

# Robotics Computation Lab

TurtleBot Fleet - see [Turtlebot List](#)

## Desktops

Hostname	Wired Static IP	Wired MAC	Coconut Wireless IP	Wireless MAC
poke.ern.nps.edu	172.20.88.137	18:03:73:21:e1:1d	192.168.11.100	9c:ef:d5:ff:63:e1
pipikaula.ern.nps.edu	172.20.88.138	18:03:73:28:e6:e0	192.168.11.101	9c:ef:d5:ff:4c:33
musubi.ern.nps.edu	172.20.88.139	18:03:73:21:e2:99	192.168.11.102	9c:ef:d5:ff:50:7b
laulau.ern.nps.edu	172.20.88.140	18:03:73:25:d9:46	192.168.11.103	9c:ef:d5:ff:5a:23

## Minibox Car PCs

### Desktops

Hostname	Wired Static IP	Wired MAC	Coconut Wireless IP	Wireless MAC
<a href="#">poke.ern.nps.edu</a>	172.20.88.137	18:03:73:21:e1:1d	192.168.11.100	9c:ef:d5:ff:63:e1
<a href="#">pipikaula.ern.nps.edu</a>	172.20.88.138	18:03:73:28:e6:e0	192.168.11.101	9c:ef:d5:ff:4c:33
<a href="#">musubi.ern.nps.edu</a>	172.20.88.139	18:03:73:21:e2:99	192.168.11.102	9c:ef:d5:ff:50:7b
<a href="#">laulau.ern.nps.edu</a>	172.20.88.140	18:03:73:25:d9:46	192.168.11.103	9c:ef:d5:ff:5a:23

## Shuttle PCs

Hostname	Wired IP	Wired MAC (eth0)	Wired MAC (eth1)	Coconut Wireless IP	Wireless MAC
shuttle0	n/a	80:ee:73:7c:85:d4	80:ee:73:7c:85:d5	192.168.11.50	9c:ef:d5:ff:4c:d7
shuttle1		80:ee:73:7c:86:80	80:ee:73:7c:86:81	192.168.11.51	9c:ef:d5:ff:47:42
shuttle2		80:ee:73:63:f9:6c	80:ee:73:63:f9:6c	192.168.11.52	9c:ef:d5:ff:4b:dd
shuttle3		80:ee:73:63:f7:dc	80:ee:73:63:f7:dd	192.168.11.53	9c:ef:d5:ff:4c:f7
shuttle4		80:ee:73:63:f7:46	80:ee:73:63:f7:47	192.168.11.54	9c:ef:d5:ff:61:91

## Thinkpad Fleet

Hostname	Wired MAC (eth0)	Wireless MAC (wlan0)	Coconut IP	NPS ID	Current User	Student's Faculty Adviser	Status	Expected Return Date	Date, Location
ama	c8:5b:76:c7:fa:ef	34:F3:9A:A3:11:FF	192.168.11.79	6227130888	Bingham		Ubuntu16		
awa	c8:5b:76:c7:fe:1d	34:F3:9A:A3:13:8F	192.168.11.71	6227130884	Ben Hogin	Bingham	Ubuntu16	Jun 2020	06/18/19, WA215
oio	c8 5b b7 c7 f4 23	34:F3:9A:A3:12:EF	192.168.11.78	6227130886	Bingham		Ubuntu16		
moa	C8 5b 76 c7 f1 a6	34:F3:9A:FC:54:90	192.168.11.77	6227130889	Chris Price	Hooper	Ubuntu16	30 Mar 2020	06/18/19, WA215
kupipi	C8 5b 76 c7 fc 1a	34:F3:9A:A3:12:2C	192.168.11.75	6227130883	Bingham		Ubuntu16		06/18/19, WA215
mamo	c8:5b:76:d3:39:7f	F4:8C:50:52:71:0A	192.168.11.80	6227130903	Bingham				06/18/19, WA215
kihikihi	C8 5b 76 d3 42 c9	F4:8C:50:52:72:7C	192.168.11.73	6227130902	Cash	Horner	Ubuntu16	30 Nov 2018	
awela	C8 5b 76 c7 fd 18	34:F3:9A:A3:12:72	192.168.11.72	6227130890	Marcea Ascencio	Bingham	Ubuntu16	Jun 2020	06/18/19, WA215
hinalea	c8 5b 76 d3 30 2f	F4:8C:50:52:6F:F2	192.168.11.81	6227130901	Bingham		Ubuntu16		06/18/19, WA215
lauhau	C8 5b 76 c7 fa fa	34:F3:9A:A3:12:18	192.168.11.82	6227130888	Bingham		Ubuntu16		

