A RECORD OF WORKBOOK ON

COMPUTER HARDWARE SERVICING AND NETWORKING PRACTICAL - SCL

SEMESTER – VI (21O – Scheme)

LEARNING RESOURCE CENTRE
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CONCEPTS AND REALIZATION

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PREFACE

Learning gives creativity, Creativity leads to thinking, Thinking provides knowledge and Knowledge makes you great – Dr. APJ. Abdul Kalam.

Knowledge acquired through creative thinking can elevate the learning process of the young learners. In order to make the students think and learn, the Student Centered Learning (Problem Based Learning) is an innovative teaching methodology adopted in many nations across the world.

My study visits to Singapore, Canada and UK provided me an opportunity to study this new method of teaching-learning process of Student Centered Learning (**SCL**) practiced in the Polytechnics and Universities of Singapore, Canada and UK. Adoring the great success of PBL in those nations, the new methodology of Student Centered Learning was improved with the necessary modifications and introduced in our Polytechnic education in practical courses during 2011.

The successful implementation of the Student Centered Learning as a pilot project in all the practical courses in this institution has resulted in the consistent and uniform performance of the students in the class rooms, examinations and in placement interviews.

Considering the benefits of PBL, this **Record of Work book** is brought out as a new venture in lieu of the conventional method of writing the Record Note, which is a mere replication of observation note book.

The **Record of Work Book** consists of experiments and procedures, PBL worksheets and application and inference of the concepts.This innovative **Record of Work Book**will kindle the creativity of our students and enhance their academic performances to the International Standards.

The unstinted support and encouragement of our honourable Chairman Sri.C.Valliappa and respected Vice Chairmen Sri.ChockoValliappa and Sri.ThyaguValliappa have resulted in the successful implementation of PBL and this Record of Work Book in our institution. I place my sincere gratitude to our Management for all their continuous guidance in this venture.

I honestly appreciate the Heads of Departments and all the teachers who understood the concept quickly and rendered their fullest co-operation for the immediate implementation of PBL in our institution.

I firmly believe that this Record of Work Book which adopts Creative Learning Methodology (**CLM**) based on Bloom's Taxonomy will promote higher order thinking skills of our students to learn, analyze and apply the concepts.

Dr.V.KARTHIKEYAN

PRINCIPAL&CHIEFCOORDINATOR

COMPUTER HARDWARE SERVICING AND NETWORKING PRACTICAL

Instructions

1. Read the questions and procedure of the assigned exercises in the workbook before coming to laboratory.
2. Students should listen carefully to the instructions of the faculty during the practical classes.
3. Record the observations properly and get the initials when you are doing the exercises.
4. Keep the component clean and operate, handle the component, computer in proper r
5. Arrange the chairs properly in their respective places while leaving the laboratory.
6. Any problem raised during the work must be reported to the staff in charge / Lab Assistant imm
7. In case of problem in computers, it must be reported to the staff in charge / Lab Assistant.

THIAGARAJAR POLYTECHNIC COLLEGE, SALEM

21O - SCHEME

Programme: COMPUTER ENGINEERING **Semester: VI**

Course Code: 21O – 7212

Course Name: COMPUTER HARDWARE SERVICING AND NETWORKING PRACTICAL

LAB EXERCISES

	PART - A	**30 Hrs.**
	Identification of system layout (Study Exercise) a. Front panel indicators & switches and front side & rear side connectors. b. Familiarize the computer system Layout: Marking positions of SMPS, Mother board, HDD, DVD and add on cards. Configure bios setup program and troubleshoot the typical problems using BIOS utility.	
1.	HARD DISK a) Install Hard Disk. b) Configure CMOS-Setup. c) Partition and Format Hard Disk. d) Identify Master /Slave / IDE Devices. e) Practice with scan disk, disk cleanup, disk De-fragmentation, Virus Detecting and Rectifying Software. f) Creating System restore points in windows for system recovery.	
2.	a. Install and Configure a DVD Writer & Blu-ray Disc Writer. b. Recording a Blank DVD & Blu-ray Disc.	
3.	Printer Installation and Servicing a. Install and configure Dot matrix printer, Ink jet and Laser printer. b. Troubleshoot the above printers	
4.	Install and configure Scanner, Web cam, and bio-metric device with system and troubleshoot the problems	
5.	Do the following cabling works in a network a) Cable Crimpling b) Standard Cabling c) Cross Cabling d) Testing the Crimped cable using a Cable tester	
6.	a) Configure Host IP, Subnet Mask and Default Gateway in a system in LAN (TCP/IP Configuration). b) Configure Internet connection and use IPCONFIG, PING / Tracert and Netstat utilities to Debug the Network issues.	
7.	a) Install and configure Network Devices: HUB, Switch and Routers. b) Install and Configure Wired and Wireless NIC and transfer files between systems	
8.	Transfer files between systems in LAN using FTP Configuration. Install a printer in LAN and share it in the network.	

PART - B		34 Hrs.
9.	Installation of Windows 2008 / 2013 Server	
10.	Installation and configuration of DHCP Server	
11.	Installation and configuration of Mail Server	
12.	Installation and configuration of Active directory Services. Create a user and permission using logon script and group permissions.	
13.	Installation and configuration of DNS Server	
14.	a) Installation of Red Hat Linux using Graphical mode. b) Installation of Red Hat Linux using VMware.	
15.	Installation of various open source packet sniffing tools and inspect packets in linux.	

Study Ex.	IDENTIFICATION OF SYSTEM LAYOUT
Date:	

AIM

To determine the front panel indicators and switches in a computer system and a lower case model and also the rear side connectors and also the familiar computer system layout and configure bios setup program and troubleshooting.

a) Front panel indicators and switches and front side and rear side connectors
b) Familiar size the computer system layout marketing positions of SMPS, motherboard, FDD, HDD, CD, DVD and add on cards
c) Configure bios setup program and troubleshoot the typical problems using bios utility

PROCEDURE

Hardware required:

Computer System, Pentium motherboard, HDD, SMPS, CD/DVD drive and other add-on cards like network card and sound card etc.,

(a) Front panel indicators and Switches:

Switch

Power Switch:

To start the computer we have to turn on the power.

Reset Switch:

It performs the same function as the warm boot [control+alt+delete] which restart the computer with an abbreviated versions of post, talking the little time off the start up process.

Turbo Switch:

When computer speeds started to increase dramatically by pushing the turbo switch. We could slow down the speed to where these programs were still usable.

Indicators

Power LED:

This light tells us when the computer Power on.

Hardware LED:

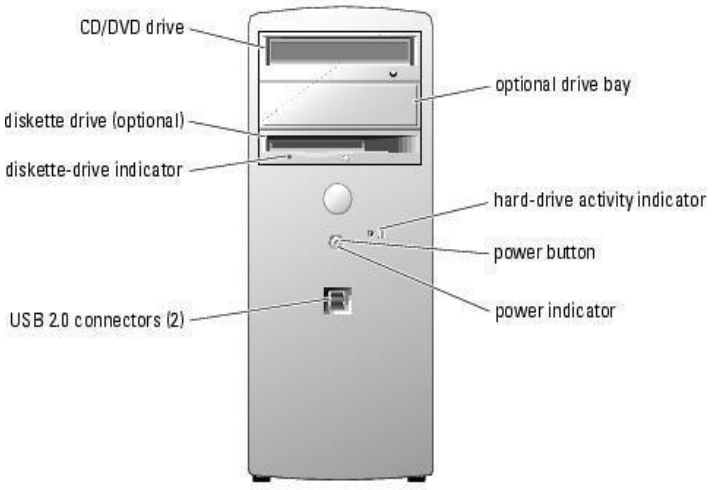
Not found on never cases, the turbo light would tells us when the turbo switch has been pushed.

Speed LED:

The speed indicator led is used to indicate the speed of the computer runs.

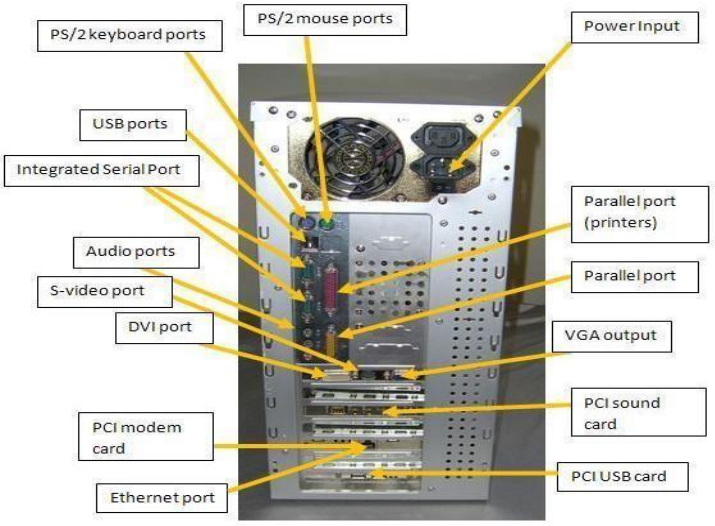
Front side connector:

1. **Hard disk activity connector:** This normally comes red in colour and is labelled as HDD LED light.
2. **Power switch connector:** This comes green in colour is labelled as power switch. Power shows system power ON/OFF.
3. **Reset switch connector:** This comes grey in colour and is labelled as RSTSW Reset system.
4. **Power LED connector:** This is usually grey in colour and is labelled as PWR LED power LCD light shows when system is on.
5. **Speaker connector:** The speaker will give different beap sounds during boot to tell the user if there is any errors. It occurs 4pins.



Rear side connector:

1. **Serial port connector:** It is either 9 or 25 pin connector used to serial interface devices (mouse/modem).
2. **Parallel port connector:** It is 25 pin connector used to connect devices such as printer, plotter and external storage devices. It is a 15 pin connector used to connect VGA monitor.
3. **Keyboard connector:** it is used to connect keyboard.
4. **Audio video connector:** it is used to connect multimedia device like mike, speaker, VCR, video camera**.**



(b) Familiar the computer system layout marking positions of SMPS motherboard, FDD, HDD, CD, DVD and add on cards.

System layout:

Power supply: The power supply feeds electrical power to every signal path in the pc.

Mother board: The mother board is a care of the system. It controls everything in the system.

It controls operation of the system. It contains the following.

(1) Microprocessor: This is the brain of the computer. It performs commands and instructions and control operation of the computer.

(2) Memory: This is the primary memory which holds all programs and data. The processor is using these programs and data at run.

(3) Drive controller: it controls the interface of the system to the hard drive.

Hard disk drive:

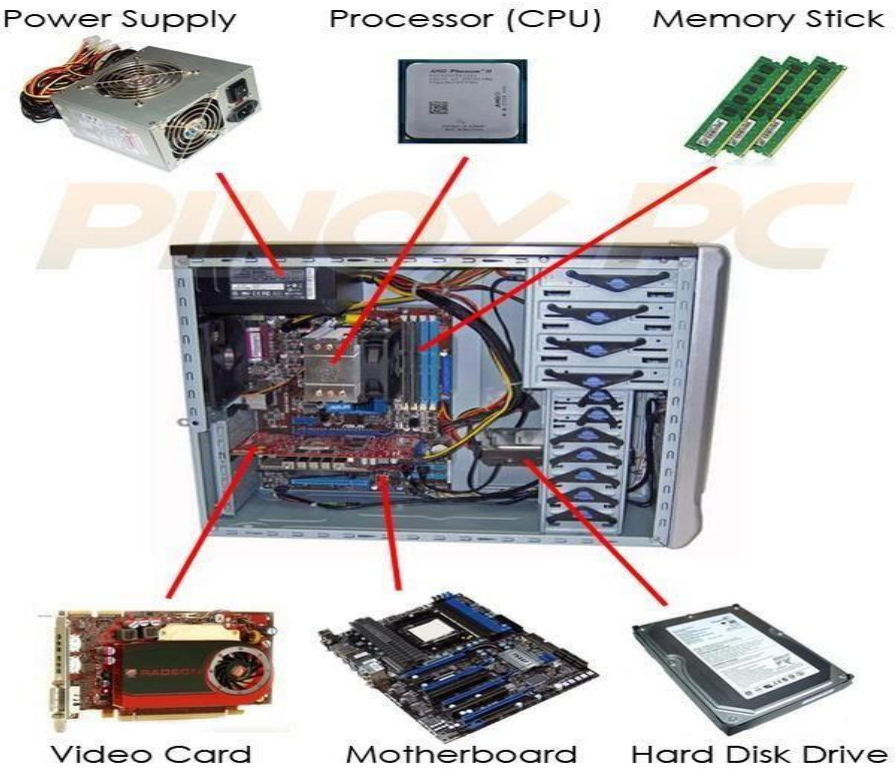
Here all the files are permanently stored. Also normally the operating system is installed here.

CD-ROM drive:

This is normally a read only drive where files are permanently stored. These are new read/write CD ROM drives chat we special software to allow users to read from or write these drives.

Floppy drive:

The floppy is small disk storage device. That today typically has about 1.4 bytes of memory.



Network cards:

Network interface cards allow pc's to connect with each other and communication.

Video cards:

It allow computer to display video graphics and animation.

Sound cards:

It enables to pc to complete sounds.

(c) Configuring BIOS

To enter the CMOS Setup, you must press a certain key or combination of keys during the **initial startup sequence**. Most systems use "Esc,""Del,""F1,""F2,""Ctrl-Esc" or "Ctrl-Alt-Esc" to enter setup. There is usually a line of text at the bottom of the display that tells you "Press ___to Enter Setup."

TO CONFIGURE THE FOLLOWING SETTINGS AND FEATURES:

- System Time/Date
- Boot Sequence
- Plug and Play
- Mouse/Keyboard
- Drive Configuration
- Memory & Security
- Power Management

The BIOS uses **CMOS** technology to save any changes made to the computer's settings

WHAT ACTUALLY BIOS DOES

When you turn on your computer and the microprocessor tries to execute its first instruction, it has to get that instruction from somewhere. It cannot get it from the operating system because the operating system is located on a hard disk, and the microprocessor cannot get to it without some instructions that tell it how. The BIOS provides those **instructions**.

SOME OF THE OTHER COMMON TASKS THAT THE BIOS PERFORMS INCLUDE:

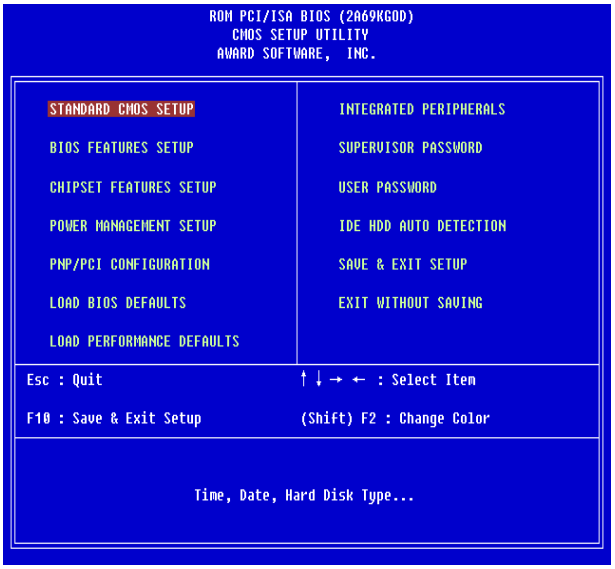
- A power-on self-test (POST) for all of the different hardware components in the system to make sure everything is working properly
- Activating other BIOS chips on different cards installed in the computer - For example, SCSI and graphics cards often have their own BIOS chips.
- Providing a set of low-level routines that the operating system uses to interface to different hardware devices - It is these routines that give the BIOS its name. They manage things like the keyboard, the screen, and the serial and parallel ports, especially when the computer is booting.
- Managing a collection of settings for the hard disks, clock, etc.
- It is usually stored on a Flash memory chip on the motherboard, but sometimes the chip is another type of ROM

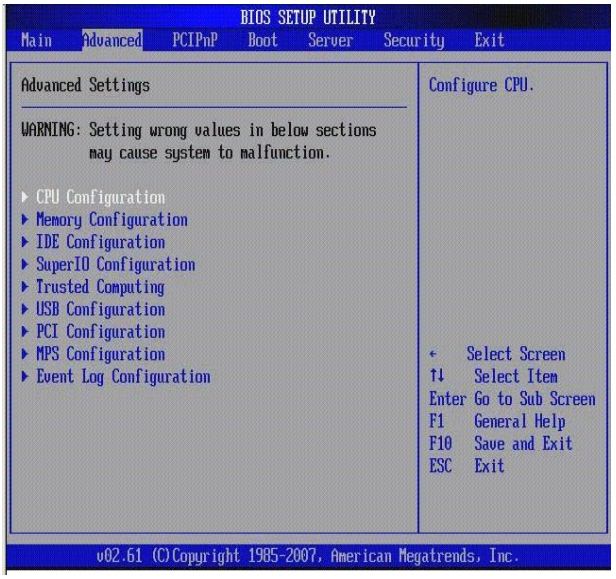
When you turn on your computer, the bios does several things. This is its usual sequence:

1. Check the CMOS Setup for custom settings
2. Load the interrupt handlers and device drivers
3. Initialize registers and power management
4. Perform the power-on self-test (POST)
5. Display system settings
6. Determine which devices are bootable
7. Initiate the bootstrap sequence

The CMOS Setup provides detailed information particular to your system and can be altered as your system changes.

The **device drivers** are other pieces of software that identify the base hardware components such as keyboard, mouse, hard drive and floppy drive. Since the BIOS is constantly intercepting signals to and from the hardware, it is usually copied, or **shadowed**, into RAM to run faster.





Booting the Computer

The BIOS has tried to boot the computer off of the disk left in the drive. Since it did not find the correct system files, it could not continue. Of course, this is an easy fix. Simply pop out the disk and press a key to continue.

Next, the BIOS checks to see if this is a **cold boot** or a **reboot**. It does this by checking the value at memory address 0000:0472. A value of 1234h indicates a reboot, and the BIOS skips the rest of POST. Anything else is considered a cold boot.

SOME GENERAL KEYS TO OPEN BIOS:

Most systems use "Esc,""Del,""F1,""F2,""Ctrl-Esc" or "Ctrl-Alt-Esc" to enter setup. (or) Otherwise the system can show the keys when system starts

UPDATING THE BIOS

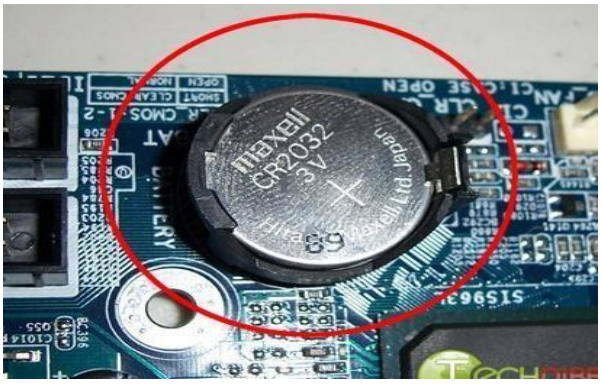
A computer will need to have its BIOS updated.

BIOS Troubleshooting

Because the BIOS is the essential "glue" that joins hardware to the operating system, you need to know how to deal with errors. Follow these steps to solve BIOS problems.

Incorrect CMOS Configuration

If the system can't start after a BIOS upgrade or a battery replacement, the CMOS might be corrupted. Re-enter the correct settings, save changes, and restart. An onscreen error message will usually indicate a CMOS problem. Otherwise, the settings might have been adjusted by a user. Try using the BIOS Setup auto-configure options, double-check drive configurations, save changes, and restart.



