

FIXED WIRELESS PTP & PTMP USING UBIQUITI AIRMAX

Section 1.	General Setup instructions.....	Page 1
Section 2.	Setting up a Point to Point link (PTP).....	Page 5
Section 3.	Setting up a Point to Multipoint Link (PTMP).....	Page 10

Section 1. General Setup instructions: Unboxing and powering

Unbox the device and ensure that you have the power supply (a small Black Brick) and the mains cable.

Check that the injector is for the correct product.

- Use an Ethernet cable to connect the **LAN** side of the injector to your laptop (or switch).
- Use a second ethernet cable to connect the **PoE** port on the injector to the radio unit
- Depending on the unit model, there may be 1 or 2 Ethernet sockets. Use the **LAN** port or **Main** port (NanoStation M5) on the unit.

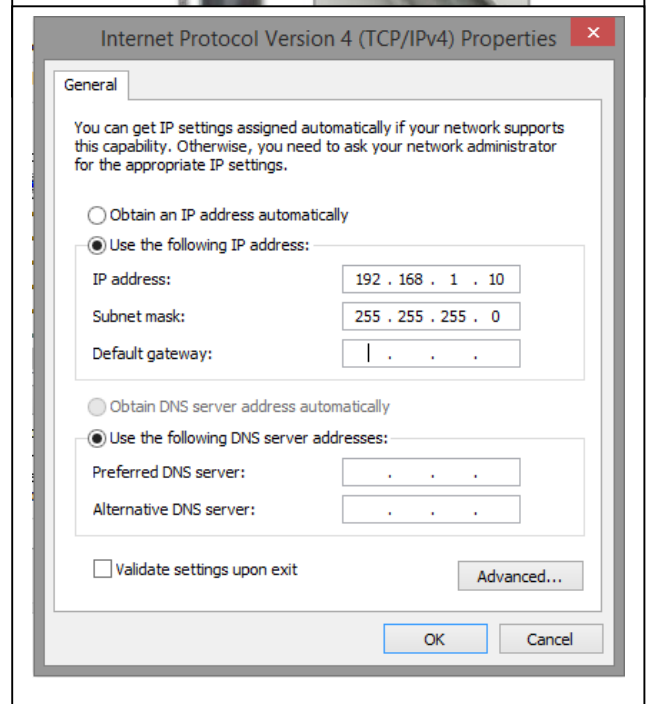


Logging in

If you want to understand IP addresses, go to the Support section of our website

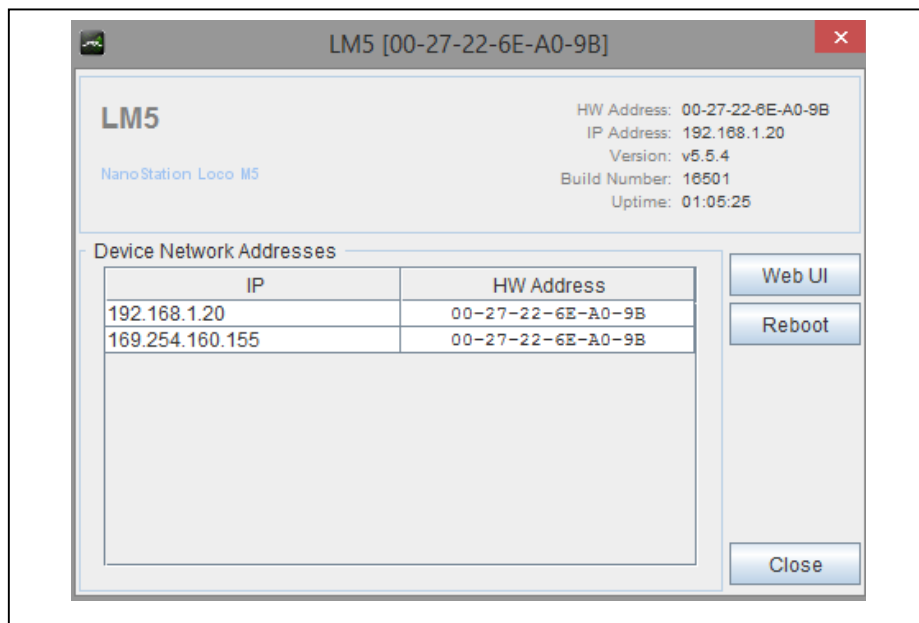
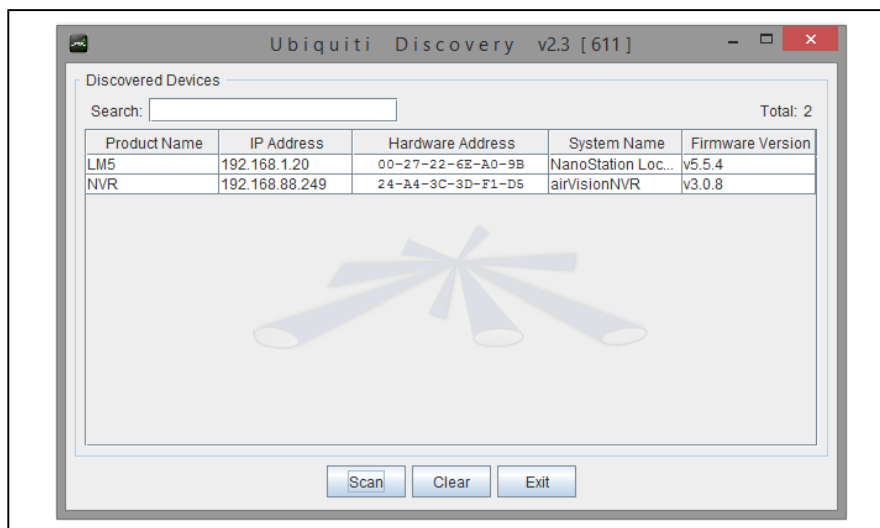
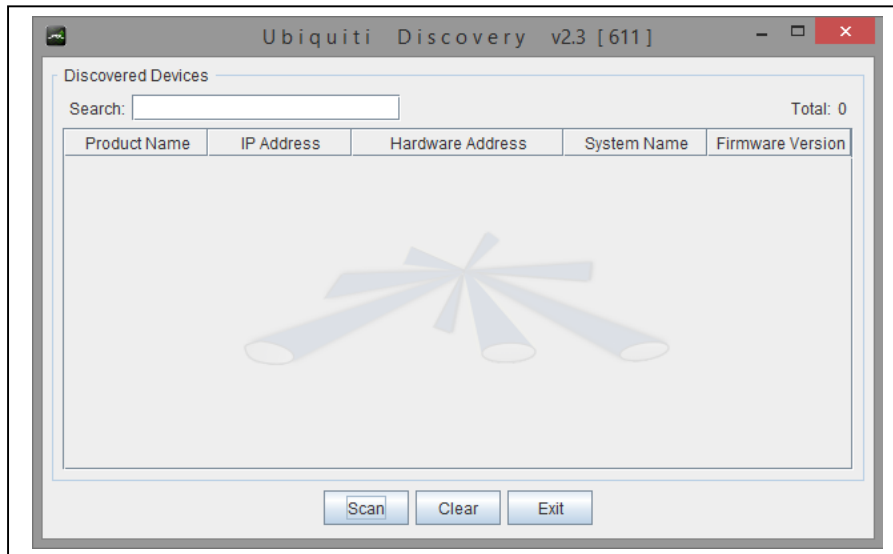
https://www.msdist.co.uk/support_index.php and choose [Setting up wireless links](#) to learn all about them.

