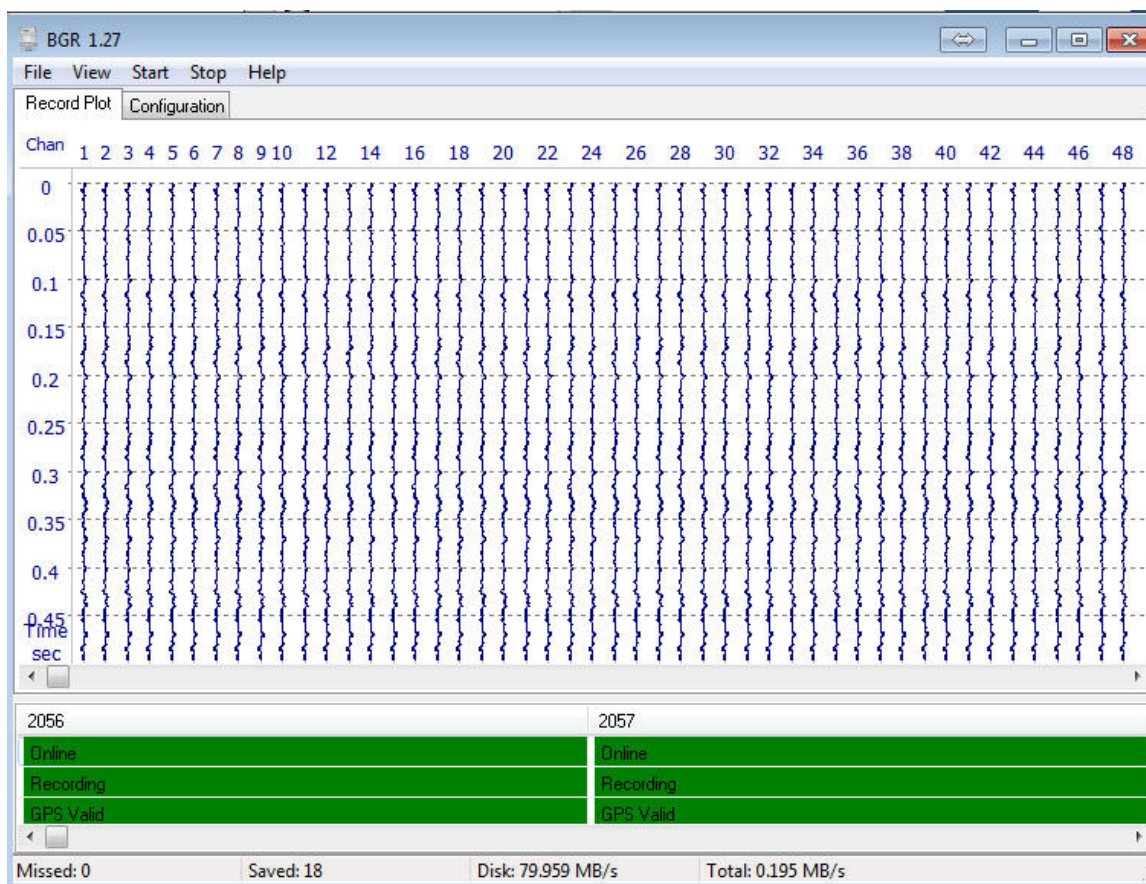




BGR Software

Seismic Acquisition Software



User's Manual



DAQLink 4 System User's Manual

Printed in U.S.A.

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Seismic Source Company

2391 East Coleman Rd.
Ponca City, OK 74604
USA
Telephone: (580) 762-8233
Fax: (580) 762-1785
Email: mail@seismicsource.com

www.seismicsource.com

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1 Introduction

1.1 System Description

BGR software can be used with any of the following seismographs:

- DAQLink 4
- DAQLink 3
- Sigma 3
- Sigma 4
- MetricPro

The BGR software provides a high-speed recording system for recording and saving large amounts of data quickly. The BGR has minimal features to provide a very fast interface to acquire and save data quickly on a Windows PC computer. Vscope or SrcSig software should be used when more recording features and options are required.

1.2 Ethernet Setup

This network must be setup on the computer before using the BGR software.

Please refer to Ethernet setup section of this manual for detailed instructions on setting up the Ethernet settings on your computer.

1.3 BGR Installation

WinPCap Ethernet driver must be installed on your computer to speed up the reception of the data packets on the wired Ethernet port. After installing WinPCap, the BGR program can be run.

Copy the BGR.exe program to your computer. No other installation is needed. Just start the BGR.exe program

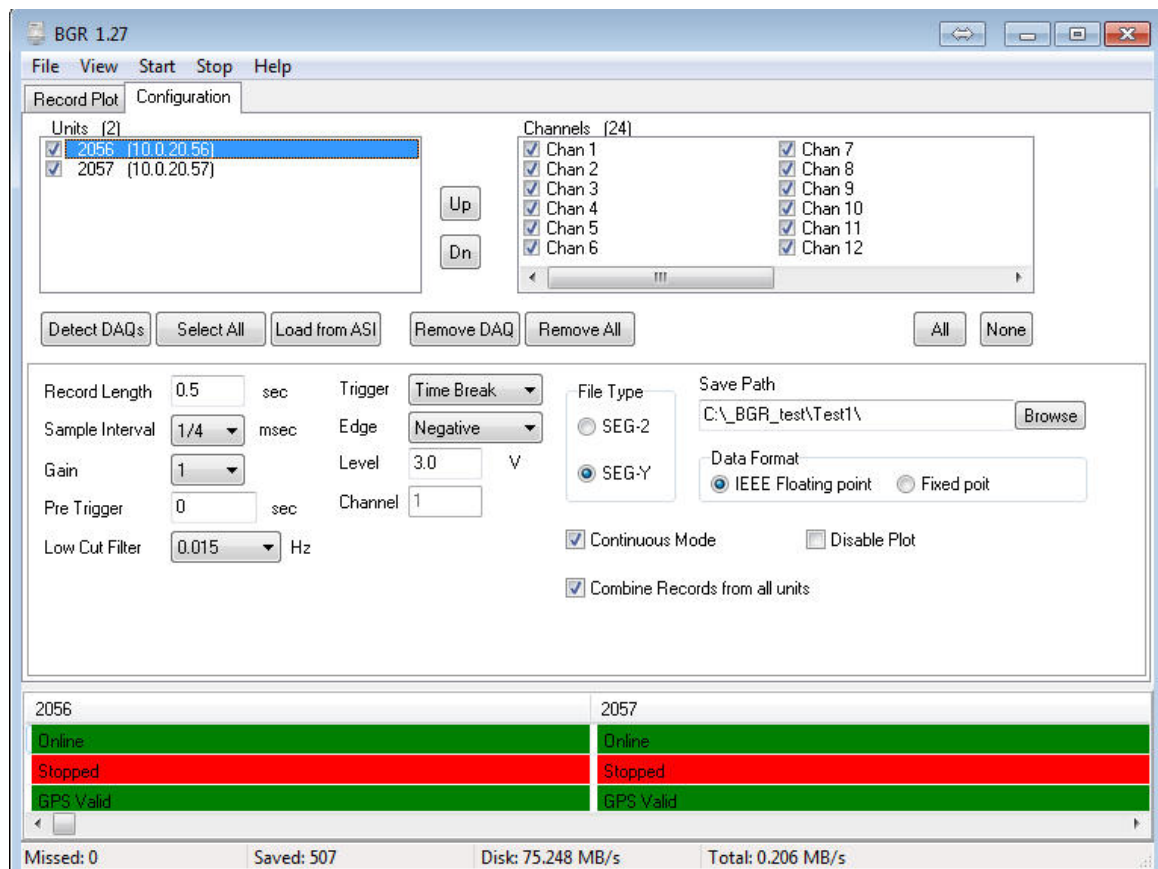
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2 BGR operation

2.1 Setting up BGR

2.1.1 Configure BGR software

Go to the Configuration Tab



Press the Detect DAQ button – Recorders that are connected to the BGR program should appear in the list. You can change the order of the DAQlink units by first highlighting the DAQlink unit in the list and then pressing the UP or Dn (Down) buttons.

An ASI file can also be used to define the order and number of units to be in each record.

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Setup the Required recording parameters

- Record Length
- Sample Interval
- Gain
- PreTrigger Time
- Low Cut Filter

Setup the Trigger Type

- Time Break – uses external trigger closure or voltage level to start each record
- Auto – The system will AutoStart. This is very useful in testing the connection of the system
- Channel – System can be started when one of the seismic channels exceeds a predetermined voltage level
- GPS time – This mode can be used to setup continuous recording based on GPS time

Setup File storage – every time a record occurs the data will be saved

- File Type – either SEG-Y or SEG-2
- Data Format – IEEE Floating Point or Fixed Point
- Path on the computer where the data will be saved

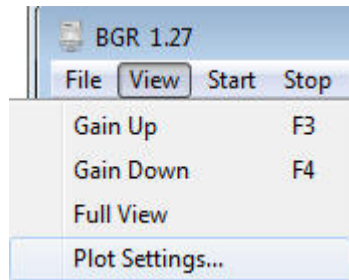
Continuous Mode – This feature enables the DAQlink to automatically start a new record once the first record is completed. Enable this feature for High speed recording of multiple triggers

Combines Records from all units – Select this feature to combine the data from multiple DAQlinks into one record

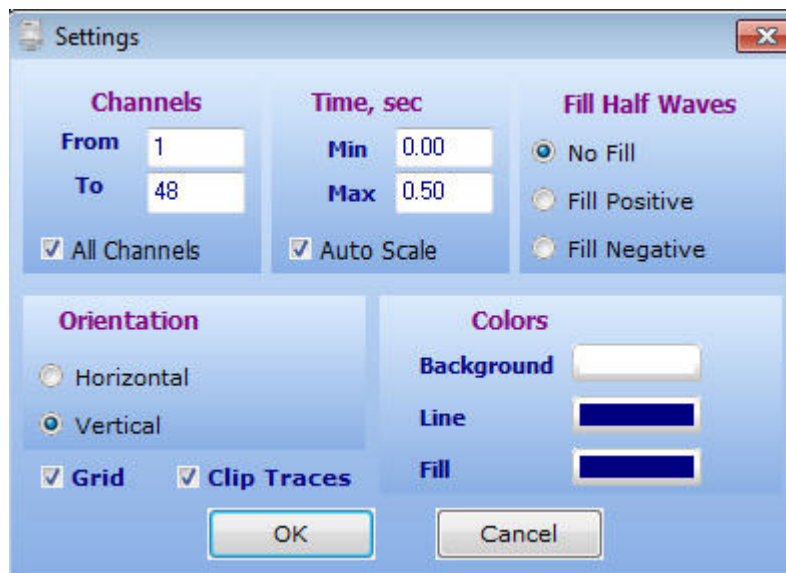
Disable Plot – Disable the plots when there is too much data for the computer to plot. This allows the computer to save the data to file without plotting any data.

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2.1.2 Plot Settings



Enter the desired settings

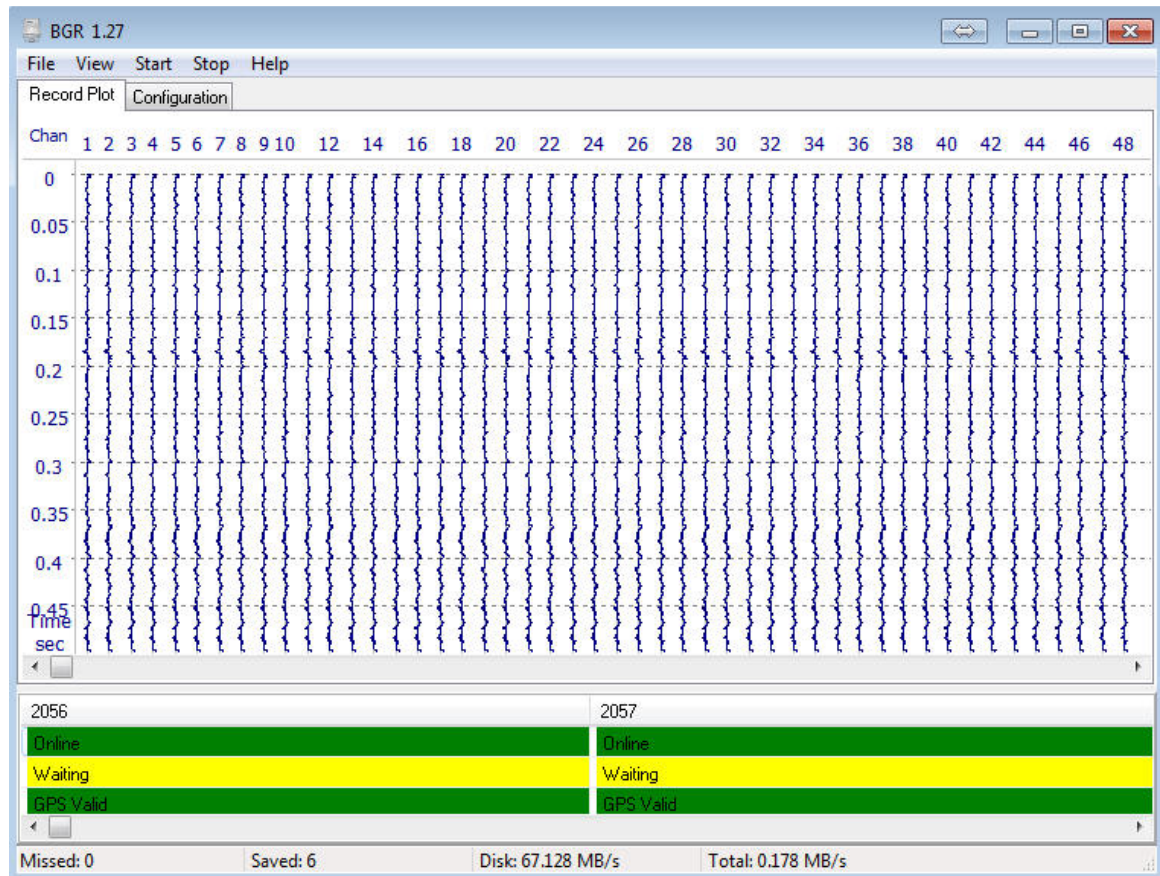


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2.2 Recording Data

Press the Start button to start the recording **Start**. Also pressing ALT+S on the keyboard will start the recording

Press the Stop button to stop recording **Stop**. Also pressing ALT + T on the keyboard will stop the recording



F3 button will increase the Gain on the plot

F4 button will decrease the Gain on the plot

3.1 Computer Network Setup

3.1.1 Introduction

Normally, it is necessary to set up a fixed TCP/IP address for the computer to communicate with the DAQLink 4 unit.

IP Address SET to FIXED IP ADDRESS – 10.0.0.101

All Firewalls Disabled

3.1.1.1 Pre-Requisite Software

- Run full installer to get all pre-requisites installed. Latest full install of SSC/iSeis applications is located at http://files.seismicsource.com/Software/SSC_setup.exe

3.1.1.2 Ethernet Setup

- For DAQ4 and Sigma use 10.X.X.X with 255.0.0.0 subnet static IP
- For DAQ3-24 use 192.168.0.X with 255.255.255.0 subnet static IP
- For HyMesh contact SSC/iSeis

3.1.1.3 Notes

Before communicating with most Seismic Source and iSeis equipment, a FIXED IP ADDRESS must be set in the computer, and the WinPcap Ethernet driver must be loaded. To set up a fixed TCP/IP address for your computer perform the following:

- IP Address SET to FIXED IP ADDRESS: 10.0.0.101
- Subnet MASK: 255.0.0.0
- It is also recommended to disable all other Network connections.
- All Firewalls Disabled
- Computer Control of Network Card Power Disabled

It is sometimes necessary to reboot the computer to have the new address take effect.

3.1.2 Windows 10 Ethernet Setup

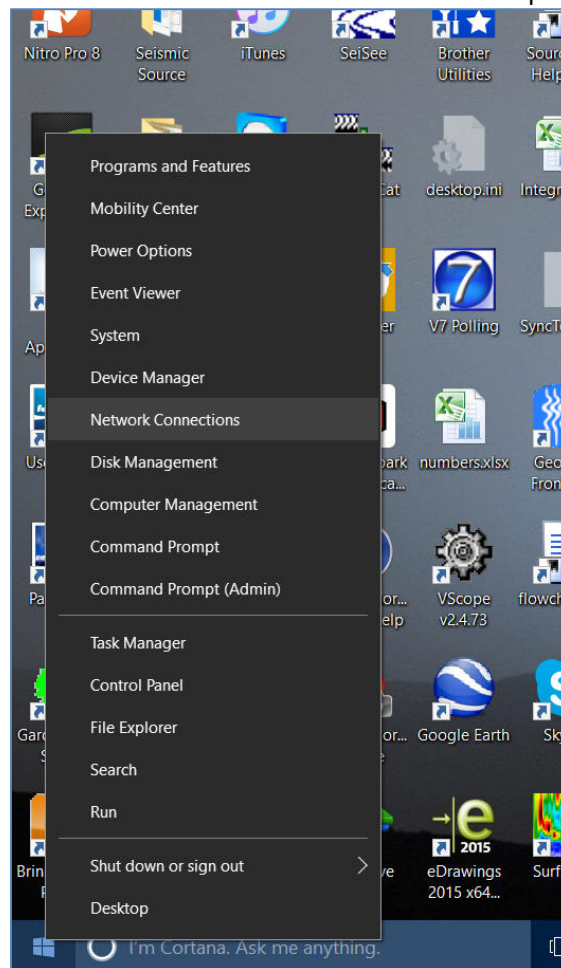
Windows 10 is the newest of the Microsoft operating systems, and many of the menus have changed. And several of the screens may be different depending on the updates applied to the computer.

