

Exhibit E..... User's Manual

EUMITCOM TECHNOLOGY

WL1000

Windows Drivers And Utilities

August, 99

Notice : The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC INFORMATION

The Federal Communication Commission Radio Frequency Interference Statement includes the following paragraph:

The equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communication. However, there is no grantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures :

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The user should not modify or change this equipment without written approval from EUMITCOM. Modification could void authority to use this equipment.

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1. Windows 95/98 Set-up and Configuration

In order to know which version your computer is running place the mouse cursor on the 'My Computer' icon and press the right button once. Select the Properties option from the displayed menu. This will display the property page for your computer. The version of Windows will be indicated in the System.

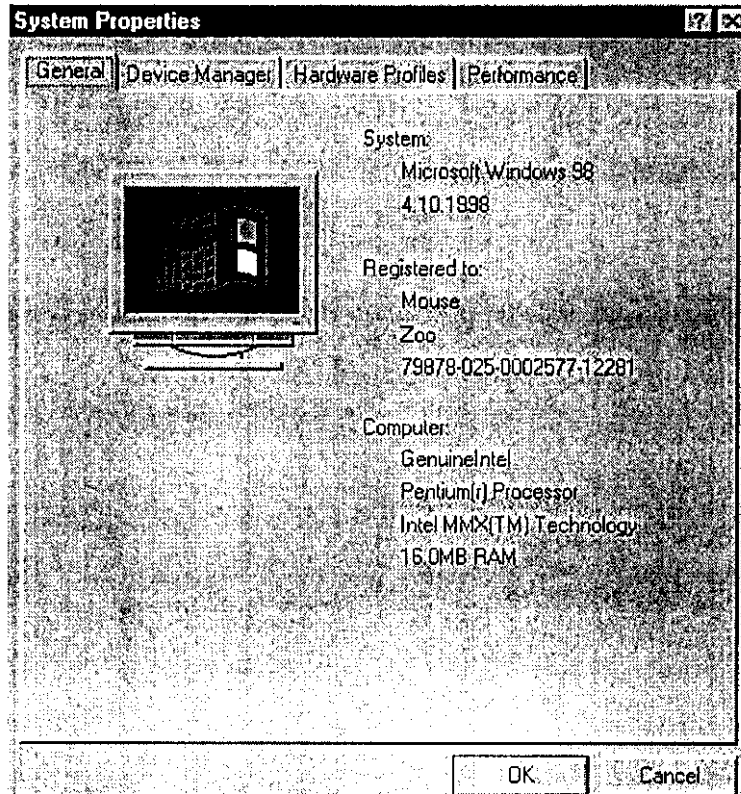


Figure 1: System Properties page

1.1 Installing the WL1000 Windows 95/98 network driver

The WL1000 network adapter is a plug and play adapter. If the driver is being installed for the first time then the installation is simple and straightforward. If the adapter is being upgraded or re-installed then please see Section 1.2.

Insert the WL1000 into a PCMCIA slot of your computer. If the computer is off then turn it on and proceed to log in if necessary.

The Windows 98 operating system will identify the WL1000 and will prompt you to install the software for it.

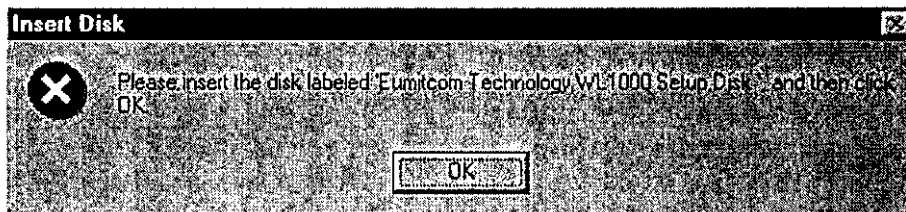


Figure 2: Insert the WL1000 driver Disk

Place the drivers disk supplied with the WL1000 in your floppy drive and select the correct drive letter from the pull down box, i.e. for drive a:

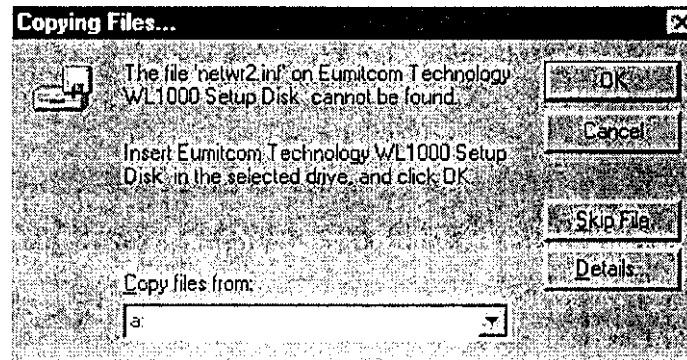


Figure 3: Manufacture's driver files

Click on the OK button and the drivers will be installed for the Adapter.

Windows may also require the Windows installation disks to complete the installation of the networking components of the operating system. If the installation disks cannot be located by Windows you will be prompted for their location, see Figure 4

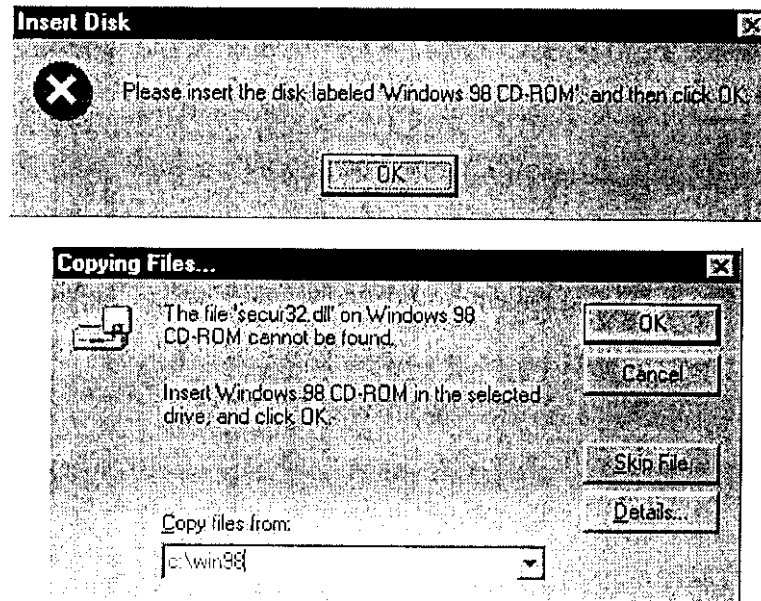


Figure 4: Windows Installation disk request.

