LCQ NETWORKING NOTES
For NT 4.0

DO NOT CONNECT THE IN-HOUSE NETWORK TO THE ETHERLINK III ISA CARD!

With all but the earliest LCQ's we have installed 2 Ethernet cards in the Gateway computer to simplify the task of connecting to an in-house LAN. The LCQ is connected to the Etherlink III ISA card. We use 30% of the network bandwidth in communications with the LCQ, so an MIS person should not connect to that network.

The in-house LAN system should be connected to the second Ethernet card, the Etherlink XL card. The IP address of this Ethernet card was set at the factory to 192.168.43.11. This is a bogus address and must be reset for connection to a LAN outside of the lab. You could have a conflict if connection is to a corporate network.

In the Gateway computer the LCQ network uses TCP/IP and NETBUI protocols. Customer MIS people have sometimes disabled or modified these protocols during network configuration to their system. They should not change any of the LCQ networking configurations that we have installed. The details of these configurations are attached.

Our software addresses the Etherlink III card with the IP address 10.0.0.101. The card we put in the LCQ has an IP address of 10.0.0.201. Our instrument manager software talks to these two addresses. The Instrument Manager will not start if 10.0.0.101 cannot be found in the Gateway computer. This is most likely the problem if the LCQ communications have been lost after an MIS group has connected the Gateway computer to their network.

When using OEM.INF drivers supplied by an Ethernet board manufacturer be careful, these overwrite the NT drivers. Generally try to use the drivers supplied by Microsoft.

The IP address of the LCQ's network card is	10.0.0.201.
The IP address of the NT computer's card is	10.0.0.101.

The Thin net connection between the NT computer and the LCQ requires Tee's on all ends with terminators on the free ends of the Tee's. The Tee on the LCQ side is internal on the network card.

INSTRUMENT CONFIGURATION IN THE NAVIGATOR SOFTWARE

Ethernet - Instrument Ethernet hardware address (also called a MAC address: 12 character number (0000C0_____ the last are HEX digits).

Tune+ will not open if it cannot find these connections or until the NT machine is reset with the above information. It does not need a real connection it just needs a hardware address. This means that you can view Tune+ without an LCQ attached if there is a reasonable address in configuration (try 0000C0123456).

The Instrument Manager will not start if it does not see the hardware address.

Ethernet cards in the Gateway computer

Ethernet to LCQ	3 Com Etherlink III (3C509 ISA) (Use driver on NT CD)
Ethernet to Corporate Net	3 Com Etherlink XL (3C900 PCI) (Use driver on OEM disk. The latest driver can be found at www. 3Com.com. It unzips to 2 disks.)

TROUBLESHOOTING NETWORKS.

The comm light on the LCQ is useful.

1. Green means that the LCQ is talking to the Gateway computer.
2. Yellow means that the LCQ 486 is talking to the network card in the LCQ. The problem is either in the Gateway computer or with the cables or possibly you are connected to the wrong Ethernet card.
3. No light means that the 486 and the network card are not talking. You probably have a hardware failure in the LCQ.

For condition 2, use the PING command at a Command prompt. Start - Programs - Command Prompt

PING_IP address or name.(e.g. Ping 10.0.0.101).