Incorrect Flash BIOS or Failed Update

If use the wrong flash BIOS file to update your BIOS, or if the update process doesn't finish, your system can't start. You might need to contact the system or motherboard maker for service. Some BIOSes contain a "mini-BIOS" that can be reinstalled from a reserved part of the chip. Systems with this feature have a jumper on the motherboard called the "flash recovery" jumper. Micro Firmware's Web site lists popular motherboards using Phoenix BIOSes that have this feature.

To use this feature, download the correct flash BIOS, make the floppy disk, and take it to the computer with the defective BIOS. Set the jumper to Recovery, insert the floppy disk, and rerun the setup process. Listen for beeps and watch for the drive light to run during this process, because the video won't work. Turn off the computer, reset the jumper to Normal, and restart the computer.

If the update can't be installed, your motherboard might have a jumper that write-protects the flash BIOS. Check the manual to see if your system has this feature. To update a BIOS on a system with a write protected jumper, you must

1. Disable the write-protection.
2. Perform the update.
3. Re-enable the write-protection to keep unauthorized people from changing the BIOS.

Result:

Thus the front panel indicators and switches and front side and rear side connectors. Familiarize the computer system layout. Marketing positions of SMPS, Mother board, FDD, HDD,CD, DVD and Add-on cards. Configure BIOS setup program and trouble shoot the typical problem using BIOS utility are identified successfully.

Ex. No: 1	HARD DISK
Date:	

AIM

To perform the following operations in hard disk drive.

1) Install the hard disk
2) Configure CMOS Setup
3) Partition and format the hard disk
4) Identify master slave IDE devices
5) Practice with scan disk, disk clean up, disk defragmentation, virus detecting and rectifying software

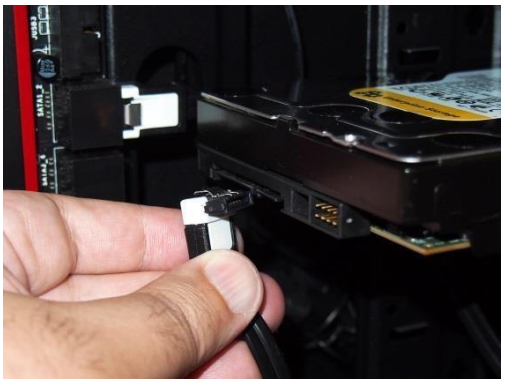
PROCEDURE

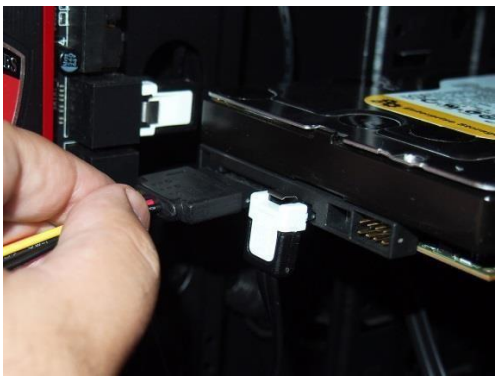
Hardware required:

1) Computer system
2) IDE Hard disk drive
3) HDD software

Install the hard disk:

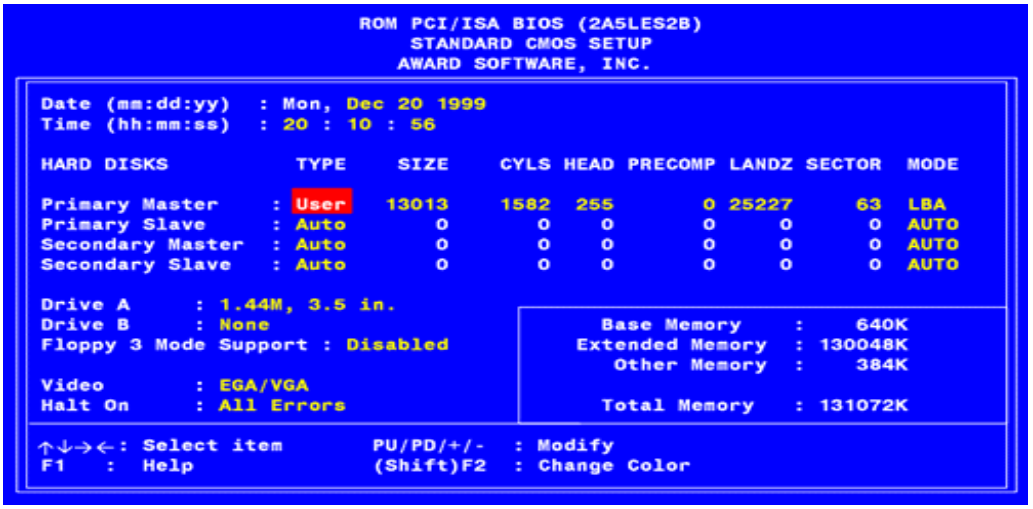
1) Switch off the system
2) Remove all cables connected to system
3) Open the corner with proper safe guards using proper tools
4) Fix the hard disk drive in the position available in PC
5) Connect the 4 pin power cable from SMPS output
6) Connect the 40 pin power cable from the IDE slot given in the motherboard
7) The other end should be connected to the hard disk.





Configure the CMOS setup:

1) Switch on the system
2) Involve CMOS setup utility by pressing DEL key giving the start up
3) Select the standard features
4) Select the features IDE primary master if the hard disk is connected in IDE and with master connectors.
5) Also select auto detect option for automatic configuration.



Partition the hard disk:

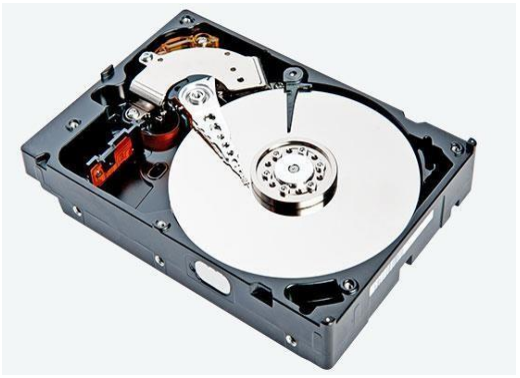
1) Insert the compact disk using CD drive and we can create logical partition
2) Display the partition information
3) Delete the partition
4) CD will primary logical partition only can be used as booting To delete partition, first delete logical drives and delete DOS partition

Identify Master / Slave / IDE devices:

When add a second hard drive or install a replacement hard drive to a computer, then decide whether want the hard drive to act as a master or slave drive. Moving the hard drive's jumpers selects the pins that determine whether the hard drive is master or slave. Changing a hard drive's jumpers only takes a moment, but if it not done correctly, the drive will not be recognized by the computer's BIOS and the system will not boot up.

Hard disks have passed through a long evolution of connectivity and data transfer standards. The drive interface standard from the 1980's was called the **IDE** (Integrated Drive Electronics) ex: SATA cable and PATA cable

External Hard disk



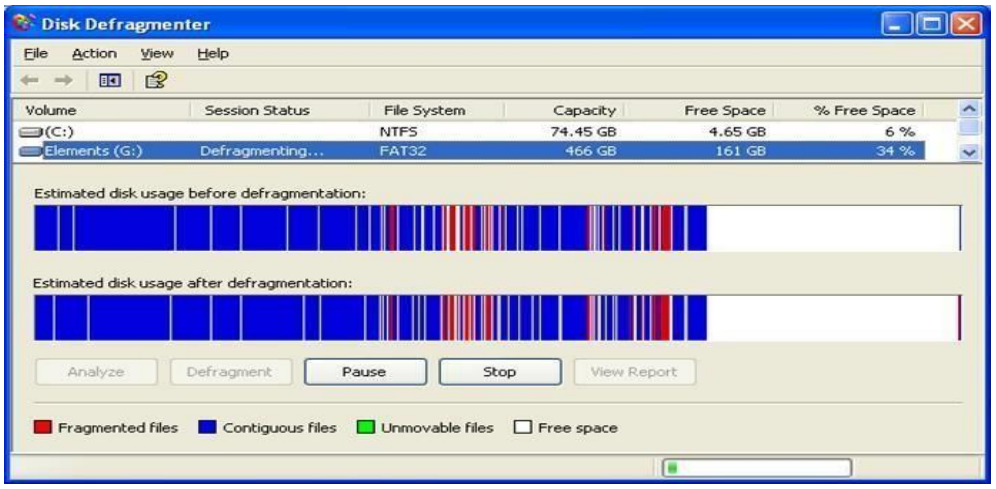
Disk Cleanup

Disk cleanup is a computer maintenance utility included in Microsoft Windows designed to free up disk space on a computer's hard drive. The utility first searches and analyzes the hard drive for files that are no longer of any use, and then removes the unnecessary files. There are a number of different file categories that Disk Cleanup targets when performing the initial disk analysis:

- Compression of old files
- Temporary Internet files
- Temporary Windows files
- Downloaded program files
- Recycle Bin
- Removal of unused applications or optional Windows components
- Setup log files
- Off-line files

Disk Defragmenter

Disk gets fragmented as users create and delete files and folders, download files from internet, or install/uninstall programs. When a file or a folder is deleted from the hard disk, the space that was occupied by it will be used to store any new files. When a file gets saved, it uses the first contiguous free space that is large enough for the file and the remaining part of the file is saved in the next available free space.



The fragmented disk brings down the performance of the system as it takes a long time to retrieve the fragmented data from the disk even if the CPU or the memory is more than sufficient. Hence, periodic disk defragmentation is necessary to keep up the performance of the system. Desktop Central provides option to run the disk defragmenter tool on multiple machines simultaneously. It supports the following options:

- Verbose: Displays the complete analysis and disk defragmentation reports
- Analyze: Analyzes the volume and displays a summary of the analysis report.
- Force Defragmentation: Forces disk defragmentation regardless of whether it needs to be defragmented.

Scan Disk

A DOS utility included only in Windows 95/98/ME that detected and repaired errors on disk. Similar to the Chkdsk utility, Scan Disk reclaimed lost clusters and turned them into .CHK files. It also performed a surface scan of the disk. Scan Disk (SCANDISK.EXE) was first shipped with DOS 6.2 and used a character-based menu interface.

If Windows crashed or the computer lost power, the next time the computer was booted, Scan Disk ran automatically. Chkdsk (CHKDSK.EXE) is a command line program that reclaims lost clusters and has shipped with every version of Windows thus far. See lost cluster and Chkdsk

Result:

Thus the above experiment to install hard disk, partition and format hard disk was successfully and verified.

Ex. No: 2	DVD WRITER AND BLU-RAY DISC WRITER INSTALLATION
Date:	

AIM

To install DVD multi writer drive into a system and write the data in to the blank DVD disk like that also install Blu-ray drive and write the files in to blue ray disk.

PROCEDURE

Hardware required:

1. Computer system
2. Windows OS
3. Nero software

Install and configure DVD writer:

Place the drive into an open cabinet. Connect the power cable, if it is IDE recording DVD and blu-ray disc drive.

Finish and exit:

Select the disc and the disk will be restarted.

Recording a blank DVD:

There are two methods to record a blank disc.

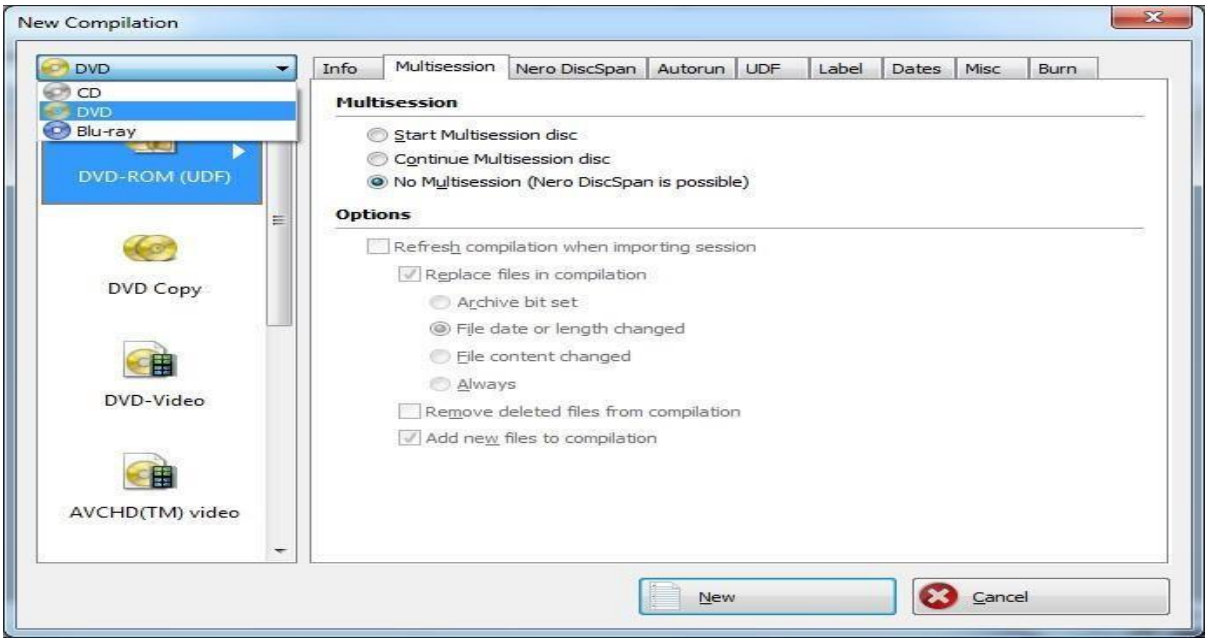
a.Through OS:

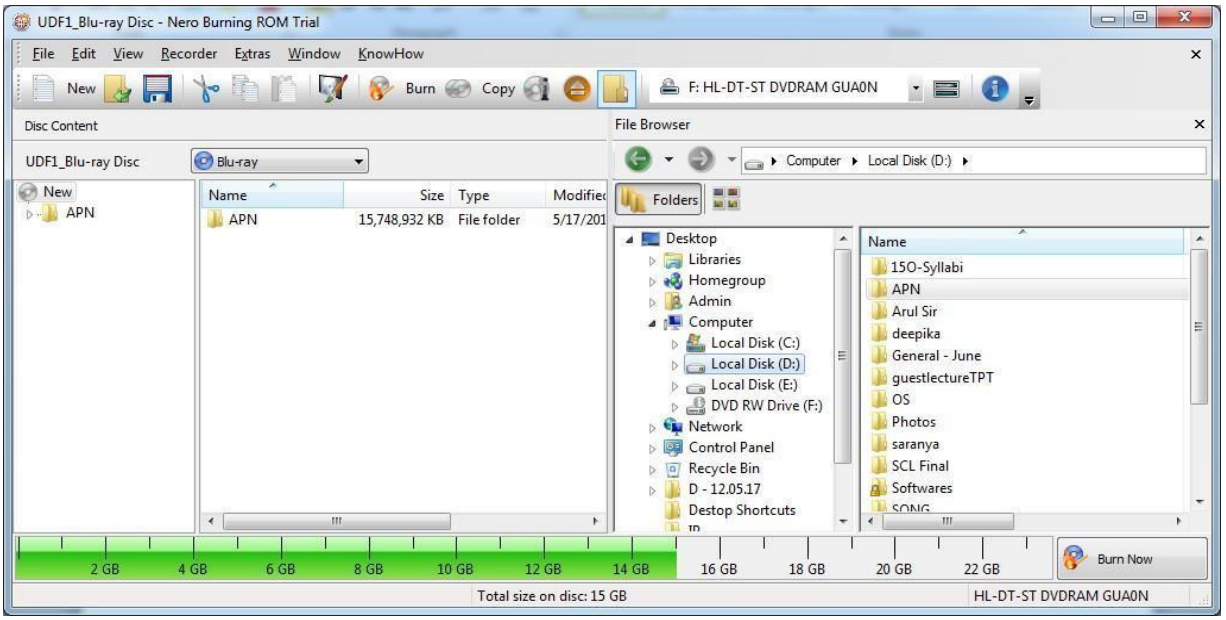
1. The files which is going to write on DVD is copied from source
2. Follow the on screen instructions

b. Through application software:

1. Go to **Start > All programs > Nero**, then **Nero StartSmart**
2. Insert a blank DVD or blueray disc whenever application into drive
3. Scroll over the icons on the top right of the program window, to find the **Data** icon
4. Choose **Make Data CD**. This will launch Nero Express.

5. Click **Add** and browse your hard drive and select the files you would like included on the CD. When you're finished adding files click **Finished**
6. Click **Next** and name your disk. Check **Verify data after burning** if you want to make sure your burn happened correctly (this will take a little more time)
7. Click Burn and insert a blank CD





Result:

Thus the installation and configuration of the DVD & Blu-ray Multi writer drive was successfully installed and verified.

Ex. No: 3	PRINTER INSTALLATION AND SERVICING
Date:	

To install and servicing the different types of laser printer and refilling the toner, drum cleaning of toner also troubleshoot the laser printer.

Hardware required

1. Computer System
2. Laser printer, Ink Jet Printer and Dot Matrix Printer & its driver
3. Power cable and data cable

Laser Jet Printer Installation

USB Connect the printer to the computer either using a USB cable, parallel port cable, or SCSI cable and then connect the power plug to a power outlet. Today, most all home computer printers are using a USB cable similar to the example picture.

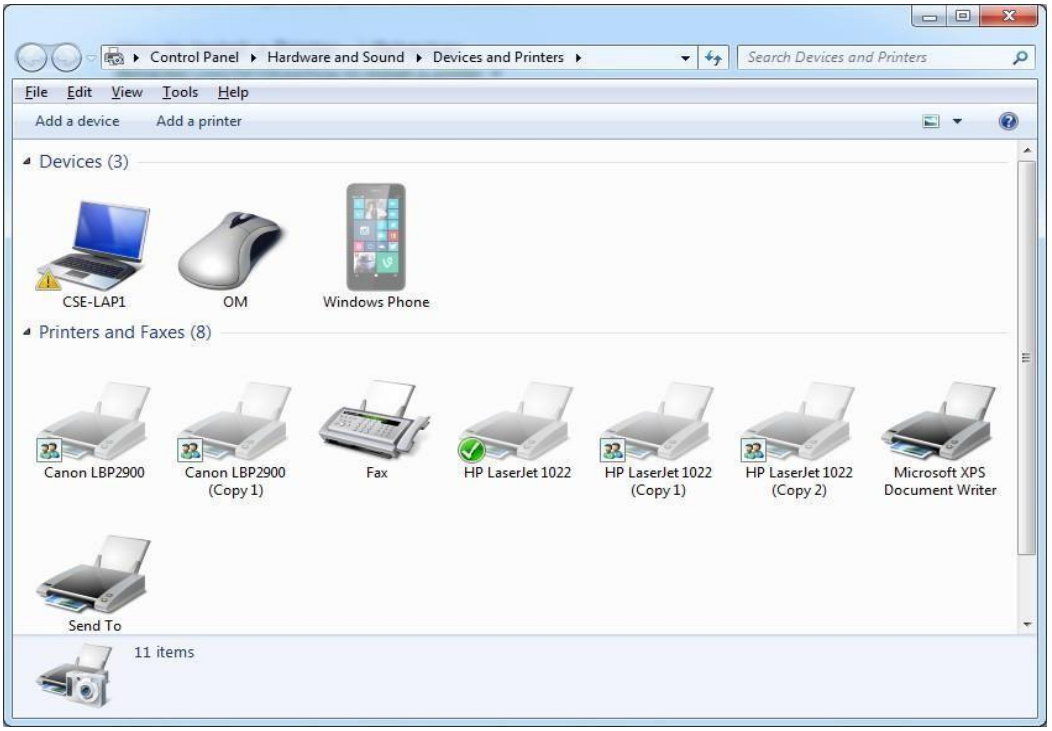
Setup printer and install software

Every printer should come with the software used to install a printer in Windows or your operating system. After everything has been plugged in turn the computer on.

