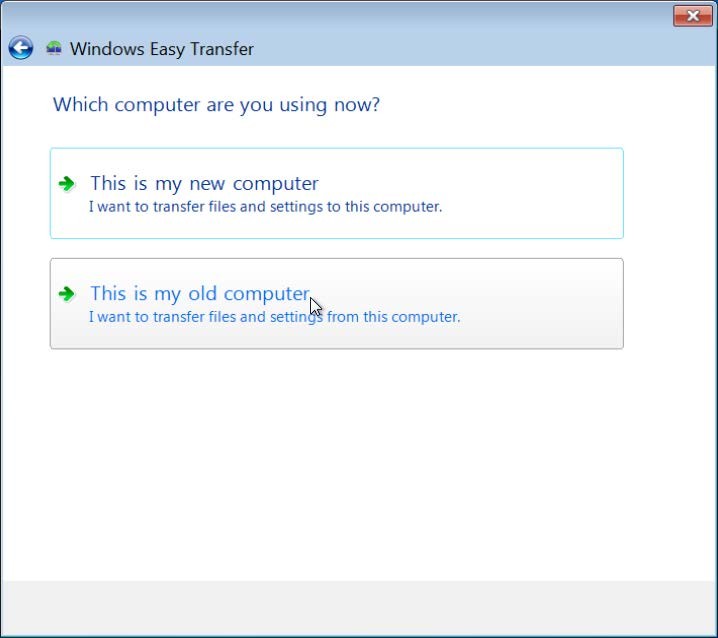
**Instruction Card 1 - Data Migration before installing Windows**

We prepared a computer with windows 7 and a flash drive

At the beginning of the work we create a folder and call it "For Transferring". Inside it create the file "data" and write in it "The from older". Save it. Open the For Transferringfolder. Connect the USB flash drive to the computer. Navigate to Computerand open the USB flashdrive. Create a folder on the USB flash drive and name it Transfer datafiles. Click Start **>** AllPrograms **>** Accessories **>** SystemTools **>** Windows Easy Transfer. The Windows Easy Transfer window opens. Next, we learn what we want to transfer to a new computer. For example, I want to transfer photos to a new computer. Click An external hard disk or USB flash drive. The Which computer are you using now?window opens.

*Due to the work, I noticed that the data transfer function is not available in some versions of windows. I have windows 10*

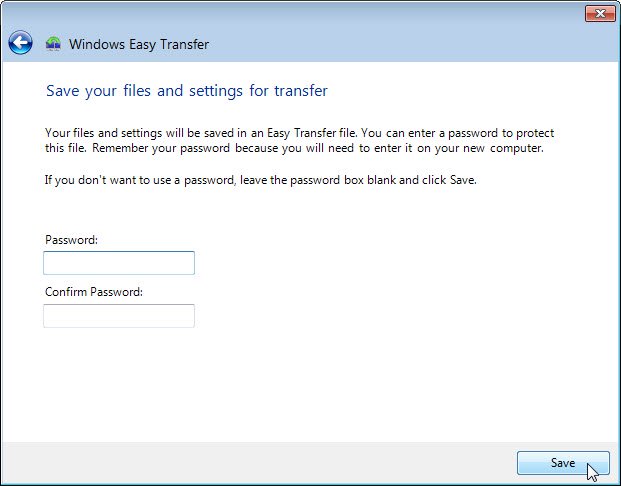
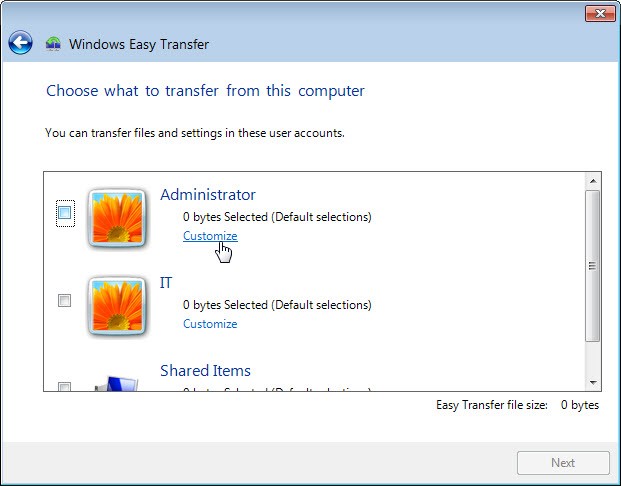
Due to the differences between Windows 7 and Vista, this lab has two parts. Students are required to perform the Windows 7 lab and read through the Vista lab. Inform students that they will only need one computer for this exercise.

Click This is my old computer. The Checking what can be transferred…window opens. The Choose what to transfer from this computer window opens.When the customize window opens, click **Advanced** Navigate to the **For Transferring** folder that is on the desktop.

This will be the location where files are transferred from.Select the **Data**file and click **Save**. The **Choose what to transfer from this computer** window opens. Click **Next**. The **Save your files and settings for transfer** window opens.

What is the size of the file being transferred? Answers may vary. It will depend on the amount of data stored in the selected account(s) 16 bytes.

Locate the folder called **Transfer data files** on the USB flash drive and click **Save**. The **These files and settings have been saved for your transfer** window opens.



#### Delete the original data Receive the transfer file. Click **Start > All Programs > Accessories > System Tools > Windows Easy Transfer**. The **Welcome to Windows Easy Transfer** window opens. In concluding we Verify the Transferring.

### Part 2. Windows Vista

Log on to the computer. Right-click the desktop and choose New > Folder.Type For Transferring and press Enterto name the folder.Click Start > All Programs > Accessories > Notepad to open Notepad.Type From older PCin Notepad.Click File > SaveAs**..**Navigate to Desktop > For Transferring. Type Datain the File Name box and press Enter.Click File >Exit.You should now have a file named Datain a folder called For Transferring. Prepare a data flash drive. Create the Easy Transferring

**Instruction Card 2- Checking for Updates in Windows 8 or 10**

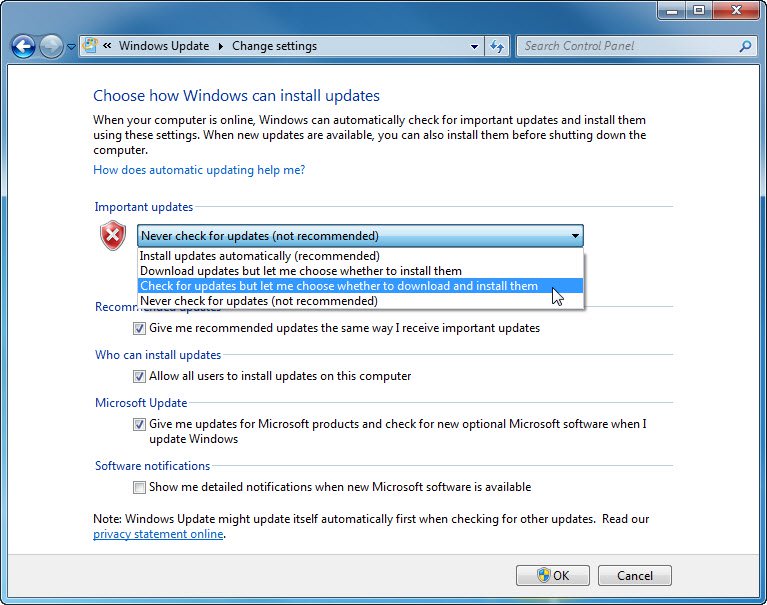
# Introduction

In this lab, you will configure the operating system so you can select which updates are installed and then change the settings so updates are downloaded and installed automatically.

For this lab we need a computer with windows 7 installation.

At the beginning of work, we check for updates on our computer. And we drive in the following procedure. Navigate to the Change Settingswindow by clicking Control Panel **>** Windows Update **>** Changesetting**s**.

In the Important updatesdrop-down menu, select Check for updates but let me choose whether to download and installthem.



In the course of work, we select updates for application and install the update.

The Windows Update window displays the status of the update process. After all the selected updates are installed, you can get a message about the need to restart. If you received this message, restart your computer.

# If you restart your computer, open Windows Update again by clicking Control Panel> Windows Update> Change Settings

# Open the Windows Update utility. (Optional - this is to find out if the update is coming)

# Change Windows Updates to automatically install updates

# In conclusion: Windows provides updates to fix operating system or application problems. Important updates indicate that the fix may be critical to the operation of the computer. If Windows sets up an automatic installation of important updates, these problems will be solved as soon as possible.

**Instruction Card 3 - Research Computer Components**

Use the Internet, trade publications, or a local store to gather information about the components you will need to complete your customer’s computer. Information is provided for the components that your customer already has. Use these specifications to make sure that the components you research are compatible with the components your customer already owns. Be prepared to discuss your selections.

# Step 1: Answer the following PC component questions.

List three components that must have the same compatible formfactor.

Case, power supply, motherboard

List three components that must conform to the same sockettype.

Motherboard, CPU, heat sink/fan

List two components that must utilize the same front side busspeed.

Motherboard, CPU

List three considerations when you choosememory.

Type, size, number of pins

What component must be compatible with every other component of the computer?

Motherboard

**Instruction Card 4 - Build a Specialized Computer System**

Use the Internet, a newspaper, or a local store to gather information about building a specialized computer system that supports hardware and software that allows a user to perform tasks that an off-the-shelf system cannot perform. Be prepared to discuss your selections.

For this worksheet, assume the customer’s system will be compatible with the parts you order.

1. The customer runs an audio and video editing workstation to record and mix music, create music CDs, CD labels,and create homemovies.The customer wishes to up grade the components listed in the table.

|  |  |  |
| --- | --- | --- |
| **Brand and Model Number** | **Features** | **Cost** |
| Audio card | Creative Sound Blaster Zx PCIe Gaming Sound Card with HighPerformance Headphone Amp and Desktop Audio ControlModule | US$109.99 |
| Video card | EVGA GeForce GTX 1080 Founders Edition, 8GB GDDR5X,LED, DX12 OSD Support (PXOC) Graphics Card 08G-P4-6180-KR | US$986.59 |
| Hard drive | Velociraptor WD1000CHTZ 1 TB 2.5" Internal Hard DriveUltra-fast: Designed around a 10,000 RPM spin speed, theseSATA 6 Gb/s drives include a 64 MB cache and deliver theultimate performance for photo and video editing | US$123.99 |
| Dual monitors | Philips 19DP6QJNS 19” x (2) Dual LED IPS Monitors, 5:  4 Aspect Ratio, Ultra Narrow Bezel, VGA, DP, HDMI w/MHL,USB | US$387.81 |

Provide reasons for the components purchased. How will they support the customer’s needs?

In the first part, the high gamma sound card for good audio quality and expandability, a latest generationvideo card for fast graphics processing and support for dual monitors, high quality, and an ultra fast harddisk With 10.000RPM

b. The customer runscomputer-aideddesign(CAD)orcomputer-aidedmanufacturing(CAM)softwareand wishes to upgrade the components listed in thetable.

|  |  |  |
| --- | --- | --- |
| **Brand and Model Number** | **Features** | **Cost** |
| CPU | Intel Boxed Core I7-6700 FC-LGA14C 3.40 GHz 8 M Processor Cache 4 LGA 1151 BX80662I76700 | US$305.43 |
| Video card | EVGA GeForce GTX 1070 SC GAMING ACX 3.0, 8GB GDDR5, LED, DX12 OSD Support (PXOC) Graphics Card 08G-P4-6173-KR | US$407.99 |
| RAM | G.SKILL TridentZ Series 16GB (2 x 8GB) 288-Pin DDR4 3200 (PC4 25600) Z170 Platform Desktop Memory F4-3200C16D-16GTZKW | US$126.99 |

Provide reasons for the components purchased. How will they support the customer’s needs?