taape	C8 5b 76 d3 3b a6	F4:8C:50:52:73:D0	192.168.11.83		Bingham		Ubuntu16		06/18/19, WA215
api	c8 5b 76 bd 85 27	34:F3:9A:D3:C7:2D	192.168.11.70	62271308 92	Marcea Ascencio	Bingham	Ubuntu16	Jun 2020	06/18/19, WA215
kala	C8 5b 76 c7 ff 2f	34:F3:9A:A3:13:2B	192.168.11.84	62271309 00	Rick McClain	Bingham	Ubuntu16	Dec 2019	
pualu	i8 5b 76 c7 fb 02	34:F3:9A:A3:12:59	192.168.11.1 14	62271308 98	Andi Rascon	Bingham	Ubuntu16	Sep 2020	06/18/19, WA215
kole	C8 5b 76 d3 30 26	F4:8C:50:52:71:28	192.168.11.74	62271308 85	Lee Van Houtte				
manini	C8 5b 76 c7 ef 6e	34:F3:9A:A3:13:94	192.168.11.76	62271308 91	Ben Hogin	Bingham	Ubuntu16	Jun 2020	06/18/19, WA215
ehu	50:7b:9d:c6:70:cc	10:02:b5:c3:df:16	192.168.11.1 11		Bingham				06/18/19, WA215 Nick's old machine
haupia				62271288 54	Bingham		Ubuntu16		06/18/19, WA215 JoWen's old machine
pahu	ec:f4:bb:23:83:71	80:00:0b:82:c8:6e		62271259 11	Bingham			18 December 2017	Dell
nunu	34:e6:d7:0e:5b:af	80:00:0b:82:c9:45		62271258 95	Bingham			18 December 2017	Dell
loulu	34:e6:d7:10:ec:44	80:00:0b:82:e3:b2		62271258 98	Bingham			18 December 2017	Dell
oilipa	34:e6:d7:10:ef:40	80:00:0b:82:c9:f9		62271259 08	Bingham			18 December 2017	Dell
uhu	ec:f4:bb:38:d9:14	c4:d9:87:dc:89:67		62271P07 83	Bingham			18 December 2017	Dell
auweke	34:e6:d7:10:f0:5d	80:00:0b:82:ba:ae		62271259 01	Bingham			18 December 2017	Dell
malolo	34:e6:d7:77:be:6c	80:00:0b:aa:68:1a		62271264 24	Bingham			18 December 2017	Dell
puhi	34:e6:d7:29:2f:2a	80:00:0b:76:20:28		62271261 24	Justin Komma	Josep Virgili-Llop		18 December 2017	Dell

## Network Configuration: Simultaneous Wired and Wireless

It is convenient to have the computer you are working on connected to both the NPS wired network (for the internet, reading this wiki, etc.) and the lab's wireless network (SSID Coconut\_2\_4). The lab desktops are configured to operate on both networks, but if you are bringing another machine (e.g., your laptop) you'll need to configure it.


### NPS Wired Network

To access the NPS wired network you need to have register the MAC address of your wired network card: [MAC Authentication for Wired Network Devices Request](#) Once this is complete you should be able to connect with an Ethernet cable. You can determine what IP address has been assigned to you with the "ifconfig" command..

```
bsb@poke: ~  
File Edit View Search Terminal Help  
bsb@poke:~$ ifconfig  
eth0      Link encap:Ethernet  HWaddr 18:03:73:21:e1:1d  
          inet addr:172.20.88.137  Bcast:172.20.91.255  Mask:255.255.252.0  
          inet6 addr: fe80::1a03:73ff:fe21:e11d/64 Scope:Link  
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1  
          RX packets:5387472 errors:0 dropped:24 overruns:0 frame:0  
          TX packets:648307 errors:0 dropped:0 overruns:0 carrier:0  
          collisions:0 txqueuelen:1000  
          RX bytes:2053237513 (2.0 GB)  TX bytes:89903644 (89.9 MB)  
          Interrupt:17  
  
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:10581 errors:0 dropped:0 overruns:0 frame:0  
          TX packets:10581 errors:0 dropped:0 overruns:0 carrier:0  
          collisions:0 txqueuelen:0  
          RX bytes:1162264 (1.1 MB)  TX bytes:1162264 (1.1 MB)  
  
wlan0     Link encap:Ethernet  HWaddr 9c:ef:d5:ff:63:e1  
          inet6 addr: fe80::9eef:d5ff:feff:63e1/64 Scope:Link  
          UP BROADCAST MULTICAST  MTU:1500  Metric:1  
          RX packets:554 errors:0 dropped:0 overruns:0 frame:0  
          TX packets:65 errors:0 dropped:0 overruns:0 carrier:0  
          collisions:0 txqueuelen:1000  
          RX bytes:74406 (74.4 KB)  TX bytes:13071 (13.0 KB)
```

