Network Switch Set-up Guide

Araknis

AN-210 & AN-310 Series

when used with a 1Gb RTI VIP distribution system
(single switch system configuration)

Revision: 1.0 - Nov 2020

Contents

Introduction

The 1Gb RTI VIP solutions require a 1Gb managed network switch in order for HDMI distribution to be achieved reliably, and without any loss of performance.

The following guide is a step-by-step instruction on how to connect and configure your network switch to support 1Gb VIP-UHD products.

Please ensure each step is followed and checked at each stage. Before exiting the set-up, it is advisable to reboot the switch, log-in, and double check all settings.

Switch Requirements

The following features need to be enabled on the network switch being used for an RTI VIP-UHD system:

1. Multicast
2. Jumbo Frames / Jumbo Packets / MTU
3. IGMP Management / Snooping
4. PoE (where being utilised)

Feature explanation:

- Multicast (one-to-many or many-to-many distribution) is a group communication where information is addressed to a group of network devices simultaneously (RTI VIP-UHD products).
- Jumbo Frames / Jumbo Packets / MTU are Ethernet frames with more than 1,500 bytes of payload. Conventionally, jumbo frames can carry up to 9,216 bytes of payload and must be activated in order to send large packets of data for HDMI distribution. Without this enabled, the ability for the VIP-UHD-TX units to transmit the HDMI data will not be achievable.
- IGMP Management & IGMP Snooping is the process of listening to Internet Group Management Protocol (IGMP) network traffic. The feature allows a network switch to listen in on the IGMP conversation between hosts, routers & receivers (VIP-UHD Transmitters, the network switch, and VIP-UHD Receivers). By listening to this flow of traffic the switch maintains a map of which links need which IP multicast streams i.e. which RTI VIP-UHD products are active and where the signal is being distributed to.
- PoE (Power over Ethernet) the RTI VIP-UHD devices are all capable of being powered by PoE. Power Supply Units are available for VIP-UHD devices, however, the products are not sold with these included. PoE can be disbaled on the switch if external PSU's are being used.

Network Topology for VIP

Our recommendation for the set-up of an RTI VIP-UHD system would be to have the customers business, or home network be kept independent of the VIP-UHD video distribution network. This negates the possibility of data flowing through one network reducing the performance of the other and vice-versa. The VIP-UHD-CTRL will act as a "bridge" between the two networks allowing for control data to be seamlessly transmitted between the two networks.

Where the the business / home network and VIP-UHD network are sharing a switch/es (not recommended). We would suggest creating a separate VLAN for the VIP-UHD network, ensuring there is a minimum 1Gb of bandwidth allocated to the VLAN. A networking professional should be consulted when designing this type of system to ensure the networks can co-exist on the same infrastructure.

Connecting to the Switch Web-GUI

To access the switch web-GUI, a connection between your computer and the switch should be made using an Ethernet cable.

Your computer must also be in the same IP range as the Araknis switch default IP address. If you are unsure how to update your computer IP range follow the 'Amending your IP Address' instructions towards the rear of this guide.

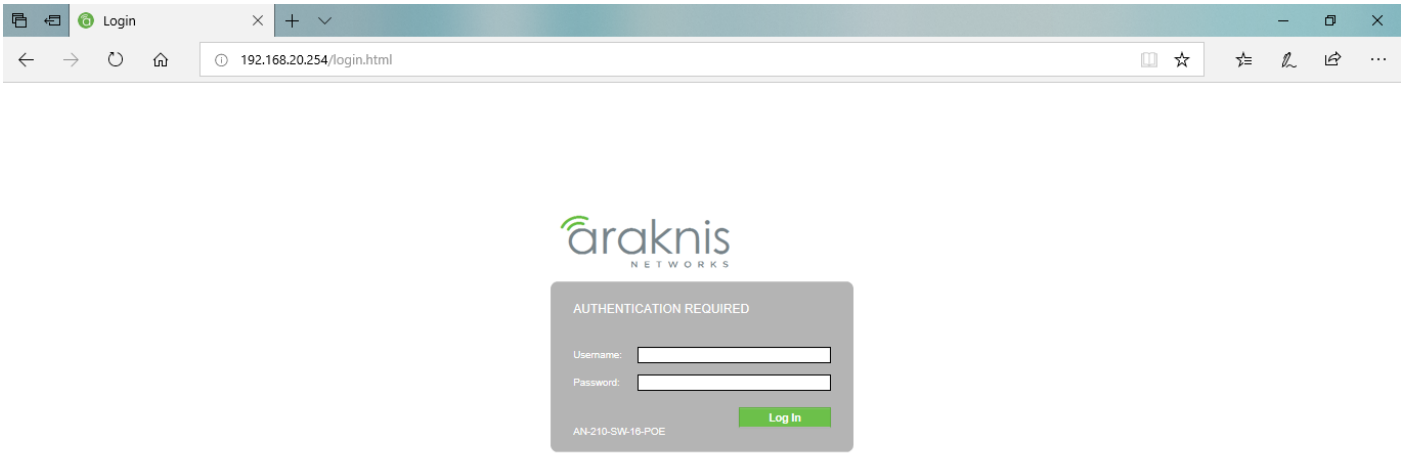
1. Open an internet browser (Google Chrome, Mozilla, Internet Explorer etc)
2. Type the network switch default IP address into the web browser bar
3. Enter the default user name and password