If the PCMCIA slots have the sound enabled then a low-high tone sequence should be heard. It will now be necessary for a network protocol to be installed on the system so that Windows can use the WL1000 network card. For this please refer to section 2.

For more information on setting up optional parameters of the WL1000 adapter see Section 1.3.

1.2 Re-installing / Upgrading the WL1000 network drivers.

1.2.1 Re-installing the WL1000 network drivers

In order to re-install the Windows 95/98 network drivers for the WL1000 adapter it is necessary to remove the previous installation. In order to do this follow the steps below.

From the Start menu select Settings, Control Panel.

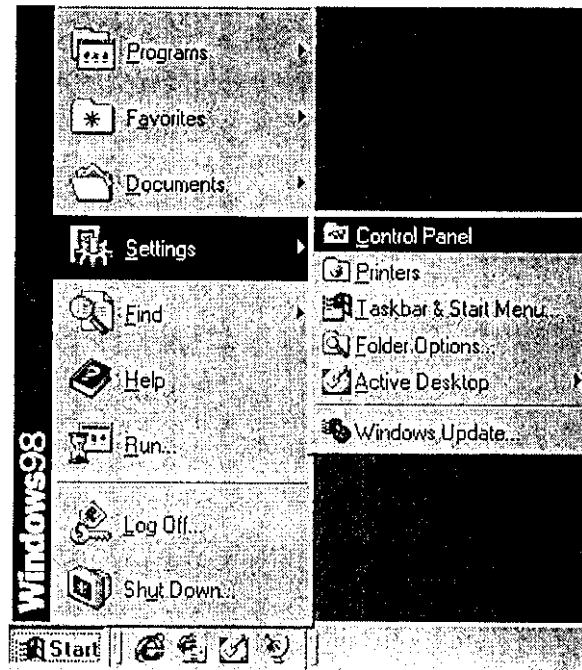


Figure 5: Start menu

From the control panel select Network.

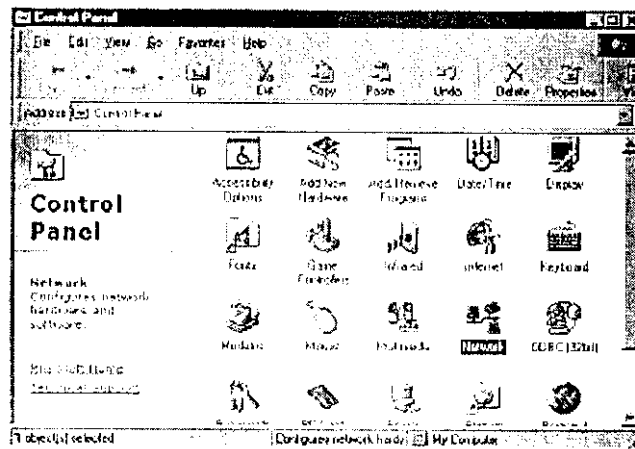


Figure 6: Control Panel

From the Network control panel select the Eumitcom Technology WL1000(PCMCIA) adapter. Be careful to select the correct adapter and make sure that the picture of an adapter is next to the description of the Adapter, as shown.

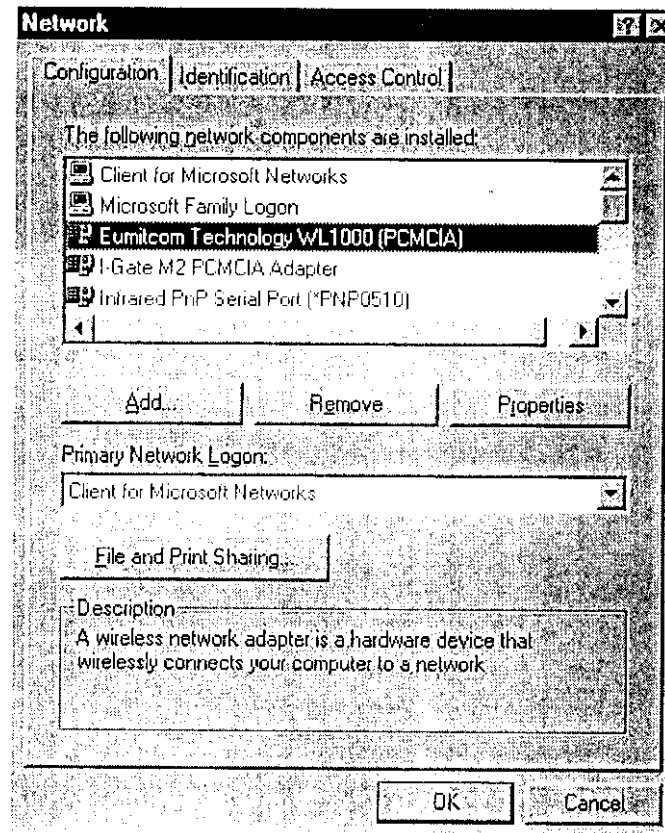
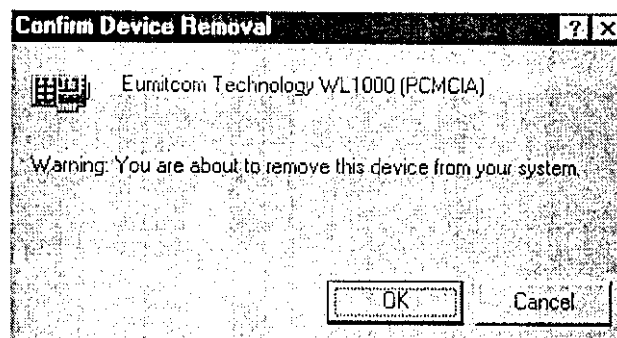


Figure 7: Network

Click on the Remove button. If you have hardware profiles installed you will be asked if you wish to remove all occurrences of the adapter, as shown below. If this happens then click the OK button.



Finally click on OK in the Network set-up Panel. The driver for the WL1000 will then be removed. If Windows prompts you to re-start your computer you can't re-start it. You can safely click on the No button and delete "C:\WINDOWS\SYSTEM\WAVDR2.SYS". Then re-start your computer and repeat section 1.1.

1.2.2 Upgrading the WL1000 network drivers

From the Start menu select Settings, Control Panel.