The entry for "eth0" corresponds to the wired network adapter and indicates that we have been assigned 172.20.88.137. We can also see that the MAC address for the wired interface is "HWaddr 18:03:73:21:e1:1d"

## Coconut Wireless Network

Next you will want to connect to the wireless network with SSID Coconut\_2\_4. To find it you use the network manager in the upper right hand corner of the desktop - the icon looks like this 

You should see an entry for "Coconut\_2\_4". The access password is our standard lab password.

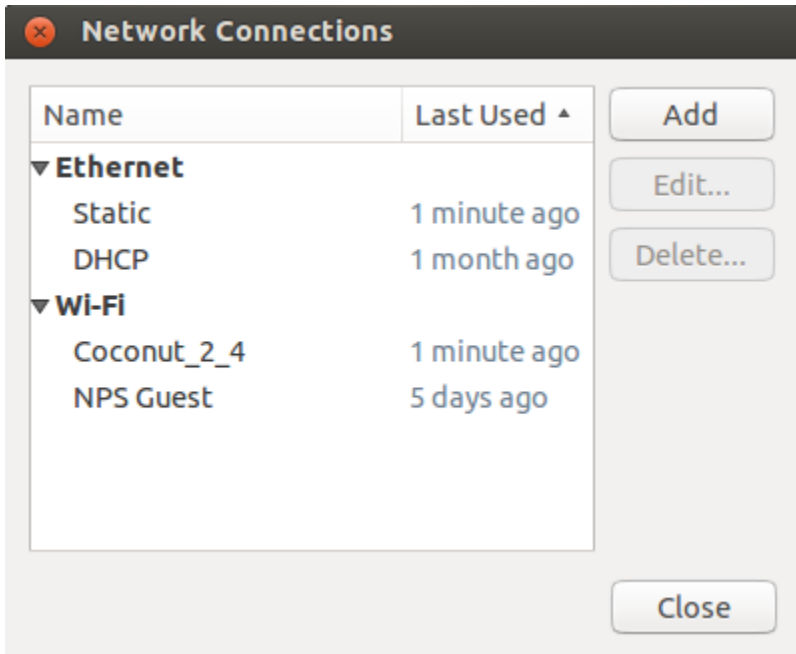
Once connected, using the ifconfig command you should see that you have another IP address on the wireless network.

```
bsb@poke: ~  
File Edit View Search Terminal Help  
  
bsb@poke:~$ ifconfig  
eth0      Link encap:Ethernet  HWaddr 18:03:73:21:e1:1d  
          inet addr:172.20.88.137  Bcast:172.20.91.255  Mask:255.255.252.0  
          inet6 addr: fe80::1a03:73ff:fe21:e11d/64 Scope:Link  
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1  
          RX packets:5405493 errors:0 dropped:24 overruns:0 frame:0  
          TX packets:652574 errors:0 dropped:0 overruns:0 carrier:0  
          collisions:0 txqueuelen:1000  
          RX bytes:2061045276 (2.0 GB)  TX bytes:90886749 (90.8 MB)  
          Interrupt:17  
  
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:10839 errors:0 dropped:0 overruns:0 frame:0  
          TX packets:10839 errors:0 dropped:0 overruns:0 carrier:0  
          collisions:0 txqueuelen:0  
          RX bytes:1185919 (1.1 MB)  TX bytes:1185919 (1.1 MB)  
  
wlan0     Link encap:Ethernet  HWaddr 9c:ef:d5:ff:63:e1  
          inet addr:192.168.11.100  Bcast:192.168.11.255  Mask:255.255.255.0  
          inet6 addr: fe80::9eef:d5ff:feff:63e1/64 Scope:Link  
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1  
          RX packets:666 errors:0 dropped:0 overruns:0 frame:0  
          TX packets:222 errors:0 dropped:0 overruns:0 carrier:0  
          collisions:0 txqueuelen:1000  
          RX bytes:95837 (95.8 KB)  TX bytes:37370 (37.3 KB)
```

In this case we see that the "wlan0" interface - the wireless interface - is assigned the IP address 192.168.11.100. For the lab computers we have configured the wireless router so that it assigns the same IP address to the computer each time it connects. This is convenient since you don't have to determine, and remember a new IP address each time.