The reason I chose the 6th generation Intel processor for more processing power, a video card skimming the last gamma of Nvidia video cards, and increased RAM capacity, with the amount of 16gbs of ram

c.The customer uses virtualization technologies to run several different operating systems to test software compatibility. The customer wishes to upgrade the components listed in thetable.

|  |  |  |
| --- | --- | --- |
| **Brand and Model Number** | **Features** | **Cost** |
| RAM | Corsair Vengeance LPX 16GB (2x8GB) DDR4 DRAM 3000MHz (PC4-24000) C15 Memory Kit - Black Corsair Vengeance LPX 16GB (2x8GB) DDR4 DRAM 3000MHz (PC4-24000) C15 Memory Kit - Black | US$124.99 |
| CPU | Intel 7th Gen Intel Core Desktop Processor i7-7700K (BX80677I77700K) | US$349.89 |

Provide reasons for the components purchased. How will they support the customer’s needs?

The maximum amount of maximum memory for a greater fluidity in the execution of the virtual machines that are wanted to open, and a processor of last generation for a greater capacity of processing when handling the virtual machines.

**Lab - Upgrade Hardware**

1. Introduction

Use the Internet, a newspaper, or a local store to gather information about hardware components. Your customer’s computer currently has onemodule of 2 GB of RAM, a 500 GB hard disk drive, and a PCIe video adapter card with 256 MB of RAM. Your customer wants to be able to play advanced video games.

* 1. Research memory options.

Shop around, and in the table below list the brand, model number, features, and cost for two different 4 GB modules of DDR3-1600 (PC3-12800).

|  |  |  |
| --- | --- | --- |
| Brand and Model Number | Features | Cost |
| Crucial 4GB 204-Pin DDR3 SO-DIMM DDR3L 1600 (PC3L 12800) Laptop Memory Model CT51264BF160B | Extend battery life  Multitask with ease | $**27**.99 |
| CORSAIR Vengeance 4GB 204-Pin DDR3 SO-DIMM DDR3 1600 (PC3 12800) Laptop Memory Model CMSX4GX3M1A1600C9 | Superior Quality Speed is nothing without stability.  DDR3 1600 This laptop memory is rated at 1600MHz and delivers up to 12.8Gbps bandwidth per channel. | $**30**.99 |

Based on your research, which RAM would you select? Be prepared to discuss your decisions regarding the RAM you select.

I would select the CORSAIR Vengence Memory because the ram is designed to convert an old computer to run a faster computer also Vengence is a well known to create gaming computer and has received Five star rating. And overall a better quality.

**Research hard disk drive options.**

Shop around, and in the table below list the brand, model number, features, and cost for two different 2 TB 7200 rpm SATA 3 hard disk drives.

|  |  |  |
| --- | --- | --- |
| Brand and Model Number | Features | Cost |
| WD Black 2TB Performance Desktop Hard Disk Drive - 7200 RPM SATA 6 Gb/s 64MB Cache 3.5 Inch - WD2003FZEX | Inspiring performance and up to 4 TB capacity  Improved Architectural Designs: Dual Core Processor, High Resolution Controller (HRC), StableTrac Technology  Improved Data Protection: Vibration Control Technology (VCT), Corruption Protection Technology (CPT), NoTouch Ramp Load Technology | $**164**.99 |
| Seagate Constellation ES.3 ST2000NM0033 2TB 7200 RPM 128MB Cache SATA 6.0Gb/s 3.5" Enterprise Internal Hard Drive Bare Drive | - Highest-capacity large form factor enterprise drive - up to 4TB - for demanding data growth - Sixth-generation drive technology with SAS and SATA interfaces for 24x7 reliability - Enhanced error correction, super parity and end-to-end SAS-based data integrity for accurate data storage - Best-in-class rotational vibration tolerance ensures consistent performance - Improved power and cooling efficiencies with low power consumption and on-demand PowerChoice technology based on T10/T13 power management standards - Multi-drive firmware maximized for enterprise RAID system availability | $**179**.99 |

Based on your research, which hard disk drive would you select? Be prepared to discuss your decisions regarding the hard disk drive you select.

I would chose the Seagate Constellation ES.3 because the drive has a higher Cache than the wd black performance drive.

Research video adapter card options.

Shop around, and in the table below list the brand, model number, features, and cost for two different PCIe video adapter cards with 1 GB RAM.

|  |  |  |
| --- | --- | --- |
| Brand and Model Number | Features | Cost |
| EVGA GeForce 210 DirectX 10.1 01G-P3-1313-KR 1GB 64-Bit DDR3 PCI Express 2.0 x16 HDCP Ready Low Profile Ready Video Card | * NVIDIA UNIFIED ARCHITECTURE WITH GIGATHREAD TECHNOLOGY * NVIDIA QUANTUM EFFECTS TECHNOLOGY * NVIDIA PUREVIDEO HD TECHNOLOGY * NVIDIA LUMENEX ENGINE | $**39**.99 |
| AMD FirePro V4900 100-505844 1GB 128-bit GDDR5 PCI Express 2.1 x16 Workstation Video Card | Eyefinity Technology Unified Shader Architecture AutoDetect Technology Full 30-bit Display Pipeline  Multi-View Display | $**209**.99 |

Based on your research, which video adapter card would you select? Be prepared to discuss your decisions regarding thevideo adapter card you select.

I would select the AMD FirePro V4900 because it has the latest memory type the GDDR5. Also it can handle 128-bit.

**Instruction card 6 –Computer Assembling(Power Supply, Motherboard)**

**Installing power supply**

# Introduction

In this lab, you will install a power supply in computer case.

# Recommended Equipment

* Power supply with a compatible form factor to the computercase
* Computercase
* Toolkit
* Power supplyscrews

## Step 1: At the beginning of the work, open the computer case by unscrewing the screws and removing the side panels.

## 

## Step 2: Then I Installed the Power Supply.

What is the voltage in your area?

220V

How many screws secure the power supply in the case?

4

What is the total wattage of the power supply?

400W

This lab is complete. Please ask the instructor to verify yourwork.

**Lab - Install the Motherboard**

# Introduction

In this lab, you will install a CPU, a heat sink/fan assembly, and RAM module(s) on the motherboard. You will then install the motherboard in the computer case.

# Recommended Equipment

* Computer case with power supplyinstalled
* Motherboard
* CPU
* Heat sink/fanassembly
* Thermalcompound
* RAMmodule(s)
* Motherboard standoffs andscrews
* Antistatic wrist strap and antistaticmat
* Toolkit
* Motherboardmanual

## 

## 

## Step 1: Install the CPU.

At the beginning of work, we must comply with safety regulations. We must place the motherboard, processor, heatsink / fan assembly, and RAM module on an antistatic mat. Also wear an anti-static bracelet and attach the ground cable to the anti-static mat. Place the CPU into the CPU socket. Close the CPU load plate and secure it in place by closing the load lever and moving it under the load lever retention tab. Align Pin 1 on the CPU with Pin 1 on the socket. Apply a small amount of thermal compound to the CPU. We should align the heat sink/fan assembly retainers with the holes in the motherboard around the CPU socket, Tighten the heat sink/fan assembly retainers to secureit, Plug the fan connector in to the motherboard. Refer to the motherboard manual to determine which set of fan header pins touse and place the heat sink/fan assembly onto the CPU and the retainers through the holes in the motherboard.

**Lab - Install the Motherboard**

## Step 2: Install the RAM.

Locate the RAM slots on the motherboard.

In what type of slot(s) will the RAM module(s) be installed?

DIMM

How many notches are found on the bottom edge of the RAM module?

1

## Step 3: Install the Motherboard.

We install the motherboard in a rack. Install the I / O connector panel in the back of the computer case. Match the connectors on the back of the motherboard with the holes in the back of the computer case.Place the motherboard in the case and align the screw holes with the racks. You may need to adjust the motherboard to align the screw holes. Attach the motherboard to the case using the appropriate screws.

This lab is complete. Please ask the instructor to check your work.

**Instruction Card 7 – Assembling Computer(Drives, Adapter Cards)**

# Introduction

In this lab, you will install the hard disk and optical drives.

# Recommended Equipment

* Computer case with power supply and motherboardinstalled
* Antistatic wrist strap and antistaticmat
* Toolkit
* Hard diskdrive
* Hard disk drive screws
* Opticaldrive
* Optical drivescrews
* Motherboardmanual

## Step 1: Install the Hard Disk Drive.

I combined the hard drive with a 3.5-inch drive bay. Then I pushed the hard drive into the compartment from inside the case and secured the hard drive in the case using the appropriate screws.

## Step 2: Install the Optical Drive.

I Combined an optical drive with a 5.25-inch drive bay. Inserted an optical drive into the drive bay from the front of the case so that the screw holes coincide with the holes in the 5.25 inch drive bay and the front of the optical drive does not was flush with the front of the case and secure the optical drive into the case with the appropriate screws

**This lab is completed**

**Lab - Install Adapter Cards**

# Introduction

In this lab, you will install a NIC, a wireless NIC, and a video adapter card.

# Recommended Equipment

* Computer with power supply, motherboard, and drivesinstalled
* NIC
* WirelessNIC
* Video adapter card
* Adapter cardscrews
* Antistatic wrist strap and antistaticmat
* Toolkit
* Motherboardmanual

## Step 1: Install the wired NIC.

1. What type of expansion slot is compatible with the NIC?

PCI

I found a compatible expansion slot for a network card on the motherboard, removed the slot cover from the back of the case, if necessary, Aligned the network adapter with the expansion slot and secured the network card by attaching the PC mounting bracket to the case with a screw

## Step 2: Install the wireless NIC.

1. What type of expansion slot is compatible with the wireless NIC?

PCIe.

I found a compatible expansion slot for a wireless network card on the motherboard, removed the slot cover from the back of the case, if necessary, aligned the wireless network adapter with the expansion connector, gently pressed the wireless network card until the card completely sat down and secure the wireless network adapter by attaching the PC mounting bracket to the case with a screw.

## Step 3: Install the video adapter card.

1. What type of expansion slot is compatible with the video adaptercard?

AGP

During the work, I found a compatible expansion slot for the video card on the motherboard. If necessary, remove the cover (s) from the back of the case, Align the video card with the expansion slot, Gently press the video card until it is completely seated and Secure the video card, attaching PC mounting bracket (s) to the case with a screw.

**This lab is completed**

**Instruction Card 8 - Completing the Computer Assembly**

# Introduction

In this lab, you will install the side panels and the external cables on the computer.

# Recommended Equipment

* Computerwithpowersupply,motherboard,drives,and adapter cards installed, and internal cables connected
* Monitor cable (HDMI, DVI, or VGA)
* Keyboard
* Mouse
* Networkcable
* Wirelessantenna
* Powercable
* Toolkit
* Motherboardmanual

The work was not easy for the beginning, but knowing at least something can be done everything. During work, I Attached the side panels, I connected the monitor cable, the mouse cable, the Ethernet cable, the wireless antenna, the power cable and I checked the connections.

**Conclusion**

In the course of writing a course project, we reviewed in detail the professional tasks with which the table processors successfully cope. The most important of them include the creation of macros as an automation tool.

**Lab - Using a Multimeter and a Power Supply Tester**

Introduction

In this lab, you will learn how to use and handle a multimeter and a power supply tester.

Recommended Equipment

* A digital multimeter
* The multimeter manual
* A battery to test
* A power supply tester
* A manual for the tester
* A power supply

Part 1: Multimeter

Step 1: Set up the multimeter.

During the work I inserted the red and black wires into the sockets on the meter. The black probe must enter the COM jack, and the red probe must enter the + (plus) jack. You also need to turn on the multimeter (refer to the manual if there is no ON / OFF switch)

What is the model of the multimeter? Resanta DT 830B

What action must be taken to turn the meter on? Turn the switch to the left

Step 2: Explore the different multimeter measurements.

We must Toggle or enable different measurements. For example, a multimeter can be adjusted to measure ohms.

How many different switch positions does the multimeter have? 6

What are they? Voltage, current, resistance, etc.

Switch or rotate the multimeter to measure DC voltage.

What symbol is shown for this? DCV

Step 3: Measure the voltage of a battery.

WE Put the battery on the table. Touch the tip of the red (positive) sensor to the positive (+) side of the battery. Touch the tip of the black (negative) probe to the other end of the battery.