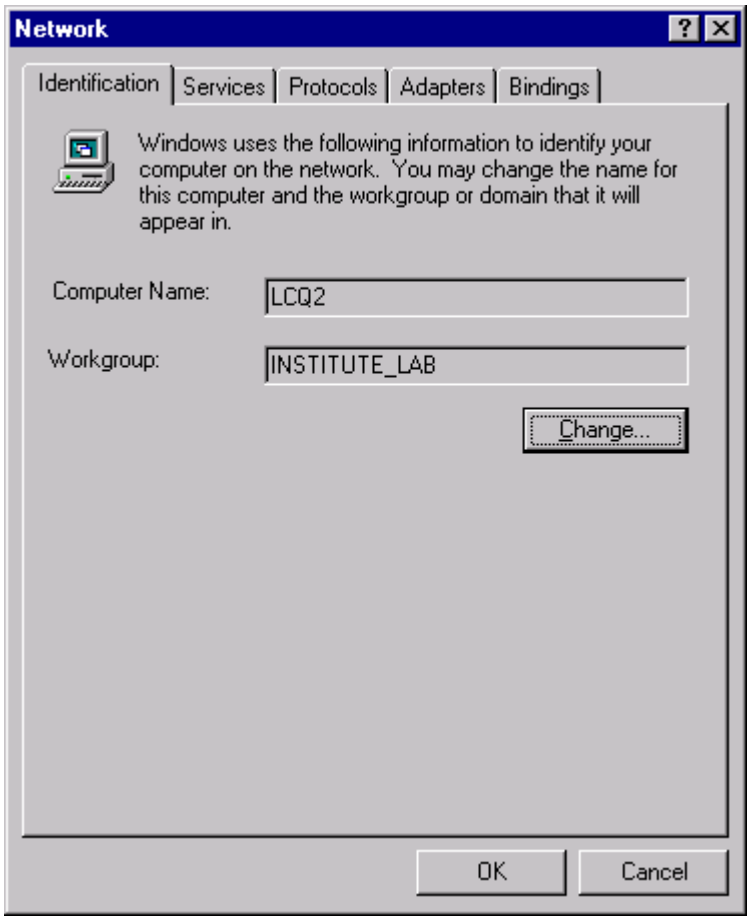
If the LCQ's comm light is yellow and you cannot ping the Etherlink III card (10.0.0.101), then most likely the Etherlink III address as been changed from 10.0.0.101. Another, less likely, possibility is that the network card is dead. I have seen this once. You can substitute the Etherlink XL card by applying the TCP/IP settings in the attached description to the XL card.

If the LCQ comm light is orange and you can ping 10.0.0.101 (Gateway Ethernet card), you may be connected to the wrong Ethernet card in the Gateway computer. Try attaching the T-connector to the other card. **NOTE**: The cards look identical from the back of the computer. They are easily mixed up. Normally the Etherlink III is the one on the right as you look at the back of the computer. This is an easy thing to try. If it does not work then look at the network settings and the cables.

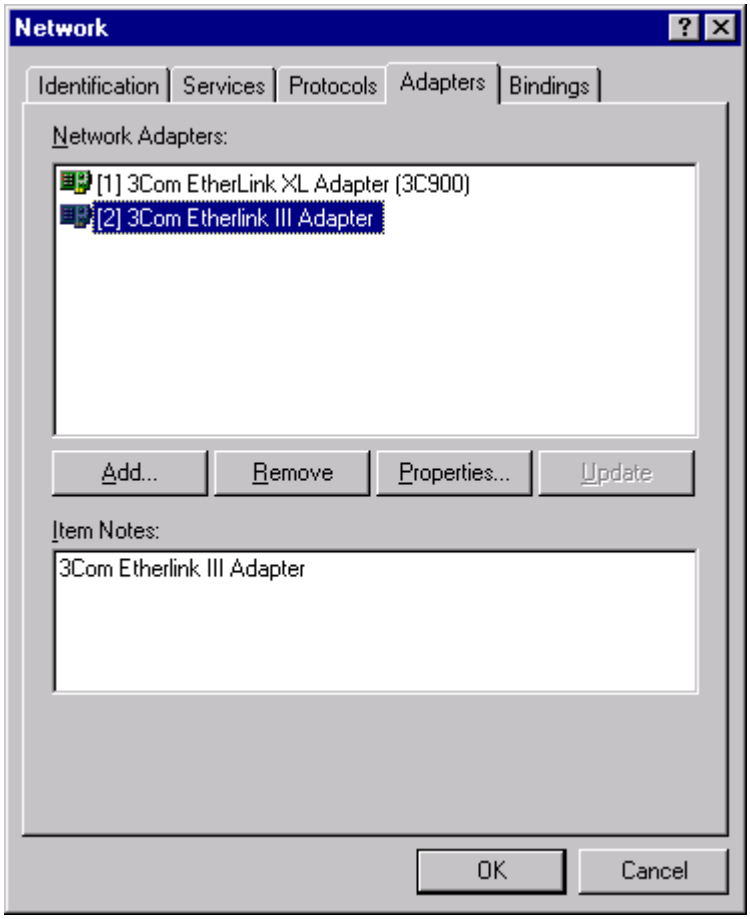
NT 4.0 Network Configuration

Look at the network settings by using these selections:
Start - Settings - Control Panel - Network