- Ensure your Laptop / PC / MAC is set to a Static IP Address within the same range as the airMAX Device – Typically use IP Address **192.168.1.10** and a Subnet Mask of **255.255.255.0**
- When your computer is set in the same range, open a web browser and type into the URL box the default address of the airMAX device, as printed on the side of the box, typically **192.168.1.20**.

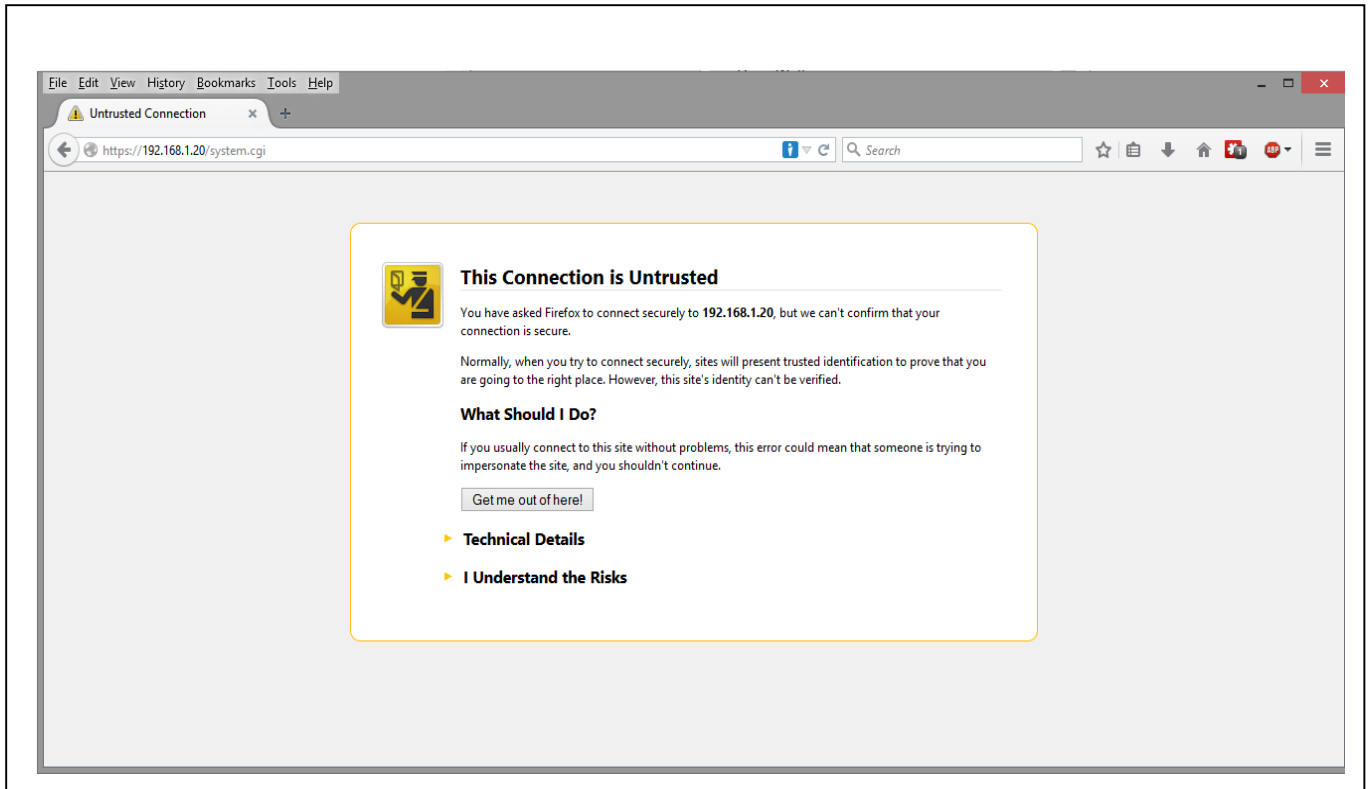


Ubiquiti Discovery Tool

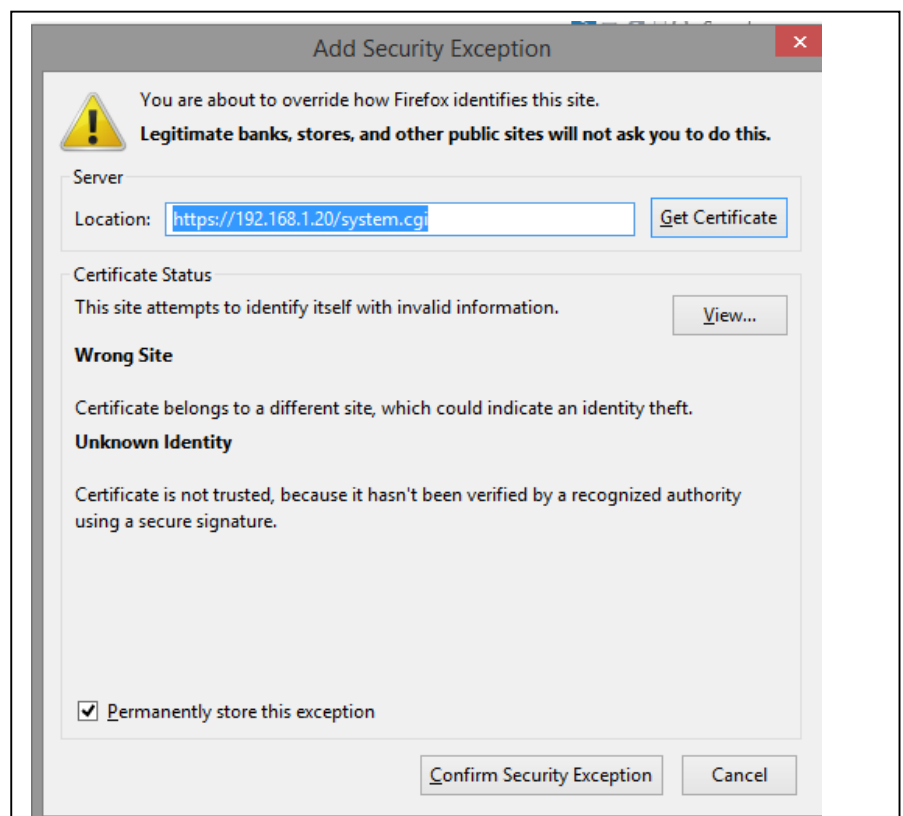
