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Wireless and Beyond

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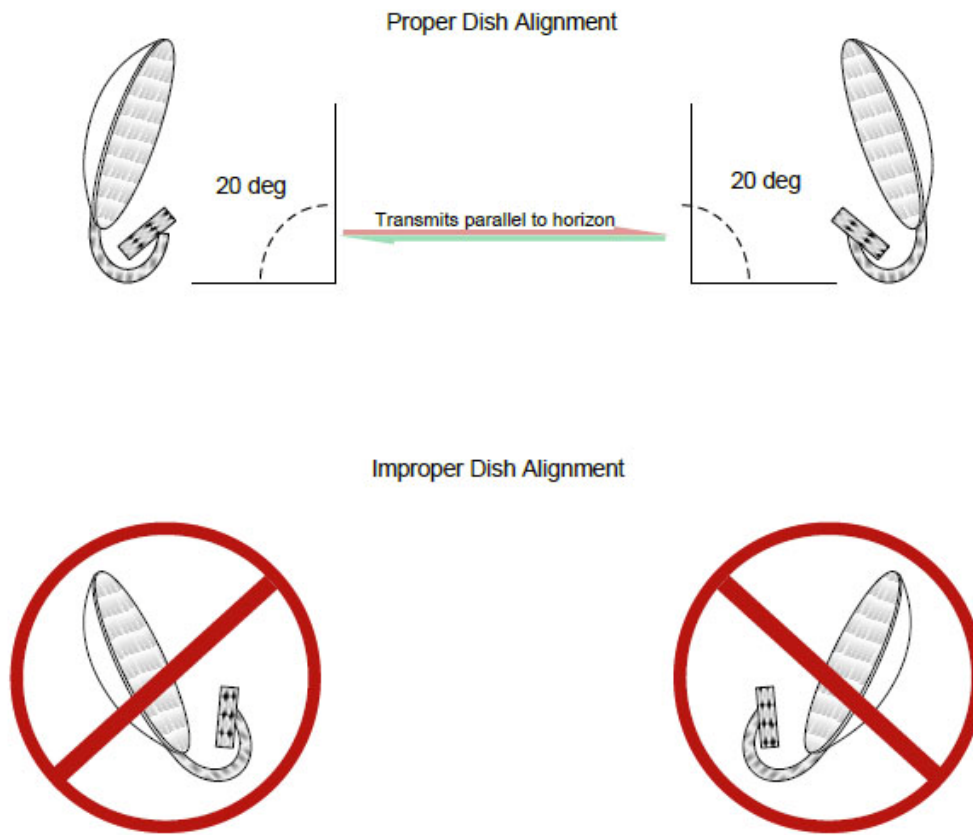
900Mhz Non-Line-Of-Sight Bridge System Installation and Configuration Instructions



PLEASE READ THESE INSTRUCTIONS BEFORE CONFIGURING OR DEPLOYING YOUR 900 MHZ NON-LINE-OF-SIGHT BRIDGE SYSTEM(S)

Thank you for purchasing the 900 Mhz High Speed Bridge System. Using this device, you will be able to bridge LAN connections with wireless speeds up to/over 100 Megabits/second (condition and distance dependent). The 900 Mhz Bridge System can act as a non-routing LAN extension or as a NAT-enabled gateway to link two locations via the IEEE 802.11N wireless protocol.

900mhz NLOS Bridge Kit Dish Alignment Diagram



To attain proper dish alignment, the center of the dish should be approximately 15 to 20 degrees facing downward from parallel to the horizon.

Connecting the 900 Mhz Non-Line-Of-Sight Bridge System to your computer for configuration

1. Connect a Category 5 Ethernet cable between your PC/MAC's ethernet port and the **LAN** port of the POE Injector.
2. Connect a second Category 5 Ethernet cable between the **POE** port of the POE injector and the Ethernet port of the Bridge.
3. Connect the POE Injector to AC power with the included power cable.

*You will **not** need to connect an antenna to the Bridge at this time. You will be prompted to do so further along in these instructions.*

Before configuring your 900 Mhz Non-Line-Of-Sight Bridge System(s), you will need to disable your internal wireless card or Airport (if applicable) and set a static or “unchanging” IP address.

