

LATHA MATHAVAN POLYTECHNIC COLLEGE
KIDARIPATTI, MADURAI.

DEPARTMENT OF COMPUTER ENGINEERING

III YEAR/ V- SEM
(K-Scheme)

COMPUTER NETWORK SECURITY LAB MANUAL



Prepared By,
C.Chellapandian M.C.A.,(M.E)
Senior Lecturer/ CT.

1).Network Cabling

Aim

- (a)Cable crimping
- (b)Standard crimping
- (c)Cross cabling

Requirements

- Pentium IV Computer
- A reasonable length FTP cable
- Two tips RJ45
- RJ45 crimping tool

Procedure:

(A) Cable crimping

Physical Connection

- 1) Strip off insulation
- 2) Untangle wires
- 3) Place wires in correct order & straighten.
- 4) Trim wires to desired length.

Note:

If the wires are too long the plug will not Crimp onto the insulation for strength.

- 5) Slide wires all the way into the plug. Make sure not to disrupt the color scheme.
- 6) Crimp plug.
- 7) Repeat steps 1-6 for the other end.
- 8) Test wire using optional test equipment or between working computer and hub for patch (straight through) cables or between switches for crossover cables.

(B) Standard cabling

- 1) Strip off insulation
- 2) Untangle wires
- 3) Place wires in correct order using the following codes & straighten.

Both ends follow this code format

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

- 4) Trim wires to desired length.

Note:

If the wires are too long the plug will not Crimp onto the insulation for strength.

- 5) Slide wires all the way into the plug. Make sure not to disrupt the color scheme.
- 6) Crimp plug.
- 7) Repeat steps 1-6 for the other end.
- 8) Test wire using optional test equipment or between working computer and hub
For patch (straight through) cables, or between switches for crossover cables.

c). Cross cabling

- 1) Strip off insulation
- 2) Untangle wires
- 3) Place wires in correct order using the following codes & straighten.

One end is a patch cable code

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

The other end code is

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

- 4) Trim wires to desired length.

Note:

If the wires are too long the plug will not Crimp onto the insulation for strength.

- 5) Slide wires all the way into the plug. Make sure not to disrupt the color scheme.
- 6) Crimp plug.
- 7) Test wire using optional test equipment or between working computer and hub
for patch (straight through) cables ,or between switches for crossover cables.

Result:

By following the above procedures, we can crimping the network cables successfully
2). Establish a LAN connection using three systems using bus topology

AIM:

Establish a LAN connection using three systems using bus topology

Requirements:

Pentium IV Computer
Windows XP Professional Edition
Three systems
Bus cable

Procedure:

- 1) Switch on the three systems
- 2) Using the bus cable connect the three system
- 3) After connect the systems in bus cable. Double click the **my network place** icon on the desktop for the first system
- 4) Then click view **network connection**.
- 5) Now right click **local area connection** and click properties.
- 6) Click the **internet protocol (TCP/IP)** and set the IP address for the First system

Example IP address: 192.168.0.1

Subnet mask: 255.255.255.0
- 7) Then click ok
- 8) Repeat the **steps 2-6** for the remaining two systems

Result:

By following the above procedures, we can connect the three system using bus cable successfully

3). Establish peer to peer network connection using two systems in a LAN

AIM:

Establish peer to peer network connection using two systems in a LAN.

Requirements:

Pentium IV Computer
Windows XP Professional Edition
LAN cable

Procedure:

- 1) Switch on the Two systems
- 2) Connect the two system using network cable.
- 2) After connect the systems. Click the **my network place** icon on the desktop for the first system
- 3) Then click **view network connection**.
- 4) Now right click **local area connection** and click properties.
- 5) Click the **internet protocol (TCP/IP)** and set the IP address for the First system
Example **IP address:** 192.168.0.1
Subnet mask: 255.255.255.0
- 6) Then click ok
- 7) Repeat the **steps 2-6** for the another system

Result

By following the above procedures, we can connect the peer to peer connection using LAN successfully.

4).Installing Network Components

Aim

- (a)Installing a network using switches and Hub
- (b)Modem Installation and Configuration
- (c)Connecting to the Network using Dial-Up networking

Requirements:

Pentium IV Computer
8 port Hub
Modem
Windows XP Professional Edition

Procedure:

Installing a Network using Switches / Hubs

Physical Connection

- 1) Install Network Interface Card in the prescribed slot in the CPU.
- 2) Attach RJ45 connector in both end of UTP cable.
- 3) Connect one RJ45 connector in the NIC Card and another RJ45 connector in the Hub.
- 4) Give power supply for the Hub.

Software Installation

- 1) Windows will automatically detect the installed Network Interface Card and install required device driver files.

Modem Installation and Configuration

- 1) Login as Administrator in the Windows XP system.
- 2) Start ->Settings ->Control Panel ->Phone and Modem options
- 3) Choose Modem Tab and Click Add Button.
- 4) Now Add Hardware Wizard will begin and search for the modem connected in the CPU.
If the modem is found it will install the required driver files from CD/Floppy Disks.

Connecting to the Network using Dial-Up networking

- 1) Start - >Programs ->Accessories ->Communication ->New Connection Wizard
- 2) Choose Network connection Type as 'Connect to Internet' and click Next Button
- 3) Choose the option 'Setup my connection manually' and click Next Button
- 4) Choose the option 'Connect using a dialup modem' and click Next Button
- 5) Type ISP name, phone no, user account and its password and Click Finish Button.

LMPC

Result:

By following the above procedures, we can install hub,modem and configure dialup networking successfully.

5) a. Configure IP Address in a system in LAN (TCP/IP Configuration)

Aim:

Configure and Support TCP/IP.

Requirements:

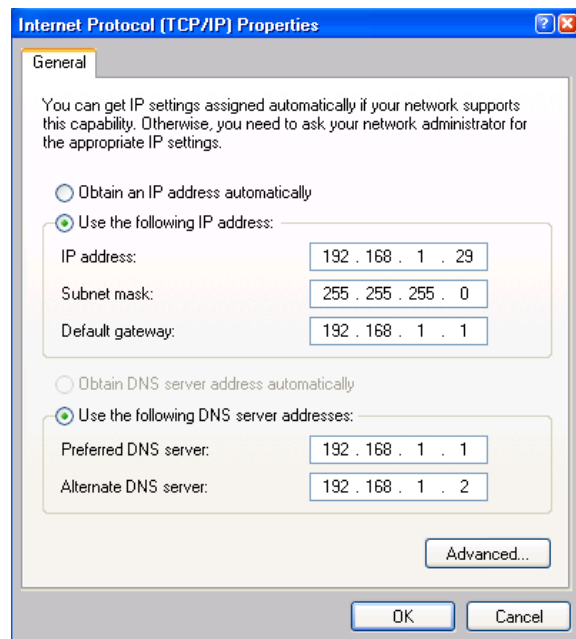
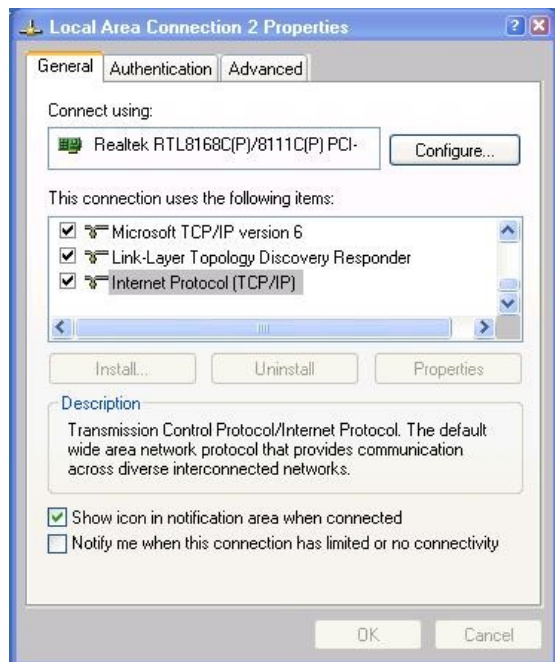
Pentium IV Computer
Windows XP Professional Edition
TCP/IP Protocol

Procedure:

- 1). Start -> Settings -> Control Panel -> Network Connections.
- 2). Network Connection Window will appear. Choose Local Area Connection Icon in the window.
- 3). Right Click the mouse and choose properties option under shortcut Menu.
- 4). Choose Internet Protocol (TCP/IP) check box and click Properties Button.

You can assign IP address in 2 ways

- (a). Obtain an IP address automatically,
 - (b). Use the following IP address. IP address must be unique for each and every machine in the network. If 2 machines have same IP address in the network it will lead to network error.
- 5). Choose the option 'Use the following IP Address radio button'
And type IP address, subnet mask as per rules and regulations.
 - 6) Click OK button.



Result:

By following the above procedure, we can configure TCP/IP protocol in a windows XP machine successfully.

5) b. Configure DNS to establish interconnection between systems

Aim:

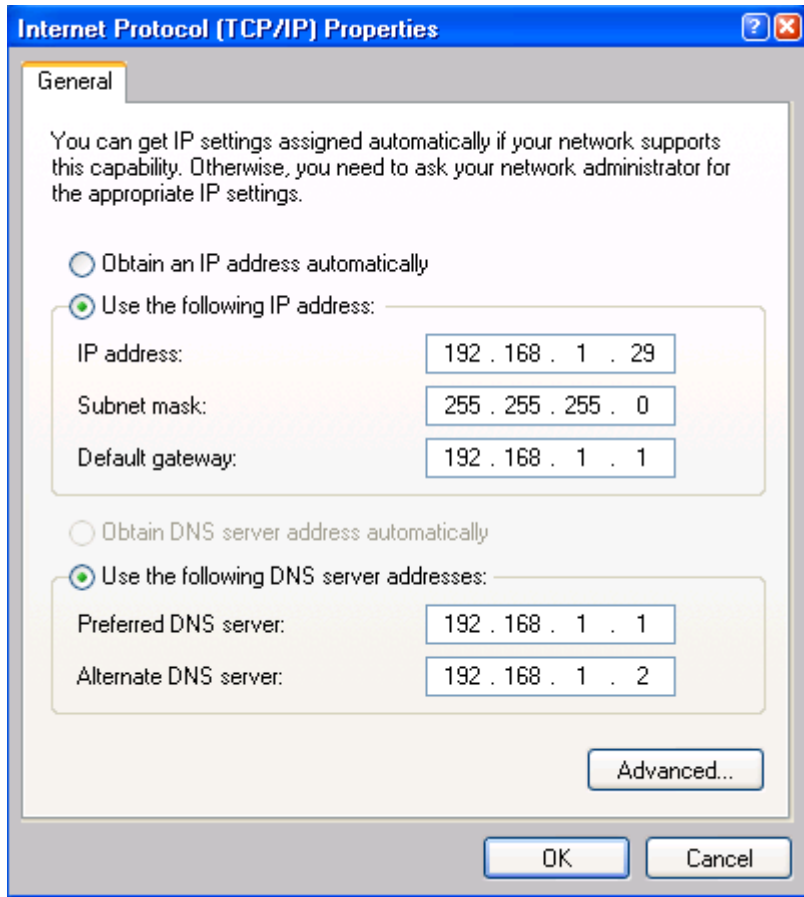
Configure the DNS Client for Windows XP Professional

Requirements:

Pentium four Computer
Windows XP Professional Edition.