What is shown on the display? Answers may vary, but the number should reflect the battery voltage. For example, a 1.5 V battery should display a number, such as 1.47 V or 1.52 V

Name one thing you should not do when using a multimeter.

Insert the multimeter into the wall outlet. Answers may vary.

Name one important function of a multimeter.

A multimeter measures whether a voltage passes through a component or falls on it. Answers may vary.

Disconnect the multimeter from the battery. Switch the multimeter to OFF.

Why is a digital multimeter an important piece of equipment for a technician? Explain your answer.

With it, we check the power and strength of the current in order to protect ourselves from current shock, and also to damage the equipment.

Part 2: Power Supply Tester

Complete only the steps for the connectors supported by the power supply tester that you are using.

Step 1: We check the testing ports for the power supply tester.

* 20-pin/24-pin motherboard connector
* 4-pin Molex connector
* 6-pin PCI-E connector
* P4 +12V connector
* P8 +12V EPS connector
* 4-pin Berg connector
* 15-pin SATA connector

Which connectors does the power supply tester you are using have?6-pin PCI-E connector

Step 2: Test the power supply motherboard connector. We checked the motherboard power supply connector and did the following steps: 1) WE set the power switch (if present) to OFF. 2) Insert the 20-pin or 24-pin connector of the motherboard into the tester. 3) Connect the power supply unit to an AC outlet. 4) Set the power switch to ON

Possible LED lights include +5 V, -5 V, +12 V, +5 VSB, PG, -12 V, and +3.3 V.

Which LED lights are illuminated? +12 V +5V

Step 3: We checked the molex power connector and plug the 4-pin molex connector into the tester. LED is on at +12 V and +5V

Which LED lights are illuminated? +5 V, +12 V

Step 4: We test the 6-pin PCI-E conne and plug the 6-pin PCI-E connector into the tester. The LED will illuminate on +12 V.

Does the LED light illuminate? Answer may very

Step 5: We tested the 5-pin SATA connector and plug the 5-pin SATA connector into the tester. The LED will illuminate on +12 V, +5 V, and +3.3 V.

Which LED lights are illuminated? +5 V, +12 V, +3,3 V

Step 6: We tested the 4-pin Berg connector And Plug the 4-pin Berg connector into the tester. The LED will illuminate on +12 V and +5 V.

Which LED lights are illuminated? +5 V, +12 V

Step 7: We Tested the P4/P8 connectors, plug the P4 +12 V connector into the tester. The LED will illuminate on +12 V and plug the P8 +12 V connector into the tester. The LED will illuminate on +12 V.

Which LED lights are illuminated? +12 V

WE Switched the power supply to OFF (or 0) if available. Disconnect the power supply from the AC outlet. Disconnect the power supply from the power supply tester. The lab is complete. Have your instructor verify your work.

Why is a power supply tester an important piece of equipment for a technician? Explain your answer

In fact, all that the Thermaltake Dr.Power II power supply tester can do is to perform a primary test of the PSU for its readiness to start. This device is not able to control the values ​​of voltages during operation, under load, to calculate ripple levels or power consumption along the lines. Therefore, electronics repair specialists would most likely call it a toy, having advised in return an ordinary multimeter. However, the multimeter still needs to be able to use, and the holder of Dr.Power II only needs the ability to properly connect the connectors and press a button.

**Instruction card 10 – Hardware Resources**

In this lab, you will use the Internet to find resources for a specific computer component. Search online for resources that can help you troubleshoot the component. In the table below, list at least one website for each of the following types of resources: FAQs, manuals, troubleshooting/help site, and blogs. Give a brief description of the content on the site. Be prepared to discuss the usefulness of the resources you found.

**Component to research**: CPU or RAM

|  |  |
| --- | --- |
| **Type of Resource** | **Website address** |
| FAQ | A list of questions asked and answered by EVGA support |
| Manual | Owners manual |
| Troubleshooting  site | id=C900693B111D438A92C636EA877C617F  Login to create troubleshooting support ticket |
| Blogs | Blog about the GeForce 960  Suggested solution to problems from GeForce 900 series owners |
| Online help site | Suggested solution to problems from GeForce 900 series owners |
|  |  |

**Instruction Card11 - Repair Boot Problem**

# Introduction

In this lab, you will gather data from the customer, and then instruct the customer to fix a computer that does not boot. Document the customer’s problem in the work order below.

# Student Technician Sheet

|  |  |
| --- | --- |
| **Company Name:** | JH Travel, Inc. |
| **Contact:** | Dan Handy |
| **Company Address:** | 204 N. Main Street |
| **Company Phone:** | 1-866-555-0998 |

**Work Order**

***Generating a New Ticket***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Category: | Hardware | Closure Code: | N/A | **Status:** | | Open |
| Type: | N/A | Escalated: | Yes | **Pending:** | | N/A |
| Item: | N/A |  | **Pending Until Date:** | | | N/A |
|  | | **Business Impacting?** | | X **Yes** | | O **No** |
| **Summary** | The computer will not turn on or the computer beeps constantly. | | | | | |
| **Case ID#:** | 47 | | **Connection Type:** | | N/A | |
| **Priority:** | 2 | | **Environment:** | | N/A | |
| **User Platform:** | Windows 7 | |  |  |  |  |

## Problem Description: Computer will not boot. Customer does not know the manufacturer of the BIOS. Customer cannot identify error from beep sequence. Customer did not hear any strange sounds from the computer. Customer does not smell smoke or burning electronics.

**Problem Solution:** Verified external cable connections. Mouse and keyboard connections were reversed (if applicable). Connections were corrected. Internal hardware and cable connections were verified. RAM was not installed. Customer installed RAM. Optical drive power cable was disconnected. Optical drive power cable was reconnected. Hard drive data cable was disconnected from the motherboard. Hard drive data cable was reconnected to the motherboard. Computer displayed “Non-system disk or disk error” upon reboot. Computer was shutdown computer and rebooted to confirm the solution.. Front panel power on switch cable was reconnected to the motherboard.

**Student Customer Sheet**

Use the contact information and problem description below to report the following information to a level-two technician:

## Contact Information

Company Name: JH Travel, Inc. Contact: Dan Handy

Company Address: 204 N. Main Street Company Phone: 1-866-555-0998

## Problem Description

Ok, so I work with cars all the time and I know how they work, but I do not know how my computer works. This morning was pretty slow because I guess more and more people are using those Internet travel sites.

## Additional Information

* Windows7
* Computer has no new hardware
* Except for the beeping, I did not hear any other strange sounds from thecomputer
* I do not smell any electronics burning or smoke
* Computer looks the same as it did yesterday

**Instruction Card 12 - Troubleshooting Hardware Problems**

# Introduction

In this lab, you will diagnose the cause of various hardware problems and solve them.

# Recommended Equipment

* A computer with an operating system installed

# Scenario

We must solve hardware problems for a customer. We might also need to troubleshoot hardware connected to the computer. Make sure you document all the problems and the solutions.

There are several possible errors. Follow through the lab, solving one problem at a time until you can successfully start the computers and all devices are fully functional. We may need to ask the instructor for hardware when needed.

## Step 1: Start and log in to the computer.

We Started the computer. Did the computer boot successfully?

Answers may vary.

If the computer started, log on with an account with administrative privileges. Test all internal and external hardware devices. Did all devices operate properly?

Answers may vary.

If the computer successfully started and all devices are fully functional, you have successfully solved all hardware problems. Hand the lab to your instructor.

## Step 2: Troubleshoot the hardware problem.

If you could not successfully start the computer and all devices are not fully functional, continue troubleshooting the problem.

Answer the following questions after each problem is solved.

What problem did you find?

1. Answers may vary, for example: No HDD LED lights on or “No operating system found” error.
2. Answers may vary, for example: POST error message or beep sequence, the computer fails to boot.
3. Answers may vary, for example: No front panel LEDs on, the computer will not start.
4. Answers may vary, for example: Front panel LEDs on, the computer will not start.
5. Answers may vary, for example: No front panel LEDs on, the computer will not start.
6. Answers may vary, for example: Case fan(s) not turning.
7. Answers may vary, for example: Computer will not turn on.
8. Answers may vary, for example: Computer will not turn on.

What steps did you take to determine the problem?

1. Examine the power connection to the hard drive.
2. Examine the motherboard for loose and missing components.
3. Examine the power connection: wall outlet and motherboard.
4. Examine the motherboard for loose and missing components.
5. Examine the power cord connection to the wall outlet.
6. Examine the power connection to the fan(s).
7. Examine the front panel case connections to the motherboard.
8. Examine the power cord connection to the wall outlet. Also, examine switch on power supply.

What is causing the problem?

1. Power cable disconnected from the hard drive.
2. No RAM is installed.
3. Power not connected to the motherboard.
4. No CPU installed.
5. Power cord unplugged from the wall outlet.
6. Case fan(s) unplugged from the motherboard.
7. Front panel power button connection reversed or disconnected.
8. Dead power supply.

List the steps taken to fix the problem.

1. Disconnect the power and remove the case cover.
   1. Locate and plug the power cable into the hard drive.
   2. Put the computer case together.
   3. Connect the power supply to the wall outlet.
   4. Start the computer.
2. Disconnect the power and remove the case cover.
   1. Press outward on the clips that hold the sides of the RAM.
   2. Align the notch of the RAM with the RAM socket.
   3. Gently press down until the clips lock.
   4. Put the computer case together.
   5. Connect the power supply to the wall outlet.
   6. Start the computer.
3. Disconnect the power and remove the case cover.
   1. Locate and plug the power cable into the motherboard.
   2. Put the computer case together.
   3. Connect the power supply to the wall outlet.
   4. Start the computer.
4. Disconnect the power and remove the case cover.
   1. Open the ZIF lever.
   2. Align pin 1 of the CPU with the CPU socket.
   3. Place the CPU gently in the socket.
   4. Close the ZIF lever.
   5. Apply thermal grease to the CPU
   6. Attach the CPU heat sink and fan assembly
   7. Put the computer case together.
   8. Connect the power supply to the wall outlet.
   9. Start the computer.
5. Plug the power cord into the wall outlet.
6. Disconnect the power and remove the case cover.
   1. Locate and plug the fan power cable into the motherboard.
   2. Put the computer case together.
   3. Connect the power supply to the wall outlet.
   4. Start the computer.
7. Disconnect the power and remove the case cover.
   1. Disconnect the incorrectly installed front panel power button connections.
   2. Install the connectors the correct way.
   3. Put the computer case together.
   4. Connect the power supply to the wall outlet.
   5. Start the computer.
8. Disconnect the power and remove the case cover.
   1. Remove power supply.
   2. Install working power supply.
   3. Put the computer case together.
   4. Connect the power supply to the wall outlet.
   5. Start the computer.

**Instruction Card 13 - Computer Disassembly**

In this lab, you will disassemble a computer using safe lab procedures and the proper tools. Use extreme care and follow all safety procedures. Familiarize yourself with the tools you will be using in this lab.

# Step 1: Power Off the Computer.

We turned off the power to the computer and disconnect the power cable from the wall and the power supply.

# Step 2: Open the Computer Case.

We Located all of the screws that secure the side panels to the back of the computer. Use the proper size and type of screwdriver to remove the side panel screws. Do not remove the screws that secure the power supply to the case. Put all of these screws in one place, such as a compartment in the parts organizer or small cup. Label the compartment or cup with a piece of masking tape on which you have written ‘side panel screws’. Remove the side panels from the case. If you have a camera or smartphone, take a picture of the inside of the computer case to be used as a reference when reassembling the computer.

What type of screwdriver did you use to remove the screws?

A Phillips screwdriver and hex drivers are the most commonly used screwdrivers to remove case panels.

How many screws secured the side panels?

 Normally there are two screws for each panel on a mid-tower case.

# Step 3: Antistatic Wrist Strap.

Put on an antistatic wrist strap. Connect one end of the conductor to the wrist strap. Clip the other end of the conductor to an unpainted, metal part of the case. If you have an antistatic mat, place it on the work surface and put the computer case on top of it. Ground the antistatic mat to an unpainted, metal part of the case.