- Insert the CD that came with the printer. If the CD does not automatically start, open My Computer, double-click on the CD drive, and then click the Setup or Install file. If you have downloaded the drivers, run the downloaded setup file.
- Follow the installation wizard and once completed your software is installed.
- Test the printer to make sure it is working.
- Computer with no CD drive
- If your computer does not have a disc drive or you lost the CD you can download the software for your printer from the manufactures printers driver page. Once the drivers have been downloaded you can run the file to install the drivers.

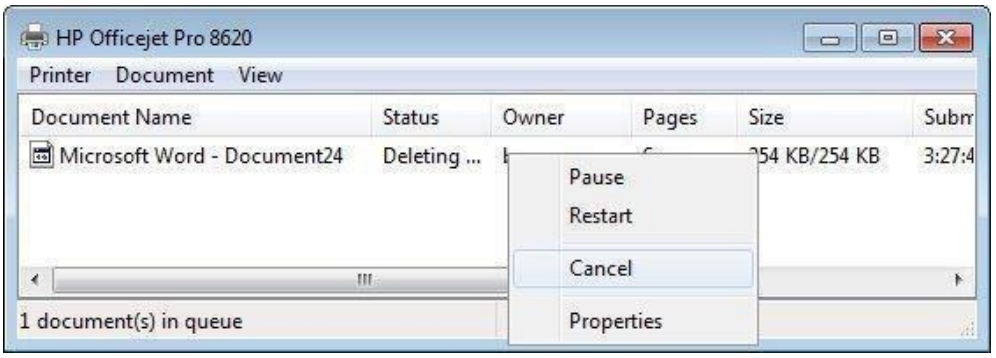
Installing a printer only using the drivers

- To install the printer driver by following the steps below.
- With the printer connected and on open the Control Panel.
- In the Control Panel double-click the Printers or Printers and Fax icon.
- In the Printers window, click the Add a printer icon.
- After completing the above steps, you should see the Windows Printer Wizard. Click Next to start the wizard.
- Next, you have the choice of installing a Local or Network printer. If the printer is connected to your computer choose Local printer attached to this computer and click Next.
- When prompted for the location of the printer drivers, browse to the directory of your drivers or point it to the printer CD.



Testing the printer

- After the printer is installed, use Windows to print a self-test page to help verify the printer is working.
- Click Start, Settings, and open Control Panel. Double-click the Printers or Printers and Fax icon.
- Right-click on the Printer you want to test and click Properties. If you do not see your printer, your printer is not installed.
- In the Printers Properties window, click the Print Test Page button.
- If the printer can print a test page, your printer is installed and setup properly. However, if you are unable to print in other programs the program you are attempting to print from has issues.



Ink Jet Printer Installation

USB Connect the printer to the computer either using a USB cable, parallel port cable, or SCSI cable and then connect the power plug to a power outlet. Today, most all home computer printers are using a USB cable similar to the example picture.

Setup printer and install software

Every printer should come with the software used to install a printer in Windows or your operating system. After everything has been plugged in turn the computer on.

- Insert the CD that came with the printer. If the CD does not automatically start, open My Computer, double-click on the CD drive, and then click the Setup or Install file. If you have downloaded the drivers, run the downloaded setup file.
- Follow the installation wizard and once completed your software is installed.
- Test the printer to make sure it is working.
- Computer with no CD drive
- If your computer does not have a disc drive or you lost the CD you can download the software for your printer from the manufactures printers driver page. Once the drivers have been downloaded you can run the file to install the drivers.

Installing a printer only using the drivers

- To install the printer driver by following the steps below.
- With the printer connected and on open the Control Panel.
- In the Control Panel double-click the Printers or Printers and Fax icon.
- In the Printers window, click the Add a printer icon.
- After completing the above steps, you should see the Windows Printer Wizard. Click Next to start the wizard.
- Next, you have the choice of installing a Local or Network printer. If the printer is connected to your computer choose Local printer attached to this computer and click next.
- When prompted for the location of the printer drivers, browse to the directory of your drivers or point it to the printer CD.

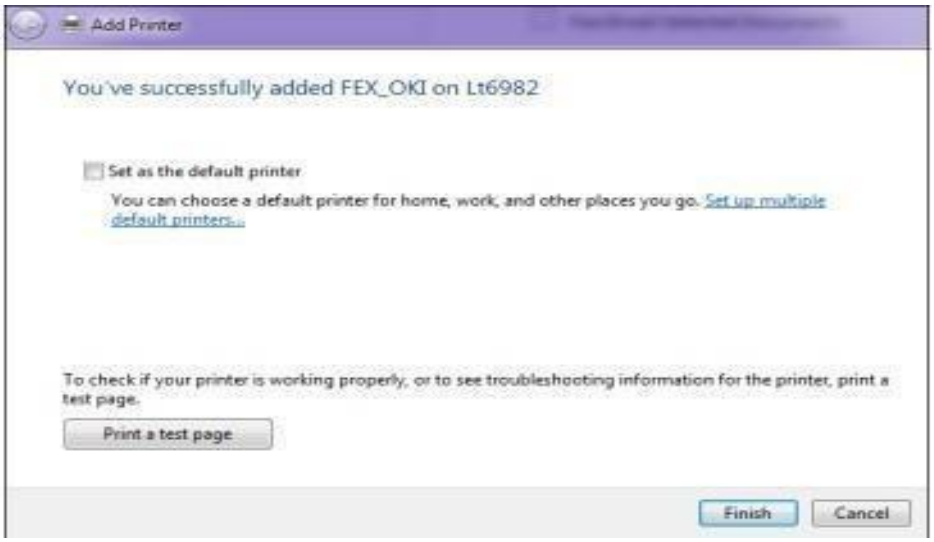
Testing the printer

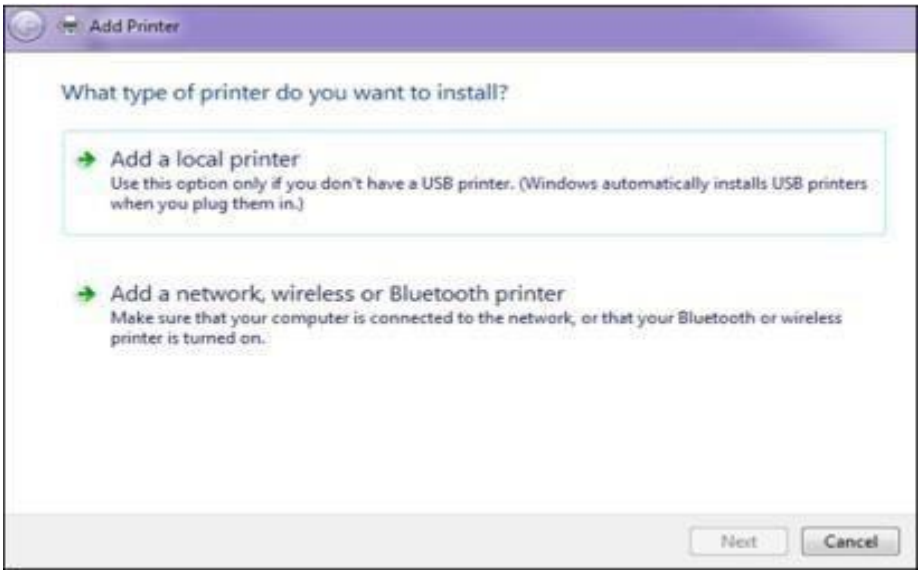
- After the printer is installed, use Windows to print a self-test page to help verify the printer is working.
- Click Start, Settings, and open Control Panel. Double-click the Printers or Printers and Fax icon.
- Right-click on the Printer you want to test and click Properties. If you do not see your printer, your printer is not installed.
- In the Printers Properties window, click the Print Test Page button.
- If the printer can print a test page, your printer is installed and setup properly. However, if you are unable to print in other programs the program you are attempting to print from has issues.

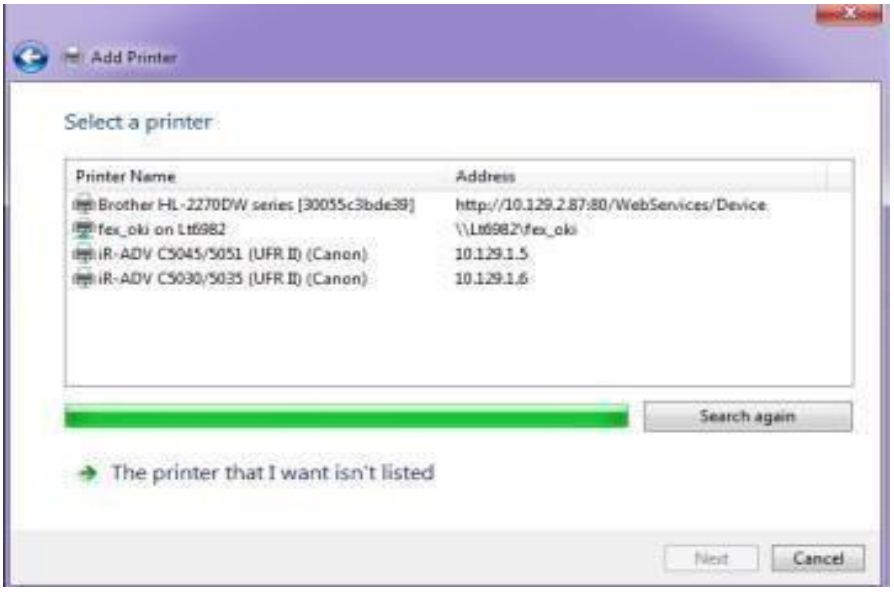
DOT Matrix Printer Installation

- To set up the dot matrix printer 1. From the Start menu, choose Devices and Printers. The Devices and Printers window opens.
- Click Add a Printer. The Add Printer window opens
- Chose Add a network, wireless or Bluetooth printer and Click Next.
- Choose the appropriate printer, and click Next. Note: If you cannot locate the printer, choose the printer that I want isn't listed and search for the printer on your computer.

  A confirmation window opens.
- Click Finish. You return to the Devices and Printers window. Your printer is listed.


Add Printer
You've successfully added FEX_OKI on Lt6982
Set as the default printer
You can choose a default printer for home, work, and other places you go. Set up multiple default printers...
To check if your printer is working properly, or to see troubleshooting information for the printer, print a test page.
Print a test page
Finish
Cancel


Add Printer
What type of printer do you want to install?
Add a local printer
Use this option only if you don't have a USB printer. (Windows automatically installs USB printers when you plug them in.)
Add a network, wireless or Bluetooth printer
Make sure that your computer is connected to the network, or that your Bluetooth or wireless printer is turned on.
Next
Cancel


Add Printer
Select a printer
Printer Name
Address
Brother HL-2270DW series [30055c3bde38]
http://10.129.2.87:80/WebServices/Device
fex_oki on Lt6982
\\Lt6982\fex_oki
iR-ADV C5045/5051 (UFR II) (Canon)
10.129.1.5
iR-ADV C5030/5035 (UFR II) (Canon)
10.129.1.6
Search again
The printer that I want isn't listed
Next
Cancel

Toner Refilling:

- **Safety Precautions**: Always wear gloves and a mask when handling toner, as it can be harmful if inhaled or ingested.
- **Cartridge Removal**: Turn off the printer and allow it to cool down. Then, carefully remove the toner cartridge according to the manufacturer's instructions.
- **Refilling Process**: Use a toner refill kit specifically designed for your printer model. Follow the instructions provided with the kit to refill the cartridge.

Drum Cleaning:

- **What is the Drum?**

  The drum is a cylindrical component that transfers the toner to the paper. It is a light-sensitive component that requires careful handling.
- **Cleaning Procedure**:
  - Turn off the printer and allow it to cool down.
  - Remove the toner cartridge and locate the drum.
  - Use a soft, dry, lint-free cloth to gently wipe the drum surface.
  - Avoid touching the drum with your fingers or using any liquids or chemicals.
  - Reinstall the drum and toner cartridge.

Troubleshooting:

- **Common Issues:**
  - Paper Jams: Check for any obstructions in the paper path and remove them carefully.
  - Print Quality Problems: Check the toner level, drum condition, and printer settings.
  - Error Messages: Consult the printer's manual or the manufacturer's website for troubleshooting steps.
- **Troubleshooting Tips**:
  - Restart the printer and your computer.
  - Check the connections between the printer and your computer.
  - Update the printer drivers.
  - Run the printer's diagnostic tools.

Result:

Thus the laser printer was installed and servicing the printer successfully also refills the Toner.

Ex. No: 4	INSTALL AND CONFIGURE SCANNER, WEBCAM, BIO- METRIC DEVICES
Date:	

AIM

To install and configure scanner, webcam, and bio-matric device with system and trouble shoot the problems.

PROCEDURE

Hardware required

1. Scanner
2. Webcam
3. Bio-matric device
4. Computer system
5. Power cable and data cable

Install a scanner

There are two ways to install a scanner in this version of Windows. This method will choose whether want to connect the scanner directly to computer (called a local scanner), or use a scanner that's shared on a network.

Installing a local scanner

Most scanners contains with a universal serial bus (USB) cable. Some scanners require you to install driver software before connecting the USB cable, so always follow the setup instructions that came with your device.

USB scanner didn't come with specific setup instructions, plug it in computer and Windows should automatically install it. If it's an older model, you might have to install it manually. For instructions, see Working with the Scanner and Camera Installation wizard.

Installing a network scanner

Network scanners are typically found in the workplace. it's helpful to know the scanner model and manufacturer name**.**

1. Open Network by clicking the Start button, and then clicking Control Panel. In the search box, type network, and then, under Network and Sharing Center, click View network computers and devices.
2. Locate the scanner, right-click it, and then click Install.
3. Finish adding the scanner.

Web cam installation

1. Install any software that came with the webcam before plugging in the device. To install the software, load the CD into the CD drive of your computer. The setup process should begin immediately.
2. If the process doesn't begin, go to your Start Menu, click on My Computer, and double-click on the CD icon (typically your "D" drive).
3. Follow the prompts to install the software. If you are missing the included software,
4. Once finished installing the software, or cannot find any software, plug the webcam into an available USB port in computer. The webcam's cable should have a small metal rectangle at the end is called USB cable. Computer or laptop should have a port that matches this rectangle. The ports are usually on the left or right side of a laptop; it can vary for a desktop computer.
5. Find the best spot for webcam. The best spot will depend on the type of webcam the type of computer using and work surface. Best to clip it to the top of your laptop screen.
6. Launch the program or software you wish to use with your webcam. To launch the software that came with your webcam, go to the Start menu, find the software and click on it.
7. Once webcam begins to display video on monitor, now for further adjust the camera to ideal view.

Step 1: Check the USB connection

A USB cable is used to connect a computer to the Webcam and USB ports on the monitor. Check the connection as follows:

1. Turn off the computer and the monitor.
2. Unplug the USB cable between the computer and the monitor from both the computer and the monitor.

3. Turn on the monitor, and then turn on the computer.
4. Using the Windows Start button, shut down and turn off the computer.
5. Connect the USB Type A connector on the USB cable to an open USB 2.0 Type A port on the computer. Connect the USB Type B connector on the USB cable to the only available USB 2.0 Type B port on the monitor.
6. Turn on the monitor, and then turn on the computer.

Step 2: Check the software settings

Use the following steps to check the webcam software settings.

1. Make sure the software you are using to view webcam video can use a webcam. For testing purposes, install and use the software that came with the webcam and monitor. If you do not have webcam software, use Windows Live Messenger for testing.
2. In the webcam software settings, select HP Webcam, CyberLink YouCam device, or USB Video Device as the input or source video device.
3. For example, in CyberLink YouCam with Windows Vista, select HP Webcam in the Capture Device list under the capture settings.
4. View the webcam video in the software.
5. If video does not display or you are cannot select HP Webcam, the CyberLink YouCam device, or the USB Video Device, continue to the next step.
6. Unplug all USB devices attached to the monitor. If the device is a mouse or keyboard, temporarily attach the mouse or keyboard to an open USB port on the computer.

Biometric Fingerprint

Biometric Fingerprint Reader plug-in allows for fast identification and secure verification capabilities that enable the FileMaker Pro scripts to recognize individual users without requiring passwords or card swipes. This technology can be used to recognize and authenticate individuals based on who they are, instead of what they know (passwords or PINs) or what they possess (keys or swipe cards). This can be used in a variety of ways - from sign-on and confirmation of important actions to special approvals by other users - to help combat fraud and boost customer efficiency.

Troubleshooting

- **Restart Your Computer:** Sometimes a simple restart can resolve driver conflicts or other software issues.
- **Check Device Connections:** Ensure all cables are securely connected.
- **Update Drivers:** Make sure you have the latest drivers installed for your devices.
- **Check Device Manager:** In Windows, Device Manager can help you identify driver problems or device conflicts.

Specific Issues

- **Scanner:**
    - **Poor Image Quality:** Adjust the scanner's resolution and settings.
    - **Scanner Not Detected:** Check the connection, restart your computer, or reinstall the drivers.
- **Webcam:**
    - **No Image:** Check the connection, ensure the webcam is not disabled in software settings, or reinstall the drivers.
    - **Poor Video Quality:** Adjust the webcam's resolution and lighting.
- **Biometric Device:**
    - **Device Not Recognized:** Check the connection, reinstall the drivers and software, or try a different USB port.
    - **Enrollment Issues:** Ensure the biometric data is being captured correctly (e.g., clean fingerprint, proper lighting for facial scan).

Result

From the above exercise we have learnt that how to install and configure scanner, webcam, and biometrics devices with system was installed and verified successfully

Ex. No: 5	NETWORK CABLE CRIMPING AND TESTING
Date:	

AIM

To study about the cables, need of cable crimping in network and the requirements of the cable crimping.

1. Cable Crimping
2. Standard Cabling
3. Cross Cabling
4. Testing the crimped cable using a cable tester

PROCEDURE

Cable:

Cable is the medium through which information usually moves from one network device to another. The following are the two types of cables that can be used for network connection establishment through a straight cable or crossover cable.

1. Unshielded Twisted Pair (UTP) Cable

2. Shielded Twisted Pair (STP) Cable

Unshielded Twisted PairCable:

Unshielded twisted pair is the most common kind of copper telephone wiring. Twisted pair is the ordinary copper wire that connects home and many business computers to the telephone company.

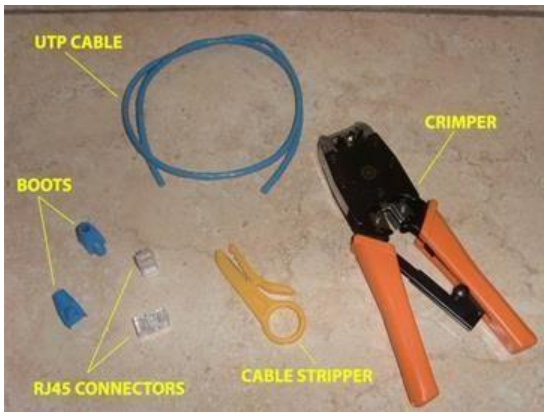
Shielded Twisted PairCable:

Shielded twisted pair is a special kind of copper telephone wiring used in some business installations. Another covering or shield is added to the ordinary twisted pair telephone wires; the shield functions as a ground.