Procedure:

- 1). Logon as Administrator in windows XP machine.
- 2). Start -> Settings ->Control panel
- 3). Double Click Network Connections Icon in Control panel window.
- 4). Choose Local Area Connection Icon, right click the mouse and Choose properties option in shortcut menu.
- 5). Select Internet Protocol (TCP/IP) and click properties button.
- 6). Choose the option “Use the following IP Address” radio button
And type IP Address and Subnet mask.
- 7). Choose the option “Use the following DNS server Address” radio Button and type preferred DNS server address.
- 8). Click Advanced Button in TCP/IP Properties window.
- 9). Choose DNS Tab. In this window, DNS server Address will be Displayed.
- 10). Choose the radio button “Append Primary and Connection Specific DNS suffix”.
- 11). Select the checkbox “Register this connections address in DNS”
And click OK button.



Result:

By following the above procedure, we can configure DNS client for Windows XP Professional.

6). A). Transfer files between systems in LAN using FTP Configuration

Aim:

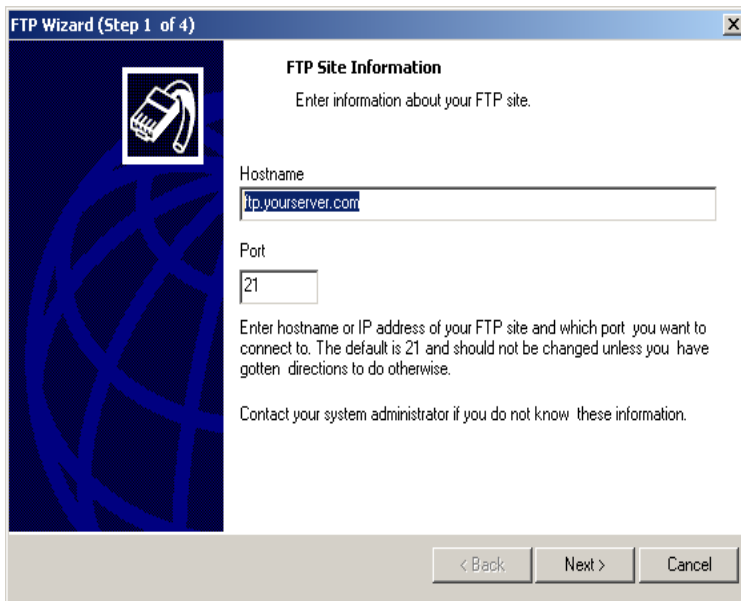
Transfer files between systems in LAN using FTP Configuration

Requirements:

Pentium IV Computer
Windows XP Professional Edition
TCP/IP Protocol

Procedure:

Step 1:



Before uploading resume you should fill in the following fields designed to gather your input information:

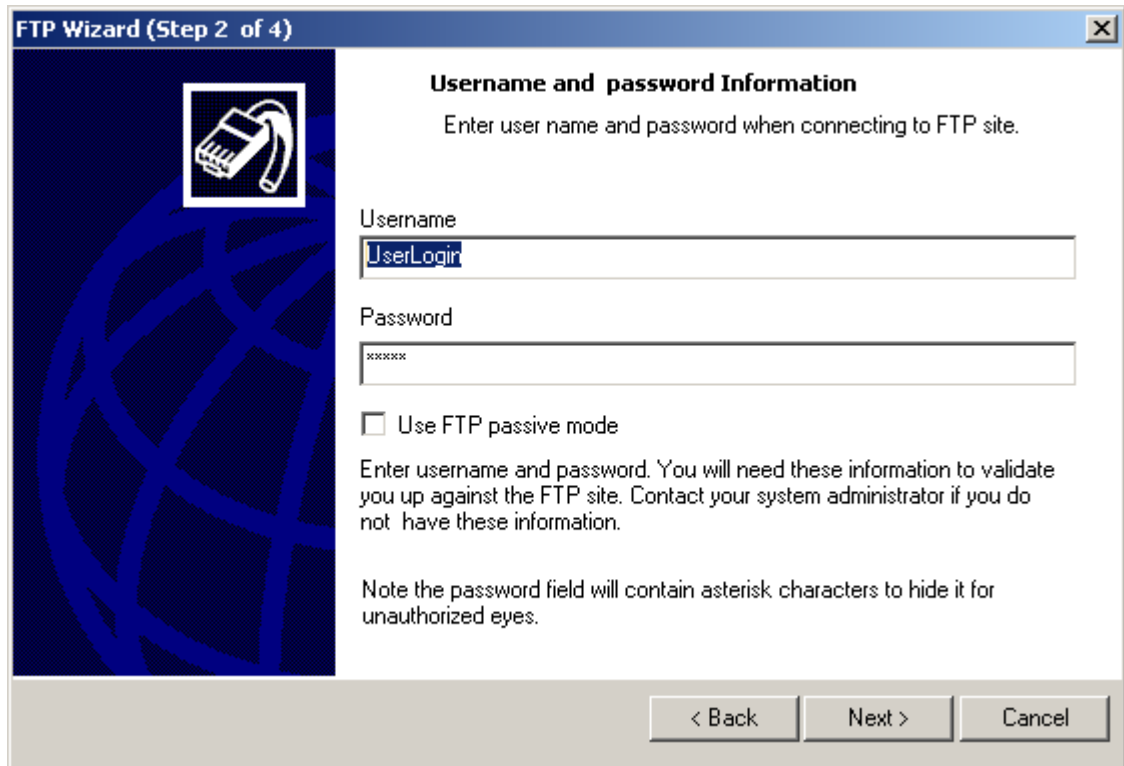
Host

Here you should enter the name of your site server (e.g., ftp.yourserver.com).

FTP Port

Enter the number of a port to connect (usually 21).

You can stop the process by pressing the "Cancel" button.

Step 2: 

FTP Wizard (Step 2 of 4)

Username and password Information

Enter user name and password when connecting to FTP site.

Username
UserLogin

Password

Use FTP passive mode

Enter username and password. You will need these information to validate you up against the FTP site. Contact your system administrator if you do not have these information.

Note the password field will contain asterisk characters to hide it for unauthorized eyes.

< Back Next > Cancel

Before uploading resume you should fill in the following fields designed to gather your input information:

Username

Enter your USER NAME for your web server, this information coming from your web hosting provider.

Password

Enter your PASSWORD for your web server, this information coming from your web hosting provider.

Use FTP passive mode

Connecting through a firewall sometimes need to be done using a special FTP PASV mode. Checking this box will enable Passive Mode for current FTP site.

Step 3:

FTP Wizard (Step 3 of 4)

Enter Folder and Filename

Enter the folder and files name you want to be used when uploading resumes to your FTP site.

Directory

Format

HTML

HR-XML

MS Word

Text

Filename

resume.htm

resume.xml

resume.doc

resume.txt

When uploading the file to your FTP site, it will be written to the file specified in the filename field. Type in a directory if you need to place your resume in a special folder.

If the folder does not exist it will be automatically created.

Options XML and MS Word are not available for trial period.

< Back Next > Cancel

Before uploading resume you should fill in the following fields designed to gather your input information:

Directory

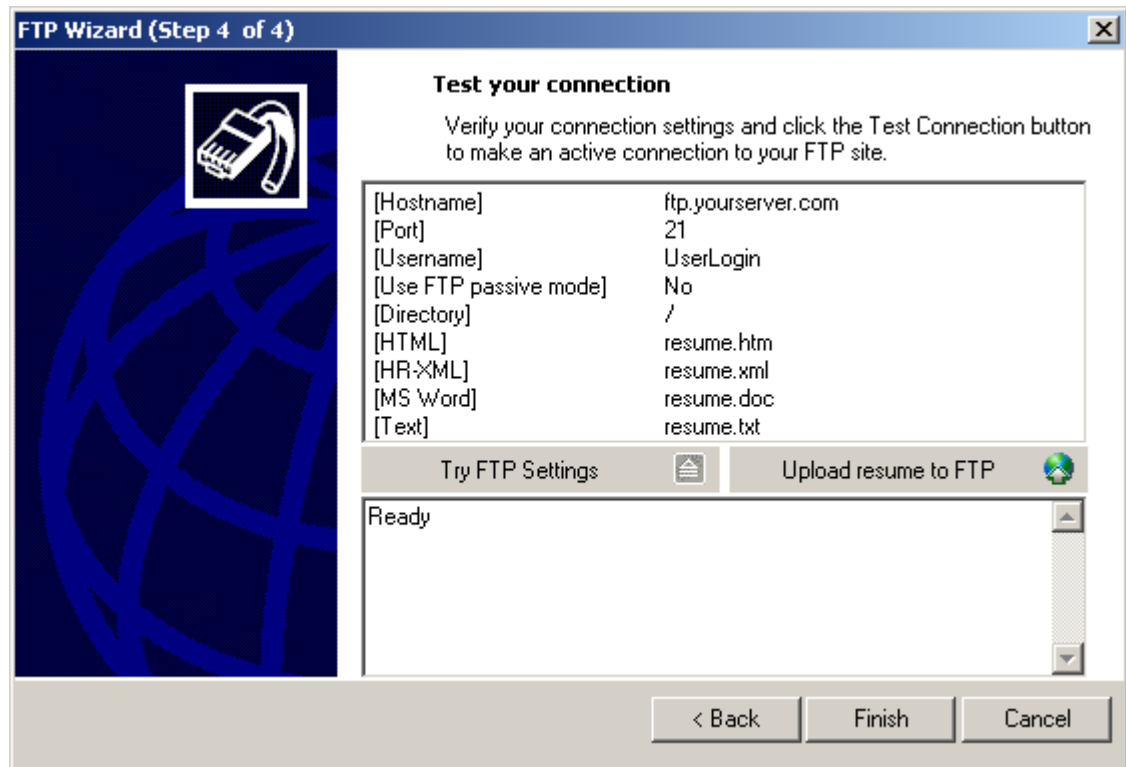
Enter a directory where you want your uploaded resumes to be placed.

Format and Filename

Select format of resume (html, xml, word, text) you would like to upload and specify filename as you need.

NOTE: Options HR-XML and MS Word are not available for trial version.

Step Four: Test connection and uploading




You are able to test the FTP settings and Internet connection.

The user will have the following options:

Try FTP Settings - Check settings without sending files.

Upload resume to FTP - Upload file (or files).



In order to get started using  right away, just follow the above steps or use the **FTP Wizard** available under the **Tools** menu.

Result:

By following the above procedure, we can Transfer files between systems in LAN using FTP Configuration

6) b. Login a system remotely using telnet protocol

Aim:

Login a system remotely using telnet protocol Requirements:

Requirements:

Pentium four Computer
Windows XP Professional Edition.

Procedure:

Telnet is a popular protocol for logging on to remote computers over the Internet. The Telnet server package provides support for remotely logging on to the host computer. To communicate with another host by using the Telnet protocol, you can contact the host by using either the name or the Internet address format (for example, 192.168.1.10). Telnet uses a command-line prompt.

