

User guide for NanoStation5 (5 GHz)

1. Connecting hardware

Connecting your Nanostation5 to your network is very easy, as it's using the POE (Power Over Ethernet) technology. For this you will need two direct Ethernet cable (RJ45) and the power adaptor provided.

First of all connect one cable to the POE entry and connect the other end to the device. The other cable is connected between the LAN entry and your Ethernet computer access.

Now just connect the power adaptor to the DC plug.

2. Applications

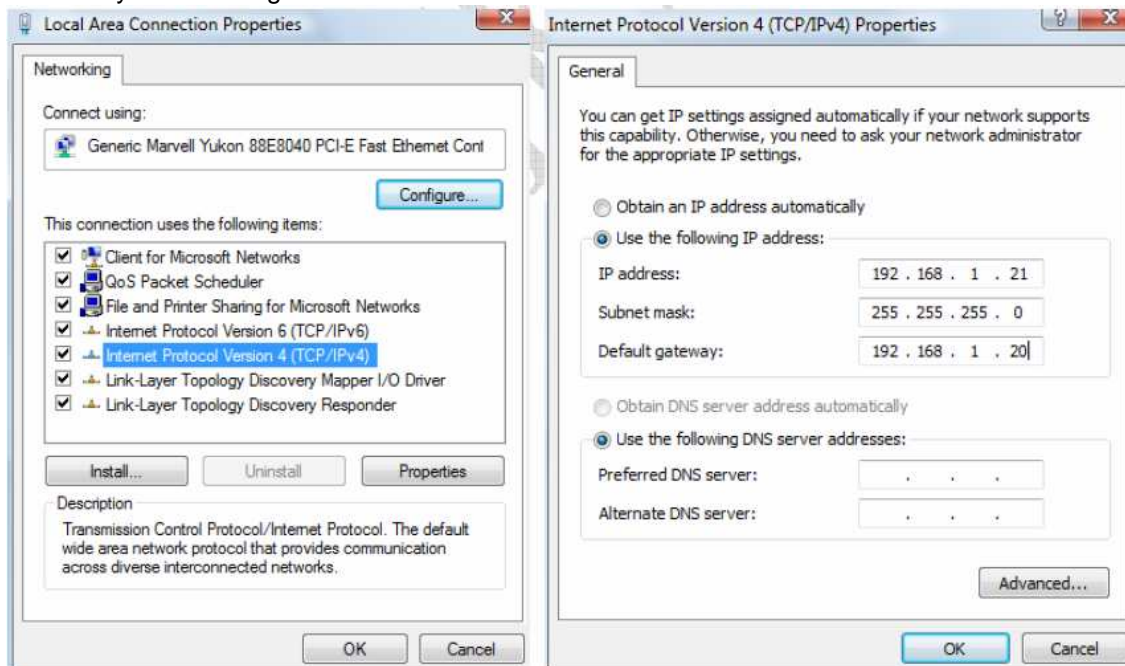
This device can be set up and used for different applications:

- Simple AP (Access Point)
- Wireless Repeater
- Bridge

3. Configuring your computer in able to set up your device

This chapter will explain you how to set up your network connection to get access to the device.

- In your computer, open Control Panel > Network Connections > Local AreaConnection.
- In Local Area Connection Status > General, click **Properties**.
- In Local Area Connection Properties > General, select **Internet Protocol (TCP/IP)** and click **Properties**.
- In Internet Protocol (TCP/IP) Properties > General, select **Use the following IP address**.
- Enter your IP address and Subnet Mask. The default IP address of the radio is 192.168.1.21, which cannot be used here. **So type IP address 192.168.1.21 and gateway 192.168.1.20**
- Click **OK** and **Close**



Open your browser (e.g. Internet Explorer, Firefox, Opera, etc.) and type in address bar: **http://192.168.1.20**

(The default address of the Nano) then press the Enter key.