Cable Crimping:

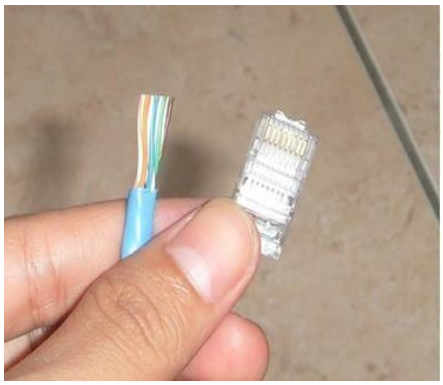
You will need the following tools and supplies to build your own Ethernet cables:

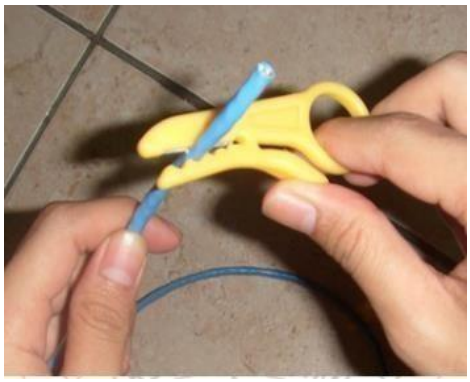
1. UTP cable (Category5orbetter)
2. RJ-45 connectors
3. Wire stripper
4. RJ-45 crimping tool



Follow these steps for creating your own twisted-pair cables:

1. Determine how long your UTP cable should be. You'll want to allow adequate slack for moving the computer and for avoiding strong interference sources. Keep the maximum distances for UTP cables listed later in this chapter in mind.
2. Roll out the appropriate length of cable.
3. Cut the cable cleanly from the box of wire.
4. Use the **wire stripper** to strip the insulation jacket off the cable to expose theUTP wires.
5. Check the outer jacket and inner UTP wires for nicks; adjust the stripper tool and repeat steps3 and 4 if you see damage.
6. Arrange the wires according tothe EIA 568B standard listed earlier in"EIA/TIA568BUTPStandard"
7. Trim the wire edges so the eight wires are even with one another and are slightly less than ½ inch past the end of the jacket. If the wires are too long, cross talk (wire-to-wire interference) can result; if the wires are too short, they cannot make a good connection with the RJ-45 plug.





8. With the clip side of the RJ-45 plug facing away from you, push the cable into place. Verify that the wires are arranged according to the EIA/TIA568B standard before you crimp the plug onto the wires. Adjust the connection as needed.

9. Use the crimping tool to squeeze the RJ-45 plug on to the cable. The end of the cable should be tight enough to resist being removed by hand.
10. Repeat steps4-9 for the other end of the cable.
11. Label each cable with the following information:
    a. Wiring standard
    b. Length
    c. End with cross over(if any)
    d. _____(blank)for computer ID

b)Standard Cabling

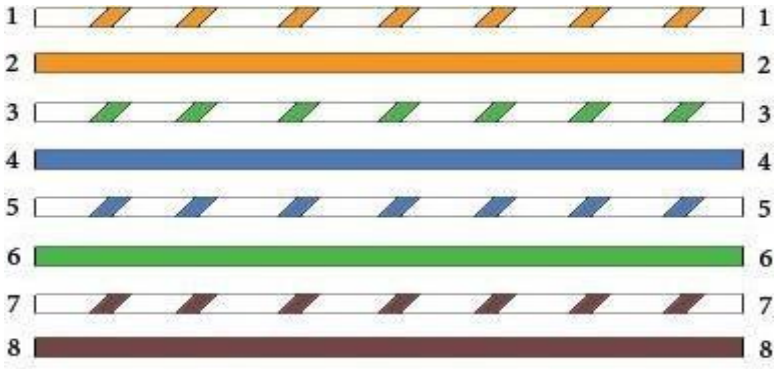
1. Start with an approximately 1-meter length of CAT5UTP cable.
2. Using wire strippers, remove about 3cm of the outer insulating jacket attach end of the cable.
3. Separate each pair of wires and put them in the correct order of sequence according to the EIA/TIA specification.

END A	Cable	END B
Pin	Wire Colour	Pin
1	Orange-White	1
2	Orange	2
3	Green-White	3
4	Blue	4
5	Blue-White	5
6	Green	6
7	Brown-White	7
8	Brown	8

4. Trim the wires to about 1.5cm from the outer insulating jacket.
5. With the hook side of the RJ45 connector facing down, slide the wires all the way into

the connector. Push the outer insulating jacket into the connector just past the first crimping point.

6. Place the RJ45 connector into the crimping tool. Firmly pull the handle of the tool until the wires are crimped into place.
7. The connector should crimped the wires tightly, and the connector should bind the outer jacket.
8. To make a complete cable, repeat the steps above and add a connector to the other end of the cable.
9. The following figure can be representing the straight cabling.

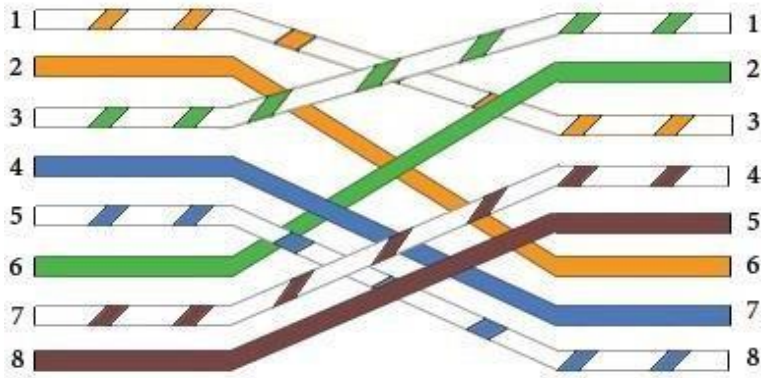


c)Cross Cabling

1. Start with an approximately 2-meter length of CAT5UTP cable.
2. Using wire strippers, remove about 3cm of the outer insulating jacket atach end of the cable.
3. Separate each pair of wires on one end and put them in the correct order of sequence according to the EIA/TIA specification as shown in following table.
4. Snip the wires to about 1.5cm from the outer insulating jacket.
5. With the hook side of the RJ45 connector facing down, slide the wires all the way into the connector. Push the outer insulating jacket into the connector just past the first crimping point.

EndA		**Cable**	**EndB**	
Pin	**Name**	**WireColor**	**Pin**	**Name**
1	TX+	Orange-white	3	RX+
2	TX-	orange	6	RX-
3	RX+	green-white	1	TX+
4	Terminatio	blue	4	Terminatio
5	Terminatio	blue-white	5	Terminatio
6	RX-	green	2	TX-
7	Terminatio	brown-	7	Terminatio
8	Terminatio	brown	8	Terminatio

6. Place the RJ45 connector into the crimping tool. Firmly pull the handle of the tool until the wires are crimped into place.
7. Each of the wires should be crimped tightly by the connector, and the outer jacket should be bound by the connector.
8. On the end of the cable, separate the wires and arrange them according to theEIA/TIA specification.
9. The following figure can be representing the cross over cabling method



d) Testing the crimped cable using a cable tester

- **Crimped Cable:** The cable you've just crimped with RJ45 connectors on both ends.
- **Cable Tester:** A device designed to check the continuity and wiring of network cables. There are various types, from basic to more advanced ones.

  Types of Cable Testers
- **Basic Continuity Testers:** These are simple devices with LEDs that light up to indicate if each pin is connected correctly.
- **Advanced Cable Testers:** These offer more features like identifying specific wiring issues (e.g., shorts, opens, crossed wires), and some can even test cable length and signal quality.

Testing Procedure

1. **Connect the Cable:** Plug one end of the crimped cable into the main unit of the cable tester and the other end into the remote unit (if your tester has one).
2. **Turn on the Tester:** Power on the cable tester.
3. **Observe the Indicators:**
    - **Basic Tester:** The LEDs on both units should light up in a specific sequence, usually 1-1, 2-2, 3-3, and so on, indicating that each corresponding pin is connected correctly.
    - **Advanced Tester:** The display will show more detailed information about the cable's wiring and any potential issues.

Interpreting the Results

- **Pass:** If all LEDs light up in the correct sequence (on a basic tester) or the advanced tester shows no errors, your cable is crimped correctly and ready to use.
- **Fail:** If some LEDs don't light up, light up in the wrong order, or the advanced tester reports errors, there's a problem with the crimp. Common issues include:
    - **Open Circuit:** A wire is not making contact with the connector pin.
    - **Short Circuit:** Two or more wires are connected together.
    - **Crossed Wires:** Wires are connected to the wrong pins.
    - **Split Pairs:** Wires within a pair are separated.

Troubleshooting

If your cable fails the test, here's what you can do:

1. **Re-crimp the Connectors:** Cut off the connectors and re-crimp them, ensuring the wires are in the correct order and fully inserted into the connector before crimping.
2. **Check Your Tools:** Make sure your crimping tool is in good condition and crimping the connectors properly.
3. **Inspect the Cable:** Check the cable for any damage or breaks.

   Tips for Successful Crimping

    - **Use the Correct Wiring Standard:** Use either T568A or T568B consistently for both ends of the cable.
    - **Strip the Cable Carefully:** Avoid nicking or cutting the individual wires when stripping the cable jacket.
    - **Maintain Wire Order:** Keep the wires in the correct order throughout the process.
    - **Insert Wires Fully:** Ensure all wires are fully inserted into the connector before crimping.

Result

Thus the above exercise we have learnt about the cables, need of cable crimping in network and the requirements of the cable crimping and verified successfully.

Ex. No: 6	CONFIGURING HOST IP, SUBNET MASK AND DEFAULT GATEWAY IN A SYSTEM IN LAN
Date:	

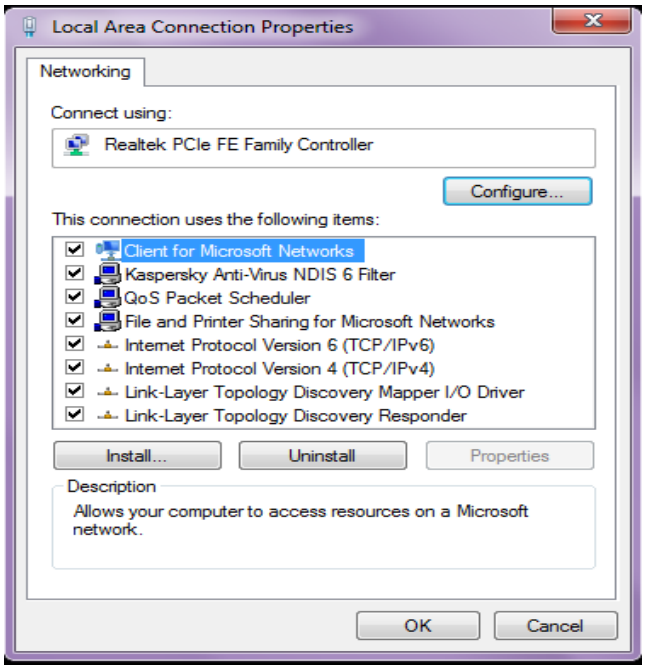
AIM

To configure host IP, subnet, mask, and default gateway in a system in LAN (TCP/IP). Configure the internet and use IP config, PING, tracert utilities to debug network issues.

PROCEDURE

Host configuration:

Each host machine on your network must be configured to function according to needs of end user and the network as whole. For each host on a network, you must configure the network, interface, set the internet address and set host name. You also must set the static routers to gateways or others hosts.

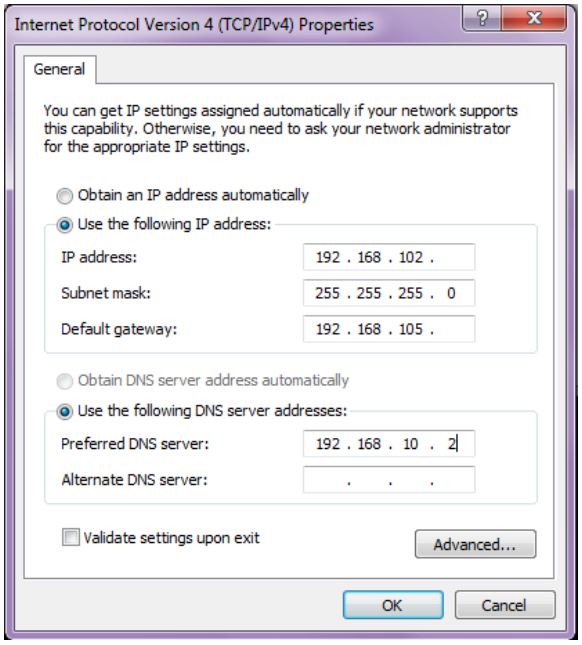


Gateway configuration:

If your network is going to communicate with others networks, you will need to configure at least one gateway host.

Subnet mask:

The second item, which is required for TCP/IP is subnet mask. In TCP/IP, the parts of the IP address that are used as the network and host address are not fixed, so the network and host address above cannot be determined unless have more information. For example; 255.255.255.0 is address of subnet mask.



Internet connection:

Once you have type of network you want hardware, there are four steps need to take.

- Install any hardware
- Setup an internet connection
- Connect the computer
- Run the setup wizard

IPconfig command:

Configure IP (internet protocol configuration)

Syntax:

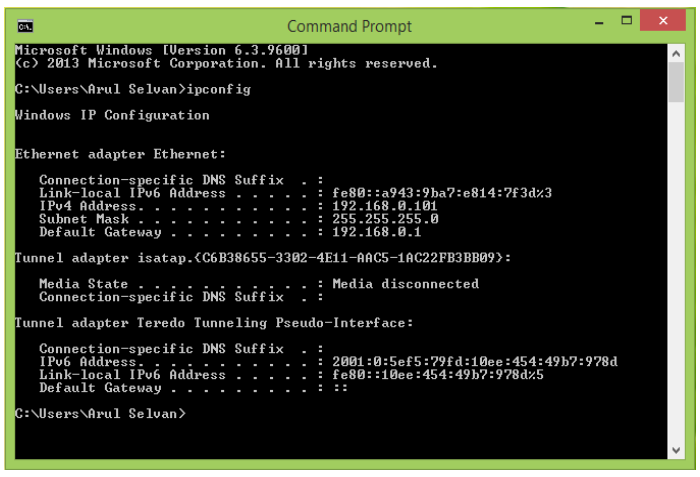
IPCONFIG/all (display full configuration)

IPCONFIG/release (release IP address for adapter)

IPCONFIG/renew (adapter) renew IP address

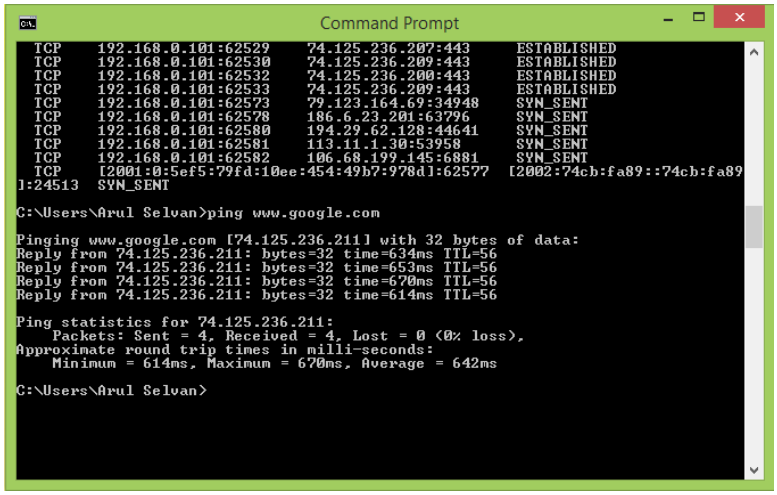
IPCONFIG/flush as pyres the DNS resolves cache

IPCONFIG/show class D adapter



PING:

PING is a computer network administration utility used to test the reach ability of host on a IP and to measure the round-trip send from the host to a computer. If the process it measure time from transmission to reception and records any packets. Depending upon the implementation, the ping command can be run with various command line switches to enable special operation modes.



TRACERT:

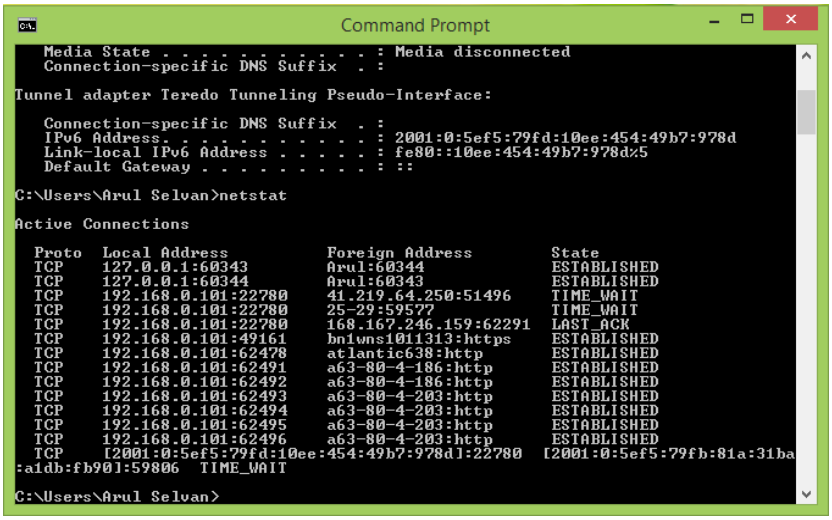
Tracert is a network diagnostics tool for displaying the route and measure that transit delays of packets across the IP . Trace route proceed unless all sent packets are lost more than twice, then the connection is lost and rout cannot be evolved. The trace route command is available on a number of modern operating system.

NETSTAT:

It is Used without parameter, netstat display active TCP CONNECTION.

Syntax:

Netstat [-a][-e][-h][-d][-p][-r][-s]



RESULT:

From this program we have learn to configure host IP, subnet mask, default gateway, configure internet connection, ipconfig, netstat, Tracert. Thus, above program was executed successfully.

Ex. No: 7	INSTALL AND CONFIGURE WIRELESS NIC & SWITCH, HUB AND ROUTER
Date:	

AIM

To install and configure a network interface card in a Local Area Network and wireless NIC

HARDWARE REQUIREMENT

- Wireless Adapter
- Wireless Router
- Resource CD (Router)

PROCEDURE

1. Installing NIC.

a. Shout down the PC and remove the power cable from the cabinet.

b. Remove the outer cover of the cabinet.

c. Insert the NIC firmly to seat in the respective slot in completely.

d. Screw the card and fit the cabinet and screw it.

e. Plug the power supply

f. Insert the network cable with the RJ45 connector into a respective port.

g. Power on the computer and entering into the administrator desktop.

h. Select Add Hardware from the control panel.

i. And do the steps as follows in the add hardware wizard.

1.Assigning IP address

a. Click on Start menu.

b. Now go to Control Panel.

c. From the control Panel, go to Network Connections.

d. From the Network Connections window, you will see Local Area Connection. Double click on that icon or click right mouse and go to the properties. Now, you will click the Properties from the Local Area Connection Status Window.

e. After clicking Properties options, another Local Area Connection Properties window will be opened. From the Local Area Connection Properties window selects Internet Protocol (TCP/IP) and double clicks on it.

f. After double clicking, you will find Internet Protocol (TCP/IP) Properties.

g. Now, select Use the following IP address and put the IP address, Subnet mask. For example, my PC is connected to my campus LAN. The IP may be 192.168.10.10, Subnet mask may be 255.255.255.0.

h. At last, click on OK and finished configuring the IP address.

2.Setting up Workgroup and Computer name

a. Select Properties from the right click of my computer on the Desktop.

b. From the system properties window select Computer name tab and click Change command button.

c. Now the Computer name changes window will be opened and select Workgroup option from the "Member of". And give the computer name into the respective text box.

d. Click Ok and the message box will show containing the text as Welcome to the Workgroup and click ok.

e. Now the system will demand to restart your computer.

3.To transfer a file between two systems using wireless communication.

a. Insert the wireless adapter into the USB port on both systems.

b. Give the power supply for wireless router.

c. Now the wireless adapter requires the driver from the user.

d. Now you must restart your system.

e. Create the workgroup and IP address as per the procedure.

f. Open Wireless Network Connection Properties from the Network connection window.

g. Choose Wireless Networks tab and check the option as Use Windows to configure my wireless network settings then click Ok.

h. Now you can access your remote computer with the help of wireless network.

