NETGEAR Nighthawk (R7000) Router Setup Guide For AR-Drone Use (Single Drone)

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0 Introduction

AR-Drones have their own internal routers. In order to send commands to an AR-Drone (eg. via ROS) you will need to connect your computer to the drone's wifi network. If your comupter does not have a wireless card installed you can use and external wirless router to connect to the drone's wireless network by making the router "Bridge" the connection.

In the robotics room at MSL we use the NetGear Nighthawk (R7000), and thus this setup will guide you through configuring this specific router.

This guide was mostly taken from:
https://kb.netgear.com/24105/What-is-bridge-mode-and-how-do-I-set-it-up-on-my-Nighthawk-router

Note:
There is a separate guide available for configuring your router and drones to use multiple drones. That guide will also work for a single drone, but is more complicated. This over-complication is not needed if you only intend to use a single drone.

1 Pre-Setup

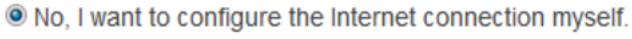
1. Connect the NetGear router to power and an ethernet cable from the PC to one of the numbered ports (not the internet port) on the back of the router.

1.1 Reset NetGear router to factory defaults

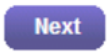
1. Take a thin screwdriver or anything else and press the "reset" button on the back of the router, untill the lights turn off except for 2 lights (approx. 7 seconds)
2. Wait for the router to restart itself and the power light appears white.

2 Router Configuration

2.1 Enter router configuration via web browser

1. Open your favorite web browser.
   (a) If you opened Google Chrome or Microsoft Edge re-evaluate your life, close the browser, and open a nice, open-source, web browser.
2. Make sure your proxy settings are off!
3. Go to http://www.routerlogin.net/
4. After the router finished searching for stuff, choose:
   

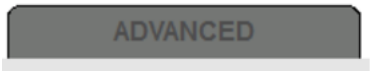
and:



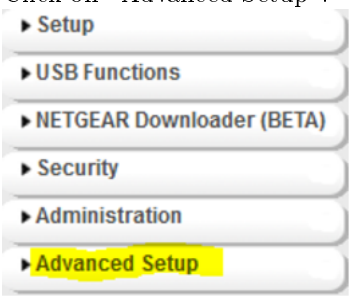
5. Default Username: admin
   Default Password: password

2.2 Configure Bridge Settings

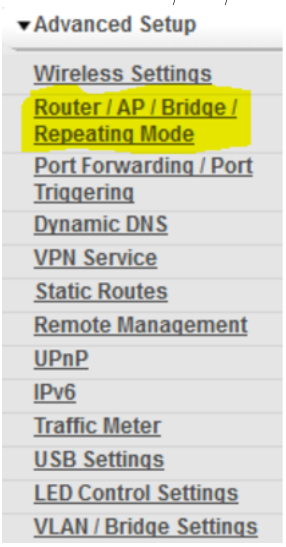
1. Go to the "ADVANCED" tab:



2. Click on "Advanced Setup":

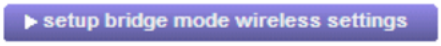


3. Go to "Router/AP/Bridge/Repeating Mode":



4. Choose "Bridge Mode":

(a) Click "setup bridge mode wireless settings":



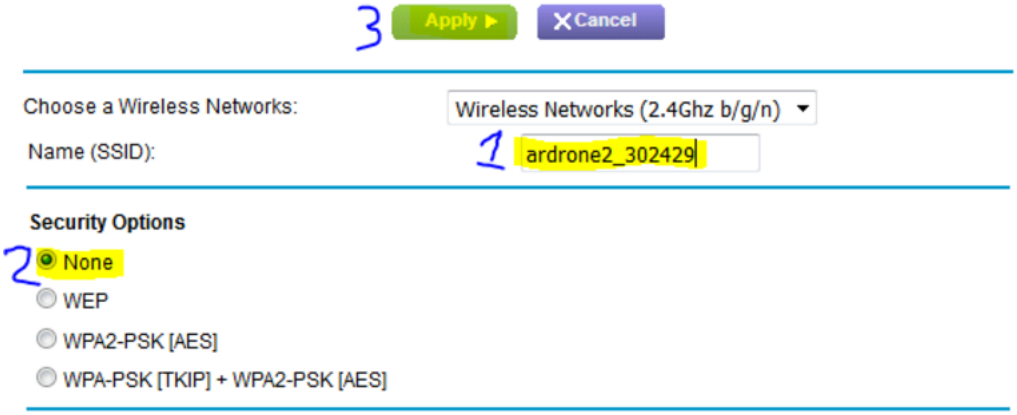
i. Leave "Choose a Wireless Networks" as "Wireless Networks (2.4Ghz b/g/n)"

ii. Change "Name (SSID)" to the drone's wireless network name. (To check this you can check which wifi networks your phone can find. Ofcourse the drone needs to be on for this to work.)

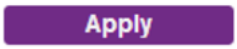
A. An AR-Drone2's SSID is of the form "ardrone2_######", i.e. "ardrone2_302429"

iii. Change "Security Options" is to "None"

iv. Click "Apply"



(b) Click "Apply" on the original window:



3 Congratulations!

Everything should be working now! To check:

1. Turn on drone:
   (a) Connect battery to drone, leave it on the ground, and wait for it to calibrate and all lights to turn green
2. Your computer should now connect to the drone's wifi and your drone should be able to get commands from ROS.

(a) If you run into problems try restarting the network. On Ubuntu run from terminal:

```
sudo service network-manager restart
```

3. Program to your hearts content!