Alternatively use the Ubiquiti Discovery Tool (available from the Ubiquiti website <http://www.ubnt.com/download>) to scan the network for the device you wish to login to. Double click on the device and a new window will appear. Click on the button **Web UI**. This will automatically load a browser to the login page.



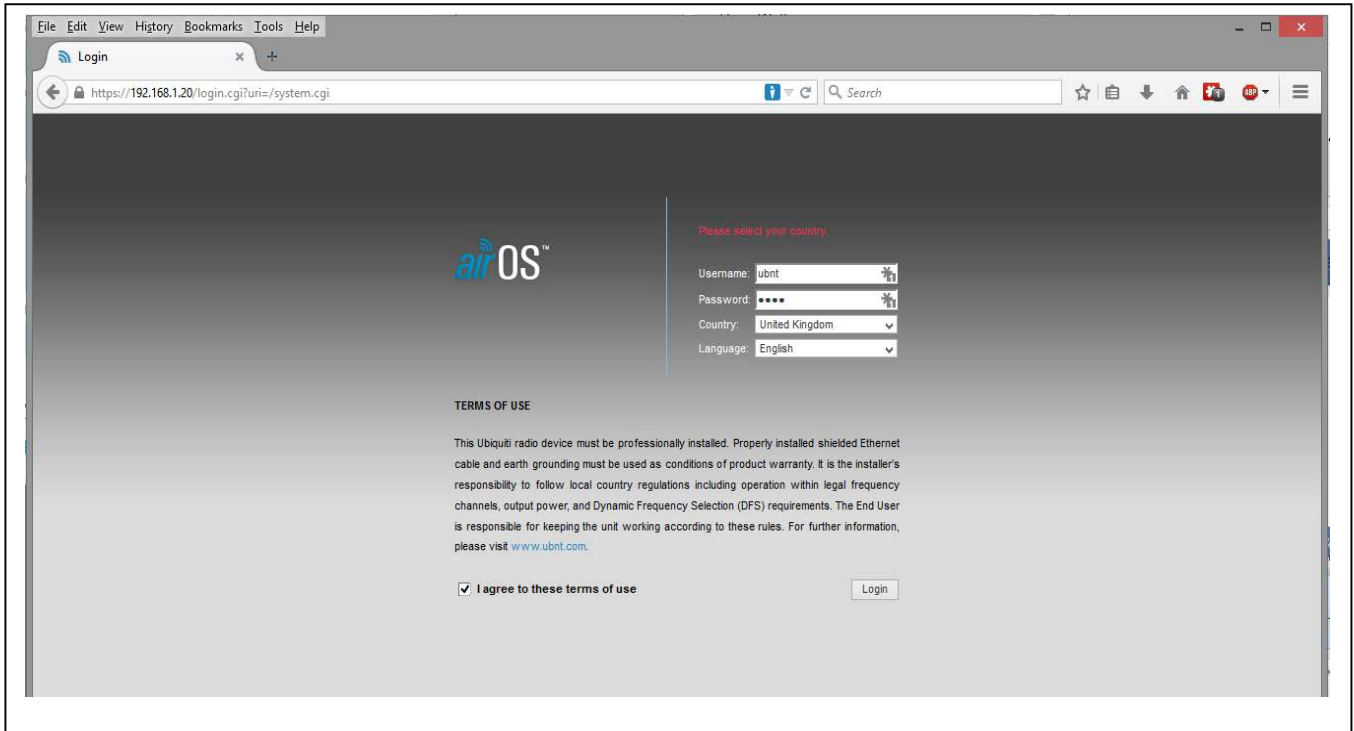
Once you have opened the browser and browsed to the correct IP address you may be prompted for about security exceptions (because you are using using HTTPS). You will need to accept these exceptions to continue. (The example below is using FireFox – click on **I Understand the Risks**).