4.Configure or Interface with Router, HUB and Switch

a. Power on your computer. Remove contents from package if you have not done so already. Locate the installation poster, a CD and any instructions.

b. Place the router installation CD into your computer tray and start it up. Do not power on or connect the router to your computer at this point.

c. Follow the directions from the router CD that are displayed on your computer screen. This may include typing in a series of numbers in your web browser address bar that look like: http://192.168.1.1 (depending on the router manufacturer).

d. Click the "next" button on the bottom when prompted as you complete the steps.

e. Connect the router to your modem and computer with the appropriate cables and power it on at the appropriate step (not before).

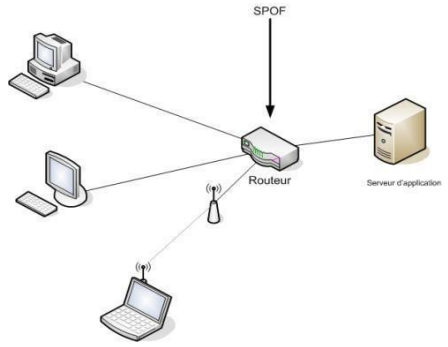
f. The one from the computer (usually a color) goes into your networking jack in the back of your computer and the other (grey/white) goes into your router in any of the jacks numbered 1-4. The color does not matter; it just keeps you from getting the connections confused. If you need a diagram or further assistance, look at the poster that came with your router.

g. Follow any additional steps the on the install screens. And, test the router to ensure it can access the Internet. This is the most important installation step.

h. Set up the security as needed and print out the security key page and store in a safe place. Take note of any passwords or settings you place on the router as well. This can include WEP or WPA key. You may wish to print out this information for the router and keep in a safe place.

i. Remove the router install CD from the drive once you have completed all the steps. Leave the router powered on and attempt to access the Internet from your notebook computer or other computers on your network. Double-click Internet Explorer to get online.

j. Restart the computer if prompted. Be sure all the lights are on your router when it starts back up and you are able to access the Internet. If this functions properly, your router is installed properly.



RESULT:

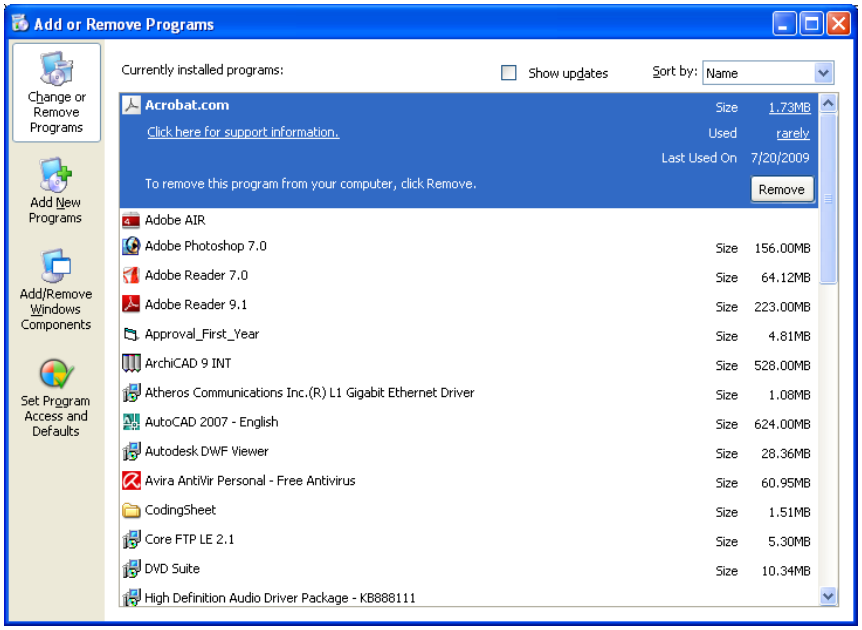
Thus to configure a router to connect two different networks and transfer files between them was successfully executed and verified.

Ex. No: 8	FILE SHARING USING FTP CONFIGURATION
Date:	

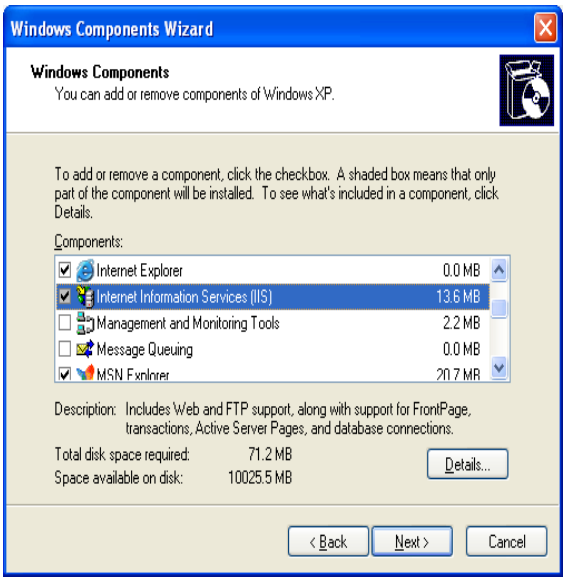
To transfer the files between systems in LAN using FTP Configuration

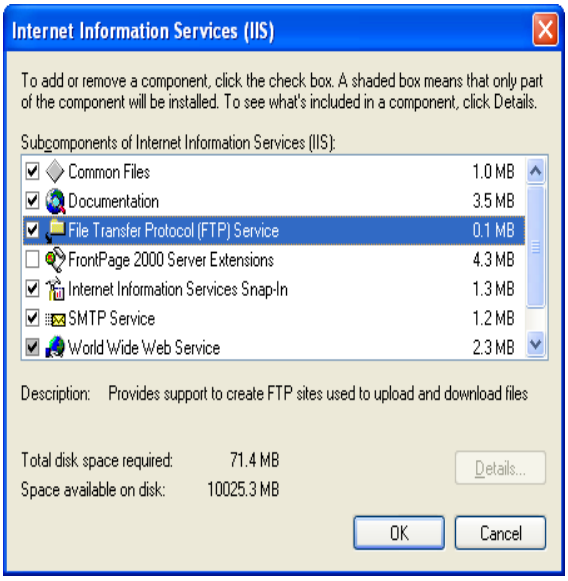
AIM

1. To install FTP in windows go to control panel and select add or remove programs and select add/remove windows components.



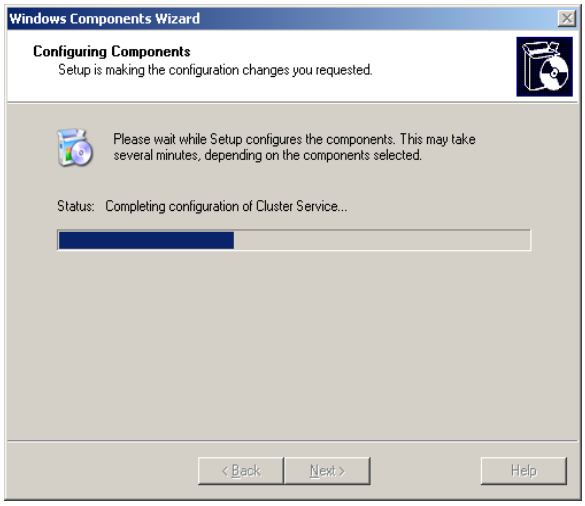
2. Select Internet Information services (IIS) or Application Server in Windows server 2003 OS. Click details.
3. Select File Transfer Protocol (FTP) Services click OK.



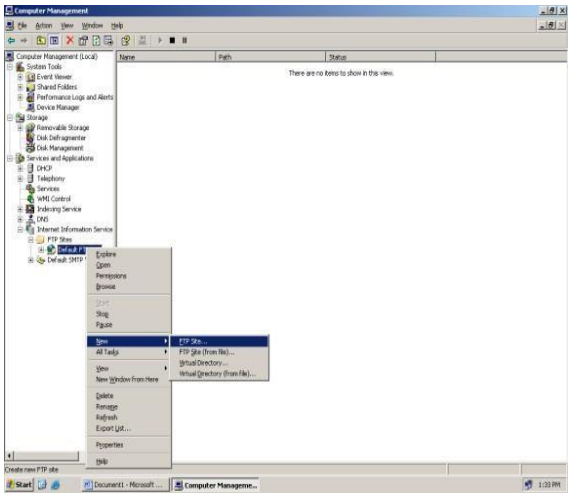


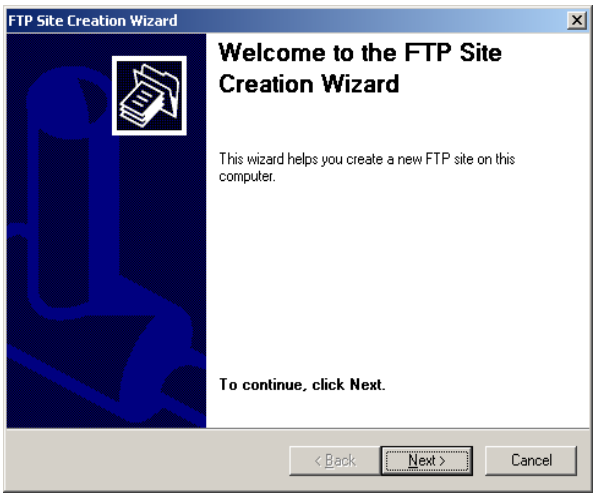
4. Insert windows OS CD to configure FTP protocol and copy the files into system.

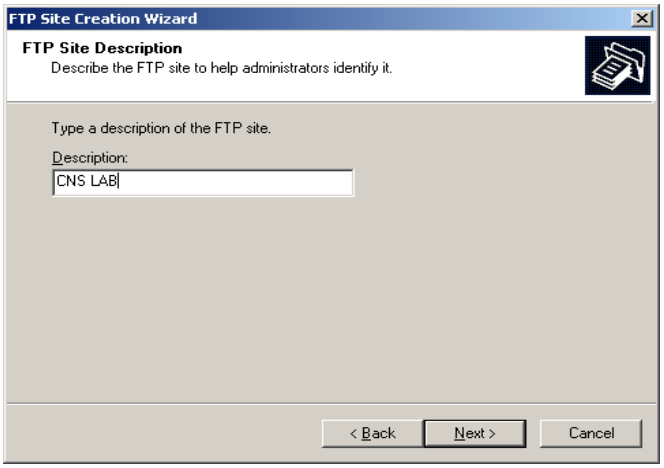
5. Click finish to complete the installation of FTP.



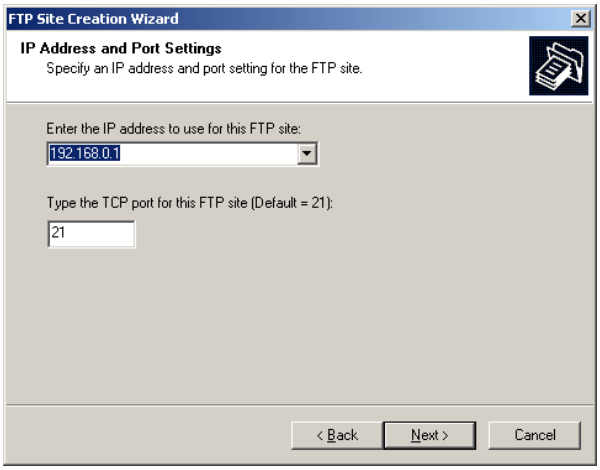
6. To Create FTP site.. Go to Computer management in administrative tools. Select FTP Site in IIS. Right click default FTP site go to new option and select FTP site.
7. Click next to continue to create New FTP site.
8. Type a Description of the FTP Site as CNS LAB. Click next.



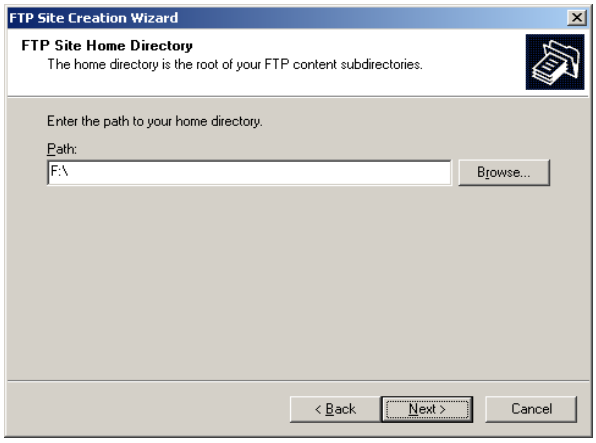




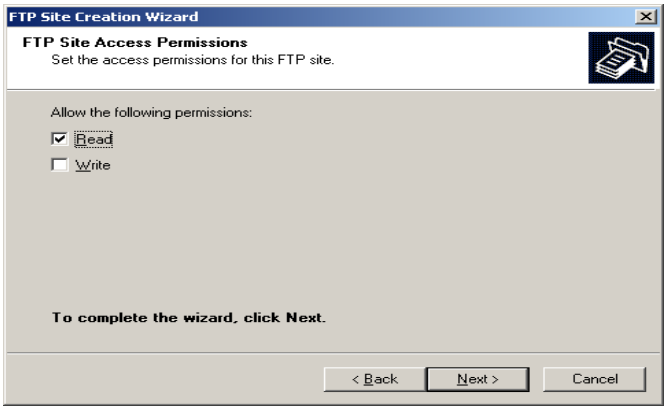
9.Enter the IP address Port Address to use for this FTP site. (Ex. 192.168.0.1 21)



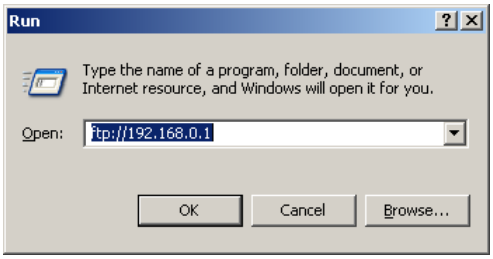
10. Select the path you want to share the files between two systems. Click next (Ex.F: \ Folder name \...)



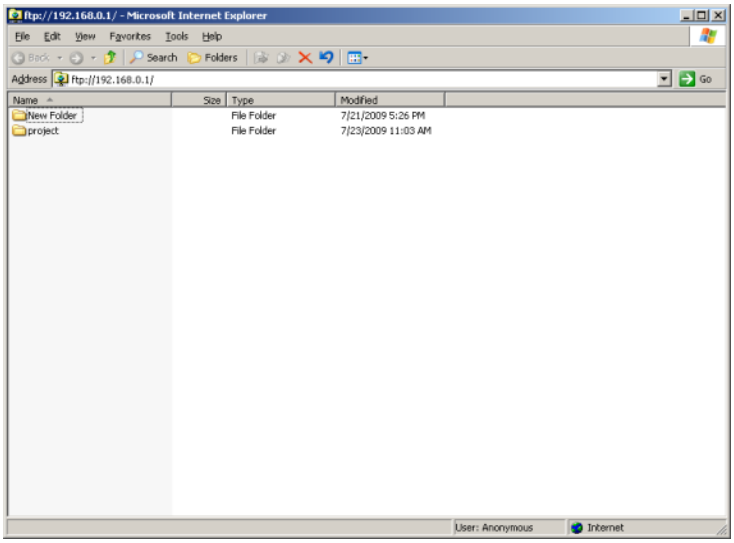
11. Select the permission to the user weather read or writes. Click next. then click finish to complete FTP site Creation.



12. Go to run and type ftp://192.168.0.1 to transfer the FTP files.



13. Here the transferred files are shown.



14. Similarly do the above steps in another system to transfer the files using FTP.

File Sharing in Server:

1. In windows server 2003 the default share folder is available. The folder name issysvol.

2. This sysvol folder is available in the location of c:\windows\sysvol.

3. You can use this folder as a sharing point for the files. That means you willcopy and paste the file or folder in this folder and use in the other client systems using My Network Places from the Start menu.

4. In other hand we can also use the following method for file sharing,

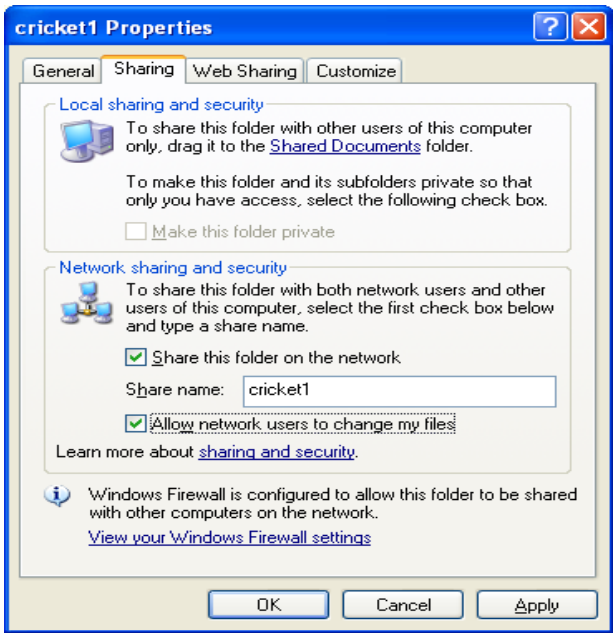
a. right click the folder whatever you want to share on a network.

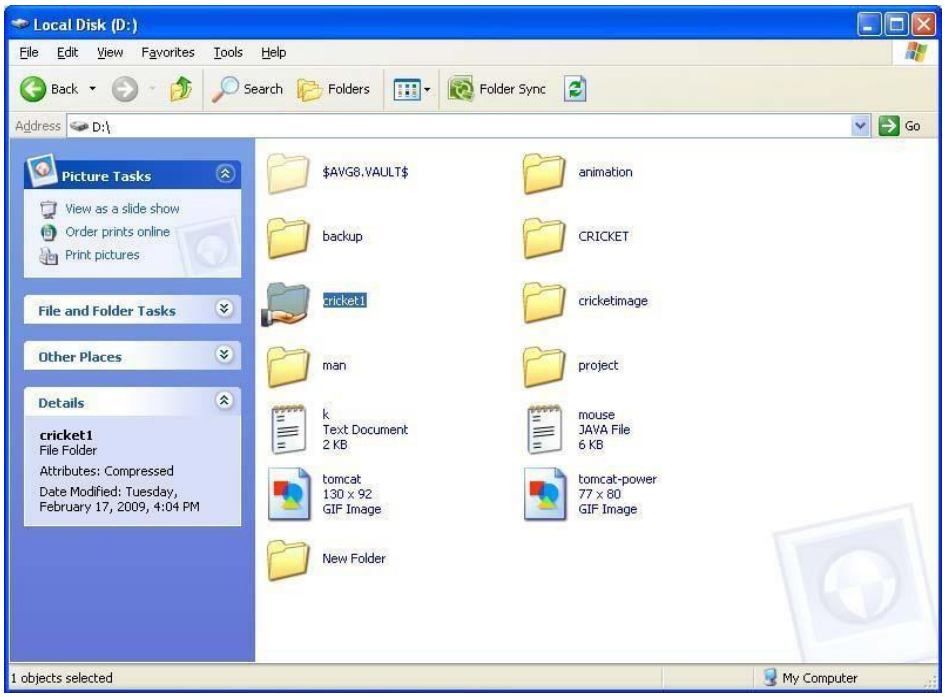
b. Select properties from the context menu.

c. Select sharing tab from the folder property window.

d. Check share this folder on network under network sharing and security option and give the share name if you are needed.

e. Click ok and the folder will be appeared with the shared hand symbol.





RESULT:

Thus the file was shared in a local area network**,** Install FTP in LAN and share the file in a Network was successfully executed and verified.

