LAB MANUAL OF

INTRODUCTION
TO
FUNDAMENTALS OF COMPUTERS

ETCS-157

Maharaja Agrasen Institute of Technology, PSP area,
Sector – 22, Rohini, New Delhi – 110085
(Affiliated to Guru Gobind Singh Indraprastha University,
New Delhi)

INDEX OF THE CONTENTS

1. INTRODUCTION TO THE LAB

Introduction to Microsoft Word & Presentation, DOS, DIA & Linux is divided into four sections.

1. Microsoft Word & Presentation
2. DOS
3. DIA
4. Linux

Microsoft word and Presentation

In this section, Ms-Office will be taken into details. Applications of Ms-Office which are taken into details according to the syllabus prescribed by G.G.S.I.P.U are:

- Ms-Word
- Ms-Excel
- Ms-PowerPoint

DOS

In this section we will perform some internal and external commands.

DIA

In this section, we will draw some flowcharts with the help of DIA.

LINUX

In this section we will come across some commands.

2. Experiment list of Fundamentals of Computer

Experiments on dismantling of PC.

1. Dismantling the system unit , recognize all major components inside a PC ,describe function of each component and define the relationship of internal components.

Experiments on DOS:

2. Perform these commands internal commands.

DIR,TYPE,DEL,ERASE,MD,CD,COPY,RMDIR,VER,DATE,TIME,PATH,CLS,RMDIR,VER,DATE,TIME,PATH,CLS,BREAK, SET,EXIT.

3. Perform external commands.

APPEND,CHKDISK,ATTRIB,SYS,EDIT.

Experiments on system utilities

4. Explore and describe some system utility like regedit , memory partioning, control panel, window tools.

5. List various keys in registry and perform experiments to back up a key in registry using regedit.

Experiments on linux

6. Perform an experiment to install any rpm or debianlinux distribution with emphasis on drive partitioning.

7. Install rpm and deb packages.

8. Perfom these commands in linux- chmod, su , chown, chgrp ,ls, mkdir,pwd,date,who, find, uname, wc, ifconfig.

9. Create, open , edit, view file in linux.

10. Create user and group through CLI.

Experiments on Libre/Open Office Writer:

11. Create a office writer document and using tables distinguish between different types of memories.

12. Draft a letter asking for quotations of different peripheral devices for your computer lab and mail the letter using mail merge in open office writer.

13. Create a open office writer document and implement macro function.

14. Create a template and draw a basic block diagram of computer & using graphs compare the performance of different laptop/notebook PC.

Experiments on Libre/Open Office Calc:

15. Create a database of students, which contains marks obtained by students of a class in different subjects and then calculate maximum, minimum, average and sum of marks in each subject. Also calculate % of each student using functions and formulas in Libre/Open Office Calc also draw piechart and bar graph also.

Experiments on Libre/Open Office Impress:

16. Make a simple presentation on your college, use 3D effects , animation on network topologies.

Experiments on Dia:

17. Write steps for making flowcharts in Dia and make a flow chart on finding out largest among 3 numbers.

18. Create a flow chart for finding factorial of a number using dia*.

19. Create flowchart for finding prime number using dia*.

Optional Experiments….

20. SQL Commands to create and insert into table, select data values from table.
21. SQL commands to alter/update/ delete data from table.
22. Create HTML pages for your business website.
23. Create HTML pages showing time table of trains departing from delhi railway station.
24. Create web pages for your college.

4. PROJECTS TO BE ALLOTED (Beyond the syllabus prescribed by G.G.S.I.P.U)

Students will be divided into a group of four and projects are allotted to those groups. This project is to be submitted at the end of the semester along with a project report by the individual student.

List of projects given to the students is summarized as below:

1. Simulation of any of the chemistry practical being performed by the student in the chemistry lab.
2. Simulation of any of the chemistry practical being performed by the student in the Physics lab.
3. Simulation of any of the chemistry practical being performed by the student in the Mechanics lab.

Students can select any of the above according to their choice but none of the student's group should have the same practical for simulation.

NOTE: The project is to be made in some prog. Language only. If any other programming language is used then the project will not be considered for evaluation.

5. FORMAT OF THE LAB RECORD TO BE PREPARED BY THE STUDENTS

1. The front page of the lab record prepared by the students should have a cover page as displayed below.

NAME OF THE LAB

Font should be(Size 20", italics bold, Times New Roman)

Faculty name

should be (12", Times Roman)

Student name Font

Roll No.:

Semester:

Group:

Font should be (12", Times Roman)

Maharaja Agrasen Institute of Technology, PSP Area,

Sector – 22, Rohini, New Delhi – 110085

Font should be (18", Times Roman)

2. The second page in the record should be the index as displayed below.

INTRODUCTION TO COMPUTERS

PRACTICAL RECORD

PAPER CODE : ETCS - 157

Name of the student :

University Roll No. :

Branch :

Section/ Group :

PRACTICAL DETAILS

a) Experiments according to ITC lab syllabus prescribed by GGSIPU

Exp. no	Experiment Name	Date of performance	Date of checking	Remarks	Marks (10)

Exp. no	Experiment Name	Date of performance	Date of checking	Remarks	Marks (10)

b) Experiments beyond the ITC lab syllabus prescribed by GGSIPU (Programming practical).

Exp. no	Experiment Name	Date of performance	Date of checking	Remarks	Marks (10)

PROJECT DETAILS

1. TITLE :
2. MEMBERS IN THE PROJECT GROUP :
3. PROJECT REPORT ATTACHED :
   a) YES b) NO
4. SOFT COPY SUBMITTED :
   a) YES b) NO

Signature of the lecturer Signature of the student

( ) ( )

3. Each practical which student is performing in the lab should have the following details in the respective sections:
   - Ms-Office
     a) AIM
     b) Date
     c) Procedure
     d) Input given
     e) Output
     f) Viva questions
   - HTML
     a) AIM
     b) Date
     c) Input given (HTML code written)
     d) Output (Web page created)
     e) Viva questions
   - AutoCAD
     a) AIM
     b) Date
     c) Input given (commands written at the command prompt)

d) Output (Figure created)

e) Viva questions

- C language

a) AIM

b) Date

c) Logic of the program

d) Input given (code written)

e) Output

f) Viva questions

4. Project report should be added at last page.

6 . MARKING SCHEME FOR THE PRACTICAL EXAMS

There will be two practical exams in each semester.

- Internal Practical Exam
- External Practical Exam

INTERNAL PRACTICAL EXAM

It is taken by the concerned lecturer of the batch.

MARKING SCHEME FOR THIS EXAM IS:

Total Marks: 40

Division of 40 marks is as follows

1. Regularity: 25

   - Performing program in each turn of the lab
   - Attendance of the lab
   - File

2. Viva Voice: 10

3. Project: 5

NOTE: For the regularity, marks are awarded to the student out of 10 for each experiment performed in the lab and at the end the average marks are giving out of 25.

EXTERNAL PRACTICAL EXAM

It is taken by the concerned lecturer of the batch and by an external examiner. In this exam student needs to perform the experiment allotted at the time of the examination, a sheet will be given to the student in which some details asked by the examiner needs to be written and at the last viva will be taken by the external examiner.

MARKING SCHEME FOR THIS EXAM IS:

Total Marks: 60

Division of 60 marks is as follows

1. Sheet filled by the student: 20
2. Viva Voice: 15
3. Experiment performance: 15
4. File submitted: 10

NOTE:

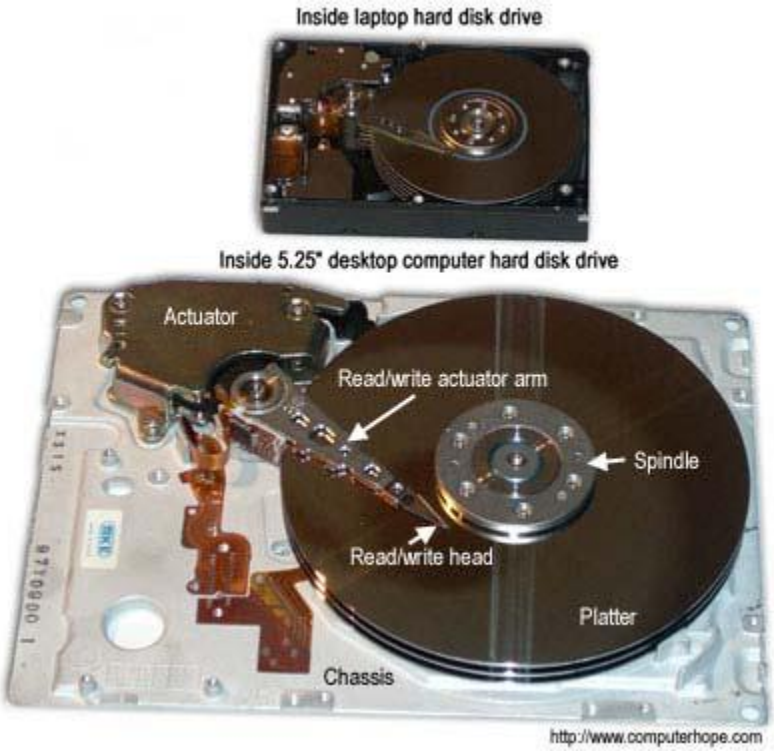
- Internal marks + External marks = Total marks given to the students
  (40 marks) (60 marks) (100 marks)
- Experiments given to perform can be from any section of the lab.

7. Details of the each section of the lab along with the example exercise & expected viva questions.

AIM : Dismantling of a Computer.

1. Hard drive

Alternatively referred to as a **hard disk drive** and abbreviated as **HD** or **HDD**, the **hard drive** is the computer's main storage media device that permanently stores all data on the computer. The hard drive was first introduced on September 13, 1956and consists of one or more hard drive platters inside of an air sealed casing. Most computer hard drives are in an internal drive bay at the front of the computer and connect to the motherboard using either an ATA, SCSI, or SATA cable and power cable. Below is a picture of what the inside of a hard drive looks like for a desktop and laptop hard drive.



As can be seen in the above picture, the desktop hard drive consists of the following components: the head actuator, read/write actuator arm, read/write head, spindle, andplatter. On the back of a hard drive is a circuit board called the disk controller.

Tip: New users often confuse memory (RAM) with disk drive space. See our memory definition for a comparison between memory and storage.

How is data read and stored on a hard drive?

Data sent to and from the hard drive is interpreted by the disk controller, which tells the hard drive what to do and how to move the components within the drive. When the operating system needs to read or write information, it examines the hard drive's File Allocation Table (FAT) to determine file location and available areas. Once this has been determined, the disk controller instructs the actuator to move the read/write arm and align the read/write head. Because files are often scattered throughout the platter, the head needs to move to different locations to access all information.

All information stored on a traditional hard drive, like the above example, is done magnetically. After completing the above steps, if the computer needs to read information from the hard drive, it would read the magnetic polarities on the platter. One side of the magnetic polarity is 0 and the other is 1. Reading this as binary data, the computer can understand what the data is on the platter. For the computer to write information to the platter, the read/write head aligns the magnetic polarities, writing 0's and 1's that can be read later.

External and Internal hard drives

Although most hard drives are **internal hard drives**, many users also use **external hard drives** to backup data on their computer and expand the total amount of space available to them. External drives are often stored in an enclosure that helps protect the drive and allow it to interface with the computer, usually over USB or eSATA. A great example of a backup external device that supports multiple hard drives is theDrobo.

2. RAM

Alternatively referred to as **main memory**, **primary memory**, or **system memory**, **Random Access Memory** (**RAM**) is a computer storage location that allows information to be stored and accessed quickly from random locations within DRAM on a memory module. Because information is accessed randomly instead of sequentially like a CD or hard drive the computer can access the data much faster than it would if it was only reading the hard drive. However, unlike ROM and the hard drive RAM is a volatile memory and requires power in order to keep the data accessible, if power is lost all data contained in memory lost.

As the computer loads parts of the operating system and drivers are loaded into memory, which allows the CPU to process the instructions much faster and your computer to load faster. After the operating system has loaded, each program you open such as the browser you're using to view this page is loaded into memory while it is running. If too many programs are open the computer will swap the data in the memory between the RAM and the hard disk drive.

Over the evolution of computers there has been different variations of RAM used in computer. Some of the more common examples are DIMM, RIMM, SIMM, SO-DIMM, andSOO-RIMM. Below is an example image of a 512MB DIMM computer memory module and what the typical desktop computer memory card will look like. This memory module would be installed into memory slots on the motherboard.

3. Memory slot

A **memory slot**, **memory socket**, or **RAM slot** is what allows computer memory (RAM) to be inserted into the computer. Depending on the motherboard, there may be 2 to 4 **memory slots** (sometimes more on high-end motherboards) and are what determine the type of RAM used with the computer. The most common types of RAM are SDRAM and DDR for desktop computers and SODIMM for laptop computers, each having various types and speeds. In the picture below, is an example of what memory slots may look like inside a desktop computer. In this picture, there are three open available slots for three memory sticks.

When buying a new computer or motherboard, pay close attention to the types of RAM the memory slots, so you are familiar with what type of RAM to buy for your computer. It is also important to note how many available memory slots are available in your computer. It is not uncommon for some computers to have all memory slots occupied, which means if you wanted to upgrade your computer memory some or all of the memory currently installed would need to be removed first.