# Step 4: Remove the Hard Drive.

We located the hard drive.Carefully disconnect the power and data cables from the back of the hard drive. Which type of data cable did you disconnect?

Answers may vary.

We Located all of the screws that hold the hard drive in place. Use the propersize and type of screw driver to remove the hard drive screws. Put all of these screws in one place and label them.

What type of screws secured the hard drive to the case?

Normally, crosshead screws secure hard drives in place

How many screws secured the hard drive to the case?

Most cases allow for up to four screws per hard drive.

Is the hard drive connected to a mounting bracket? If so, what type of screws secure the hard drive to the mounting bracket?

Most hard drive manufacturers use a flush, crosshead screw.

## Caution: Do NOT remove the screws that hold the hard drive together.

Gently remove the hard drive from the case. Look for a jumper reference chart on the hard drive. If there is a jumper installed on the hard drive, use the jumper reference chart to see if the hard drive is set for a Master, Slave, or Cable Select (CS) drive. Place the hard drive in an antistatic bag.

What is the jumper setting of the hard drive?

Master, Slave, or Cable Select (CS)

# Step 5: Remove Optical Drive.

We located the optical drive (Blu-ray, DVD, etc.). Carefully disconnect the power and data cables from the optical drive. Remove the audio cable from the optical drive if there is oneconnected.

What kind of data cable did you disconnect?

Answers may vary.

Is there a jumper on the optical drive? What is the jumper setting?

Master, Slave, or Cable Select (CS) drive.

We Located and remove all of the screws that secure the optical drive to the case. Put all of these screws in one place and label them. We Placed the optical drive in an antistatic bag.

How many screws secured the optical drive to the case?

Answers may vary.

# Step 6: Remove the Power Supply.

We located the power supply. Find the power connection(s) to the mother board. Gently remove the power connection(s) from the motherboard. How many pins are there in the motherboard connector?

* Answers may vary.

Disconnect the power cables from any casefans.

Disconnect the power cable from the video card if it requires one.

Disconnect any other power supply cables from where they wereconnected. If there were additional cables disconnected, to what were they connected?

Answers may vary.

We located and remove all of the screws that secure the power supply to the case. Put all of these screws in one place and label them.

How many screws secure the power supply to the case?

Answers may vary.

Carefully remove the power supply from the case. Place the power supply with the other computer components.

# 

# Step 7: Remove Adapter Cards.

We located any adapter cards that are installed in the computer, such as a video, NIC, or soundcard and locate and remove the screw that secures the adapter card to the case. Put the adapter card screws in one place and label them. Carefully remove the adapter card from the slot. Be sure to hold the adapter card by the mounting bracket or by the edges. Place the adapter card in an antistatic bag. Repeat this process for all of the adapter cards.

List the adapter cards and the slot types below.

|  |  |
| --- | --- |
| **Adapter Card** | **Slot Type** |
| Video | PCI |
| NIC | PCIe |
| Modem | CNR |
| Audio |  |

# Step 8: Remove Memory Modules.

We Located the memory modules on the motherboard.

What type of memory modules are installed on the motherboard?

Answers may vary.

How many memory modules are installed on the motherboard?

Answers may vary.

We removed the memory modules from the motherboard. Be sure to release any locking tabs that may be securing the memory module. Hold the memory module by the edges and gently lift out of the slot. Put the memory modules in an antistatic bag.

# Step 9: Remove Data Cables.

We removed all data cables from the motherboard. We make sure to note the connection location of any cable you disconnect.

What types of cables were disconnected?

Answers may vary.

You have completed this lab. The computer case should contain the motherboard, the CPU, and any cooling devices. Do not remove any additionalcomponents.

**Instruction Card 14 - Sharing a Printer in Windows 8**

# Introduction

In this lab, you will share a printer, configure the printer on a networked computer, and print a test page from the remote computer.

# Recommended Equipment

* Two computers directly connected or connected through aswitch
* Windows 8 installed on bothcomputers
* A printer installed on one of the computers

# Step 1: Share the printer.

We loged on to the computer that has the printer connected. Click **Control Panel > Folder Options**. In the

**View** tab, deselect **Use Sharing Wizard (Recommended)**. Click **OK** to continue. We Click **Control Panel > Network and Sharing Center > Change advanced sharing settings** on the left sidepanel. In the **Change sharing options for different network profiles** screen, expand the **All Networks** profile. Turn off password protected sharing for the All Networks profile. Select **Turn off password protected sharing** and click **Savechanges**. We Clicked Control Panel > Devices andPrinters. Right-click the **printer >Printer properties**. In the **Sharing** tab, select **Share this printer**. Name the new share **All-in-One Printer**, and click **OK**.

# Step 2: Add a shared printer.

We Loged on to the computer with no printerconnected. We Clicked Control Panel > Devices and Printers.In the **Devices and Printers** window, click **Add aprinter**. When all printers are discovered, select ***Printer* on *Computer Name*** in the **Select a printer** screen.Click **Next** to continue. If the desired printer is not listed, click **The printer that I want isn’t listed**. In the **Find a printer by other options** screen, click **Select a shared printer by name** and type **\\computername\printer**, where *Computer name* is the name of the computer with the connected printer and *printer* is the name of the printer. Click **Next**. If prompted to install drivers, allow the driver installation. When the **You’ve successfully added a printer** screen appears,click **Next** and **Finish** to close the **Add Printer** window.

# Step 3: Print a test page.

In the **Devices and Printers** window, right-click and select **printer >Printerproperties**. In the **General** tab, click **Print Test Page** to verify that the printer is working properly.

**Instruction card 15 - Managing System Files in Windows**

# Introduction

In this lab, you will use Windows utilities to gather information about the computer.

# Recommended Equipment

* A computer running Windows

## Step 1: Customize the Start Menu in Windows.

We Loged on to the computer as an administrator., added **Run** to the Start menu, right-click **Start** and select **Properties > Start Menu** tab **>Customize…**., Scrolled down until you see the **Run** command. Click in the box next to select the **Run command** and clicked **OK**. Then we Click **Apply > OK** to close the **Taskbar and Start Menu Properties** window.

## Step 2: Review the System Information.

We opened **System Information** by clicking **Start > Run and** type **msinfo32**. Click **OK**., the **plus sign** next to **Hardware Resources**, **Components**, and **Software Environment**.Expand the window so you can see all the content. Under the **System Summary** heading locate and list thefollowing: Processor: BIOS Version/Date: Total Physical Memory: Under the **Hardware Resources** heading, locate and list thefollowing: DMA channels and the device using the resources. Under the **Components** heading and **Software** heading look around to see what information is provided in these areas. We Closed the **System Information** window.

**Step 3: Review the System Configuration**.

We opened **System Configuration** by clicking **Start > Run**,and type **msconfig**.Click **OK**. We Clicked the **General** tab.

What are the startup options?

Normal start up, Diagnostic startup, or Selective start up

We clicked the **Boot** tab. This tab is for modifying boot option and the **Services** tab. This tab lists the computers services and status.

Can you enable and disable services at this tab?

Yes

We Clicked the**Startup** tab.This tablists the programs that are automatically loaded every time you turn on your computer and Click the **Tools** tab.

What can you do in this tab?

Launch Windows built-in utilities.

We clicked **Cancel** to close the **System Configuration** window.

**Step 4: Review DirectX Diagnostics.**

We opened the **DirectX Diagnostic Tool** by clicking **Start > Run**, and type **dxdiag**.Click **OK**. If you are asked to have DirectX check driver signatures, click **No**. We make sure the**System** tab is active.

What does this too lreport?

Devices and Drivers

We clicked **Next Page** until you are at the **Display** tab.

What information is listed on this page?

Devices, Drivers, and DirectX Features

We clicked **Next Page** until you are at the **Sound** tab.

What information is listed on this page?

Devices and Drivers

We clicked **Next Page** until you are on the **Input** tab. What information is listed on thispage?

Input devices

We Clicked **Exit**.

# Reflection

# Why would it be beneficial to turn off a service in the system configuration?

It may be beneficial to turn off a service if that service may have become unresponsive, or if a service is using too many resources.

When would you use the startup tab of the system configuration tool?

There may be programs that you do not wish to start when the computer boots.

**Instruction Card 16 - Create a Partition in Windows 8**

# Introduction

In this lab, you will create a FAT32 formatted partition on a disk. You will convert the partition to NTFS. You will then identify the differences between the FAT32 format and the NTFS format.

# Recommended Equipment

* Computer running Windows8
* Un-partitioned space of at least 1 GB on the hard disk drive

## Start the Computer Management Utilityprogram.

**Note**: In this work,We must have administrative rights to work with the Computer Management Utility program.

### We Click Control Panel > Administrative Tools > ComputerManagement, to open the Disk Management window in Windows 8.0, click Search and then type diskmgmt.msc and press Enter. In the Computer Management window, We click DiskManagement.

## Create a new disk volume in the freespace.

Right-click on the block of **Free Space** or **Unallocated** space. We click **New SimpleVolume**. The **New Simple Volume Wizard** window opens. We Click **Next** and type **2000** in the **Simple volume size in MB** field, and then click **Next** and the **Assign the following drive letter:** radio button. We Select **I** from the drop-down menu, then click **Next**.

**We** may need to substitute different drive letters for the letters shown in this lab. Click the **Format this volume with the following settings:** radio button. Select **FAT32** from the **File system** drop-down menu, and then click **Next**. I Click **Finish** to complete the **New Simple VolumeWizard**. The **Computer Management** window will display the status of the **NEW VOLUME**. Close the **Computer Management** window. In Windows 8.0, close the Disk Management window.

## Open the This PC window to review information about the new diskpartition.

We click **Start,** type **this pc, and** press **Enter** to open the **This PC**window. Right-click on the **NEW VOLUME (I:)** drive and then select **Properties** from the drop-downmenu.

What type File System is used on the NEW VOLUME (I:)?

FAT32

How much Free Space is shown?

the example shows 1.94 GB.

List the tabs found in the **NEW VOLUME (I:) Properties** window.

General, Tools, Hardware, Sharing, ReadyBoost, Customize

On the **General** Tab, rename the volume from **NEW VOLUME** to **ITE**, and then click **OK**. If an **Access Denied** window opens, click **Continue** to complete the operation.

## Create a text document and save it to the ITEdrive.

Double-click on the**ITE(I:)**disk icon to view the contents of the drive.You should see a message in the middle of the screen stating that this folder is empty. Right-click anywhere in the white space below that message to bring up a drop-down menu. Click **New > TextDocument**. We rename the **New Text Document** to **ITE Test Document** and press **Enter**. Right-click on the **ITE Test Document** and choose **Properties**. This opens the **ITE TestDocument Properties** window.

What tabs are listed in the ITE Test Document Properties window?

General and Details

We Clicked **OK** to close the **ITE Test Document Properties** window. Close the **ITE (I:)**window.

******Convert the ITE Volume from FAT32 to NTFS without losing data**.

We Click **Start**, then type **cmd**(the search field will pop up as soon as you start typing). Right-click on the **Command Prompt** program that appears, and then click **Run as administrator**.

The **User Account Control** window opens asking if you want to allow the following program to make changes to this computer. Click **Yes**. The **Administrator: Command Prompt** window opens. At the command prompt, type **convertI:**

**/fs:NTFS**and then press **Enter.** You will be prompted to enter the current volume label for drive **I:**. Type **ITE** and press **Enter**. We review the information displayed bythe convert command. To close the **Administrator: Command Prompt** window, type **exit** at the command prompt and then press **Enter**.

## Step 6: Open the This PC window to work with the ITEVolume.

We Clicked **Start,** then type **Computer** to open the **This PC** window. Right-click on the **ITE (I:)** volume, and select **Properties** from the drop-down menu.

What type of File System is used for the ITE (I:) drive?

NTFS

What are the tabs in the ITE (I:) Properties window?

