



# Optimal Setup Guide:

## AP Wireless Unit for Nacsport Video Analysis

This guide provides the full procedure for optimising your pre-configured **AP Wireless** unit to deliver a stable, low-latency Wi-Fi link for Nacsport video and data sharing in high-traffic environments.

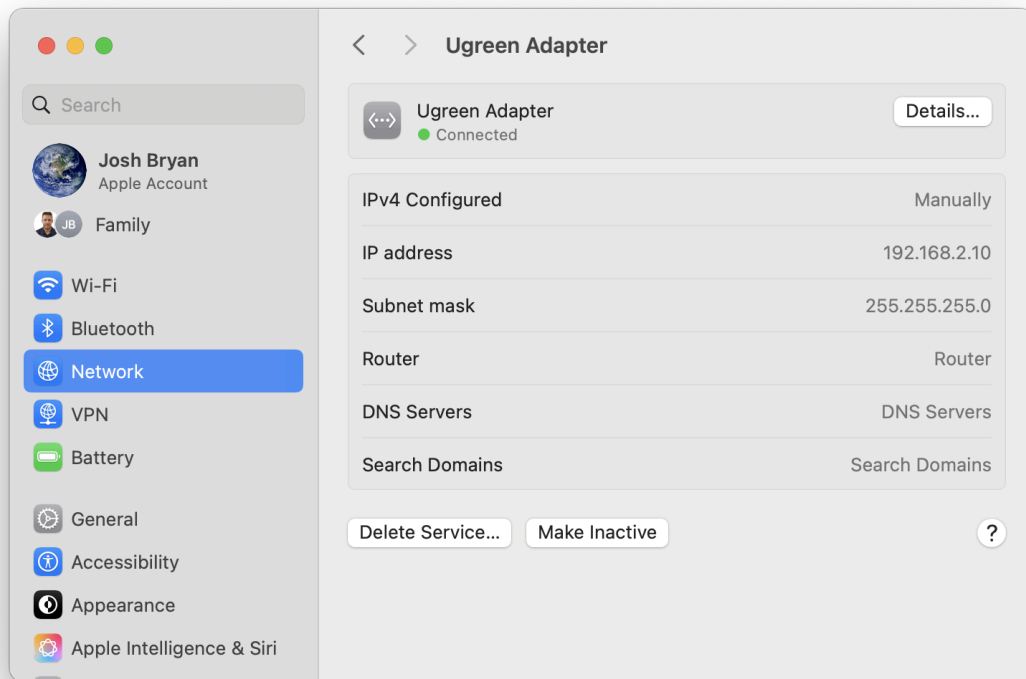
### Part 1: Pre-Configured Base Setup

Your **AP Wireless** unit is set up as a high-performance network bridge with fixed IP addresses.

Component	Fixed IP Address	Role in Network
AP Wireless Unit	192.168.2.20	Network Bridge
Analysis Computer	192.168.2.10 (Manual)	Ethernet Link (Video/Data Source)
iPad	192.168.2.11 (Manual)	Wi-Fi Link (Video Receiver)