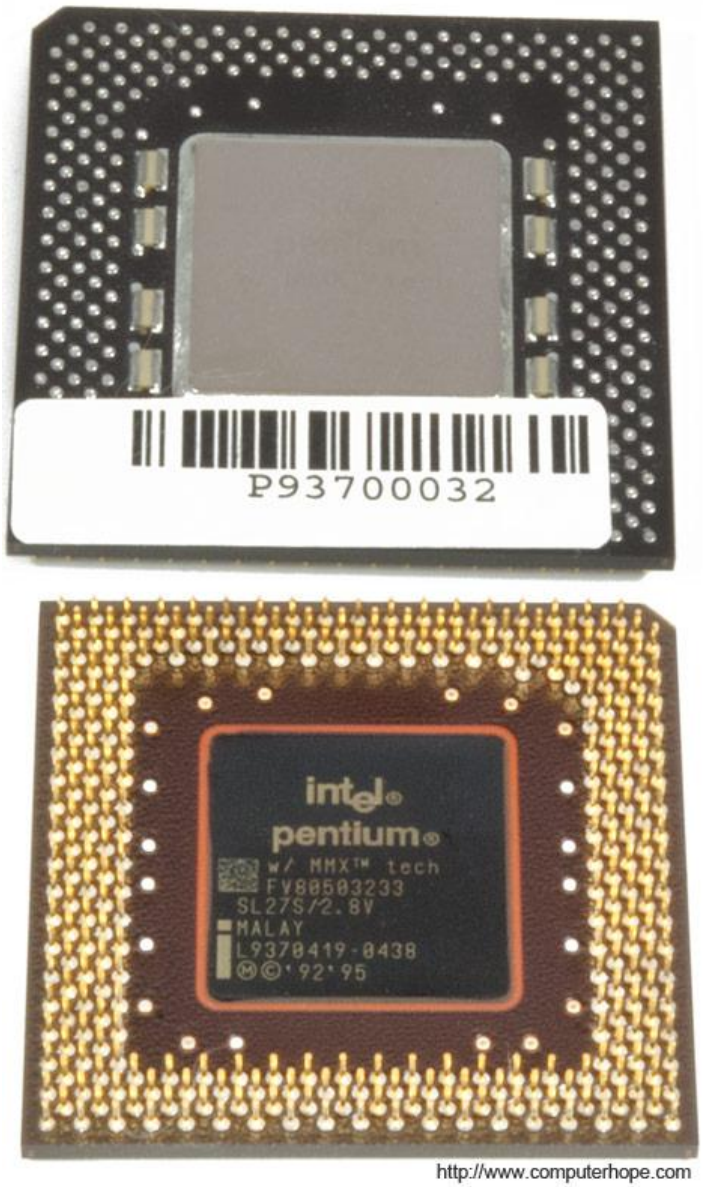
4 .CPU

Note: Many new computer users may improperly call their computer and sometimes their monitor the CPU. When referring to your computer or monitor it is proper to refer to them as either the "computer" or "monitor" and not CPU.

Alternatively referred to as the **brain of the computer**, **processor**, **central processor**, or **microprocessor**, the **CPU** (pronounced as C-P-U) was first developed at Intel with the help of Ted Hoff in the early 1970's and is short for **Central Processing Unit**. The computer CPU is responsible for handling all instructions it receives from hardware and software running on the computer.

In the picture below, is an example of what the top and bottom of an Intel Pentiumprocessor looks like. The processor is placed and secured into a compatible CPU socketfound on the motherboard, and because of the heat it produces it is covered with a heat sink to help keep it cool and running smoothly.

Intel Pentium processor



As can be seen by the above picture, the CPU chip is usually in the shape of a square or rectangle and has one notched corner to help place the chip into the computer properly. On the bottom of the chip are hundreds of connector pins that plug into each of the corresponding holes on the socket. Today, most CPU's resemble the picture shown above; however, Intel and AMD have also experimented with slot processors that were much larger and slid into a slot on the motherboard. Also, over the years there have been dozens of different types of sockets on motherboards, each socket only supports so many different processors, and each has its own pin layout.

In the CPU, the primary components are the ALU (Arithmetic Logic Unit) that performs mathematical, logical, and decision operations and the CU (Control Unit) that directs all of the processors operations. Over the history of computer processors, the speed (clock speed) and capabilities of the processor have dramatically improved. For example, the first microprocessor was the Intel 4004 that was released November 15, 1971 and had 2,300 transistors and performed 60,000 operations per second. The Intel Pentium Processor shown on this page has 3,300,000 transistors and performs around 188,000,000 instructions per second.

5. Heat sink

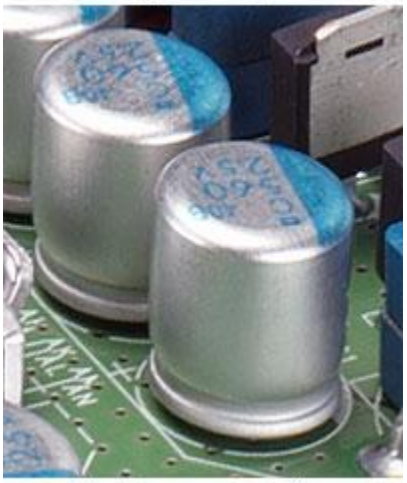
A **heat sink** is an electronic device that incorporates either afan or a peltier device to keep a hot component such as aprocessor cool. There are two heat sink types: **active** and**passive**.

Active heat sinks utilize power and are usually a fan type or some other peltier cooling device. If you are looking to purchase an active heat sink, it is recommended that you purchase fans with ball-bearing motors that often last much longer than sleeve bearings. Sometimes these types of heat sinks are referred to as a **HSF**, which is short for **heat sink and fan**.

Passive heat sinks are 100% reliable, as they have no mechanical components. Passive heat sinks are made of an aluminum-finned radiator that dissipates heat through convection. For Passive heat sinks to work to their full capacity, it is recommended that there is a steady air flow moving across the fins. The above picture is an example of a heat sink that is both active and passive.

http://www.computerhope.com A **capacitor** is a component made of two or sets of two conductive plates with a thin insulator between them and wrapped in a ceramic and plastic container. When the capacitor receives a direct current (DC), a positive charge builds up on one of the plates (or set of plates) while a negative charge builds up on the other. This charge, which is measured in microfarads on a computer capacitor, remains in the capacitor until it is discharged. In the image to the right, is an example of what a capacitor may look like on a computermotherboard.

Electrolytic capacitors



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Another common type of capacitor is an **electrolytic** capacitor, which is a higher capacitance capacitor in a smaller package. In the bottom picture to the right, is a picture and an example of these types of capacitors.

Like any other component in a computer, capacitors in a computer can fail, and when they do can cause the computer or the component to fail. In the case of a motherboard, when a motherboard capacitor fails the computer will no longer boot, and the capacitor needs to be replaced or a new motherboard needs to be put in the computer.

7.Power Supply

1. Short for **Power Supply** and sometimes abbreviated as **PSU**, which is short for **Power Supply Unit**. The **PS** is an internal hardware component used to supply the components in acomputer with power by converting potentially lethal 110-115 or 220-230 volt alternating current (AC) into a steady low-voltage direct current (DC) usable by the computer. A power supply is rated by the number of watts it generates. For example, the image to the right, is of an AntecTrue 330, a 330 Watt power supply and an example of what a computer power supply looks like.

Caution: Do not open the power supply, it contains capacitors that are capable of holding hold electricity even if the computer is off and unplugged for a week, if not longer.

On the back end of the power supply as shown in the above picture is where you connect the power cord to the computer. In addition to the power cord connection the back also has an fan opening to draw air out of the power supply, a small red switch to change the power supply voltage, and the rocker switch to turn the power supply on and off.

On the front-end, which is not visible unless the computer is opened is several dozen other cables that connect the power supply to each of the devices and the computermotherboard.

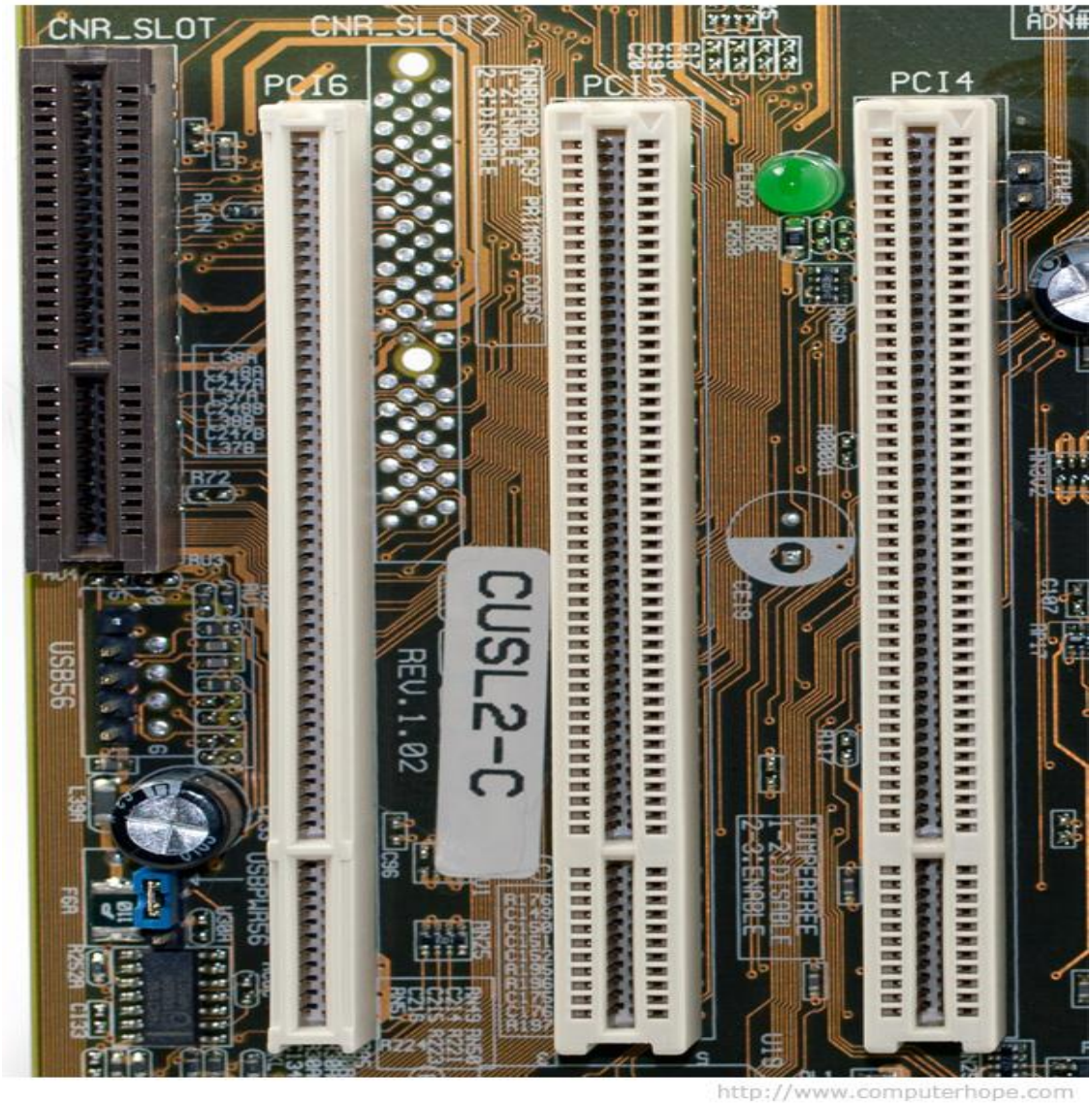
8. IC

1. Alternatively referred to as a **bare chip**, **monolithic integrated circuit**, or **microchip**, **IC** is short for **Integrated Circuit** or**Integrated Chip** and was first introduced as a concept byGeoffrey Dummer a British radar engineer on May 7, 1952 and later successfully developed by Jack Kilby and Robert Noyceand first demonstrated September 12, 1958. The IC is a package containing many circuits, pathways, transistors, and other electronic components all working together to perform a particular function or a series of functions. Integrated circuits are the building blocks of computer hardware. The picture is an example of what an Integrated Circuit may look like on a circuit board today.

9. PCI

Short for **Peripheral Component Interconnect, PCI** was introduced by Intel in1992, revised in 1993 to version 2.0, and later revised in 1995 to PCI 2.1 and is as an expansion to the ISA bus. The PCI bus is a 32-bit (133MBps) computer bus that is also available as a 64-bit bus and was the most commonly found and used computer bus in computers during the late 1990's and early 2000's. Unlike, ISA and earlier expansion cards, PCI follows the PnP specification and therefore does not require any type of jumpers or dip switches. Below is an example of what the PCI slots looks like on a motherboard. In the picture, there are three PCI slots, PCI4, PCI5, and PCI6.

CNR and PCI slots



Today's computers and motherboards have replaced PCI with PCI Express (PCIe) slots.

Examples of PCI devices

- Modem
- Network card
- Sound card
- Video card

PCI device drivers

If you are looking for PCI drivers, you most likely need to get the drivers for the installed PCI device. For example, if you need a PCI Ethernet adapter driver you need the drivers for the PCI network card. See our drivers section for all computer drivers.

10. AGP

Short for **Accelerated Graphics Port**, **AGP** is an advanced port designed for Video cards and 3D accelerators. Designed by Intel and introduced in August of 1997, AGP introduces a dedicated point-to-point channel that allows the graphics controller direct access the system memory. Below is an illustration of what the AGP slot may look like on your motherboard.

