QUANSER
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Knowledge Base

Quanser AVRS: How to Setup Fixed IP Addresses

What this document covers

Using the QDrone *hostname* can be problematic on some networks. If the QDrone cannot be pinged or QUARC models cannot be downloaded to the QDrone using the *hostname* then you can use the fixed IP address instead.

This document cover the following:

- Summary of how the AVRS devices are configured on the network.
- How to get the IP address of the QDrone from the hostname
- How to configure fixed IP addresses for the Quanser QDrones in the Autonomous Vehicle Research Studio (AVRS).

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Setting Up Fixed IP Addresses for the QDrones

AVRS Network Configuration

The Autonomous Vehicles Research Studio comes with a NETGEAR R7000 - Nighthawk AC1900 high performance router. The QDrone systems are pre-configured to automatically connect to *Quanser_UVS-5G* Wi-Fi and the Qbot to the *Quanser_UVS* Wi-Fi.

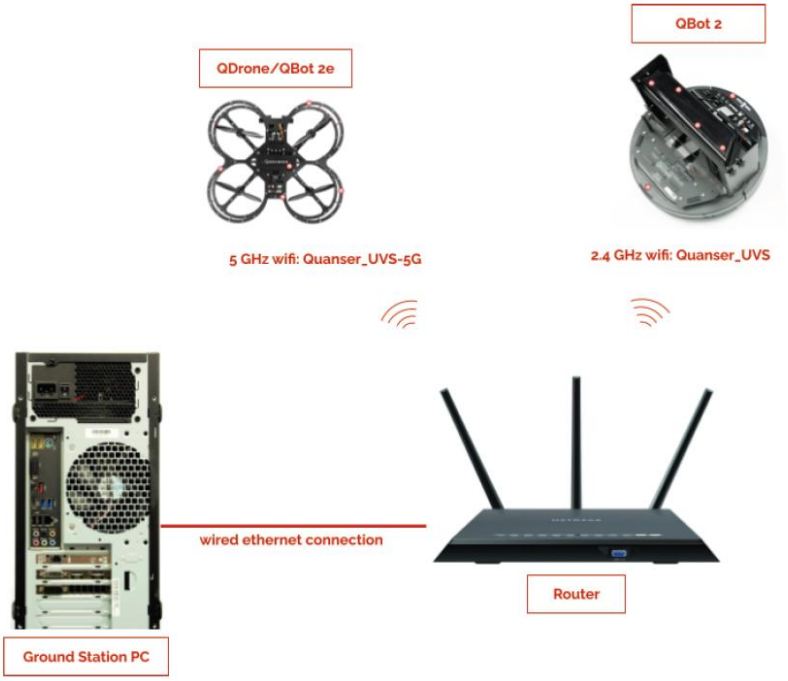


Figure 1: AVRS Network Configuration

The ground control station PC is pre-configured to 192.168.2.5 and the router is setup for 192.168.2.1.

QDrone 1's are each assigned a *hostname* prior to shipment. The *hostname* is shown next to the battery compartment on the bottom plate.

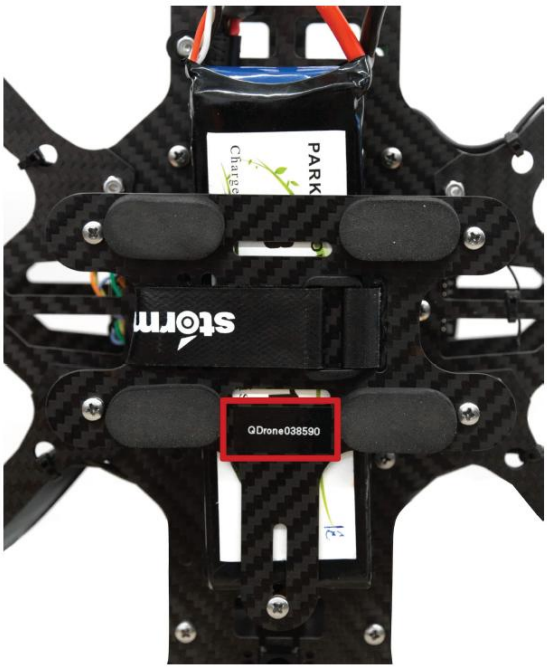


Figure 2: QDrone hostname is on the battery compartment

For QDrone 2, it should automatically connect to the provided router and show its IP once it is connected on the LCD on the main board.

Testing the QDrone 1 Communication

Power ON the QDrone and test the communication by typing the following command in a windows command prompt (open start menu and type cmd):

```
ping QDrone0XXXXX.local
```

where QDrone0xxxxx represents the *hostname* of the QDrone. If the ping fails, then there may be an issue with the *hostname* lookup. This could be due to an issue with the Bonjour application.