General, Tools, Hardware, Sharing, Security, ReadyBoost, Quota, and Customize

When the volume was FAT32, there were six tabs. What are the names of the new tabs that were added after the volume was converted to NTFS?

Security and Quota

We should click **Cancel** to close the **ITE (I:) Properties** window.

**** **Display the properties of the ITE TestDocument.** In the **This PC** window, double-click on the **ITE (I:)** disk icon. Right-click on the **ITE Test Document**, then select **Properties** from the drop-downmenu.

What are the tabs in the **ITE Test Document Properties** window?

General, Security, Details, Previous

When the volume was FAT32, there were three tabs.

What is the name of the new tab that was added after the volume was converted to NTFS? Close all open windows.

Security

# Reflection:

Why is there an additional Security tab in the properties window of documents stored on an NTFS volume?

NTFS incorporates additional security features and extended attributes. The security tab provides a way to display and change permissions of the documents

**Instruction Card 17 - Install Third-Party Software in Windows 8**

# Introduction

In this lab, you will install and remove a third party software application supplied by your instructor. You will install the Packet Tracer Windows application.

# Recommended Equipment

The following equipment is required for this exercise:

* A computer with Windows 8installed
* A flash drive or CD with the latest Packet Tracer Windows install package

## Step 1: Locating The Installer

We Loged on to the computer with the Administrator account and used Windows Explorer to navigate to the folder where the Packet Tracer installer is located.This folder could be on the local hard drive,on an external flash drive or on a CD. We Located the PacketTracer###\_setup.exe (where ### is the version number) application. Clicked the **PacketTracer6.2\_setup.exe** icon to start the installation process of the Packet Tracer application. You may need to double-click the icon to start the installation.

## Step 2: Running the Installer and Installing Packet Tracer

The **Setup – Cisco Packet Tracer 6.2** window opens. Click **Next.**

The **License Agreement** window opens. Select **I accept the agreement,** and then click **Next**.

The **Select Destination Location** window opens. Keep the default settings and click **Next**.

What is the default installation location for Packet Tracer?

C:\Program Files\Cisco Packet Tracer 6.2iv.

During the work We do follow actions:

The **Select Start Menu Folder** window opens. Keep the default settings. Click **Next**.

The **Select Additional Tasks** window opens. Keep the default settings. Click **Next**.

The **Ready to Install** window opens. Click **Install**.

The **Installing** progress windowopens.

If an information window opens, click**OK**.

The **Completing the Cisco Packet Tracer 6.2 Setup Wizard** window opens. Click**Finish**.

If the **You are running Packet Tracer for the first time**window appears, click**OK.**

If the **Windows Security Alert** window opens, click **Allowaccess**.

Packet Tracer starts. Close Packet Tracer and all other openwindows.

## Step 3: Uninstalling Packet Tracer

We uninstall a program, click **Control Panel > Programs and Features**. Choose **Cisco Packet Tracer** in the list and click **Uninstall**.

The **Cisco Packet Tracer 6.2 Uninstall** window opens. We are clicking **Yes** to confirm the removal. When the successfully removed from your computer message opens, click**OK**, verify the application was removed. After the application removal process, the **Programs and Features** window no longer show Cisco Packet Tracer in the list. Close all open windows. Future activities in this course will require the use of Packet Tracer. Reinstall Packet Tracer

# Reflection

Why does Microsoft recommend using Uninstall or change a program to remove an installed application?

Sometimes, the uninstall software does not fully remove all of the files and settings created by the application during installation. The Microsoft Windows Uninstall or change a program utility removes the application completely.

**Instruction Card 18 - Region and Language Options in Windows 8**

# Introduction

In this lab, you will examine regional and language settings in Windows 8.

# Recommended Equipment

* A computer running Windows8

## Step 1: Open the Language and Region Tools.

We Loged on to thecomputer, clicked **Control Panel > Language**. The **Language** window opens. I Clicked **Change date, time, or number formats**.

What regional format is being used?

English (United States)

The **Region** window opens. Select **Belarusian (Belarus)** from the **Format** drop-down box.

What are the tabs that can be customized?

Formats, Location, Administrative

**Step2: Add a Keyboard.**

We clicked **Add alanguage**. The **Add a language** window opens. **Scroll** through the list of languages.We clicked **Belarusian >Add**.

## Step 3: Work with the Taskbar Language button.

A language button is now displayed on the taskbar. Click the **language** button. We Clicked **Belarusian**.and the **Language** button again, and change the keyboard back to the default.

## Step 4: Remove the Keyboard

In the **Language** window, select the new keyboard and click **Remove**. We will Close all open windows.

# Reflection

Why would someone wish to change the input language of the operating system?

Answers may vary. Someone may be bilingual and wish to use a second or third language as the primary source of input. Someone also may not understand the primary input language and wish to use the one that is native to them.

**Instruction Card 19 - Monitoring and Managing System Resources in Windows 8**

**Introduction**

In this lab, you will use administrative tools to monitor and manage system resources.

**Recommended Equipment**

* A computer running Windows 8 with Internet access

# Step 1: How to stop and start a service in Windows.

You will explore what happens when a service is stopped then started.

We Loged on to Windows as anadministrator. You will see if Windows Defender is turned off, click **Start** in the **Search programs and files** field,type **Defender** and select **Windows Defender**. **Windows Defender** should be running. Without closing **Windows Defender,** open the **Services** console. Click **Control Panel > Administrative Tools > Computer Management**. The **Computer Management** window opens. Under Services and Applications, select **Services**. We closed the **Windows Explorer** window but keep the **Windows Defender** and **Computer Management** windows open. Resize and position both windows so they can be seen at the same time. Can Windows Defender check for updates? (Use the **Update Tab** to answer the question)

Yes

Scroll the **Computer Management** window so you see the **Windows DefenderService**. What is the status of the service?

Running

We turn off **Windows Defender**,make the **Windows Defender** window active.Select the **Settings** tab, and select **Administrator**. Uncheck the **Turn on this app** checkbox, and click **Savechanges**.

Awarning window will open.We Clicked **Close**. Notice that the **Windows Defender** application closes completely.

What must be done so Windows Defender can run?

Windows Defender must be started.

The next We Use **Action Center** to start the Windows Defender service and click **Control Panel > Action Center.** In the **Virus protection (Important)** section**,** click **Turn on now.** The **Windows Defender** window will open, as the service should now be running again. Close the **Windows Defender** window but make sure the Computer Management window is open. Expand **Event Viewer** >**Windows Logs** > select **System**. We selected the second **Service Control Manager** event in the list.

We clicked the up arrow button on the keyboard or select the event above the one you just viewed. We closed all open windows.

**Step 2: Understanding the Impact of Services.** In this section, We will stop **Windows Base Filtering Engine (BFE),** analyze the impact in the system, and restart BFE. BFE is responsible for managing the firewall and a number of other security policies in Windows. BFE is an important Windows service, as many other services depend on it.

Ensure **Windows Defender** is running by clicking **Control Panel > WindowsDefender**.

We opened the Computer Management utility.Click **Control Panel> AdministrativeTools>Computer Management**. We selected **Service** and locate the **Base Filtering Engine** service. We Stoped the BFE service by right-clicking it and selecting **Stop.** Alternatively,you can use the stop button on the upper tool bar of the **Services Console** while the BFE service is selected.

Windows will present a warning message to remind you about all the services that depend on BFE.Click **Yes** to stop BFE and its dependent services.

Windows should not let you stop BFE if the **Windows Defender** service is displayed in the **Stop Other Services** window. Since **Windows Defender** cannot be stopped via the **Services Console**, BFEcannot be stopped via the **ServicesConsole.**

We stoped BFE, **Windows Defender** must be stopped first.We Opened **Windows Defender** and clicked **stop** on the **Settings** tab. Refer to the beginning of this lab for details. Now that **WindowsDefender** is stopped, open the **ServicesConsole** and stop BFE.Right-click the BFE service and select **Stop.**

What does the status column of the **Services Console** indicate for the BFE service?

The status column is blank, meaning that the service is not running.

Since a number of security related services depend on BFE, alerts are issued and can be reviewedin

## Action Center.

Why is it important to exercise care when managing services?

Applications and other services may depend on a given service to work.Stopping a service can compromise the operation of other services.

We Restart any stopped service from the **Action Center** by selecting the service and clicking **Turn on now**.

# Step 3: Configure advanced features in Administrative Tools. For the rest of this lab, you will configure advanced Administrative Tool features and monitor how this affects the computer. From Windows Explorer, right-click This PC and select Manage. The Computer Management window opens. We are going to Expand System Tools > Performance >Data Collector Sets. Right-click User Defined, and then click New >Data Collector Set. The Create new Data Collector Set window opens. In the Name field, type Memory Logs. Select the Create manually (Advanced) radio button and click Next.

The **What type of data do you want to include**?Window opens.Check the Performance counterbox and click **Next**.

The **Which performance counters would you like to log?** Window opens. Click **Add**. From the list of available counters, locate and expand **Memory**. Select **Available MBytes> Add**and click**OK.** I Set the **Sample interval**: field to **4** seconds. Click **Next.** The **Where would you like the data to be saved?** window opens. Click**Browse…**.

We will Select Local Disk (**C:),** and then select the **\PerfLogs**folder. Click **OK**. Verify the correct root directory path is selected, and click **Next**. The **Create the data collector set?** window opens. Click **Finish**. We Expand **User Defined** and select **Memory Logs.** Right-click **Data Collector01** andselect **Properties**. The **DataCollector01 Properties** window opens. Change the **Log format:** field to **Comma Separated**. Click the **File** tab.

**What is the full path name to the example file name?**

For example: C:\PerfLogs\virtual\_20150903\_000001\DataCollector01.csv. We Click **OK** And Select the **Memory Logs** icon in the left pane of the **Performance Monitor** window. Click the **green arrow** icon to start the data collection set. Notice a green arrow is placed on top of the **Memory Logs** icon. Then we forced the computer to use some of the available memory, open and close a browser. We Click the **black square** icon to stop the data collection set.

What change do you notice for the Memory Logs icon?

The green arrow has been removed from the icon.

Open **Windows Explorer**, and click **LocalDisk(C:) >PerfLogs.** Click on the folder that was created to store the memory log and double-click the **DataCollector01.csv**file.

If the **Windows can not open the file:** message is displayed, select the radio button **Select a program from a list of installed programs > OK > Notepad >OK**.

What does the column farthest to the right show?

Available memory in MBytes

We Close the **DataCollector01.csv** file and **WindowsExplorer**. And Select the **Performance Monitor** window right-click **Memory Logs > Delete** and click **Yes**. I Opened **Windows Explorer**,click **Local Drive C:>PerfLogs** folder. Right-click the folder that was created to store the memory logs, and click **Delete**. We closed all open windows.

**Instruction Card 20 - Common Windows CLI Commands**

# Introduction

In this lab, you will use CLI commands to manage files and folders in Windows.

# Recommended Equipment

* A computer running Windows

## Step 1: Access the Windows command prompt.

We Log on to a computer as a user with administrative privileges.The account **ITE User** is used as the example user account through out this lab. To access the Windows command prompt in Windows 8, navigate to the **Start** screen and type **Command Prompt**. Click **Command Prompt**.In Windows 7, click **Start** and type **Command Prompt** in the **Search programs and files** field. Click **Command Prompt** to continue.In Windows Vista, click **Start** and type **Command Prompt** in the **Start Search** field. Click **Command Prompt** to continue.