The AGP channel is 32-bits wide and runs at 66 MHz. This translates into a total bandwidth of 266 MBps, which is much greater than the PCI bandwidth of up to 133 MBps. AGP also supports two optional faster modes, with throughput of 533 MBps and 1.07 GBps. It also allows 3-D textures to be stored in main memory rather than video memory.

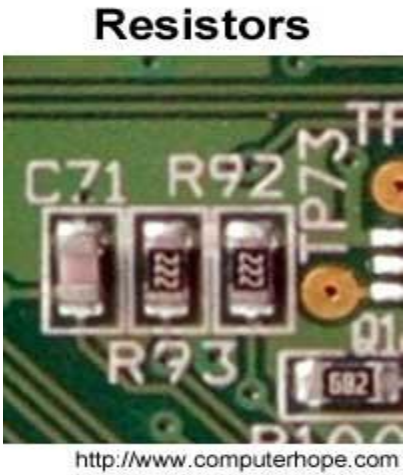
Each computer with AGP support will either have one AGP slot or on-board AGP video. If you needed more than one video card in the computer, you can have one AGP video card and one PCI video card or use a motherboard that supports SLI.

AGP is available in three different versions, the original AGP version mentioned above,**AGP 2.0** that was introduced in May of 1998, and **AGP 3.0** (**AGP 8x**) that was introduced in November of 2000. AGP 2.0 added 4x signaling and was capable of operating at 1.5V and AGP 3.0 was capable of double the transfer speeds.

Tip: Not all operating systems support AGP because of limited or no driver support. For example, Windows 95 did not incorporate AGP support. See the Windows versions pagefor information about Windows versions that support AGP.

Today, AGP is being replaced by PCI Express.

11. Resistors



One of the most commonly found components in an electronic circuit. **Resistors** help restrict and impede a current flow. The picture shows examples of resistors on a motherboard. In this picture the resistors are R92 and R93 and marked with 222

12 .CMOS

1

Alternatively referred to as a **Real-Time Clock (RTC), Non-Volatile RAM (NVRAM)** or **CMOS RAM**, **CMOS** is short for **Complementary Metal-Oxide Semiconductor**. CMOS is an on-board semiconductor chip powered by a CMOS battery inside computers that stores information such as the system time and date and the system hardware settings for your computer. The picture shows an example of the most common CMOS coin cell battery used in a computer to power the CMOS memory.

A Motorola 146818 chip was the first RTC and CMOS RAM chip to be used in early IBM computers. The chip was capable of storing a total of 64 bytes of data. Since the system clock used 14 bytes of RAM, this left an additional 50 bytes of space that was available for IBM to store system settings. Today, most computers have moved the settings from a separate chip and incorporated them into the southbridge or Super I/O chips.

13. SATA

SATA power cable

SATA data cable

SATA MB connections

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Short for **SerialATA, SATA** 1.0 was first released in August2001 and is a replacement for the Parallel ATA interface used in IBM compatible computers. SerialATA is capable of delivering 1.5Gbps (150MBps) of performance to each drive within a disk array, offers backwards compatibility for existing ATA and ATAPI devices, and offers a thin, small cable solution as seen in the picture. This cable helps make a much easier cable routing and offers better airflow in the computer when compared to the earlier ribbon cables used with ATA drives.

In addition to being an internal solution SATA also supports external drives through **External SATA** more commonly known as**eSATA**. eSATA offers many more advantages when compared to other solutions. For example, it is hot-swappable, supports faster transfer speeds and no bottleneck issues when compared with other popular external solutions such as USB and Firewire, and supports disk drive technologies such as S.M.A.R.T..

Unfortunately, however, eSATA does have some disadvantages such as not distributing power through the cable like USB, which means drives will require an external power source and it only supports a maximum cable lengths of up to 2m. Because of these disadvantages don't plan on eSATA becoming the only external solution for computers.

14 IDE

Short for **Integrated Drive Electronics** or **IBM Disc Electronics**, **IDE** is more commonly known as **ATA** or **Parallel ATA** (**PATA**) and is a standard interface for IBM compatible hard drives. IDE is different from the Small Computer Systems Interface (SCSI) and Enhanced Small Device Interface (ESDI) because its controllers are on each drive, meaning the drive can connect directly to the motherboard or controller. IDE and its updated successor, Enhanced IDE (EIDE), are the most common drive interfaces found in IBM compatible computers today. Below, is a picture of the IDE connector on the back of a hard drive, a picture of what an IDE cable looks like, and the IDE channels it connects to on the motherboard.

15.Floppy disk

Alternatively referred to as a **floppy** or **floppy disk**, a **floppy diskette** was originally created in1967 by IBM to help have an alternative to buying hard drives that were extremely expensive at the time and were not thought of as something to be used with a standard computer. Below is a brief history of each of three major floppy diskettes.

How were floppy disks used?

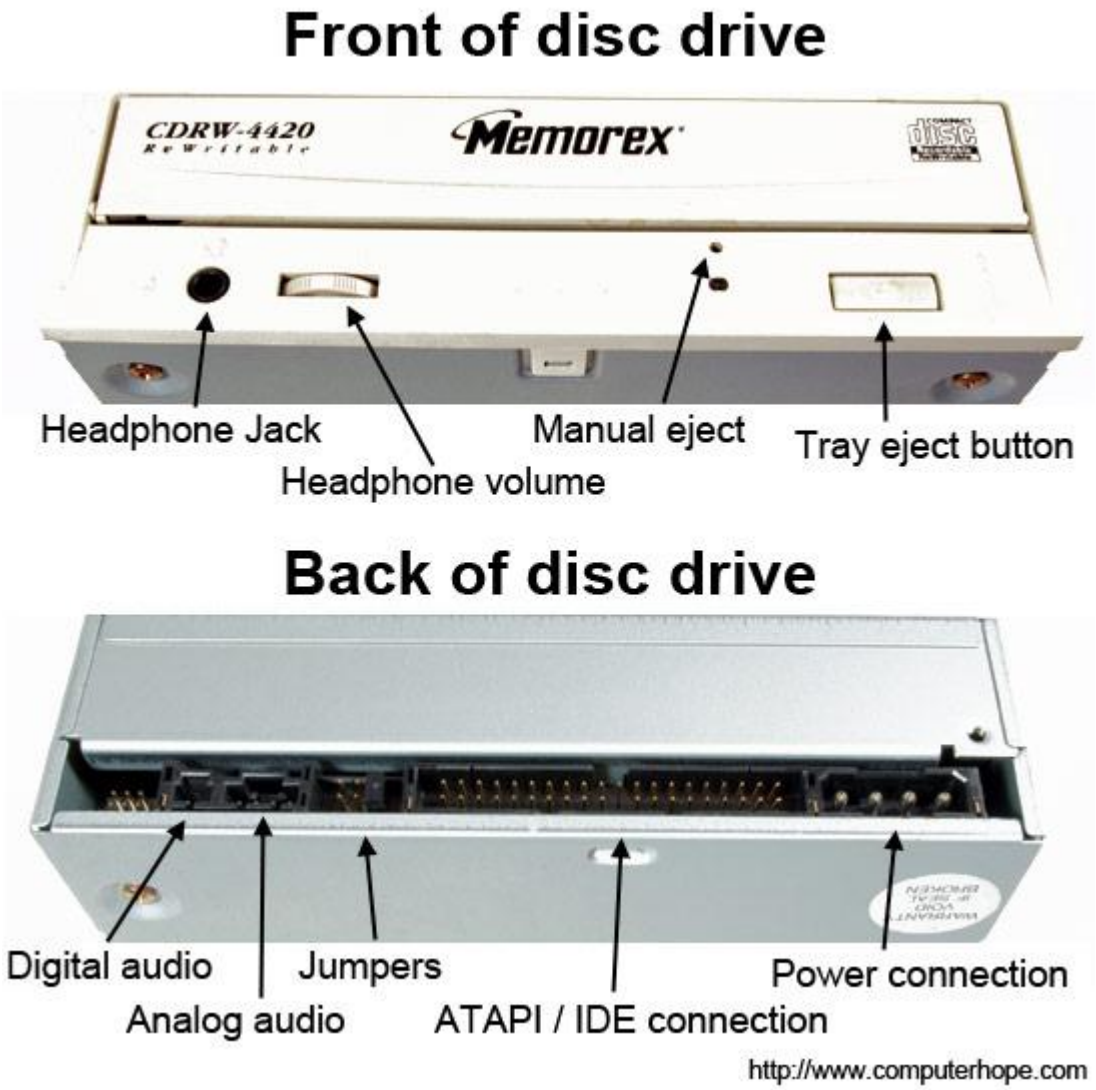
Early computers did not have CD-ROM drives or USB, and floppy disks were the only way to install a new program onto a computer or backup your information. If the program was small (less than 1.44MB for the 3.5" floppy disk) the program could be installed from one floppy disk. However, since most programs were larger than 1.44MB most programs required multiple floppy diskettes. For example, the diskette version of Windows 95 came on 13 DMF diskettes and had to be installed one disk at a time.

Are floppy diskettes still used today?

There are still a few diehards who are still using floppy diskettes, some governments still even use 8" floppy diskettes. However, since the early 2000s computers started to no longer ship with floppy disk drives as users started moving to CD-R and Zip drives to store their information since they could hold a lot more information.

16. CD-ROM

Short for **Compact Disc-Read Only Memory**, a **CD-ROM**(shown right) is an optical disc which contains audio or software data whose memory is read only. A **CD-ROM Drive**or **optical drive** is the device used to read them. CD-ROM drives have speeds ranging from 1x all the way up to 72x, meaning it reads the CD roughly 72 times faster than the 1x version. As you would imagine, these drives are capable playing audio CDs and reading data CDs. Below is a picture of the front and back of a standard CD-ROM drive.


Front of disc drive
CDRW-4420
ReWritable
Memorex
Headphone Jack
Headphone volume
Manual eject
Tray eject button
Back of disc drive
Digital audio
Analog audio
Jumpers
ATAPI / IDE connection
Power connection
http://www.computerhope.com

17.USB

Short for **Universal Serial Bus, USB** is a standard that was introduced in 1995 by Intel, Compaq, Microsoft and other computer companies. USB 1.x is an external bus standard that supports data transfer rates of 12 Mbps and is capable of supporting up to 127 peripheral devices. The picture shows an example of a USB cable being connected into the USB port.

18.Mouse/keyboard port

1. Often referred to as the **mouse port** or **keyboard port**, the **PS/2 port** was developed by IBM and is used to connect a computer mouse or keyboard to an IBM compatible computer.

The PS/2 port is a mini DIN plug that contains six pins and is still found on all IBM compatible computers today, however, is starting to be replaced byUSB.

The picture to shows what the PS/2 ports may look like on the back of your computer. As can be seen by both of these pictures many computers have adopted the color codes purple and teal as identifications for each of the port. The mouse is teal and the keyboard is purple.

Below, the left picture is an example of the PS/2 plug and the right illustration is of the actual PS/2 connection with its pin layouts.

19 Parallel port

Less commonly referred to as the **Centronics interface** or **Centronics connector**after the company that originally designed it, the port was later developed by Epson. The **parallel port** is found on the back of IBM compatible computers and is a 25-pin (type **DB-25)** computer interface commonly used to connect printers to the computer. Below is an example of the DB25 interface found on the back of the computer.

Identifying

In the above graphic of a parallel port you can notice the DB25 parallel port connection is easy to identify and is often the biggest connection on the back of the computer. The connection is in the shape of the letter D, is a female connector, and has 25 holes.

Parallel port modes

The computer is capable of having the parallel port run at different modes depending on your needs and available resources. Some of these modes include: IEEE-1284(Auto), Centronics mode, Nibble mode, Unidirectional (SPP), Bi-directional, EPP, andECP.

20. Serial port

An Asynchronous port on the computer used to connect a serial device to the computer and capable of transmitting one bit at a time. **Serial ports** are typically identified on IBM compatible computers as COM (communications) ports. For example, a mouse might be connected to COM1 and a modem to COM2. With the introduction of USB, FireWire, and other faster solutions serial ports are rarely used when compared to how often they've been used in the past. The picture shows the **DB9** serial port on the back of a computer.

Identifying

In the above graphic of a serial port you can notice the DB9 serial port connection is easy to identify. The connection is in the shape of the letter D, is a male connector, and has 9 pins.

Pin information

Below is a listing of each of the pins located on the DB9 connector, their purpose, and signal name. As can be seen in the above picture pin one is in the top left and pin 9 is in the bottom right.

21. LAN port

Alternatively referred to as an **Ethernet port**, **network connection**, and **network port**, the **LAN port** is a port connection that allows a computer to connect to a network using a wired connection. The picture is a close up example of what a LAN port looks like for a network cable using a RJ-45 connector. In the case of this example, the two led lights will blink when that port is active and receiving activity.

22 . Sound card

Alternatively referred to as a **sound board** or an **audio card**, a **sound card** is anexpansion card or integrated circuit that provides a computer with the ability to produce sounds that can be heard by the user either over speakers or headphones. Below is an image of the Creative Sound Blaster sound card and an example of what a sound card that connects to an expansion slot inside your computer may look like.

The computer sound card is considered a peripheral, although the computer does not need a sound card to function almost every computer today will include a sound card in the expansion slot or on the motherboard (onboard).