Make sure the Computer IP address is on 10.x.x.x network (e.g. 10.0.0.101) with all firewalls and power management disabled.

If computer has not been setup for this IP address:

3.1.2.1 Changing the Computer's IP Address

For Windows 10, right-click on the Microsoft Window's logo in the bottom left corner of the screen. Then select the "Network Connections" option.

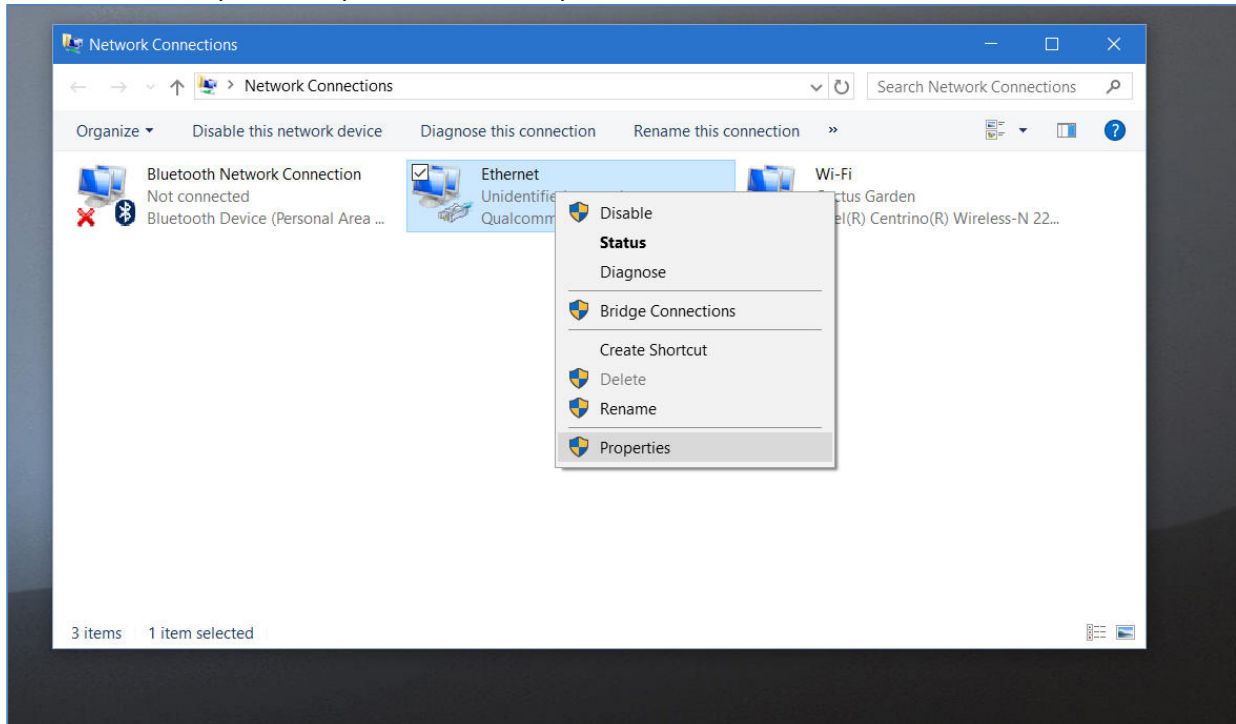


Right-Click Menu showing Command Options

These options can also be found in the Windows 10 "Control Panel".

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The “Network Connections” window will display all the available network options on the computer. Next, right-click on the Ethernet adapter for the cabled connection, and then on the “Properties” option for the adapter.

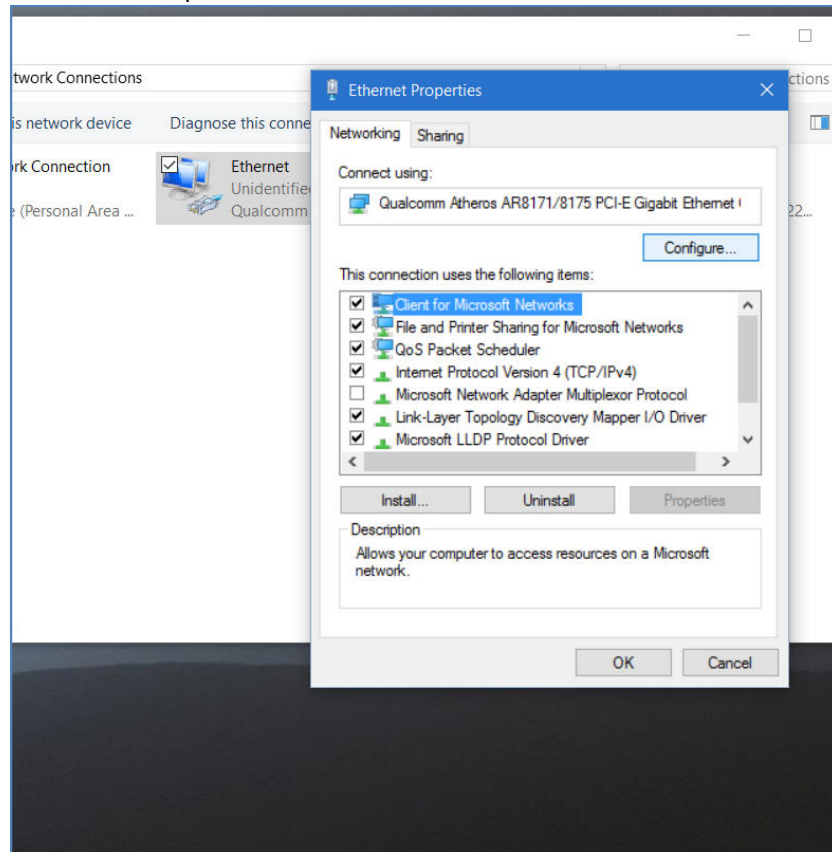


Pop-Up Menu showing available Network Adapters

It is also recommended to disable other network connections that might conflict with the communication process. Highlight the other connections (like Wireless) and select **Disable**.

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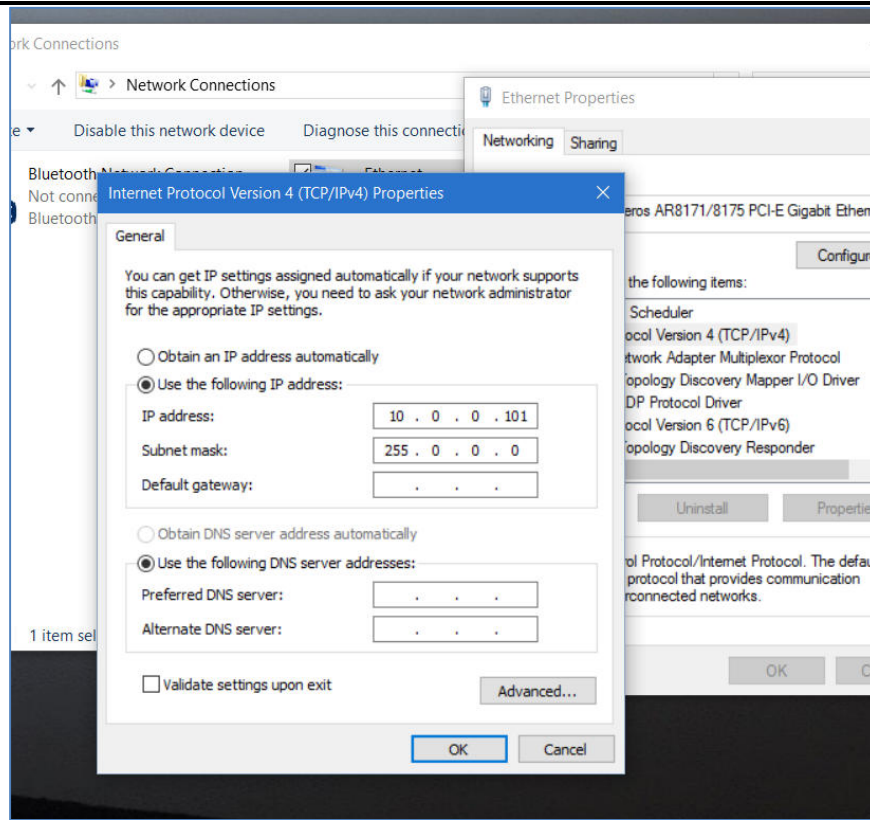
In the Properties menu for that adapter, select "Internet Protocol Version 4 (IPv4)", and then click on the "Properties" button.



Control Panel showing Network and Sharing Center

Also, consider disabling (by un-checking the selection box) the "Internet Protocol Version 6 (IPv6)" option.

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Updating the “IP address” and “Subnet mask”

Use following address and mask:

- IP address 10.0.0.101
- Subnet Mask..... 225.0.0.0

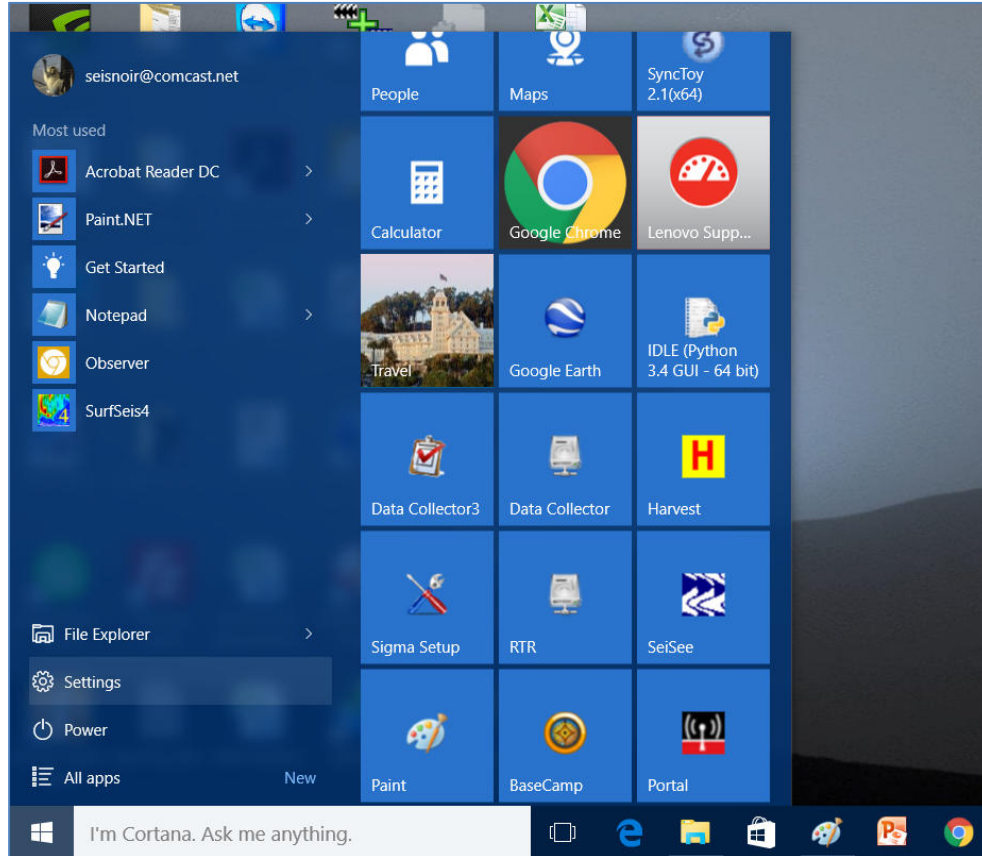
Press OK to accept entries.

It is sometimes necessary to reboot the computer to have the new address take effect.

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3.1.2.2 Changing the Computer's Firewall Setting

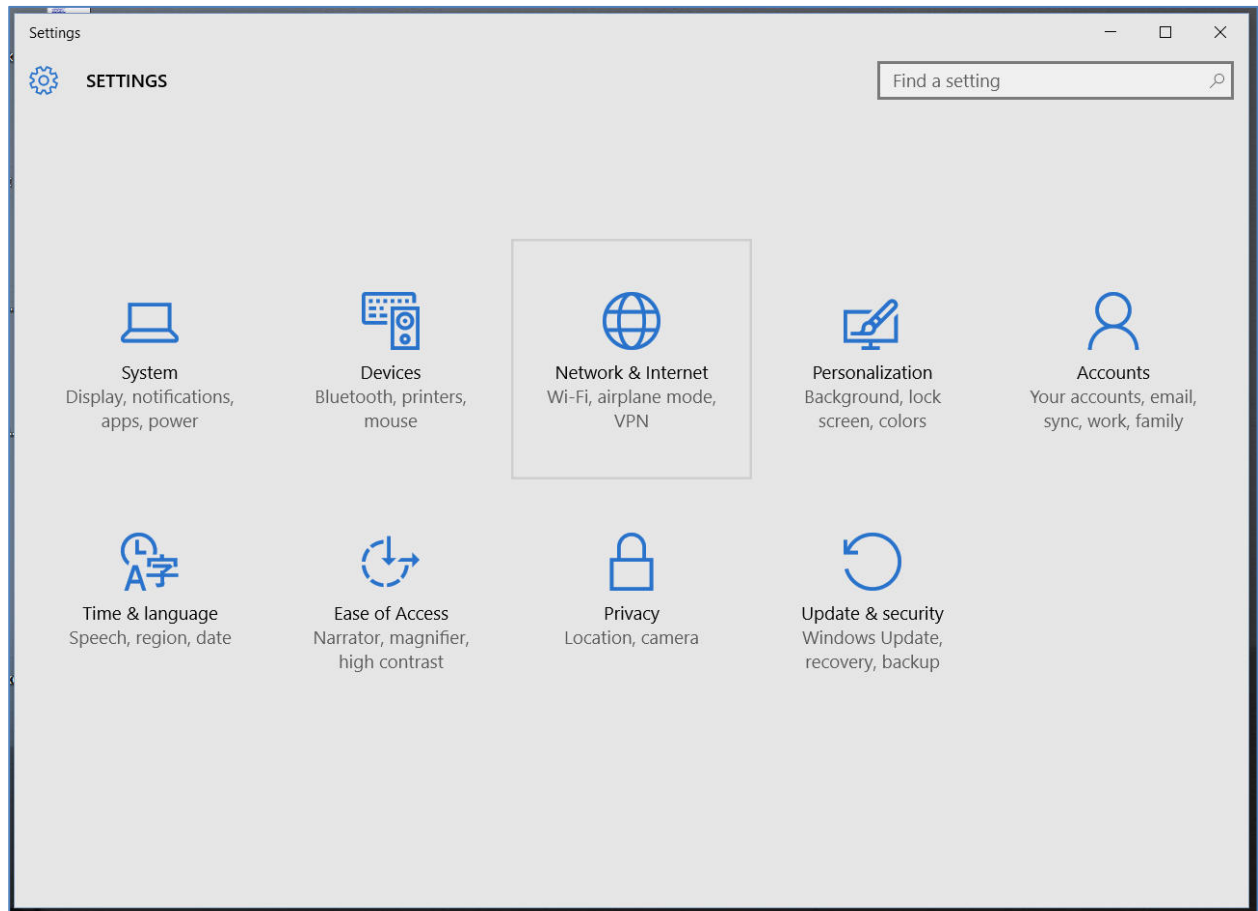
For Windows 10, right-click on the Microsoft Window's logo in the bottom left corner of the screen. Then select the "Network Connections" option.



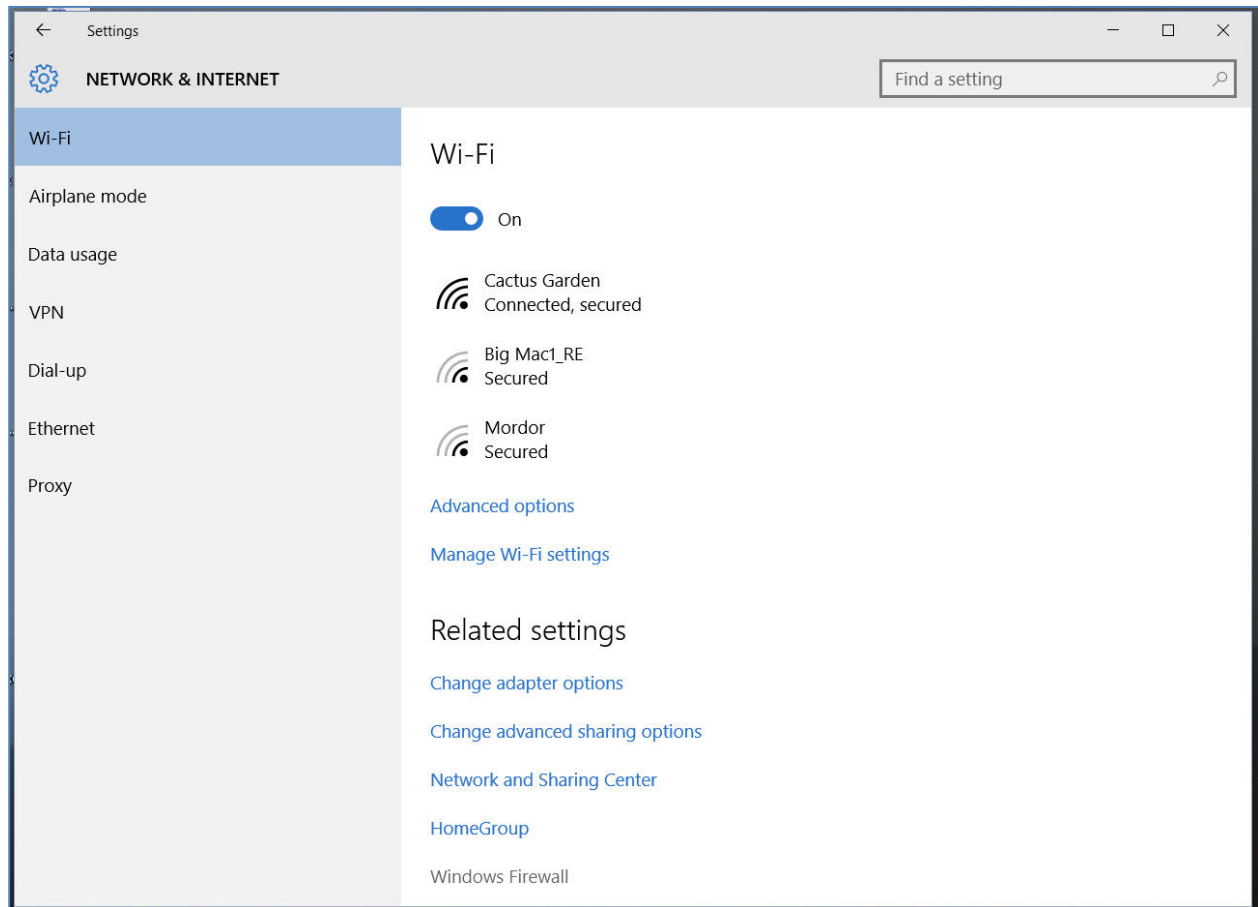
Right-Click Menu showing Command Options

These options can also be found in the Windows 10 "Control Panel".

