Telemetry – Network Troubleshooting

Hydro Network Troubleshooting Guide

- Follow the OSI Model flow diagram when troubleshooting network issues on site

Notes

Issue usually here

1 Physical

Power at site?

Cable in good condition?

Connectors in good condtion?

PoE output correct? see PoE standards

Restart devices?

Swap devices

2 Data Link

Lights blinking on the device and router?

3 Network

Can I ping?

4 Transport

NL200/Teltonika setup for TCP/UDP?

Serial port setup correct on logger?

FTP details correct in camera?

5 Session

Load Balancer have correct IP?
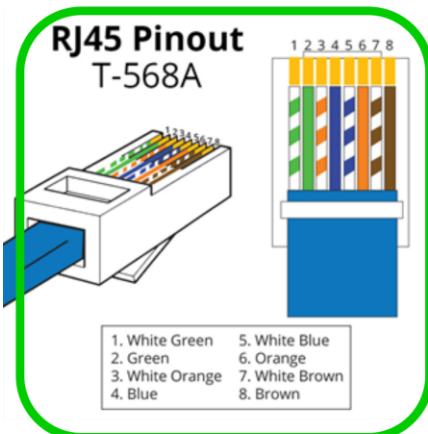
6 Presentation

Transfer tables correct? (call Paul)

IPPort in Loggernet Setup correct?

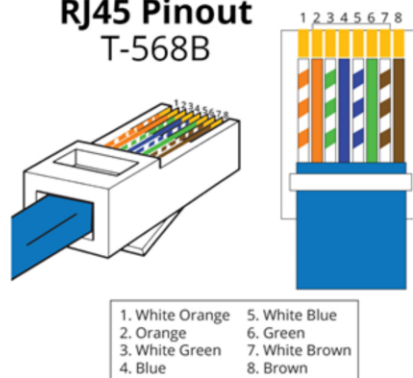Chris V camera FTP scripts working?

7 Application

Call in on Loggernet?

Latest camera images on website?

Data coming through to Hilltop?

Use Me

RJ45 Pinout T-568A

1. White Green
2. Green
3. White Orange
4. Blue
5. White Blue
6. Orange
7. White Brown
8. Brown

RJ45 Pinout T-568B

1. White Orange
2. Orange
3. White Green
4. Blue
5. White Blue
6. Green
7. White Brown
8. Brown

PoE Standards					
Name	**Ubiquiti**	**Type 1**	**Type 2**	**Type 3**	**Type 4**
Standard	Passive	802.3af PoE	802.3at PoE+	802.3bt PoE++	802.3bt PoE++
Voltage	24V	37-57V	42.5-57V	42.5-57V	42.5-57V
Max Power	24W	13W	26W	51W	71W
Example	Most Ubiquiti	MikroTik	Camera	PTZ Camera	Starlink

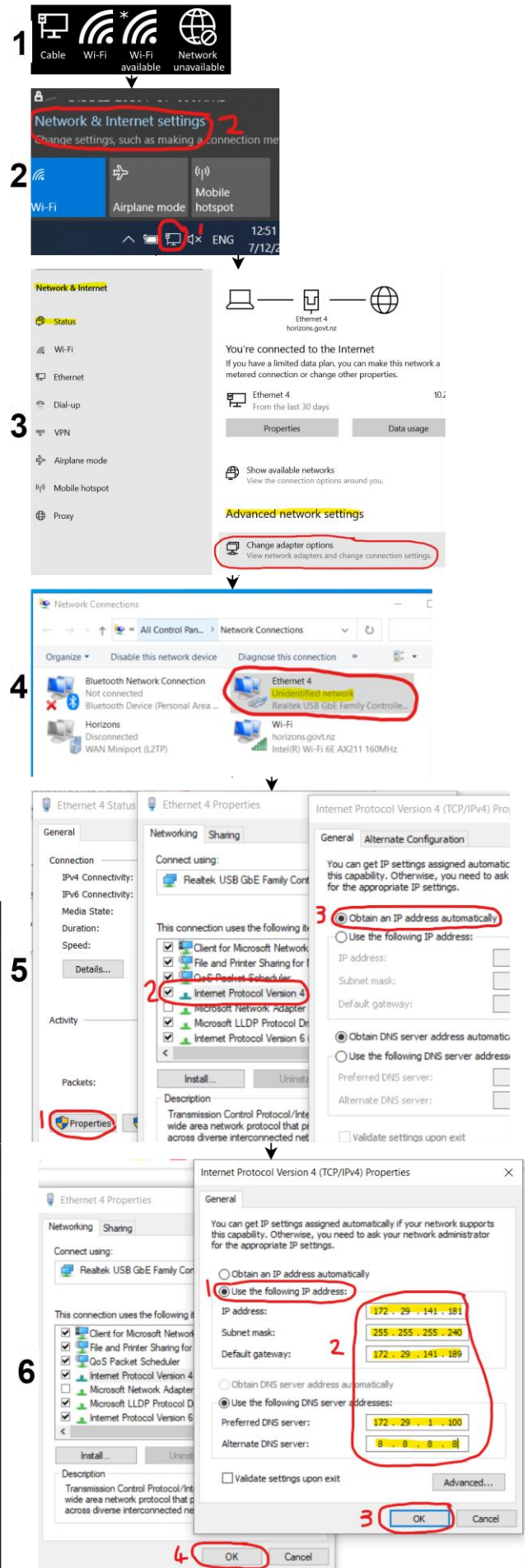## Telemetry – Network Troubleshooting

Change IP Windows 10

1. Select the *network icon* in the taskbar
2. Select *Network and Internet settings*
3. Select *Change adapter options*
4. Select the *ethernet adapter*
   - If you have multiple ethernet adapters plug you ethernet cord in and out. Your adapter should toggle between, Network cable unplugged, and Identifying/Unidentified network
5. *Properties* > *Internet Protocol Version 4 (TCP/IPv4)* > *Obtain an IP address automatically*
6. *Use the following IP address.* Enter the IP details. Select *OK* on both windows