Back of Sound Card

http://www.computerhope.com


WINDOW DOS COMMANDS

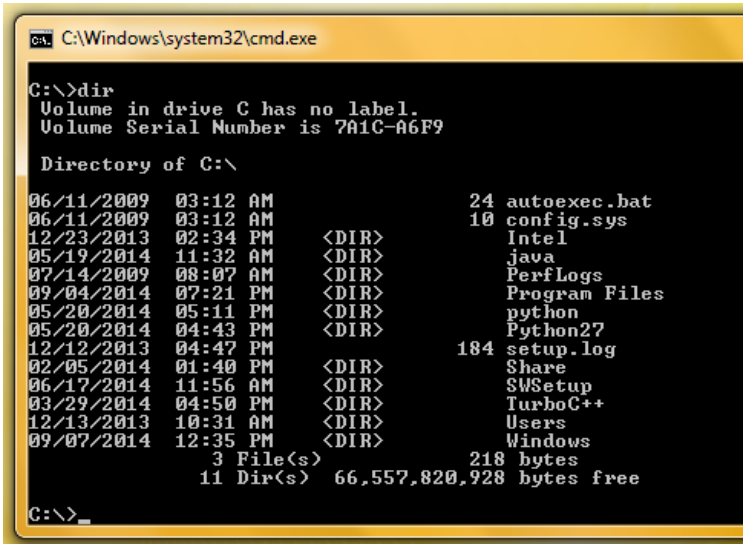
AIM: TO PERFORM THESE COMMANDS ON DOS

INTERNAL COMMANDS : SET, PATH, DIR, MD, CD, CD..,BREAK

EXTERNAL COMMANDS: ATTRIB,TREE,CHKDSK,APPEND

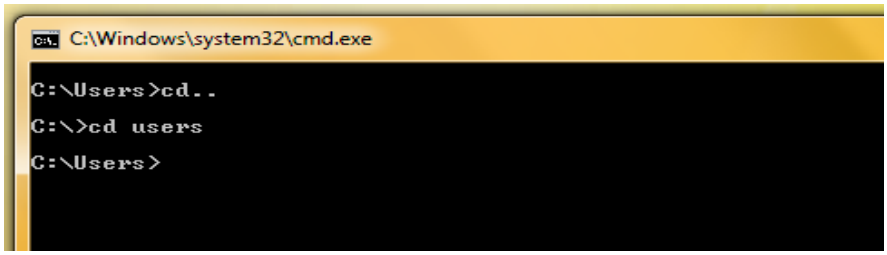
1. DIR

C:\>DIR



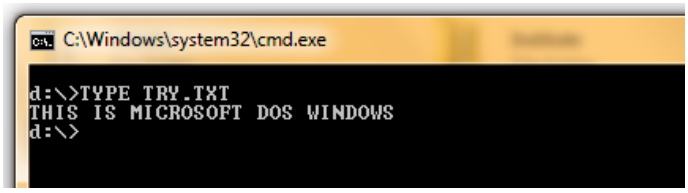
2. CD

C:\>USERS>CD..