Starting the Telnet Service

 The Telnet service startup type is set to **Manual** when you install Windows 2003 Server or Windows XP

Starting the Telnet Service Automatically

 You can set the Telnet service to start automatically by following these steps:

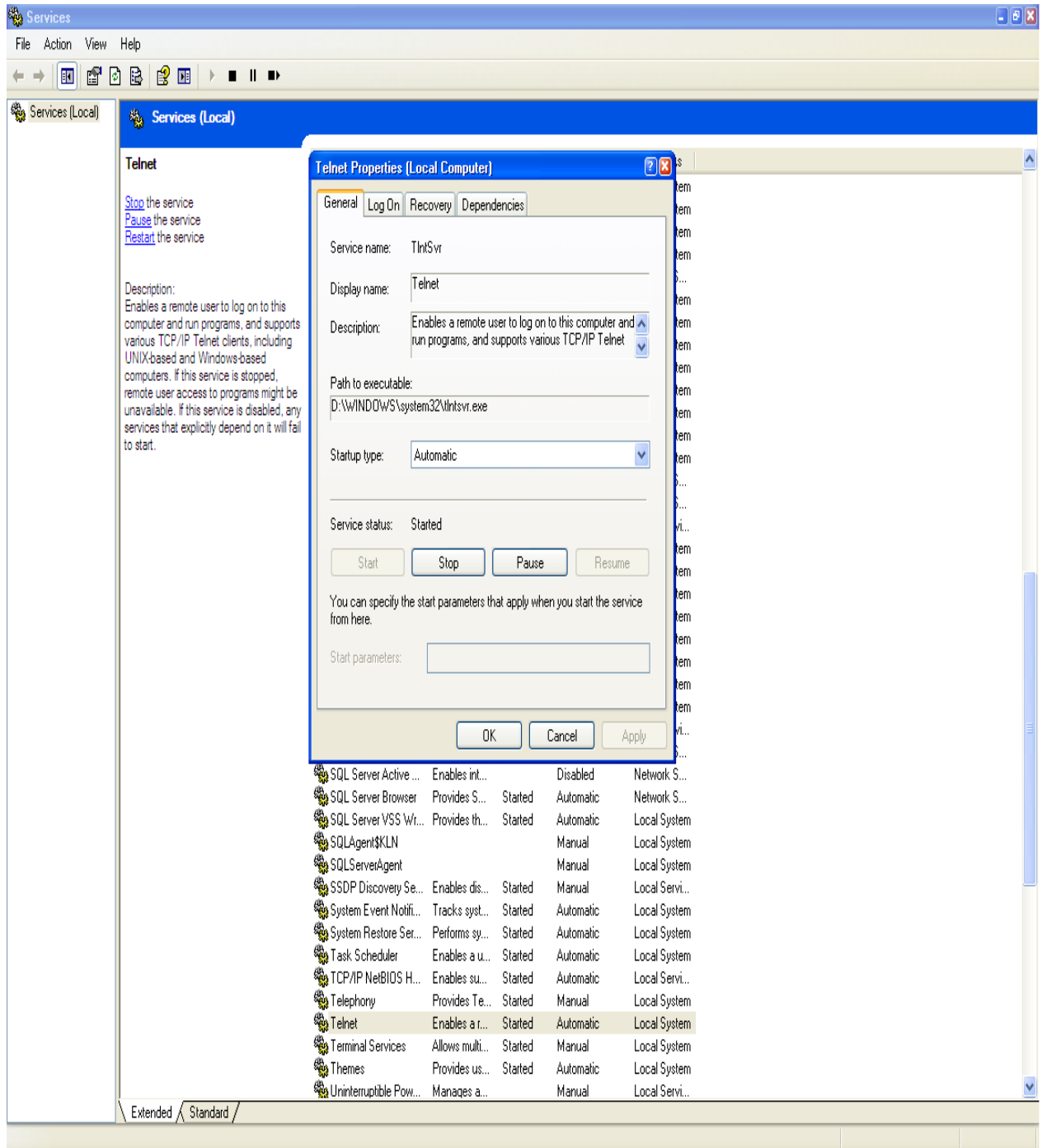
1. Click **Start**, point to **Programs**, point to **Administrative Tools**, and then click **Services**.
2. Right-click the **Telnet** service, and then click **Properties**.
3. In the **Startup type** box, click **Automatic**.
4. Click **OK**.

Using the Telnet Service

 To begin using the Telnet service, type the following command to connect to a remote server

Telnet *ip_address/server_name*

Where *ip_address* is the server's IP address and *server_name* is the server's name.



Result:

By following the above procedure, we can Login a system remotely using telnet protocol.

7) a. Install and configure network interface card in LAN system

Aim:

Install and configure network interface card in LAN system.

Requirements:

- NIC card
- [Screwdriver](#)
- Ethernet wire
- Installation software

Procedure:

NIC Card Installation

1. Step 1

Unplug the PC from its electrical source, and remove all cords.

2. Step 2

Open the case of the CPU with a screwdriver. Be careful of sharp metal edges. If the case doesn't open easily, check your operator's manual. There may be a release button that will open the case after the screws are undone.

3. Step 3

Lay the CPU on its side. Locate the NIC slot. Align the NIC with the RJ45 jack facing the outside of the case. Firmly seat the card into the slot. You may have to rock it gently to get it to fit. The gold contacts should not be visible, and the NIC card should be level.

4. Step 4

Secure the mounting bracket with screws. They should come with the NIC card.

5. Step 5

Replace the cover. Securely reattach all cords.

6. Step 6

Connect the RJ45 connection to the Internet modem using the ethernet wire. Not all NIC cards come with an Ethernet wire. Sometimes you will need to purchase the Ethernet wire separately.

7. Step 7

Reboot the computer, and install the software that comes with the NIC card. This will install the necessary drivers. There will be prompts as the hardware installs. Simply follow the directions.

Network Connection Installation

8. Step 1

Open the Control Panel. Go to Start, then click Control Panel. Click Network to open the Network Control Panel.

9. Step 2

Choose TCP/IP. It is probably loaded into your system as a protocol. If not, add it by following the prompts. After verifying the computer has TCP/IP protocol, click TCP/IP one time. Then click Properties.

10. Step 3

Pick both Obtain an IP Address Automatically and the Obtain DNS Server Address Automatically. Then click the Advanced button.

11. Step 4

Select the DNS tab in the Advanced TCP/IP Settings window. Uncheck the box for Register This Connection's Addresses in DNS. It is toward the bottom of the screen.

12. Step 5

Click OK to close all the open windows. Restart your computer if you are asked to do so.

Manually Configuring a Network Card for TCP/IP in Windows XP

NOTE: This section assumes that the client computer is running Windows XP and is using the D-Link default settings for a router. The same objectives no matter which operating system is running on the client, but the actual steps may differ.

- Click Start, click Control Panel, click Network and Internet Connections, and then click Network Connections.
- Right-click the network connection that you want to change, and then click Properties.
- On the General tab, double-click Internet Protocol (TCP/IP) in the "This connection uses the following items" list, and then click Properties.
- On the General tab, click Use the following IP address. Configure the entries as follows:
 - IP Address: The IP address you chose for this client (for example, 192.168.0.165).
 - Subnet Mask: 255.255.255.0
 - Default Gateway: 192.168.0.1 *note: your router is almost always your gateway*
 - Click Use the following DNS server addresses, and then type 192.168.0.1 in the Preferred DNS server box. *note: you may need to use your ISP's DNS server address(es) here if your gateway device does not relay DNS lookups*
- Click OK.

If you changed the address in order to configure your D-Link device, you must now attach a network cable between the D-Link device and your computer, and then configure your device using its TCP/IP address. The default TCP/IP address is mentioned in the manual.

Tip when changing from a DHCP address to a static address: Do an `IPCONFIG /ALL` and write down these settings first, then use them while completing the steps:

Ethernet adapter Local Area Connection:

```
Connection-specific DNS Suffix . . : 
Description . . . . . : Realtek RTL8139 Family PCI Fast
Ethernet NIC
Physical Address. . . . . : 00-40-CA-48-C8-A8
Dhcp Enabled. . . . . : No
IP Address . . . . . : 192.168.0.106
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 192.168.0.1
DNS Servers . . . . . : 4.2.2.1
                       4.2.2.2
```

Result:

By following the above procedure, we can Install and configure network interface card in LAN system

7) b. Share a file and printer (remotely) between two systems in a LAN.

Aim:

Share a file and printer between two systems in a LAN.

Requirements:

Pentium four Computer
Windows XP Professional Edition
Cables (Twisted pair)

Procedure:

Sharing a Printer

1. Open the Windows Control Panel
2. Double-click Network
3. In the Network window under the Configuration tab click the File and Print Sharing button.
4. In the File and Print Sharing Window check the "I want to be able to allow others to print to my printer(s)" option. Note: If the computer asks to restart the computer after selecting this option make sure to restart.
5. Click Ok and then Ok again to close out of the Network Window.
6. Once back in the Control Panel double-click printers
7. If you currently have a printer already installed on the computer right-click the printer icon and click Properties. In the Properties window click the sharing tab and make sure the printer is shared.

Share a file

1. Open the my computer
2. Select the Drive (C,D,E,F)
3. Right click the selected drive
4. Click the property Button. From that menu choose the sharing option.
5. Click the Share this Folder
6. Click the new share. Enter share name and click ok

Result:

By following the above procedure, we can Share a file and printer between two systems in a LAN.

8). Configuring Windows Firewall

Aim:

Establish security in a system using firewall configuration.

Requirements:

Pentium four Computer
Windows XP Professional Edition

Procedure:

Actions

Windows XP and Vista provide a built-in firewall component, which controls the programs that can access the Internet and the types of connections that they can make. If Windows Firewall doesn't permit Firefox to make connections, Firefox generates a "Server not found" error when you try to browse to websites.

Checking for Windows Firewall

To see if you're running Windows Firewall:

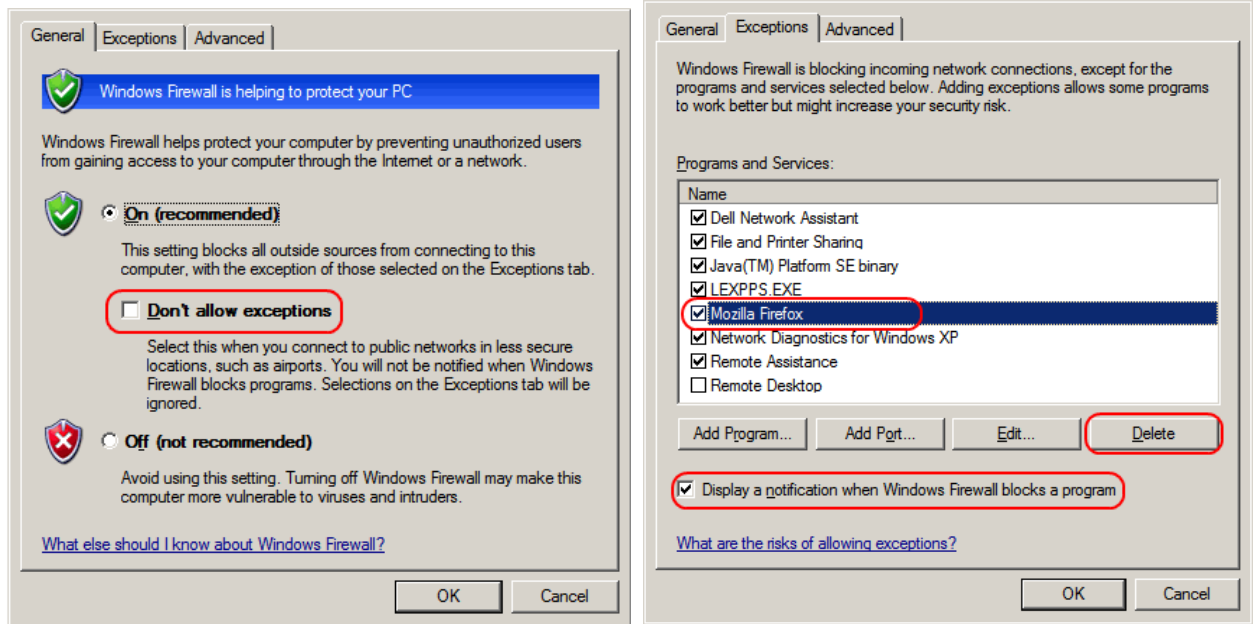
1. Open the Windows Control Panel.
 - **(Windows Vista)** Click the Windows icon, and select Control Panel.
 - **(Windows XP)** Open the Windows Start Menu, and select Control Panel.
2. In the Control Panel, open the Windows Security Center.
 - **(Windows Vista)** Under the Security header, click Check this computer's security status.
3. Open the Windows Firewall header. Try to locate the following text:
Windows Firewall is actively protecting your computer
4. If it is set to **On (Recommended)**, you are using Windows Firewall.