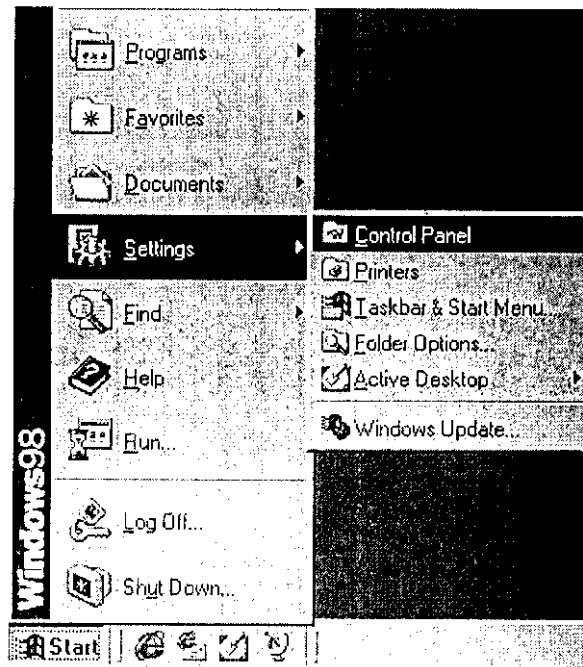


Figure 8: Start menu

From the control panel select System.

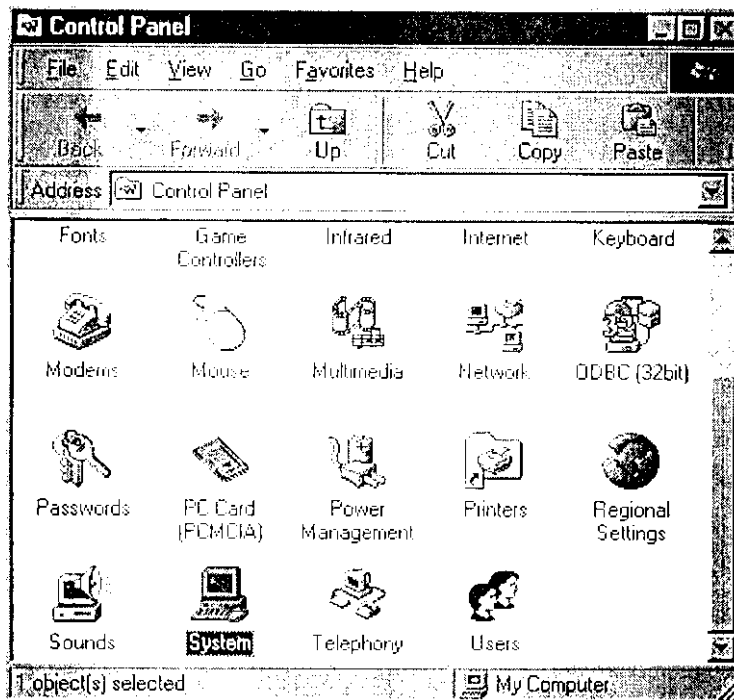
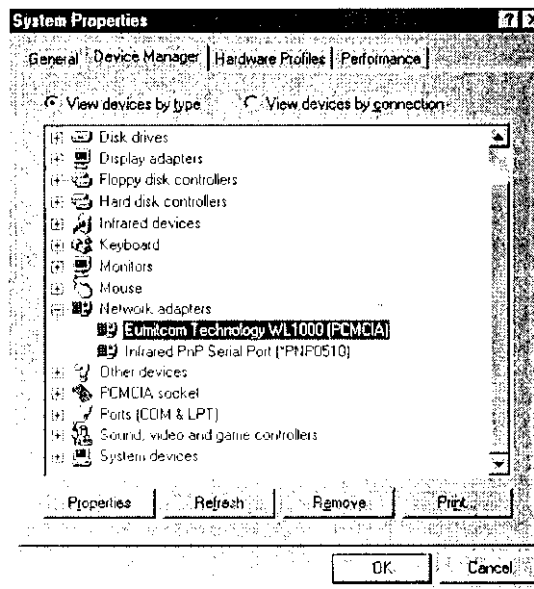
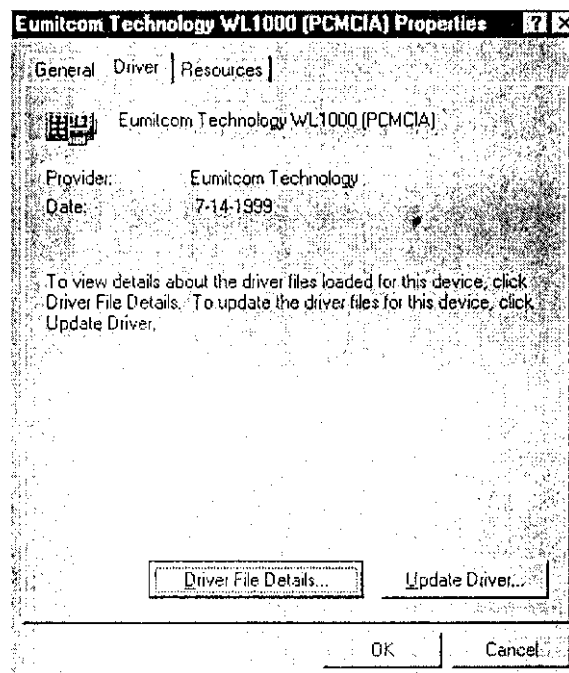


Figure 9: Control Panel

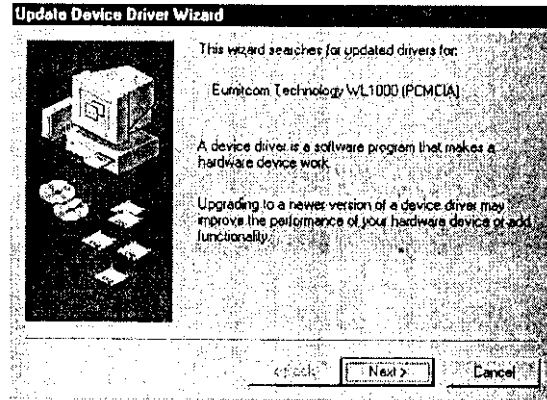
from Device Manager, double-click “Eumitcom Technology WL1000(PCMCIA)” adapter.



Select “Update Driver ...” of Driver to update driver.



The Update Device Driver Wizard will be run. Place the drivers disk supplied with the WL1000 in your floppy drive and press the Next button.



Select it like as Figure 10.