Next we need to tell the network manager to route all of the traffic except that on the local subnet (192.168.11.xxx) through the wired interface.

Click on the network manager again and select "Edit Connections..." at the bottom of the menu. This should bring up a window like this...



Select the Coconut\_2\_4 entry and then the "Edit..." button. You should see a window like this...

**Editing Coconut\_2\_4**

Connection name:

General **Wi-Fi** Wi-Fi Security IPv4 Settings IPv6 Settings

SSID:

Mode:

BSSID:

Device MAC address:

Cloned MAC address:

MTU:  - + bytes

Now in the "IPv4 Setting" tab click on the "Routes..." button. Then check the box "Use this connection only for resources on its network". This will make sure that only the traffic on the 192.168.11.X subnet will go through the wireless connection, and the rest of the traffic will be routed through the wired connection.

**Editing IPv4 routes for Coconut\_2\_4**

Address	Netmask	Gateway	Metric
<input type="text"/>			

Ignore automatically obtained routes

**Use this connection only for resources on its network**

Now do the same thing for the "IPv6 Setting" tab - i.e., click on the Routes... button, check the Use this connection only... box, etc.

Click the "Save" button and exit.

## Shuttle PCs

Hostname	Wired Static IP	Wired MAC (eth0)	Wired MAC (eth1)	Coconut Wireless IP	Wireless MAC
shuttle0	n/a	80:ee:73:7c:85:d4	80:ee:73:7c:85:d5	192.168.11.50	9c:ef:d5:ff:4c:d7
shuttle1	172.20.89.104	80:ee:73:7c:86:80	80:ee:73:7c:86:81	192.168.11.51	9c:ef:d5:ff:47:42
shuttle2	172.20.90.176	80:ee:73:63:f9:6c	80:ee:73:63:f9:6c	192.168.11.52	9c:ef:d5:ff:4b:dd
shuttle3	172.20.89.76	80:ee:73:63:f7:dc	80:ee:73:63:f7:dd	192.168.11.53	9c:ef:d5:ff:4c:f7
shuttle4	172.20.90.155	80:ee:73:63:f7:46	80:ee:73:63:f7:47	192.168.11.54	9c:ef:d5:ff:61:91

## Thinkpad Fleet

Hostname	Wired MAC (eth0)	NPS ID	Current User	Note
ama	c8:5b:76:c7:fa:ef			
awa	c8:5b:76:c7:fe:1d	6227130884	S. Ghosh	
oio	c8 5b b7 c7 f4 23			
moa	C8 5b 76 c7 f1 a6			
kupipi	C8 5b 76 c7 fc 1a	6227130883	D. A. Backer	
mamo	c8:5b:76:d3:39:7f			
kihikihi	C8 5b 76 d3 42 c9			
awela	C8 5b 76 c7 fd 18	6227130891	N. Pandya	
hinalea	c8 5b 76 d3 30 2f			
lauhau	C8 5b 76 c7 fa fa	6227130892	Ang Wee Kiong	
taape	C8 5b 76 d3 3b a6	6227130898	A. Roush	
api	c8 5b 76 bd 85 27			
kala	C8 5b 76 c7 ff 2f			
pualu	C8 5b 76 c7 fb 02	6227130890	Benjamin Toh	
kole	C8 5b 76 d3 30 26			
manini	C8 5b 76 c7 ef 6e	6227130887	Alexander Miyakawa (OLD: Leon Tan)	
pahu	00:21:70:F9:50:29			Dell

## Car PCs

Hostname	eth0	eth1			
mb0	40:8d:5c:b0:57:be	40:8d:5c:b0:57:bc			

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          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:5387472 errors:0 dropped:24 overruns:0 frame:0
          TX packets:648307 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:2053237513 (2.0 GB)  TX bytes:89903644 (89.9 MB)
          Interrupt:17