Configuring Windows Firewall

If you're using Windows Firewall, you must verify that it is properly configured.

1. In the Windows Security Center, open the Windows Firewall settings dialog.
 - **(Windows Vista)** Click Windows Firewall. Then click Change settings. You may receive a User Account Control pop-up. Click Continue.
2. Click the General tab.
3. Allow connections:
 - **(Windows Vista)** Deselect the checkbox for **Block all incoming connections**.

- **(Windows XP)** Deselect the checkbox for **Don't allow exceptions**



4. Click the Exceptions tab.
5. If **Mozilla Firefox** is listed, select it and click the Delete button.
6. In the Delete a Program dialog, click Yes.
7. Set Windows to alert you when it blocks a program:
 - **(Windows Vista)** Select the checkbox for **Notify me when Windows Firewall blocks a new program**.
 - **(Windows XP)** Select the checkbox for **Display a notification when Windows Firewall blocks a program**
8. Click OK.
9. Now, try browsing to a website with Firefox. You may receive a Windows Security Alert dialog asking if you want to block Firefox. Click Unblock.

Result:

By following the above procedure, we can establish security in a system using firewall configuration

9).Adding users, setting permissions

Aim

Adding and Managing User Profiles, Setting Permissions

Requirements:

Pentium IV Computer
Windows XP Professional Edition

Procedure:

Work With User Accounts

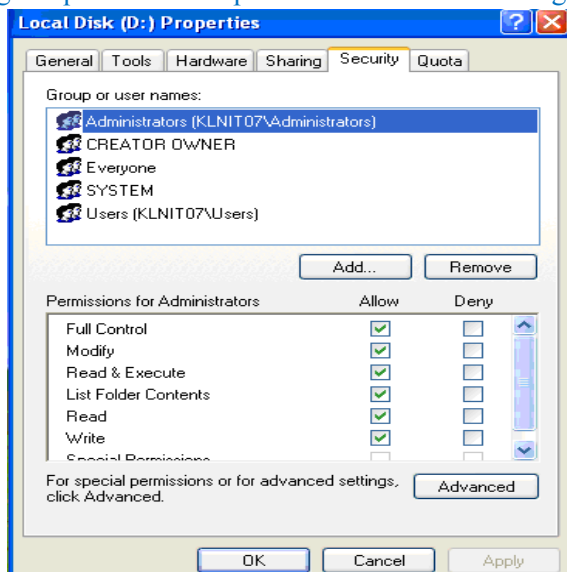
To create a user in Windows XP perform following steps.

- 1) Select My computer icon in the desktop. Right click the mouse and choose Manage option in shortcut menu. Now computer management window will appear.
- 2) Select user's option under Local users and groups tree in the window.
- 3) Select new user option under Action menu. Fill up all required fields in the user creation window.
- 4) Select the check boxes 'User can not change password' & 'Password never expires'. Finally click create button.

Setting Permissions

Note: Security can be assigned for the files in a disk only if it is under NTFS File System.

- 1) Double click 'My Computer' Icon in the desktop.
- 2) Choose D: drive icon by pointing it.
- 3) Right click the mouse and choose properties option in shortcut menu.
- 4) Select Security tab in properties window.
- 5) Select 'Add Button' to add an existing user.
- 6) Assign required level of permission for that user. E.g. read, write, modify etc.,



Result:

By following the above procedures, we can create an user in Windows XP and assign permission for that user successfully.

10) a. A DHCP server in windows with IP Address ranging from 192.168.1.1 to 192.168.1.100.

Aim:

A DHCP server in windows with IP Address ranging from 192.168.1.1 to 192.168.1.100

Requirements:

Pentium IV Computer
Windows XP Professional Edition

Procedure:

Configure DHCP Server:

This step-by-step article describes how to build and configure a new Windows 2000 DHCP Server in a Windows 2000 Active Directory domain. The Windows 2000 DHCP service provides clients with IP addresses, and information such as the location of their default gateway, DNS servers, and WINS servers.

Installing the DHCP Service

You can install DHCP either during or after the initial installation of Windows 2000 Server or Advanced Server, although there must be a working DNS in the environment. To validate your DNS server, click **Start**, click **Run**, type **cmd**, press ENTER, type **ping friendly name of an existing DNS server in your environment**, and then press ENTER. An unsuccessful reply generates an "Unknown Host My DNS server name" message.

To install the DHCP Service on an existing Windows 2000 Server:

1. Click **Start**, click **Settings**, and then click **Control Panel**.
2. Double-click **Add/Remove Programs**, and then click **Add/Remove Windows Components**.
3. In the **Windows Component Wizard**, click **Networking Services** in the **Components** box, and then click **Details**.
4. Click to select the **Dynamic Host Configuration Protocol (DHCP)** check box if it is not already selected, and then click **OK**.

5. In the **Windows Components Wizard**, click **Next** to start Windows 2000 Setup. Insert the Windows 2000 Advanced Server CD-ROM into the CD-ROM drive if you are prompted to do so. Setup copies the DHCP server and tool files to your computer.
6. When Setup is complete, click **Finish**.

Configuring the DHCP Service

After you install and start the DHCP service, you must create a scope (a range of valid IP addresses that are available for lease to the DHCP clients). Each DHCP server in your environment should have at least one scope that does not overlap with any other DHCP server scope in your environment. In Windows 2000, DHCP servers within an Active Directory domain environment must be authorized to prevent rogue DHCP servers from coming online and authorizing a DHCP Server.

When you install and configure the DHCP service on a domain controller, the server is typically authorized the first time that you add the server to the DHCP console. However, when you install and configure the DHCP service on a member server, you need to authorize the DHCP server.

To authorize a DHCP server:

1. Click **Start**, click **Programs**, click **Administrative Tools**, and then click **DHCP**.

Note You must be logged on to the server with an account that is a member of the Enterprise Administrators group.

2. In the console tree of the DHCP snap-in, select the new DHCP server. If there is a red arrow in the bottom-right corner of the server object, the server has not yet been authorized.
3. Right-click the server, and then click **Authorize**.
4. After a few moments, right-click the server again and then click **Refresh**. The server should display a green arrow in the bottom-right corner to indicate that the server has been authorized.

To create a new scope:

1. Click **Start**, click **Programs**, point to **Administrative Tools**, and then click **DHCP**.

Note In the console tree, select the DHCP server on which you want to create the new DHCP scope.

2. Right-click the server, and then click **New Scope**. In the New Scope Wizard, click **Next**, and then type a name and description for the scope. This can be any name that you choose, but it should be descriptive enough to identify the purpose of the scope on your network. For example, you might use Administration Building Client Addresses.
3. Type the range of addresses that can be leased as part of this scope, for example, a starting IP address of 192.168.1.1 to an ending address of 192.168.1.100. Because these addresses are given to clients, they should all be valid addresses for your network and not currently in use. If you want to use a different subnet mask, type the new subnet mask. Click **Next**.
4. Type any IP addresses that you want to exclude from the range you entered. This includes any addresses that may have already been statically assigned to various computers in your organization. Click **Next**.
5. Type the number of days, hours, and minutes before an IP address lease from this scope expires. This determines the length of time that a client can hold a leased address without renewing it. Click **Next** to select **Yes, I want to configure these options now**, and then extend the wizard to include settings for the most common DHCP options. Click **Next**.
6. Type the IP address for the default gateway that should be used by clients that obtain an IP address from this scope. Click **Add** to place the default gateway address into the list, and then click **Next**.

Note When DNS servers already exist on your network, type your organization's domain name in **Parent domain**. Type the name of your DNS server, and then click **Resolve** to ensure that your DHCP server can contact the DNS server and determine its address. Then click **Add** to include that server in the list of DNS servers that are assigned to the DHCP clients. Click **Next**.

7. Click **Yes, I want to activate this scope now**, to activate the scope and allow clients to obtain leases from it, and then click **Next**. Click **Finish**.

Result:

By following the above procedures, we can A DHCP server in windows with IP Address ranging from 192.168.1.1 to 192.168.1.100.

10) b. Configure Windows 2000/XP for DHCP

Aim:

Configure a DHCP client.

Requirements:

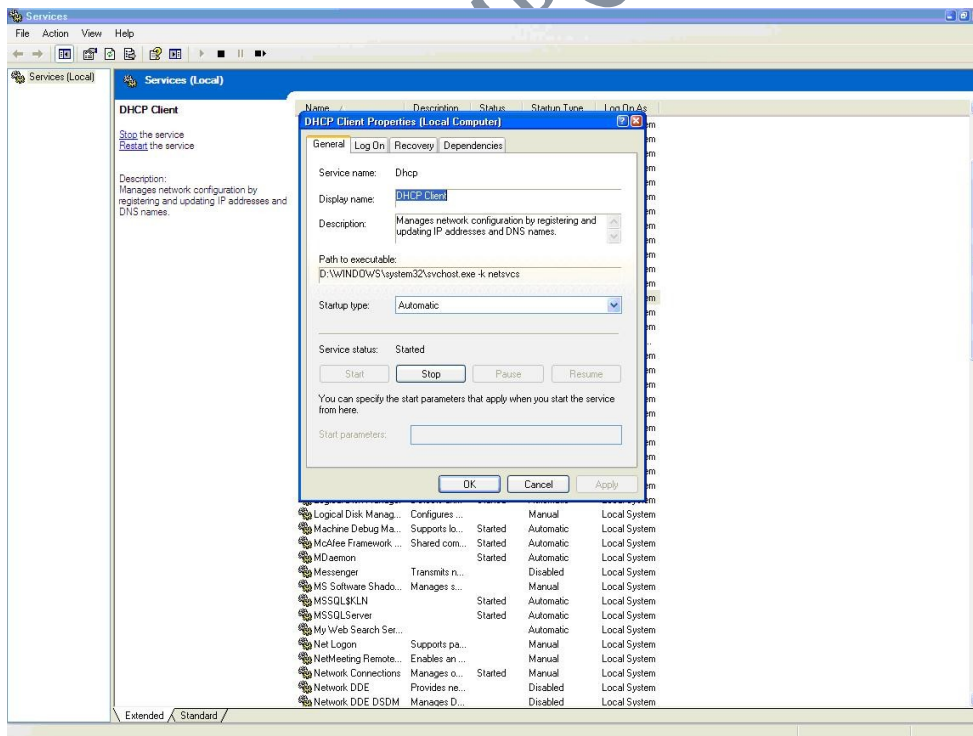
Pentium IV Computer
Windows XP Professional Edition

Procedure:

Configure DHCP Client

Start the DHCP Client Service, and then set it to start automatically at startup. To do so, follow these steps:

1. Right-click the **My Computer** icon on your desktop, and then click **Manage**.
2. In the **Computer Management** console, double-click **Services and Applications**, and then click **Services**.
3. In the rightmost window, right-click **DHCP Client** and then click **Properties**.
4. Change **Startup type** to **Automatic**, and then click **OK**.
5. Right-click the DHCP Client service again, and then click **Start**.