Once you have accepted the security risks to add the IP address to the Trusted Site List you will be prompted with the login page.

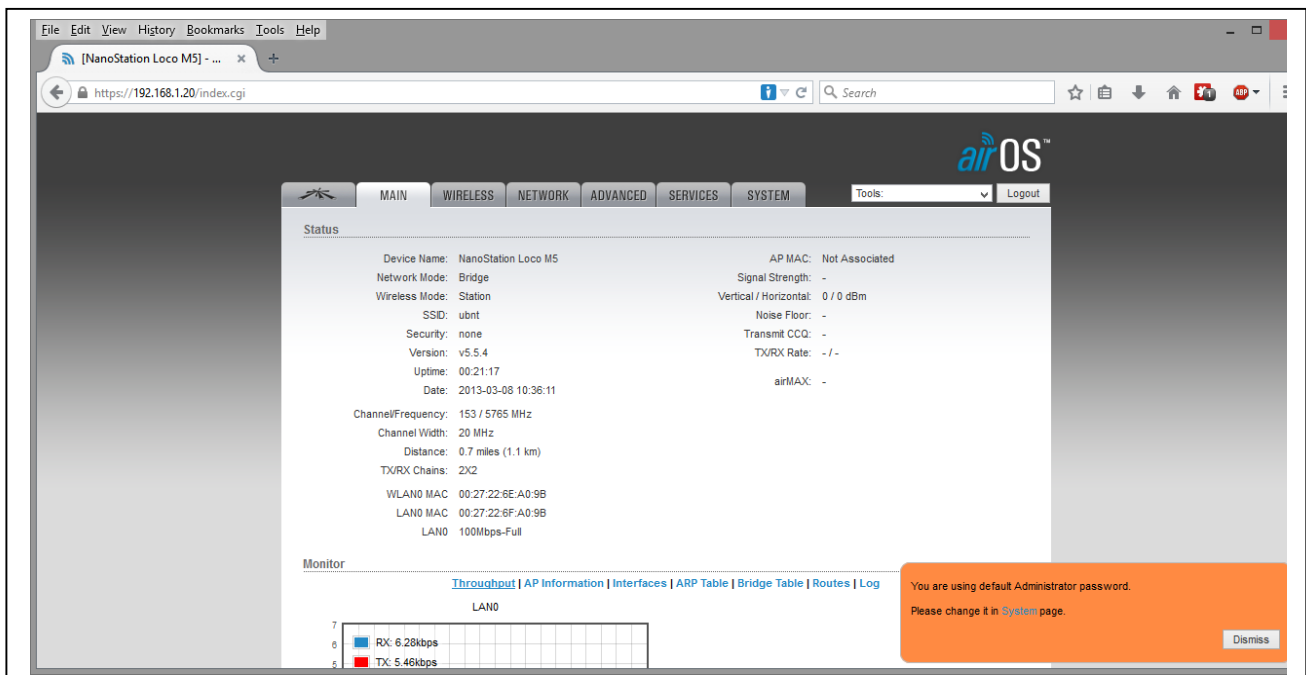


Setup Screen as shown in browser



- Enter the default username and password which is **ubnt** (for both fields).
- Select the correct country of use (in this example – United Kingdom)
- Select your language (in this example – English)
- Tick the box at the bottom of the page to accept that you are using the correct country code for use and you agree to the terms and conditions.
- Click **Login**.

This is the main screen after a successful login:

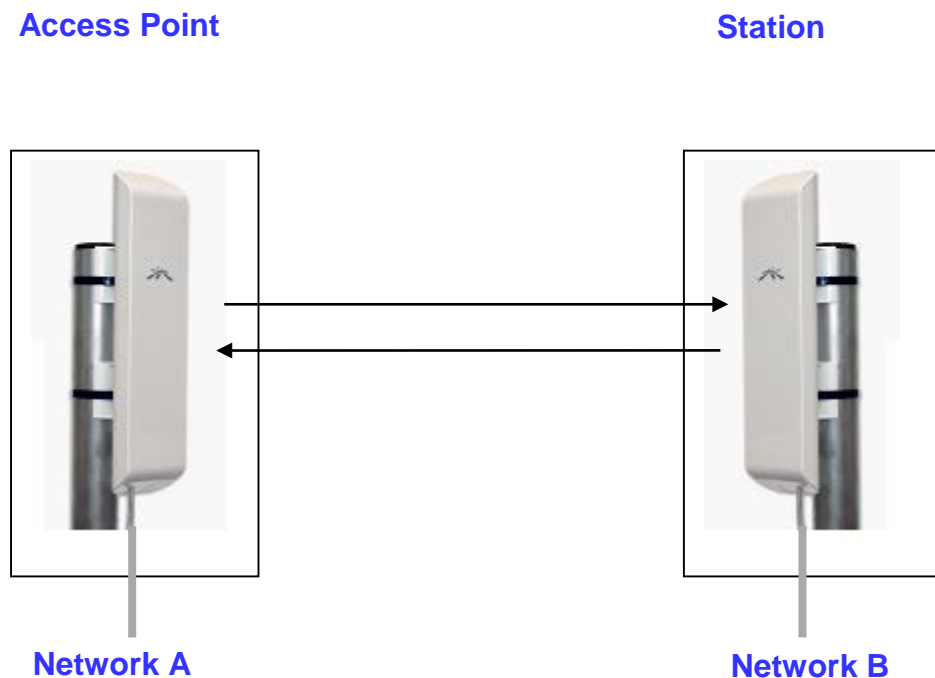


Section 2. Setting up a Point to Point link (PTP)

A Point to Point (PTP) link joins two points, typically with a network at each point: thus a PTP Link very frequently joins up two separate networks.