Testing the QDrone 2 Communication

Power ON the QDrone and test the communication by typing the following command in a windows command prompt (open start menu and type cmd):

```
ping 192.168.2.x
```

where 192.168.2.x represents the IP of the QDrone, it should appear in the LCD on the drone itself.

An alternative way of checking connectivity between the QDrone 1 and the router is to use its IPv4 address. The IP address assigned can be found by connecting to the router.

1. Launch a web browser from a device that is connected to your router's network (for example the ground station PC).
2. Enter http://192.168.2.1 in the address bar.
3. Router login credentials are as follows:

   ```
   Username: admin

   Password: Quanser_123
   ```

4. That opens the screen in Figure 3. Click on attached devices.

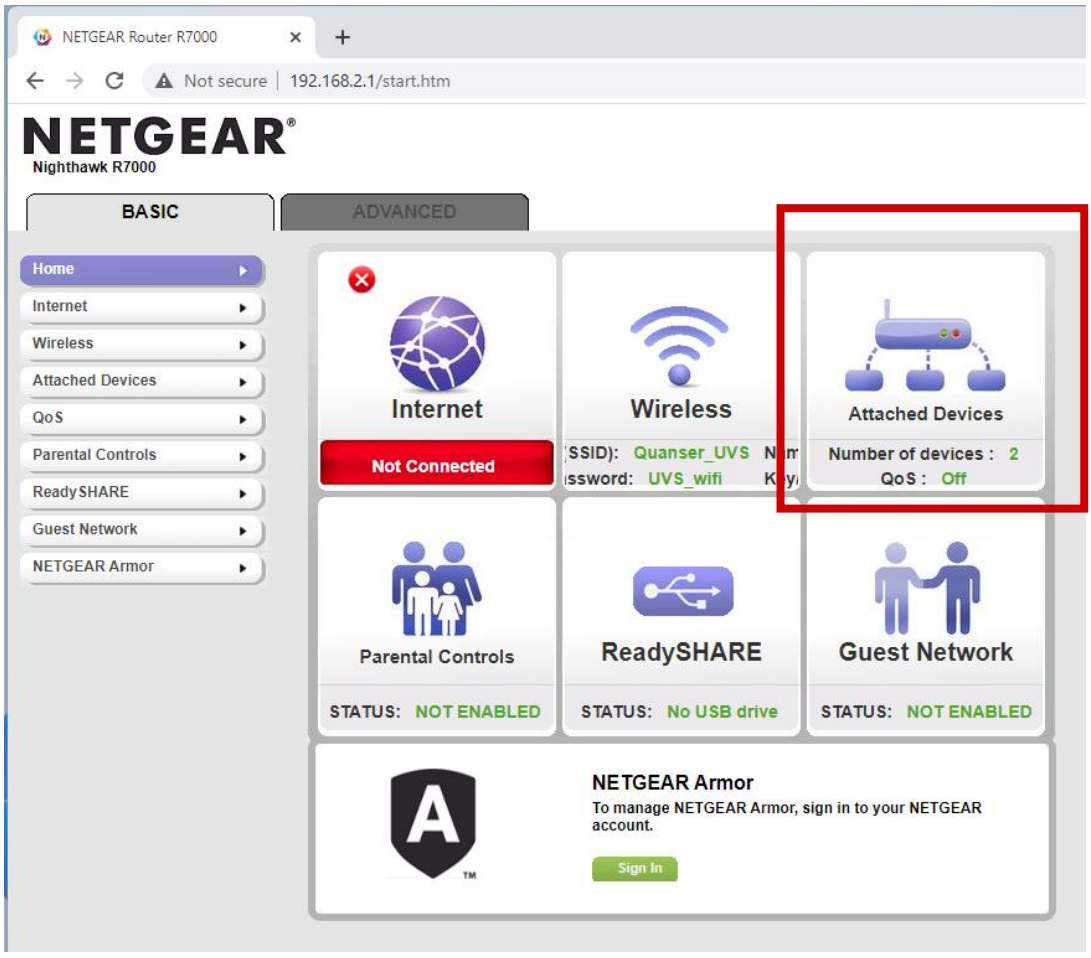


Figure 3. Main screen after router login.

5. You should see a list of anything connected to that network as showin in figure 4. Find your QDrone, if it is a QDrone 1, it will appear as QDrone0xxxxx and have an the IPv4 next to it. If it is a QDrone 2, it should show the same IP as the LCD. It should have the following structure '192.168.2.x'.