Result:

By following the above procedures, we can configure a DHCP client.

11). Transfer files between Wireless Communications

Aim:

Transfer files between Wireless Communications

Requirements:

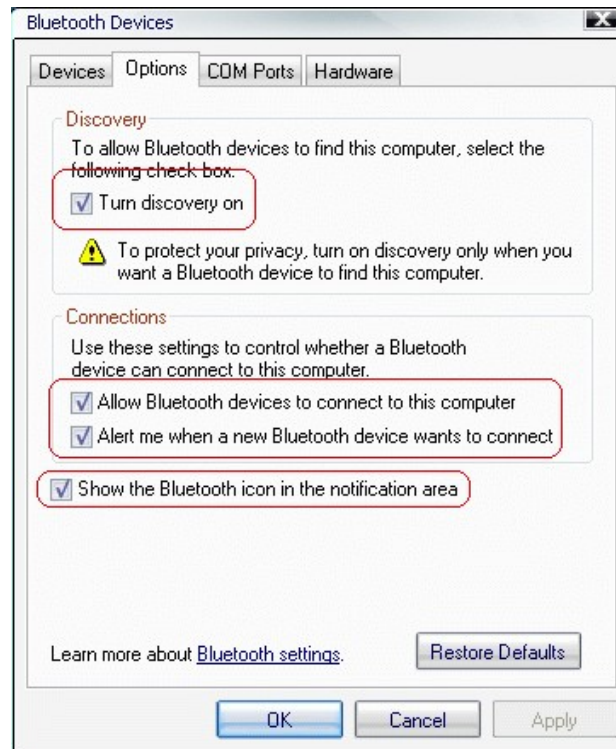
Pentium IV Computer
Windows XP Professional Edition
TCP/IP Protocol

Procedure:

Bluetooth wireless technology is a communication technology that allows two devices to communicate wirelessly. Most of the notebooks are nowadays equipped with Bluetooth. For those notebooks or computers that don't, you can use a Bluetooth dongle to add the functionality and it just costs you around \$5. Although higher price range Bluetooth dongles are available but it makes no sense of buying them if you just plan to connect your mobile device to the computer. Look for one that has Bluetooth v2.0 + EDR (Enhance Data Rate) supporting speeds of up to 3Mbps and with Vista support. You can easily have one of that kind in just \$5.

Setting up Bluetooth to work on your computer

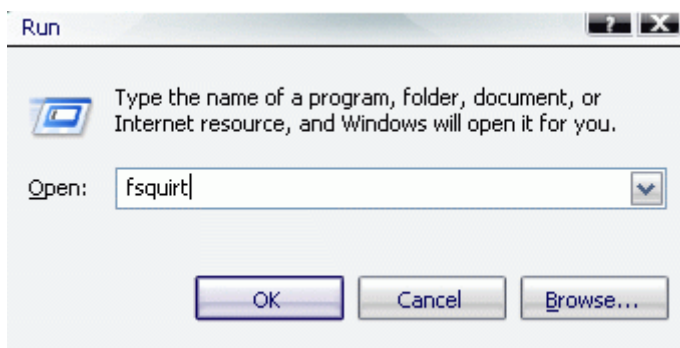
1. Just Insert the Bluetooth dongle in the USB.
2. It should get detected by your Operating System and should be ready to use. In case it is just detected as a new hardware, you need to install drivers for it that came with your Bluetooth dongle (You can try Google to find the drivers).
3. Once drivers are installed, a **Bluetooth notification icon** will appear in your system tray.
4. Right Click on it to access Settings (This may vary with your Bluetooth dongle).
5. Make sure you have turned **Discovery On** (It allows others to see your computer).
6. Switch **On** the Bluetooth on the mobile device.



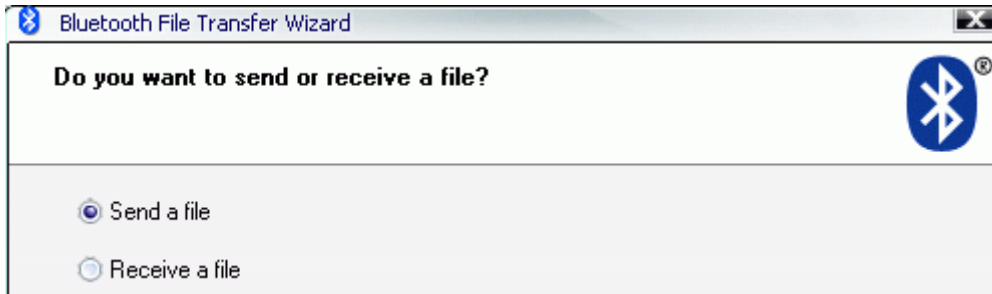
To transfer files from PC to Mobile

There are different methods by which you can send files. Again this might vary with your Bluetooth dongle. You have the option of selecting the tray icon and then select Send a file or alternatively you can Right Click on the file and select Send To. Both the method sending files may or may not be available with every Bluetooth dongle you use. But both the method invokes the same thing that we will invoke directly to transfer files and is available in the WinXP built.

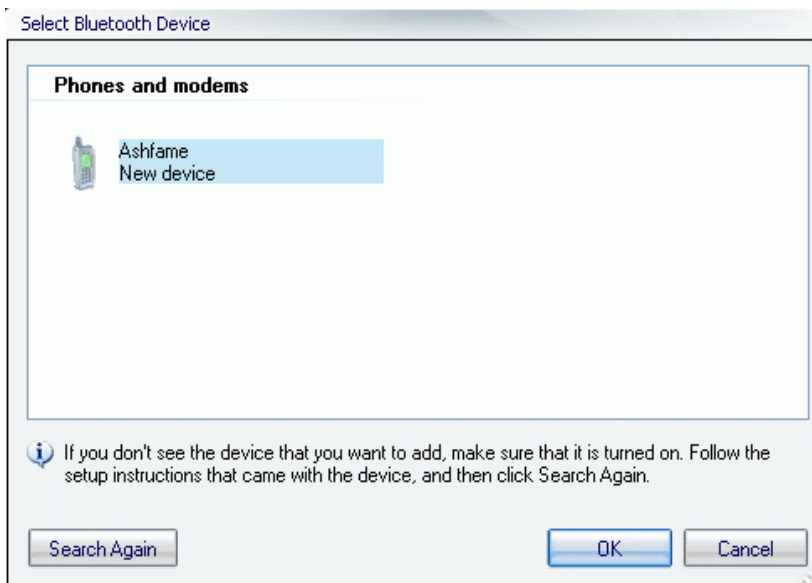
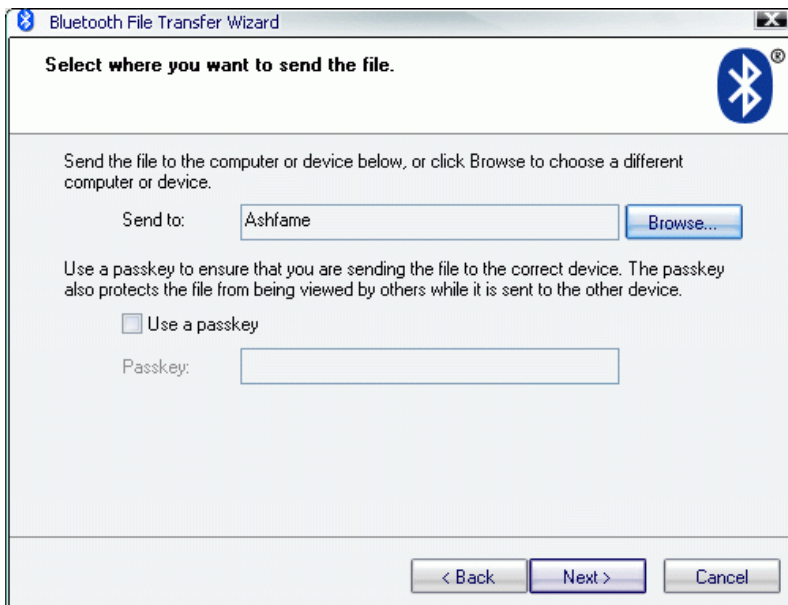
1. Hit **Win + R**, type in **fsquirt** and hit Ok.



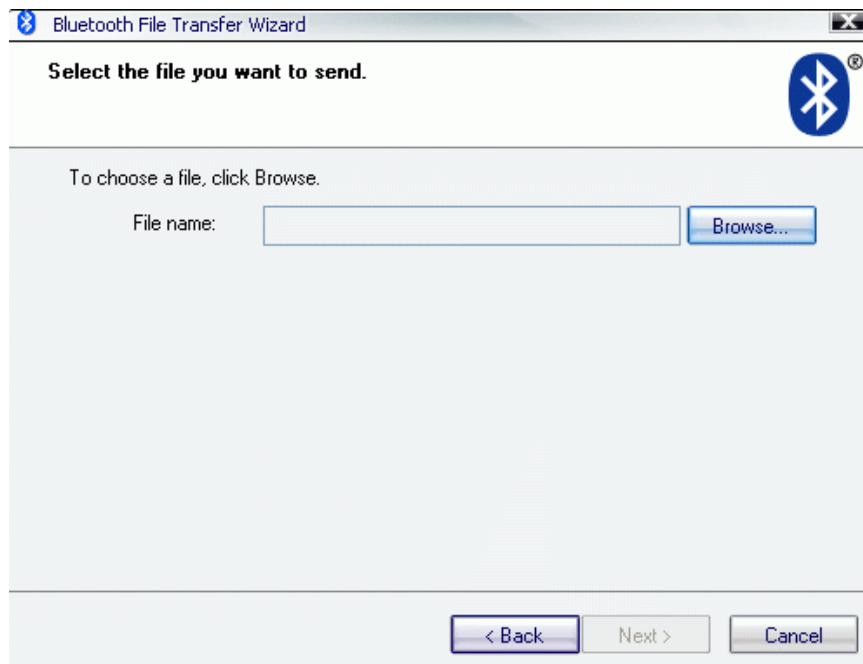
2. Select **Next** and then select **Send a file**.