One end of the link is nominated as an **Access Point** and the other as a **Station** (often known as a **Client**).

The link is set up so that these two devices will only talk to each other, thus making the link secure – no other device can communicate with them.



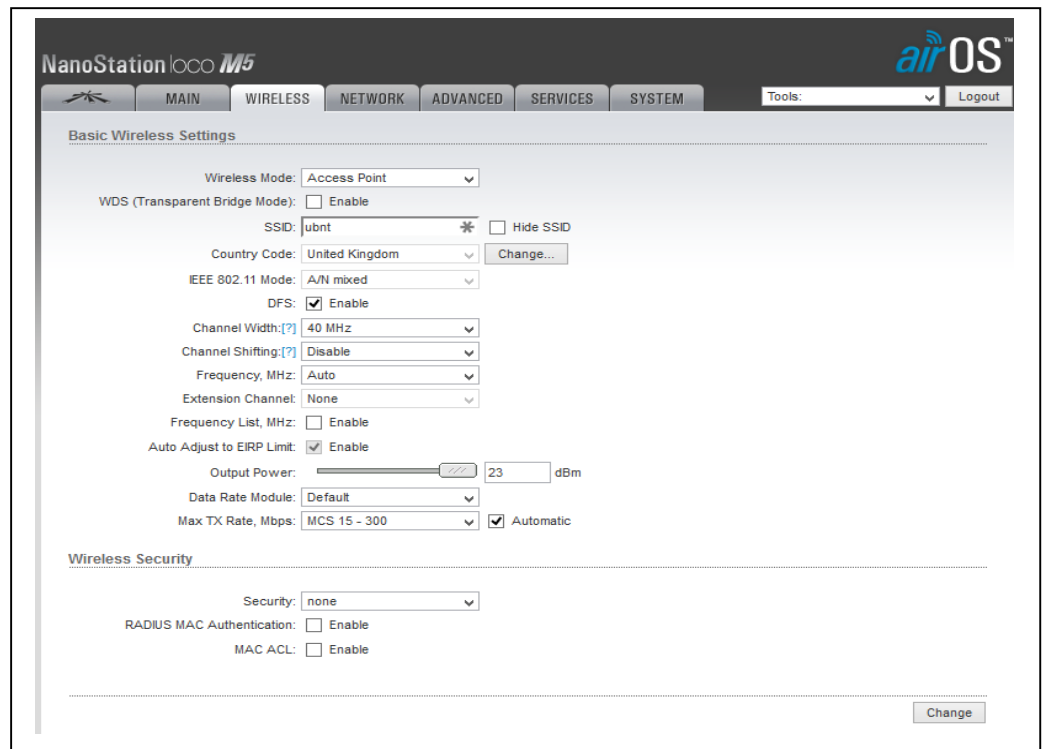
The instructions on the following pages show how to set up the Access Point first and then the Station, and enable WDS (Transparent Bridge Mode) to create a Layer 2 bridge.

Access Point Setup

This section outlines the settings for a secure link.

After successful login to the device, and when it is mounted in the location you wish to transmit / receive from, you can begin the configuration.

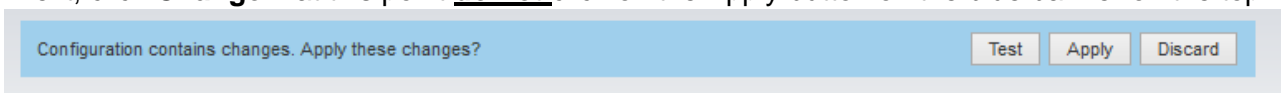
The first step is to select the **Wireless** tab.



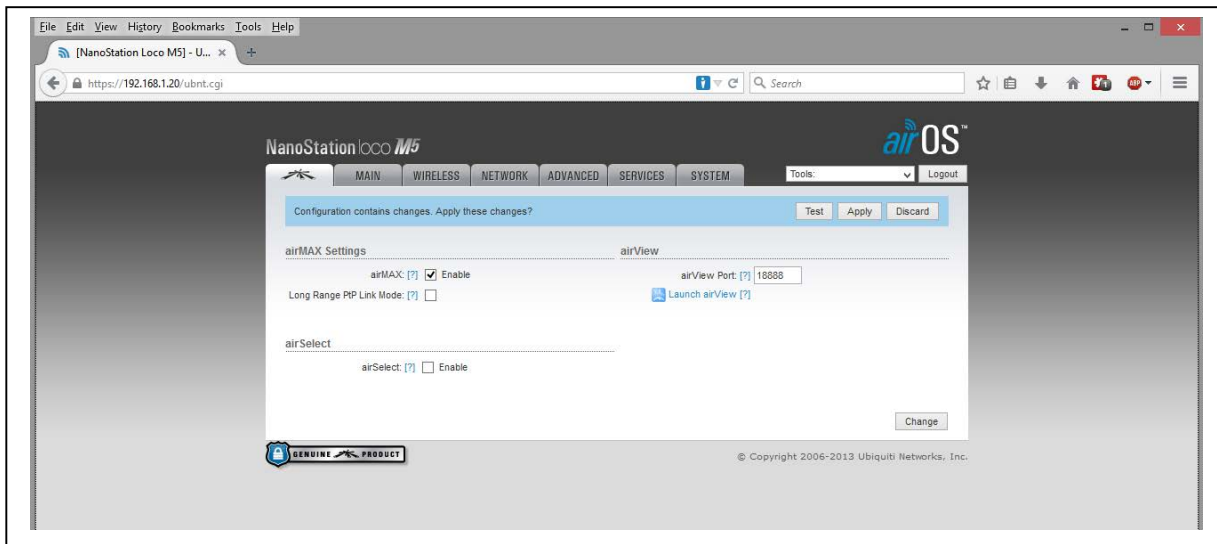
Basic Settings:

Wireless Mode:	Access Point
WDS (Transparent Bridge Mode):	Tick the box as this to create a wireless layer 2 bridge between 2 networks. (Recommended)
SSID:	Enter the SSID you wish to use.
DFS: <i>On firmware 5.5.6 and above, DFS is enabled by Default and is not a changeable option</i>	DFS is a requirement in certain countries – in the UK it is required. On newer firmware versions this option is removed as it is automatically enabled depending on the Country Code.
Channel Width:	This can be set to anything between 5MHz to 40MHz. Bear in mind that the higher the bandwidth the more throughput is achieved – Ubiquiti devices on the receiving end are automatically set when in Station Mode to be Auto 20/40 .
Channel Shifting	This is normally set to Disabled by default (on the unit click the ? symbol to read more).
Frequency:	This is the frequency you wish to use. (Please bear in mind the Frequency Band Plan).
Auto Adjust to EIRP Limit:	This is determined by what frequency you are using, and the Country Code and by the antenna gain on non-integrated units.
Max TX Rate:	This will determine the maximum data allowed through the link.
Wireless Security:	It is recommended that you set this to the highest available: WPA2-AES . Then input a secure password with a minimum of 8 characters. Not using AES reduces the throughput of the link.

Next, click **Change** – at this point **do not** click on the Apply button on the blue banner on the top.



The next step is to ensure the airMAX protocol is enabled. This turns on the TDMA that Ubiquiti use to increase performance on links. This can be found on the **UBNT** tab (the Ubiquiti symbol).



This will enable the proprietary TDMA protocol that Ubiquiti use between airMAX M products in access point or station mode. If you intend to use an Ubiquiti airMAX device with other vendors / manufactures, please turn airMAX off.

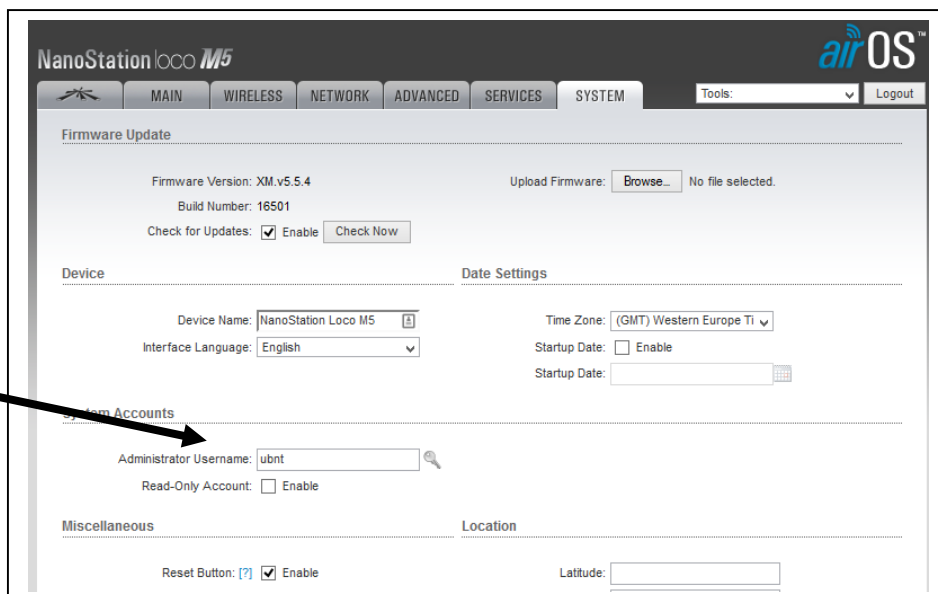
Once this has been ticked, Click **Change** – at this point **do not** click on the Apply button on the blue banner on the top.

The final step will be to select the **System** tab.

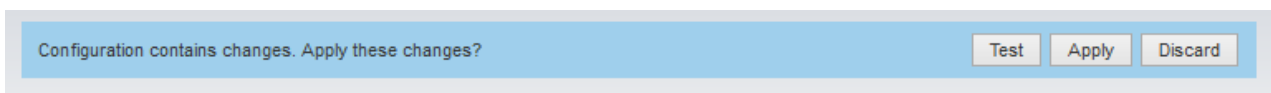
On this section it is advisable to change the Device Name to something more appropriate. An example would be a naming convention – **AP-(Device)-(Location) – E.g. AP-LM5-Tower.**

With this example, when using the discovery tool you can easily see what the device is, whether it is an Access Point or Station, what model it is, and its location.

Another field which *will* need changing is the Default Username and Password. Click on the Username box to add the username. The password box is enabled by clicking on the key symbol which appears.



Once you have done this, Click **Change**, and at this stage click on the **Apply** button on the blue banner on the top. This will cause the unit to reboot and come back online with the new settings.