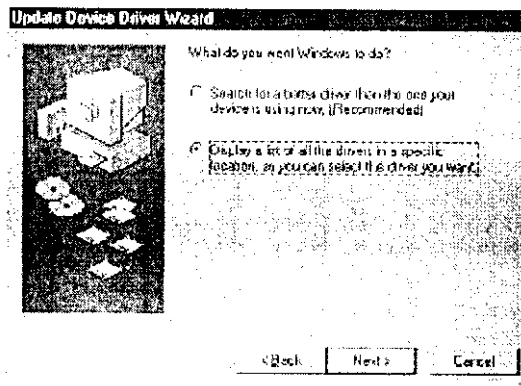
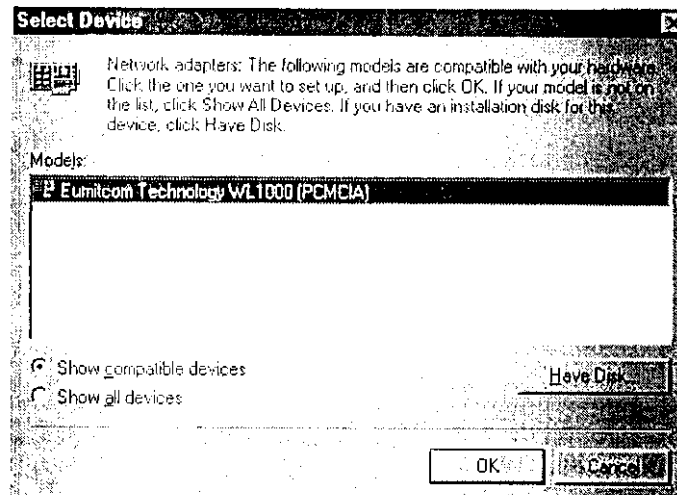
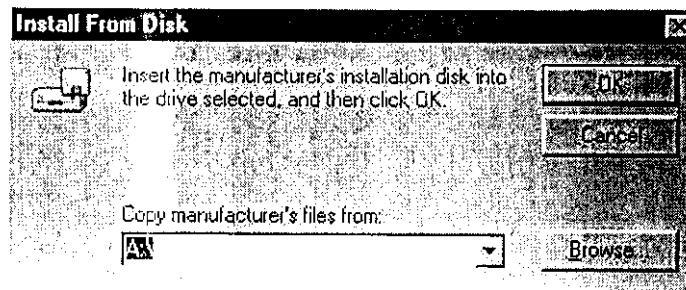


Figure 10: Update Device Driver Wizard

Select "Have Disk ...".



Ensure the driver Disk in your floppy drive and select the correct drive letter. Click OK button.



The Select Device will find the adapter like as Figure 11.

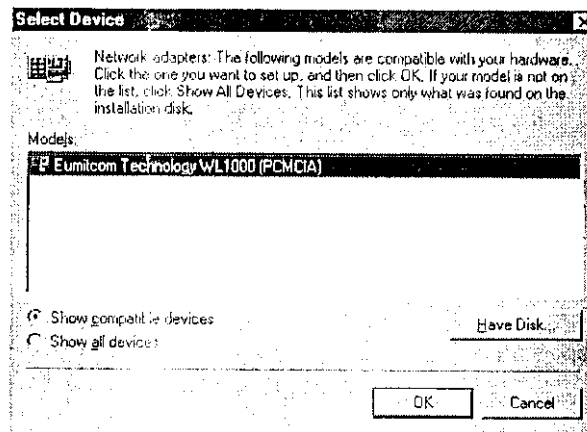
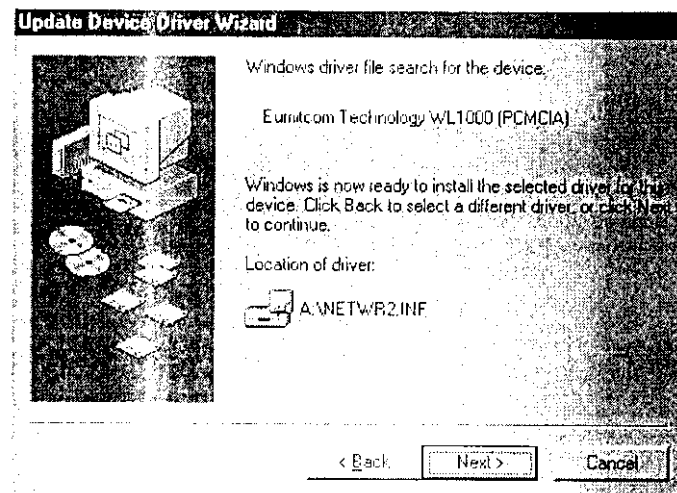
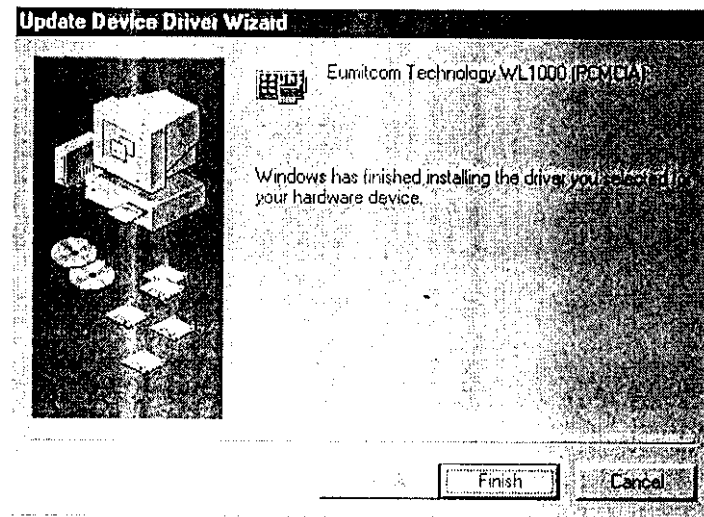


Figure 11: Select Device

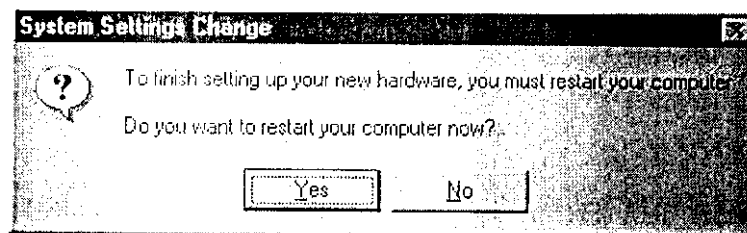
The best driver will be found . Select Next button.



Select Finish button .