## 

## Step 2: Display command help from the command prompt.

|  |  |
| --- | --- |
| **Command** | **Function** |
| **CD** | Displays the name of or changes the current directory. |
| **CHKDSK** | Checks a disk and displays a status report |
| **COPY** | Copies one or more files to another location. |
| **DEL** | Deletes one or more files. |
| **DIR** | Displays a list of files and subdirectories in a directory |
| **DISKPART** | Displays or configures Disk Partition properties. |
| **EXIT** | Quits the CMD.EXE program. |
| **FORMAT** | Formats a disk for use with Windows. |
| **GPRESULT** | Displays Group Policy information for machine or user. |
| **MD** | Creates a directory. |
| **TASKLIST** | Display all currently running tasks including services. |
| **RD** | Removes a directory |
| **ROBOCOPY** | (Note, this command only works in Windows 7 and Vista): Advanced utility to copy files and directory trees. |
| **SHUTDOWN** | Allows proper local or remote shutdown of machine. |
| **XCOPY** | Copies files and directory trees. |

You can display command line help using the **help** command. For more information on a specific command, type the command followed by **/?**. At the command prompt, type **help** and press **Enter**. A list of commands is displayed. Using the information displayed by the help command, explain the functions of the following commands:

We Typed **md/?** At the prompt to display addition a linformation and switches that can be used with this command.

## Step 3: Create and change directories.

In this step, you will use the change directory (**cd**), make directory (**md**), and directory (**dir**) commands. We typed **cd** at command prompt. What is the currentdirectory?

The current directory is C:\Users\ITEUser in this example

Type **dir** at the command prompt to list the files and folders that are in the current folder. In the current directory, use the **md** command to create three new folders: **ITEfolder1**, **ITEfolder2**, and **ITEfolder3**. Type **md ITEfolder1** and press **Enter**. Create **ITEfolder2** and **ITEfolder3**. Type **dir**to verify the folders have been created. Type **cd ITEfolder3** at the command prompt and press **Enter**. Which folder are you innow?

Within the **ITE folder 3** folder, create a folder named **ITE folder4**. Use the **dir** command to verify the folder creation.

We Type**cd..**tochangethecurrentdirectory.Each**..**isashortcuttomoveuponelevelinthedirectorytree. After issuing the **cd ..**command, what is your directorynow?

What would be the current directory if you issue this command at C:\Users\ITEfolder3?

C:\Users

## Step 4: Create text files.

We Navigated to the **C:\Users\ITEUser\ITEfolder1** directory. Type **cd ITEfolder1** at the prompt. Type **echo This is doc1.txt>doc1.txt** at the command prompt.The **echo** command is used to display a message at the command prompt. The **>**is used to redirect the message from the screen to a file. For example, in the first line, the message **This is doc1.txt** is redirected into a new file named **doc1.txt**. Use the **echo** command and **>**redirect to create these files: **doc2.txt**, **file1.txt**, and**file2.txt**. We Used the **dir**command to verify the files are in the **ITEfolder1**folder.

## Step 5: Copy, delete, and move files.

Atthecommandprompt,type**movedoc2.txtC:\Users\ITEUser\ITEfolder2**tomovethefile**doc2.txt**to the **C:\Users\ITEUser\ITEfolder2**directory.

Type **dir**at the prompt to verify that **doc2.txt** is no longer in the currentdirectory.

Type **cd C:\Users\ITEUser\ITEfolder2** to change the directory to **ITEfolder2**. Type **dir**at the prompt to verify **doc2.txt** has beenmoved.Type **copy doc2.txt doc2\_copy.txt** to create a copy of **doc2.txt**. Type **dir**at the prompt to verify a copy of the file has been created.Now use the **move** command to move **doc2\_copy.txt** to **ITEfolder1**. Type **movedoc2\_copy.txt**..\ITEfolder1**.**A

**Lab - System Utilities in Windows**

Introduction

In this lab, you will use Windows utilities to configure operating system settings.

Recommended Equipment

The following equipment is required for this exercise:

* A computer running Windows

Step 1: Open the management console.

We opened the Microsoft Management Console. Click **Start**, type **mmc**, and press **Enter**.The **Console1 - [Console Root]** window opens. To build your own custom console, click **File > Add/Remove Snap-in**.The **Add or Remove Snap-ins** window opens. We added a folder snap-in, to organize your snap-ins, scroll down until you see the **Folder** snap-in. Select **Folder** and click **Add>**. We added the **Link to Web Address** snap-in, scroll down and select **Link to Web Address**. Click **Add>**.The **Link to Web Address** wizard opens. In the **Path or URL:** box type [**http://www.cisco.com**.](http://www.cisco.com/) Click Next>. In the **Friendly name for the Link to Web Address snap-in** box, type **Cisco**. Click **Finish**.

Step 2: Create a custom management console.

We added snap-ins to the folder snap-in, click Advanced. The Advanced window opens. Check the box next to Allow changing the parent snap-in. Click OK. A drop-down menu appears for Parent snap-in. In the Parent snap-in box, select Folder. We added the following snap-ins: Computer Management, Device Manager, and Disk Management. The Console1 window opens. Right-click the Folder icon and select Rename. Change the name of the folder to Management Tools. We saved the custom console, click File > Save As. Change the file name to your name. Example: John’s Console. Change the Save in box to Desktop. Click Save. We closed all open windows. On the desktop, double-click the Console icon to re-open the console with your snap-ins. I Review the Management Tools folder by double-clicking on the tools. Close the Console window when you finish your review.

**Step 3: Change your desktop background settings.**

We opened the **Choose your desktop background** window, right-click the **Desktop**, select **Personalize**

and click **Desktop Background**.

What is the background picture?

Answers may vary

Click the **Picture location** drop-down button and select **Solid Colors**. Select a **blue** color.

Click **Save changes**. The computer screen should now have a blue background. If not, ask the instructor for assistance.

Close all open windows.

Step 4: Open the registry editor.

To open the **Registry Editor**, click **Start** and type **regedit.** Press **Enter**.

**Note**: Do not make any changes in the Registry Editor without instructor permission.

Select the **HKEY\_CURRENT\_USER** entry. To search for the **Background** key, click **Edit > Find…**, and type **Background**. Click **Find Next**.

The **Background** value is located. Leave this window open.

In which folder is the Background located?

What is the data value of the Background (hint – it has three numbers that correspond to red, green, and blue)?

Step 5: Export a registry key.

We will now export the **HKEY\_CURRENT\_USER\Control Panel\Colors** folder.

In the left pane, select the **Colors** folder and click **File > Export**.

Save the file to the Desktop with the name **BlueBKG**.

At the desktop, right-click the **BlueBKG.reg** icon and select **Edit**.

Notepad opens displaying the contents of **BlueBKG.reg**.

What is the data value of the **Background**?

The example shows 10 59 118

These numbers may vary depending on the blue color that was selected for the background color. In the example, the numbers are 10 59 118.

Close the **BlueBKG.reg – Notepad** window.

Open the **Choose your desktop background** page in Personalize appearance and sounds by right- clicking the **Desktop > Personalize > Desktop Background**.

Click the **Location** drop-down button and select **Solid Colors**. Select a **red** color.

Click **Save** changes. Close the **Personalization** window.

The desktop should be red. Click the **Registry Editor** window.

On your keyboard, press **F5** to refresh the **Registry Editor** window.

What is the data value of the Background? Answers may vary based on the shade of red selected in Display Properties.

10 59 118 in the example

Step 6: Import a registry file.

We will now import the **BlueBKG.reg** file.

We click the **Registry Editor** window.

Click **File > Import**. Locate and click the **BlueBKG.reg** file then click **Open**.

The **Registry Editor** informational message opens letting you know that keys and values have been successfully added to the registry. Click **OK**.

Select the **Registry Editor** window.

What is the data value of the Background?

184 40 50

What is the color of the desktop? Restart the computer.

The example shows 10 59 118.

What is the color of the desktop?

Red

Reset **Display Properties Background** to the original settings.

Close all open windows.

Delete the custom console and BlueBKG file on the desktop.

Reflection

Why would it be beneficial to add snap-ins to the mmc that are for other computers on the network?

It would make it easy to configure and monitor other computers that do not have monitors, keyboards or mice, or that are not easily accessible.

After restarting the computer, why was the desktop color changed?

Importing the registry file modified the registry to contain a value for the desktop that was not the same as the current value. When the computer started, this value was read from the registry to make the desktop that color.

**Instruction Card 22- Managing the Startup Folder in Windows 8**

# Introduction

In this lab, you will customize the **Startup Folder** and the **Run Key** in the **Registry** to manage what applications are started automatically when **Windows** starts. You will also use the **Startup** tab to manage the programs already added to the **Startup Folder**.

# Recommended Equipment

* A computer running Windows8

## Step 1: Customize the Startup folder.

We added a program to the **Startup Folder**, you must first locate it and create a shortcut. Open **File Explorer** and navigate to **C:\Program Files\InternetExplorer**.We Located the **Internet Explorer** executable file, **iexplorer.exe.** Right click the **iexplorer.exe** executable, click **Send to**, and select **Desktop (create shortcut).** This will create a shortcut to **Internet Explorer** on the **Desktop. I** Closed the **File Explorer**window. We need access the **Startup Folder** in **Windows 8**, click **Search**, type **run** and press **Enter**. The **Run** window opens. Type **shell:start up** and press **Enter**. The **Start up** window opens. Move the **Internet Explorer** shortcut, previously created in the Desktop,to the **Startup Folder** by dragging it on the **Windows Explorer** window.

Now that the Explorer shortcut has been added to the Startup folder, what should happen after the PC is rebooted?

The Internet browser should automatically run after you log in to the computer.

The Internet browser should automatically run after you log in to the computer.

We Restarted the computer.

Did Internet **Explorer** automatically open after the boot process was complete?

Yes, the browser should have automatically run after you login to the computer.

Yes, the browser should have automatically run after you login to the computer.

**Step 2: Review computer setting in Task Manager**.

We Opened the **TaskManager** by right-clicking the**Task bar** at the bottom of the desktop.Select**Task Manager** from the menu. We need access more features, click **More details** at the bottom of the **Task Manager** window. You should see the **Processes** tab of **Task Manager**. We clicked the **Start up** tab. A list of applications is displayed that will be started automatically when Windows starts. Notice that **Internet Explorer** is listed.We Closed all windows.

## Step 3: Managing Startup Applications Using Windows Registry

The **Windows Registry** is a tree-like structure that can be used to configure many different aspects of Windows.

We edited the **registry,** open **regedit.** Click **Search,** type **regedit**, and press **Enter.**

Select **New** and click **StringValue**.

A new **String Value** is created.

What happens when you log in?

Internet Explorer and Notepad start automatically.

## Step 4: Removing Applications From Startup

You can use the Startup Tab to manage what applications continue to run automatically in future reboots.

Right click the **Taskbar** and select **Task Manager.**

Click **More details** and select the **Start up** tab. The **Startup** tab now shows **Internet Explorer** and Notepad.

Stop **Internet Explorer** from automatically starting after reboots by right clicking **Internet Explorer** and selecting **Disable.**

What does the **Startup impact** column indicate?

It indicates the level of impact the program will have on the startup process.

# Reflection

Why would a user want to stop programs from starting automatically?

Some programs add themselves to the Startup Folder upon installation. Having too many programs starting automatically can slow down the computer, delaying the boot process. As it can be seen in the Startup Tab, Windows 8 displays the impact level of the programs added to the Startup Folder to help users decide what programs should be automatically started after boot.

**Lab – Troubleshooting Mobile Devices**

Introduction

In this lab, you will analyze scenarios involving common problems for mobile devices and identify the solutions.

Recommended Equipment

* Android tablet or smartphone running Android version 5.0 or higher
* iOS tablet or smartphone running iOS version 7.0 or higher

Troubleshooting Mobile Devices

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Solutions for Common Problems** | | |
|  | Perform a hard shutdown | Pull the battery | Complete a Factory Restore/Reset |
|  | Force the app to close | Replace the SIM Card | Reconfigure network settings |
|  | Insert or replace the Memory Card | Delete unnecessary files or uninstall apps | Clean the phone |

Select one solution from the box above for each common problem listed below. Each solution may be used more than once.

You have been using a social networking app on your phone without any problems. Suddenly the application freezes up while trying to upload a photo.

Which solution should be used to solve this problem? Explain your answer.

Force the app to close

Research and list the steps for implementing the solution.

The passcode, or passcode pattern, has been forgotten.

Which solution should be used to solve this problem? Explain your answer.

Complete a factory restoure/reset

We researched and listed the steps for implementing the solution. A phone has been powered on, but it proceeds to loop through the startup process repeatedly. Which solution should be used to solve this problem? Explain your answer.