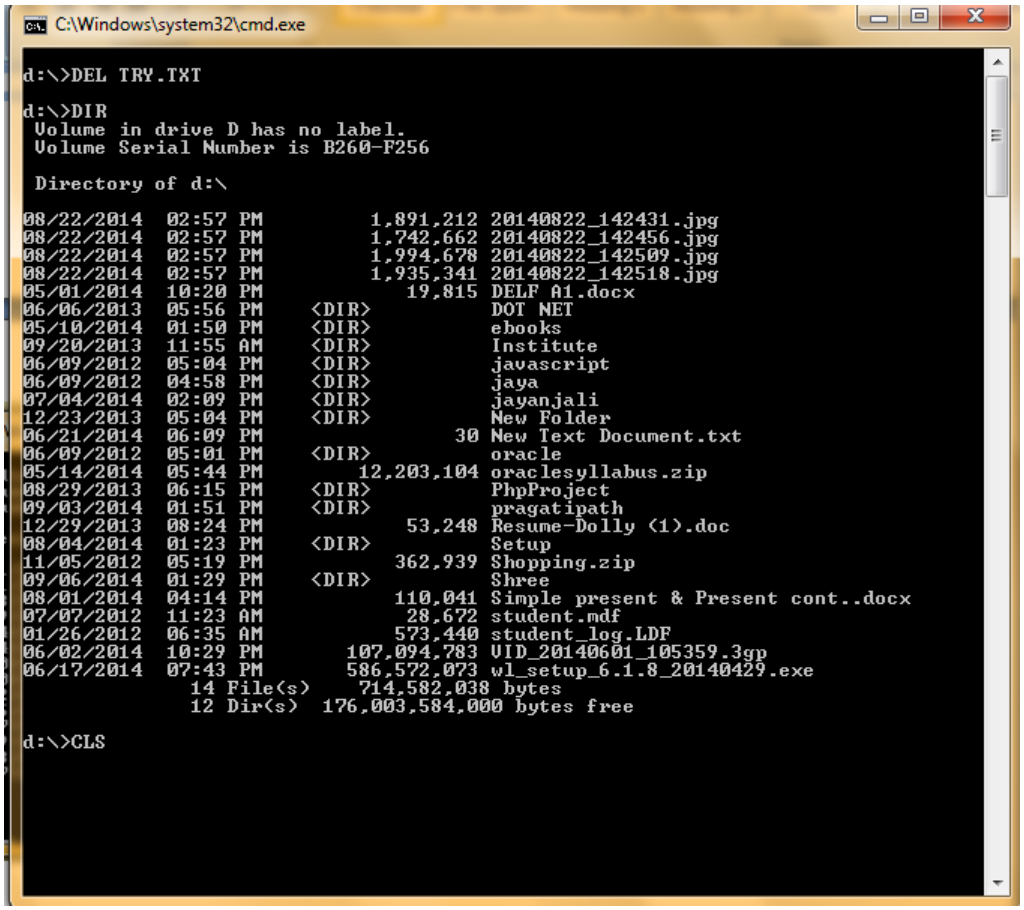
3. TYPE

D:\>TYPE TRY.TXT



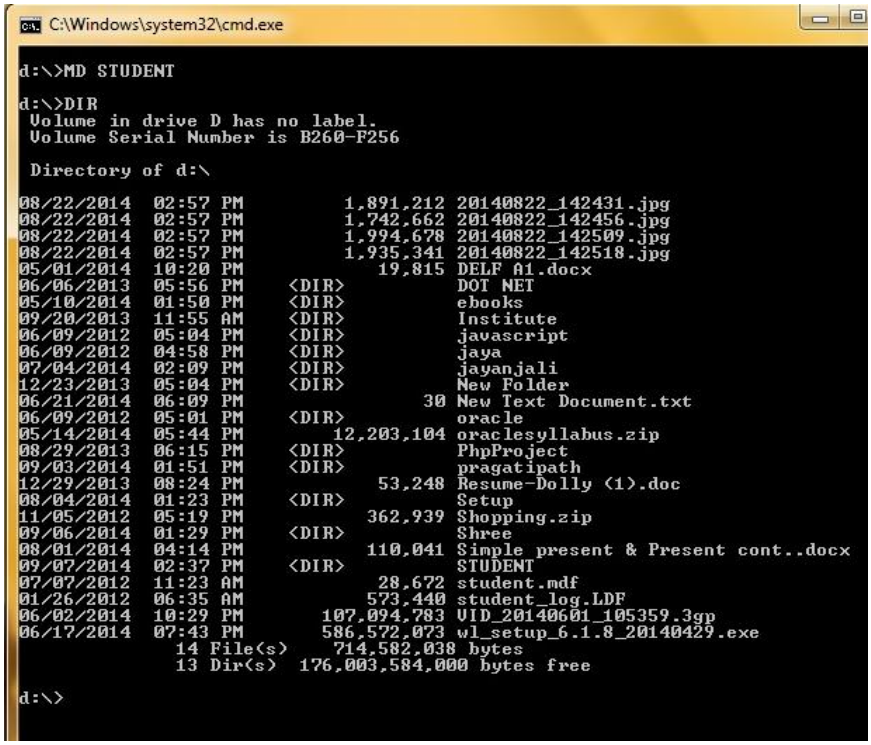
4. DEL

D:\>DEL TRY.TXT

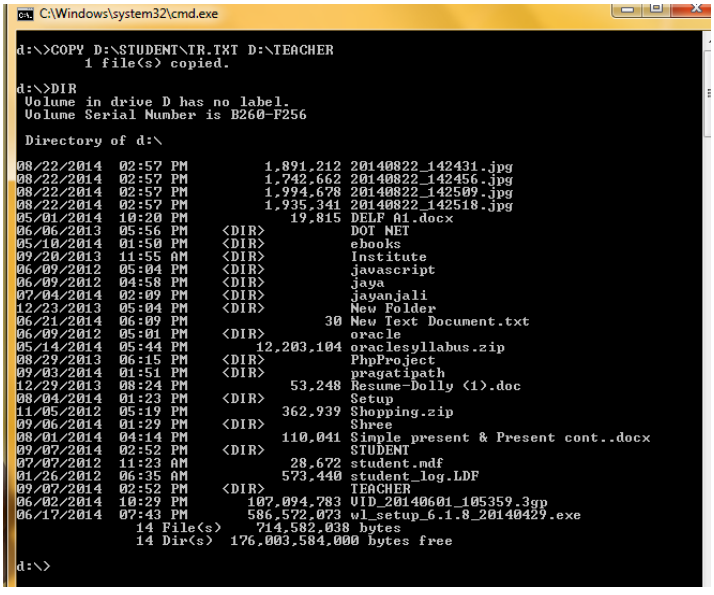


5. MD

D:\>MD STUDENT

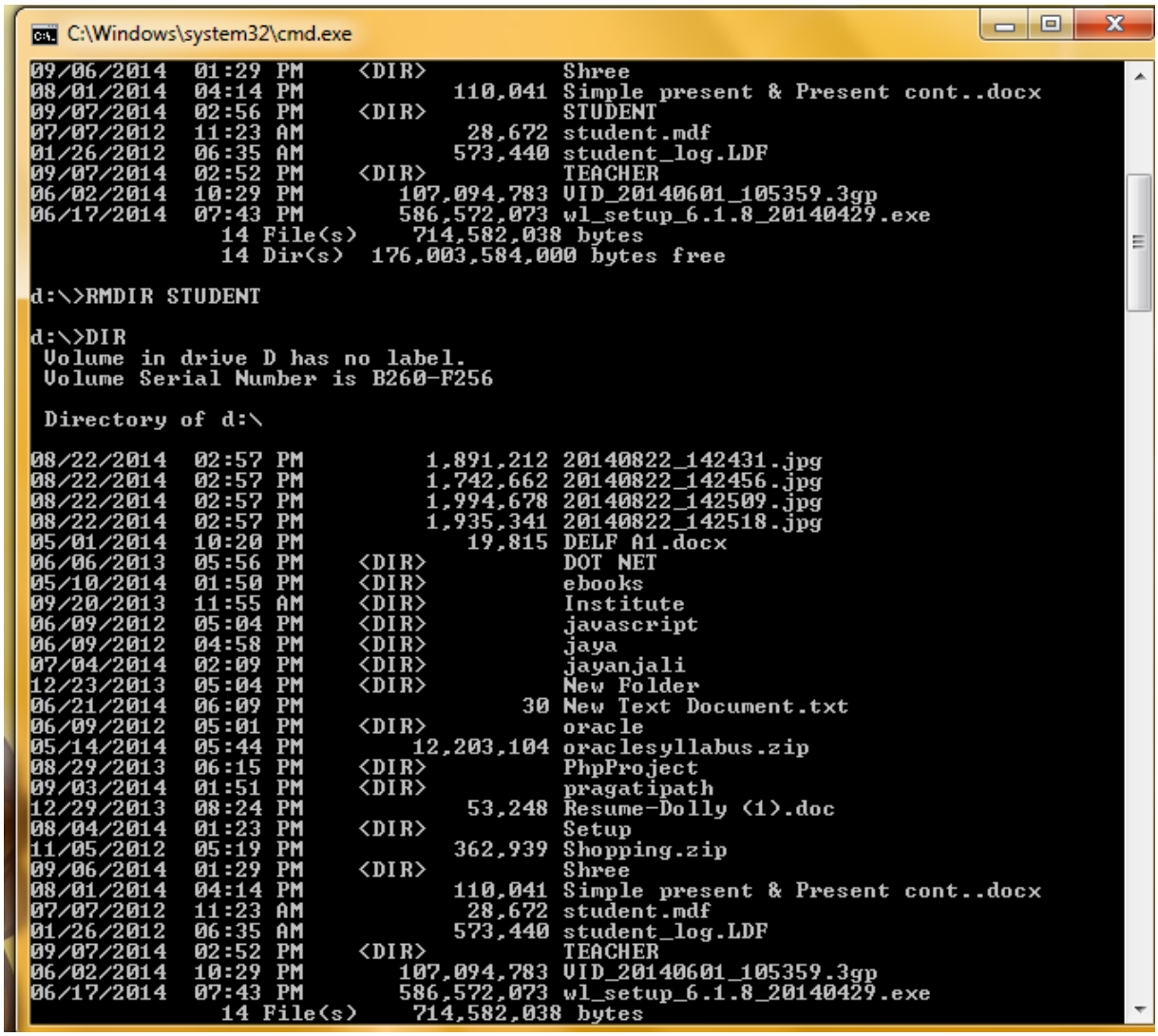


Copy



6. RMDIR

D:\>RMDIR STUDENT

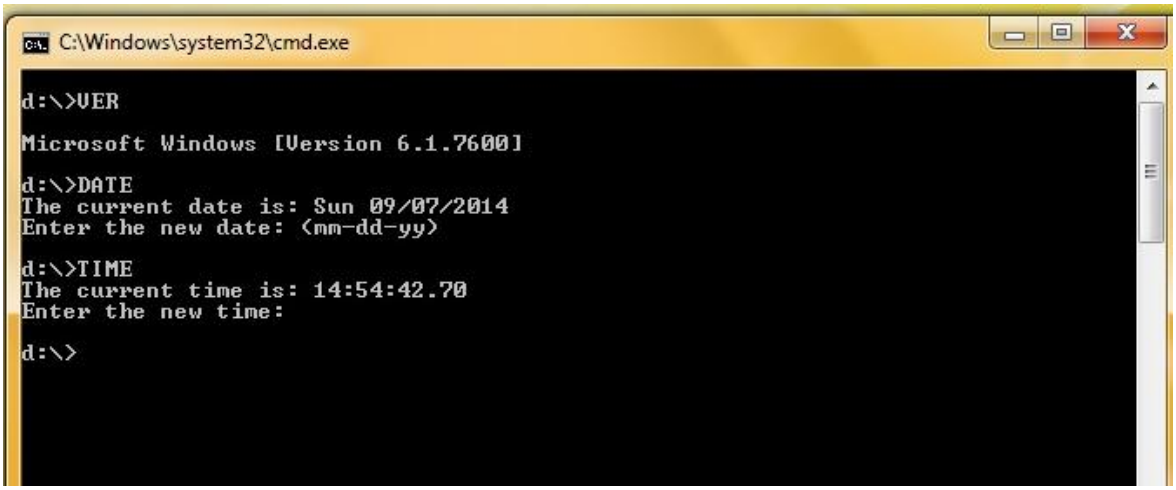


8) VER, DATE, TIME

D:\>VER

D:\>DATE

D:\>TIME



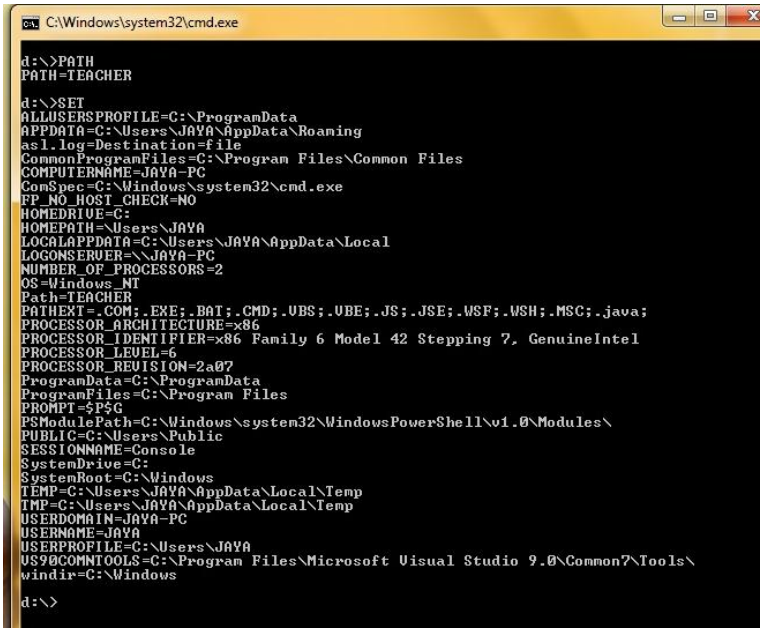
9) COPY CON

D:\>COPY CON

10) SET, PATH

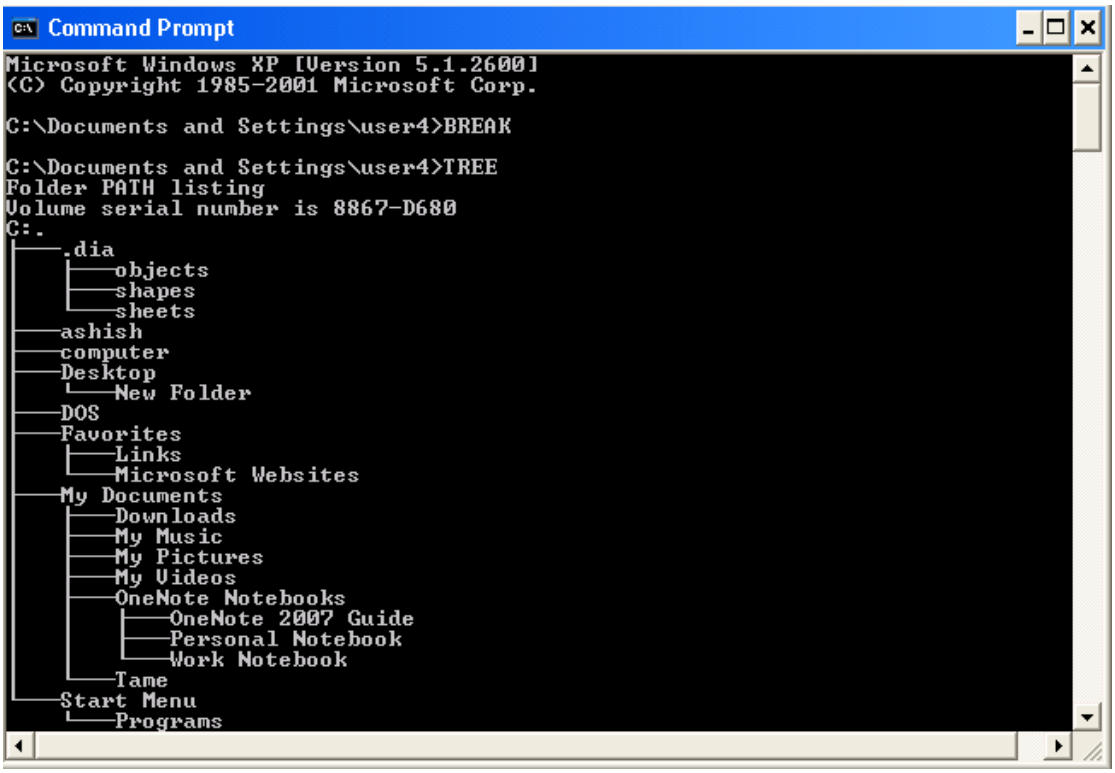
D:\>PATH

D:\>SET


C:\Windows\system32\cmd.exe
d:\>PATH
PATH=TEACHER
d:\>SET
ALLUSERSPROFILE=C:\ProgramData
APPDATA=C:\Users\JAYA\AppData\Roaming
asl.log=Destination=file
CommonProgramFiles=C:\Program Files\Common Files
COMPUTERNAME=JAYA-PC
ComSpec=C:\Windows\system32\cmd.exe
FP_NO_HOST_CHECK=NO
HOMEDRIVE=C:
HOMEPATH=\Users\JAYA
LOCALAPPDATA=C:\Users\JAYA\AppData\Local
LOGONSERVER=\\JAYA-PC
NUMBER_OF_PROCESSORS=2
OS=Windows_NT
Path=TEACHER
PATHEXT=.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH;.MSC;.java;
PROCESSOR_ARCHITECTURE=x86
PROCESSOR_IDENTIFIER=x86 Family 6 Model 42 Stepping 7, GenuineIntel
PROCESSOR_LEVEL=6
PROCESSOR_REVISION=2a07
ProgramData=C:\ProgramData
ProgramFiles=C:\Program Files
PROMPT=PG
PSModulePath=C:\Windows\system32\WindowsPowerShell\v1.0\Modules\
PUBLIC=C:\Users\Public
SESSIONNAME=Console
SystemDrive=C:
SystemRoot=C:\Windows
TEMP=C:\Users\JAYA\AppData\Local\Temp
TMP=C:\Users\JAYA\AppData\Local\Temp
USERDOMAIN=JAYA-PC
USERNAME=JAYA
USERPROFILE=C:\Users\JAYA
VS90COMNTOOLS=C:\Program Files\Microsoft Visual Studio 9.0\Common7\Tools\
windir=C:\Windows
d:\>

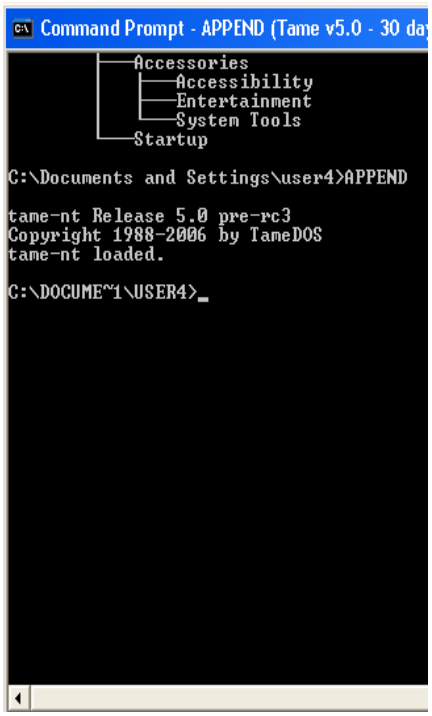
TREE

C:\>TREE


Command Prompt
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.
C:\Documents and Settings\user4>BREAK
C:\Documents and Settings\user4>TREE
Folder PATH listing
Volume serial number is 8867-D680
C:.
.dia
objects
shapes
sheets
ashish
computer
Desktop
New Folder
DOS
Favorites
Links
Microsoft Websites
My Documents
Downloads
My Music
My Pictures
My Videos
OneNote Notebooks
OneNote 2007 Guide
Personal Notebook
Work Notebook
Tame
Start Menu
Programs

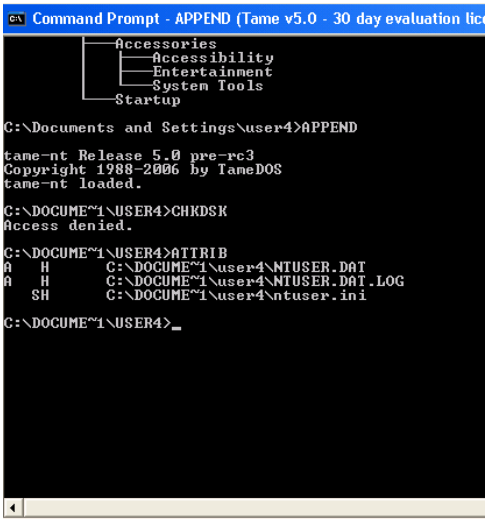
APPEND

C:\>APPEND



ATTRIB

C:\>DOCUME~1>USER4>ATTRIB



HOW TO WORK IN DIA

Table of Contents:

Chapter 1. Introduction

1.1. Introduction

Dia is an application for creating technical diagrams. Its interface and features are loosely patterned after the Windows program Visio. Features of Dia include multiple-page printing, export to many formats (EPS, SVG, CGM and PNG), and the ability to use custom shapes created by the user as simple XML descriptions. Dia is useful for drawing UML diagrams, network maps, and flowcharts.
This document describes version 0.97 of Dia.

Chapter 2. Quickstart

The Dia Quickstart is designed to help you get started creating diagrams with Dia without having to read a manual.

2.1. What Can You Do?

Dia is a diagramming application that can be used to make a large variety of diagrams. Dia is easy to learn and flexible enough to allow power users to create highly customized diagrams.

2.4. Making a Diagram

A diagram is made up of objects. Objects are shapes or lines that can be different colors and sizes. Objects can be simple line drawings, text, or full-color pictures. Some objects allow text to be entered inside the shape. Using Dia to create a diagram is easy. The Toolbox contains a palette of predefined objects, including simple shapes, lines, and specialized objects. To add an object to the canvas, simply click on the desired object's icon on the Toolbox and then click on the desired point on the canvas. The object will appear on the canvas where you clicked. See Adding Objects for more information.
An object can be moved by clicking on the object and dragging the mouse. The object can be resized by clicking and dragging one of the object's green or red "handles". See Moving Objects and Resizing Objects can be connected using lines. Just drag each end of a line to any connection point (small blue "x") on an object. Once objects are connected, they can be moved and the line stretches to keep them connected. In the Toolbox, you can double-click on any object's icon to view and edit the object's default properties.
This allows you to customize various default properties of each object. Dia includes a set of standard shape and line objects. See Objects for more information on working with the standard objects. Dia includes a large number of predefined objects for various uses. These include flowcharts, UML diagrams, network diagrams, and many others. See Special Object Categories for more information on the various objects available. Many common tasks in Dia require selecting one or more objects. Dia includes a number of ways to select objects quickly. See Selecting Objects for more information. Quickstart 4 Dia can be customized in a number of ways. See Customization for more information on customization. Layers create multiple-images so they are one image. By doing this, a user can edit one layer without
worrying about affecting any of the other layers. See Managing Layers for more information on working with layers. Dia is designed to make adding new user-defined shapes very easy. See Custom Shape Module for more information on creating your own custom shapes.

2.5. Saving and Printing Your Diagram

Dia provides the normal save and print options, located on the File menu. Selecting the File -> Page Setup allows you to set the paper size, orientation, and print margins. This also allows you to choose whether to print the diagram to scale (entered in percent) or to fit the diagram to a specific size (in centimeters)

.