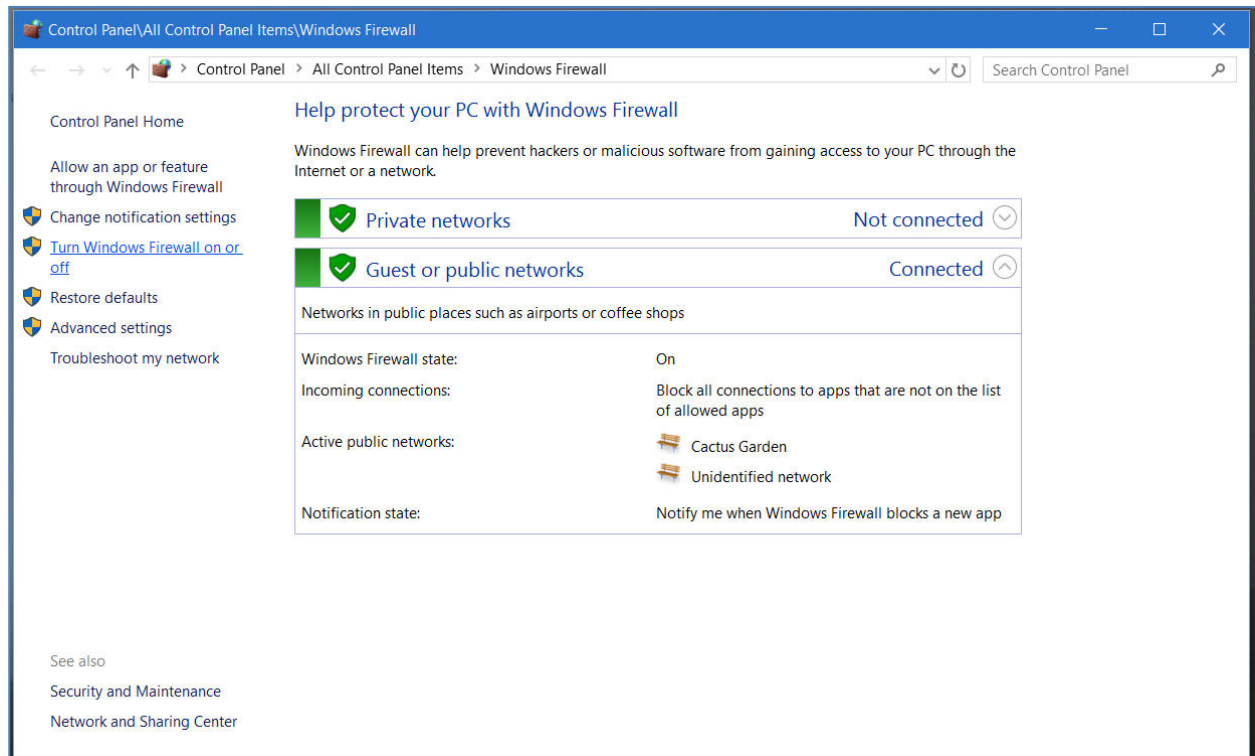
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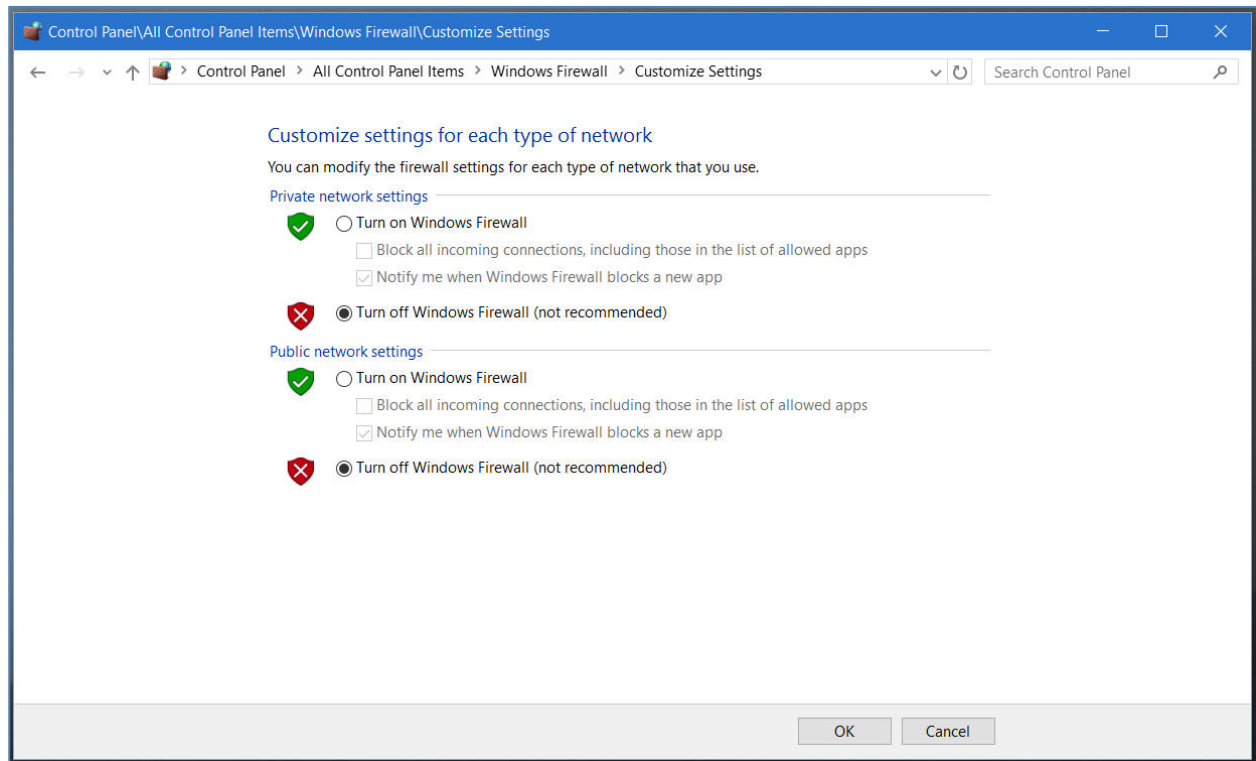
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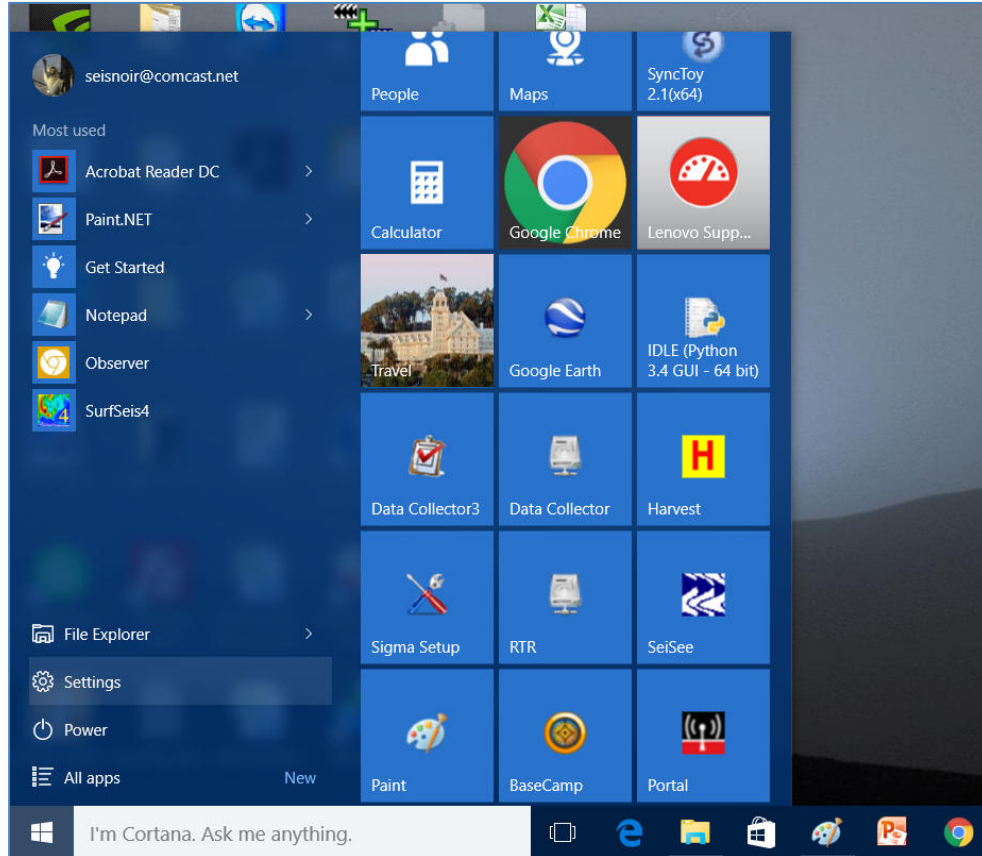
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3.1.2.3 Changing Window Defender's Setting

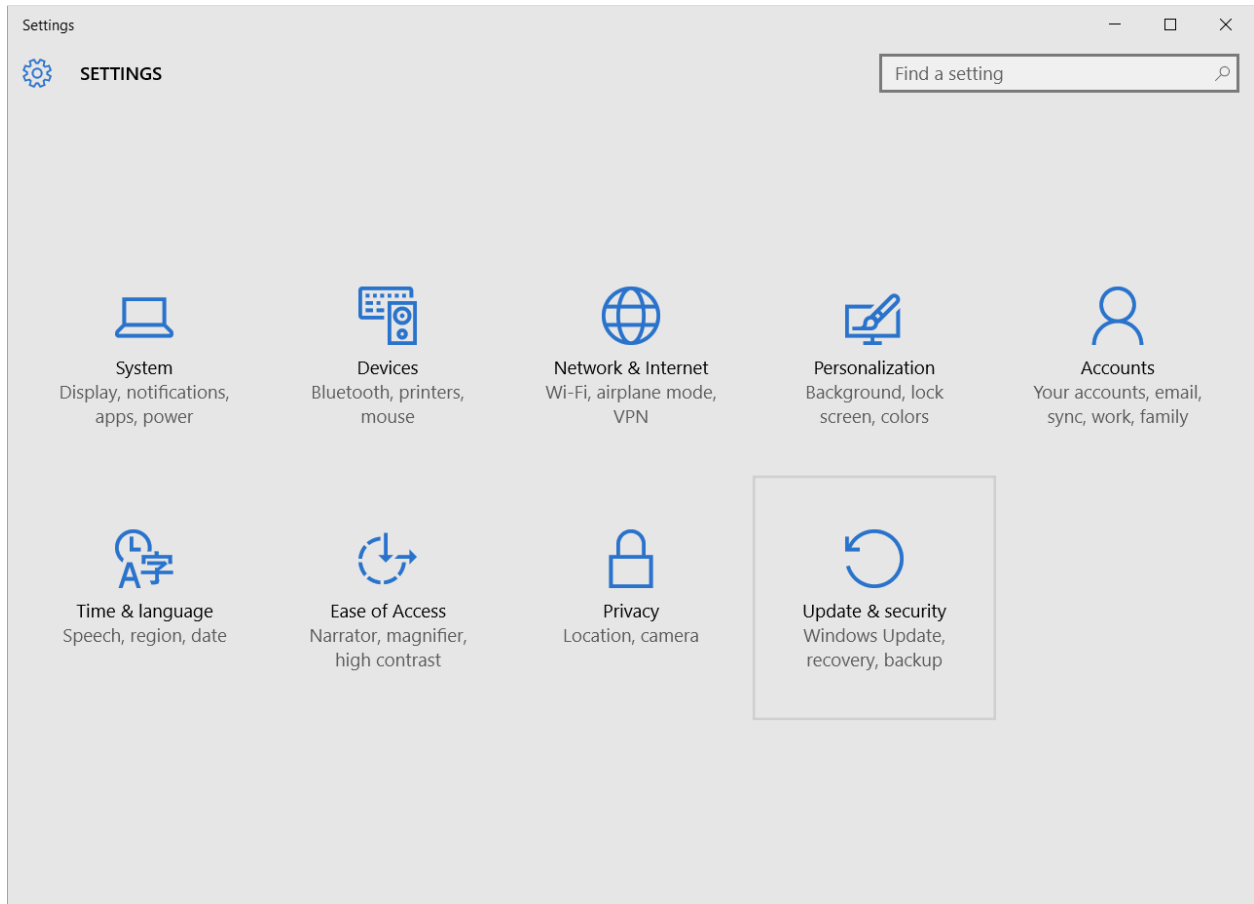
For Windows 10, right-click on the Microsoft Window's logo in the bottom left corner of the screen. Then select the "Network Connections" option.



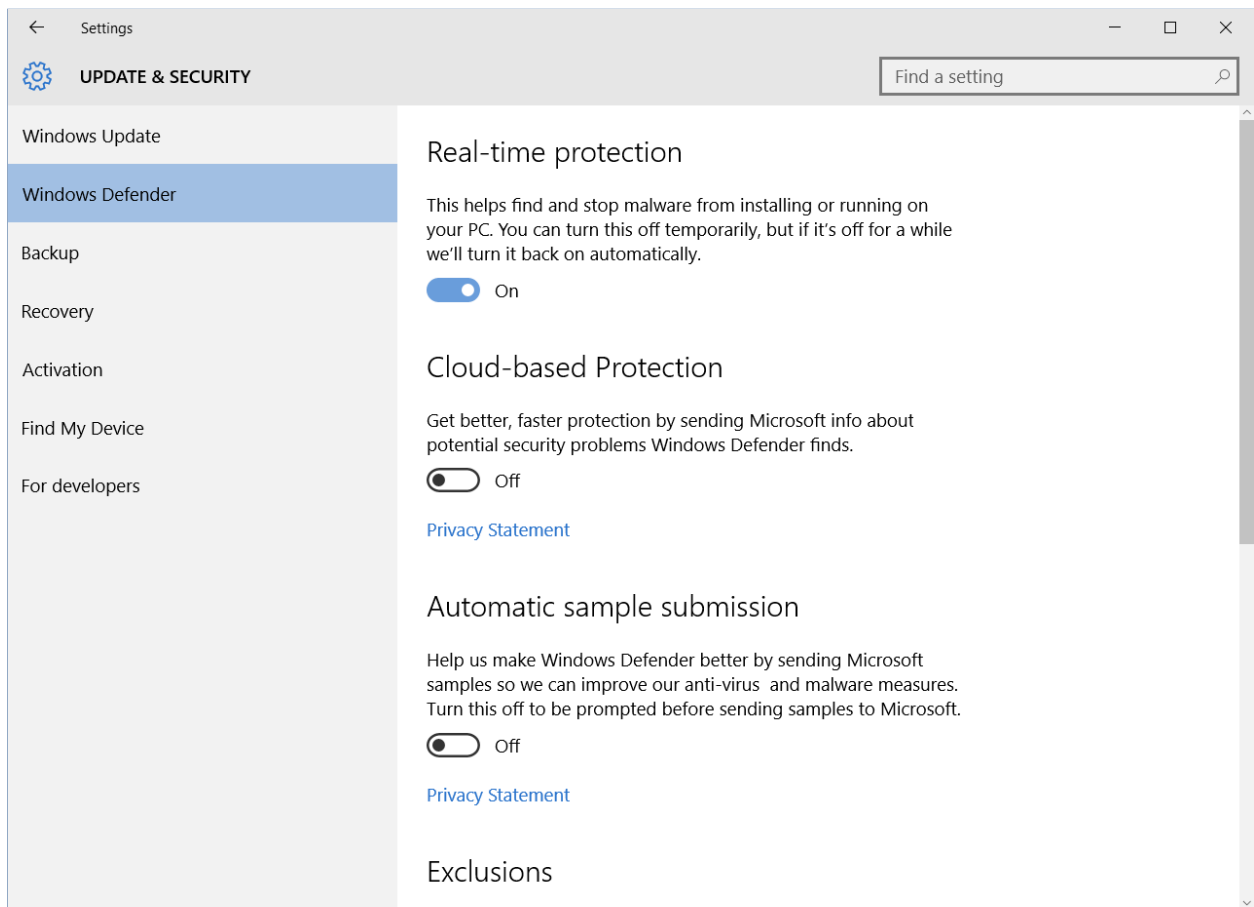
Right-Click Menu showing Command Options

These options can also be found in the Windows 10 "Control Panel".