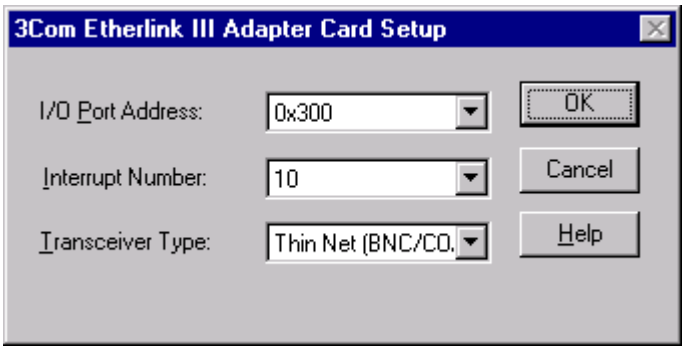
You get something like this:



Select Adapters. You should get this box. The Etherlink III card is the one that Finnigan assigns to the LCQ. The Etherlink XL is for the customer's network.

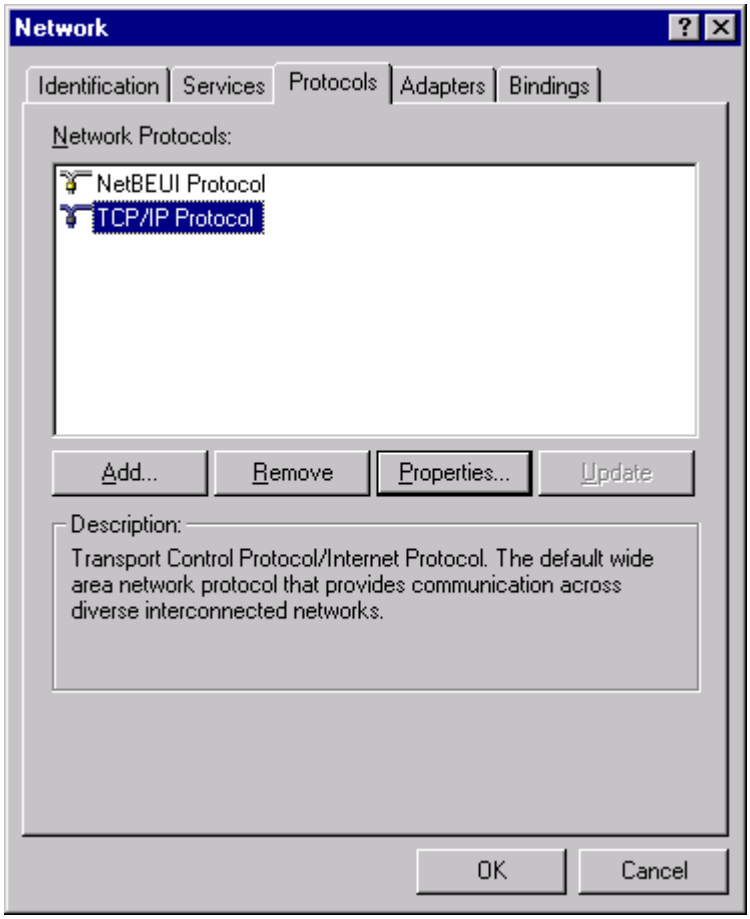


Select Properties for the Etherlink III. You should get this:

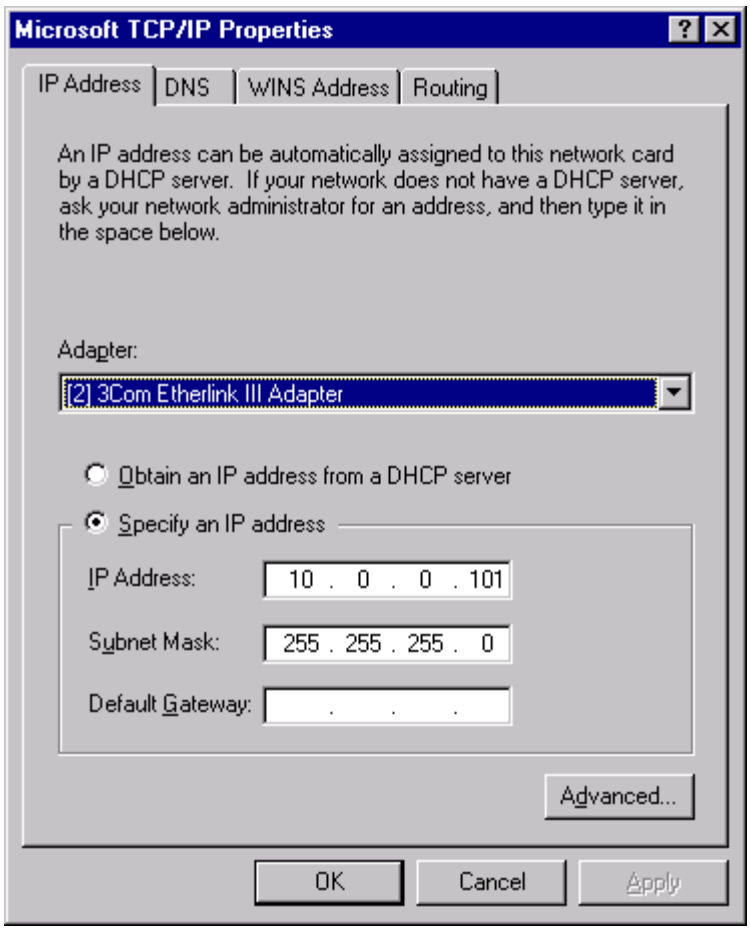


The card goes on the ISA number 0 bus.
Cancel out of this screen if everything is correct.

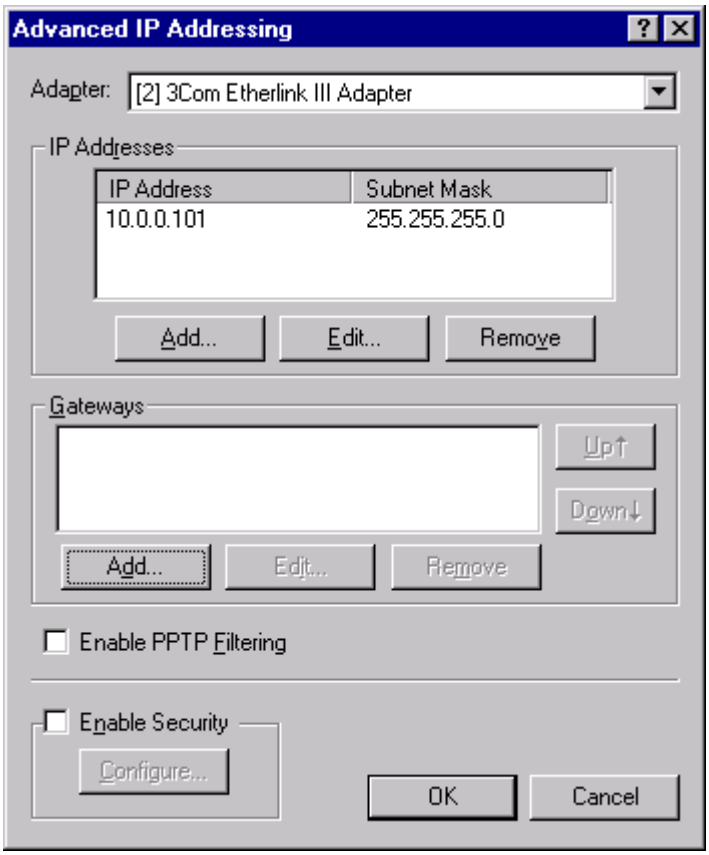
Next Select Protocols for the Etherlink III adapter. You should get this box. For LCQ communications we must have NetBEUI and TCP/IP. Other protocols used by the customer's network may be listed.