2.6. Running Dia From the Command Line

Dia can be run from the command line. This allows certain Dia capabilities to be used in batch script files. See Dia Command Line for more information on creating your own custom shapes.

Chapter. The Canvas

3.1. Canvas Introduction

The Dia canvas is the window that contains the diagram. All of the user's objects are placed and arranged on the canvas.

3.2. Grid Lines

Grid lines are similar to the lines on graph paper. They allow the user to easily align objects on the canvas. If the Dynamic grid box is checked, the grid adjusts automatically to keep the same visible spacing as the diagram view is zoomed in or out. Also, when this box is checked, the other options on the dialog are disabled. If the Dynamic grid box is unchecked, then the grid spacing remains the same in absolute terms. So when
the view is zoomed out, the grid appears smaller, and when the view is zoomed in, the grid appears larger. The Spacing for the x and y coordinates is in centimeters and can be typed or entered using the increment / decrement buttons. The visible spacing determines which grid lines are visible. A value of 1 indicates that all grid lines are visible, 2 indicates that every second line is visible, and so on. Note that the snapto- grid works the same whether or not grid lines are visible. The Hex grid checkbox allows you to create a grid of hexagons instead of squares. The Hex grid size is also in centimeters. The snap-to-grid feature may be toggled on and off using the snap-to-grid button located below the canvas. When this is enabled, objects are forced to align on a grid line.

3.3. Rulers

Rulers appear on the top and the left of the Dia canvas. They show, in centimeters, how large your canvas is. A centimeter on the screen will not necessarily equal an actual centimeter. This will depend on your monitor's dots-per-inch (DPI) setting and your current zoom percentage. For example, if your monitor is set to 96 DPI and your zoom percentage is about 185%, then the display ruler is at actual scale. Regardless of these settings, you can always see how big your objects and diagram are using the
on-screen ruler.

3.4. Background Color

The background color option allows you to change the color of the canvas. By default, the color is white. However, the color can be changed by selecting Diagram -> Properties and then selecting the "Colors" tab. The first color option is Background. You can change the color by selecting the drop-down list box and then using the standard color selection options. See Objects / Colors for more information about selecting colors.

Note

The gridlines will change their color automatically to stay visible if the background color is changed to black.

3.5. Zooming

Zooming allows the user to zoom in (make things bigger) or zoom out (make things smaller). Zooming in is useful when you are trying to make your drawing very precise. Zooming out is useful when you want to view a larger portion of the diagram.

The canvas can be zoomed in to 2500% and out to 5%. Zooming can be done in several ways.

The Toolbox contains a Magnify tool. If you select the Magnify tool and then click anywhere on the canvas, the diagram is zoomed in at that point by a factor of two (e.g., from 100% to 200%). Shift+Click reverses the process (i.e., zooms out by a factor of two).

3.6. Other View Menu Option

In addition to the zoom options discussed above, the View menu provides a number of useful functions.

These are discussed below.

- Fullscreen (F11) toggles between the normal window view and full-screen view.
- AntiAliased toggles the antialiased feature on and off.
- Show Grid toggles the display of the grid on and off.
- Snap To Grid toggles the snap-to-grid property on and off.
- Snap To Objects toggles the snap-to-objects property on and off. When this is on, lines can be connected to the middle connection point of an object by dragging the line end handle to any point inside the object. When this is off, the line's connection handle must be dragged to the middle connection point of the object being connected.
- Show Rulers toggles the ruler display on and off.
- Show Connection Points toggles the connection points display on and off.
- New View opens a new window that displays the same diagram. This can be useful if you want to see and work on different sections of a diagram at the same time.

3.7. Undo and Redo

Dia supports Undo and Redo on most operations. To undo an operation, press Ctrl+Z or select Edit-
>Undo from the diagram menu bar. To redo an operation, press Ctrl+Shift+Z or select Edit->Redo from
the diagram menu bar.

Chapter 4. Objects and the Toolbox

A diagram in Dia consists of a set of objects. Objects are shapes that are either predefined or user-defined.
The Toolbox allows you to select the desired object and allows you to set default properties for objects.

4.1. Dia Toolbox Overview

When Dia is executed, two windows open: the canvas, which contains the diagram, and the Toolbox, which contains the object palettes and other controls. The Toolbox is divided into three regions. The top region contains 14 buttons. The first three are controls used to adjust the diagram. The next 11 are the icons for the built-in basic objects.
The middle portion of the Toolbox contains the selected Special Objects. This is used to select among the many built-in object sheets supplied with Dia, such as UML, Flowchart, Network, etc.
The bottom portion of the Toolbox contains special controls that set default properties for objects placed on the canvas. These include foreground color, background color, and line width. There are also three controls that set the default properties for line objects. These are beginning arrow style, ending arrow style, and line style.

.

4.2. Using Objects

4.2.1. Adding Objects

Adding objects to the Dia canvas is done by clicking on the desired object's icon button in the Toolbox and then clicking on the canvas at the desired insertion point. The selected object will be inserted at that point.

4.2.2. Moving Objects

When an object is inserted into the canvas, the desired object will appear with small green boxes (known as handles) around the border.
To move an object, click anywhere inside the object (or somewhere on a line other than a handle) and drag the mouse to the desired location on the canvas. For line objects, you need to click on the line. Objects and the Toolbox

4.2.3. Resizing Objects

Handles are used to change the size of the object. To expand an object, just click a handle and drag it away from the center of the object. To shrink an object, drag a handle toward its center. The object's size will change as you drag the mouse. If an object has a fixed aspect ratio, changing one dimension automatically changes the other. If an object has a free aspect ratio, you can change one dimension (e.g., height) without affecting the other (e.g., width). Some objects have a property setting that determines whether the aspect ratio is fixed or free.

4.2.4. Deleting Objects

To delete an object, click on the object to select it. The handles will display, which indicates that the object is selected. Then press the Delete key or select Edit->Delete from the menu.

4.2.5. Connecting Objects With Lines

In many diagrams, shapes are connected to each other using one of the basic line objects. When a shape is not selected, a number of connection points are displayed on its borders as small "x" figures. There is also a connection point in the middle of each shape. Lines also have connection points where other lines can connect. Lines have handles on each end that are used to connect them to other objects. These handles are green if the line is not connected and red if it is connected. Lines also have orange handles that are used to shape the line. The figure below shows several lines with green handles on the unconnected end and red handles on the connected end.

4.2.6. Entering Text

Text can be entered by selecting the object, entering text edit mode and then typing the text. The font, size, alignment, and other formatting properties can be changed by double-clicking the object, when not in text edit mode. Many Dia objects suport in-canvas editing of text. Dia versions before 0.97 had not explicit distinction between a selected object and it's text edit mode. As a result numerous workarounds were needed to support canvas and text editing with the same set of keys, e.g. the Delete key was not deleting the character right to the cursor, but instead the whole object. With Dia 0.97 and later there is a dedicated text edit mode. You can enter it by hitting Enter or F2 key while an appropriate object is selected. To leave text editing just click outside of the editable area or hit the Escape key.

4.2.7. Aligning Objects

Dia provides several options to help arrange multiple objects without needing to move each object individually. These are available on the Objects->Align menu choice shown below.

4.2.7.1. How To Align Objects

To align objects, first select the objects to align (see Selecting Objects) and then execute one of the align commands, using either the menu or the shortcut key. The order in which objects are selected does not matter.

4.2.7.2. Left, Center, and Right Align

The align left, right, and center are used to align objects arranged vertically on the canvas. The align left aligns the selected objects to the left edge of the left-most object. Similarly, the align right aligns the selected objects to the right edge of the right-most object. Align center aligns the center of each object to the mid-point between the extreme left and extreme right edge of all selected objects

4.2.7.4. Spread Out Horizontally and Vertically

The Align / Spread Out commands can be used to create uniform spacing for objects arranged either horizontally or vertically. Examples of these commands are shown below.

4.2.7.5. Align Adjacent or Stacked

The Align / Adjacent command is used to place objects next to each other with no horizontal space in between. The Align / Stacked is used to place objects directly on top of each other, with no vertical space in between.

Chapter. Basic Objects

1. Basic Objects Introduction

Dia has a dozen basic objects: Text, Box, Ellipse, Polygon, Beziergon, Line, Arc, Zigzagline, Polyline, Bezierline, Image and Outline.

1.1. Text

Dia supports the use of text as its own type of object. Text can be placed on the canvas by clicking on the text button on the toolbox. For tips on editing text, see Entering Text in the Using Objects chapter.

1.2. Box

The boxes in Dia can be customized to be any size desired by the user. The properties available are:

- Corner Rounding - Causes the corners to be rounded instead of hard edges.
- Draw Background - Keeps the center clear or fills with the background color.

1.3. Ellipse
An ellipse is a shape which has all rounded sides, such as a circle or an oval.

1.4. Polygon

A polygon is any closed shape made up of straight lines. The polygon tool, allows the user to draw any shape with all straight lines.

1.5. Beziergon

A beziergon is similar to the polygon as the user defines the shape. However, it differs in that it allows curves to exist in the shape.

1.6. Line
A Line is a simple straight line. Unlike the other lines, the simple Line does not have any handles to allow the shape to be altered. It just has two connection handles, one at each end.

1.7. Arc
An Arc is a line which has been bent to create a semi-circle shape. Drag the orange handle in the middle to alter the curve of the arc.

1.8. Zigzagline
A Zigzagline is a line which has sharp, 90 degree turns in it. Zigzaglines have two special properties, Corner radius and Autoroute. Corner radius allows you to round the corners of the line. Zigzaglines also allow you to add or delete line segments. This can be useful if you need the line to turn several corners (e.g., to traverse around some other objects) or to get the arrow pointed in the right direction. To add or delete a segment, right-click on the line at the point on the line where you want to add or delete and select Add segment or Delete segment.

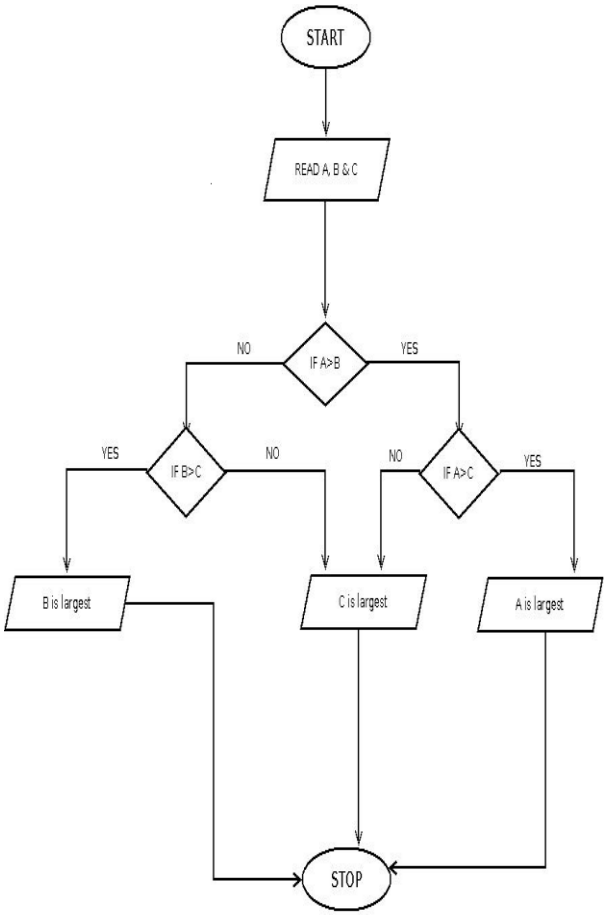
Flowchart
A group dedicated to providing the user shapes which are commonly used in flow charts. Flow charts can be routinely found in computer programming, marketing, economics, and any other semi-linear operation which requires planning. Most flowchart objects allow entry of text.

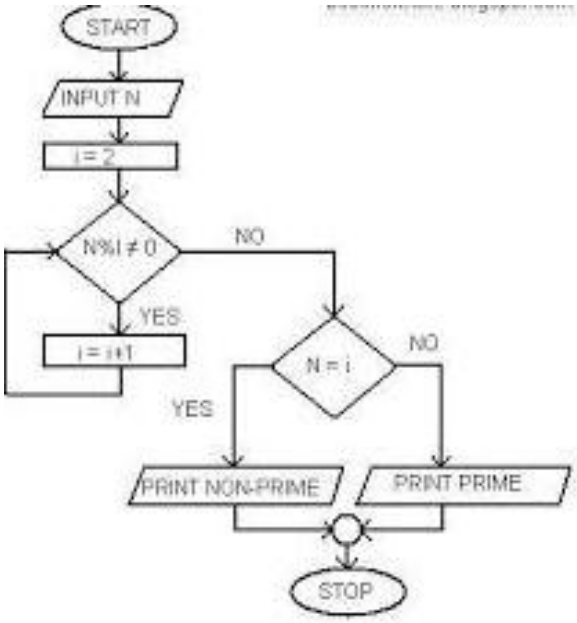
Organizing Sheets and Objects

It is possible to modify the way objects are grouped into sheets. Say, for example, that most of the object you need are on one sheet but you also need some objects from a second sheet. To keep everything you need on one sheet, you can copy objects from one sheet to another as follows:
1. On the Toolbox menu, select File->Sheets and Objects.
2. Using the drop-down listbox on the left side, select the sheet you want to copy from. On the right,
select the sheet you want to copy to.
3. Click on the object you wish to copy on the left side and press the Copy button.