Windows

XP:

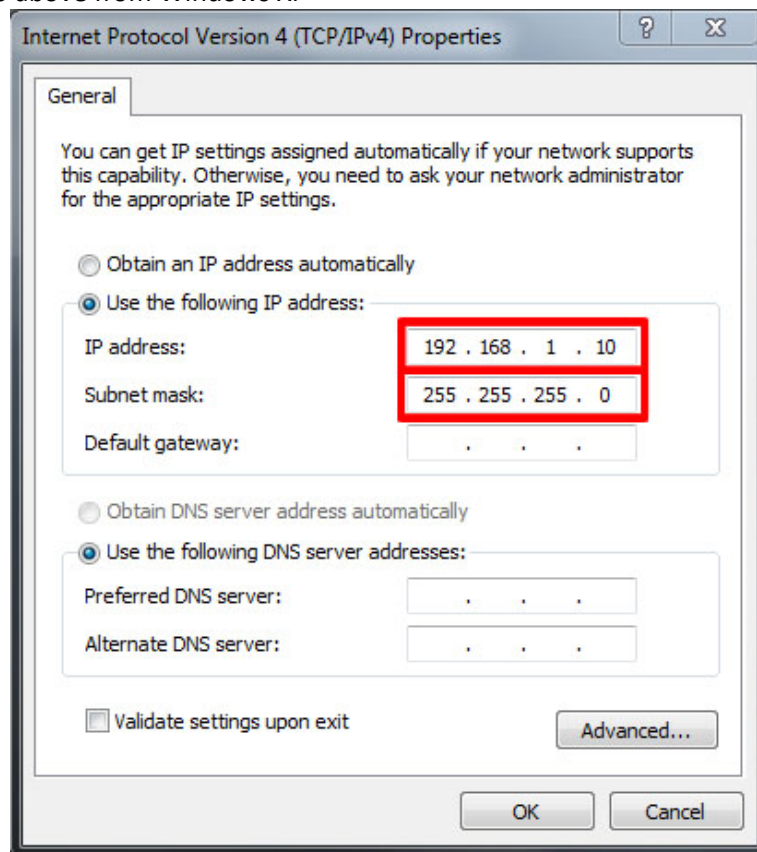
1. Open Start Menu and select Control Panel
2. Select Network Connections (if unavailable, select show “Classic view”)
3. Right click the *Local Area Connection* and select properties
4. Highlight *Internet Protocol Version 4 (TCP/IPV4)* and click the properties button below
5. Select *Use The Following IP Address* and Enter **192.168.1.10** into the IP Address field and **255.255.255.0** into the subnet mask field
6. Select *OK* and select *Close* on the Local Area Connection properties window.

Vista:

1. Select Start Menu/Windows Logo > Network > Network and Sharing Center > Manage Network Connections
2. Follow Steps 3-6 above from Windows XP

Windows 7:

1. Select Start Menu/Windows Logo > Network > Network and Sharing Center > Change Adapter Settings
2. Follow Steps 3-6 above from Windows XP



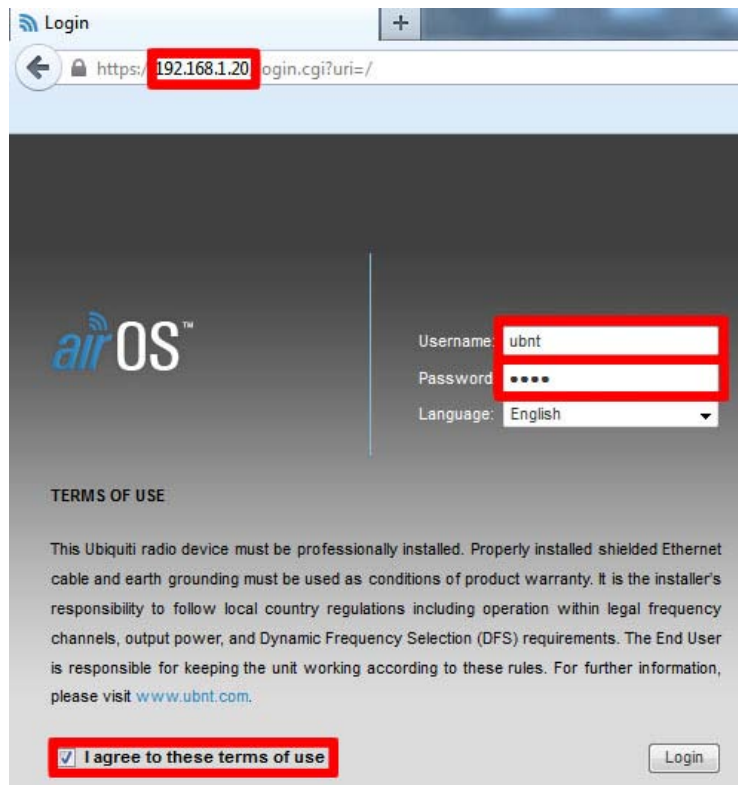
When you are finished setting up the 900 Mhz kit, you will need to change your connection back to “obtain and IP Address automatically” under “Internet Protocol Version 4 (TCP/IPV4)”