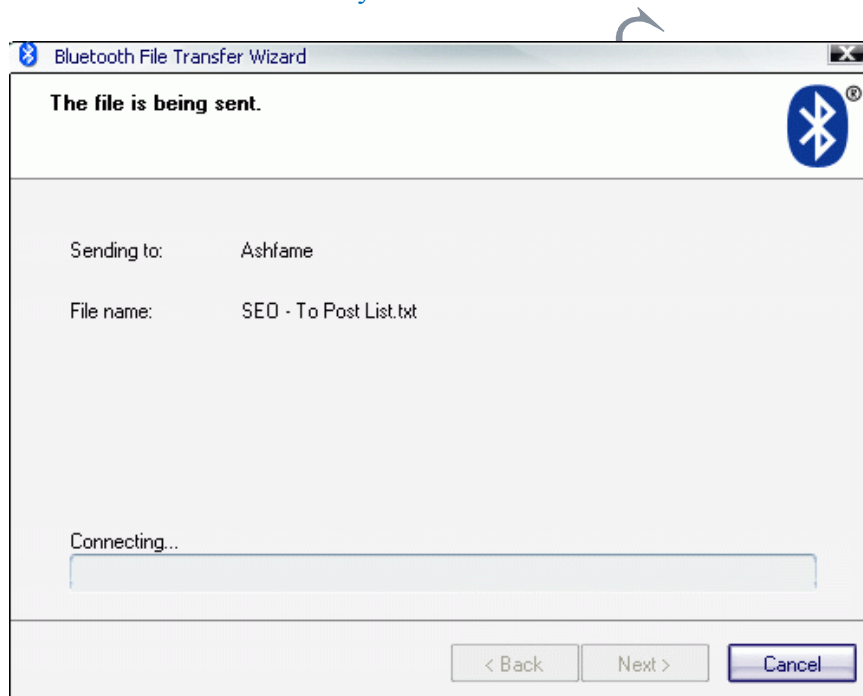
3. Hit Browse for searching the device and select your device in the next window.



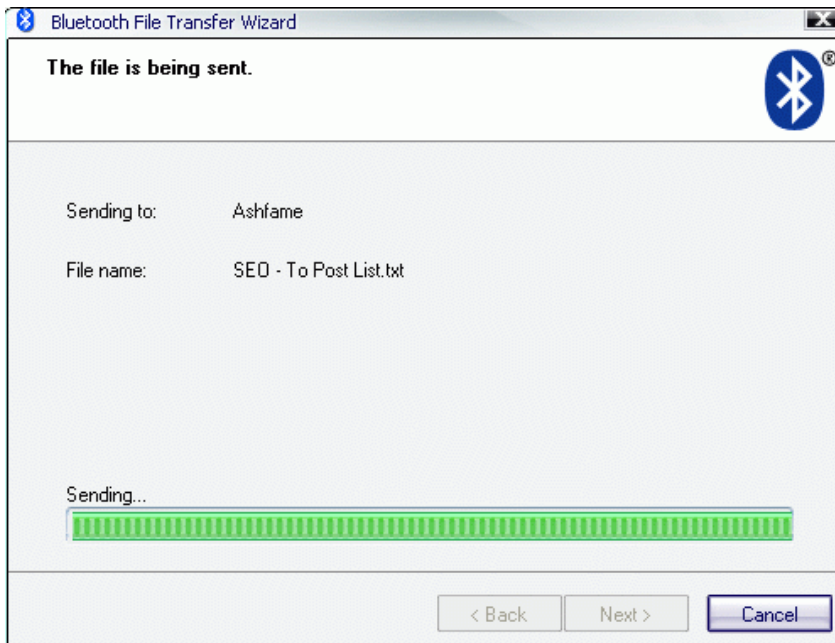
4. Select Next and then select the file to send via bluetooth by clicking on browse.



5. Select **Next** and it will try to connect with the device selected.



6. Accept the incoming connection on the mobile device and the transfer starts.



LMPC

Result:

By following the above procedures, we can Transfer files between Wireless Communications.

12). Configure Mail server

Aim:

Configure Mail server

Requirements:

Pentium IV Computer
Windows XP Professional Edition.

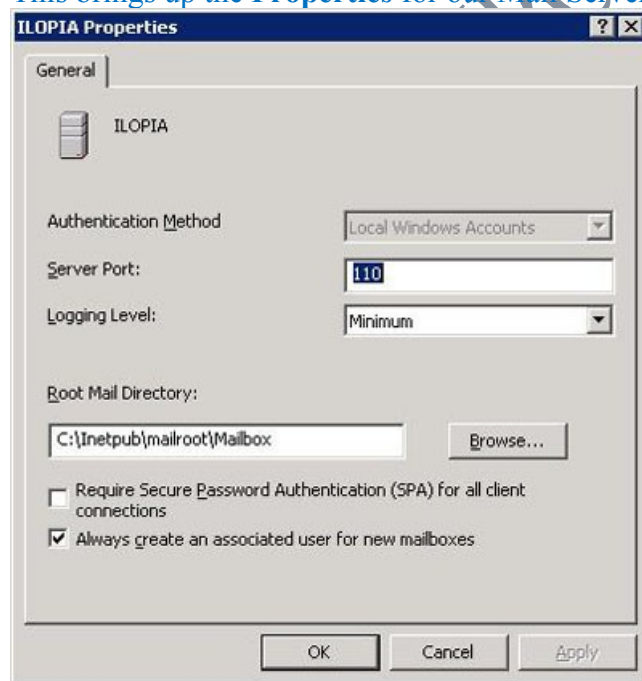
Procedure:

Configure the Email Server

- Click **Start**, then **run**, and type **p3server.msc**

This will open up the **POP3 Service**. This is where you configure and manage the POP3 part of the mail server.

- Click on <Computer Name> in the left pane
- Click on **Server Properties** in the right pane
- This brings up the **Properties** for our Mail Server.



Authentication Method

There are three different authentication methods you can use; Local Windows Accounts, Active Directory Integrated and Encrypted Password File.

Local Windows Accounts

If your server is stand alone (not member of an Active Directory domain), and you want to have the user accounts on the same local computer as the POP3 service, this is the best option. By using this option, you will use the SAM (Security Accounts Manager) for both the email user accounts, and the user accounts on the local computer. This means that a user can use the same user name and password to be authenticated for both the POP3 service and Windows on the local computer.

Active Directory Integrated

You can select this option if the server is a member of an Active Directory domain or is a Domain Controller. By using this you will integrate the POP3 Service with your AD domain. AD users can use their user name and password to send and receive email. Of course you have to create mailboxes to them first.

Encrypted Password File

This is the option you want to select if you don't use Active Directory or don't want to create users on the local computer. Like **Active Directory Integrated** you can have the same user name on different domains, but you cannot assign the same user name to several mailboxes within the same domain.

This method works by creating an encrypted file stored in each user's mailbox. This file contains the password for the user. It is possible to migrate Encrypted File user accounts to AD user accounts.

Server Port

Use port 110 because this is the standard port for the POP3 protocol. If you change this, make sure you notify all users so they can configure their email clients to use this other port. Also make sure you restart the POP3 service if you change this.

Logging Level

Four options to choose between. If you change this, remember that you must restart the POP3 service.

- **None**
Nothing is logged.
- **Low**
Only critical events are logged.
- **Medium**
Both critical and warning events are logged.
- **High**
Critical, warning and informational events are logged.

Root Mail Directory

If you don't want to use the default Mail Directory, you can choose another one. Make sure the path is not more than 260 characters. It is strongly recommended that you use a NTFS formatted partition.

Create a mailbox

The Setup Wizard created a domain to us, so we do not need to create this manually. If you did not use **Manage Your Server** to install, add the domain manually by clicking the server name in the left pane and then click **New domain** in the right pane. Remember to set the properties before you add the domain.

- Click on your domain (ilopia.com in my case) in the left pane.
- Click **Add Mailbox** in the right pane.

This will open up the **Add Mailbox** window.



The screenshot shows a dialog box titled "Add Mailbox". It has a "Mailbox Name:" label and a text input field containing "bob". Below that is a checked checkbox labeled "Create associated user for this mailbox". There are two password input fields: "Password:" and "Confirm Password:", both containing three dots. At the bottom right are "OK" and "Cancel" buttons.

- Write **bob** in **Mailbox Name**
- Write **bob** as password (of course this is not a password you should use in a production environment, it's too short)
- Click **OK**

A message will pop-up and tell you how to configure the email clients. Read this, and notice the difference when using SPA or not.



- Click **OK**

Configure the SMTP Server

We have to configure the SMTP part to be able to receive and send emails. Yes, I said receive emails. A common mistake is to think that the POP3 server receives the emails. But that is not true, all the POP3 is doing is 'pop' the emails out to the clients. It's the SMTP server that is communicating with other SMTP servers and receives and sends emails.

- Open **Computer Management**
- Expand **Services and Applications**, expand **Internet Information Service**
- Right click **Default SMTP Virtual Server** and click **Properties**
- Click the **Access** tab
- Click the **Authentication** button and make sure **Anonymous Access** and **Integrated Windows Authentication** is enabled.
- Click the **Relay** button and make sure **Allow all computers which successfully...** is enabled and **Only the list below** is selected.

Result:

By following the above procedures, we can Configure Mail server.

14). Write a Client program to download a file from HTTP server.

AIM:

Write a Client program to download a file from HTTP server.

Algorithm:

Algorithm for Server:

1. Create a socket for transferring data
2. Get the hostname of the client
3. Bind the socket
4. Accept the connection request
5. Receive the message send by the client and process the message and send the message to client.

Algorithm for Client:

1. Create a socket for transferring data
2. Get the hostname of the server
3. Connect the socket to the remote system.
4. Send a message to the server.

Program:

// Implementation of TCP/IP

// Server Program

```
#include <unistd.h>
```

```
#include <sys/types.h>
```

```
#include <netinet/in.h>
```

```
#include <string.h>
```

```
#include <sys/socket.h>
```

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    int sd,nsd,i,port=6200;
```

```
    char c[30]="?/0",fname[30];
```

```
    struct sockaddr_in ser;
```

```
    struct sockaddr_in cli;
```

```
    FILE*fp;
```

```
    if ((sd=socket(AF_INET,SOCK_STREAM,0))<0)
```

```
    {        printf ("\nError:Socket Creation");
```

```
        return 0;
```

```
    }
```

```
    bzero((char*)&ser,sizeof(ser);
```

```
    printf("\nPort Address is %d",port);
```

```
    ser.sin_family=AF_INET;
```

```
    ser.sin_port=htons(port);
```

```
    ser.sin_addr.s_addr=htonl(INADDR_ANY);
```

```

if (bind(sd,(struct sockaddr*)&ser,sizeof(ser))<0)
{
    printf("\nError:Binding");
    return 0;
}
i=sizeof(cli);
listen(sd,1);
printf("\nServer Module\n");
nsd=accept(sd,(struct sockaddr*)&cli.&i);
if (nsd==-1)
{
    printf("\nError:Client accepts the problem");
    return 0;
}
printf("\nClient accepted\n");
i=recv(nsd,fname,30,0);
fname[i]='\0';
fp=fopen(fname,"rb");

printf("File Reading...\n");
while(1)
{
    i=fread(&c,1,30,fp);
    c[i]='\0';
    send(nsd,c30,0);
    printf("%s",c);
    strcpy(c,"\0");
    if(i<30) break;
}
send(nsd,"EOF",4,0);
printf("\nFile has been Transferred");
fclose(fp);
close(sd);
close(nsd);
return 0;
}

```

// Client Program

```

#include <unistd.h>
#include <sys/types.h>
#include <netinet/in.h>
#include <string.h>
#include <sys/socket.h>
#include <stdio.h>
#include <arpa/inet.h>
int main()
{
    int sd,nsd,i,port=6200;
    char c[30]=""/0",fname[30];
    struct sockaddr_in ser;

```