The switches factory default details are:

- IP Address: 192.168.20.254
- User: araknis
- Password: araknis

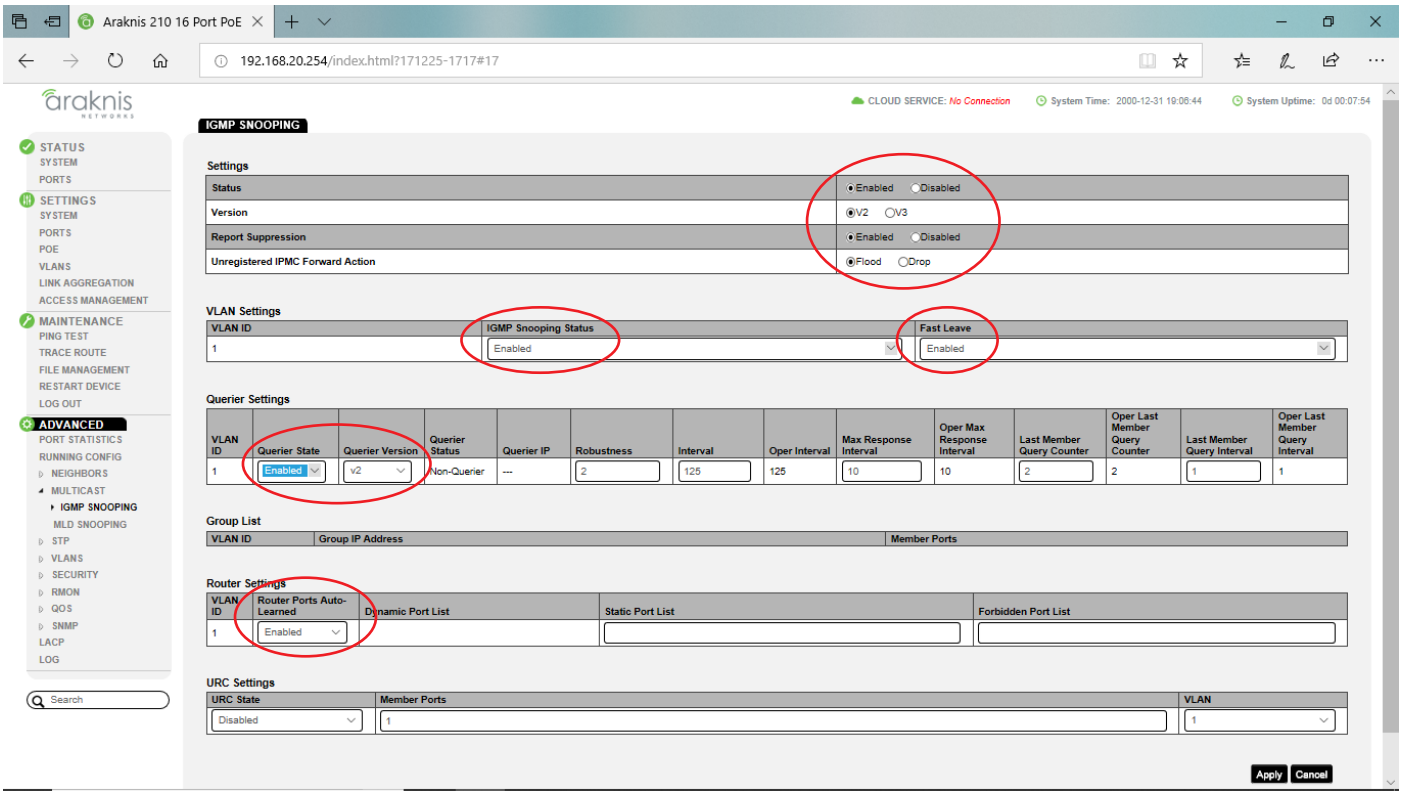
Please note: if the switch is not using the factory default settings, or the switch has been used previously, you will need to know the login details.