Hot Tech tips

- Look at comms reporter to make sure you pick an IP in the correct subnet that doesn't clash
- Standard Subnet: 255.255.255.240
- High site Subnet: 255.255.255.0
- Gateway is usually the IP of the router
- DNS: 172.29.1.100
- Alternate DNS: 8.8.8.8

Default IP

Brand	Suggested	Subnet	Login IP
4RF	169.254.50.1	255.255.0.0	169.254.50.10
Cybertec	10.10.10.20	255.255.255.0	10.10.10.10
Dahua	192.168.1.2	255.255.255.0	192.168.1.108
MikroTik	192.168.88.2	255.255.255.0	192.168.88.1
Netonix	192.168.1.2	255.255.255.0	192.168.1.20
Teltonika	192.168.1.2	255.255.255.0	192.168.1.1
Ubiquiti	192.168.1.2	255.255.255.0	192.168.1.20

255.255.255.240 /28 Subnet

Network	IP Range	Broadcast
0	1-14	15
16	17-30	31
32	33-46	47
48	49-62	63
64	65-78	79
80	81-94	95
96	97-110	111
112	113-126	127
128	129-142	143
144	145-158	159
160	161-174	175
176	177-190	191
192	193-206	207
208	209-222	223
224	225-238	239
240	241-254	255

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Open Command Prompt

- Click on the *windows icon*
- Type *cmd*
- Select *Command Prompt*

IP Config

Type *ipconfig* into the command prompt window and hit enter

This displays the network settings for each adapter. Use it to ensure you are on the correct range before attempting to ping a device

Ping

Type *ping <ip>* and hit enter (e.g. ping 172.29.141.67)

To continually ping add a *-t* to the end of the command (e.g ping 192.168.1.20 -t)

This tests if a device is avaliable on a network. Image 3 shows a successful ping test. Note the time of the ping, should be 1-100ms.

Request timed out means the device is outside the range of your IP address. Use ipconfig (see above) to verify your settings and double check the IP address in comms reporter spreadsheet. Image 4 is an example where the IP has been entered incorrectly; 172.2.141.67 instead of 172.29.141.67

Destination host unreachable means the device is in range but not avaliable. Image 5 shows a device working, then the cable is pulled resulting in an error. The error clears once the cable is plugged back in. Double check you are pinging the correct IP.

Trace Route

Type *tracert <ip>* and hit enter (e.g. tracert 172.29.40.45)

This shows the hops the data takes through routers/vlans to get to your device. Image 6 shows the route to the Retaruke to Ohakune Link
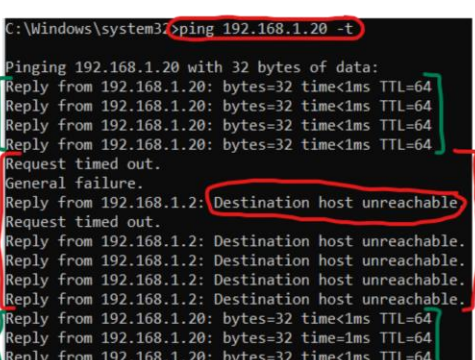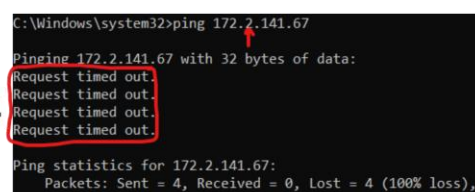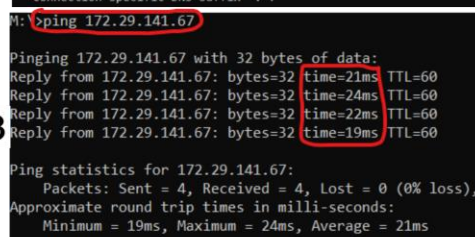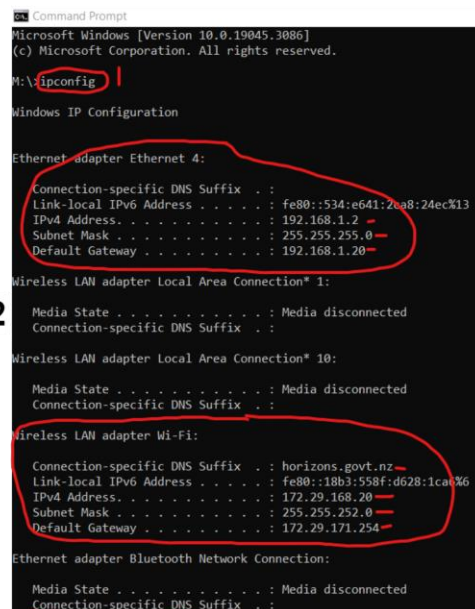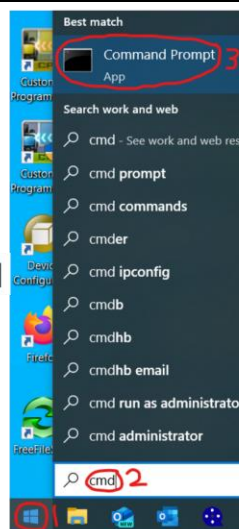
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Angry IP Scanner

This tool scans a range of IP's. It can help identify which IP corresponds to a device.

Setup

- Select *Preferences cog* > *Ports tab*
- In Port Selection box enter:
  - *21,80,81,443,8080,6785,4000-4010,37777,37778*