```
FILE*fp;
if ((sd=socket(AF_INET,SOCK_STREAM,0))<0)
{
    printf("\nError:Socket Creation");
    return 0;
}
bzero((char*)&ser,sizeof(ser));
printf("\nPort Address is %d",port);
ser.sin_family=AF_INET;
ser.sin_port=htons(port);
ser.sin_addr.s_addr=htonl(INADDR_ANY);
if (connect(sd,(struct sockaddr*)&ser,sizeof(ser))== -1)
{
    printf("\nError:Binding");
    return 0;
}
Printf("client module\n");
Printf("Enter the source filename");
Scanf("%s",fname);
Printf("Enter the destination filename");
Scanf("%s",file);
send(sd,fname,30,0);
fp=fopen(file,'w');
printf("receiving...\n");
while(1)
{
    i=recv(sd,c,30,0);
    c[i]='\0';
    printf("%s",c);
    if(!strcmp(c,"EOF"))
        break;
    fwrite(&c,strlen(c) ,1,fp);
    strcpy(c,"\0");
}
printf("\nFile has been Transferred");
fclose(fp);
close(sd);
return 0;
}
```

Result:

By following the above program, we can download a file from HTTP server.

15). Write a program to simulate sliding window protocol

Aim:

To implement Sliding window technique.

Algorithm:

1. Set the window size.
2. sender window

Read the data to be transmitted and store it in the window.

Initially the sender window contains window size-1 frames.

The frames are sent out and left boundary of the window moves inward,

Shrinking the size of the window.

2.4 After receiving the acknowledgment the window is expanded to the number of frames acknowledged.

3. Receiver Window

3.1 Initially the receiver window contains window size-1 spaces for receiving the frames.

3.2 As n frame reaches the receiver window its size gets reduced to n.

3.3 After sending the acknowledgement the window size gets expanded to n.

Program:

```
#include<stdio.h>
#include<conio.h>
#include<stdlib.h>

int sen_window[30],rec_window[30],n=0;
int ack_no=-1,old_ack=0,count=0;

void send();
void sender();

char sen_data[20];
void main()
{
int ch;
clrscr();
printf("Menu\n");
printf("1.send\n");
printf("2.exit\n");
```

```
printf("enter ur choice\n");
scanf("%d",&ch);
switch(ch)
{
    case 1: send();
           break;
    case 2: exit(0);
}
getch();
}
void send()
{
    int ch,i;
    printf("Enter the data \n");
    scanf("%s",sen_data);
    for(i=0;i<=30;i++)
    {
        sen_window[i]=i%7;
        rec_window[i]=i%7;
    }

    n:
    printf("\n do u want to send data from source 1/0 \n");
    scanf("%d",&ch);
    if(ch==1)
    {
        n++;
        sender();
        goto n;
    }
    printf("do u want to send acknowledgement 1/0 \n");
    scanf("%d",&ch);
    if(ch==1)
    {
        printf("Enter frame no \n");
        scanf("%d",&ack_no);
        if(old_ack>ack_no)
        {
            count++;
        }
        old_ack=ack_no;
        ack_no=(count*7)+ack_no;
        sender();
        goto n;
    }
}
void sender()
```