For new RTI VIP-UHD systems, or where a switch is not brand new, we would recommend factory resetting the switch prior to commencing any further through this guide. For details of how to factory reset the network switch please refer to the network switch user manual.



Activating IGMP Snooping

In the left-hand menu tree, navigate to: ADVANCED / MULTICAST / IGMP SNOOPING
Enable the settings as highlighted below:

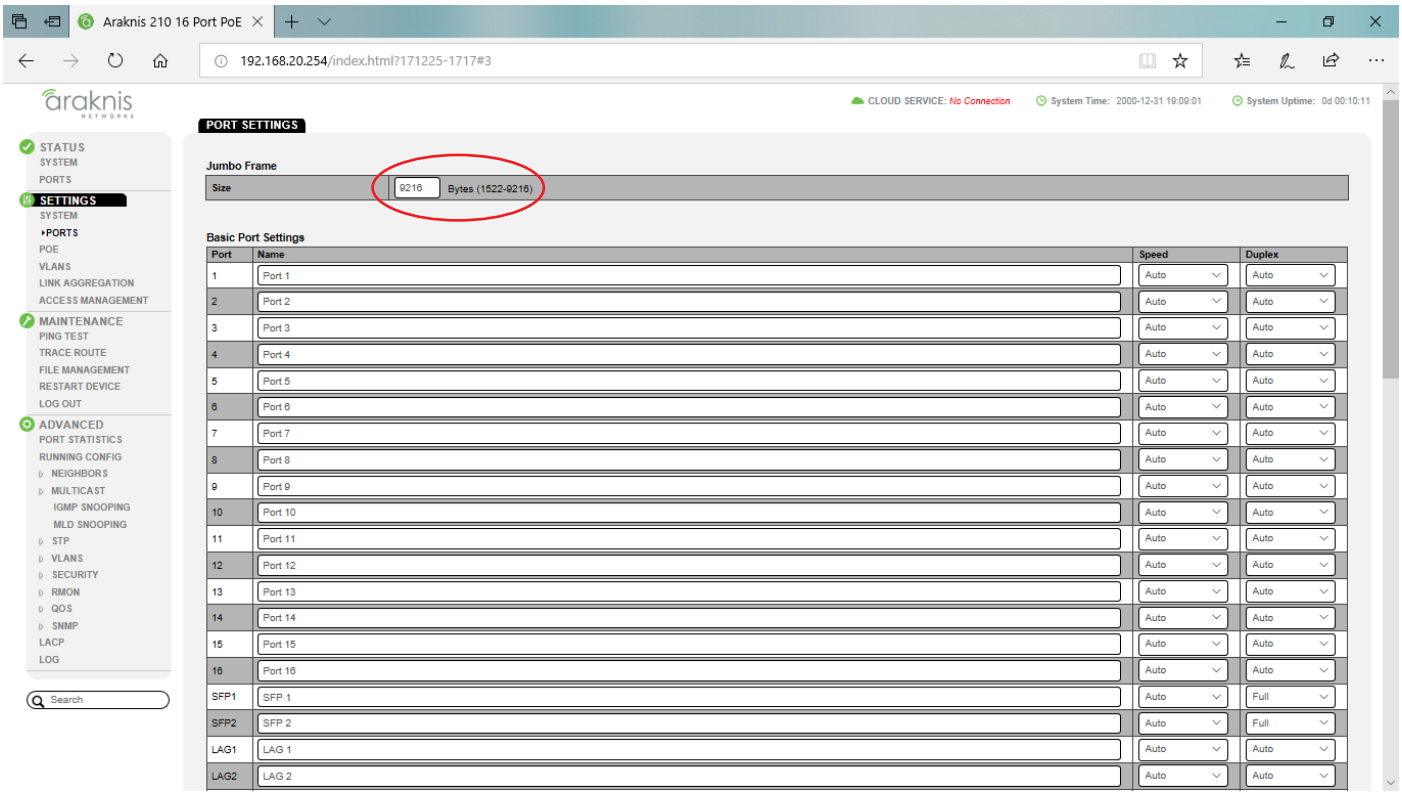


Click APPLY to update the settings before navigating to the next page.