Ex. No: 9	INSTALLATION OF WINDOWS 2008/2012 SERVER
Date:	

AIM

To Install Windows 2008/2012 Server operating system in Server Machine

PROCEDURE

Server 2003\2008 Installation

The first major task in getting the software onto a system is to make the server ready for the process. Generally, these are the issues you must resolve before traveling into the Windows

Server 2003 installation process:

Ensure that all hardware is HCL compatible.

Although it's possible to install Windows 2008\2012 on a system with some components not on the HCL, it's not always easy. In short, if it's not HCL compatible, you don't want to keep it in your system.

1. **Install the NIC in the server.**

   Fortunately, Windows 2008\2012 supports Plug and Play, so most card changes can be made on the fly - unless you have a card so old it still uses dual in-line package (DIP) switches or jumpers.

2. **If you need an internal modem and want to connect the server to external sources such as the Internet, install the modem.**

3. **Windows 2008**\2012 **Setup: A walkthrough**

   The following steps detail the Windows 2008\2012 installation process from a bootable CD-ROM drive. Throughout this installation, we accept the default options. Ready, set, here are the steps:

1. **Insert the Windows Server 2008\2012 CD-ROM into the CD-ROM drive and boot the computer. If prompted to press a key to boot from the CD, do so.**

   A gray GUI screen appears that lists the five main installation processes: Collecting information, Dynamic Update, Preparing installation, Installing Windows, and Finalizing installation. In addition, the Windows Setup Wizard starts automatically.

2.Choose the default installation type, which is New Installation (Advanced), and click next.

The License Agreement screen appears.

Warning: Use caution when working through the GUI wizard. Often, after you click the Next button to continue, the system takes several seconds (sometimes up to a minute) to change the display. Do *not*

try to click the Next button again - even if you suspect that you missed the button by accident. If you click the Next button twice, you skip screens and the Back button does not always work; in some places the Back button is grayed. If you wait two to five minutes and the system doesn't change the display, try clicking Next again.

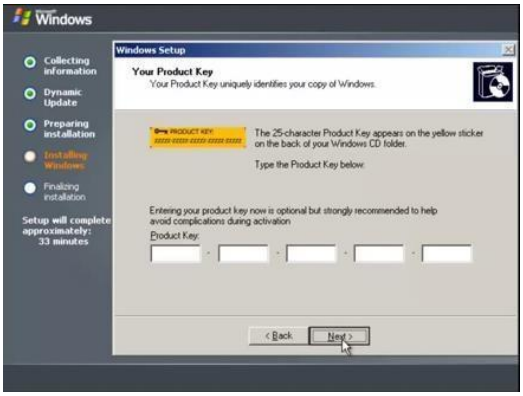
3.Read the license agreement, click I Accept this Agreement option, and then click next.

The Your Product Key screen appears.

4.Enter the 25-character product key and click next.

The Setup Options screen appears, which allows you to choose installation and accessibility options, as well as set the language and region.

5. Use the default options for copying and installing files. If you require special accessibility features during installation, such as Magnifier or Narrator, click the Accessibility Options button and make your selections. If the default language/region is incorrect, make a new selection from the drop-down list. Click Next to continue.



6. If you have Internet Access, click the Yes, Download the Updated Setup Files option and then click Next. If you don't have Internet access, click the No, Skip this Step and Continue Installing Windows option and then click Next. If you chose Yes, Dynamic Update downloads updated installation files. Setup copies the installation files and restarts your computer in text mode. **Eventually, the Windows Server 2003 Setup routine prompts you with the following:**

- Welcome to Setup. This portion of the Setup program prepares Microsoft (R) Windows 2008 (TM) to run on your computer.
- To set up Windows now. press ENTER.
- To repair a Windows installation using Recovery Console, press R.
- To quit Setup without installing Windows, press F3.

7. Press Enter to continue.

Setup prompts you to select the drive and partition where Windows Server 2008 will be installed.

8. Use the arrow keys to select a partition hosted by a physical hard drive and then do the following:

If you want to use all the free space on a drive for the Windows 2008 boot partition, press Enter after selecting the location. If you want to use only a portion of the free space on a drive for the Windows 2003\2008 boot partition, press C. Next, you're prompted for the size of the partition to create. Type a value between one and the maximum space available on the drive and then press Enter.

The newly created partition appears on the list of drives and partitions as "New (Unformatted)." Select this new partition and press Enter.If you need to delete existing partitions, select the partition and then press D.You're prompted to confirm partition deletion by pressing L. After you press L, the partition is destroyed.

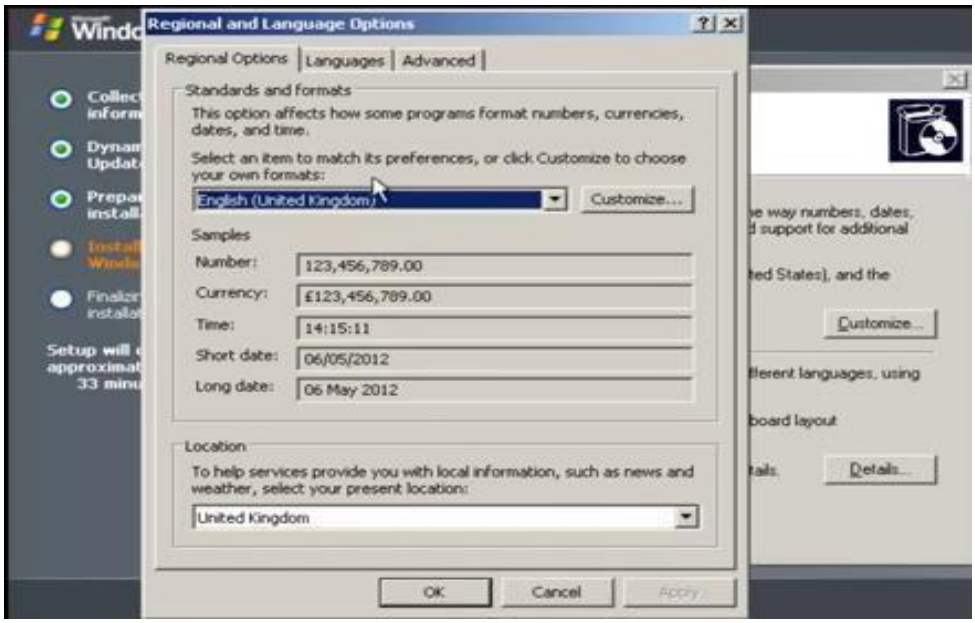
Usually, you want to select the first drive on the system and the first free partition for the Windows 2008\2012 boot drive. Also, you should create a partition of at least 1.5GB to host Windows 2003 (but we recommend at least 4GB).

When Setup asks for the file system with which you want to format the selected partition, select NTFS and then press Enter.Setup spends a considerable amount of time formatting the drive, especially if the partition is large.

10. When you see a message stating that the system will be rebooted, you can press Enter to immediately reboot or wait 15 seconds for the setup process to reboot automatically.

Be sure there are no floppies in the drive. Also, do not press a key to boot to the CD. If your CD boots automatically instead of requiring a keypress to initiate a CD boot, eject the CD before the reboot. After the reboot, Windows 2008 Setup re-enters the GUI mode. Setup scans your computer for devices and installs drivers appropriately.

11. When the Regional and Language Options wizard screen appears, accept the defaults and click next if you're in the United States. If you live elsewhere, make the necessary changes using the Customize or Details button and then click Next



12. When Setup prompts you for your name as well as your organization's name, type the necessary information and then click Next.

If you're using the server for personal use, you can leave the organization's name blank.

13. When Setup prompts you for your name as well as your organization's name, type the necessary information and then click Next.

Check your purchase order to verify which license you purchased before marking this selection. Per device or per-user licensing is typically used on enterprise networks and per-server licensing on small networks. You can change from per-server licensing to per-device or per-user licensing only once, so you must consider this installation option carefully before continuing.

14. When Setup prompts you for a computer name and the administrative user account password, type them and then click Next.

15. If Setup prompts you for dialling information, type the correct dialing information and then click Next.

Setup prompts you for dialling information if it detected a modem in your computer. In most cases, you need to provide only an area code.

16. Enter the correct date, time, and time zone information according to your present location, and then click Next.

Setup proceeds to load drivers for the detected network components.

17. Decide whether you want to accept the default settings or customize the settings for your network.

The typical settings set TCP/IP to use DHCP, a dynamic configuration service. If your network offers this service and this system is required to employ it, use the default settings.

If you need to specify an IP address, subnet mask, and default gateway, choose the custom settings.

18. If you're customizing the settings, do the following:

a. Choose the Custom Settings option and then click Next.

Setup displays the name of the detected NIC and lists several installed-by-default network services: Client for Microsoft Networks, Network Load Balancing, File and Printer Sharing for Microsoft Networks, and Internet Protocol (TCP/IP).

b. Select Internet Protocol (TCP/IP), and then click the Properties button.

The Internet Protocol (TCP/IP) Properties dialog box appears.

c. Click the Use the Following IP Address option.

d. Type the IP address, subnet mask, and default gateway.

e. Click OK.

19. If you're using the default settings, do the following:

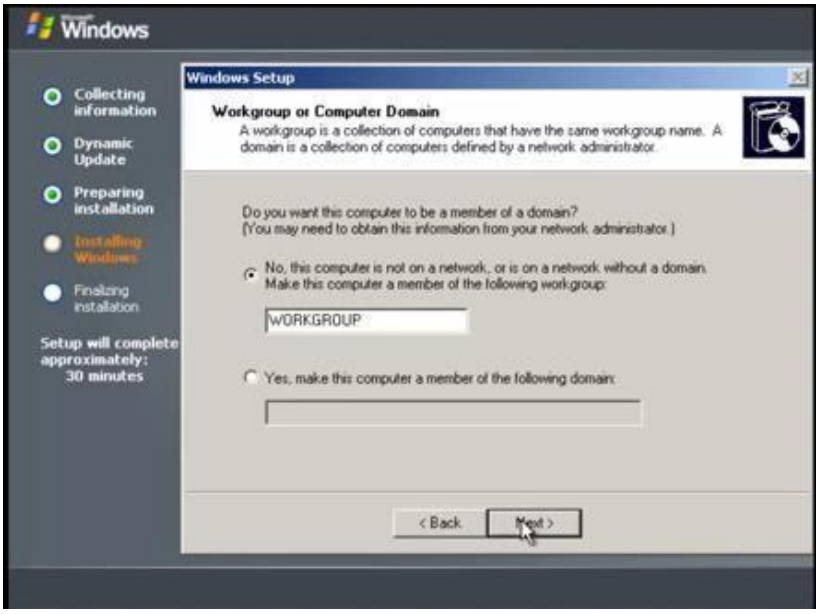
a. Choose the Typical Settings option.

b. Click Next.

Setup prompts you for the name of the workgroup or domain that this system will join.

20. when asked whether your computer will be part of a domain, do one of the following:

If the system will be joining a workgroup, click the No option, type a workgroupname (the default is WORKGROUP), and then click Next.If the system will be joining a domain, click the Yes option, type the name, andthen click Next. Type the administrator-level user account and password (if needed) and then click OK.



21. Press Ctrl+Alt+Del to display the Log On to Windows dialog box.

Type your password for the Administrator account, and then click OK to log on.After several moments, the Windows Server 2008\2012 desktop appears - a sure sign that you'vesuccessfully installed Windows Server 2008****2012.

RESULT:

From the above exercise we have learn how to install the windows 2008/2012.

Ex. No: 10	INSTALLING AND CONFIGURING DHCP SERVER
Date:	

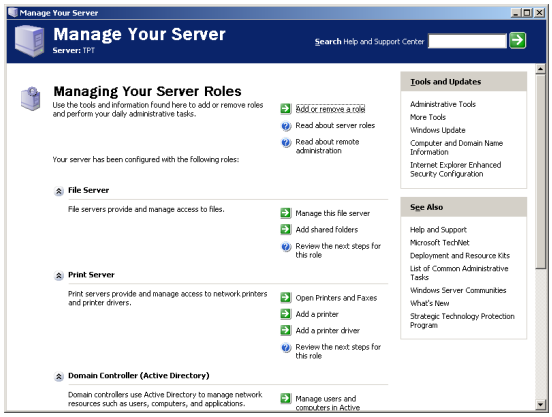
AIM

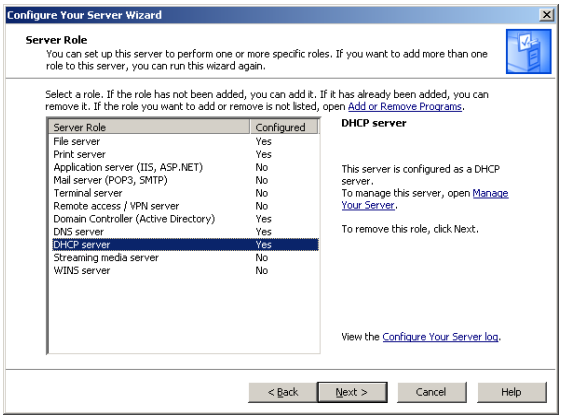
To install a DHCP server in windows with IP Address ranging from 192.168.1.1 to 192.168.1.100 and configuring DHCP server

PROCEDURE

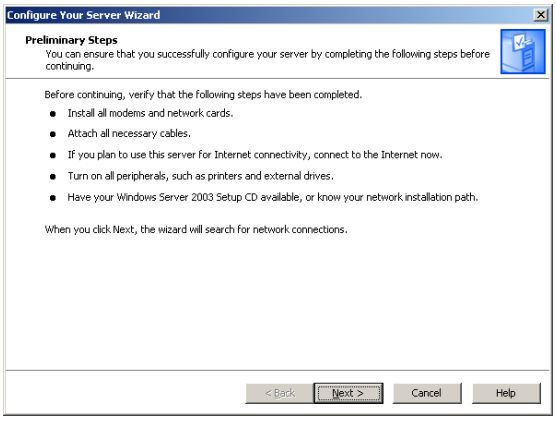
1. Go to Start->Programs->Administrative Tools->Manage Your Server once it opens you should see similar to the following screen here Click on Add or remove a role

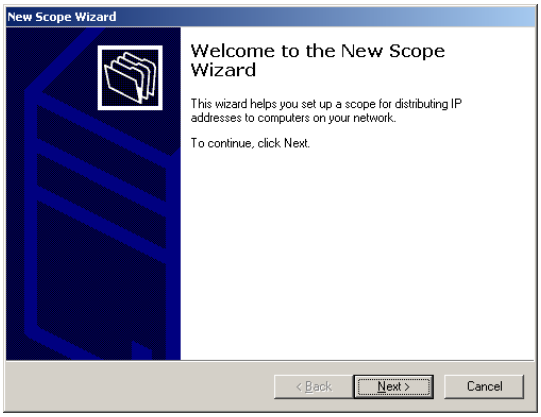
2. This will start the Configure Your Server Wizard. Read the text and make sure you have connected all the necessary cables and all the other things it says you should do before continuing. Click on Next



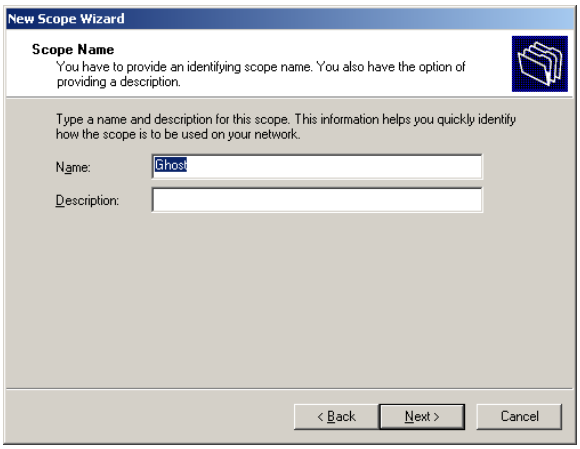


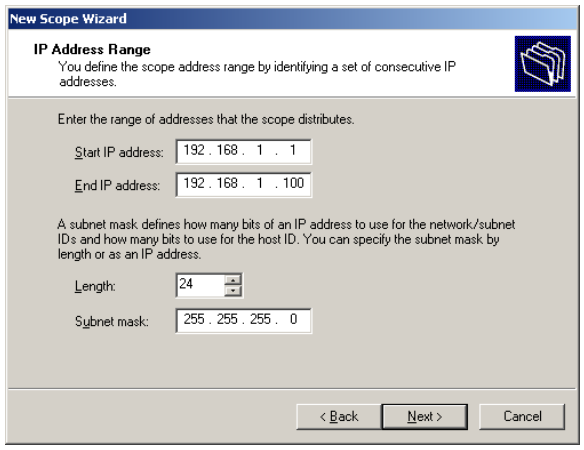
3. We now come to the step where we add and remove roles for our server. Select DHCP Server. click Next
4. Next step goes to New Scope Wizard. In this wizard we set up a scope of distributing IP addresses to computers on your network. To continue, click next.



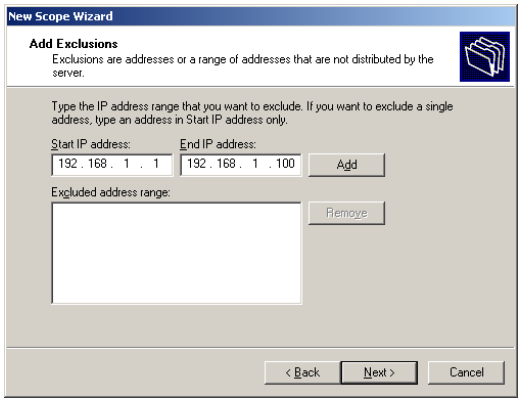


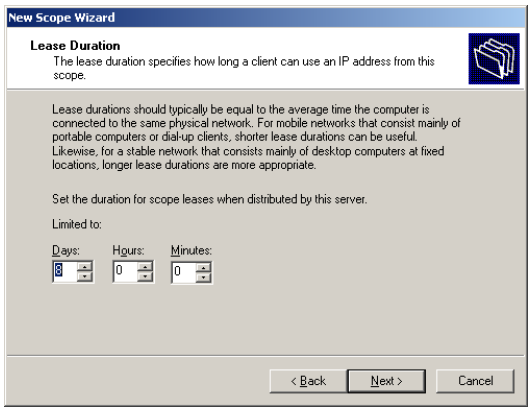
5. Now we specify the scope name and description. click next
6. Enter the IP Address range that the scope distributes. Here we put start IP address is 192.168.1.1 and end IP address is 192.168.1.100. And also provide length of the IP address and subnet mask address. Click next.



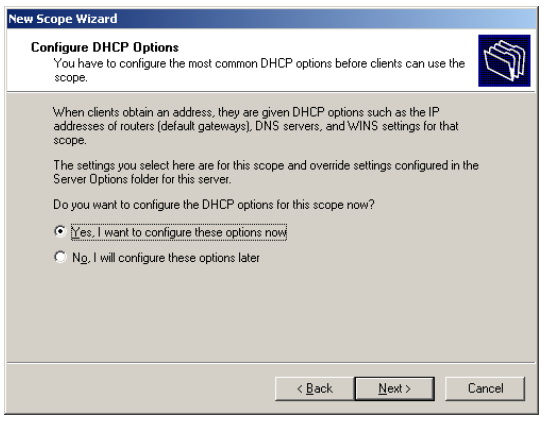


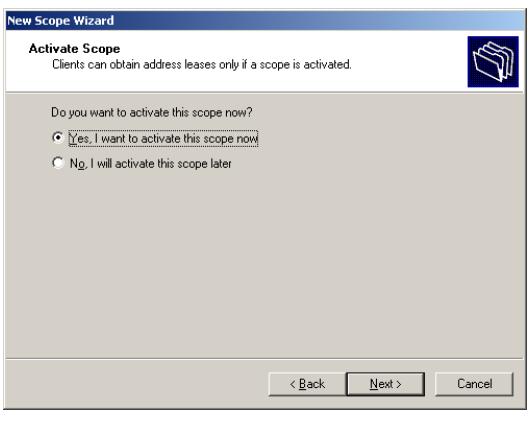
7. Here if you want to exclude the IP address range, type the IP address in excluded address range. Click next.
8. Here we need to specify how long a client can use an IP address from this scope. Click next.