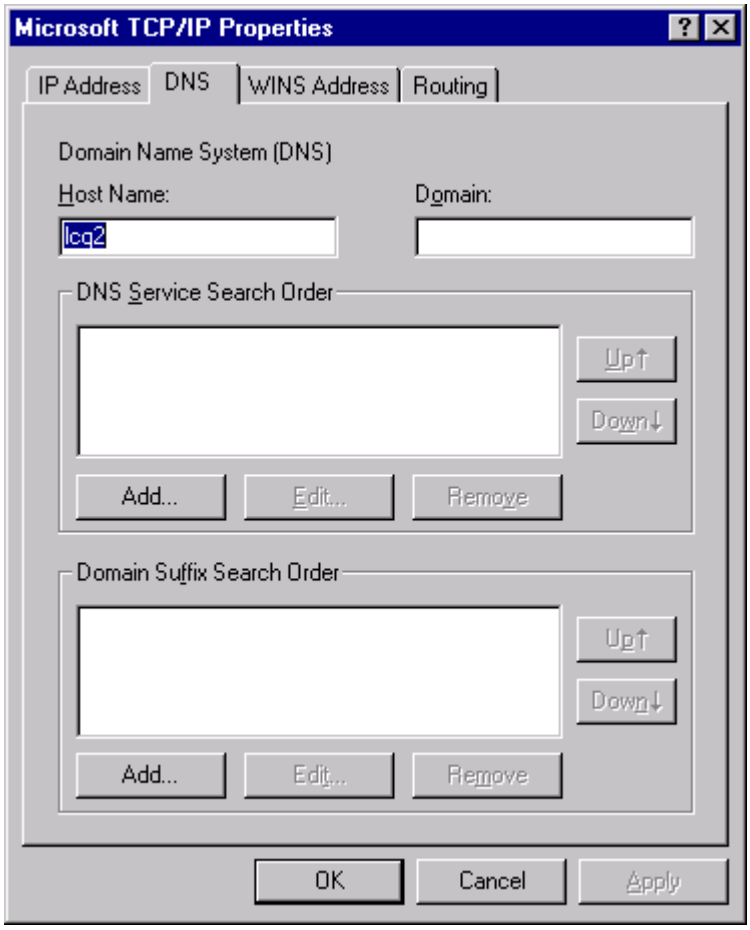
Next select TCP/IP and then the Etherlink III. You should get this.
It is critical that the IP address and subnet mask match this.
Many times MIS people will modify this address when making connections to their in-house network.



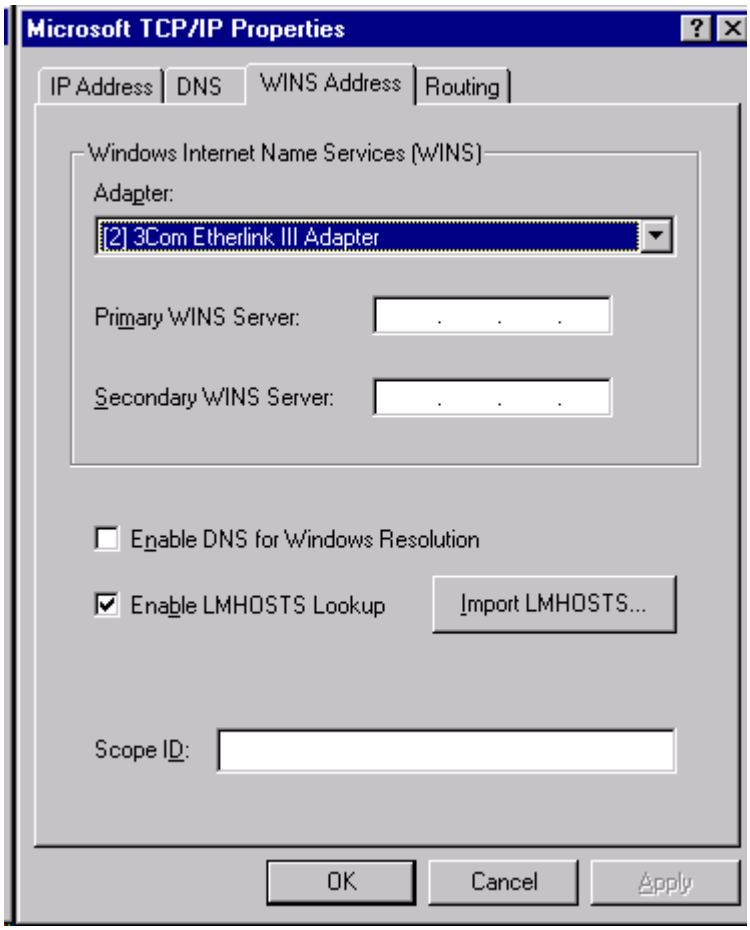
Click on Advanced, you should see this:



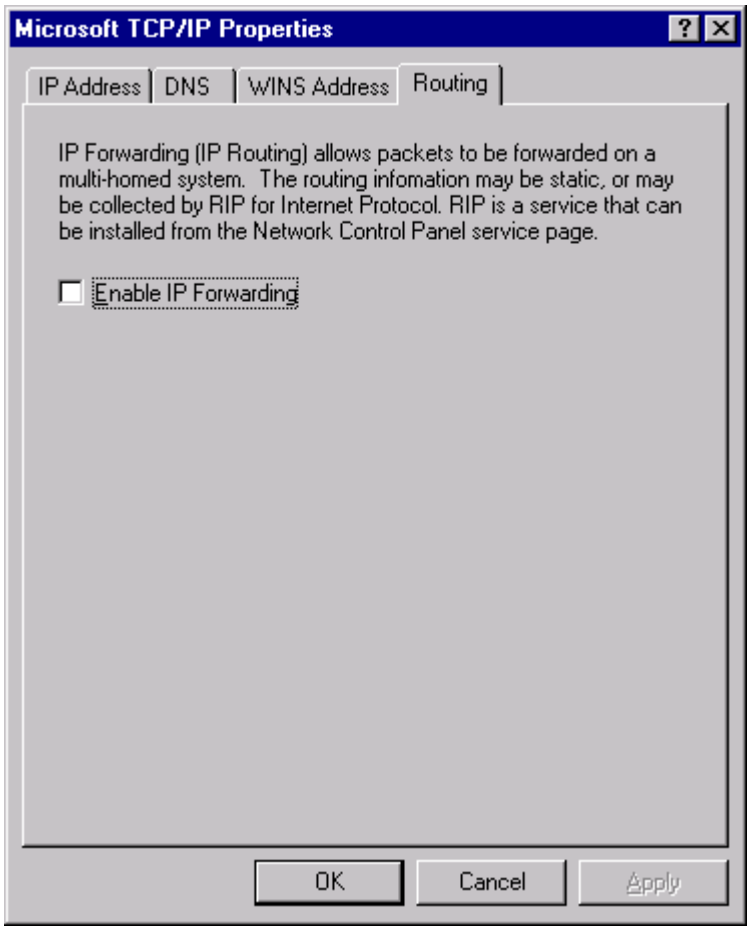
Next go to the DNS tab. The host name should be the same as the computer name in the first network screen.



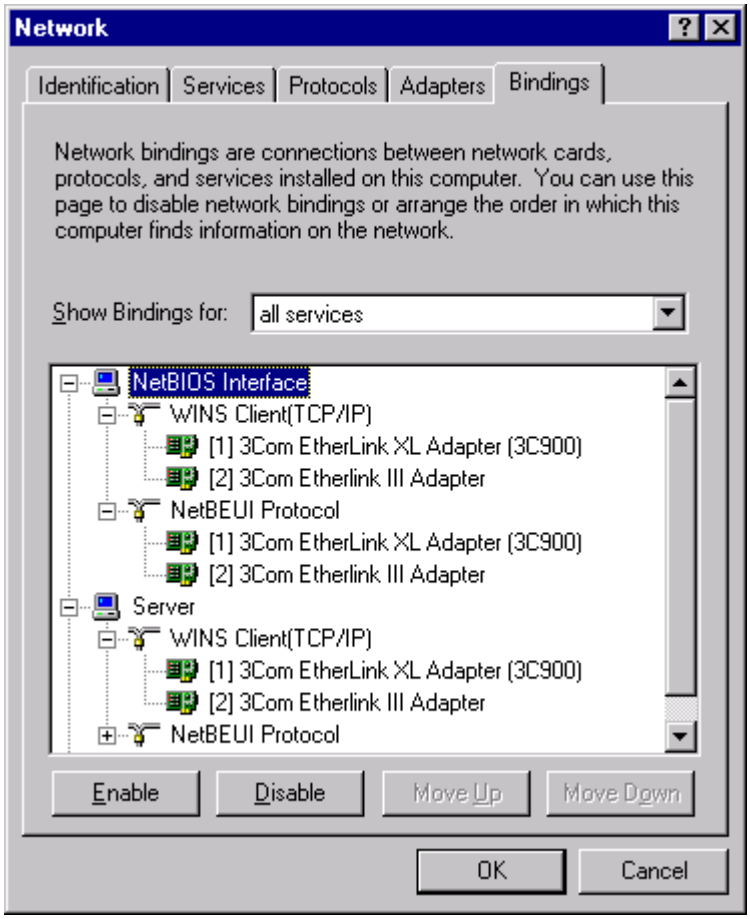
Go to the WINS Address tab. You should see this.

