



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.

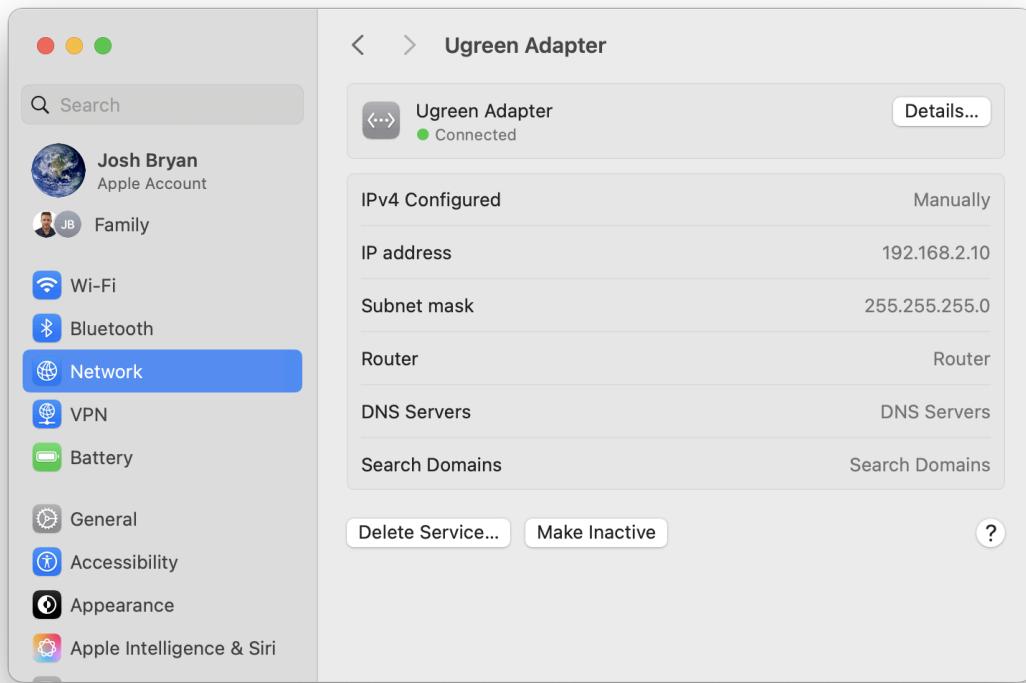
Part 1: Pre-Configured Base Setup

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

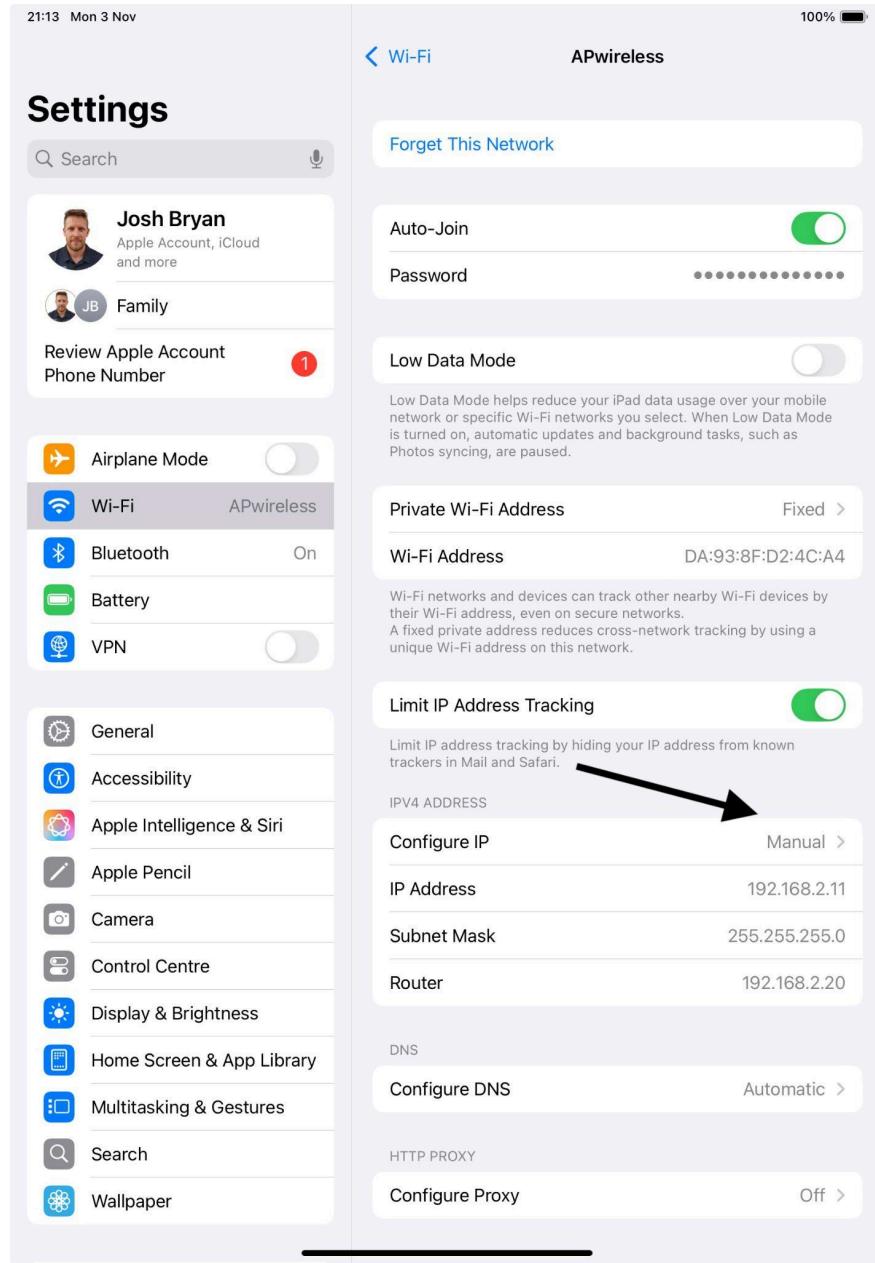
- Mount:** Place the **AP Wireless** unit on the supplied tripod, ensuring a **clear line of sight** between the unit and the typical iPad location.
- Connect Computer:** Connect your computer to the PoE injector's **LAN port** via Ethernet cable.
- Computer IP Check (CRITICAL STEP):** Verify your computer's 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 airOS web interface for a NanoStation M5. The top navigation bar includes links for MAIN, WIRELESS, NETWORK, ADVANCED (which is selected), SERVICES, SYSTEM, and a UNMS icon. The right side of the header has 'airOS' and 'Logout' buttons. The main content area is titled 'Advanced Wireless Settings'. It contains several configuration fields:

- RTS Threshold: 2346 (checkbox checked, 'Off')
- Distance: 0.1 miles (0.2 km) (checkbox checked, 'Auto Adjust' is unchecked)
- Aggregation: 32 Frames 50000 Bytes (checkbox checked, 'Enable')
- Multicast Data: Allow (checkbox checked)
- Multicast Enhancement: Enable (checkbox checked)
- Installer EIRP Control: Enable (checkbox unchecked)
- Extra Reporting: Enable (checkbox checked)
- Client Isolation: Enable (checkbox unchecked)
- Sensitivity Threshold, dBm: -96 (checkbox checked, 'Off')

Below this is the 'Advanced Ethernet Settings' section with LAN0 and LAN1 speed dropdowns set to '10/100 Auto' and a 'POE Passthrough' checkbox unchecked. The 'Signal LED Thresholds' section shows thresholds for LED1, LED2, LED3, and LED4 at -94, -80, -73, and -65 dBm respectively. A 'Change' button is at the bottom right. A 'Genuine PRODUCT' badge is at the bottom left, and a copyright notice for Ubiquiti Inc. 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**.