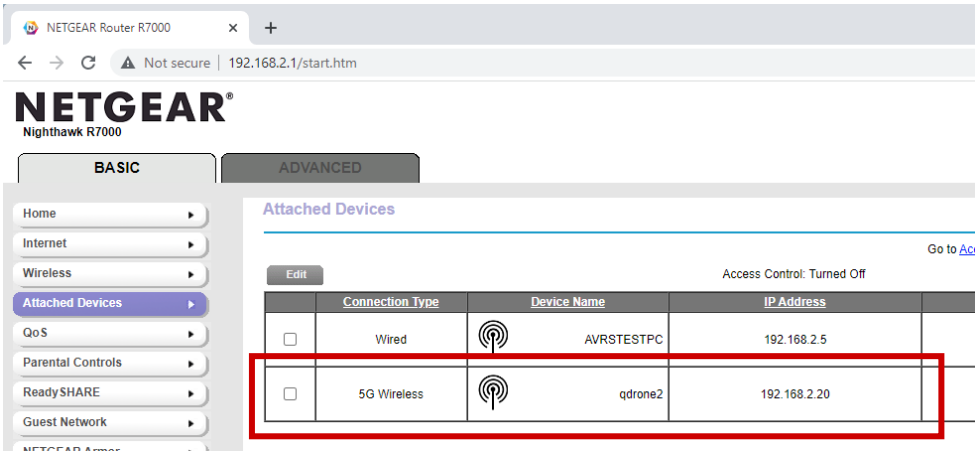


Figure 4. Finding the drone in the router's attached devices.

6. Go back to a command prompt and type the following command:

```
ping 192.168.2.X
```

where 192.168.2.x represents the QDrone IPv4 address and make sure there is a reply from the drone.

Setting a Fixed IP Address to a QDrone

1. The QDrone 1/2 do not have a preset IPv4 (the Qbot 2 and Qbot 2e have a fixed IP). To set a fixed IP address go to the *Advanced tab > Setup > LAN Setup* and click on the **Add** button at the bottom of the page, as shown in figure 5.

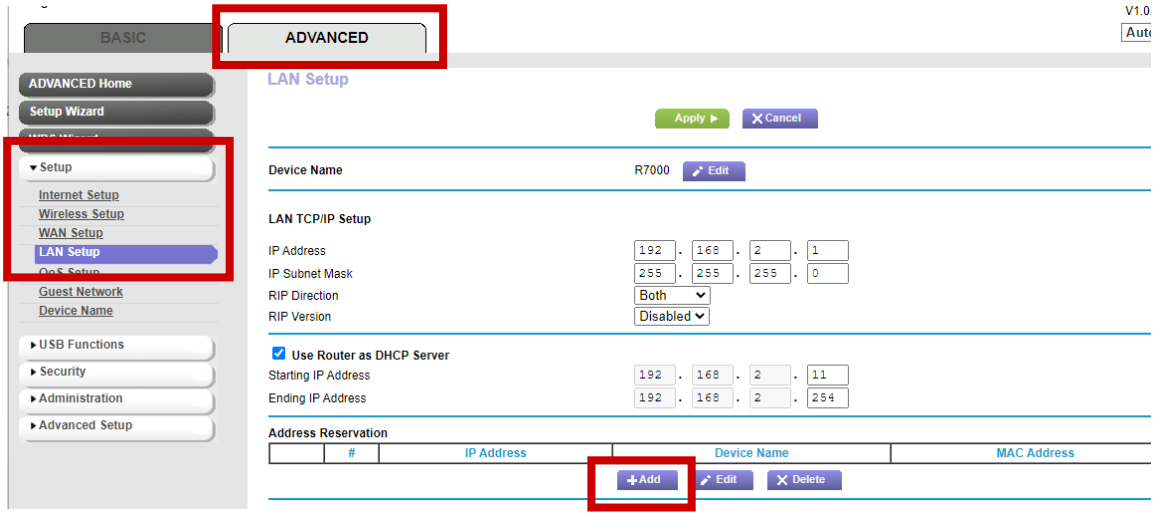
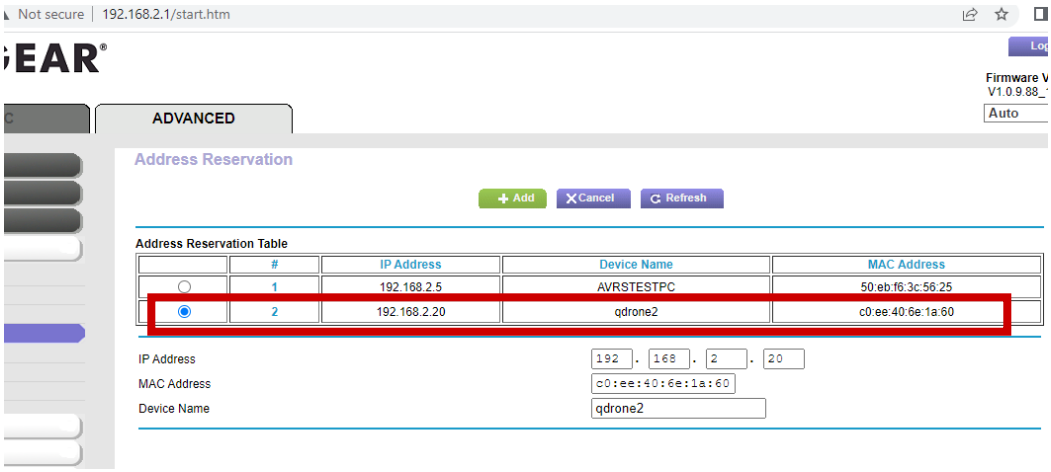