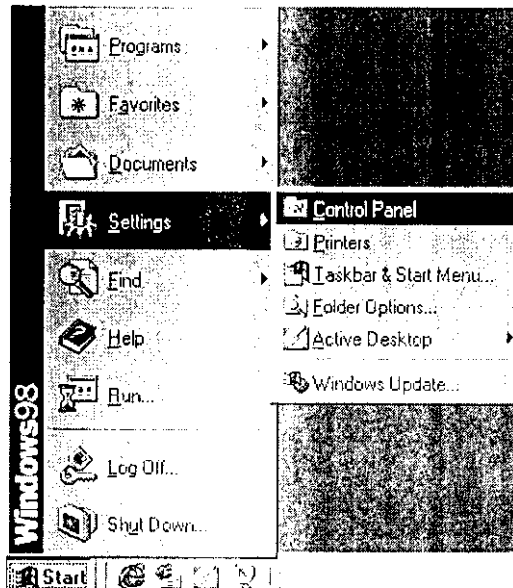
Select Yes button to restart your computer.



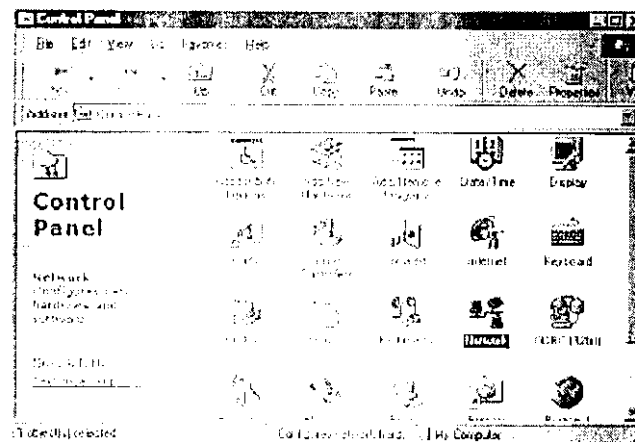
1.3 Operational / Optional Characteristics of the WL1000 Adapter

In order to change the operational optional characteristics of the WL1000 adapter the Advanced setting tab of the Adapter must be found. Follow these steps,

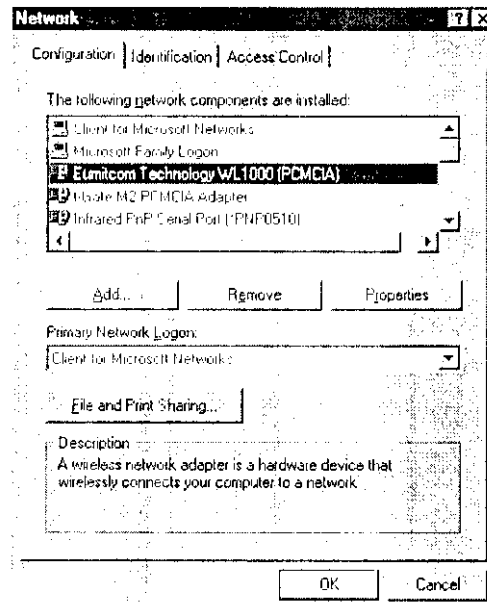
From the Start menu select Settings, Control Panel.



From the control panel select Network.

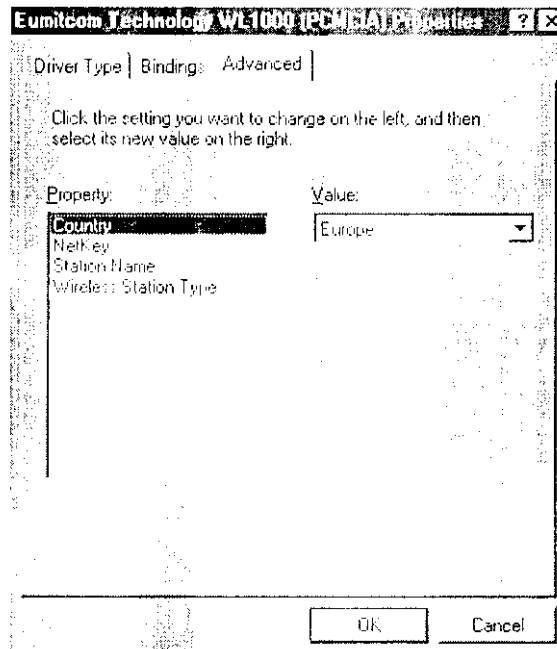


From the Network control panel select the Eumitcom Technology WL1000(PCMCIA) adapter. Be careful to select the correct adapter and make sure that the picture of an adapter is next to the description of the Adapter, as shown.



Click on the Properties Button to display the Properties of the Adapter.

Click on the Advanced Tab at the top of the panel to display the Advanced setting for the WL1000.



The Advanced settings for the Adapter can now be configured for your network. Refer to the WL1000 User Guide for information on how to use these settings.

2. Installing additional network components

2.1 Installing a network protocol

When using any network the Windows operating system requires a network protocol to be chosen and used by all stations that wish to communicate together.

This document will describe three protocols that can be used with the WL1000 network adapter. It is possible that there are many other possible protocols that will also run successfully and in general any protocol that will run on an Ethernet network adapter will also run on the WL1000.

In order for this demonstration kit to perform file transfers and other 'normal' windows networking tasks a common protocol must be installed on each machine. The three protocols considered here are;

NetBEUI: This is a very easy protocol to install and use with the WL1000 demonstration kit. It allows file sharing and printer sharing to operate over the network.

IPX/SPX: Again this is a very simple protocol to install and use with this kit and provides similar capabilities to the NetBEUI protocol.

TCP/IP: This protocol requires some additional set-up steps to use with this kit. It then provides normal file and printer sharing as well as Internet type applications such as WEB servers/browsers and FTP file transfers.

First go to the Start menu; select Settings and then Control Panel. Double-click the Network Icon.