9. Here we have to configure the most common DHCP options before clients can use the scope. If you want to configure select 'yes' otherwise select 'no'. Click next.
10. Here we want to activate the scope so select 'yes' otherwise 'no'. Click next.

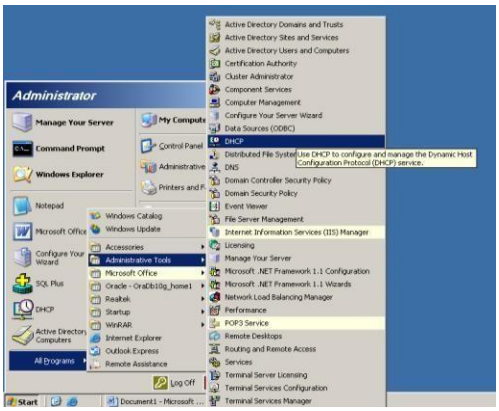


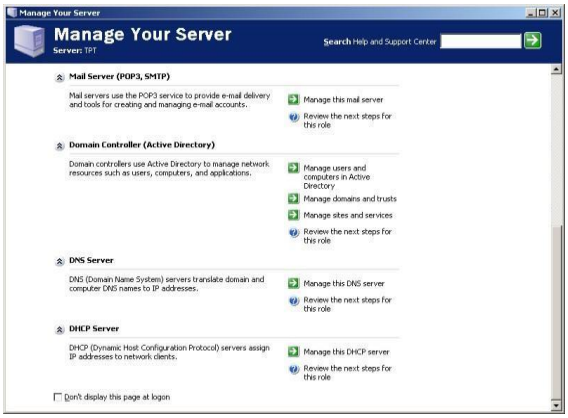


11. Click finish to complete the scope
12. The DHCP Server is now successfully installed. Click Finish.

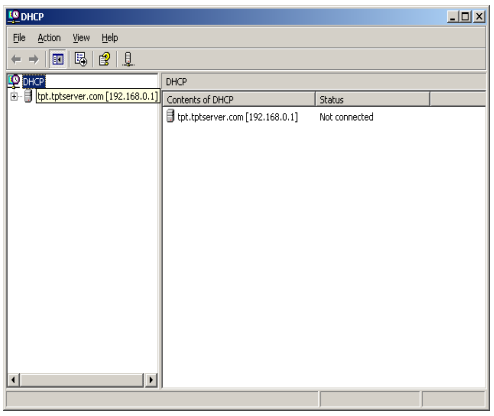
To configure the DHCP Client :

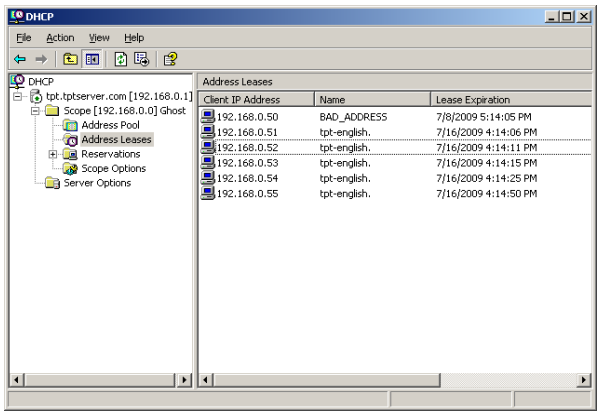
1. Go to Start->Programs->Administrative Tools->Manage Your Server once it opens you should see similar to the following screen here Click on Add or remove a role
2. Select DHCP Server to manage the DHCP server





3. Here the DHCP server window will be displayed. In this window click DHCP from left pane. The DHCP server name is shown as tpt.tptserver.com[192.168.1.1]
4. Select Address leases option in scope name of DHCP server in left pane of the window. Here the client IP addresses are configured.





RESULT:

Thus to install a DHCP server in windows with IP Address ranging from 192.168.1.1 to 192.168.1.100 and configuring DHCP server

Ex. No: 11	INSTALLATION AND CONFIGURATION OF MAIL SERVER
Date:	

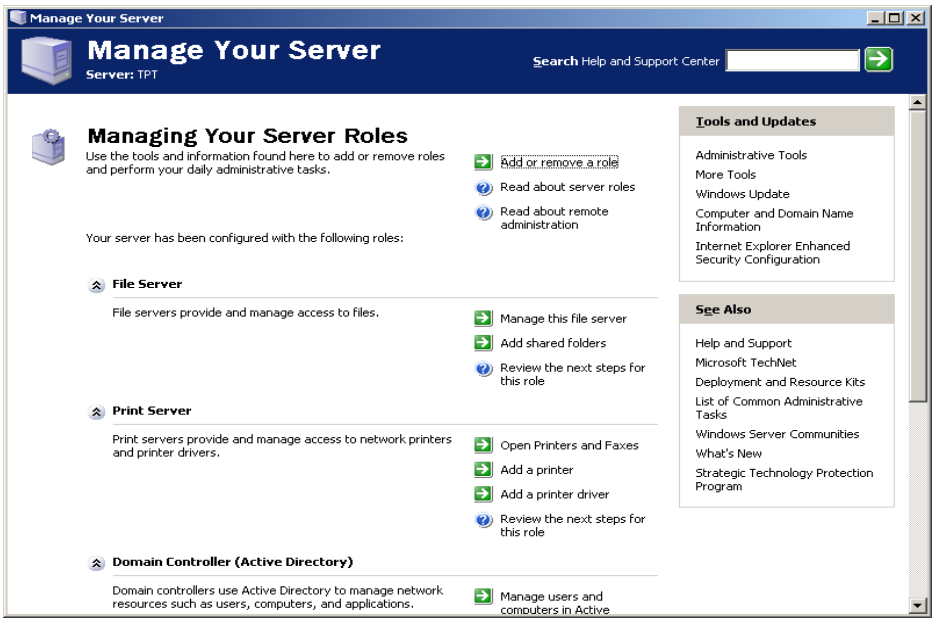
AIM

To Install and Configure the Mail Server in windows 2008/2012 server environment.

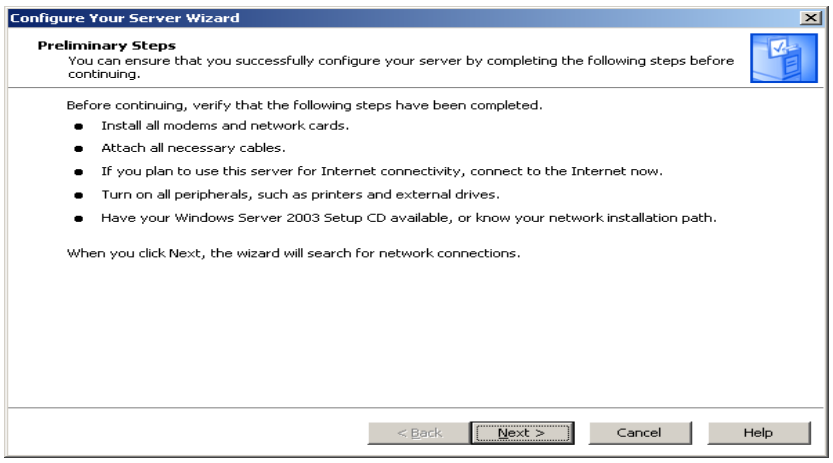
PROCEDURE

Install the Email Server

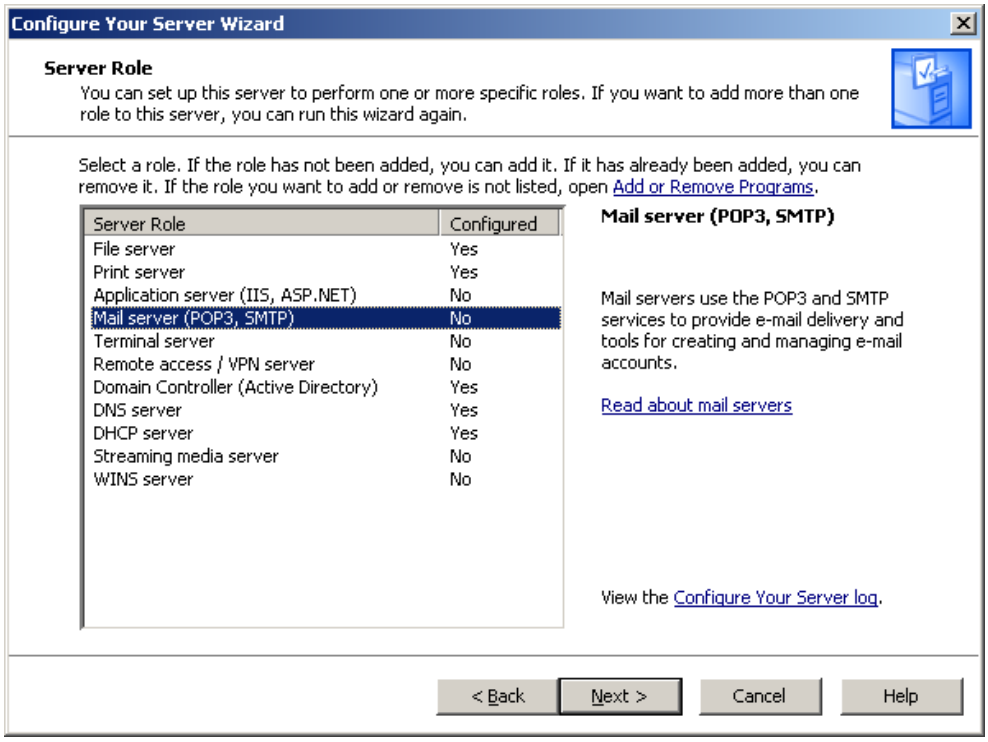
1. First you need to make sure you have install and configure windows server 2008 with domain controller.
2. Go to Start->Programs->Administrative Tools->Manage Your Server once it opens you should see similar to the following screen here Click on Add or remove a role



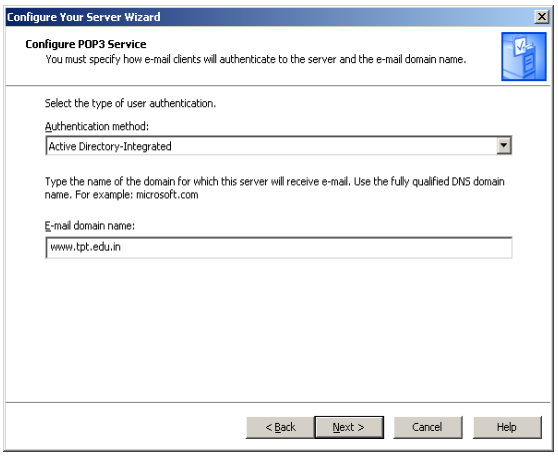
3. This will start the Configure Your Server Wizard. Read the text and make sure you have connected all the necessary cables and all the other things it says you should do before continuing. Click on Next

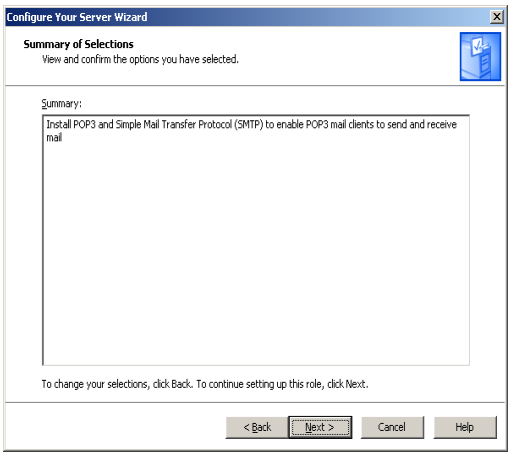


4. We now come to the step where we add and remove roles for our server. Select Mail Server (POP3,SMTP) click Next

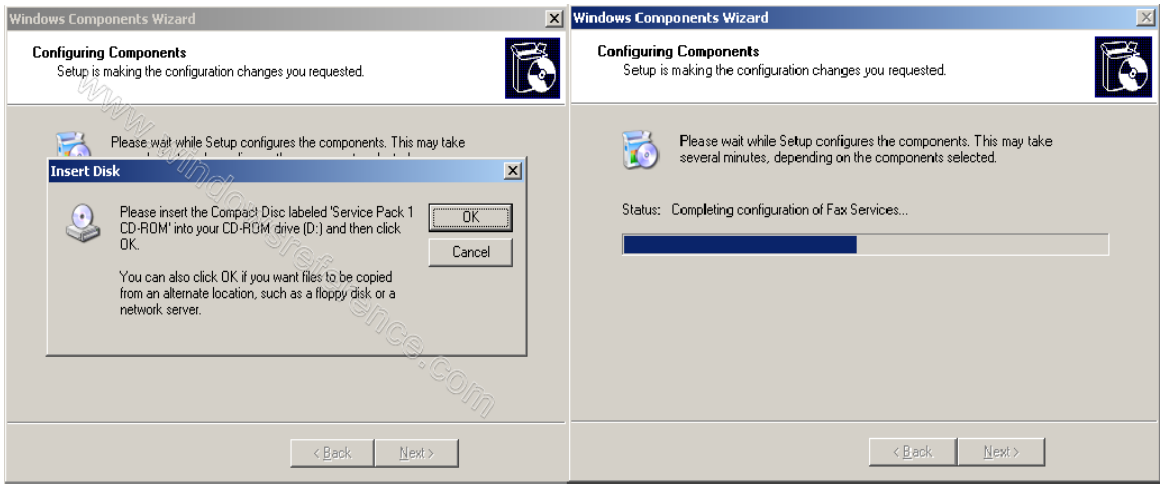


5. You will now specify the type of authentication and type the email domain name. In this tutorial we will use Windows Authentication, and we will use our domain name, windowsreference.com. You should of course use your domain name. click next
6. Next step shows summary of our selection click on next





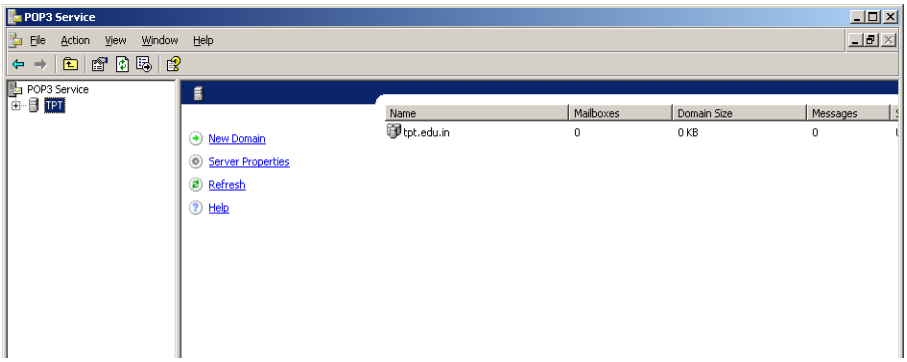
7. Mail server is in progress
8. When you get prompted to insert your Windows Server 2008 CD-ROM into your CD-ROM drive, do so and click ok. If you didn't get prompted to do that, you maybe already have it in the drive.
9. Copying files in progress



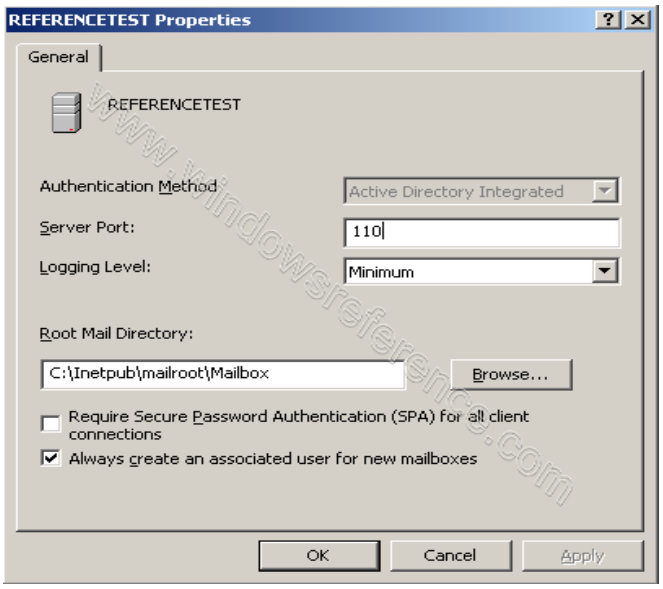
10. After completing installation you should see similar to the following screen click Finish

Configuring Email Server

1. Click Start—>run type server.msc click ok this will open up the POP3 Service. This is where you configure and manage the POP3 part of the mail server. Click on <ComputerName> in the left pane and Click on Server Properties in the right pane



2. This brings up the Properties for our Mail Server.I will explain each setting as follows



3.Authentication Method

a.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. But there is a limitation, although you can host multiple domains on the server, there must be unique user names for all domains. So, let us say you have two users named Sandra. One working at company1.com and another one working at company2.com. Their user name used will be sachin@company1.com and sachin@company2.com. But in SAM, they will both have the same user name, sandra, so one of them must be renamed to something else (if we don't want them to read each other's emails).

b.Server Port

We strongly recommend that you 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.

c.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.

d.Root Mail Directory

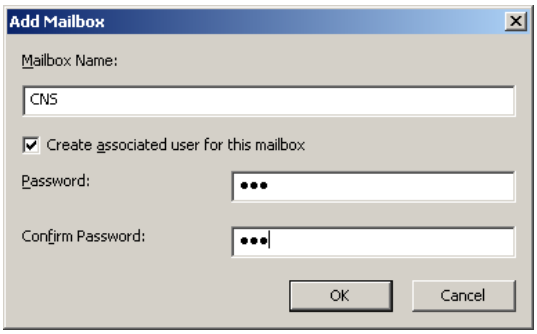
If you don't want to use the default Mail Directory, you can choose another one. Make sure the path is not more than 260 characters and you can also not store to the root of a partition (i.e. C:). It is strongly recommended that you use a NTFS formatted partition. You can't use a mapped drive, but the UNC name (\\servername\share) can be used. If you later change the store, and there are still emails in one or more boxes, you must manually move the folders in which there are emails to the new location. You must also reset the permissions on the directory by using winpop set mailroot.

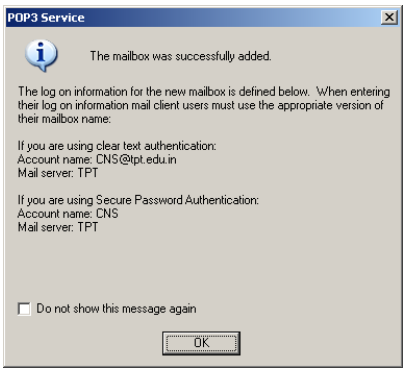
e. SPA

Enable SPA if you want to have a secure communication between your email sever and email clients. This will send both the user name and password encrypted from the client to the server, instead of sending it in clear text. SPA supports only Local Windows Accounts and Active Directory Integrated Authentication. It is recommended to use this. Remember to restart the POP3 service if you change this.