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:10581 errors:0 dropped:0 overruns:0 frame:0
          TX packets:10581 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:1162264 (1.1 MB)  TX bytes:1162264 (1.1 MB)

wlan0     Link encap:Ethernet  HWaddr 9c:ef:d5:ff:63:e1
          inet6 addr: fe80::9eef:d5ff:feff:63e1/64 Scope:Link
          UP BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:554 errors:0 dropped:0 overruns:0 frame:0
          TX packets:65 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:74406 (74.4 KB)  TX bytes:13071 (13.0 KB)
```

The entry for "eth0" corresponds to the wired network adapter and indicates that we have been assigned 172.20.88.137. We can also see that the MAC address for the wired interface is "HWaddr 18:03:73:21:e1:1d"

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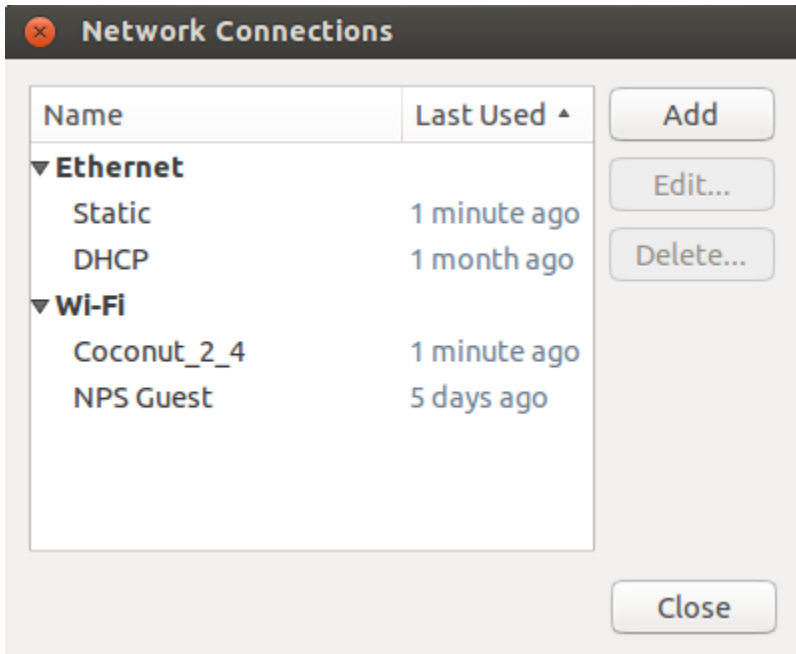
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          collisions:0 txqueuelen:1000  
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          Interrupt:17  
  
lo        Link encap:Local Loopback  
          inet addr:127.0.0.1  Mask:255.0.0.0  
          inet6 addr: ::1/128 Scope:Host  
          UP LOOPBACK RUNNING  MTU:65536  Metric:1  
          RX packets:10839 errors:0 dropped:0 overruns:0 frame:0  
          TX packets:10839 errors:0 dropped:0 overruns:0 carrier:0  
          collisions:0 txqueuelen:0  
          RX bytes:1185919 (1.1 MB)  TX bytes:1185919 (1.1 MB)  
  
wlan0     Link encap:Ethernet  HWaddr 9c:ef:d5:ff:63:e1  
          inet addr:192.168.11.100  Bcast:192.168.11.255  Mask:255.255.255.0  
          inet6 addr: fe80::9eef:d5ff:feff:63e1/64 Scope:Link  
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1  
          RX packets:666 errors:0 dropped:0 overruns:0 frame:0  
          TX packets:222 errors:0 dropped:0 overruns:0 carrier:0  
          collisions:0 txqueuelen:1000  
          RX bytes:95837 (95.8 KB)  TX bytes:37370 (37.3 KB)
```

In this case we see that the "wlan0" interface - the wireless interface - is assigned the IP address 192.168.11.100. For the lab computers we have configured the wireless router so that it assigns the same IP address to the computer each time it connects. This is convenient since you don't have to determine, and remember a new IP address each time.