Macintosh OS X

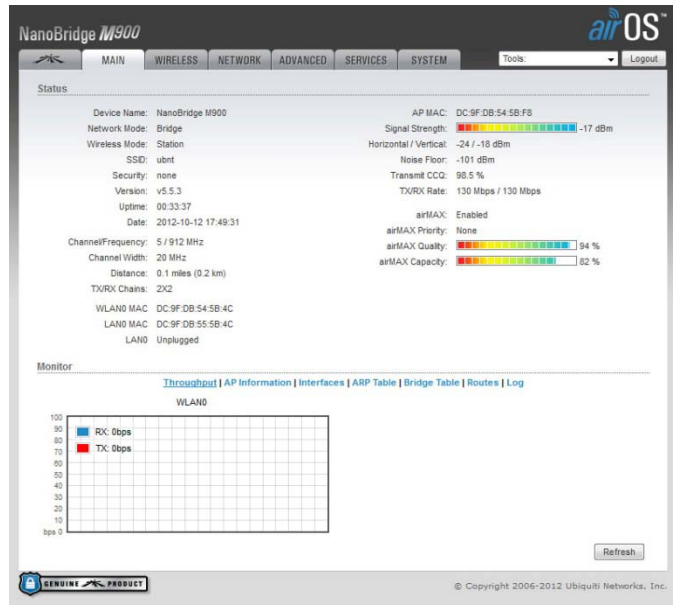
1. Select the Airport Status Icon (upper right hand corner of screen) and select "Turn Airport Off"
2. Launch *System Preferences* and select *Network*
3. Select the *Ethernet* connection from the left column
4. Set the *Configure IPv4* menu to "Manually"
5. Set *IP Address* to **192.168.1.10** and *Subnet Mask* to **255.255.255.0**
6. Click Apply to save these settings

Configuring the Primary Bridge Unit

1. Open a web browser (Internet Explorer, Mozilla Firefox, Safari, etc.) and enter **192.168.1.20** into the address bar and hit "Enter". (Image Below)
2. Enter **ubnt** into both the User Name and Password fields and select "OK" (This is the default username and password for the bridge unit and can be changed in the **System** tab)

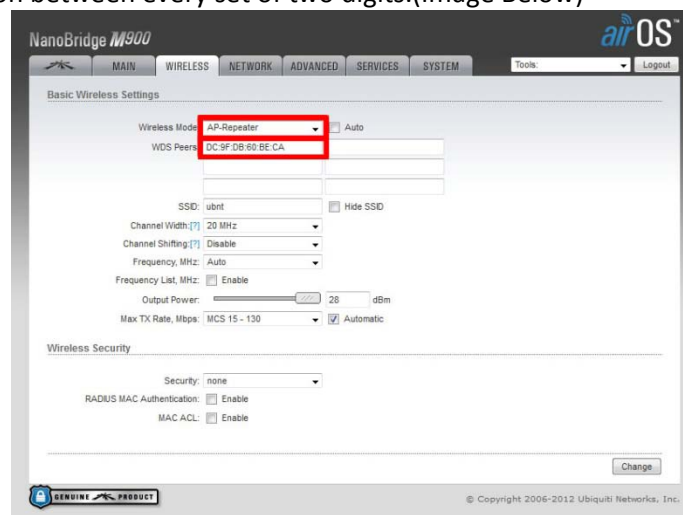


Login Screen



This is the main configuration page of your 900 Mhz Non-Line-Of-Sight Bridge System. This will show the current status of the unit along with LAN/WLAN throughput and signal strength once the unit is configured.

3. Select the **Wireless** tab and change the “Wireless Mode” to “**AP-Repeater**”. This will open the “WDS Peers” table. Enter the **MAC Address** of the secondary Bridge (12-digit alphanumeric code located on the top of the Bridge product box) into the first **WDS Peers** field. The **Mac Address** must include a colon between every set of two digits.(Image Below)



*(Do not enter the MAC address of the unit you are configuring into the WDS Peers field. If you are not sure of which address is correct, you can verify the address against the WLAN MAC address at the **Main** Tab of the configuration screen)*

4. Select “**Change**” in the lower right hand corner and then “**Apply**” at the upper right hand corner.
5. Once the Bridge has rebooted, you are ready to configure the second half of the bridge. Unplug the Ethernet cable from the Bridge you have just configured and connect to the Ethernet port of the second Bridge. The already configured bridge should still have power but not be connected to the computer.