### Step 1: Physical Setup & Initial Connection

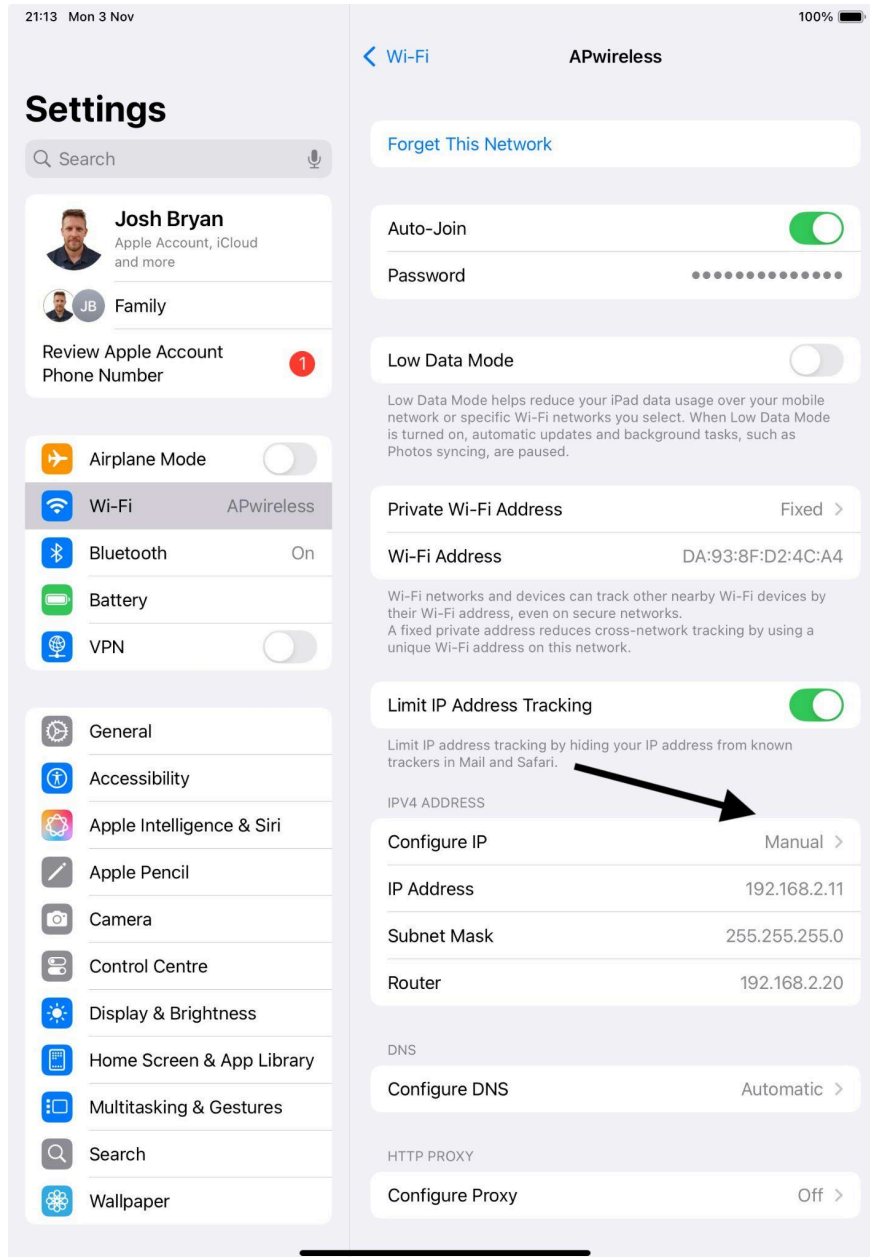
- Mount:** Place the **AP Wireless** unit on the supplied tripod, ensuring a **clear line of sight** between the unit and the typical iPad location.
- Connect Computer:** Connect your computer to the PoE injector's **LAN port** via Ethernet cable.
- Computer IP Check (CRITICAL STEP):** Verify your computer's Ethernet adapter is configured **Manually** with:
  - IP Address:** 192.168.2.10
  - Router/Gateway: LEAVE BLANK.** This setting tells your computer to use the Ethernet connection *only* for local traffic (Nacsport) and to use an active Wi-Fi connection for all internet access.



4. **Confirm computer connection to AP Wireless:** Open a web browser, navigate to the **AP Wireless** unit's IP (192.168.2.20) and login (ubnt - analysispro123). If you can login, your computer is connected to AP Wireless via ethernet.

## Step 2: Connecting the iPad

1. **Connect:** On the iPad, connect to the **AP Wireless** Wi-Fi network.
2. **Configure Static IP:** Manually configure the iPad's Wi-Fi settings (tap the **i** next to the network) with the following values:
  - **IP Address:** 192.168.2.11 (make sure the last number is different to other devices in your network, .10 and .20 are already used)
  - **Subnet Mask:** 255.255.255.0
  - **Router:** 192.168.2.20
  - *This connection setup should be saved on your iPad, so you only have to enter these manual settings initially.*



[Further Resources on our Knowledge Base Here](#)

## Part 2: Venue-Specific Optimisations

### (If struggling to connect the iPad to the network)

#### Step 1: Adjusting ACK Timing (Distance)

The **AP Wireless** unit's ACK Timing (**Distance** in the **ADVANCED** tab) has been set to the minimum of **0.1 miles (0.2 km)** for the lowest latency possible.