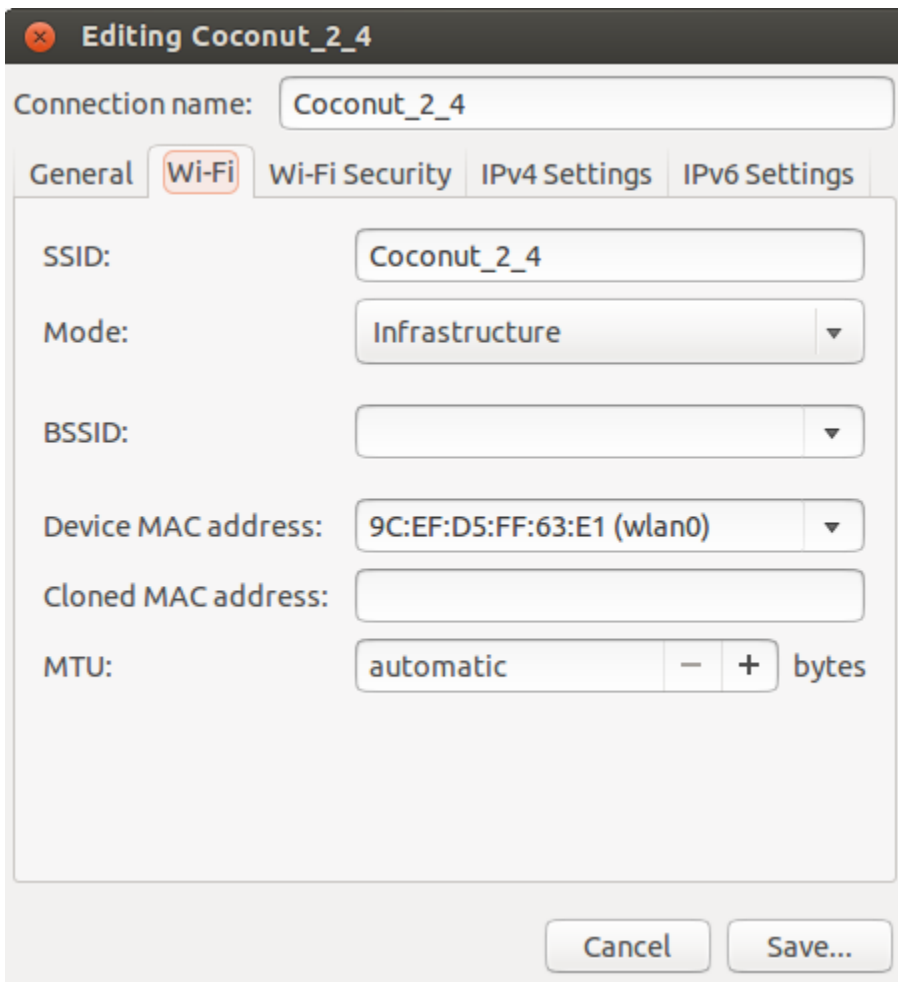
Next we need to tell the network manager to route all of the traffic except that on the local subnet (192.168.11.xxx) through the wired interface.

Click on the network manager again and select "Edit Connections..." at the bottom of the menu. This should bring up a window like this...

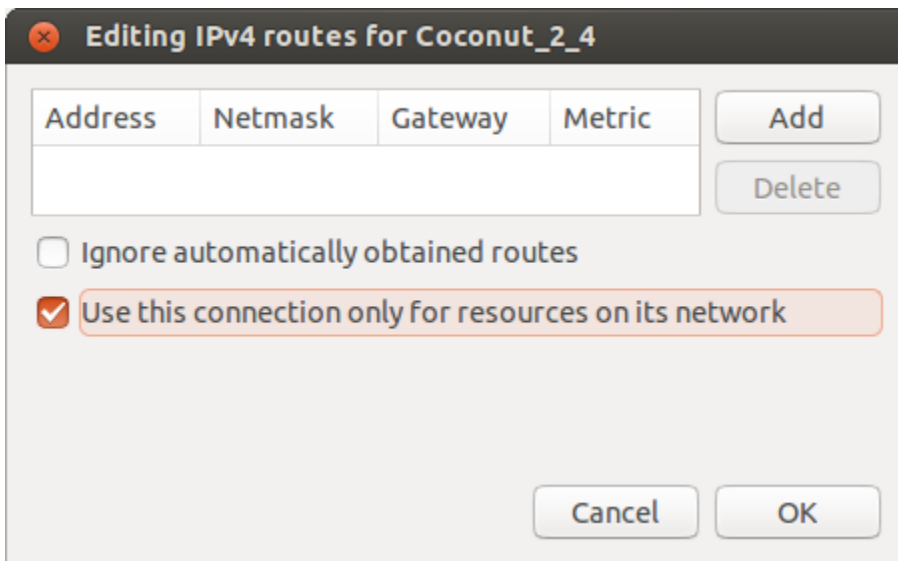


Select the Coconut\_2\_4 entry and then the "Edit..." button. You should see a window like this...





Now in the "IPv4 Setting" tab click on the "Routes..." button. Then check the box "Use this connection only for resources on its network". This will make sure that only the traffic on the 192.168.11.X subnet will go through the wireless connection, and the rest of the traffic will be routed through the wired connection.



Now do the same thing for the "IPv6 Setting" tab - i.e., click on the Routes... button, check the Use this connection only... box, etc.

Click the "Save" button and exit.