Configuring the Secondary Bridge Unit

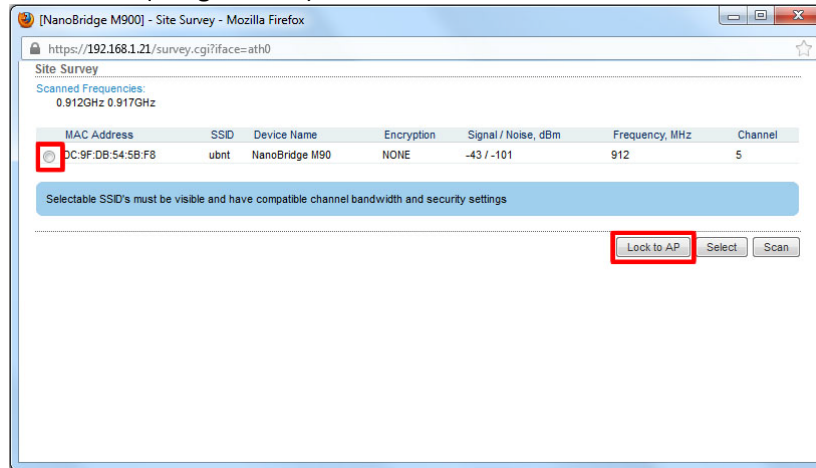
1. Follow the above steps 1-2
2. Select the **“Network”** Tab and change the IP Address field to **192.168.1.21** (Image Below)

The screenshot shows the NanoBridge M900 web interface with the 'NETWORK' tab selected. The 'Management Network Settings' section is expanded, showing the 'Management IP Address' set to 'Static' with an IP address of '192.168.1.21' highlighted in a red box. Other settings include Netmask: 255.255.255.0, Gateway IP: 192.168.1.1, and various checkboxes for Management VLAN, Auto IP Aliasing, and STP, all of which are checked. A 'Change' button is visible in the bottom right corner.

3. Select **“Change”** in the lower right hand corner and then **“Apply”** at the upper right hand corner. Wait for the unit to restart and then repeat steps 1-2 again but with **192.168.1.21** in the address bar
4. Select the **“Wireless”** tab and change the **“Wireless Mode”** to **Station**
5. Check the box next to **WDS (Transparent Bridge Mode)**
6. Next to **SSID**, click the **Select** button (Image Below)

The screenshot shows the NanoBridge M900 web interface with the 'WIRELESS' tab selected. The 'Basic Wireless Settings' section is expanded, showing 'Wireless Mode' set to 'Station' (highlighted in a red box), 'WDS (Transparent Bridge Mode)' checked (highlighted in a red box), and the 'SSID' field with a 'Select...' button (highlighted in a red box). Other settings include Channel Width: 20 MHz, Channel Shifting: Disable, and Output Power: 28 dBm. A 'Change' button is visible in the bottom right corner.

7. Select the button next to the corresponding **Mac Address** of the primary station and click the **Lock to AP** button below (Image Below)



8. Select **"Change"** in the lower right hand corner and then **"Apply"** at the upper right hand corner.

When you are finished setting up the 900 Mhz kit, you will need to change your connection back to "obtain and IP Address automatically" under "Internet Protocol Version 4 (TCP/IPV4)" This is found at the beginning of this guide.

Your 900 Mhz Non-Line-Of-Sight Bridge System is now configured!

The radios can now be connected to the included reflector dishes and the system can be deployed. The connection diagram at the beginning of this manual details the correct cabling connections for integration into an existing network or LAN. If you are bridging to a single computer, the LAN connection of the POE Injector of the remote unit or *"Station"* can be connected directly to the computer's Ethernet port to allow network access.

Additional Information

Most connection issues can be attributed to incorrect **MAC address** entry. If you are unable to gain network access or if the bridge is not functioning correctly, double check the MAC address entries against the WLAN MAC addresses listed on the Main Tab of each of the Bridge's configuration page. The 900 Mhz Non-Line-Of-Sight Bridge System is, by default, configured as a non-routing and non-addressing network device. If you wish to use these units to forward DHCP assigned addresses to a remote location, the default "Bridge" network mode will suffice (listed under the **"Network"** tab). If you wish to have one of the Bridges act as a DHCP server or NAT gateway, select the **"Router"** option and the unit will allow configuration of your LAN/WLAN addressing and DHCP functionality.

Wireless speeds are affected by many different environmental variables, including line-of-sight, frequency interference and ambient radio noise. The 900 Mhz Non-Line-Of-Sight Bridge System supports speeds up to 100 megabits/second (true throughput), however, due to natural variance in signal and the automatic speed selection, this may vary. If sustained speeds are required, you can lock the Bridge(s) into a throughput rate using the **"Transmission Rate, Mbps"** menu under the **"Wireless"** Tab