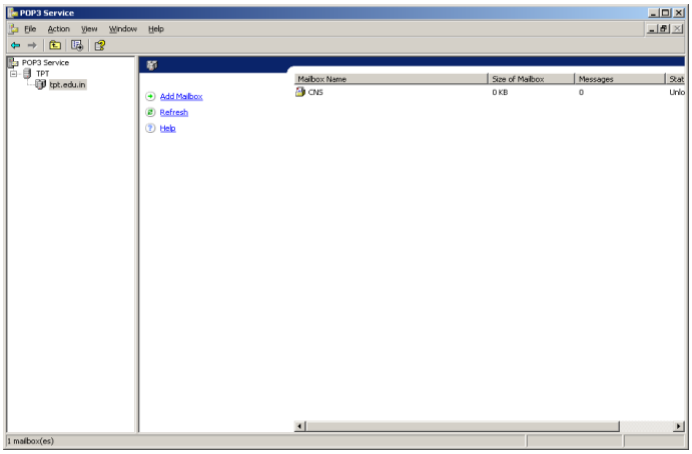
Create a mailbox

- 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 be 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.(We have completed in the above step)
- Click on your domain (windowsreference.com in my case) in the left pane.Click Add Mailbox in the right pane.
- This will open up the Add Mailbox window here you need to enter name and password 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





- After creating user you should see similar to the following screen



RESULT:

Thus to Install and Configure the Mail Server in windows 2008/2012 server environment was successfully executed and verified.

Ex. No: 12	CONFIGURE ACTIVE DIRECTORY SERVICES
Date:	

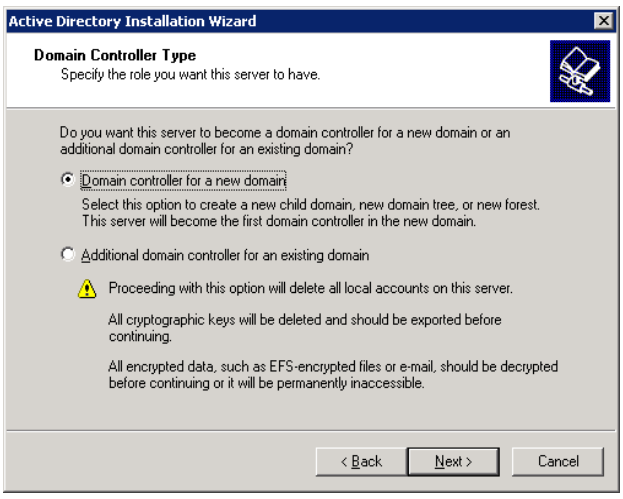
AIM

To Configure Active Directory Services, create a user and assign permissions using Logon Script and Group permissions.

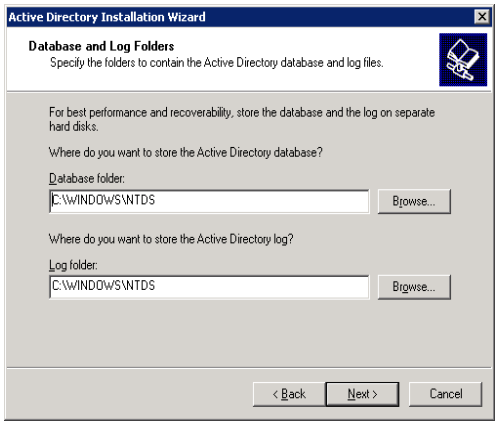
PROCEDURE

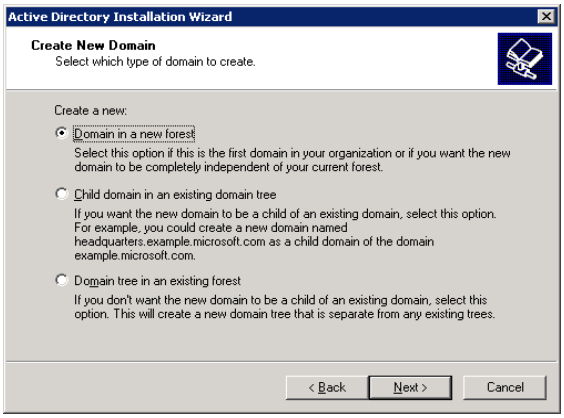
1. Click **Start**, point to **Administrative tools**, and then click **Configure Your Server Wizard**.
2. On the **Manage Your Server** page, click **Add or remove a role**.
3. On the **Configure Your Server Wizard** page, click **Next**.
4. Click **Domain Controller (Active Directory)** and then click **Next**.
5. On the **Welcome to the Active Directory Installation Wizard** page, click **Next**.
6. On the **Operating System Compatibility** page, read the information and then click **Next**.

   If this is the first time you have installed Active Directory on a server running Windows Server 2003, click **Compatibility Help** for more information.
7. On the **Domain Controller Type** page, click **Domain controller for a new domain** and then click **Next**.

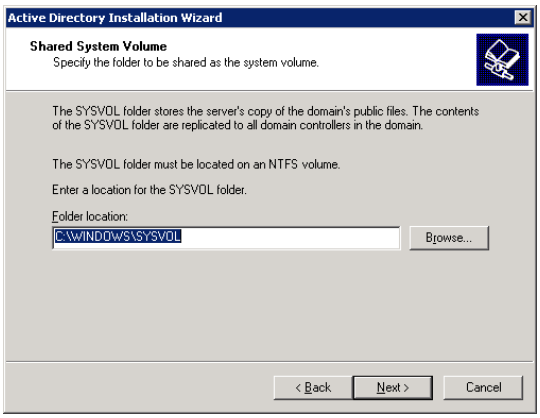


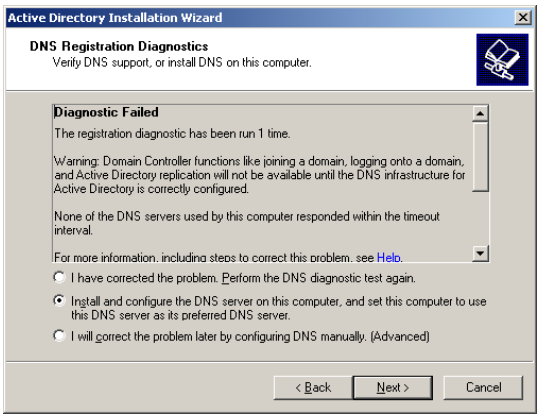
8. On the **Create New Domain** page, click **Domain in a new forest** and then click **Next**.
9. On the **New Domain Name** page, type the full DNS name (such as corp.contoso.com) for the new domain, and then click **Next**.
10. On the **NetBIOS Domain Name** page, verify the NetBIOS name (for example, CORP), and then click **Next**.
11. On the **Database and Log Folders** page, type the location in which you want to install the database and log folders, or click **Browse** to choose a location, and then click **Next**.





12. On the **Shared System Volume** page, type the location in which you want to install the SYSVOL folder, or click **Browse** to choose a location, and then click **Next**.
13. On the **DNS Registration Diagnostics** page, click **Install and configure the DNS server on this computer, and set this computer to use this DNS server as its preferred DNS server**, and then click **Next**.





14. On the **Permissions** page, select one of the following:
    - **Permissions compatible with pre-Windows 2003 Server operating systems**
    - **Permissions compatible only with Windows 2003 or Windows Server 2008 operating systems**
15. On the **Directory Services Restore Mode Administrator Password** page, type a password that will be used to log on to the server in Directory Services Restore Mode, confirm the password, and then click **Next**.
16. Review the **Summary** page, and then click **Next** to begin the installation.
17. After the Active Directory installation completes, click **OK** to restart the computer.

RESULT:

Thus to Configure Active Directory Services, create a user and assign permissions using Logon Script and Group permissions.

Ex. No: 13	INSTALL AND CONFIGURE DNS SERVICES
Date:	

AIM

To install the DNS Server.

PROCEDURE

Installing a domain name server

Perform the following steps to install name server:

1. Go to Settings Features select the Name server (DNS) Edit.

2. Select the DNS server.

3. Click on Apply changes and wait when the installation is over. Configuring a domain name server.

To configure the DNS-server.

1. Go to Domain Domain names Settings.

2. Enter the name servers that will handle the DNS records for this domain. They are specified in the NS-records.

3. Enter the Administrator email. It is specified in the SOA records of the newly created domain zone. Learn more under Resource recards.

4. Enter the DMARC records. This is a template that used for a TXT-record. DMARC is a mechanism helps protect incoming email from spam, spoofing and phishing.

5. Enter the SPF record. This is a template that used for a TXT-record which is its term is used for SPF configuration. Use the "_ip_" to add IP address. IP addresses are specified separated by spaces in the SPFR relay IP parameter of the ISP manager configuration file (the default location is /usr/local/mgr5/etc/ispmgr.conf). For more information please refer to the ISP Manager configuration file.

6. Enter the sub domain that will be automatically for the newly created domain name. They are specified in the A-records.

7. Enter the mail servers that will handle emails for the domain. They are specified in the MX records. A full domain name must be followed by the dot(such as mail.mydomain.com.mail2.mydomain.com). If it is a record in the current domain, the dot is not required(mail1 mail2).

8. IP address for name servers – If the NS record lie within the domain zone being created, A and AAAA

record will be created automatically for that domain zone. If this parameter is specified , IP address for the NS-record will be taken from this parameter. Otherwise, IP address of the master zone will be assigned to all other records(if slave name servers Are used). If slave name servers are not configured, or the Nspls parameter has insufficient IP address, you will see the error message.

9. Server name for SOA-record – provide a value for the SOA-record, if you want the server name defined in the SOA-record(MNAME) to be different from the hostname of the server processing DNS request. Leave this field blank if you are not sure that you really want to change it.

10. Apply to existing – select the checkbox to apply the new settings to all domain zones of the server.

11. click on Ok.

Configuring DNSSEC

To configure DNSSEC:

1. Go to Domains -> Domain names -> Settings.
2. Check the box DNSSEC support.
3. Enter the key parameter. DNSSEC uses 2 type of keys: ZSK (Zone Singing Key) is used to sigh records within the zone, and KSK (Key Signing Key) key is used to sign keys. Enter parameters for every key type:
   a. Algorithm – select a key generation algorithm: Outdated algorithm: 5 – RSA/SHA- 1; 7 – RSASHAI-NSEC3-SHAI; Modern algorithm:8 –RSA/SHA-256; 10 –RHS/SHA
      512; Newest algorithm: 13 – ECDSA Curve P-256 with SHA-256; 14 – ECDSA Curve P 384 with SHA-384
   b. Key length –enter the KSK-key length (in bites)
   c. Renewal period – set the period in month that will pass before a new key will be generated.

Result:

Thus the installation and Configuration of Active directory Service and create a user and permission using logon script and group permission was successfully.

Ex. No: 14	INSTALLATION OF RED HAT LINUX USING GRAPHICAL MODE
Date:	

AIM

To Install Red Hat Linux using Graphical mode.

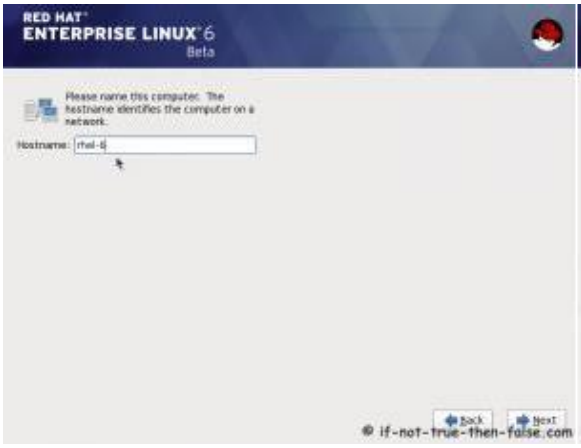
PROCEDURE

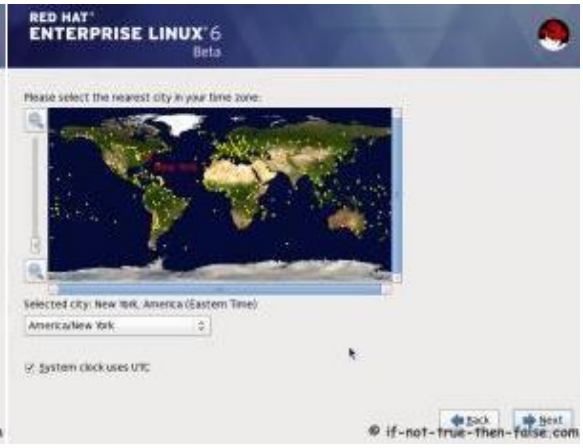
Red Hat 6 RHEL Installation

1. Select Install or upgrade an existing system option on Grub Menu

2. Choose a language
3. Choose a keyboard type

4. Choose a installation media
5. Skip DVD media test (or select media test, if you want to test installation media before installation)
6. Red Hat 6 graphical installer starts, select next
7. Accept Pre-Release Installation
8. Select storage devices
9. Insert computer name
10. Select time zone
11. Enter a password for *root* user
12. Select type of installation

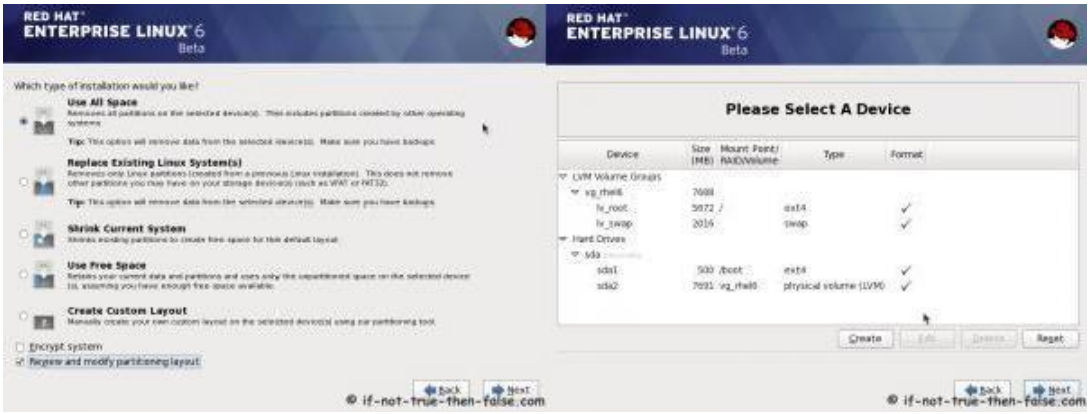




Read every options info carefully. And select encrypting if needed and option to review and modify partition layout.

13. Review partition layout

    Modify if needed. Default setup with ext4 and LVM looks good for desktop machine.



14. Accept write changes to disc
15. Writing changes (creating partitions) to disc
16. Configure boot loader options

    Select device to install bootloader and check/create boot loader operating system list.

17. Select softwares to install and enable repositories

    This case we select *Software Development Workstation* and enable Red Hat Enterprise Linux 6.0 Beta Repository and select Customize now.

18. Customize package selection

Select PHP and Web Server to installation. Select MySQL and Post greSQL Databases.

19. Checking dependencies for installation
20. Starting installation process

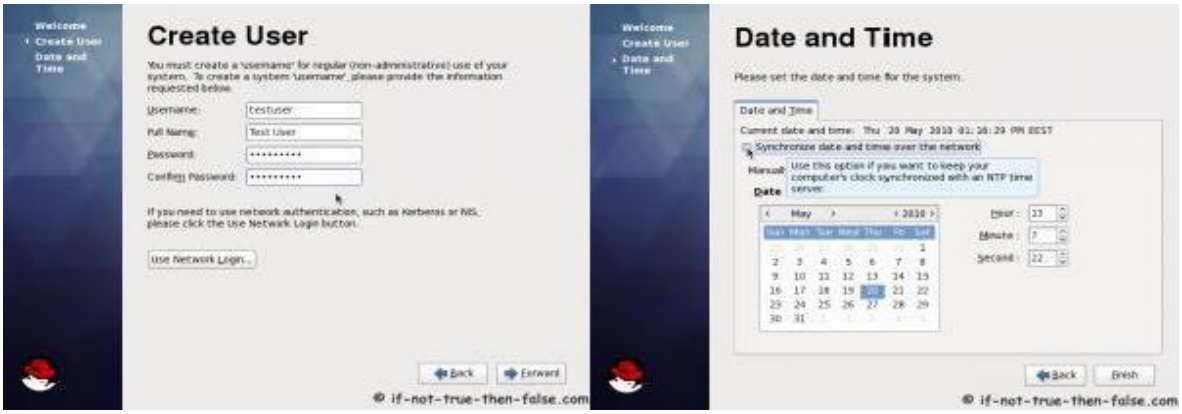
21. Installing packages
22. Installation is complete

Click reboot computer and remove installation media.

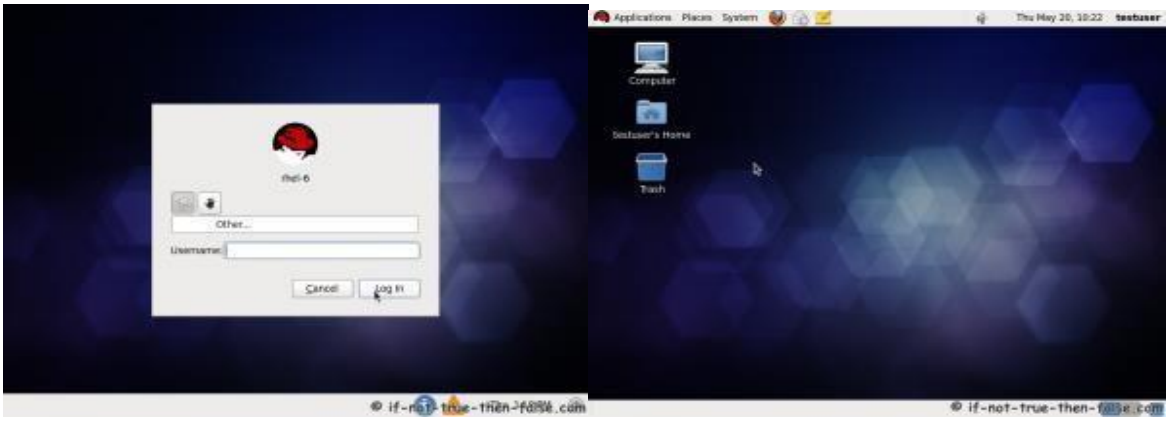
Red Hat 6 RHEL Finishing Installation

23. Selecting RHEL 6 from grub
24. Booting Red Hat 6
25. Red Hat 6 Welcome screen

26. Create normal user
27. Setup date and time and keep up-to-date with NTP



28. Login Red Hat 6 Gnome Desktop
29. Red Hat (RHEL) 6 Gnome Desktop, empty and default look



RESULT:

Red Hat Linux in graphical mode is successfully installed.

Ex. No: 15	INSTALL PACKET SNIFFING TOOLS
Date:	

AIM

To install of various open source packet sniffing tools and inspect packets in linux.

PROCEDURE

Install of various open sources packet

In Linux, software is often bundled in packages. Package make it easy to install software without having to compile the source code from scratch. You can install packages using a package manager, Which is a tool that downloads the packages from repositories (repos) and installs them in a few easy steps.

- Package manager automatically resolve dependencies on other software libraries.
- Open a Terminal. You'll find Terminal in Application> System Tools, or you can right-click the desktop and select Terminal
- If you're installing system-wide software, you'll need administrative privileges. Type su – and type the root password when prompted.
- To get the latest software package, you'll need to update the yum package manager. To do this, Just type **yum check-update** and press Enter.
- Type **yum install "program name"** and press **Enter**. For example, To install. The Dillo web browser, you would type **yum install dille.**
- Press the Y key to start installing the software. The software will now install. Once the installation is complete, you'll return to the command prompt.

Inspect packets:

List all installed and available package

yum list all

Lists al package installed on your system. The rightmost column in the output lists the repository from which the package war retrieved.

yum list installed

To list all installed packages that begin with "krb"

yum list installed "krb"-*"

Lists all available packages in all enabled repositories.

Yum list available

To list all available packages with names that contain "gstreamer" and then "plugin", run the following command:

Yum list available gstreamer*plugin*

Lists all package groups.

Yum grouplist

Lists the reposritory ID, name, and number of packages it provides for each enabled repository.

Yum repolist

Result:

Thus the open sources packet sniffing tools and inspect packets was installed in Red Hat Linux.