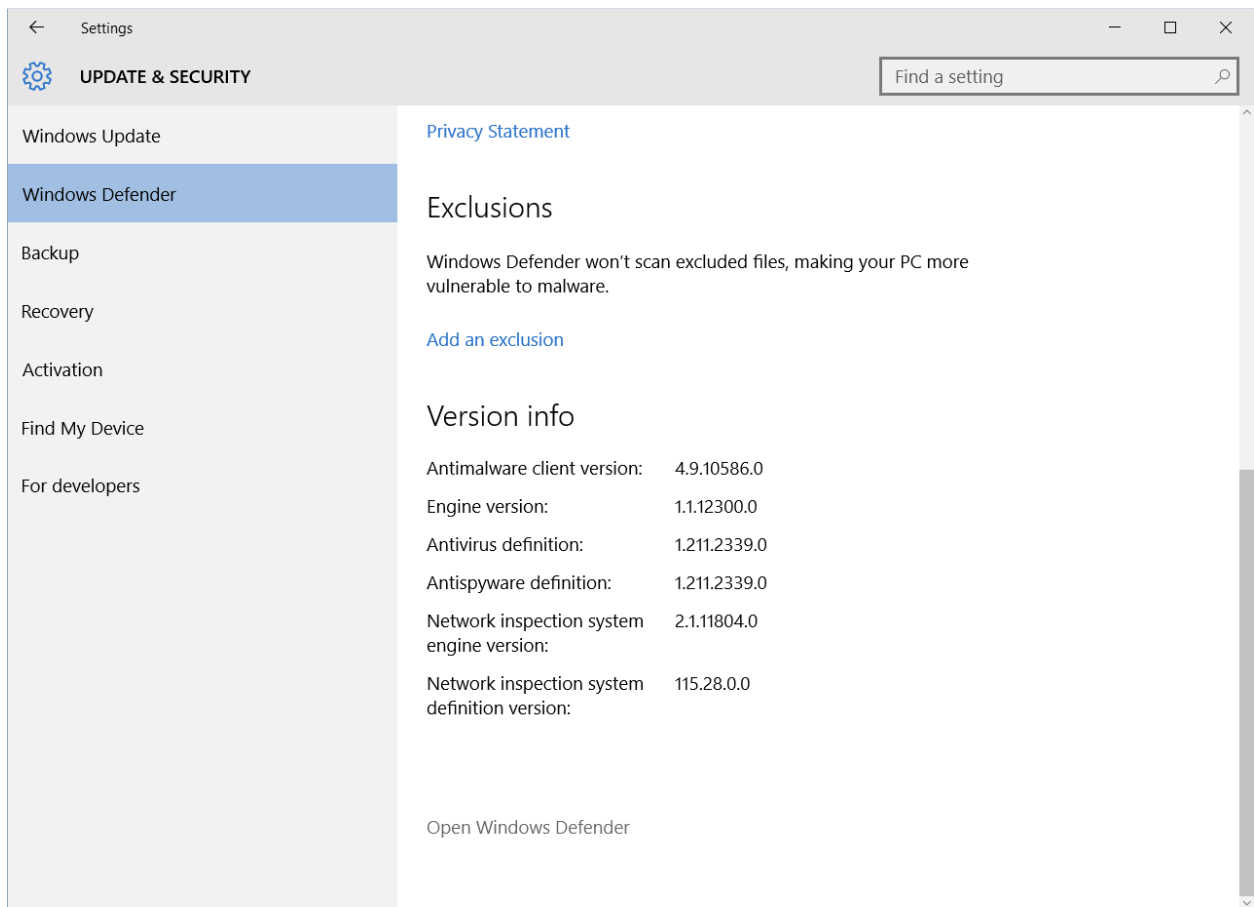
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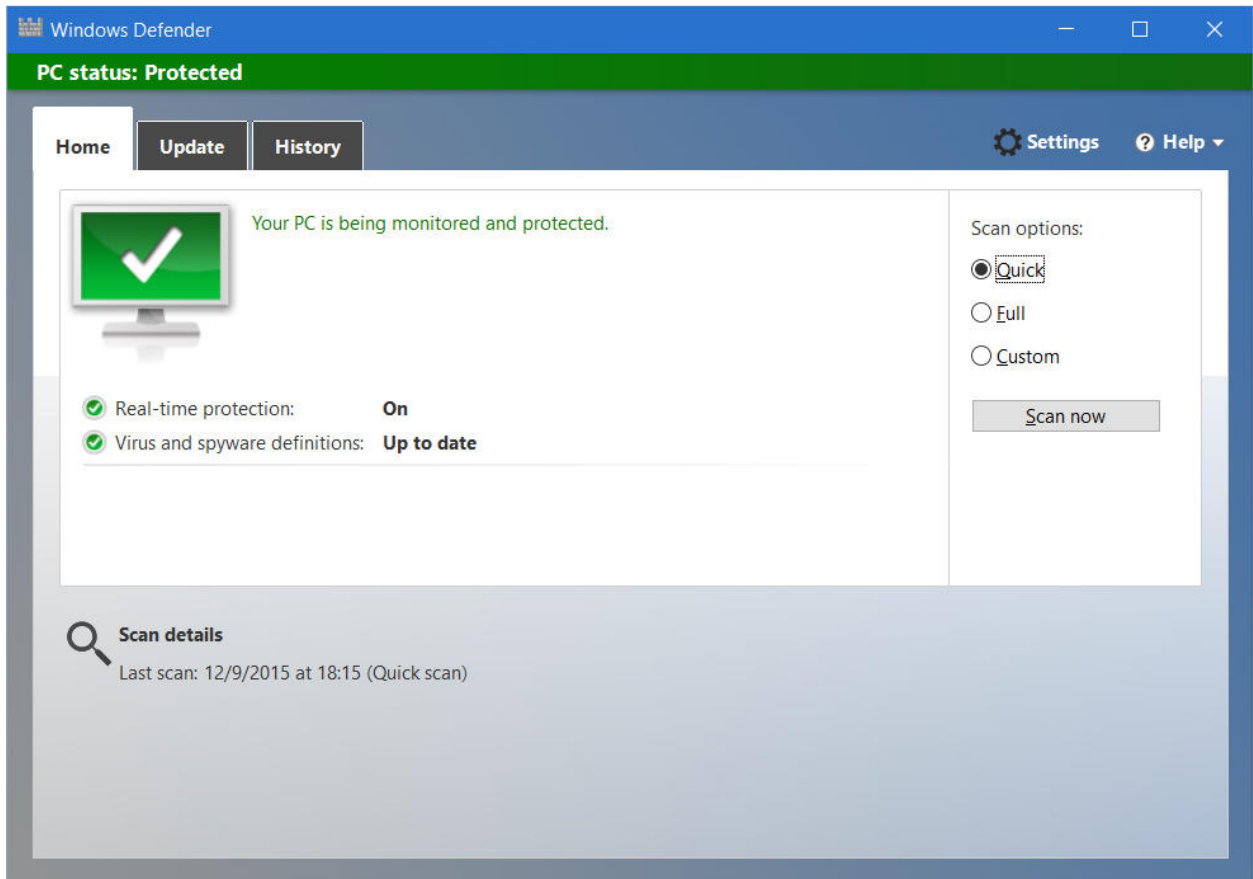
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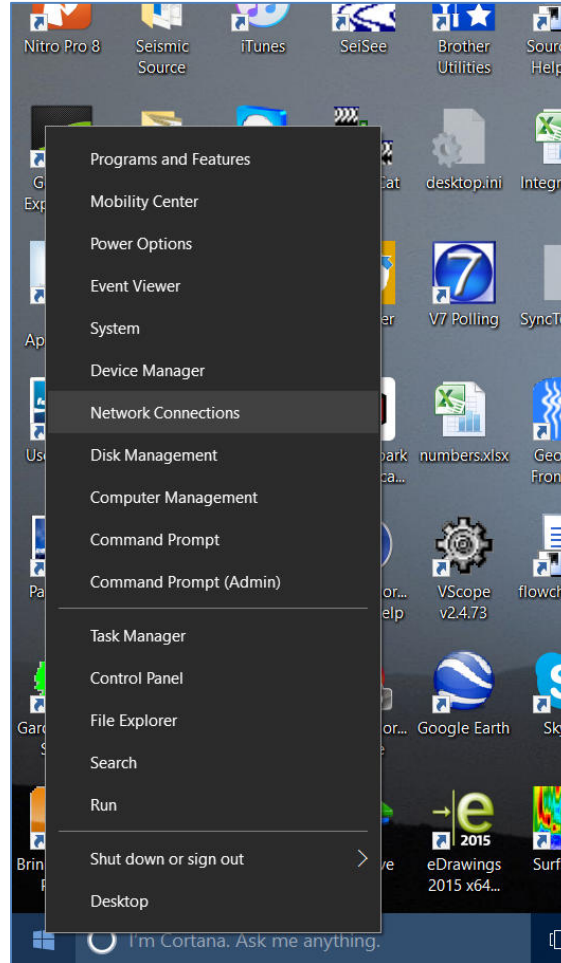


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3.1.2.4 Changing Network Adaptor Power Management

For Windows 10, right-click on the Microsoft Window's logo in the bottom left corner of the screen. Then select the "Network Connections" option.

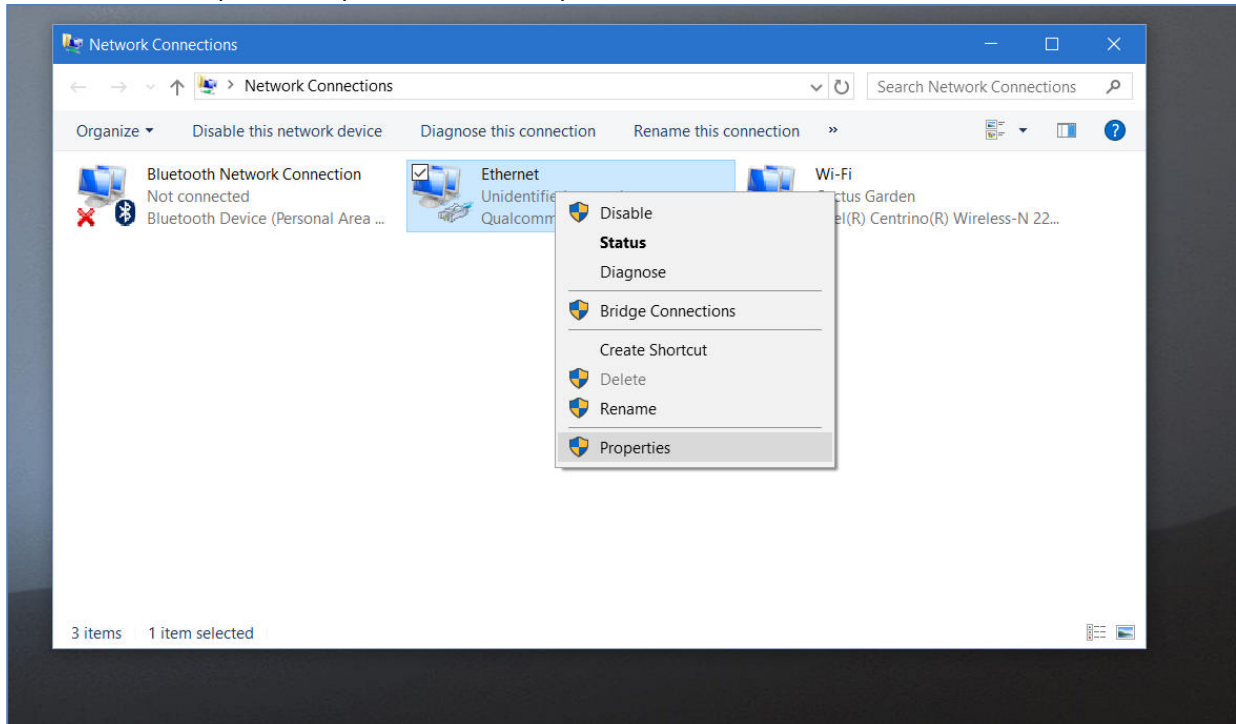


Right-Click Menu showing Command Options

These options can also be found in the Windows 10 "Control Panel".

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The “Network Connections” window will display all the available network options on the computer. Next, right-click on the Ethernet adapter for the cabled connection, and then on the “Properties” option for the adapter.

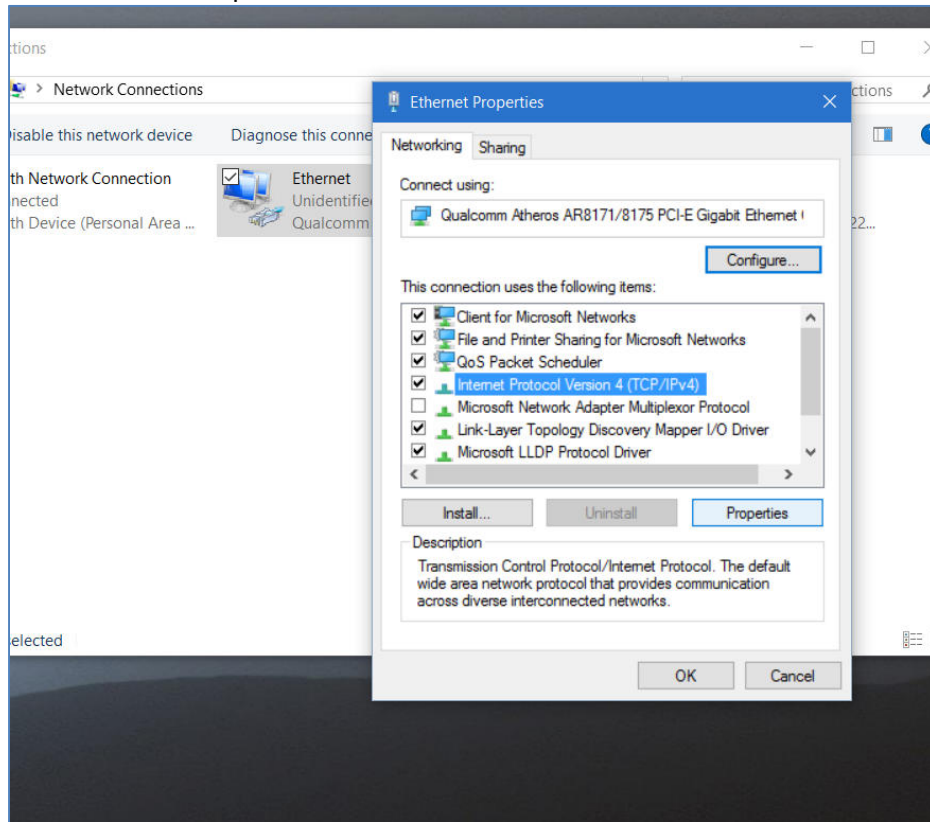


Pop-Up Menu showing available Network Adapters

It is also recommended to disable other network connections that might conflict with the communication process. Highlight the other connections (like Wireless) and select **Disable**.

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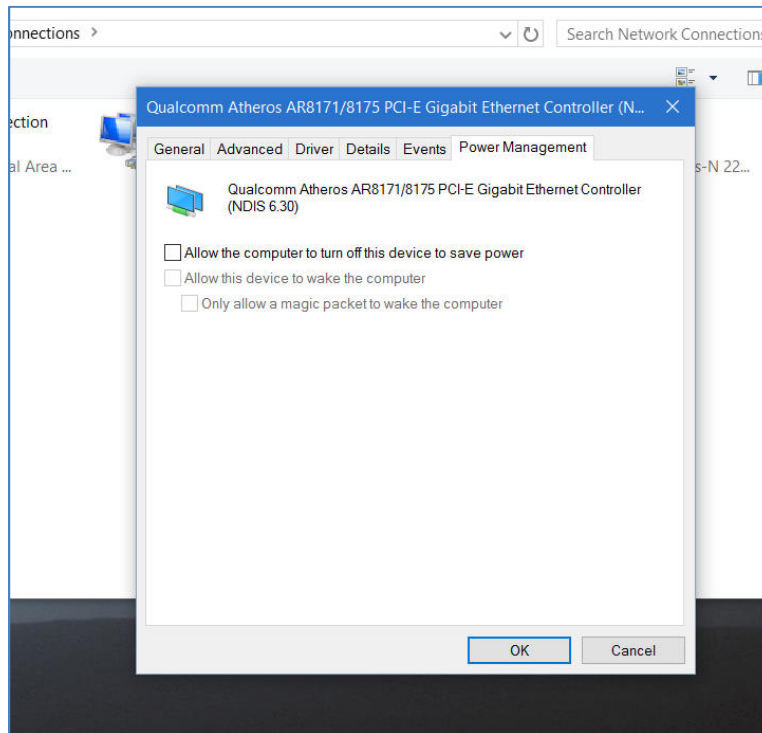
In the Properties menu for that adapter, select "Internet Protocol Version 4 (IPv4)", and then click on the "Properties" button.



Control Panel showing Network and Sharing Center

Also, consider disabling (by un-checking the selection box) the "Internet Protocol Version 6 (IPv6)" option.