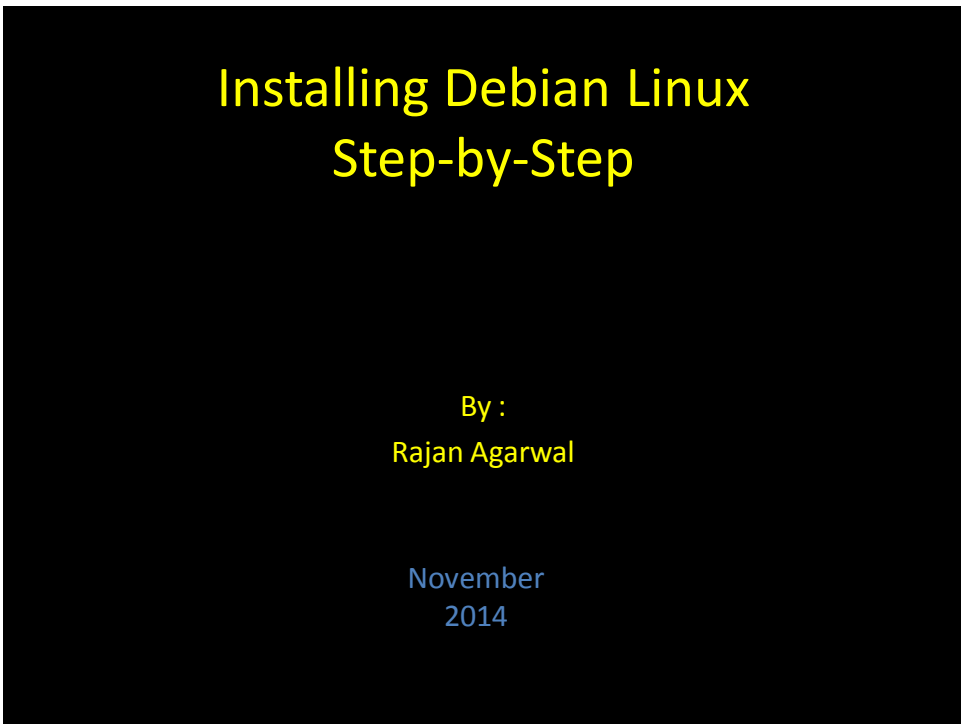
4. Repeat for any other objects you want to copy. When you are done, press the Apply button on the
bottom to save your changes.
From now on, the new objects will be listed on the sheet on the right. You can also remove objects from
sheets and move objects from one sheet to another. You can also use the Up and Down buttons to change
the order of the objects within a sheet.

Flowcharts made by using DIA:

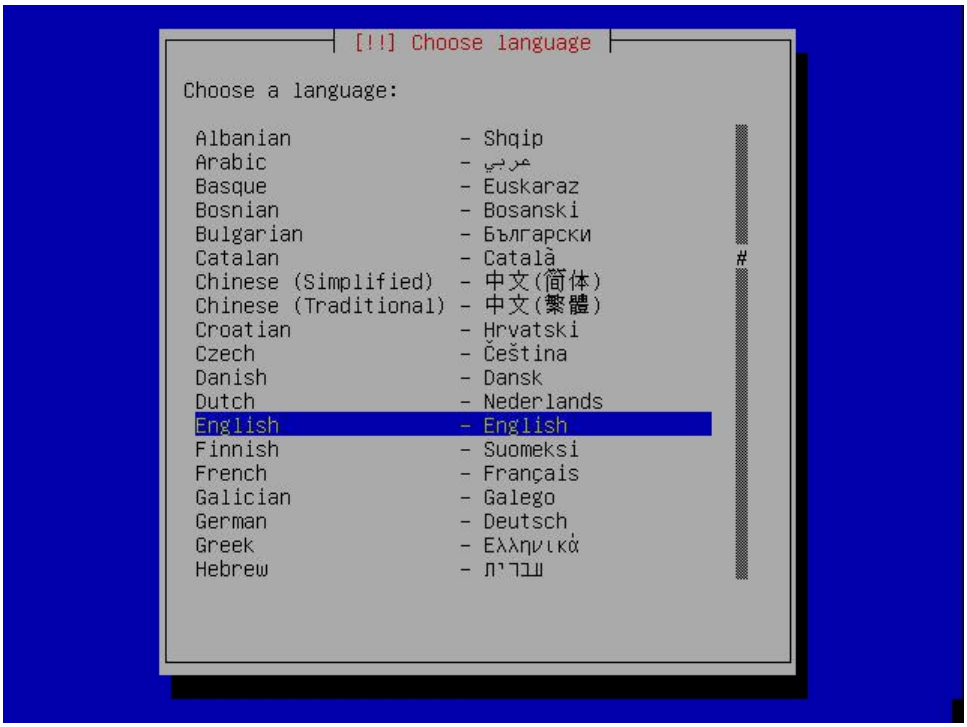


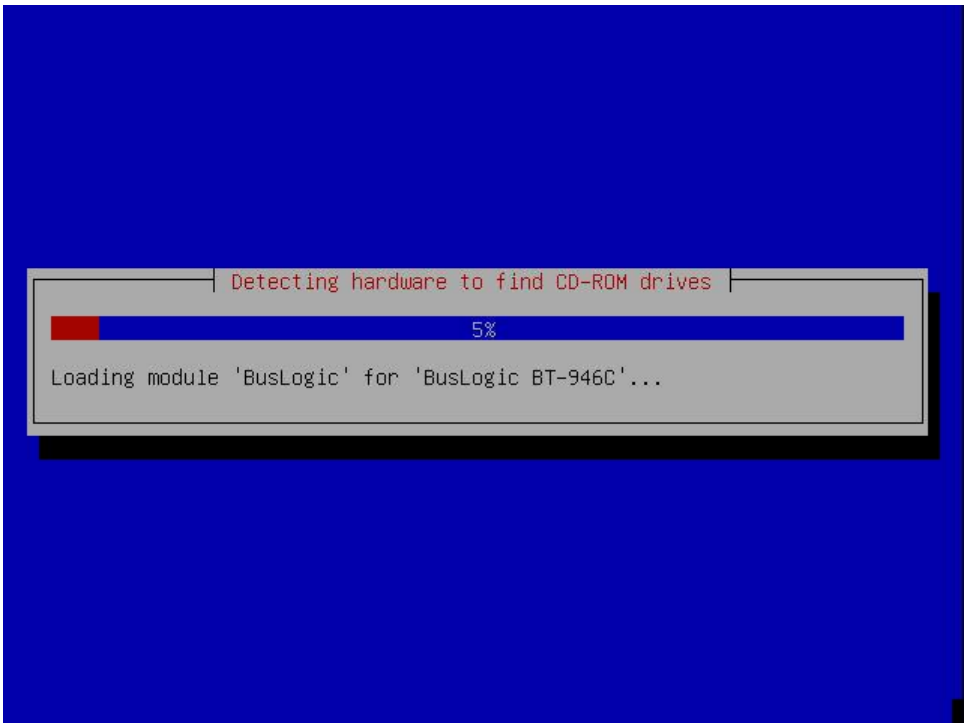


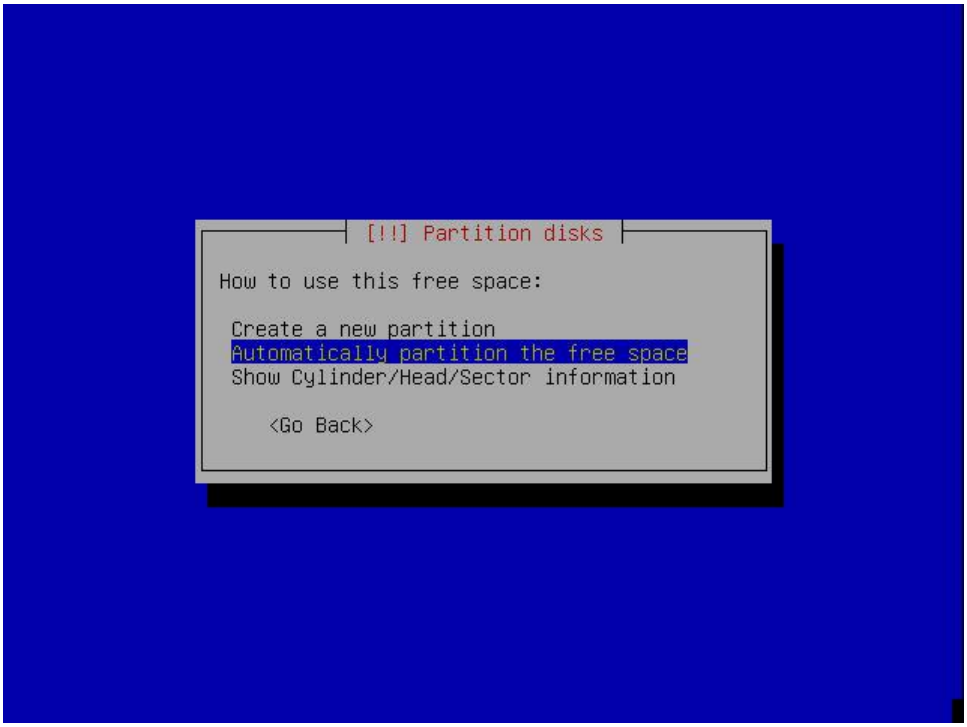
AIM : INSTALLING DEBIAN LINUX .