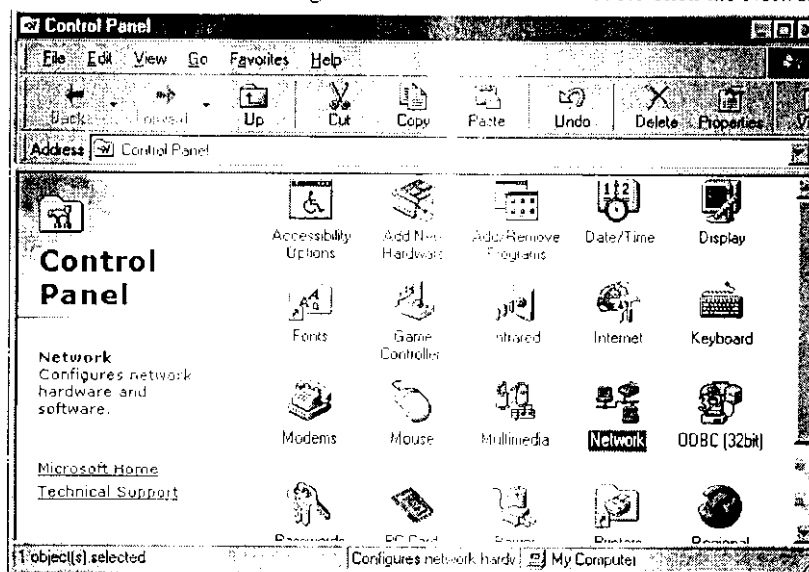


Figure 12: Control Panel.

Click on the Add button.

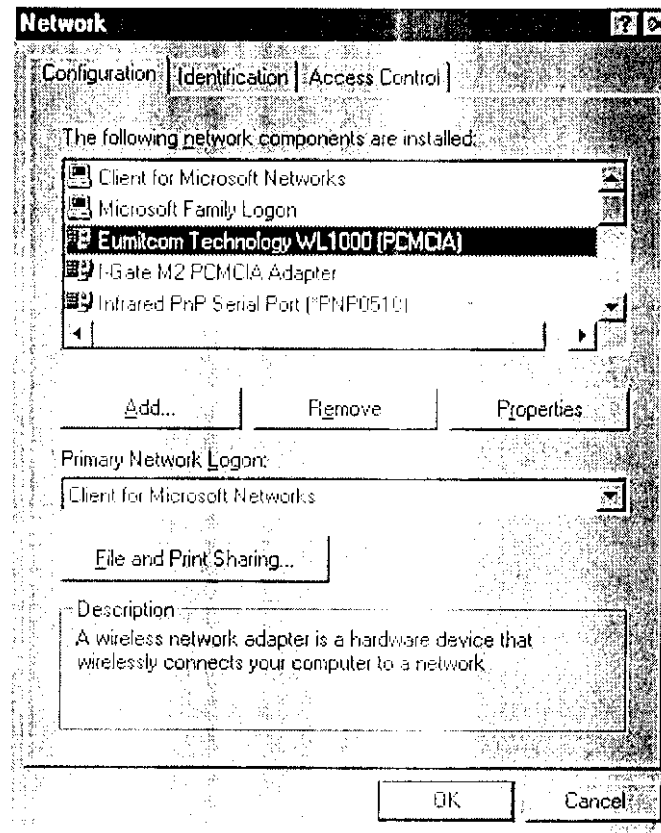


Figure 13: Network Control Panel.

Select the Protocol option and click on the Add button.

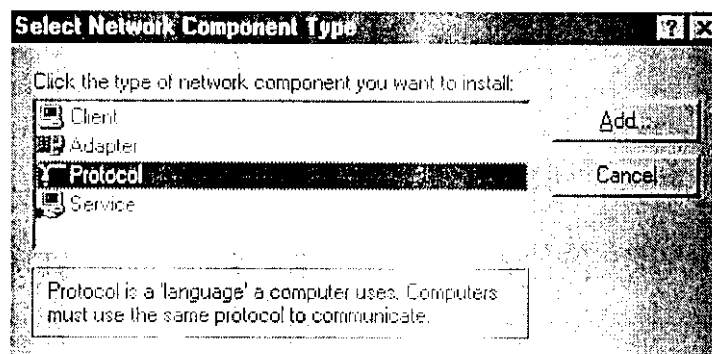


Figure 14: Add Network Component.

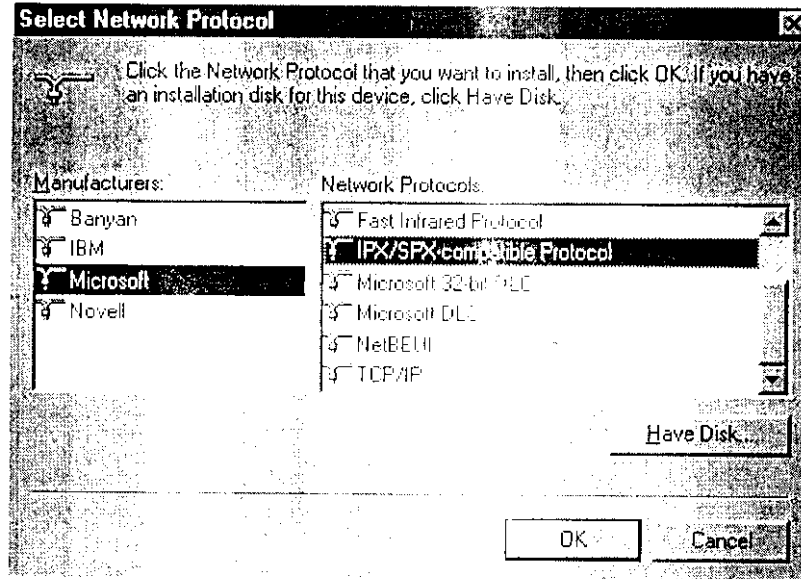


Figure 15: Network Protocol Selection

At this point one of the available network protocols can be chosen. If the Microsoft entry on the left is selected then IPX, SPX, NetBEUI or TCP/IP can be selected.

Once the desired protocol is selected then click on the OK button. Windows may require the location of the Windows set-up disk to be provided. The desired protocol will then be installed.

If the NetBEUI or IPX protocol is chosen then the protocol set-up is now complete. You can skip to section XX.