Activating Jumbo Frame

In the left-hand menu tree, navigate to: SETTINGS / PORTS

Set the Jumbo Frame size value to a minimum of 8,500. The value 9,216 is the maximum and is an acceptable value for use with VIP-UHD.



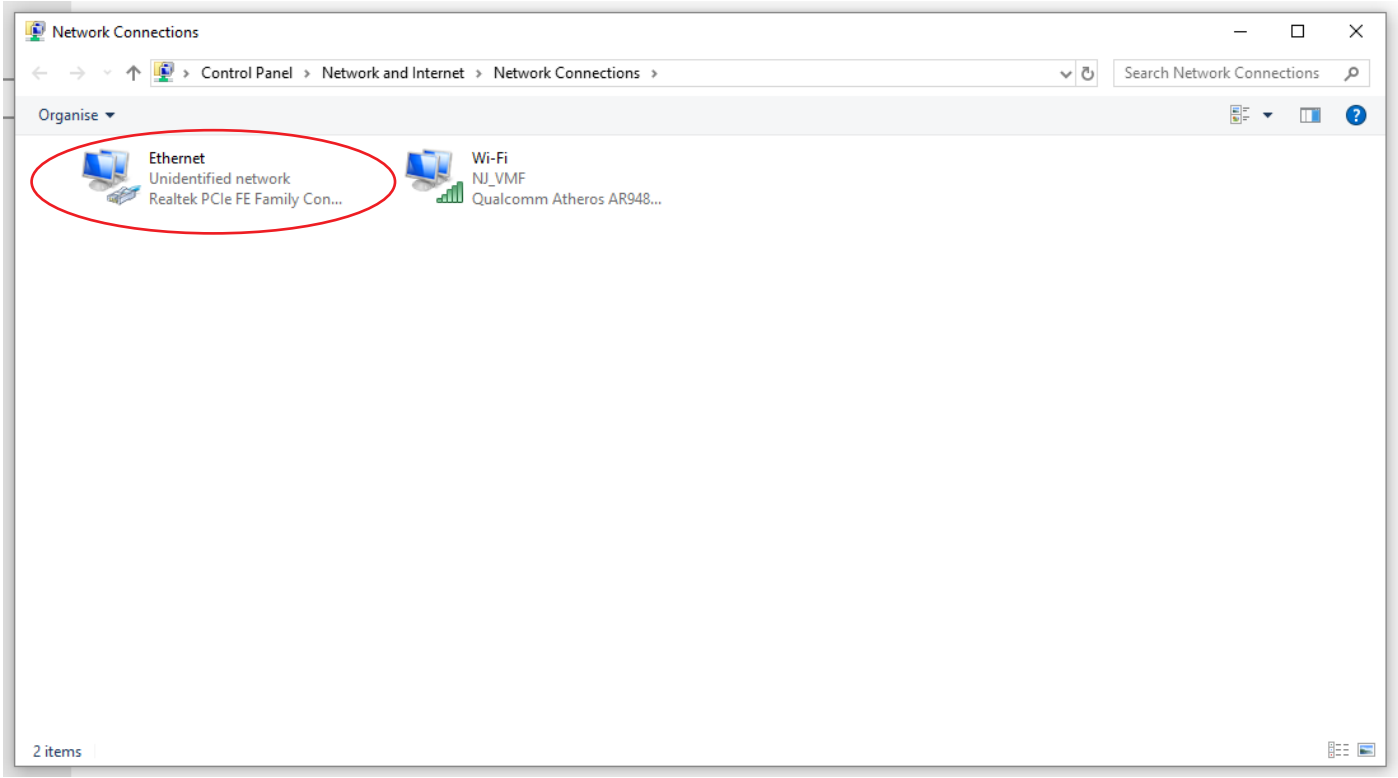
Click APPLY to update the setting.