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 Hide Indoor Channels

Frequency, MHz: 5240 (indoor) 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

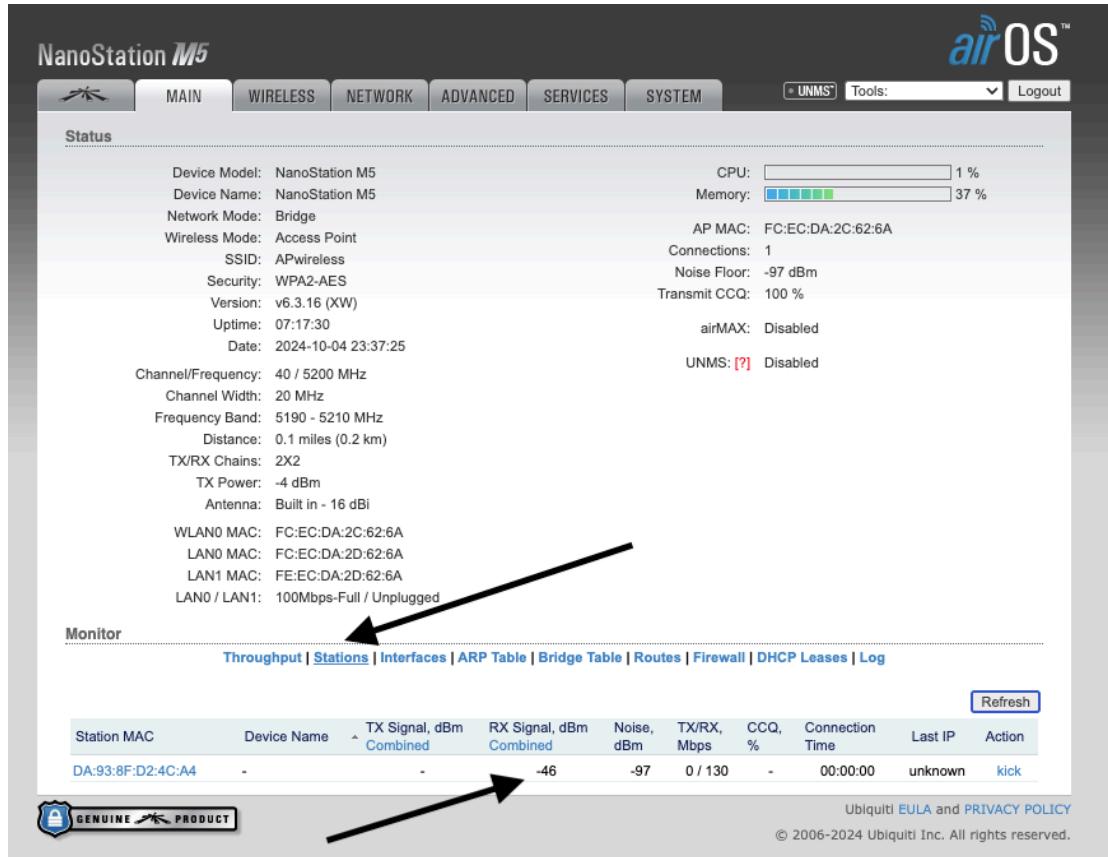
Change

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Step 3: Optimising Output Power (Bonus Steps)

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



Status

Device Model: NanoStation M5
 Device Name: NanoStation M5
 Network Mode: Bridge
 Wireless Mode: Access Point
 SSID: AP-wireless
 Security: WPA2-AES
 Version: v6.3.16 (XW)
 Uptime: 07:17:30
 Date: 2024-10-04 23:37:25

AP MAC: FC:EC:DA:2C:62:6A
 Connections: 1
 Noise Floor: -97 dBm
 Transmit CCQ: 100 %
 airMAX: Disabled

UNMS: [?] Disabled

Channel/Frequency: 40 / 5200 MHz
 Channel Width: 20 MHz
 Frequency Band: 5190 - 5210 MHz
 Distance: 0.1 miles (0.2 km)
 TX/RX Chains: 2X2
 TX Power: -4 dBm
 Antenna: Built in - 16 dBi