If the chosen protocol is TCP/IP it will be necessary to provide a unique address for the protocol to use (unless you have a station on the wireless network that can provide a DHCP service). The choice of address is outside the scope of this document but there are sets of addresses called 'Locally administered' addresses. In order to set up the TCP/IP protocol to use these addresses proceed as follows:

2.1.1 Setting up TCP/IP as a stand alone network group.

Goto the Start menu, Settings, Control Panel, Network

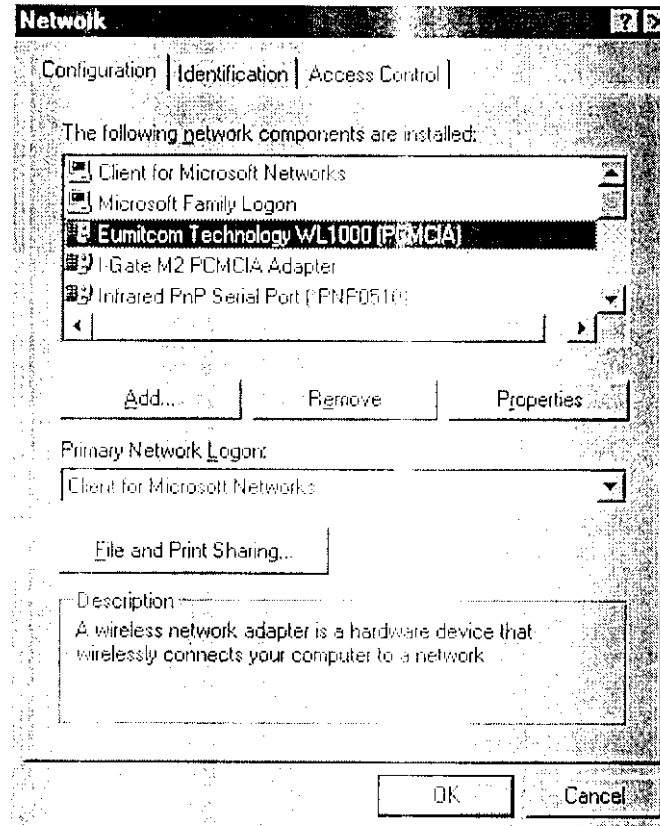


Figure 16: TCP/IP properties selection

Select the 'TCP/IP ->Eumitcom Technology WL1000 (PCMCIA)' line and then click on the Properties button.

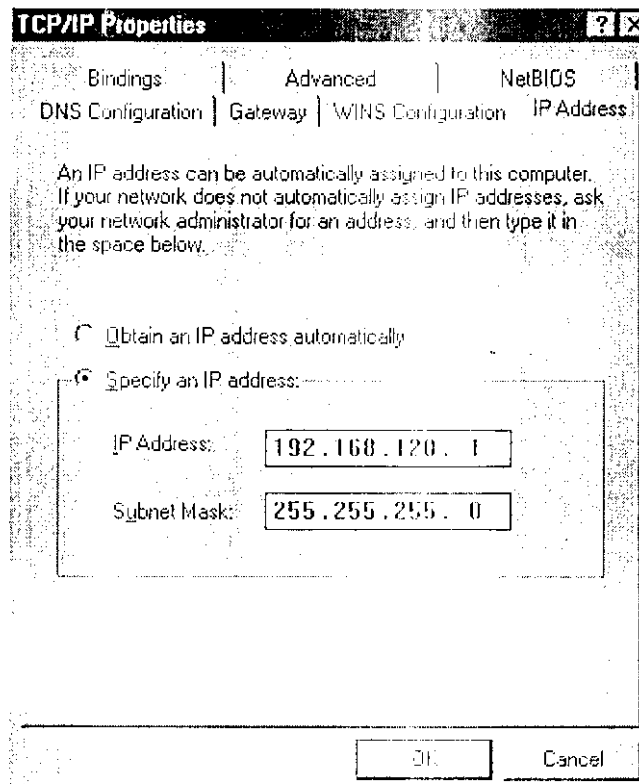


Figure 17: TCP/IP Properties

Click on the 'Specify an IP address' button. The two fields 'IP Address' and 'Subnet Mask' will now be available. The choice of IP address can be as shown above. The 192.168.X.X network address group is defined as locally administered and is therefore suitable for a wireless network. The final digit of the IP address should be incremented for each PC added to the network. This will then guarantee that each PC on the wireless network has a unique IP address. The subnet mask can be entered as above.

Click on OK and on OK again in the network control panel. Windows may then need to be re-started to implement the changes, so you should re-start the computer if prompted to do so.

2.2 Installing Client and server network components

If the computer does not have client and server components installed it will be necessary to add these to allow file and printer sharing between computers. In order to verify if these are already installed;

First go to the Start menu; select Settings and then Control Panel.

Double click on the Network Icon.

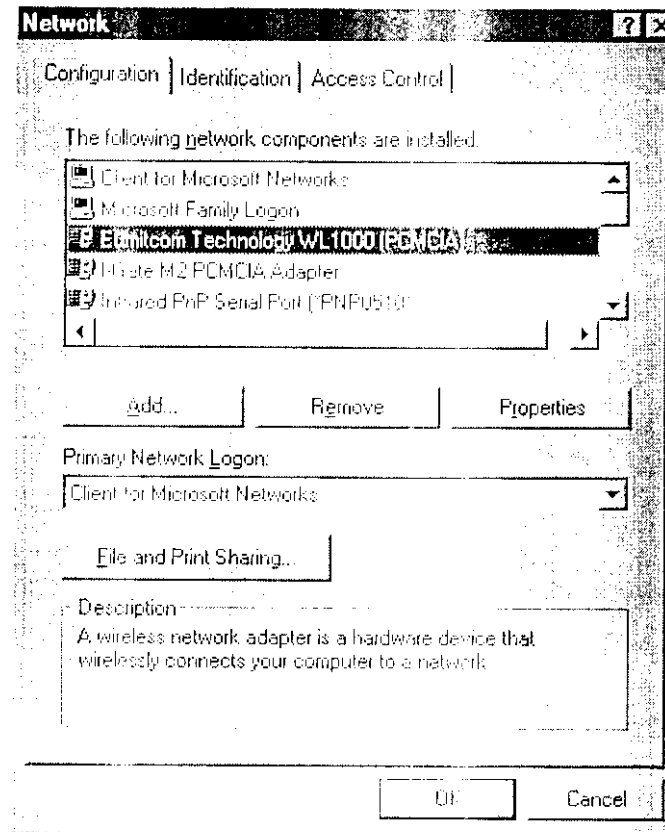


Figure 18: Network Control Panel.

In this example (Figure 18) the Client for Microsoft Networks has already been installed. If this is not installed and this computer needs to use resources on another computer the following installation can be performed;

Click the Add button, select Client and click the Add button.

Select Microsoft on the left and Client for Microsoft if using TCP/IP or NetBEUI, or select Client for NetWare if using IPX/SPX protocol.