Station Setup

This section outlines the settings for a secure link.

After successful login to the device, and when it is mounted in the location you wish to transmit / receive from, you can begin the configuration.

The first step is to select the **Wireless** tab.

Basic Settings:

Wireless Mode:	Station
WDS (Transparent Bridge Mode):	Tick the box as this will be connecting to another UBNT Device. (Recommended)
SSID:	Enter the SSID of the Access Point (or click Select to scan for it).
DFS:	DFS is a requirement in certain countries – in the UK it is required. On newer firmware versions this option is removed, as it is automatically enabled depending on the Country Code.
Channel Width:	This can be set to anything between 5MHz to 40MHz. Bear in mind that the higher the bandwidth the more throughput is achieved. Ubiquiti devices on the receiving end are automatically set when in Station Mode to be Auto 20/40
Channel Shifting	This is normally set to Disabled by default (on the page Click the ? symbol to read more).
Auto Adjust to EIRP Limit:	This is determined by what frequency you are using and by the Country Code and by the antenna gain on non-integrated units.
Max TX Rate:	This will determine the maximum data allowed through the link.
Wireless Security:	It is recommended to set this to the highest available, which is WPA2-AES . Then input a secure password with minimum of 8 characters. This must match the Access Point.

Then click **Change** – at this point **do not** click on the Apply button on the blue banner on the top.

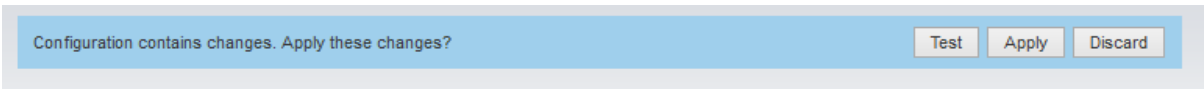
The next step is to enable the airMAX protocol which turns on the TDMA which Ubiquiti use to increase performance on links. This can be found on the **UBNT** tab (the Ubiquiti symbol).

This can be found on the **UBNT** tab (the Ubiquiti symbol).



On this screen, ensure that the airMAX priority is set to **None** (on Point to Point Links).

Once this has been checked, Click **Change** – at this point **do not** click on the Apply button on the blue banner on the top.



The final step will be to select the **System** tab.

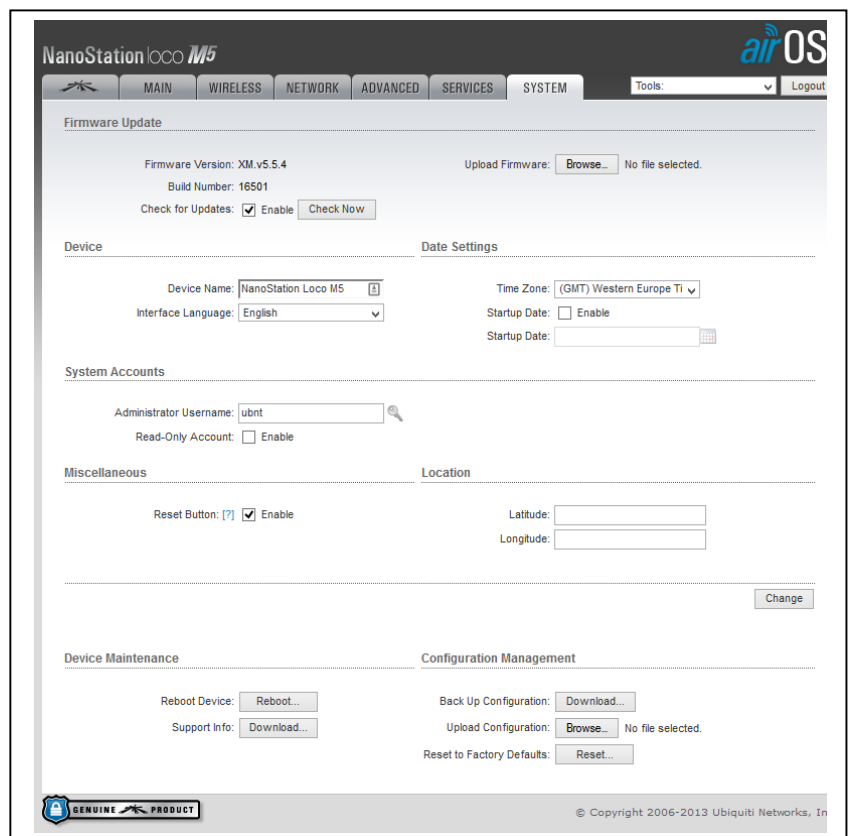
On this section it is advisable to change the Device Name to something more appropriate. An example would be a Naming convention – **STN-(Device)-(Location) – E.g. STN-LM5-Office.**

With this example, when using the discovery tool you can easily see what the device is, whether it is a Access Point or Station, what model it is, and its location.

Another field which **will** need changing is the default username and password. Click on the **Key** symbol to change the password.

Once done, Click **Change**. At this stage click on the **Apply** button on the blue banner on the top. This will cause the unit to reboot and come back online with the new settings.

The Station is now ready.



Section 3. Setting up a Point to Multipoint Link (PTMP)

A Point to MultiPoint (PTMP) link joins one point to many others, typically to enable multiple stations to connect to one central access point.

One device in the link is nominated as an **Access Point** and all the others are **Stations** in the same way that a PTP link is set up above. The only difference is that the SSID of the Access Point (Wireless Network name) is also set in each station and the security enabled. Each station can then only talk to the Access Point and nothing else.