If you are deploying the unit for a connection **longer than 0.1 miles (approx. 160 meters)**, you must increase this setting:

1. Log into the **AP Wireless** unit (192.168.2.20).
2. Go to the **ADVANCED** tab.
3. Manually set the **Distance** value (e.g., set to 0.5 miles for a 0.5 mile connection).
4. Click **Change** and **Apply**.

The screenshot shows the 'Advanced Wireless Settings' page in the airOS interface. The 'Distance' field is highlighted with a black arrow, indicating the current setting of 0.1 miles (0.2 km). The page includes tabs for MAIN, WIRELESS, NETWORK, ADVANCED, SERVICES, and SYSTEM. The ADVANCED tab is selected, showing settings for RTS Threshold, Distance, Aggregation, Multicast Data, Multicast Enhancement, Installer EIRP Control, Extra Reporting, Client Isolation, Sensitivity Threshold, Advanced Ethernet Settings, and Signal LED Thresholds. A 'Change' button is at the bottom right.

5.

#### Step 2: Finding the Clearest Channel (Venue-Specific Scan)

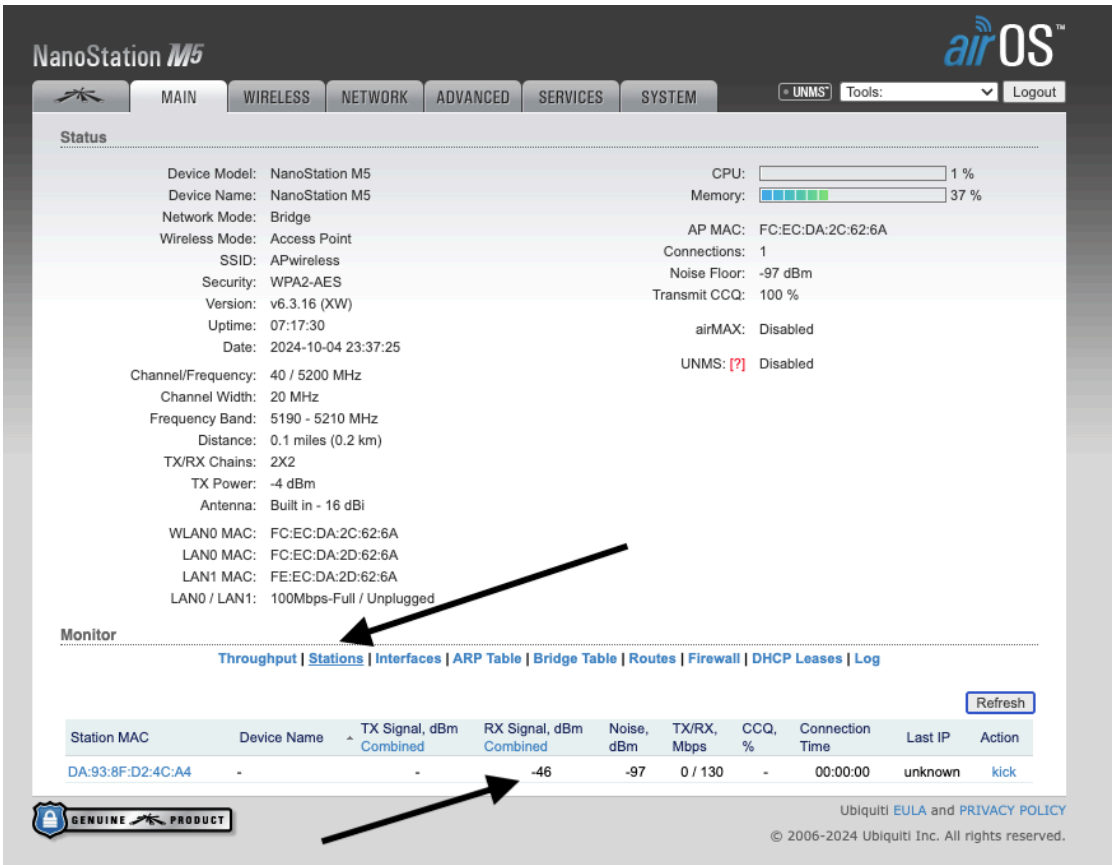
1. **Run Scan:** Use your **NetSpot** tool (or similar) near the **AP Wireless** unit to scan the **5 GHz** band: [▶ Watch Video](#)
2. **Target Non-DFS:** Find the quietest **20 MHz wide channel** that is **NOT** a DFS channel (Channels 52-144).