```
{
int i;
clrscr();
printf("The window in sender is \n");
for(i=n;i<=6+ack_no+1;i++)
{
printf("%d",sen_window[i]);
}
printf("\n");
for(i=n;i<=6+ack_no+1;i++)
{
printf("%c",sen_data[i]);
}
printf("\n The window in receiver is \n\n");
for(i=ack_no+1;i<=6+ack_no+1;i++)
{
printf("%d",rec_window[i]);
}
printf("\n");
for(i=ack_no+1;i<=(n-1);i++)
{
printf("%c",sen_data[i]);
}
printf("\n");
}
```

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Result:

Thus the program to simulate sliding window protocol was written, executed and the results were verified.

16. XP INSTALLATION

AIM

To install an operating system Windows-XP, professional edition in the computer

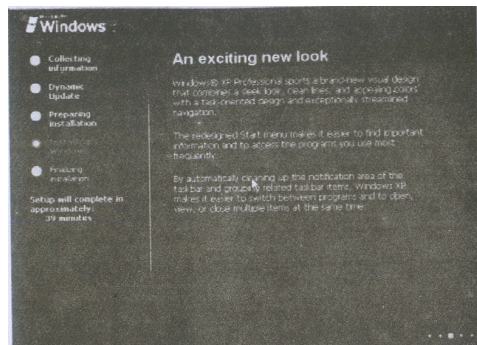
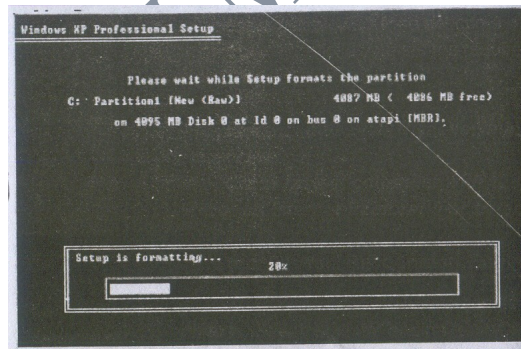
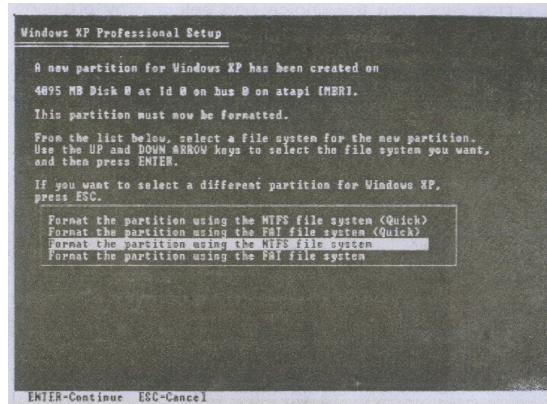
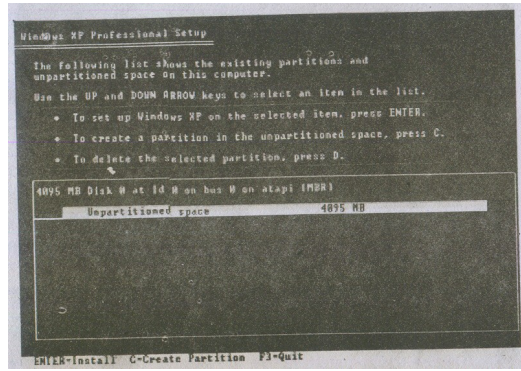
REQUIREMENTS :

System, CD – ROM, XP Installation CD.

PROCEDURE :

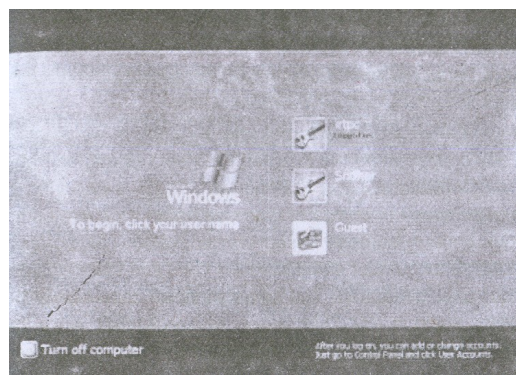
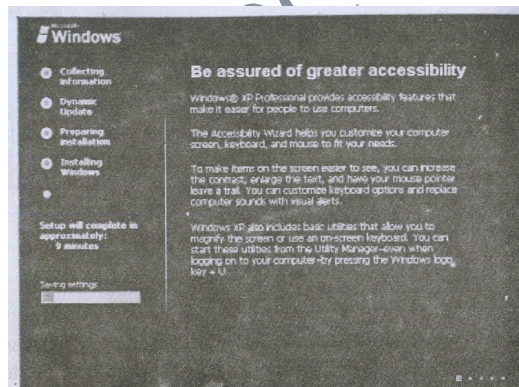
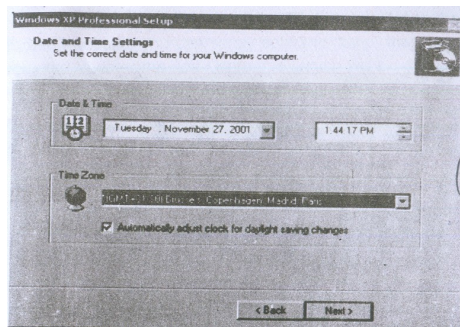
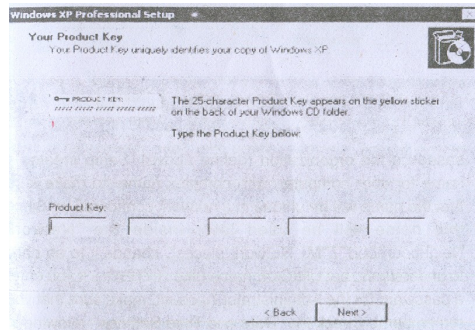
Boot from the windows setup CD

1. Start the computer and insert the CD in the CD-ROM drive.
2. Press any key to boot from CD” Appears on the screen (if CD-ROM drive is the first booting option in the CMOS setup). Press “**Enter**” key.
3. Once the boot from CD-ROM has started, it will display “**setup is inspecting your computers Hardware configuration**” At the top of the screen.
4. After a brief delay, the typical Microsoft blue installation screen” displayed at the top and at the bottom of the screen the information, that “**setup is loading files**”, all type of device drivers.
5. It will state “**Setup is stating windows**” and will display after a short delay the windows XP professional setup or windows XP now and press “**enter**”.
6. Select “to setup windows XP now and press enter.
7. The Windows XP licensing agreement is displayed on the screen, accept it by pressing the F8 key as indicated on the bottom screen.
8. Setup will now display the partitioning of your disk. If the system has already an operating system installed you will see them listed.
9. A simple disk manager is displayed allowing you to create and delete partitions.
10. Select either an existing partition or “**un-partitioned space**” to define, on which partition to install windows XP, press Enter.
11. Answer for the type of disk formatting to be used. Installing XP into already existing partition, you have additional options to leave the current disk formatting intact.



12. Select the type of disk formatting FAT or NTFS

- a. If means possible to access from or DOS-boot floppy, but limited to maximum 4GB with very inefficient files storage no security features
 - b. If NTFS means not accessible from DOS-boot floppy but not limited is size and using an efficient file storage with a small cluster size able to use file system security features. Windows XP requires a lot of disk space for itself, should use at least 4GB partition.
13. Use NTFS, highlight the choice and select it by pressing enter.
 14. Setup will start formatting the disk and will when start copying files from the CD-ROM to the disk.
 15. The System will reboot.
 16. After the result windows XP starts for the first time with the Graphical user Interface (GUI)
 17. Setup will continue to copy files and to install devices
 18. Adjust the regional setting by using “**customize**” button to configure proper keyboard
 19. Personalized your system by entering your name and organization.
 20. Enter the product key (25 characters, provided by Microsoft along with the CD-ROM)
 21. Define the name of your computer and the password for the Administrator account .
 22. Based on the organization, setup creates a name for your computer, with complex name.
 23. If you enter a password for the Administration account, make sure that you remember it.
 24. Click the Date and Time” settings allowing to check / define / correct the date and time zone.
 25. If you have a network card in your system, which was detected by setup you will be asked to select whether to install a typical configuration or if you like to make now already special settings like defining your IP address.
 26. Setup does “**finalizing Installation**” nothing to do by you.
 27. The system will reboot again



28. Setup will configure.

29. The system will try to connect via the Internet to the Microsoft website, you can safely select to “Skip”
30. Prompted to enter the first username which will be defined as administrators and will get the new XP welcomes screen.
31. If only one user was defined during setup and password was defined the system will skip the welcome screen and continue display immediately the new windows XP desktop

Final setup wizard

1. After completing the installation the computer reboot and enters in to the final setup wizard .
2. Question will be asked how to connect the internet.
3. Select anyone of the following options depending upon the internet connection account
 - a. DSL or Cable modem
 - b. Local area Network
 - c. Telephone modem
4. If the Internet connection is not available click close and can make connection in future.
5. If the Internet connection is available click close and can make connection in future.
6. If the Internet connection is available and if connected through a LAN or Broad band device, IP address and DNS addresses are to be mentioned. The settings entered must match with the address provided by the ISP.
7. Many ISPs automatically assigned IP and DNS settings.
8. Select the Checkboxes that obtain information automatically.
9. The wizard ask to activate the copy of windows. If already connect to the Internet choose Yes and Activate.
10. Activation is new to windows XP and is designed to eliminate privacy of software once activated it generates an unique code in numeric, based on the system configuration and the serial number of the windows copy and then registers that code generated.
11. The Same windows copy cannot be installed again in any other system and registered, since the system configuration for the windows copy has already been registered

RESULT :

Windows XP professional Edition is installed in the system

17. UPGRADING WINDOWS XP

AIM :

1. To upgrade the OS with windows XP
2. To create answer file for Windows XP

REQUIREMENTS :

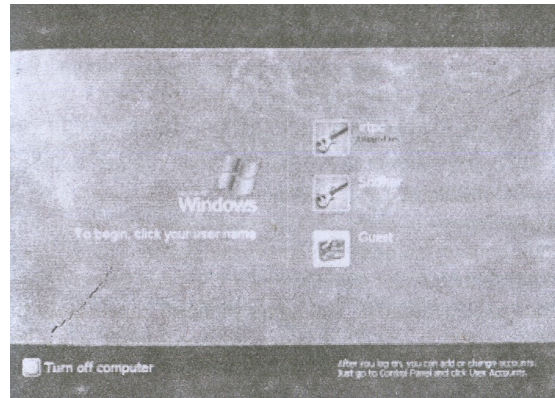
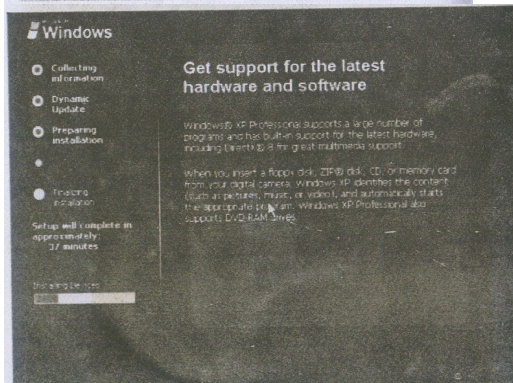
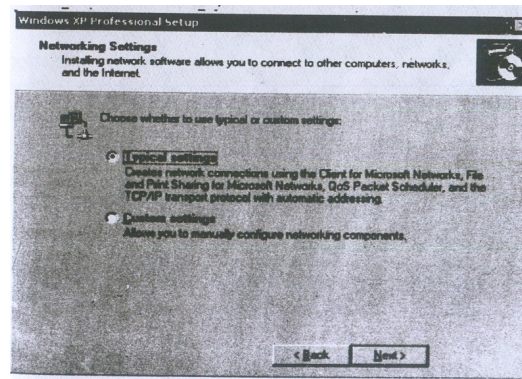
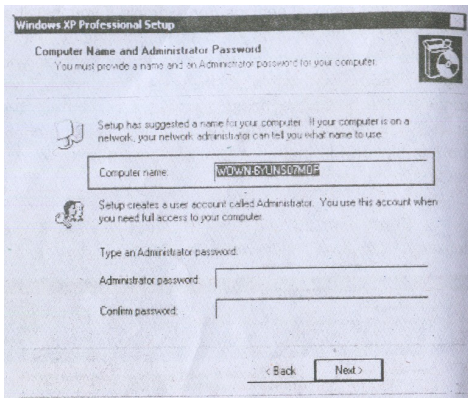
Win2000 prof installed System, CD-ROM, XP CD.

PROCEDURE :**Upgrade :**

1. Insert the given windows XP CD in drive.
2. In the welcome windows click **install windows**.
3. Select upgrade in the installation type dropdown list. Then click on text.
4. In the textbox click the option “**I accept this agreement**” and then click next.
5. The system will now automatically prepare to install.
6. In the last step of finalizing installing continuously click next for three times and then click finish.
7. Then appears the Windows XP mode and operations are done one by one.
 - a. Collecting Information
 - b. Dynamic Update
 - c. Preparing Installation
 - d. Installing Windows
 - e. Finding Installation

In the next dialogue box given the product key and the click next .

8. Finally the Thank You screen is displayed and the system restart automatically..
9. The XP desktop screen is displayed.



Answer File

1. Double click the **My Computer** icon on the desktop Window.
2. Right click Windows XP professional CD icon & select open.
3. Click the support / Tools folder, double click the display cab file.
4. Copy setup manager.exe to a folder c: drive.
5. This will welcome you to the windows setup manager wizard click next.
6. The following message is displayed, create or new user file or to modify an existing answer file.
7. Click the create a new answer file and click next.
8. Answer the question where to install the questions answer it appropriately.
9. Finally create a new distribution folder C:\whistlerdisk.
10. Click next.
11. Customize all the settings

- a. General
- b. Network
- c. Advanced

12. Click next for each change during customizing.
13. Finally it displays the path where the answer is to be created (ie)
C:\whistlerdisk\unattend.txt.
14. Click OK start copying files.
15. You can view the file unatlend.txt using a browser.

LMPC

RESULT :

The current OS is upgraded windows XP and answer file for Windows XP is created

18. ADDING AND REMOVING DEVICES USING THE

HARDWARE WIZARD

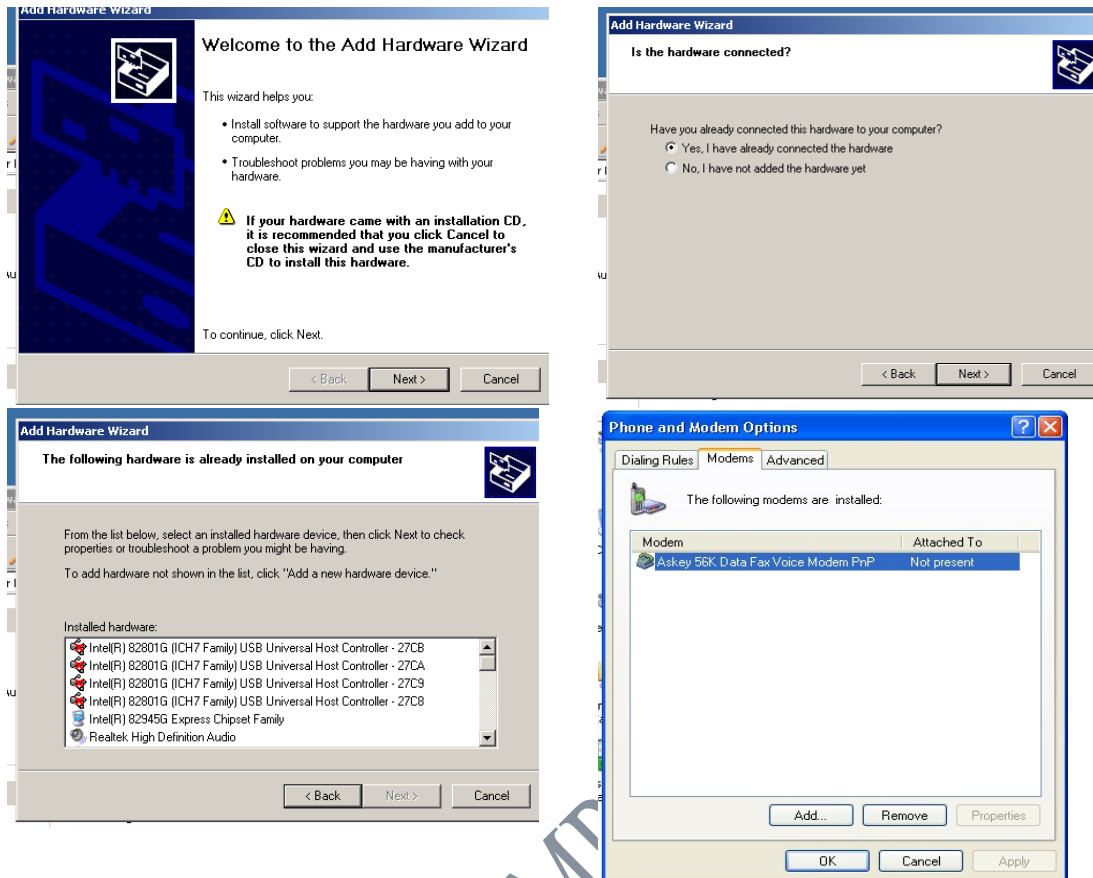
AIM:

To install a new hardware by using “Adding Hardware Wizard”
To Remove the same Hardware by using Phone and Modem icon.

PROCEDURE:

ADDING HARDWARE:

1. Click the start button. Click the control panel
2. Select and Click the “printers and other hardware icon”.
3. Click the “add hardware”, option on the left side panel.
4. An add hardware wizard appears on the screen. Select the radio button “ yes I have already connected the hardware”.
5. Click the Next button.
6. The hardware wizard displays a list of hardware installed. To add a new hardware, click the “Add a new hardware device”, option in the list.
7. Click Next.
8. In the window displayed, select the option, search for and install the hardware automatically (Recommended).
9. The hardware wizard searches for the hardware. If the wizard didn't find any new hardware on the computer, select it from the list displayed. Then click the next button.
10. Select the hardware (modem) and click next button.
11. Windows now try to detect the modem attached to the computer.



Removing Hardware :

Option 1:

Click the next button for automatic detection.

Option 2:

Select the check box, if you want to select it from a list, then click Next

In Case of Option1

- a. Windows starts detecting the modem automatically
- b. If found, modem is installed successfully
- c. Then click the finish button

In case of option2

- a. List of devices along with the manufacturer is displayed, Select the model and click next, otherwise lick the “Have Disk” option and install the software from the CD-ROM.
- b. Click OK and Click next
- c. Select the ports and click next, now windows will start installing the modem
- d. Click the finish button on successful installation

Removing Hardware

1. Click the start button.
2. Click the control panel
3. Select and Click the “printers and other hardware icon”.
4. Select phone and modem icon
5. Phone and Modem options window will appear on the screen
6. Click the Modem tab
7. Select the modem in the list
8. Click the Remove button
9. Requests for Confirmation, Click Yes
10. Windows removes the device attached. Click ok

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RESULT:

A New Hardware installed in the system by using “Add Hardware Wizard”.
The Same Hardware is removed from the system by using phone and Modem icon

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