Configuration of the Araknis switch is now complete. A back up of the configuration can be saved to your PC by navigating to:

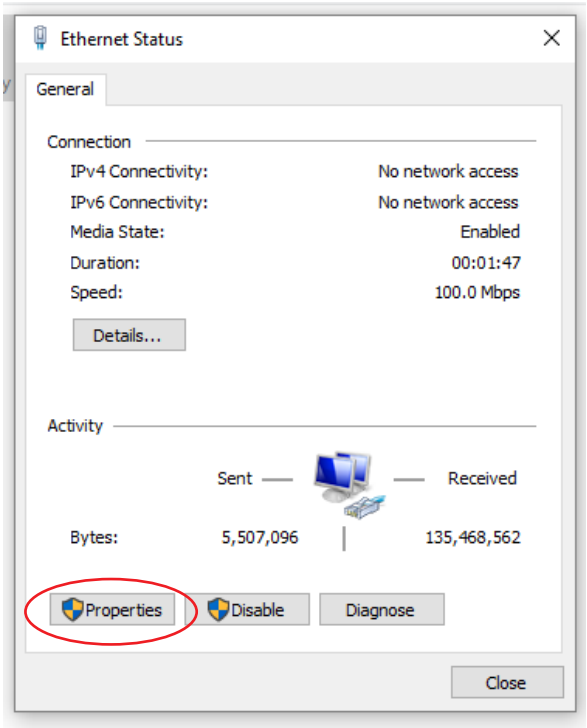
MAINTENANCE / FILE MANAGEMENT

Amending your IP Address in Windows

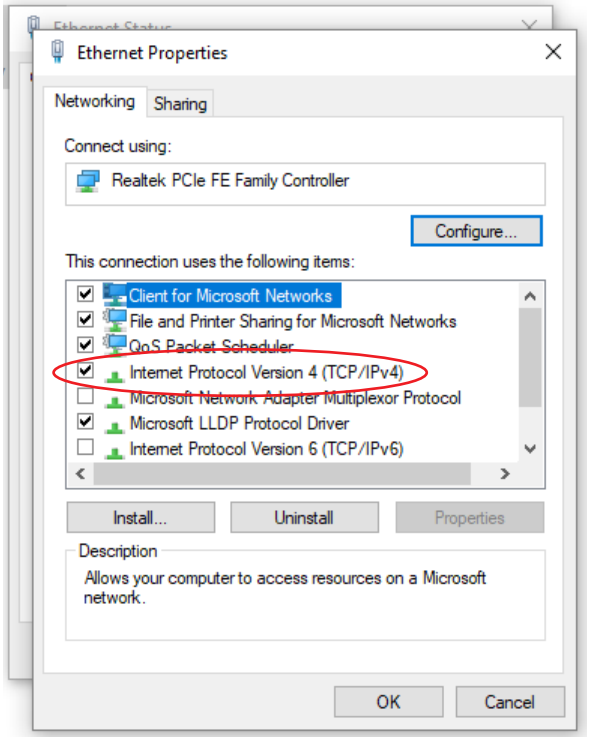
1. Connect the computer to the network switch using an Ethernet cable
2. Navigate to: CONTROL PANEL / NETWORK & INTERNET / NETWORK CONNECTIONS
3. Double click on the Ethernet connection as highlighted below:



4. In the pop-up windown that appears, click on: PROPERTIES



5. In the pop-up window that appears, double-click on: INTERNET PROTOCOL VERSION 4 (TCP/IPv4)



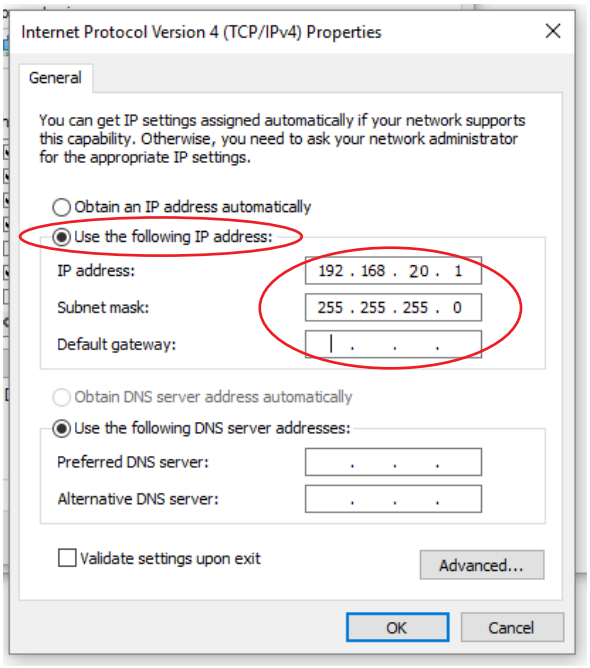
5. In the pop-up window that appears, double-click on the button marked: USE THE FOLLOWING IP ADDRESS

6. Enter the details as below:

IP Address: 192.168.20.1

Subnet mask: 255.255.255.0

Default gateway: *Leave this field blank*



7. Click: OK / OK / CLOSE

Your Windows PC will now be working in the IP range as set above and you will now be able to communicate with the equipment working within the same IP range.

