Help! The Internet is broken!

A flowchart for debugging WHOInet network problems using DHCP and NetReg

NetReg

All computers on WHOInet need to be registered with NetReg:

https://netreg.whoi.edu/

"Wrong" IP addresses

- **169.x.y.z** is a "link local" address. It shows up if you don't have a working network connection or can't reach a DHCP server. This is usually due to an inactive Ethernet jack, a bad cable, or sometimes spyware.
- **10.128.x.y** is a QuickReg address, assigned by the NetReg DHCP server to systems that are not yet registered. It can only be used to go to the NetReg Web site and register.
- 10.202.x.y is an address on the "Atlantic" wireless network. It will never show up by DHCP on a wired Ethernet interface. To use the Atlantic network you need to use the VPN. If you're trying to debug a wired Ethernet connection, disable the wireless interface.
- **192.168.x.y** is a private IP address, usually assigned by a NAT device such as a home router or firewall. Some insecure WHOI hosts are put behind NAT for security, but do not have full WHOInet connectivity.
- **128.128.x.y** are WHOInet IP addresses. If you have a WHOInet IP address but can't use the network, it may be an address on the wrong subnet. Make sure you're using DHCP, then release and renew the DHCP lease.
- **Other IP addresses** may show up if a host has been configured for another Internet site's network. Make sure it is set to use DHCP, then release and renew the DHCP lease.

Spyware

The term **spyware** refers to any software that hijacks a computer's normal operation in order to invade the user's privacy. Spyware can interfere with normal network use in any number of ways, and a spyware problem can show up as just about any kind of network problem (excepting, maybe, a broken Ethernet cable). To date, spyware only affects Windows systems.

Most spyware installs itself into Internet Explorer and intercepts Web browsing – popping up ads or redirecting the user's searches to advertisements. Other browsers are (so far) not usually affected by spyware.

Other spyware replaces Windows' network drivers (Winsock), sending all network traffic through the spyware operator's site. This will cause all sorts of networking problems, and can usually only be fixed by reinstalling the network drivers.

Some spyware can be removed with ordinary anti-virus software. However, specialized antispyware software such as Ad-Aware or Spybot Search & Destroy is usually more effective.

Make sure that the computer is *plugged in* and is set to use DHCP on a wired Ethernet interface. The Ethernet MAC address has changed. the mother-Yes board or Ethernet Go to NetReg and card replaced update the registration with the new MAC address. Ethernet & VLAN Check that the wall jack is active & that Moved to a the cable is good. Yes new jack, room, Moved to a new or building? (Look for a link light or building? If you get an error try testing it with a looking up your IP known-good system.) address, you either No Yes don't have a working Ethernet card, or else Error You're on a QuickReg the drivers for it are subnet - you're on the You're on a different missing or corrupted. What does network, but not subnet now. Go to 10.128 your IP address registered. Go to NetReg and update the NetReg and register start with? registration with the Check that the wall subnet for the new the host or update its 169 or jack is active & that registration. building. Other the cable is good. 128.128 Look for a link light or try testing it with a The local router should Is the known-good system.) Can you ping local router be set from DHCP. 128.128.76.85 (default gateway) Check that the system set correctly? is using DHCP to set (by IP) IP & DNS the router and the network mask. Yes Yes Check that your DNS Reset the local switch servers are being set there a local Can you ping and wait five minutes by DHCP. They should www.whoi.edu Ethernet switch for the building switch be 128.128.243.2 and to reëstablish its MAC (by name) (Netgear) 128.128.243.3. address map. Yes Web browser problem. On Windows, check for Network outage. spyware and viruses. File a trouble ticket you access other people the WHOI public with the Networking in the building use Check also for HTTP Web site? the network? group to have it fixed. (But they probably proxy settings in the browser. already know.) Yes Yes Yes You might be blocked Network Do you have you access at the switch for the WHOI internal reverse-DNS into security reasons. **Function**

START HERE.

What's a MAC address?

Every Ethernet card has a unique address, called a Media Access Control (MAC) address. The name has nothing to do with Macintosh computers.

The MAC address is how NetReg - or any other DHCP service – identifies a computer. If the MAC address changes, you have to update the NetReg registration with the new MAC address.

What's my IP address?

In Windows 2000 or XP:

- 1. From the Start menu, select Run.
- 2. Type cmd and click OK.
- 3. At the command prompt, type ipconfig /all and press Enter.

In Mac OS X:

- 1. Open System Preferences from the Dock or the Apple menu.
- 2. Select *Network*.
- 3. Pull down the *Show* menu and select *Built-In* Ethernet.

In Linux or Unix:

- 1. To see your IP address, type *ifconfig -a*.
- 2. To see router settings, type *netstat -rn*.
- 3. To see DNS server settings, look in the file named /etc/resolv.conf.

Network outages are rare!

WHOInet's switches and routers are quite reliable, and network outages have become rather rare. Most of the time when someone suspects that there is a "problem with the network" the trouble is really with their computer, or with an added-on network device such as a local Ethernet switch. A real network outage will take the network down for a whole building or floor of a building - not just a single computer or office.

Local Ethernet switches and NAT devices, such as the ubiquitous little blue Netgear units, are much less reliable than WHOInet's core network. We have observed some local switches that work for months at a time and then lock up - the lights still flashing, but not actually passing any traffic. To fix this problem, all you need to do is unplug the switch and plug it back in, then give it a minute or three to reset.

The WHOInet firewall

Our firewall allows outbound connections without restriction. However, if you want to run a server on WHOInet that's accessible to the outside world, you need to register the server and open up firewall ports. Go to the Service Registration System at http://servicereg.whoi.edu/ to request open ports.

Security

If your computer is infected with a virus or gets broken into, it may be blocked at the firewall to keep it from attacking other systems. It won't get unblocked until it is cleaned up.

Application

.whoi.edu?

Host is not registered

correctly in NetReg.

Go to NetReg and

check the IP address,

hostname, and MAC

address are correct.

No

The network works.

If the client is having trouble with a network application, contact platform support staff.

Web site?

Yes

you access

Google or another

outside Web

site?

Yes

Check for viruses, then call Networking

or CIS Security.

You might be blocked

at the firewall for

security reasons.

Check for viruses,

then call CIS Security.

Graphics by Karl A. Krueger From an outline by Sara Smollett See http://www.whoi.edu/cgi-bin/ciswiki.pl?Network_helpdesk_tips