Perform a hard shutdown or pull the battery or complete a factory restore / reset

Research and list the steps for implementing the solution.

Answers will vary.

You have had your Android smartphone for five months and have not experienced any problems. Suddenly, a “No SIM Card” message begins appearing regularly. You check your SIM card and there are no problems with the contacts on the SIM card and the SIM card is locked into place.

Which solution should be sed to solve this problem? Explain your answer.

Replace the SIM card or perform a hard shutdown or complete a factory restore / reset or pull the battery

Research and list the steps for implementing the solution.

Answers will vary.

Friends and family have recently begun complaining about how hard it is to hear you during calls. You have already tried a hard reset for your phone, but that has not solved the problem.

Which solution should be used to solve the problem?

Clean the phone

Research and list the steps for implementing the solution.

The phone is entirely unresponsive.

Which solution should be used to solve the problem?

Research and list the steps for implementing the solution. The mobile device cannot send or receive email. Which solution should be used to solve the problem?

Force the app to close or perform a hard shutdown or pull the battery or complete a factory restore/reset

Research and list the steps for implementing the solution.The phone cannot install additional apps or save photos. Which solution should be used to solve the problem?

Delete unnecessary files or uninstall apps or insert or replace the memory card

Research and list the steps for implementing the solution.

**Instruction Card 24 - Working with Android**

**Introduction**

In this lab, you will place apps and widgets on the home screen and move them between different screens. You will also create folders. Finally, you will install and uninstall apps from the Android device.

# Part1: Apps and Widgets

## Step 1: Gain Access to the Device.

Turn on the device and log in with the **password**, **PIN**, or other **passcode**, if necessary.

## Step 2: Add App Shortcuts to the Home Screen.

On the **home screen**, apps can be installed using the **All Apps** icon. We touched the **All Apps** icon.

The **All Apps** screen appears.

We touch and hold any app icon to create a shortcut to it on the **home screen**. As the app icon is held, the **home screen** and possible locations for the shortcut becomes visible in the background. The image below shows the **home screen** and a possible location for a shortcut as the **Calculator** app icon is held, drag the app icon to any empty space and releaseit. Step 3: Add Widgets to the Home Screen. Widgets are apps that display information dynamically on the **home screen**. Different from app shortcuts represented by a single icon, widgets usually occupy a larger area of the screen and can be installed directly from a screen. We add a widget to a screen,touch and hold a blank are a of a screen.The screen will reduce in size and a three-icon menu will appear and.Touch the **Widgets** icon. A list of installed Widgetsappear. We touched and held a widget. Similarly to adding an app, the **home screen** will become visible, allowingyou to choose a location for the widget. Drag the widget to any empty space and release it. In the image below, the **Google Fit Widget** is being placed on the **homescreen**.

## Step 4: Move Apps Between Screens. We can move apps to other screens. Touch and hold any app icon. Drag the app to the right edge of the screen. Drag the app icon to any empty space and release it.

## Step 5: Remove Apps or Widgets from the Home Screen. Apps and widgets can be removed from the home screen. In this example, you will remove the Drive app from the home screen. WeTouch and hold the Drive app icon. As you hold the icon, the search box on the top of the screenis replaced by the Remove link. Drag the Drive icon onto the Remove link and release the app. The app is now removed from the homescreen.

# Part2: Managing Folders

## Step 1: Create a Folder.

## Apps can be grouped together to create folders by simply dragging an app on top of another. We Add another app to the screen.You must have at least two apps to create a folder. In the image below, the Calculator and Photos apps areused as examples. We touch and drag one of the apps icon onto the other.and Release the app. A folder is created containing both the Calculator and Photos apps.

## Step 2: Rename a Folder. Folders can be named to describe the contents. We touched the folder and the words unnamed folder. We typed the name ITE Apps Folder for the foldername and touched anywhere outside the folder to close it.

## Step 3: Remove Apps from a Folder. Apps can be removed from folders.We touched and held any app within the folder. We drag the app to an empty area of the homescreen and Release the app. After Photos is removed from the folder, what happened to the folder and the Calculator app?

# Part3: ManagingApps

## Step 1: Install Apps. We Opened Google Play Store app, Searched and install LastPass, a free password manager for Android, Touched LastPass Password Manager to see details about LastPass, Touched INSTALL and then ACCEPT on the App Permissions window. When the installation process finishes, the app is installed and available under AllApps.

## Step 2: Uninstall Apps.

We Navigated to the **home screen**, Touched the **All Apps**icon, Touched and hold **LastPass**icon (i.e., the app you just installed in the previousstep.) An app menu appears. Drag the **LastPass**icon to the **Uninstall**link**.** I Confirmed you want to uninstall **LastPass** by touching **OK**.

The app is now uninstalled from the device.

**Instruction Card 25 - Working with iOS**

**Introduction**

In this lab, you will place apps on the home screen and move them between different home screens. You will also create folders. Finally, you will install on the iOS device and uninstall them.

**Recommended Equipment**

* iOS tablet or smartphone running iOS version 7.0 orhigher

# Part1: Apps and the HomeScreen

In this part, you will access the iOS device and re-arrange the apps on the **home screen**.

We turned on the device and log in with the **password**, **PIN**, or other **passcode**, if necessary. On the **home screen**, we touch and hold any app icon until it starts to jiggle, drag the app icon to the desired location and release it, touch and hold any app icon. In this example, we will use the **Calculator** app, drag the **calculator** app to the edge of the screen on the right to place it on a different **homescreen**. This operation will also create a new home screen if there are no others. I pressed the **Home** button when the **Calculator** is in the desired location.

# Part2: Managing Folders

## Step 1: Create a Folder.

Apps can be grouped together to create folders. A folder can be created by dragging an app on top of another.

We Touch and drag the **Stocks** app onto the **Calendar** app. iOS will create folder containing both apps. Release the app when the folder is created.The default folder name is determined by the types of apps placed in the folder and press the **Home** button to exit the folder editing creation mode.

## Step 2: Rename Folders. Folders can be renamed to better describe their contents.

We opened the **Finance** folder by tapping it, touch and hold the folder’s name until the apps begin to jiggle. Notice the cursor is now next to the folder’s name. We delete the name **Finance** and rename it **ITEFolder** and touch anywhere outside the folder or press the **Home** button to close the folder.

## Step 3: Remove Apps from Folders.

We Touch the **ITE Folder** to open it and hold the **Calendar** app icon within the folder. Drag the app to an empty area of the home screen outside of the folder. We Release the icon. The Calendar app icon is now outside the folder.

Go back to the **ITE Folder** and remove **Stocks**.

What happens to the folder?

The folder disappeared from the home screen.

# Part3: Installing Apps

To install apps on an iOS device, you must use the **App Store** app. To install an app on iOS, follow these steps:

We touch the **App Store** app icon to open it, the **Search** tool icon at the bottom of the screen to access the app searchfunctionality. In the search box, type **LastPass**, a free password manager for iOS.Touch **LastPass**to see details about the **LastPass** app and **Get** and then touch **Install** to start the installation process. To begin the download, provide your Apple account password if prompted. When the download and installation is finished, the progress indicator will turn into a button that reads Open. We pressed the **Home** button to return to the **home screen** and verify the app has been installed.

# Part4: Uninstalling Apps

In this section, you will uninstall LastPass, but the process is the same for any iOS app. I Touch and hold the **LastPass** icon until the apps begin to jiggle. Notice that the icon has a grey circle with an black X in the upper left corner of the icon. Apps without the X are default apps and cannot be uninstalled.

Confirm the deletion by touching **Delete**. The app is deleted from the device.

**Instruction Card 26 - Mobile Device Features**

**Introduction**

In this lab, you will set the auto rotation, brightness, and turn GPS on and off.

**Recommended Equipment**

* Android tablet or smartphone running Android version 5.0 or higher
* iOS tablet or smartphone running iOS version 7.0 orhigher.

# Part1: Auto-Rotation

## Step 1: Auto-Rotation on Android

We turned on the device and log in with the password, PIN, or other passcode, if necessary. We go to **All Apps > Settings > Display** (under the **Device**category). We touch **When the device is rotated** and select **Stay in currentorientation**. We Rotate the device 90 degrees clockwise. What happens to thescreen?

The screen remains in the same orientation.

We Rotate the device 90 degreescounter-clockwise.We Touch **When the device is rotated** again and select **Rotate the contents of the screen**. I Rotate the device 90 degrees clockwise again. What happens to thescreen?

The screen rotates to match the orientation of the device.

We touch the **Home** button to return to the homescreen.

## Step 2: Auto Rotation on iOS

We Turn on the device and log in with the password, PIN, or other passcode, if necessary,swipe up from the bottom of the screen up to access **ControlCenter**, Touch the **auto-rotation lock** icon to enable **auto-rotation lock**; it is the fifth icon in the row of icons and represented by a circular arrow going around alock

Open the **Calculator** app, rotate the device 90 degrees clockwise. What happens to the screen?

The screen remains in the same orientation.

We swipe up from the bottom of the screen to access the **Control Center** again.I touch the **auto-rotation lock** icon again to de-activateit ,Press the **Home**button.We Open the **Calculator** app and Rotate the device 90 degrees clockwise. What happens to the screen?

The screen rotates to match the orientation of the device.

# Part2: Brightness

## Step 1: Brightness on Android

We go to **All Apps > Settings > Display** (under the **Device**category) , touch **Brightness level**. A brightness slider appears, move the slider all the way to the right. What happens?

The screen gets brighter.

Touch the **Adaptative brightness** toggle to enable it.The **Adaptive brightness** toggle is located right below the **Brightness level**. What happens when **Adaptive brightness** is enabled?

 The brightness of the screen should adjust itself based on the amount of environmental light.

We Touch the **Adaptive brightness** checkbox, move the slider all the way to the left. What happens?

The screen gets darker.

I again touched the **Home** button to return to the **homescreen**.

## Step 2: Brightness on iOS

We go to **Settings > Display & Brightness**. The **Display & Brightness** screen appears, turn off **Auto-Brightness** by moving the **Auto-Brightness** toggle to the **off** position, move the slider all the way to the right. What happens?

The screen gets brighter.

I Turn on Auto-Brightness. What happens?

The screen should become much darker unless the room is very bright.

We Turn off Auto-Brightness.

Move the slider all the way to the left. What happens?

The screen gets darker.

Turn on Auto-Brightness. What happens?

The screen should become much brighter unless the room is very dark.

# Part3: GPS

Another common feature on modern mobile devices is **GPS** or **Location Services**. By using Global Positioning System signals, mobile devices are able to learn and inform the user about the current location with good accuracy.

## Step 1: GPS on Android

We Go to **All apps > Settings > Location** (under **Personal**). The **Location** screen appears, turn off Location by moving its toggle to **off**, touch the **Home** button and Open the **Maps** app by going to **All apps >Maps**.

How is the device able to determine the location?

Depending on the device, the wireless network function can provide an approximate location.

Force **Maps** to locate you with more accuracy by touching the **crosshair** icon. What happens?

Because Location is turned off, Android asks permission to turn it on.

Allow Android to turn on Location by touching **YES**. Your device should now have an accurate representation for your current location.

We Touch the **Home** button. Step 2: GPS on iOS, go to **Settings > Privacy > Location Services**. The **Location Services** screen appears. iOS allows the user to decide what apps have access to the GPS. What apps are using Location Services on your device?

Answers may vary.

We Turn **LocationServices**off.AwarningmessagemayappearstatingthattheLocationServices willbe disabled, press the **Home** buttona and touch the **Maps** app icon to open **Apple Maps**.

Touch the **Current Location** icon. What happens?

The **Turn On Location Services** message appears.

We Touch **Settings** in the warning box to open the Location Services setting screen. Alternatively, press the

**Home** button and go to **Settings > Privacy > Location Services,** Turn Location Serviceson, Touch the **Home** button and Touch the **Maps** appicon.

Touch the **Current Location** icon again. Was iOS able to locate you and the device?