When the connect page appears type the default username "ubnt" and password "ubnt" below:



4. Configuration

4.1. Simple AP (Access Point)

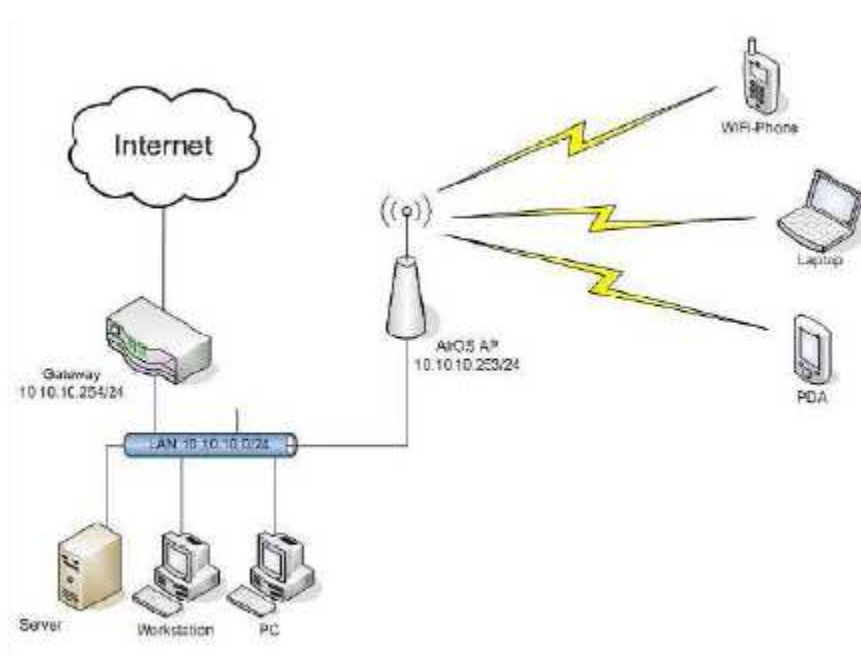
We consider this simply network topology:

One Router/Gateway connected to Internet and/or private LAN (IP Address: 10.10.10.254/24)

One AP AirOS device directly connected to Router (IP Address: 10.10.10.253/24)

One or more Wireless Clients (Notebook, WiFi-Phone, other Wireless devices...)

The Router assign IP Address to network devices by DHCP Server. Alternatively, if you prefer, you can set static IP Address on Client.



In **LINK SETUP** Tab, set:

- Wireless Mode: **Access Point**
- SSID: **yourSSID** (or any other string to identify your WLAN)
- Country Code: set according your country
- IEEE 802.11 Mode: **A** (assuming devices running in 5 GHz band)
- Channel: **1 - 2412 MHz** (or any other free channel)
- Output Power: **10 dBm** (or check *Obey Regulatory Power* according your country law)
- Data Rate, Mbps: **54, Auto**
- Security: **WPA** (or any other, supported by Wireless Client)



The device is now ready as an AP, the next step concerns setting up the network after your router/gateway.

The AP has to communicate with your router in order to spread your wireless connection.

In **NETWORK** Tab, set:

- Network Mode: Bridge
- IP Address: **10.10.10.253** **New IP address for the AP**
- Netmask: **255.255.255.0**
- Gateway IP: **10.10.10.254** **IP address of your router/gateway**
- Primary DNS IP: **10.10.10.254** (or DNS IP provided from your ISP)
- Secondary DNS IP: as Primary DNS IP



Click "Change" wait until process is complete and click "Apply" to confirm new configuration.
Now the devices should be reachable on new IP Address **10.10.10.254**. Remember to assign to your PC a IP of Subnet 10.10.10.x (e.g. **10.10.10.200/255.255.255.0**)

Client Setup

In TCP/IP Network Section:

If supported, set device to obtain Address IP automatically.