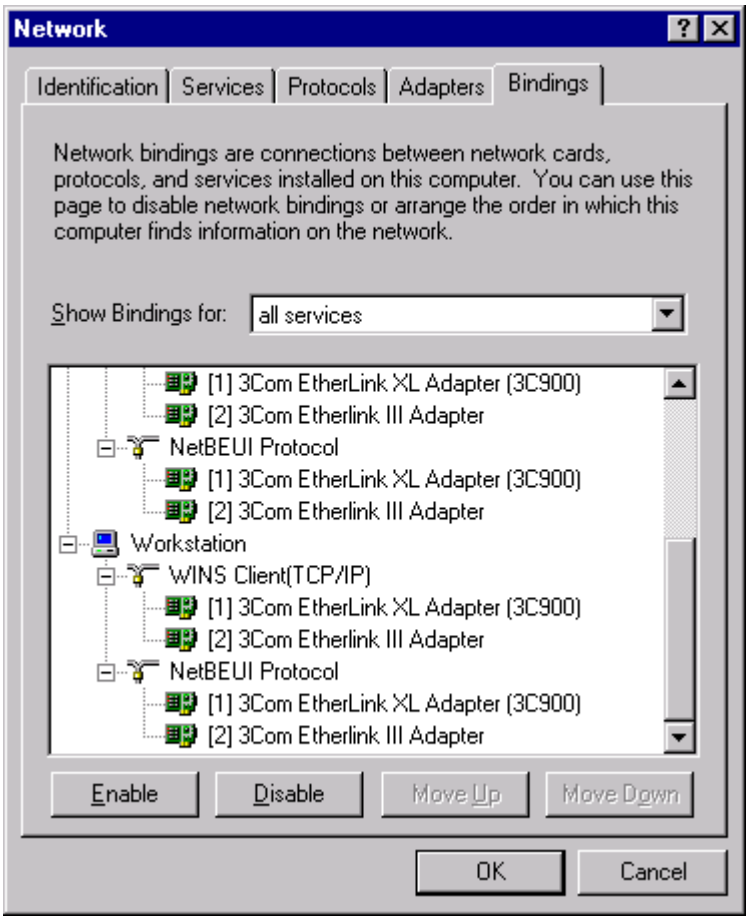


To be complete go to the Routing tab. You should not see IP forwarding checked.



Bindings should not be critical. However these are the working settings.




Network
Identification
Services
Protocols
Adapters
Bindings
Network bindings are connections between network cards, protocols, and services installed on this computer. You can use this page to disable network bindings or arrange the order in which this computer finds information on the network.
Show Bindings for:
all services
[1] 3Com EtherLink XL Adapter (3C900)
[2] 3Com Etherlink III Adapter
NetBEUI Protocol
[1] 3Com EtherLink XL Adapter (3C900)
[2] 3Com Etherlink III Adapter
Workstation
WINS Client(TCP/IP)
[1] 3Com EtherLink XL Adapter (3C900)
[2] 3Com Etherlink III Adapter
NetBEUI Protocol
[1] 3Com EtherLink XL Adapter (3C900)
[2] 3Com Etherlink III Adapter
Enable
Disable
Move Up
Move Down
OK
Cancel