Tel: +44 (0) 1295 266277
Fax: +44 (0) 1295 268199
sales@msdist.co.uk
www.msdist.co.uk

Unit G171
Cherwell Business Village
Southam Road
BANBURY
OX16 2SP UK

Network Setup

The Network page is where you can change the network settings of the device.

It is essential that the IP address you use is not already in use by another device on the network and also if this is being used as a Point to Point bridge to join two locations together they will need to be in the same IP range as the rest of the network. Most commonly **192.168.1.x**

It is advisable to keep the

Access point as **192.168.1.20** and the Station as **192.168.1.21**

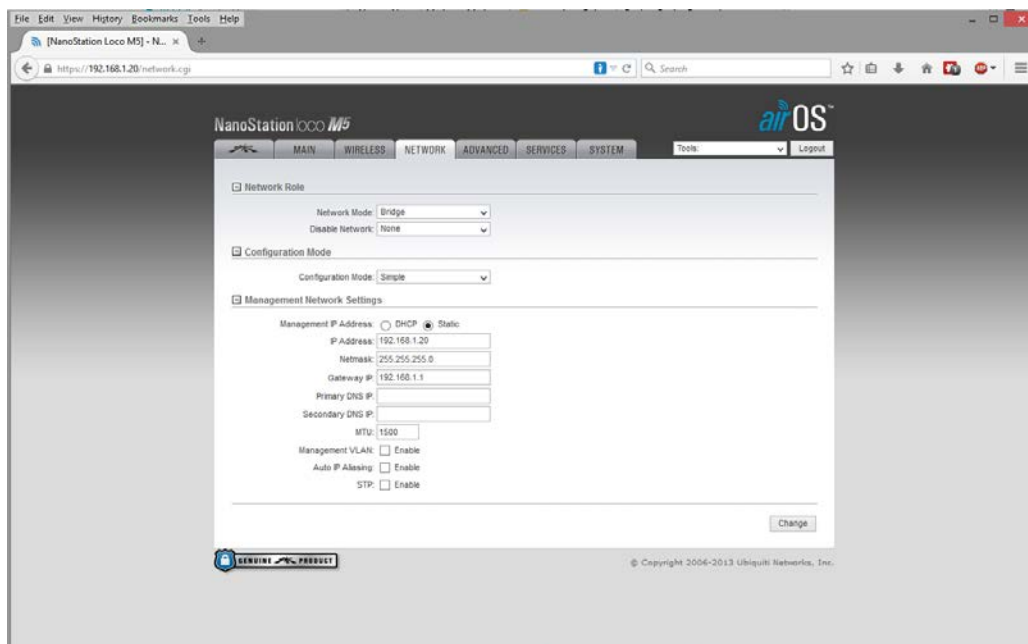
The Subnet as **255.255.255.0**

The Gateway IP is the IP address of your router (**192.168.1.1** or **192.168.1.254**)

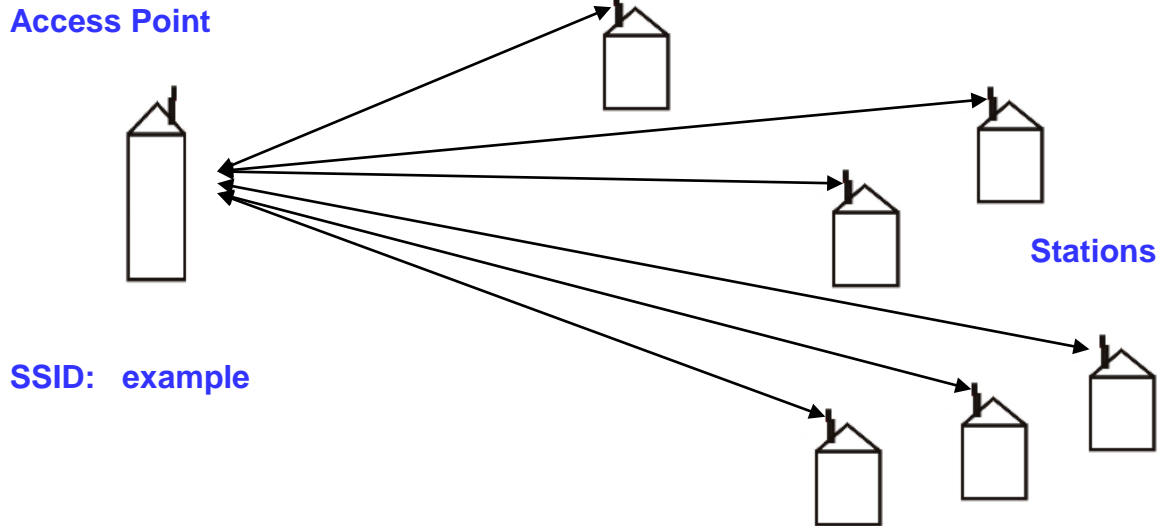
Primary DNS will be the same as your Gateway Address

Secondary DNS it is advisable to set as **8.8.8.8**

Remember if this is being used in a Point to MultiPoint Scenario then it is recommended that the Stations are set in sequence E.g. 192.168.1.21, 192.168.1.22, 192.168.1.23 ect



PTMP links are most often used to provide broadband connectivity to multiple locations by using wireless rather than cables.



If the Access Point SSID was 'example' as illustrated in the diagram above, *example* would be entered in the SSID box.

Security needs to be set as well. It is recommended to set this to the highest available, which is **WPA2-AES**. Then input a secure password with minimum of 8 characters. This **must** match the Access Point

Changes are applied by using the blue banner on the top.

The device will reboot and connect to the Access Point.

The Discovery tool may also be used to find the name of the Access Point. The Discovery tool has the benefit of showing all the wireless networks in the vicinity, which may be useful in selecting the best channel to use to minimise interference from other networks.