- **Best Frequencies:** 5180 MHz to 5240MHz (Ch. 36-48) OR 5745 MHz to 5805 MHz (Ch. 149-161). 5745-5805 show as DFS in the AP Wireless settings, but they are not actually DFS in the UK or common deployment areas.
  - 5180-5240 are optimal for indoor.
  - 5745-5805 are optimal for outdoor.
3. **Apply Frequency:** In the **AP Wireless** settings:
- Go to the **WIRELESS** tab.
  - Change **Frequency, MHz** from the current setting to your chosen **Manual Frequency** (e.g., 5240 MHz).
  - Ensure **Channel Width** is set to **20 MHz**.
  - Click **Change** and **Apply**.

The screenshot shows the NanoStation M5 airOS web interface. The top navigation bar includes tabs for MAIN, WIRELESS, NETWORK, ADVANCED, SERVICES, and SYSTEM. The WIRELESS tab is selected. Below the navigation bar, the 'Basic Wireless Settings' section is visible. The 'Wireless Mode' is set to 'Access Point'. The 'WDS (Transparent Bridge Mode)' checkbox is unchecked. The 'SSID' is 'APwireless', and the 'Country Code' is 'United Kingdom'. The 'IEEE 802.11 Mode' is 'A/N mixed'. The 'Channel Width' is set to '20 MHz'. The 'Frequency, MHz' is set to '5240 (Indoor)', which is highlighted by a blue border and an arrow. The 'Extension Channel' is 'None'. The 'Frequency List, MHz' checkbox is unchecked. The 'Calculate EIRP Limit' checkbox is checked. The 'Antenna' is 'Built in (2x2) - 16 dBi'. The 'Output Power' is set to '-4 dBm'. The 'Data Rate Module' is 'Default'. The 'Max TX Rate, Mbps' is 'MCS 15 - 130/144.4'. The 'Hide Indoor Channels' checkbox is unchecked. Below the 'Basic Wireless Settings' section is the 'Wireless Security' section. The 'Security' is 'WPA2-AES'. The 'WPA Authentication' is 'PSK'. The 'WPA Preshared Key' is masked with asterisks. The 'MAC ACL' checkbox is unchecked. A 'Change' button is located at the bottom right of the settings area. At the bottom of the page, there is a 'GENUINE PRODUCT' logo and a copyright notice: '© 2006-2024 Ubiquiti Inc. All rights reserved.'

Step 3: Optimising Output Power (Bonus Steps)