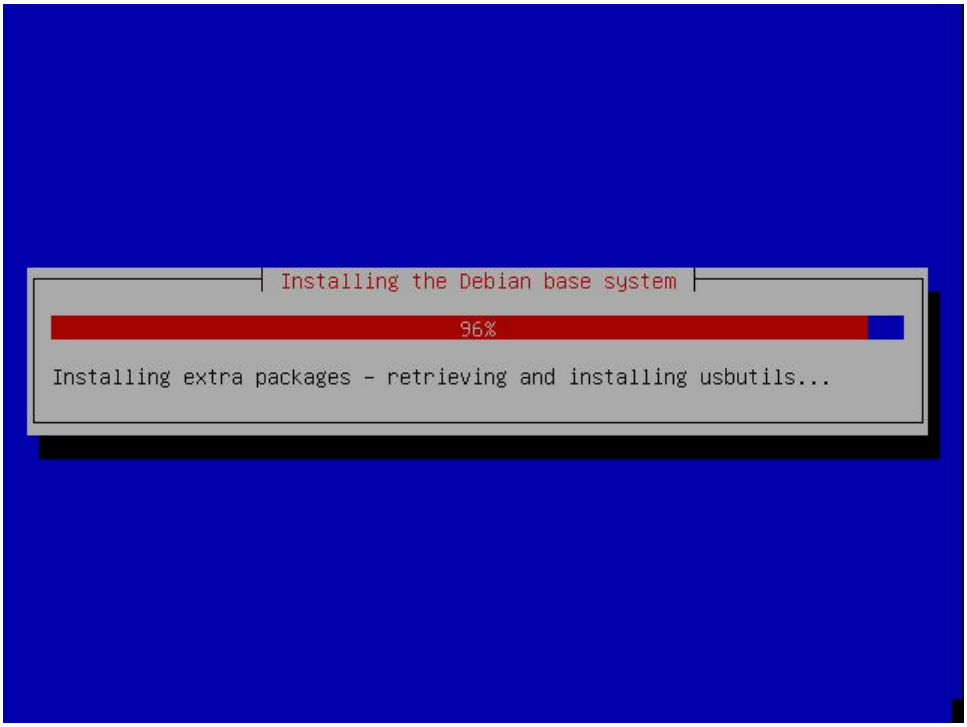


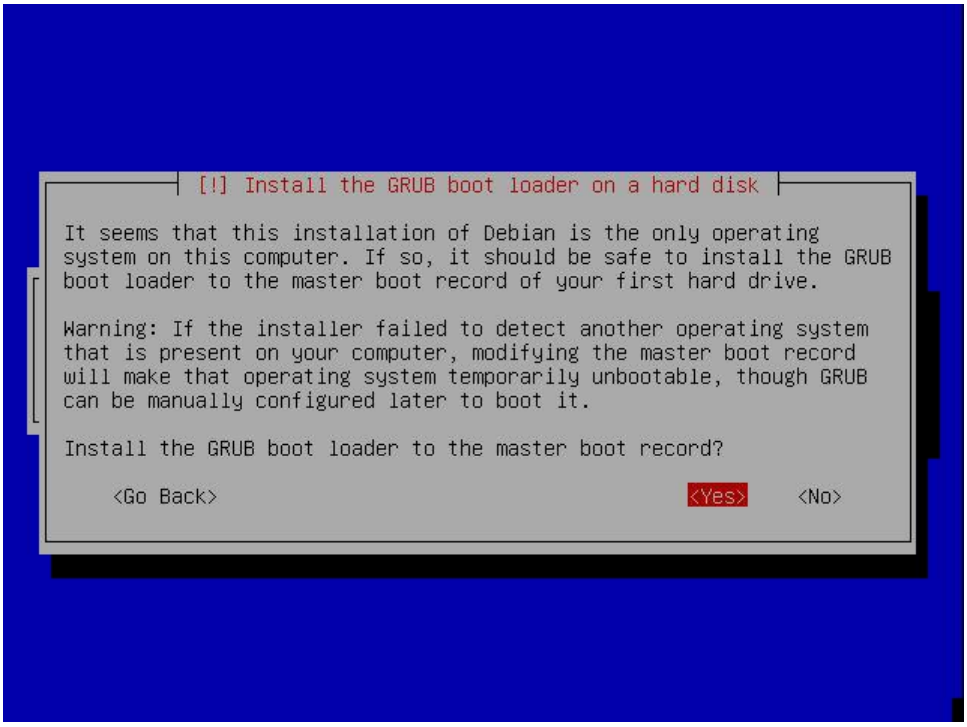

debian
GNU / Linux
Press F1 for help, or ENTER to boot: _

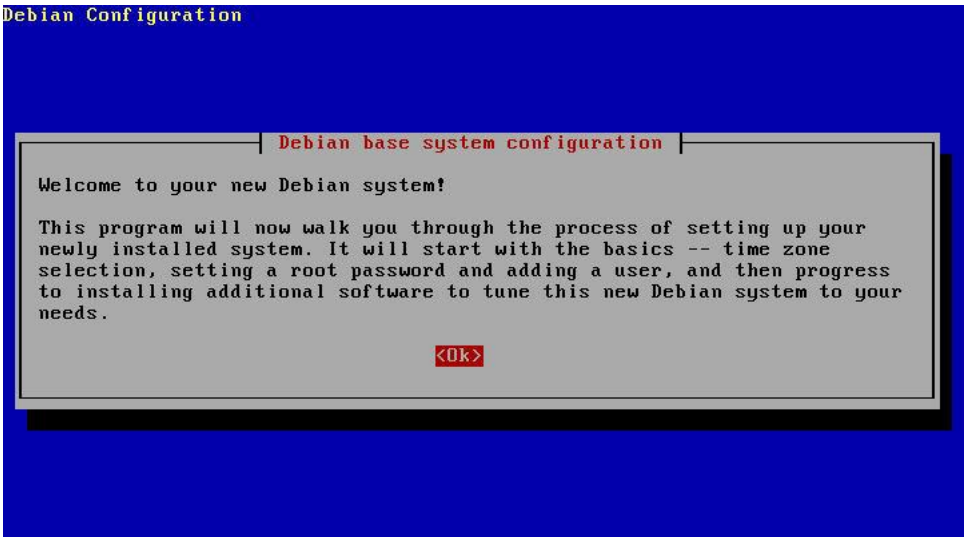

[!!] Choose language
Choose a language:
Albanian - Shqip
Arabic - عربي
Basque - Euskaraz
Bosnian - Bosanski
Bulgarian - Български
Catalan - Català
Chinese (Simplified) - 中文(简体)
Chinese (Traditional) - 中文(繁體)
Croatian - Hrvatski
Czech - Čeština
Danish - Dansk
Dutch - Nederlands
English - English
Finnish - Suomeksi
French - Français
Galician - Galego
German - Deutsch
Greek - Ελληνικά
Hebrew - עברית

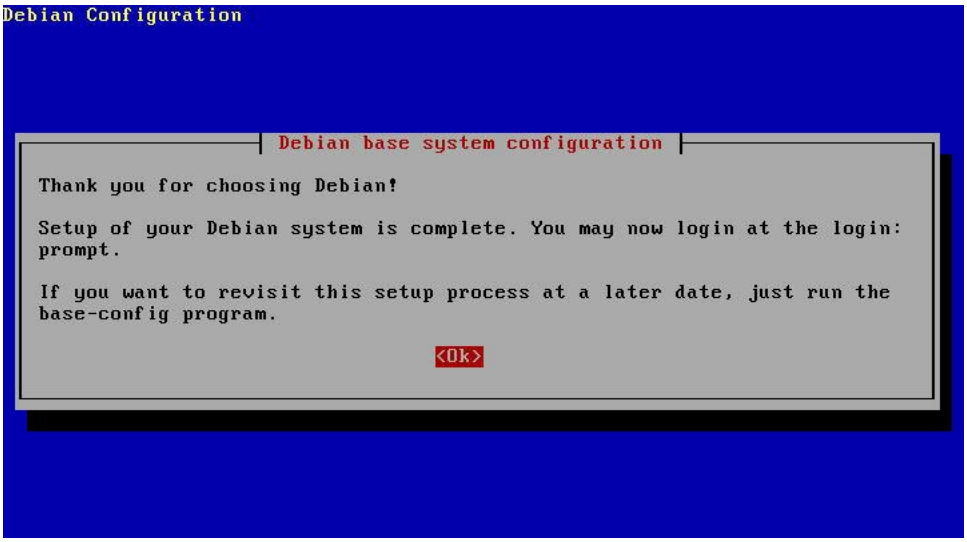

Detecting hardware to find CD-ROM drives
5%
Loading module 'BusLogic' for 'BusLogic BT-946C'...


[!!] Partition disks
How to use this free space:
Create a new partition
Automatically partition the free space
Show Cylinder/Head/Sector information
<Go Back>


Installing the Debian base system
96%
Installing extra packages - retrieving and installing usbutils...

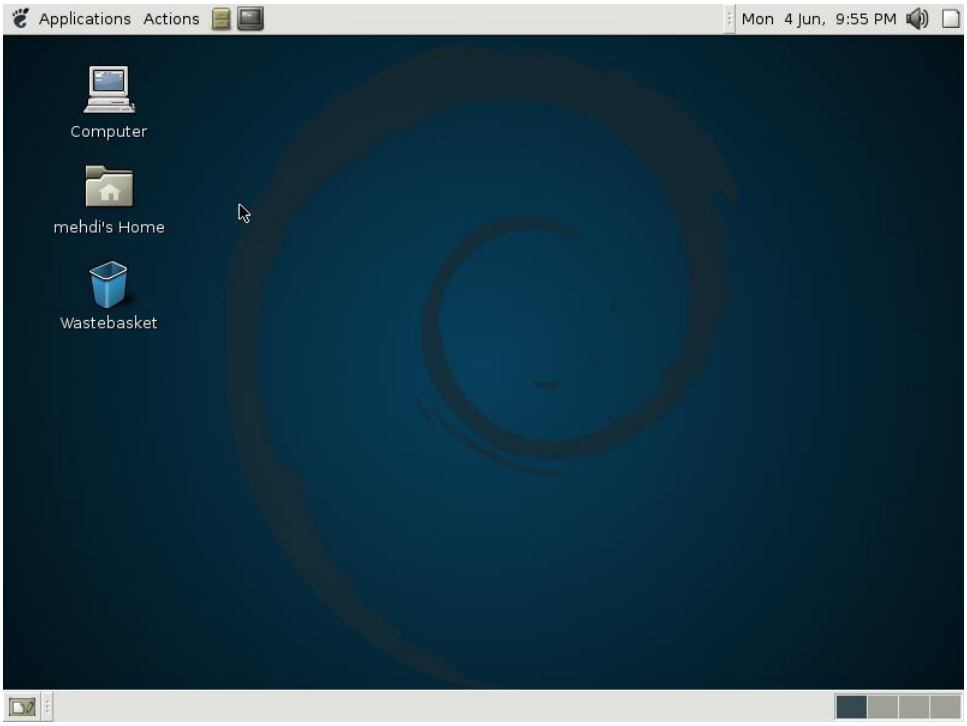

[!] Install the GRUB boot loader on a hard disk
It seems that this installation of Debian is the only operating system on this computer. If so, it should be safe to install the GRUB boot loader to the master boot record of your first hard drive.
Warning: If the installer failed to detect another operating system that is present on your computer, modifying the master boot record will make that operating system temporarily unbootable, though GRUB can be manually configured later to boot it.
Install the GRUB boot loader to the master boot record?
<Go Back>
<Yes>
<No>


Debian Configuration
Debian base system configuration
Welcome to your new Debian system!
This program will now walk you through the process of setting up your newly installed system. It will start with the basics -- time zone selection, setting a root password and adding a user, and then progress to installing additional software to tune this new Debian system to your needs.
<Ok>


Debian Configuration
Debian base system configuration
Thank you for choosing Debian!
Setup of your Debian system is complete. You may now login at the login: prompt.
If you want to revisit this setup process at a later date, just run the base-config program.
<Ok>


GNOME Desktop Manager
Session Language Actions Theme
Mon Jun 04, 9:54 PM
debian
Welcome
Username:
Please enter your username
OK

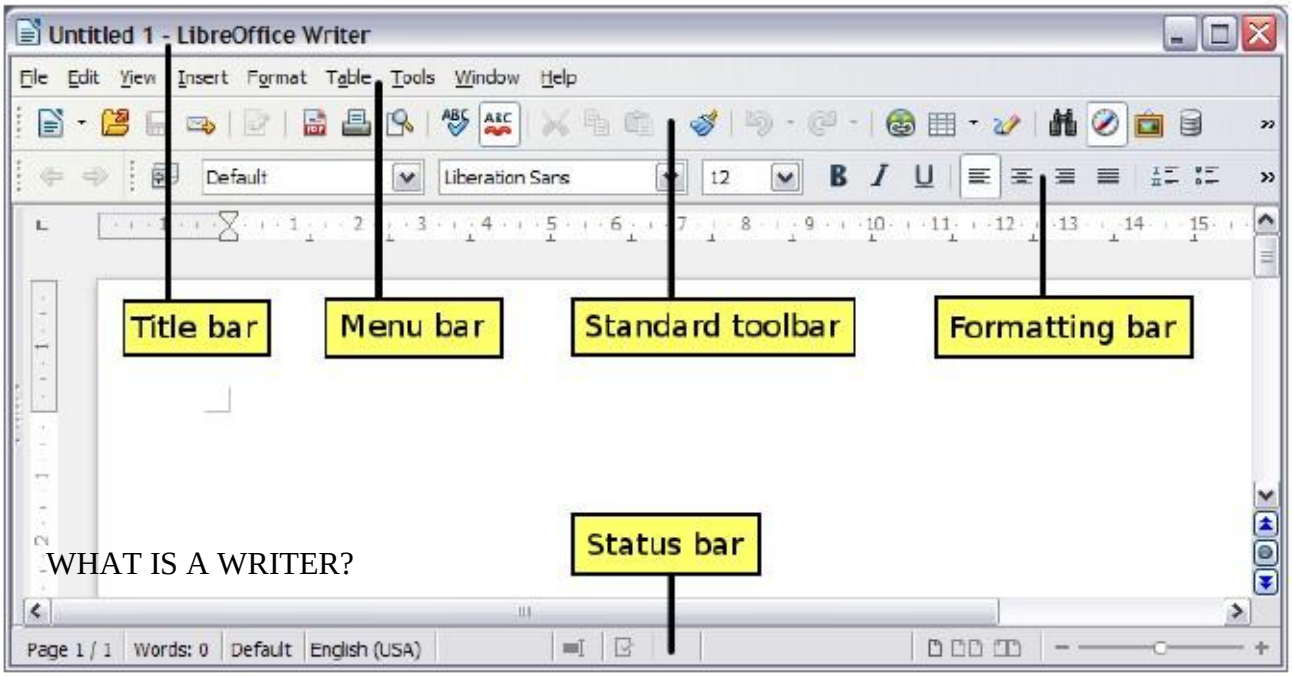

debian
Nautilus


Applications
Actions
Mon 4 Jun, 9:55 PM
Computer
mehdi's Home
Wastebasket

Aim: LIBRE OFFICE

Writer is the word processor component of LibreOffice. In addition to the usual features of a word processor (spelling check, thesaurus, hyphenation, autocorrect, find and replace, automatic generation of tables of contents and indexes, mail merge, and others), Writer provides these important features:

- Templates and styles (see Chapters 6 and 7)
- Page-layout methods, including frames, columns, and tables (Chapter 4)
- Embedding or linking of graphics, spreadsheets, and other objects (Chapter 8)
- Built-in drawing tools (Chapter 8)
- Master documents, to group a collection of shorter documents into a single long document (Chapter 13)
- Change tracking during revisions (Chapter 3)
- Database integration, including a bibliography database (Chapters 11, 12, 15)
- Export to PDF, including bookmarks (Chapter 5)
- And many more



WHAT IS A WRITER?

This chapter covers the basics of working with text in Writer, the word-processing component of LibreOffice. It assumes that you are familiar with the use of a mouse and keyboard and that you have read about Writer's menus and toolbars and other topics covered in Chapter 1, Introducing Writer.

We recommend that you also follow the suggestions in Chapter 2, Setting up Writer, about displaying formatting aids, such as end-of-paragraph marks, and selecting other setup options.

When you have read this chapter, you should know how to:

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- Select, cut, copy, paste, and move text
- Find and replace text
- Insert special characters
- Format paragraphs and characters
- Create numbered or bulleted lists
- Check spelling and grammar, use the thesaurus, and choose hyphenation options
- Use the autocorrection, word completion, autotext, and line numbering features
- Track changes, undo and redo changes, and insert comments
- Link to other parts of a document

INTRODUCTION ON WORKING WITH TEXT

Inserting special character

A special character is one not found on a standard English keyboard. For example, © ¾ æ ç Ł ñ ö

.

ø ¢ are all special characters. To insert a special character:

1) Place the cursor in your document where you want the character to appear.

2) Click Insert > Special Character to open the Special Characters dialog.

3) Select the characters (from any font or mixture of fonts) you wish to insert, in order; then click OK. The selected characters are shown in the lower left of the dialog. As you select each character, it is shown on the right, along with the numerical code for that character.