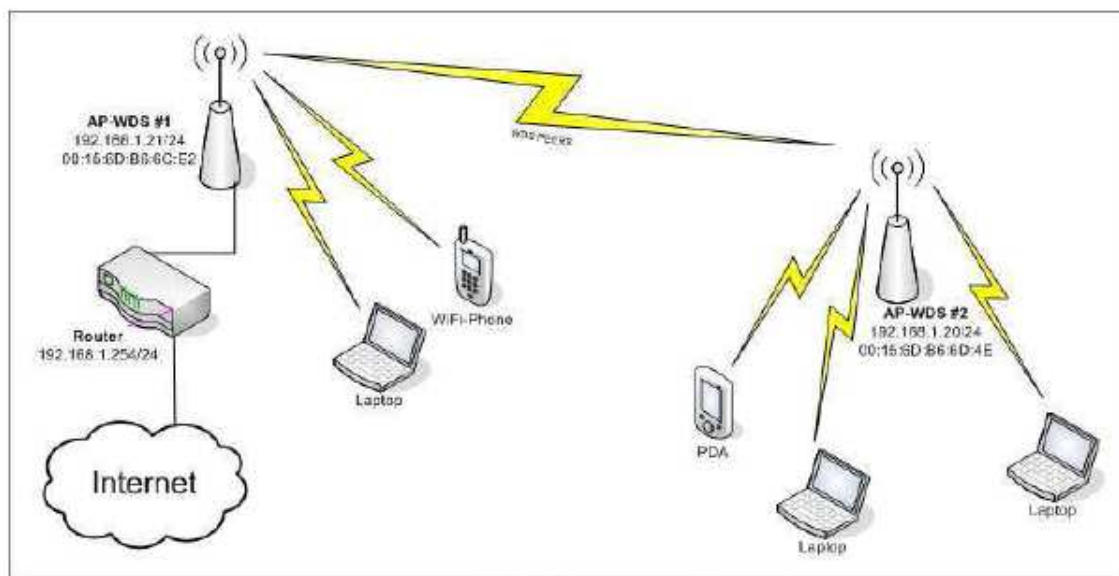
Otherwise set statically:

IP Address: any free IP 10.10.10.x/255.255.255.0

Gateway: 10.10.10.254

DNS: 10.10.10.254 (or DNS provided by your ISP).

4.2. Wireless Repeater



As you have previously set up your NanoStation5 as a AP, you are now able to set up an other device as a repeater.

This allow you to extend your coverage up to 20 kms.

→ First AP: 10km and 10km more with the second AP.

We will explain below how to setup your both devices.

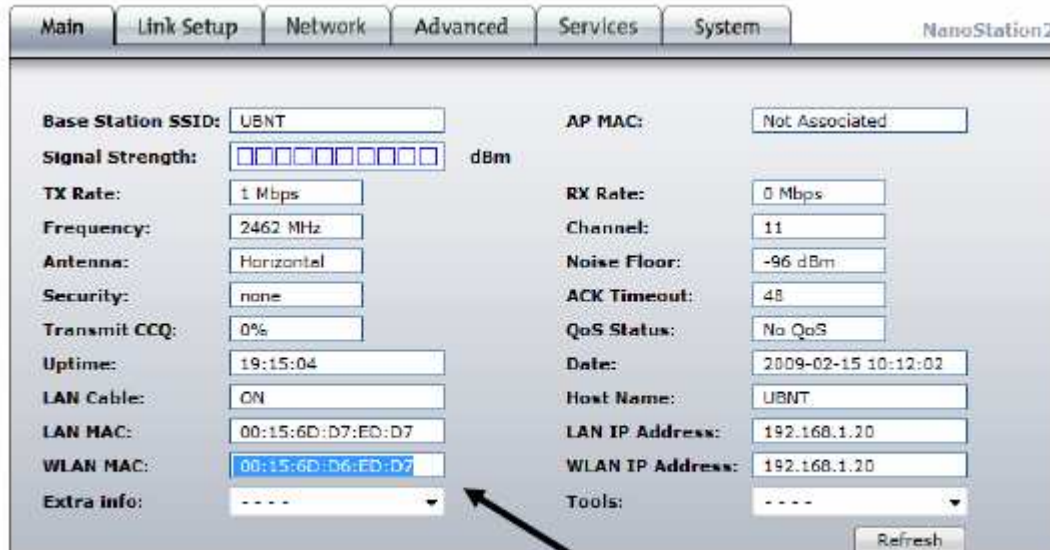
Before starting the configuration of both AP, you will need to collect the WLAN MAC address of the NanoStation5, it is actually the physical address of the devices. You need to login into AirOS WEB User Interface of AP and write down this information:

We will select these two address as an example (**you need to get your personal address**)

AP#1 WLAN MAC 11:11:11:11:11:11

AP#2 WLAN MAC 22:22:22:22:22:22

Be sure to have WLAN MAC of both devices before starting configuration



WLAN MAC of both AP in this Tab

AP #1 Setup

Login into AirOS WEB User Interface of **AP #1** and set as below:

In **NETWORK** Tab, set:

- Network Mode: **Bridge**
- IP Address: **10.10.10.253** New IP address for the AP
- Netmask: **255.255.255.0**
- Gateway IP: **10.10.10.254** IP address of your router/gateway
- Bridge IP Address: **Static**

Click *Change* button to confirm

Click *Apply* button to apply changes

Wait until process is complete

In **LINK SETUP** Tab, set:

- Wireless Mode: **Access Point WDS**
- WDS Peers: **22:22:22:22:22:22**
WLAN MAC of AP #2, you can see on MAIN Tab of AP #2
- SSID: **my wlan** (or any string to identify your WLAN, but the same for all WDS Peers)
- Country Code: set according your location
- IEEE 802.11 Mode: A (assuming devices running in 5 GHz band)
- Channel Spectrum Width **20MHz**
- Channel: **1 - 2412 MHz** (or any other free channel, but the same for all WDS Peers)
- Output Power: **10 dBm** (or check *Obey Regulatory Power* according your country law)
- Data Rate, Mbps: **54, Auto**

Main | Link Setup | Network | Advanced | Services | System | NanoStation2

BASIC WIRELESS SETTINGS

Wireless Mode: Auto

WDS Peers:

SSID: Hide SSID

Country Code:

IEEE 802.11 Mode:

Channel Spectrum Width: Max Datarate: 54Mbps

Channel Shifting:

Channel:

Output Power: dBm Obey Regulatory Power

Data Rate, Mbps: Auto

WIRELESS SECURITY

Security:

Click *Change* button to confirm
Click *Apply* button to apply changes
Wait until process is complete

AP #2 Setup

In **NETWORK** Tab, set:

- Network Mode: **Bridge**
- IP Address: **10.10.10.253** **New IP address for the AP**
- Netmask: **255.255.255.0**
- Gateway IP: **10.10.10.254** **IP address of your router/gateway**
- Bridge IP Address: **Static**

Click *Change* button to confirm
Click *Apply* button to apply changes
Wait until process is complete

In **LINK SETUP** Tab, set:

- Wireless Mode: **Access Point WDS**
- Auto: **enable** check box
- WDS Peers: **11:11:11:11:11:11**
WLAN MAC of AP #1, you can see on MAIN Tab of AP #1
- SSID: **my wlan** (or any string to identify your WLAN, but the same for all WDS Peers)
- Country Code: set according your location
- IEEE 802.11 Mode: **A** (assuming devices running in 5 GHz band)

The Wireless Training Kit

Workshop at Wollo University, Dessie Campus
29-30 July and 2-3 August 2010



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- Channel: **1 - 2412 MHz** (or any other free channel, but the same for all WDS Peers)
- Output Power: **10 dBm** (or check *Obey Regulatory Power* according your country law)
- Data Rate, Mbps: **54, Auto**



Click *Change* button to confirm
Click *Apply* button to apply changes
Wait until process is complete

5. Specification