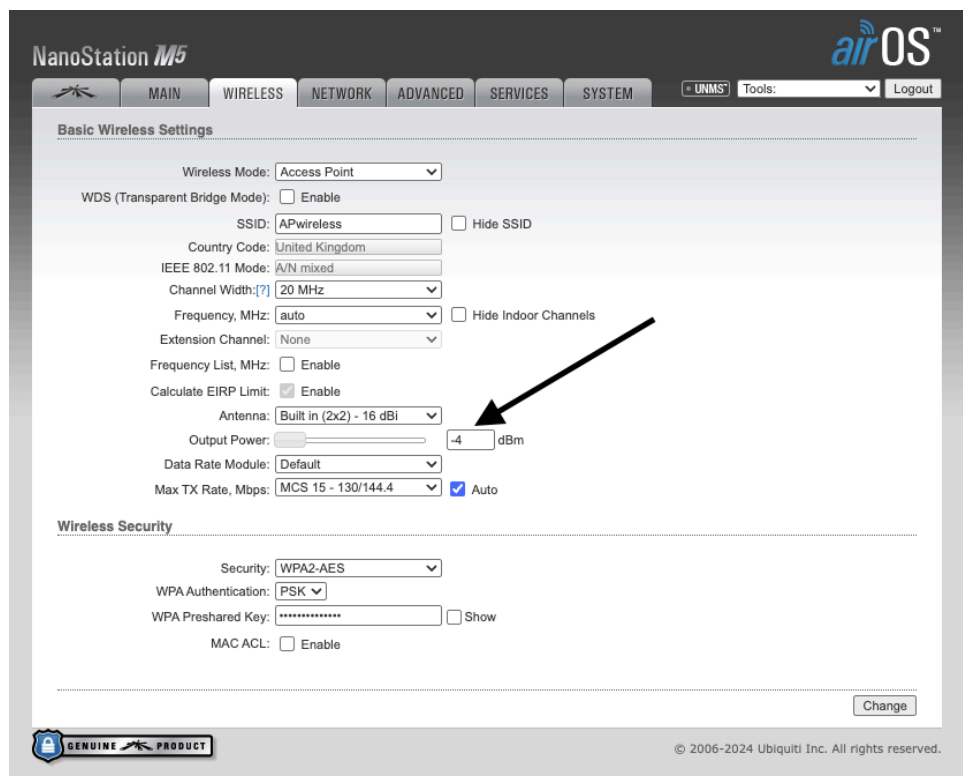
- 1. **Measure Signal:** Go to the **AP Wireless** unit's **MAIN** tab and click **Stations** near the bottom.
- 2. **Check RX Signal:** Look for the **RX Signal, dBm Combined** value for your iPad.



iPad RX Signal (Reported in 'Stations' area on AP Wireless)	Action	Reason
Stronger than -68 dBm (e.g., -55 dBm)	<b>PHYSICAL ADJUSTMENT:</b> The minimum power (-4 dBm) may still be too strong. <b>Increase the physical distance</b> between the unit and the iPad if you can.	The signal is too strong (overload risk). The AP Wireless unit software cannot lower it further.

<b>Between -68 dBm and -75 dBm</b>	<b>OPTIMAL.</b> Keep this output power setting.	Best range for high speed and a clean signal.
<b>Weaker than -75 dBm</b> (e.g., -80 dBm)	<b>Increase Output Power</b> on the <b>WIRELESS</b> tab by <b>1 dBm increments</b> . Stop immediately when the signal enters the optimal range.	The signal is too weak. Increase power only as necessary.

3. **Change Power:** Go to the **WIRELESS** tab and set **Output Power** to a different value. Click **Change** and **Apply**.



**NanoStation M5** airOS™

MAIN WIRELESS NETWORK ADVANCED SERVICES SYSTEM UNMS Tools: Logout

**Basic Wireless Settings**

Wireless Mode: Access Point

WDS (Transparent Bridge Mode): ☐ Enable

SSID: APwireless ☐ Hide SSID

Country Code: United Kingdom

IEEE 802.11 Mode: A/N mixed

Channel Width: 20 MHz

Frequency, MHz: auto ☐ Hide Indoor Channels

Extension Channel: None

Frequency List, MHz: ☐ Enable

Calculate EIRP Limit: ☒ Enable

Antenna: Built in (2x2) - 16 dBi

Output Power: -4 dBm

Data Rate Module: Default

Max TX Rate, Mbps: MCS 15 - 130/144.4 ☒ Auto


**Wireless Security**

Security: WPA2-AES

WPA Authentication: PSK

WPA Preshared Key:  ☐ Show

MAC ACL: ☐ Enable

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