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3.1.3 Windows 8 Ethernet Setup

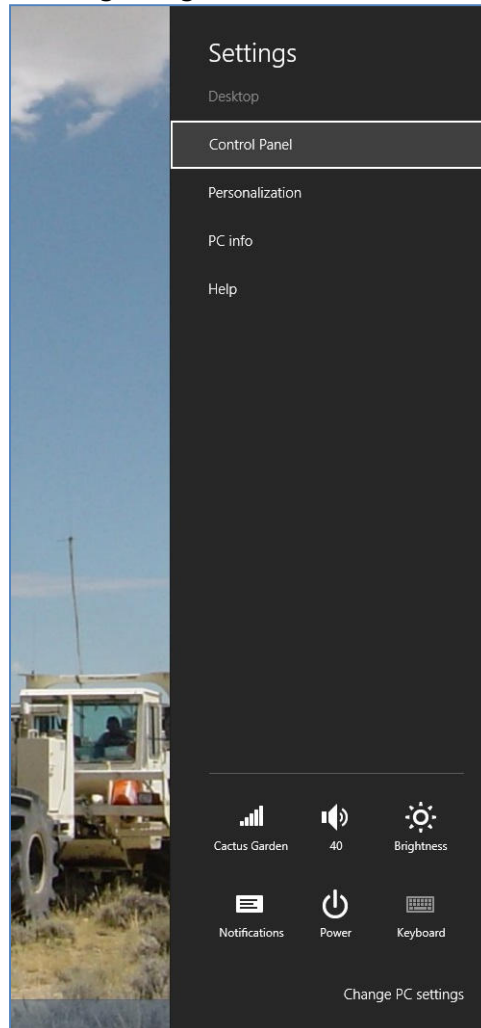
Windows 8 is the most flexible of the Microsoft operating systems, so the screens may be different depending on the updates applied to the computer.

Make sure the Computer IP address is on 10.x.x.x network (eg.10.0.0.99 or 10.0.0.101) with all firewalls and power management disabled.

If computer has not been setup for this IP address:

3.1.3.1 Changing the Computer's IP Address

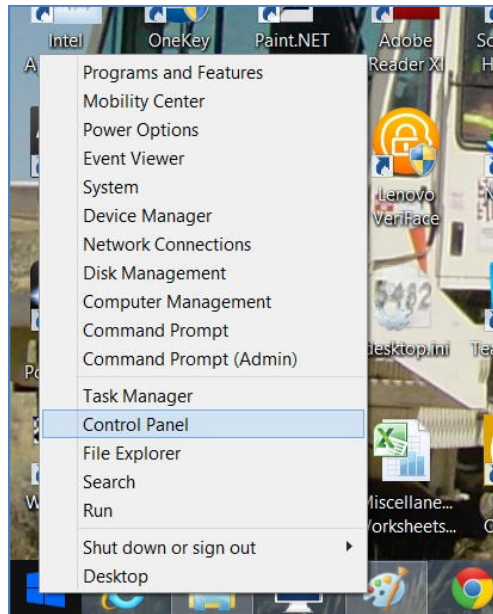
For Windows 8: Use a right-handed sweeping motion from the right side of the screen towards the left with a single finger, and select "Control Panel".



Charm Bar showing Control Panel Option

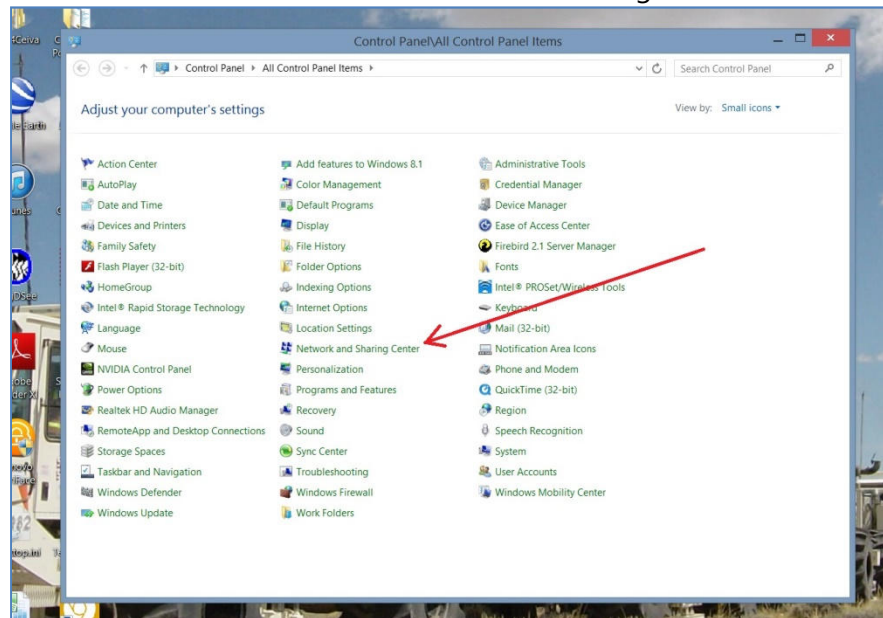
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Also for Windows 8.1: Or right-click on the semi-Windows logo in the bottom left corner. From the pop-up menu select "Control Panel".



Pop-Up menu showing Control Panel Option

From the Control Panel, select "Network and Sharing Center".

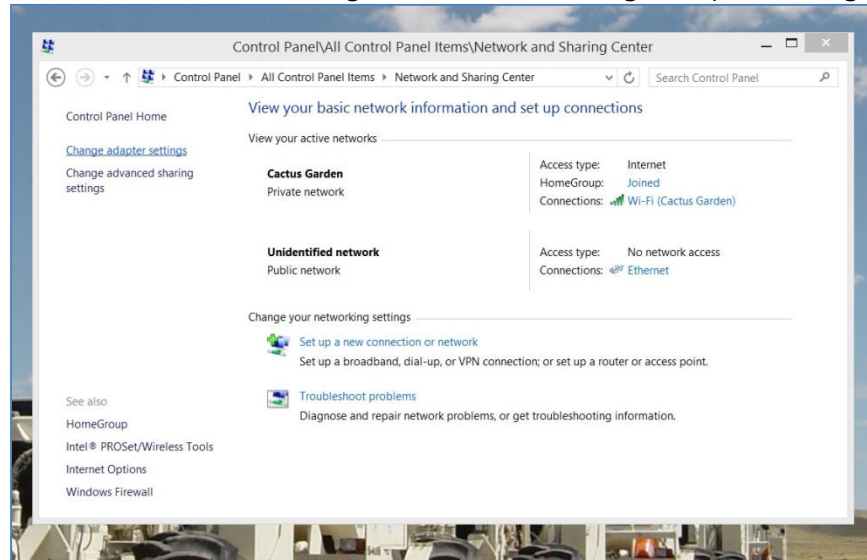


Control Panel showing Network and Sharing Center

It is also recommended to disable all other Network Connections. Highlight the other Network Connections (like Wireless) select **Disable**.

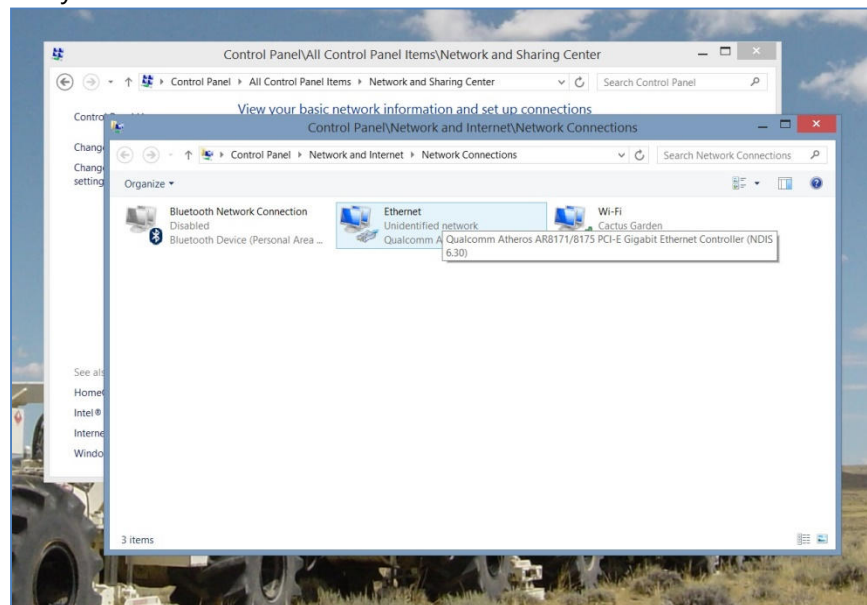
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From the Network and Sharing Center select "Change adapter settings".



Network and Sharing Center showing installed Networks

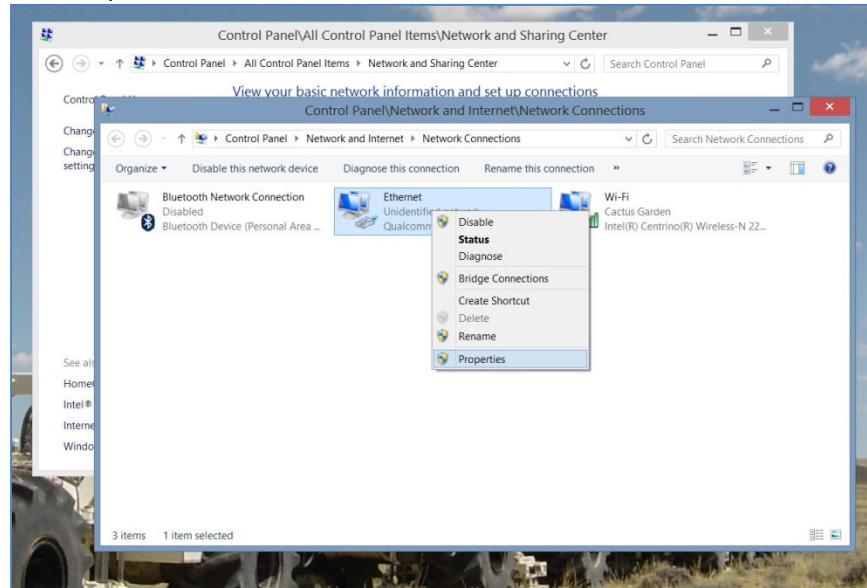
From the Network Connections select network connected the Sigma Device. This is quite possibly the network labeled as "Unidentified network".



Selecting the "Wired" Network

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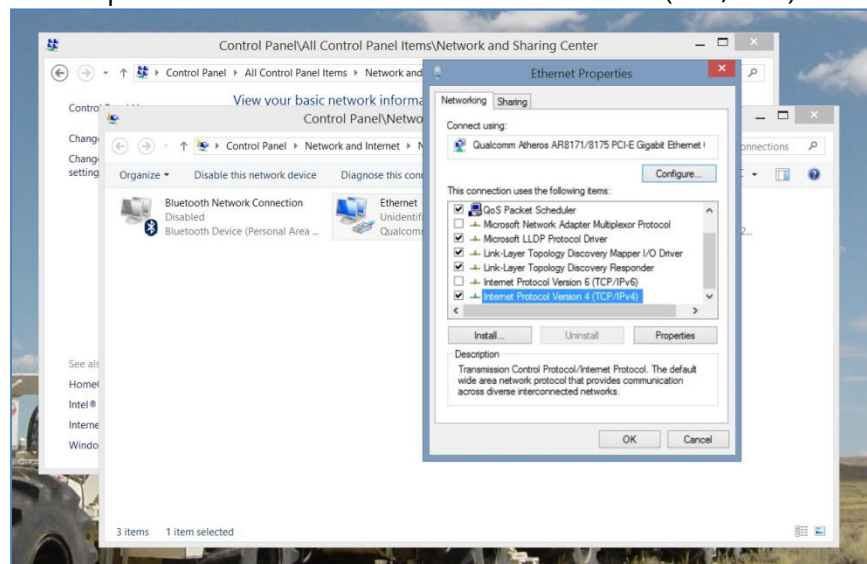
Set the Properties for the "Unidentified network".



Click on Properties

It is also recommended to disable all other Network Connections. Highlight the other Network Connections (like Wi-Fi) and select **Disable**.

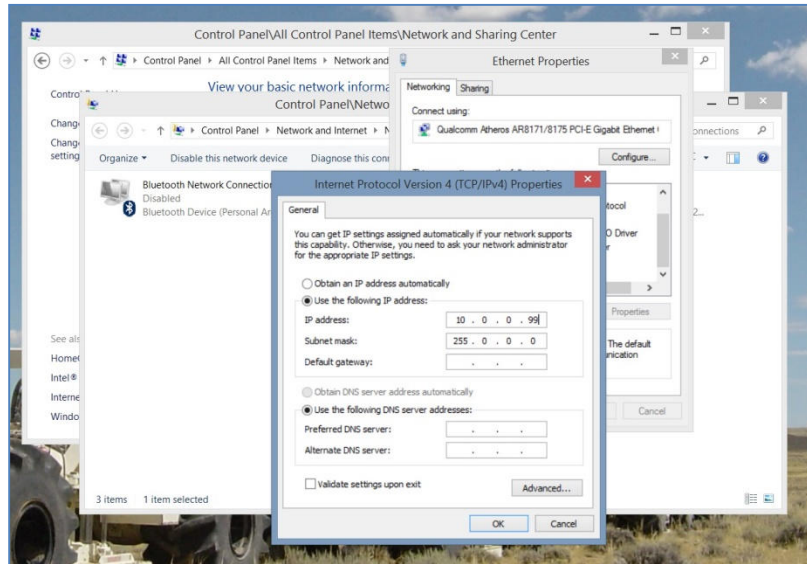
Set the Properties for the "Internet Protocol Version 4 (TCP/IPv4)".



Set the TCP/IPv4 addresses

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Set the IP address and the Subnet mask.



Use following IP -> IP address: 10.0.0.99, Subnet Mask: 255.0.0.0

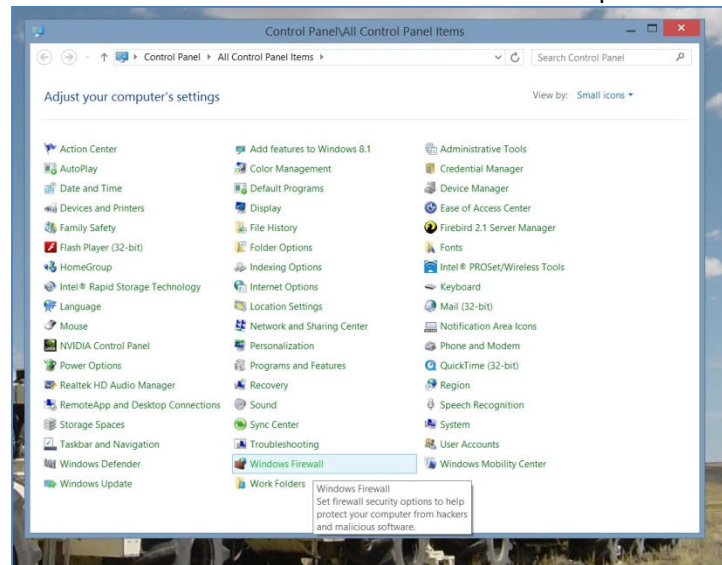
It is sometimes necessary to reboot the computer to have the new address take effect.

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3.1.3.2 Modifying the Computer Firewall Options

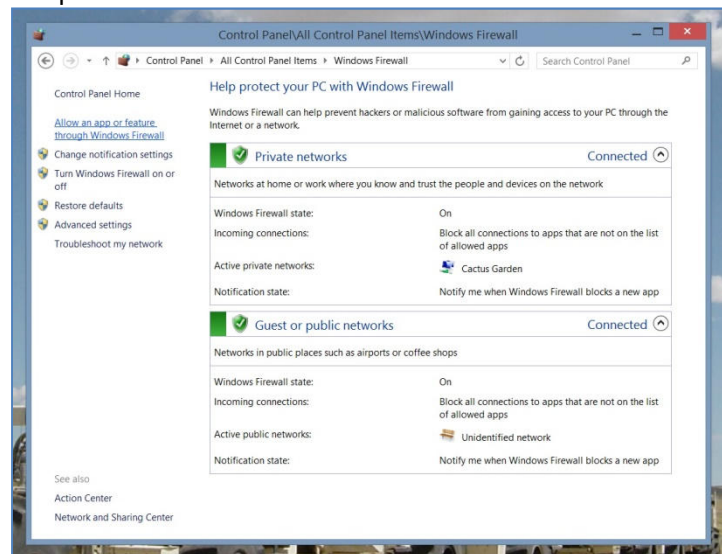
To communicate with a Sigma Unit, either disable the firewall for that network or else set the permission for the Sigma Software.

From the Control Panel, select the "Windows Firewall" option.



Selecting the "Windows Firewall" option

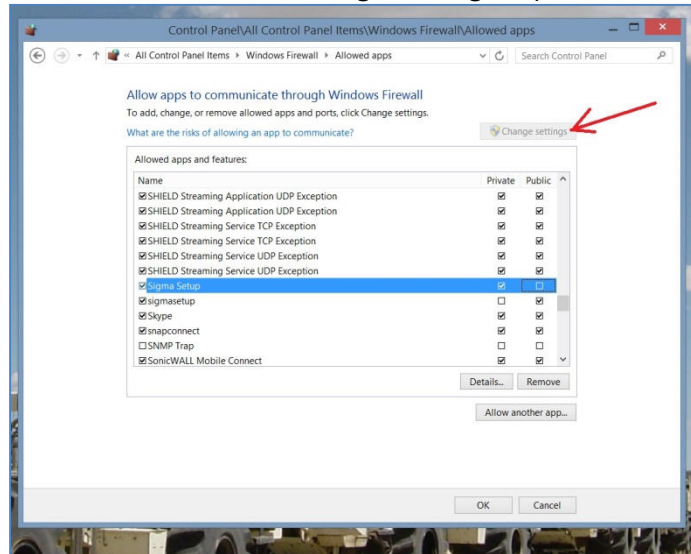
In the "Windows Firewall" menu, select the "Allow an app or feature through Windows Firewall" option.