WLAN0 MAC: FC:EC:DA:2C:62:6A
 LAN0 MAC: FC:EC:DA:2D:62:6A
 LAN1 MAC: FE:EC:DA:2D:62:6A
 LAN0 / LAN1: 100Mbps-Full / Unplugged

Monitor

Station MAC	Device Name	TX Signal, dBm Combined	RX Signal, dBm Combined	Noise, dBm	TX/RX, Mbps	CCQ, %	Connection Time	Last IP	Action
DA:93:8F:D2:4C:A4	-	-	-46	-97	0 / 130	-	00:00:00	unknown	kick

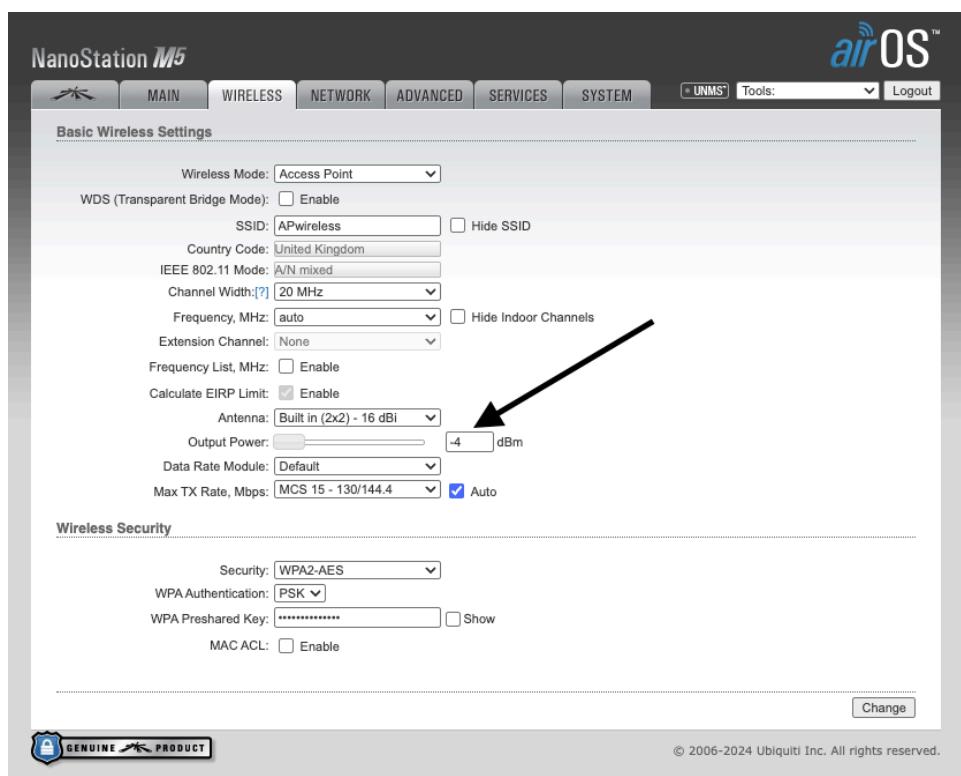
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iPad RX Signal (Reported in 'Stations' area on AP Wireless)	Action	Reason
Stronger than -68 dBm (e.g., -55 dBm)	PHYSICAL ADJUSTMENT: The minimum power (-4 dBm) may still be too strong. Increase the physical distance between the unit and the iPad if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

Between -68 dBm and -75 dBm	OPTIMAL. Keep this output power setting.	Best range for high speed and a clean signal.
Weaker than -75 dBm (e.g., -80 dBm)	Increase Output Power on the WIRELESS tab by 1 dBm increments . 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**.



The screenshot shows the 'Basic Wireless Settings' page of the NanoStation M5 airOS interface. The 'WIRELESS' tab is selected. The 'Output Power' field is highlighted with a large black arrow pointing to it. The value is set to -4 dBm. Other settings visible include Wireless Mode (Access Point), SSID (APwireless), and Antenna (Built in (2x2) - 16 dBi).