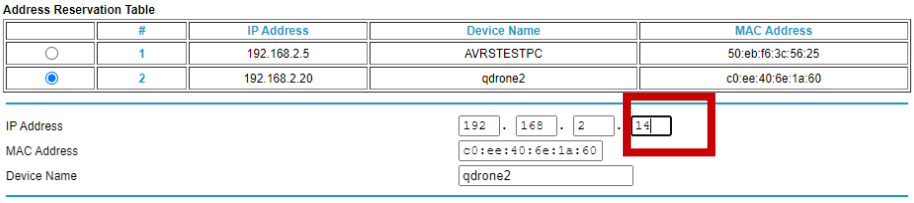
Figure 5. Finding the Address reservation table to set a fixed IP.

2. Select the qdrone device in the *Address Reservation* table, as shown in Figure 6a. To change the IP address, go to the the *IP Address* box below and change the last digit to the IP address (keeping the 192.168.2 the same). For example, as shown in figure 6b, instead of using **192.168.2.20**, you can choose another IP address between 192.168.2.11 and 192.168.2.254, for example **192.168.2.14**.

3. Click the green **Add** button above the *Address Reservation* table.



(a)



(b)

Figure 6. Finding the Address reservation table to set a fixed IP.

4. The *Address Reservation* table should show the qdrone with the new IP address, as illustrated in figure 7. Click on the green **Apply** button to commit the changes.

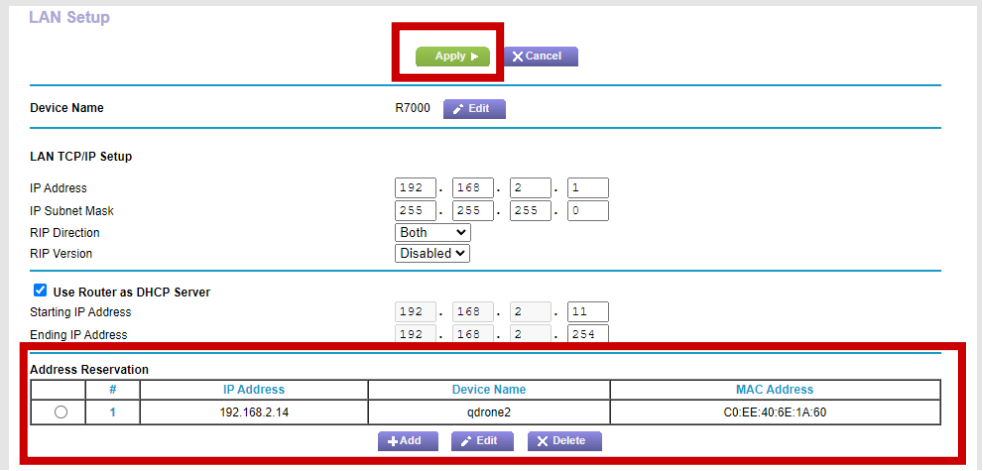


Figure 7. Setting a Fixed IP for the Drone.

5. Once the setting are updated, the QDrone will now have that fixed IP.

6. Turn the QDrone on and off to make sure the settings are properly applied. It is recommended to label the QDrone with the IP address, e.g., next to the hostname or on top of the frame.

Quanser Inc.
119 Spy Court
Markham, Ontario
L3R 5H6
Canada

info@quanser.com
Phone: 19059403575
Fax: 19059403576
Printed in Markham, Ontario.

For more information on the solutions Quanser Inc. offers, please visit the web site at:
http://www.quanser.com