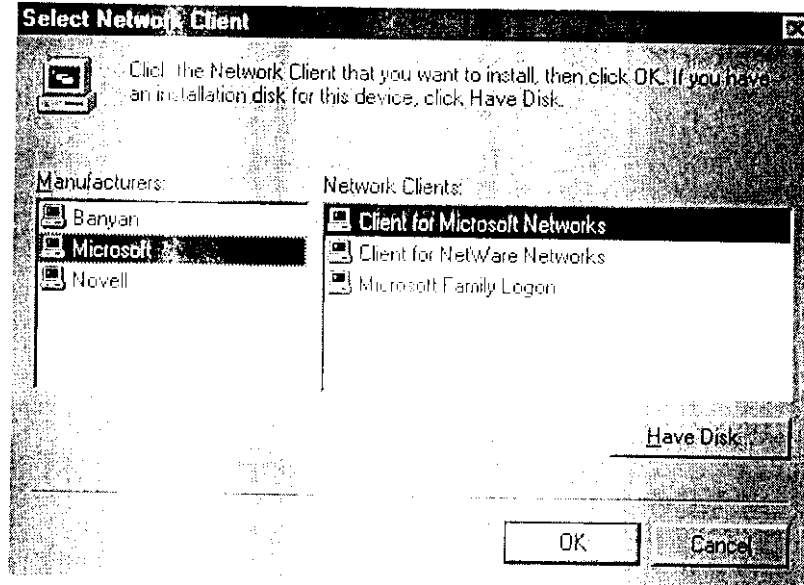


Figure 19. Select Client

Click on OK. Windows 95/98 installation disk may be asked for.

If this computer will share a directory or printer with other computers the Server network component will be required.

In the network control panel click Add, select Service and click Add

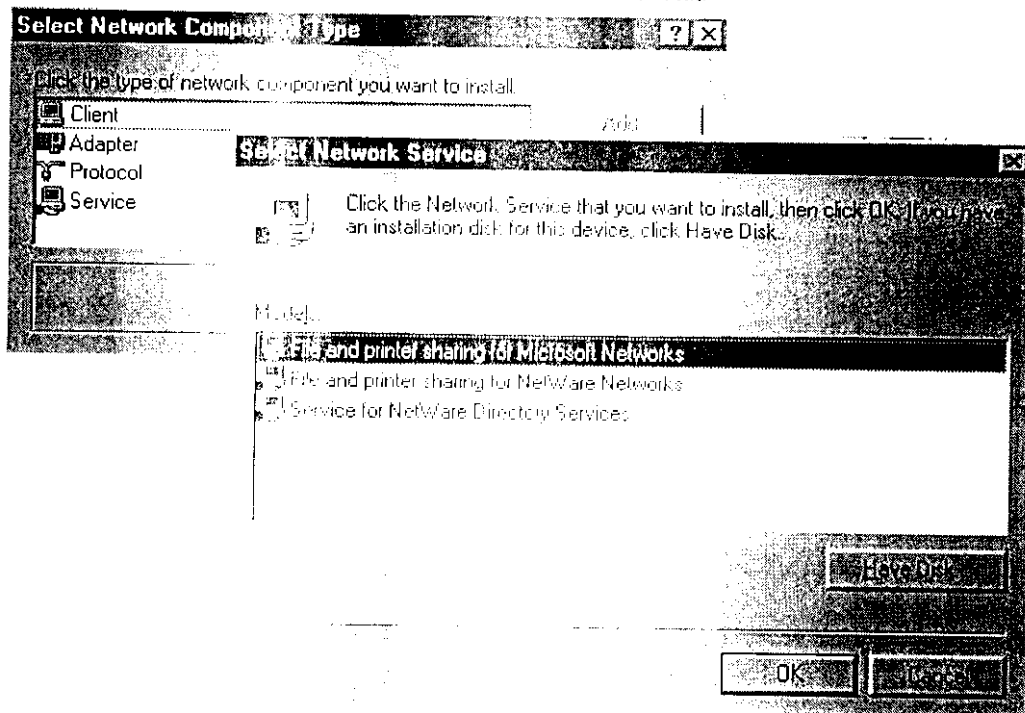


Figure 20. Service Selection

Select Microsoft on the left and then File and Printer sharing for the required network on the right. Click OK.

Finally the services must be enabled for the computer. Return to the Network Control panel and click on File and Print Sharing.

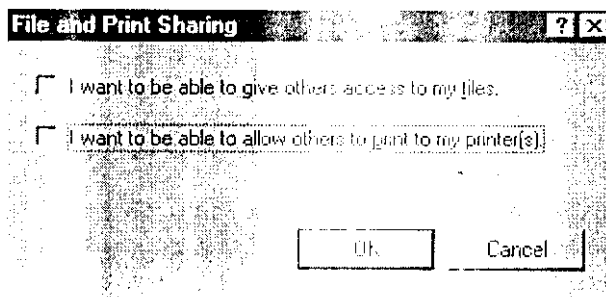


Figure 21: Sharing control

Enable file and / or printer sharing as required.

3. Using the WL1000 Upgrade Utility

The WL1000 upgrade utility (upgrade.exe) is a Windows application that allows the user to upgrade the Media Access Control (MAC) software held in the WL1000 card. Eumitcom may, from time to time, issue new versions of the MAC software in order to add functionality or correct problems. Upon starting the Upgrade utility (via the Windows 95/98 Start Menu or Explorer), you will be prompted to enter the name of the new MAC software image file. Enter the location and name of the file that has been supplied by Eumitcom, and press the OK button. The utility will then re-program the WL1000 network adapter. The re-programming must be allowed to complete or the WL1000 will stop functioning. For this reason Windows 95/98 will not respond during the programming sequence. The Upgrade utility will indicate if the re-programming has been successful. If the programming fails the problem must be resolved by reference to your supplier.

4. Specification of WL1000

Specification on RF:

RF Technology:	Frequency Hopping Spread Spectrum (FHSS)
Frequency Band:	ISM Band 2400 ~ 2500 MHz USA & Europe: 2400 ~ 2483.5 MHz Japan: 2472 ~ 2484 MHz
Data Rate:	1Mbps
Transmission Power:	17dBm \pm 1dB
Transmission Range:	450 feet in open air space 150 feet indoors
Receive Sensitivity:	-75dBm @ BER 10E-5
Antenna:	Snap - on patch antenna, dipole antenna available
Operating Environment:	Typical indoor environment Temperature: 0 ~ 50°C Humidity: 25 ~ 80%
Power Consumption:	5Volts Stand-by mode: 12mA Rx mode: 150mA Tx mode: 350mA(Max.)
Dimension:	PCMCIA Card Type II
Certificate:	F.C.C CFR 47 Part 15 E.T.S.I ETS 300 328 R.C.R STD-33

5. References

- [1] WaveRider-II User Guide, Mitel Semiconductor, 1999
- [2] WaveRider-II Windows Drivers and Utilities, Mitel Semiconductor, 1999