Amending your IP Address in Mac OS

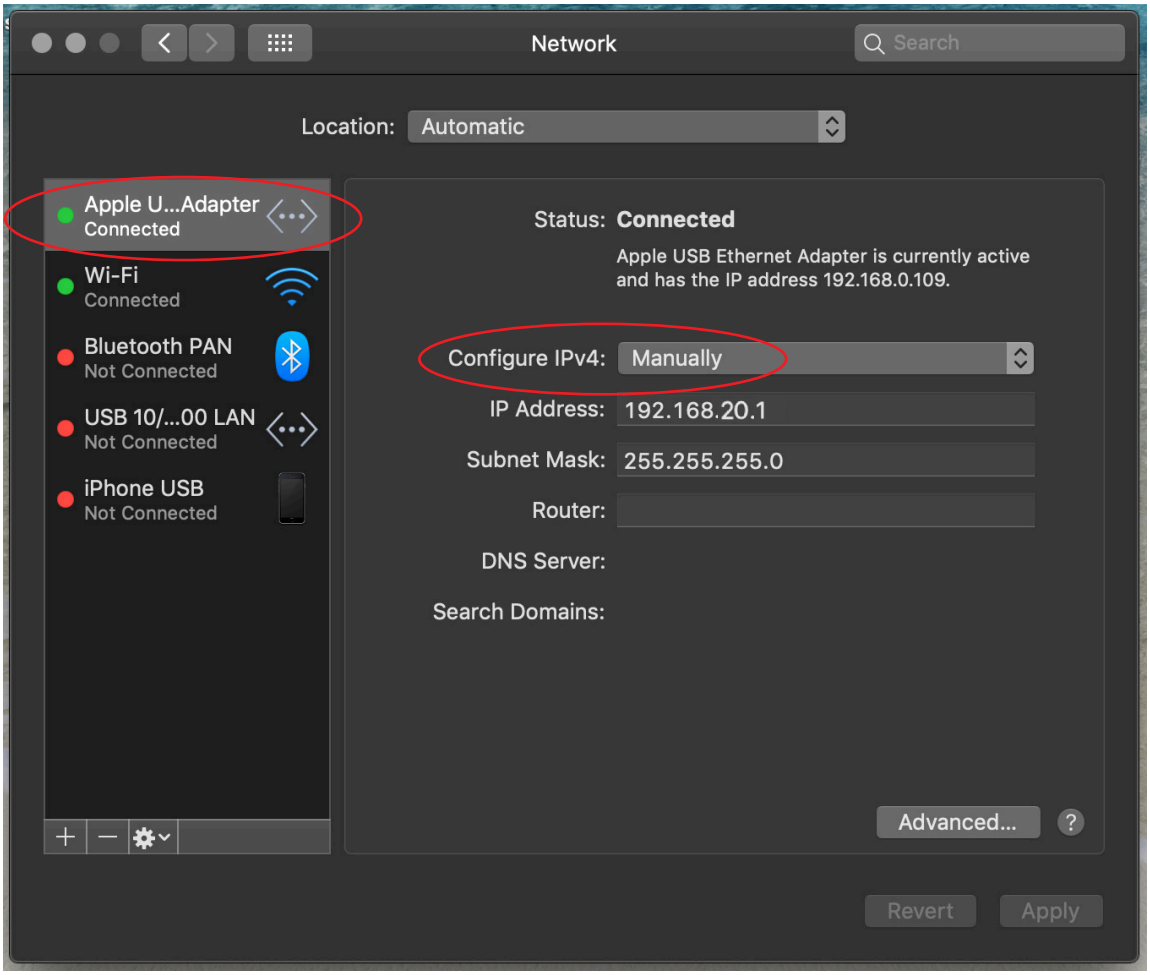
1. Connect the Mac to the network switch using an Ethernet cable
2. Click on the Network Connections icon in the toolbar at the top of the desktop
3. Navigate to: OPEN NETWORK PREFERENCES

4. Find the active Ethernet connection to the network switch on the left-hand menu tree
5. Use the drop-down box marked: CONFIGURE IPv4 and set to: MANUALLY
6. Enter the details as below:

    IP Address: 192.168.20.1

    Subnet mask: 255.255.255.0

    Router: *Leave this field blank*



7. Click: APPLY at the bottom of the page and close.

Your Mac will now be working in the IP range as set above and you will now be able to communicate with the equipment working within the same IP range.

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