Selecting the Windows Firewall pass-through menu

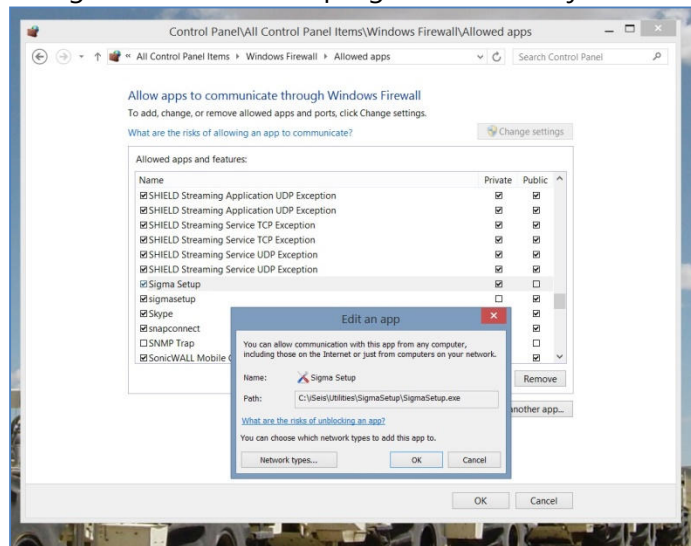
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Once in the menu, click on the “Change settings” option.



Selecting the “Change settings” option

Also, the settings for an individual program can be adjusted.



Inspecting options for a program or app

It is sometimes necessary to reboot the computer to have the new address take effect.



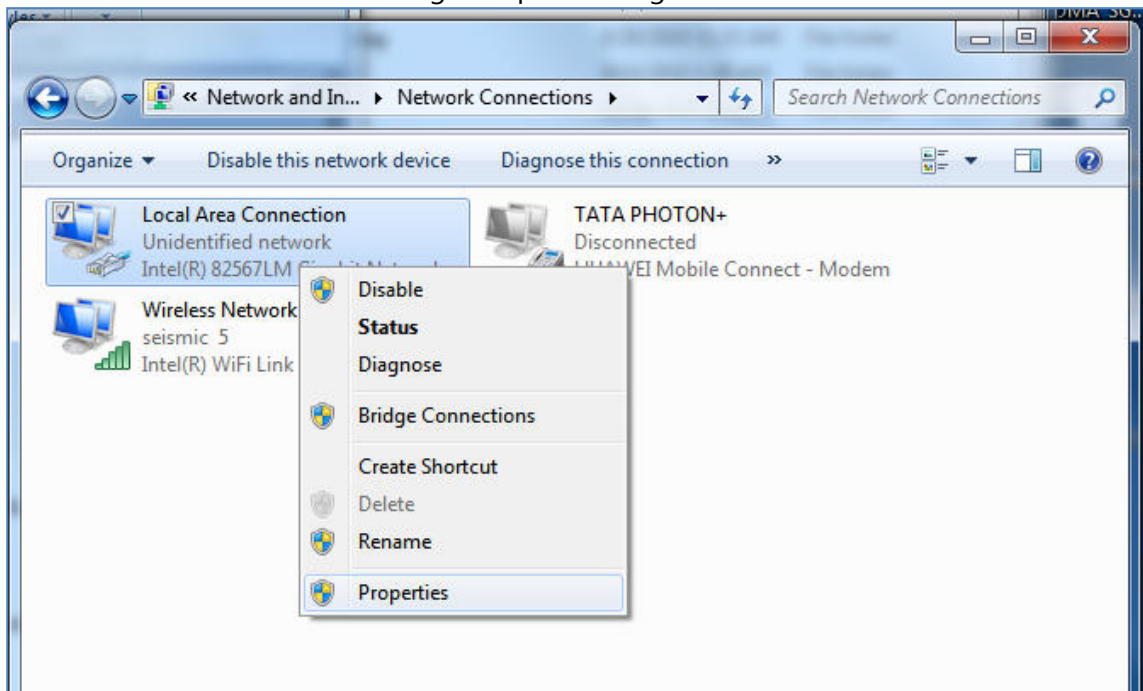
3.1.4 Windows 7 Ethernet Setup

Make sure the Computer IP address is on 10.x.x.x network (eg.10.0.0.99 or 10.0.0.101) with all firewalls and power management disabled.

If computer has not been setup for this IP address:

3.1.4.1 Changing the Computer's IP Address

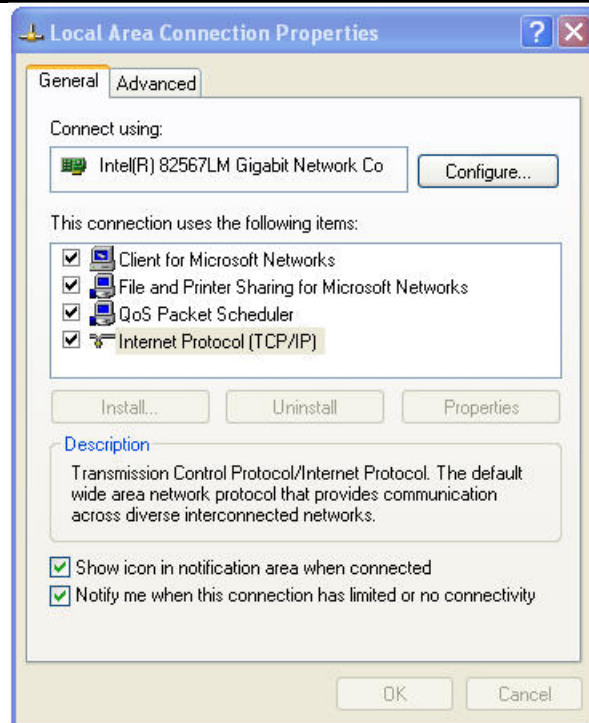
For Windows 7: Go to Start->Control Panel->Network and Internet->View Network Status and tasks->Change adapter settings->Local Area Network



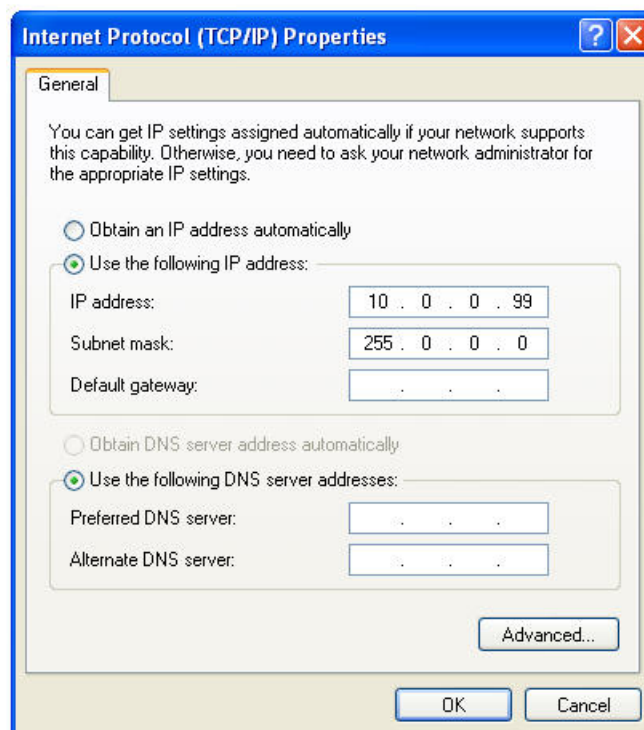
Right click and select Properties

It is also recommended to disable all other Network Connections. Highlight the other Network Connections (like Wireless) select **Disable**.

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Select Internet Protocol Version 4 -> Properties and set



Use following IP -> IP address: 10.0.0.99, Subnet Mask: 255.0.0.0

3.1.4.2 Disabling the Computer Firewall

To program the TDMA, all firewalls needs to be turned off.

Start->Control Panel-> System and Security->Windows Firewall and turn it off.
This is very important as the firewall will block the communication.

It is sometimes necessary to reboot the computer to have the new address take effect.

If the UE2 unit was previously communicating with a computer with a different address, then the UE2 unit must be reset (power off then on) for the unit to communicate to the new address.



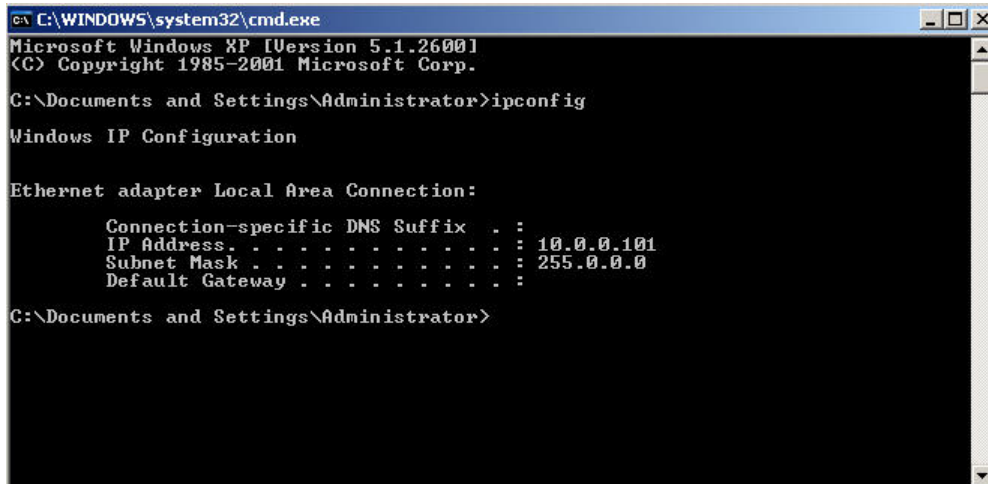
3.1.5 Vista, XP, and 2000 Support

If circumstances require use of one of these older and discontinued operating systems, please contact us as we will always help.

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3.1.6 TCP/IP Verification

To verify that the IP address is correct, select "Start", then "Run", then type in "CMD". This starts the command prompt in Windows (This is similar to the old DOS command prompt). Type the command "ipconfig". The current IP address 10.0.0.101 should be shown.



```

C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Administrator>ipconfig

Windows IP Configuration

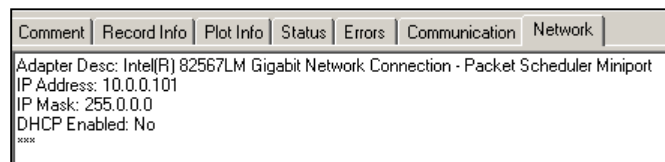
Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . : 
    IP Address. . . . .               : 10.0.0.101
    Subnet Mask . . . . .            : 255.0.0.0
    Default Gateway . . . . .        : 

C:\Documents and Settings\Administrator>
  
```

Viewing the IP configuration in a Command window

Viewing the Network Tab at the bottom of the Vscope program can also check the IP address. The Network Tab shows the current IP address detected by the Vscope program.



Viewing IP address in Vscope

4 Schematics

4.1 DAQLink 4 Connector wiring

9.1.1 Ten pin Ethernet Connector

H..... TD+
A..... TD-
B.....RD+
F.....RD-
J..... +12 volts
K....Ground

4.1.2 2-pin Power Connector

A.....Positive Battery
B.....Negative Battery

There are two internal fuses on the board to prevent damage to the unit. However, SSC recommends using external 2 amp fast blow fuses to protect the DAQLink 4. The unit can be powered from any DC source supplying a minimum of 11 to a maximum of 18 VDC.

4.1.3 3-pin Trigger Connector

A.....TB active
B.....TB return (ground)
C.....+12 volt through 5 kOhms resistor

When DAQLink 4 trigger option is set to trigger on Time Break, then this input is used to trigger the box. This input drives an op-amp input and the trigger level is set by software. Normal trigger level is 2 volts minimum to trigger. Positive Voltage should be applied to pin A, and negative voltage to pin B. Maximum voltage should be less than 60 volts.

When using standard “Hammer Switch”, connect Pin A to Pin C and to the High voltage side of the ST-01 switch. Connect pin B to the Low voltage side of the ST-01 switch.

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4.1.4 6-pin GPS Connector

A.....Battery +12 volts (supplies power to GPS receiver)
B.....GPS RX (receives GPS data from GPS receiver)
C.....GPS PPS
D.....Ground
E.....GPS TX
F.....Ground

An external GPS receiver can be connected to the 19 pin GPS connector using a PT06A-14-19P. The GPS receiver must be setup for RS232 voltage levels

- 19200 baud
- \$GPGGA and \$GPRMC messages only

4.1.6 19-pin USB Connector

C.....+5 volts
E.....USB_DM
F.....USB_DP
H.....Ground

4.1.6 14-pin Misc. Connector

A.....SPKR+
B.....SPKR -
C.....MIC A
D.....RADIO RTN
E.....PTT A
F.....Geophone + - AUX Trigger input +
G.....
H.....Geophone - - AUX Trigger Input -
J.....+3 volts
K.....external LED GREEN - Battery
L.....external LED RED - Battery
M.....external LED GREEN Status
P.....external LED RED Status
R.....external LED Network LINK
S.....external LED Network ACTIVE

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4.1.7 55-pin Analog Data Connector

Pin.....Signal	Pin.....Signal
A.....Ch 1 pos	b.....Ch 13 pos
B.....Ch 1 neg	c.....Ch 13 neg
C.....Ch 2 pos	d.....Ch 14 pos
D.....Ch 2 neg	e.....Ch 14 neg
E.....Ch 3 pos	f.....Ch 15 pos
F.....Ch 3 neg	g.....Ch 15 neg
G.....Ch 4 pos	h.....Ch 16 pos
H.....Ch 4 neg	i.....Ch 16 neg
J.....Ch 5 pos	j.....Ch 17 pos
K.....Ch 5 neg	k.....Ch 17 neg
L.....Ch 6 pos	m.....Ch 18 pos
M.....Ch 6 neg	n.....Ch 18 neg
N.....Ch 7 pos	p.....Ch 19 pos
P.....Ch 7 neg	q.....Ch 19 neg
R.....Ch 8 pos	r.....Ch 20 pos
S.....Ch 8 neg	s.....Ch 20 neg
T.....Ch 9 pos	t.....Ch 21 pos
U.....Ch 9 neg	u.....Ch 21 neg
V.....Ch 10 pos	v.....Ch 22 pos
W.....Ch 10 neg	w.....Ch 22 neg
X.....Ch 11 pos	x.....Ch 23 pos
Y.....Ch 11 neg	y.....Ch 23 neg
Z.....Ch 12 pos	z.....Ch 24 pos
a.....Ch 12 neg	AA.....Ch 24 neg

4.1.8 Cable connectors Part Numbers

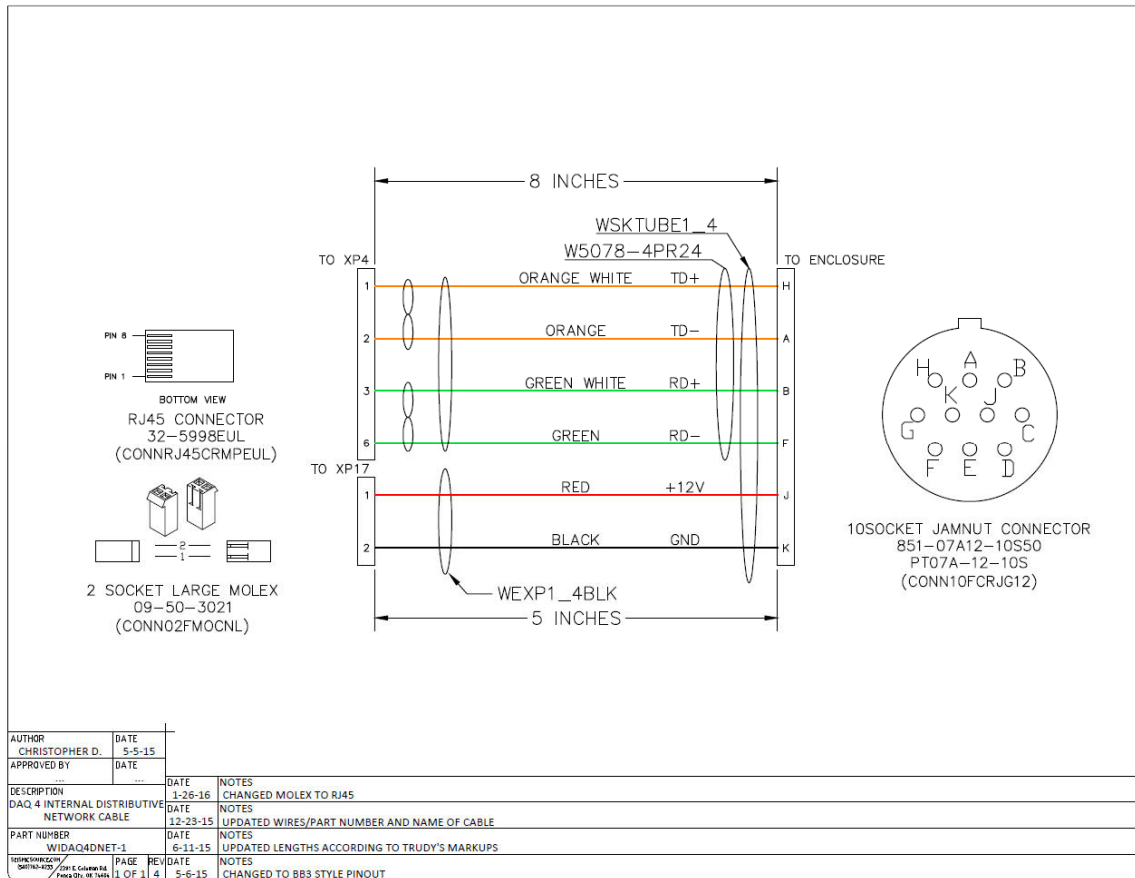
The following part numbers can be used to purchase cable connectors for the DAQLink4 unit:

Ethernet Plug.....	851-06AC12-10P50.....	PT06-12-10P
USB Plug.....	851-06AC14-19P50.....	PT06-14-19P
MISC/Aux trigger.....	851-06AC12-14P50.....	PT06-12-14P
Analog Channel Plug.....	851-06A22-55S50.....	PT06-22-55S
GPS Plug.....	851-06AC10-6P50.....	PT06-10-6P
Power Plug.....	851-06AC8-2S50.....	PT06-8-2S
Trigger Plug.....	851-06AC8-3P50.....	PT06-8-3P

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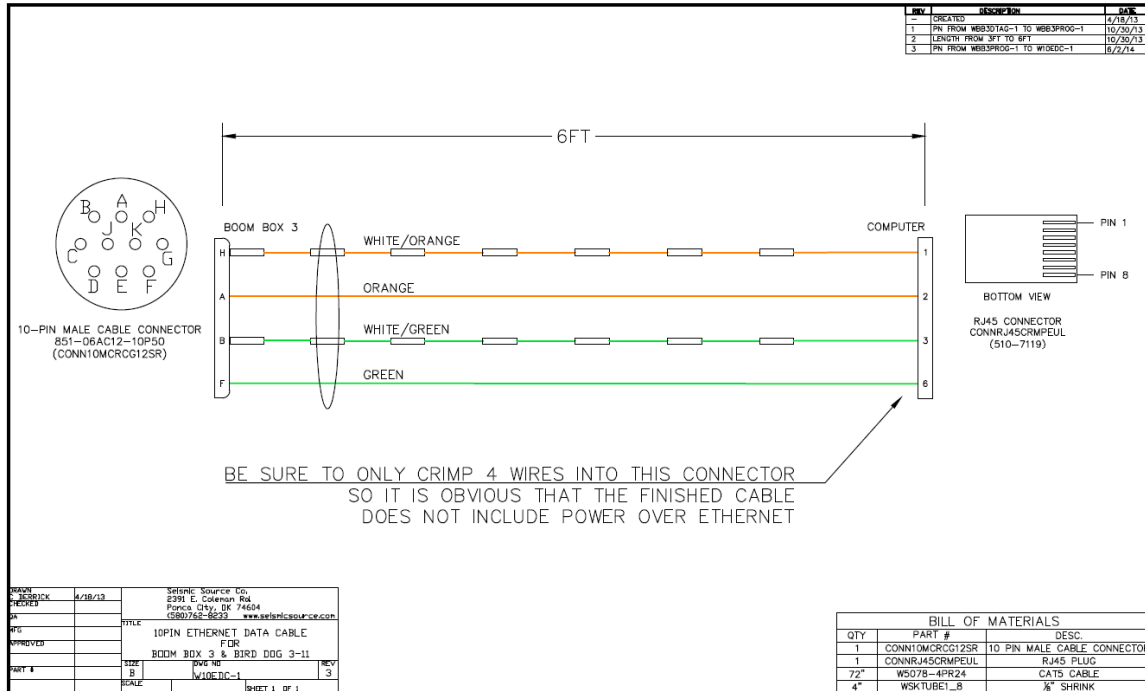
4.2 DAQLink 4 Schematics

4.2.1 Ethernet Wiring



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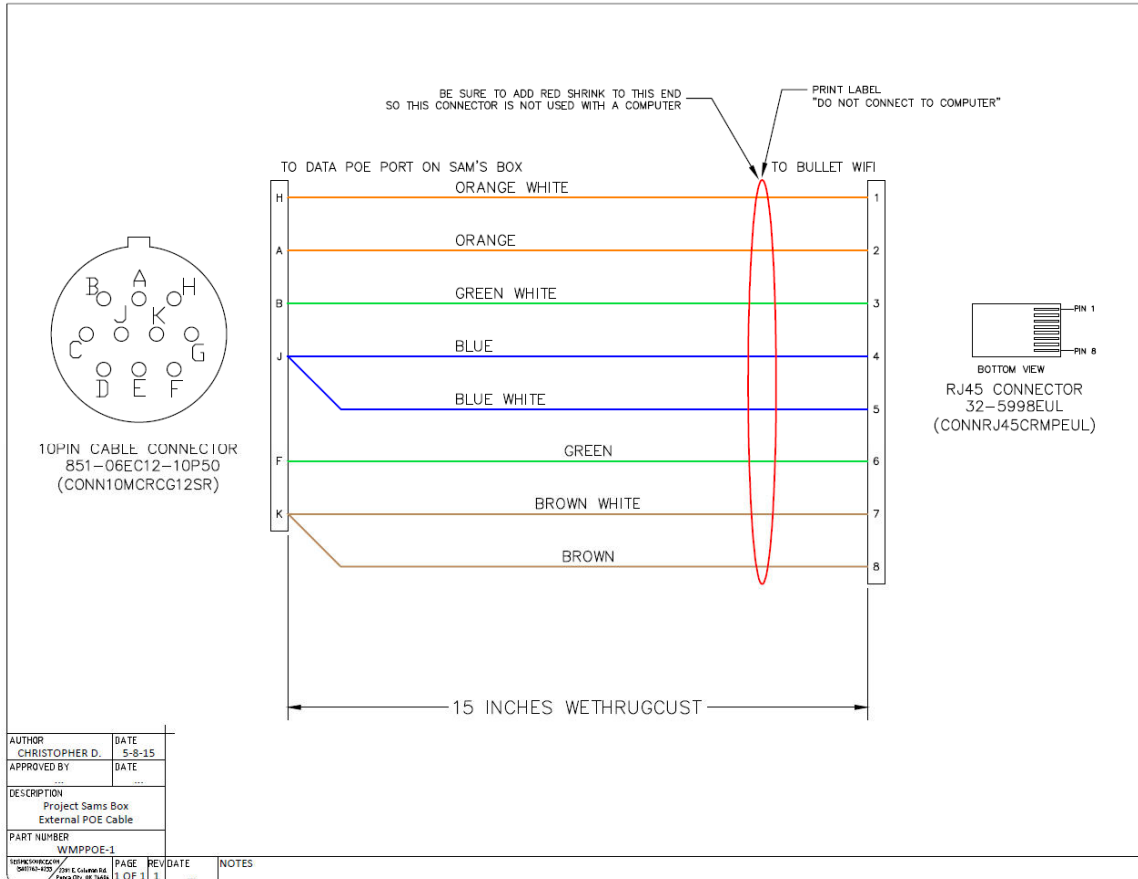
4.2.1.1 Ethernet Cable



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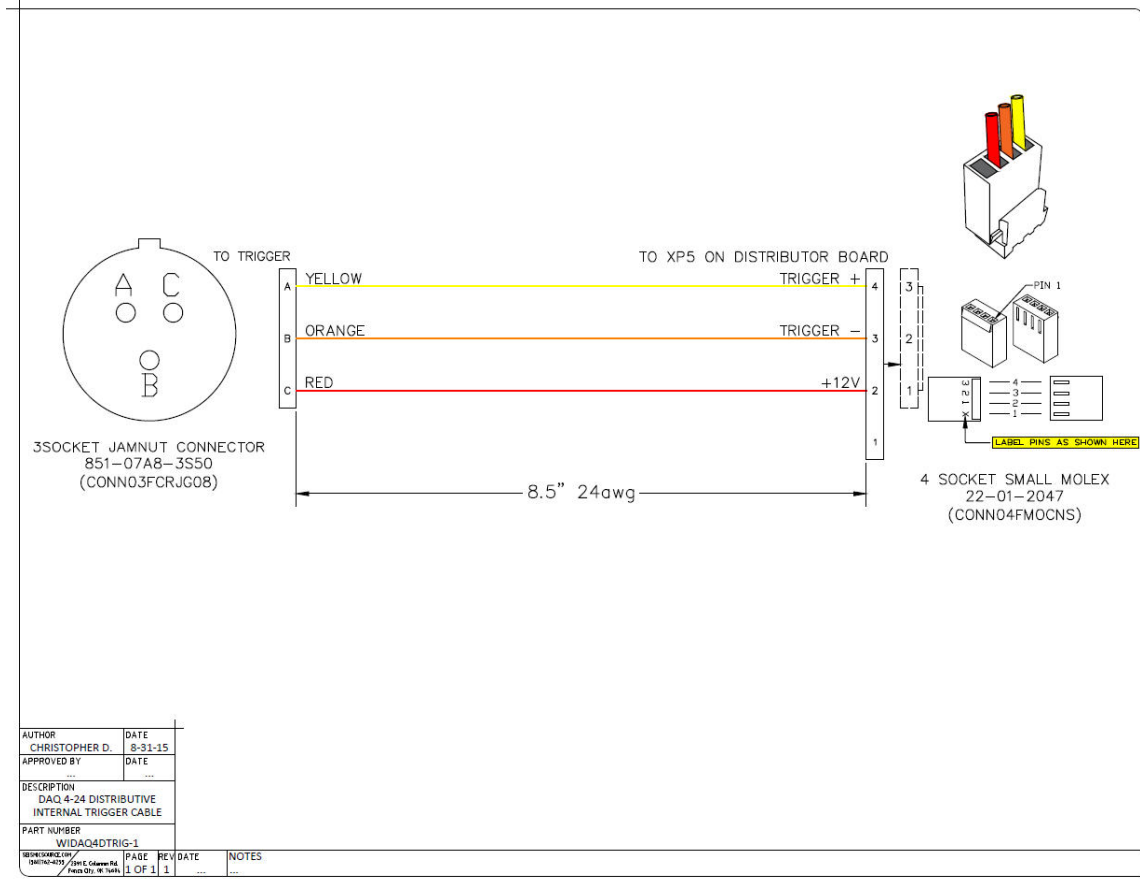
4.2.1.2 Ethernet Cable with POE for WiFi

WIFI ONLY -DO NOT USE WITH COMPUTER



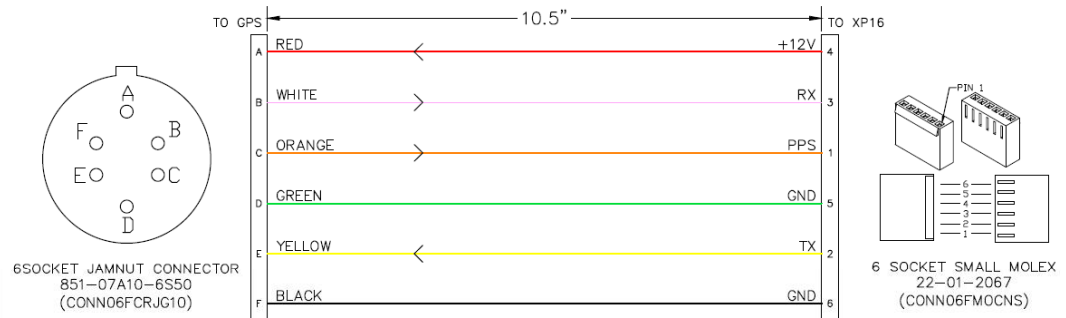
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4.2.2 Trigger Wiring



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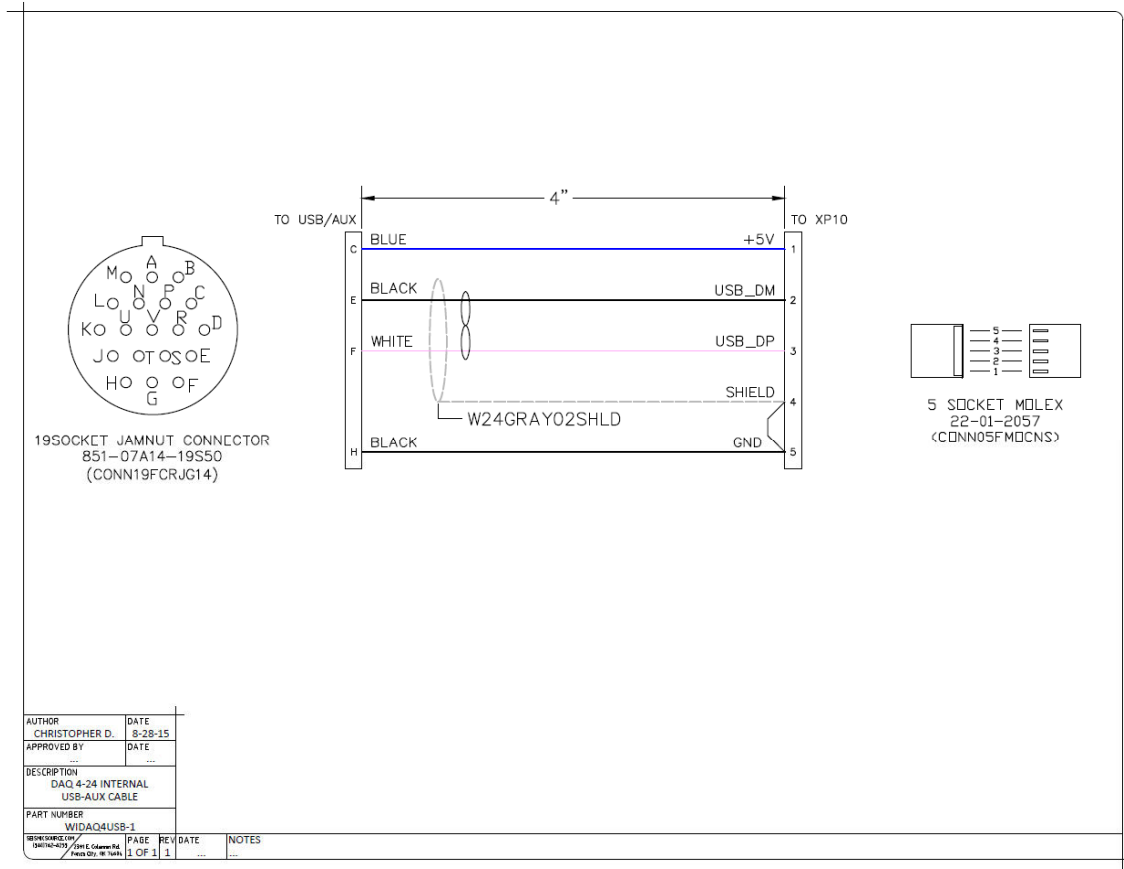
4.2.3 GPS Wiring



AUTHOR	CHRISTOPHER D.	DATE	8-31-15
APPROVED BY		DATE	
DESCRIPTION	DAQ 4-24 INTERNAL GPS CABLE		
PART NUMBER	DAQ4GPS-1		
REVISIONS	DATE	REV	DATE
1	8-31-15	1	8-31-15

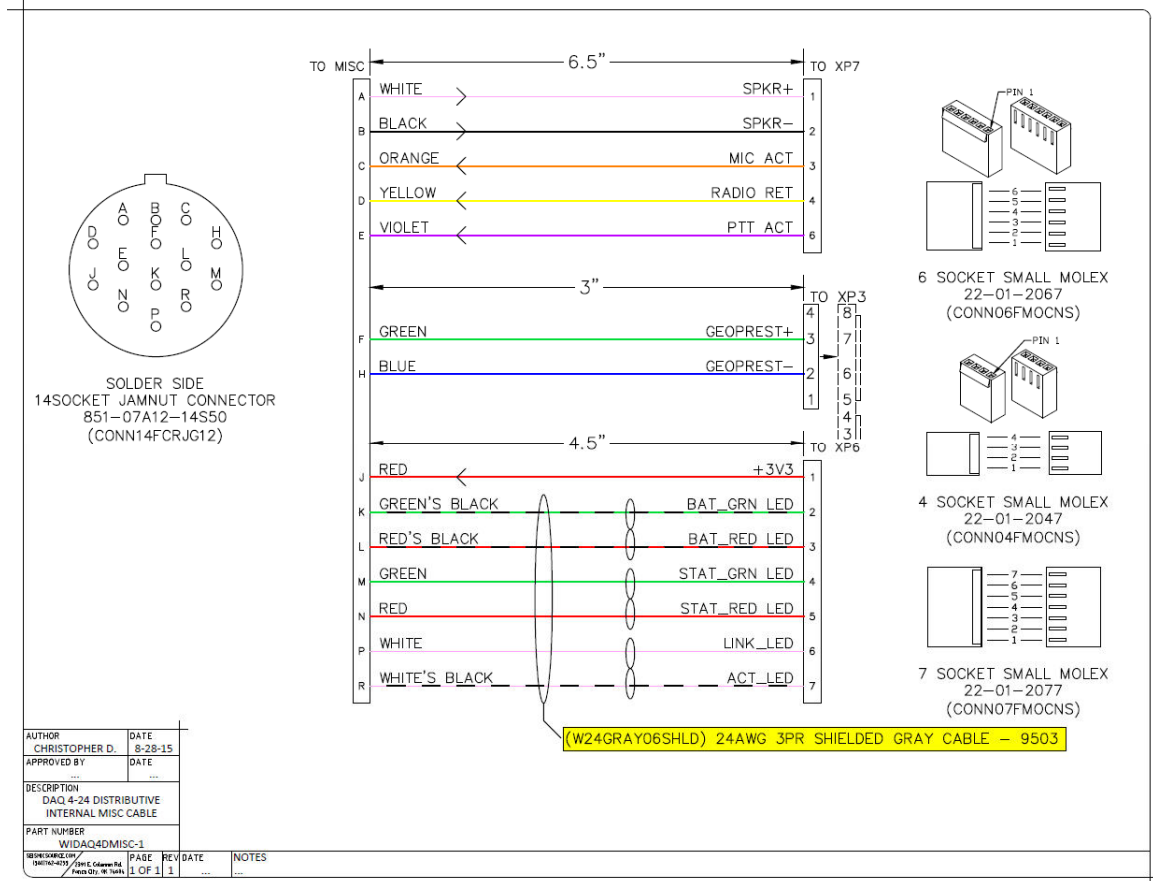
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4.2.4 USB Wiring



