr/wiki/Other-Linux-Software-Configuration)

Edit /etc/6lbr/6lbr.conf as follow:

```
MODE=ROUTER
RAW_ETH=0
DEV_TAP=tap0

BRIDGE=1
CREATE_BRIDGE=6LBR
DEV_BRIDGE=eth0
ETH_JOIN_BRIDGE=0

DEV_RADIO=/dev/ttyACM0
BAUDRATE=115200
```

More about configure options: https://github.com/cetic/6lbr/wiki/6LBR-Configuration-file (https://github.com/cetic/6lbr/wiki/6LBR-Configuration-file)
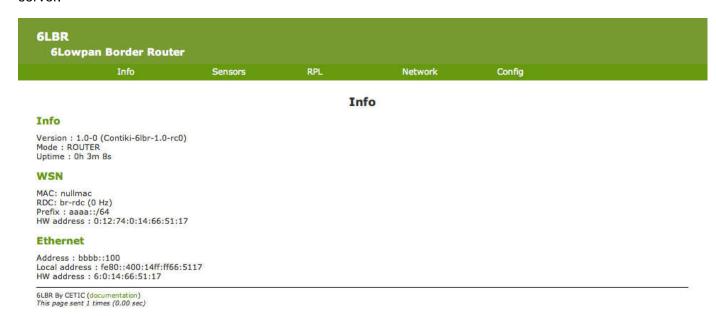
Start 6lbr:

```
sudo service 6lbr start
```

Config 6LBR to access WSN network:

```
sudo route -A inet6 add aaaa::/64 gw bbbb::100
```

Now open http://[bbbb::100] (http://[bbbb::100]/) in your browser and you can access the embedded web server.

2) Use Smart Bridge to access localhost MQTT Server

Edit /etc/6lbr/6lbr.conf as follow:

```
MODE=ROUTER
RAW_ETH=0
DEV_TAP=tap0

BRIDGE=1
CREATE_BRIDGE=6LBR
DEV_BRIDGE=eth0
ETH_JOIN_BRIDGE=0

DEV_RADIO=/dev/ttyACM0
BAUDRATE=115200
```

Add /etc/6lbr/ifup.d/60dev

```bash
#!/bin/bash
. $CETIC_6LBR_CONF
. $1/6lbr-functions
config_default
MODE_6LBR=$2
DEV=$3
OS=`uname`

ip -6 address add 2001:db8:2::2/64 dev tap0
sysctl -w net.ipv4.conf.all.forwarding=1
sysctl -w net.ipv6.conf.all.forwarding=1
```

Add /etc/6lbr/ifdown.d/60dev

```bash
#!/bin/bash
. $CETIC_6LBR_CONF
. $1/6lbr-functions
config_default
MODE_6LBR=$2
DEV=$3
OS=`uname`
sysctl -w net.ipv4.conf.all.forwarding=0
sysctl -w net.ipv6.conf.all.forwarding=0
```

You also need to run:

```
chmod +x /etc/6lbr/ifup.d/60dev
chmod +x /etc/6lbr/ifdown.d/60dev
```

Install and configure radvd:

```
interface tap0
{
    AdvSendAdvert on;
    AdvManagedFlag off;      #stateless autoconfiguration
    AdvOtherConfigFlag on;   #clients get extra parameters via DHCPv6
    MaxRtrAdvInterval 10;    #resend RA @ random times, max 10sec delay
    prefix 2001:db8:2::/64   #announce prefix to clients
    {
        AdvOnLink on;
        AdvAutonomous on;
        AdvRouterAddr on;
    };
    RDNSS 2001:db8:2::2
    {
    };
};
```

Start 6lbr and radvd, you can access router machine var 2001:db8:2::2 from a WSN node. And your WSN node will get an ipv6 address like 2001:db8:2:****:****:****:****:**** from radvd.

3) MQTT over IPV4 WAN

I only have IPV4 WAN access, and have a mosquitto server running on my Linode server. So I need a NAT64 tool to bridge ipv6 to ipv4 network.

After trying jool with no luck, I decided to use 6tunnel to forward ipv6 traffic.

```
sudo apt-get install 6tunnel
6tunnel -6 1883 your.mqtt.server.ip 1883
```

That's all!

See also:

http://processors.wiki.ti.com/index.php/Contiki-6LOWPAN-BBB
(http://processors.wiki.ti.com/index.php/Contiki-6LOWPAN-BBB)

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santhosh govindaraj · 9 days ago

Hi my SensorTag as slip radio doesn't Power on or led doesn't light. I'm able to access the 6lbr webpage.
Is this correct? But my SensorTag is not detected in the sensors tab.

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