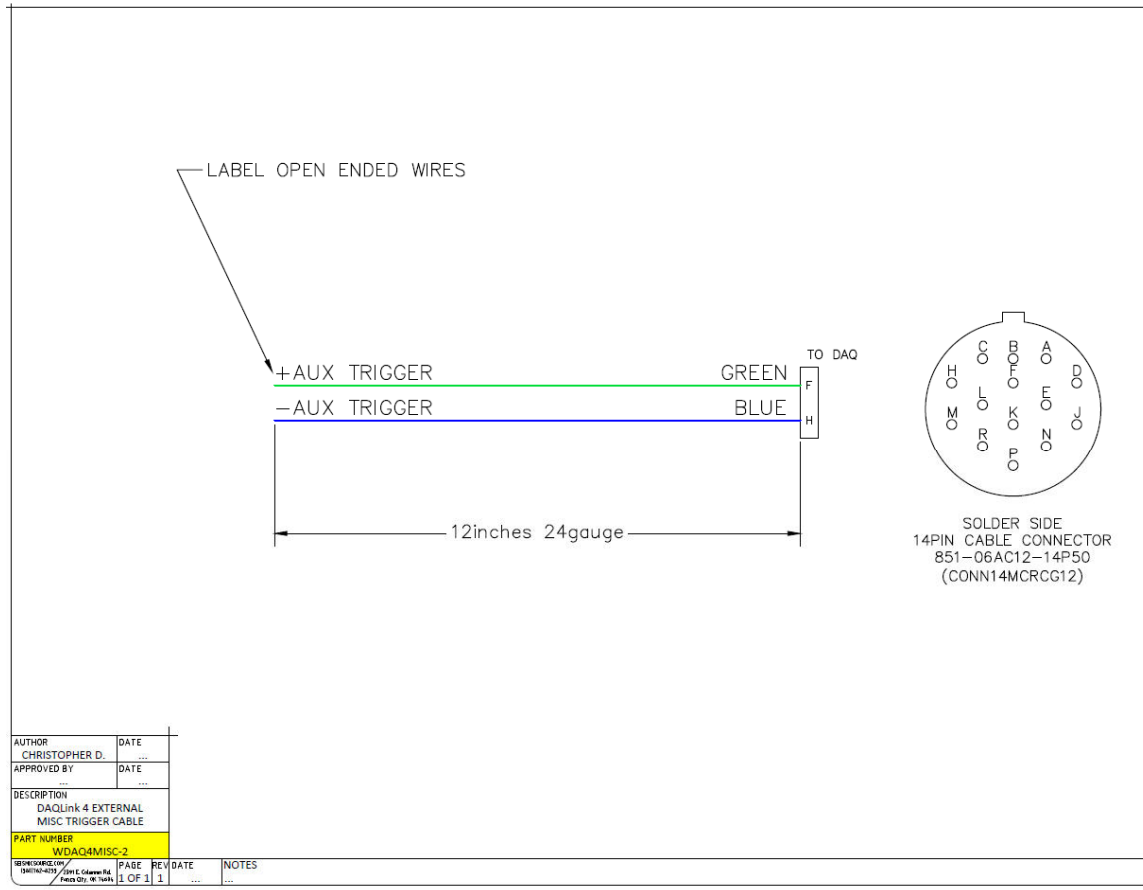
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4.2.5 Misc Connector Wiring



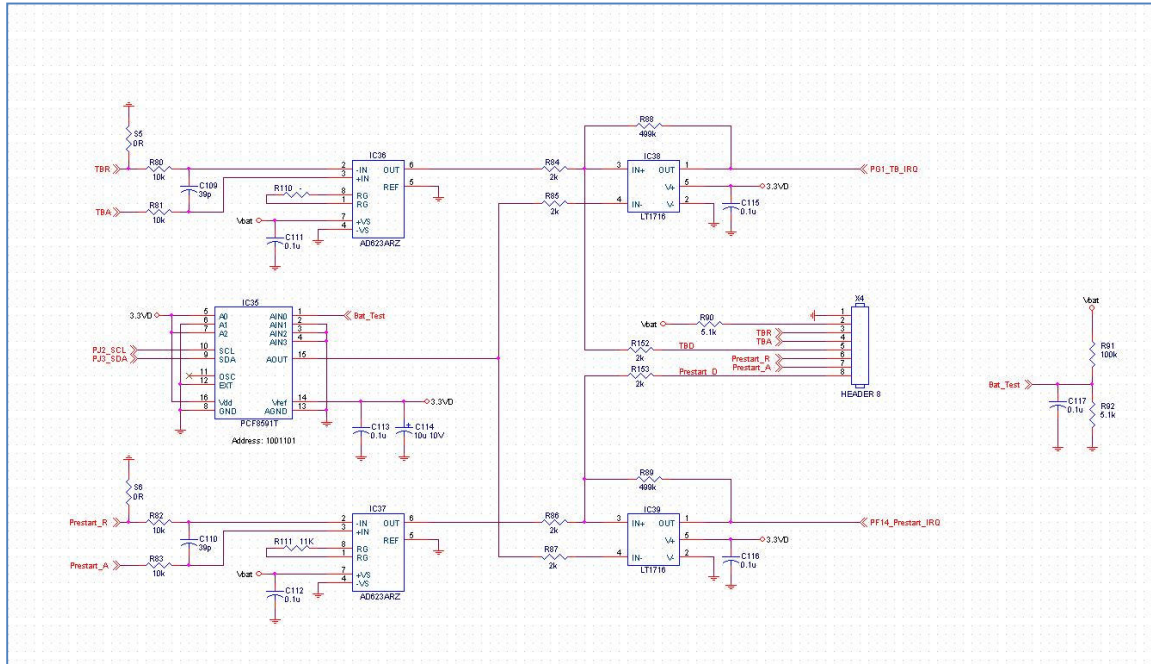
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4.2.5.1 Aux Trigger Cable

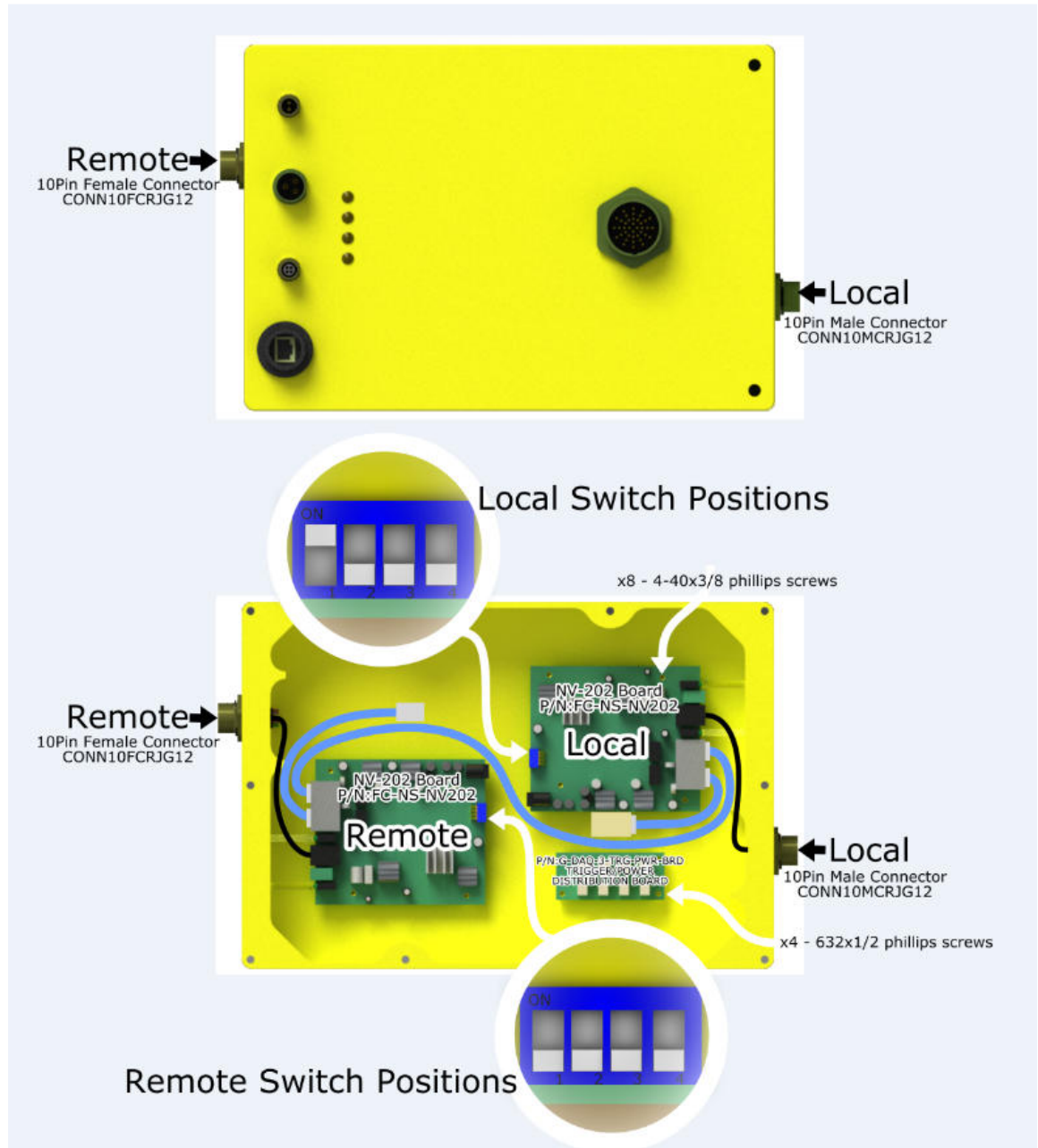


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4.2.6 Trigger Input Circuit

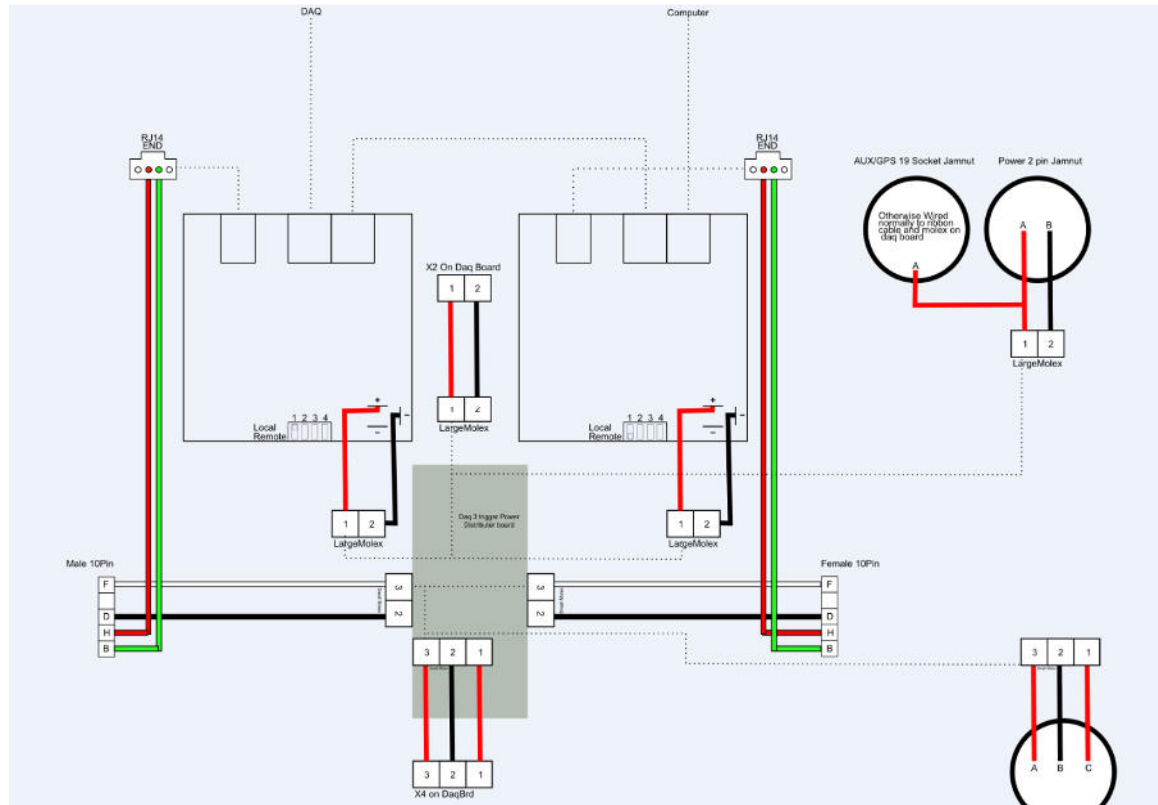


4.3 Distributed DAQLink4



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4.3.1 Distributed DAQLink Wiring



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The front panel provides a simple interface monitoring of the bridged. (Figure 3.1)

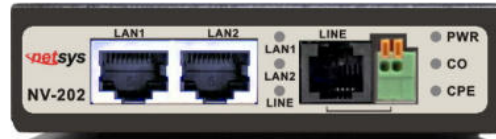


Figure 3.1 Front Panel

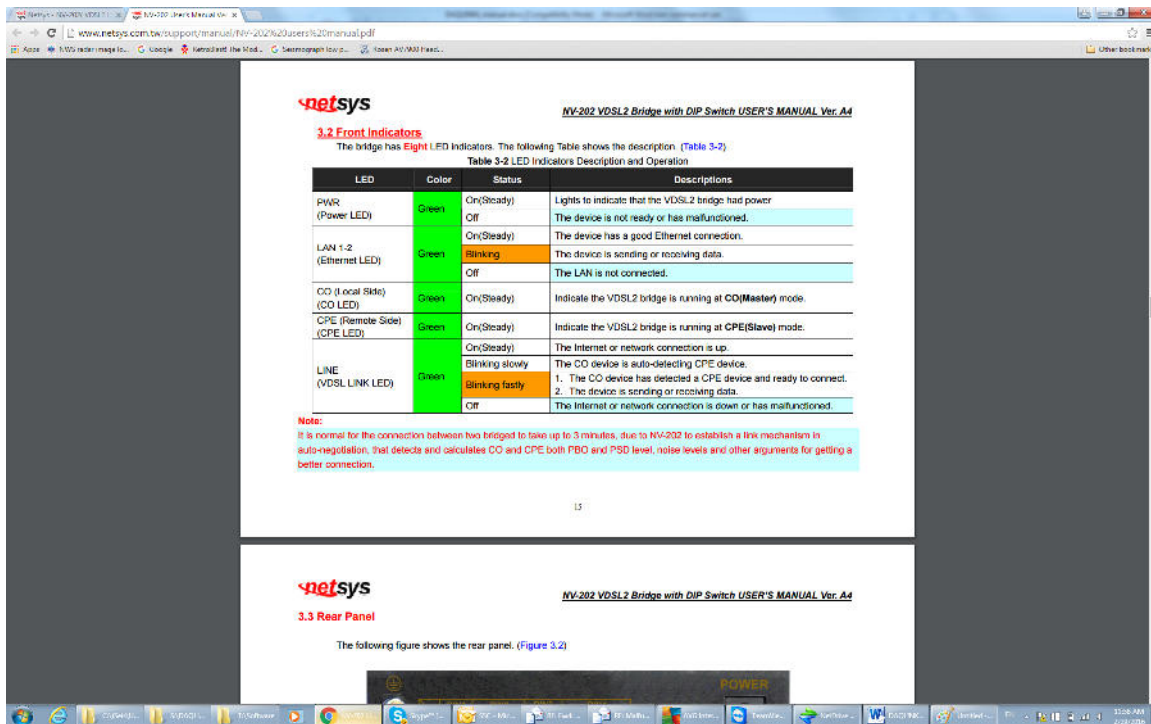
Tip:

At a quick glance of the front panel, it is easy to determine if it has Ethernet signal from its RJ-45 port and if there is vdsl line signal on RJ-11 port.

And the table shows the description. (Table 3-1)

Table 3-1 Description of the bridge front connectors

Connectors	Type	Description
LAN1 / LAN2	RJ-45	For connecting to an Ethernet equipped device.
Line	RJ-11/Terminal Block	For connecting to VDSL2 bridge. (Do not use RJ11 and Terminal Block at the same time.)



3.2 Front Indicators

The bridge has Eight LED Indicators. The following Table shows the description. (Table 3-2)

Table 3-2 LED Indicators Description and Operation

LED	Color	Status	Descriptions
PWR (Power LED)	Green	On(Steady)	Lights to indicate that the VDSL2 bridge had power
		Off	The device is not ready or has malfunctioned.
LAN 1-2 (Ethernet LED)	Green	On(Steady)	The device has a good Ethernet connection.
		Blinking	The device is sending or receiving data.
		Off	The LAN is not connected.
CO (Local Side) (CO LED)	Green	On(Steady)	Indicate the VDSL2 bridge is running at CO(Master) mode.
CPE (Remote Side) (CPE LED)	Green	On(Steady)	Indicate the VDSL2 bridge is running at CPE(Slave) mode.
		On(Steady)	The Internet or network connection is up.
LINE (VDSL LINK LED)	Green	Blinking slowly	The CO device is auto-detecting CPE device.
		Blinking fastly	1. The CO device has detected a CPE device and ready to connect.
		Off	2. The device is sending or receiving data.
		Off	The Internet or network connection is down or has malfunctioned.

Note:
It is normal for the connection between two bridges to take up to 5 minutes, due to NV-202 to establish a link mechanism is auto-negotiation, that detects and calculates CO and CPE both PBD and PSD level, noise levels and other arguments for getting a better connection.

3.3 Rear Panel

The following figure shows the rear panel. (Figure 3.2)

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4.4.1 55 pin to 61 pin Cable adapter