Answers may very.

We Click the **Home** button.

**Instruction Card 27 – Mobile Device Information**

# Introduction

In this activity, you will use the Internet, a technical journal, or a local store to gather information about an Android and an iOS device. You will then document the specifications of each Android and iOS device onto this worksheet. Be prepared to discuss your decisions regarding the devices you select.

# Recommended Equipment

* PC with InternetConnection

## Step 1: Select an Android and iOS device to research. Record the hardware specifications in the boxes below.

|  |  |  |
| --- | --- | --- |
| **Specifications:** | **Android Device:** | **iOS Device:** |
| **Model** | Galaxy S6 edge+ | iPhone 6s Plus |
| **Manufacturer** | Samsung | Apple |
| **Operating System** | Android 5.1.1, Lollipop | iOS 9.0 |
| **Available Memory** | 32, 64, or 128 GB | 16, 64, or 128 GB |
| **Camera** | Front: 5 MP  Rear: 16MP  Video: 4K | Front: 5 MP  Rear: 12 MP  Video: 4K |
| **Wi-Fi Connectivity** | 802.11a/b/g/n/ac | 802.11a/b/g/n/ac |
| **Battery Information** | Li-ion , 3000 mAh | Li-ion  Talk time 24 hours on 3G |
| **Screen Size and Resolution** | 5.7 inch screen  2560 x 1440 resolution | 5.5 inch screen (diagonal) with  1920 x 1080 resolution |
| **Size and Weight** | 6.08 x 2.98 x .27 inches  Weight: 5.4 oz | 6.23 x 3.07 x .29 inches  Weight: 6.77 |

## Step 2: Based on your research, which mobile device would you select? Be prepared to discuss your decisions regarding the mobile device you select.

## On the basis of my research, I would choose xiaomi rare note 7. For its price, it has very good configuration. It is a budget smartphone. Memory 4/64 GB, 4000 mA battery, 13 megapixels. Its price is $ 237.

**Instruction Card 28 - Passcode Locks**

**Introduction**

For most users, these Android or iOS devices are on the go with the users, and they are usually power on all the time. If the device is lost or stolen, the passcode can prevent unauthorized access. In this lab, you will set a passcode lock, change a passcode lock, and fail passcode authentication. You will also remove a passcode lock.

**Recommended Equipment**

* Android tablet or smartphone running Android version 5.0 or higher.
* iOS tablet or smartphone running iOS version 7.0 orhigher

# Part1: Passcode Lock onAndroid

## Step 1: Configure Passcode Lock on an Android Device.

We turn on the device and get to the **Homescreen**.

I’ve done the next actions:go **to All apps > Settings > Security** (under **Personal**). The **Security** screen appears.

We touch **Screen Lock** to choose a method for locking the screen. Android 5.0 supports **None** (nolock),

If the **Encryption** screen appears, Android asks if you want to use the PIN to encrypt the device.Touch

**No thanks** and then touch **CONTINUE** to continue.

In the **Choose your PIN** screen, I enter **1234** and touch **CONTINUE**.

Next, we should type **1234** to confirm the **PIN** , touch **OK** and touch **Show all notification content** to have Android displaying all notifications on the lock screen. Touch**Done**.

## Step2: We Used the PIN to Unlock theScreen. Touch check mark on the bottom right-side of the number pad. Whathappens?

I enter the incorrect **PIN** 4 more times. Whathappens?

Repeatedly incorrect PINs is an indicator that someone is trying to guess the PIN. As a security measure, Android forces the user to wait 30 seconds before attempting another guess.

I touch **OK** when 30 seconds have passed. Notice that Android will keep a countdown in the background.

After 30 seconds, We can enter the correct PIN to unlock the device.

I Go to **All apps > Settings > Security** (under **Personal**).

We touch **Screen Lock**. What happens?Explain.

It is depending on what application was left running at the time the device was locked. The device unlocks and the home screen appears.

We type the correct PIN. And touch**CONTINUE**. And touch**None**.

We Press the **power** button briefly to lock thescreen.and the **power** button briefly to unlock the screen. What happens?

The device wakes up without the need for a PIN. Also, the **Screen Lock** can also be accessed without a PIN.

# Part2: Passcode Lock oniOS

## Step 1: WE Configured Passcode Lock on an iOS Device.

## Step 2: We Used the Passcode to Unlock the Screen.

Enter the incorrect PIN 5 more times. What happens?

A message **iPhone is Disabled, try again in 1 minute**is displayed**.**

After 1 minute, We enter the correct passcode.

We go to **Settings > Passcode**. What happens?Explain.

The user is asked to enter the passcode. To prevent unauthorized users from changing or removing the passcode.

Next ,WeType the correct PIN. The **Passcode Lock** screen appears.

I Touch **Turn PasscodeOff** and type the correct PIN.

Press the **Power** button briefly to lock thedevice.

Press the **Power** button briefly to unlock the device. What happens?

The settings screen is displayed without entering a passcode.

**Instruction Card 29 – Research Laptop RAM**

In this lab, you will use the Internet, newspaper, or a local store to gather information about expansion memory for a laptop.

1. Research the manufacturer specifications for the memory in a laptop.List the specifications in the table below:

|  |  |
| --- | --- |
| **Memory Specifications** | **Laptop Expansion Memory** |
| Form Factor | SODIMM |
| Type | DDR3 |
| Size (GB) | 16 GB maximum |
| Manufacturer | Lenovo |
| Speed | 1600 MHz |
| Slots | 2 |

1. Shop around, and in the table below list the features and costs for expansion memory for a laptop.

|  |  |
| --- | --- |
| **Memory Specifications** | **Expansion Memory** |
| Form Factor | SODIMM |
| Type | DDR3 |
| Size (GB) | 8 GB |
| Manufacturer | Kingston |
| Speed | 1600 MHz |
| Retail Cost | $50 |

1. In your research, did you find any reason to select a particular type of expansion memory overanother?

Answers will vary based on price, warranty, and preference

1. Is the new expansion memory compatible with the existing memory installed in the laptop?Why is this important?

Yes. If the expansion memory speed is less than the manufacturer’s specifications, the laptop may not work at its optimal performance, and may crash the system.

**Instruction Card 30 – Research Laptop Batteries**

In this lab, you will use the Internet, newspaper, or a local store to gather information and then record the specifications for a laptop battery.

1. List the specifications for a laptop battery. Please ask your instructor for the laptop model to research.

The battery included with the T440p is a standard 6-Cell Lithium Ion rechargeable battery.  
Li-ion 6-Cell Battery Pack (10.8V / 4.8AH) P/N: 92P1089  
Manufacturer: Panasonic  
Depending on usage, the IBM 6-Cell battery will operate approximately 4 hours. If you need more battery life, you can buy an extended life 9-Cell battery.

1. Shop around, and in the table below list the features and cost for a generic and a laptop battery from the manufacturer of the laptop.

|  |  |  |
| --- | --- | --- |
| **Battery Specifications** | **Generic** | **Manufacturer** |
| Output voltage | 10.8V | 10.8 V |
| Battery cell configuration ex: 6-Cell, 9-Cell | 6-Cell | 9-Cell (57++)  6-Cell (57+) |
| Dimensions | 6-Cell: 20.1 mm (0.8 in) x 206.2 mm (8.12 in) x 51.5 mm (2.03 in) | 9 cell: 20.1 mm (0.79 in) x 218.5 mm (8.60 in) x 74.2 mm (2.92 in)  6-Cell: 20.1 mm (0.8 in) x 206.2 mm (8.12 in) x 51.5 mm (2.03 in) |
| Hours of life | 2-3 hours for 6-Cell | 13+ hours for 9-Cell  7+ hours for 6-Cell |
| Approxmate cost | $130 for 6-Cell | $159 for 9-Cell  $139 for 6-Cell |

1. Based on your research,which battery would you select?Be prepared to discuss your decisions regarding the battery you select.

Student may choose an extended life battery, but must be prepared to explain the decision.

**Instruction Card 31 Installing Linux (Ubuntu) as a virtual machine in Windows**

### Installing Linux using USB stick

**Step 1)** We Downloaded the iso or the OS files on your computer from this [link](http://www.ubuntu.com/download/desktop).

**Step 2)** We Downloaded free software like '[Universal USB installer](http://www.pendrivelinux.com/universal-usb-installer-easy-as-1-2-3/) to make a bootable USB stick.

**Step 3) We**Selected an Ubuntu Distribution form the dropdown to put on your USB

**Step 4)  We** Clicked YES to Install Ubuntu in USB.

**Step 5)** a small window will appear Congratulations! We now have Ubuntu on a USB stick.

### Installing Linux using CD-ROM

**Step 1)  I d**ownloaded the .iso or the OS files onto your computer from this link <http://www.ubuntu.com/download/desktop>.

**Step 2)  We** Burn the files to a CD.

**Step 3)  I** Booted your computer from the optical drive and follow the instructions as they come.

### Installing Linux using Virtual Machine

**Here the brief steps**

**PART A) Download and Install Virtual Box**

We should Download Virtual box using this [link](https://www.virtualbox.org/wiki/Downloads). Open setup file and follow the steps below:

**Step-1)  I** Clicked On next

**Step-2)  I** Selected you're the directory to install VirtualBox and click on next and Desktop icon .

**Step-3)** I Clicked On install.

**Step-4)**Now installation of the virtual box will start. Once complete, We click on Finish Button.

**PART B) Download Ubuntu**. We Visited this link to [download](http://www.ubuntu.com/download/desktop) Ubuntu.

You can select 32/64-bit versions as per your choice.

**PART C) Create a Machine in Virtual Box**

**Step-1) We** Opened Virtual box and click on new button

**Step-2)**In next window**, We** give the name of your OS which you are installing in virtual box. And select OS like[Linux](https://www.guru99.com/unix-linux-tutorial.html)and version as Ubuntu 32 bit. And click on next

**Step-3)** I recommended keeping 1024mb (1 GB) ram to run Ubuntu better. And click on next.

**Step-4)**Now To run OS in virtual box we have to create virtual hard disk, click on create a virtual hard drive now and click on create button.

**Step-5)  We** select VHD (virtual hard disk) option and click on next.

**Step-6) I** Click on dynamic allocated and click on next. This means that the size of the disk will increase dynamically as per requirement.

**Step-7)**Allocate memory to your virtual hard drive .8GB recommended. Click on create button.

**Step-8)**Now We can see the machine name in left panel

**PART D) Install Ubuntu on the Machine**

**Step 1**) We Selected the Machine and Click on Start and Folder Option and Ubuntu iso file

**Step 3)** I Click Start

**Step-4)**We have an option to Run Ubuntu WITHOUT installing. In this tutorial will install Ubuntu

**Step-5)  We** Selected option to erase the disk and install Ubuntu and click on install now. This option installs Ubuntu into our virtual hard drive which is we made earlier. It will not harm your PC or Windows installation and our location for setting up time zone, and click on continue , our keyboard layout, by default English (US) is selected but if you want to change then, you can select in the list. And click on continue and our username and password for your Ubuntu admin account. This information has been needed for installing any software package into Ubuntu and also for login to your OS. Fill up your details **Step-6)**Installation process starts. May take up to 30 minutes. Please wait until installation process completes.

**Step-7)**After finishing the installation, you will see Ubuntu Desktop.

**Instruction Card 32 – Working with Linux Command Line**

**Introduction**

In this lab, you will use the Linux command line to manage files and folders and perform some basic administrative tasks.

# Recommended Equipment

A computer with a Linux OS, either installed physically or in a virtual machine

## Step 1: Access the command line. At the beginning of work, I logged in as a user with administrator rights. To gain access to the command line, We press the dash, enter the terminal in the search field and press Enter. The default terminal emulator opens.

## Step 2: Display the man pages from the command line. We can display command line help using the man command. The man page, short for man page, is the online documentation for Linux commands.

We Type **q** to exit the manpage.

Name a few sections that included in a man page.  
A few sections in a man page are: Name, Synopsis, Configuration, Description, Options, Exit status, Return value, Errors, Environment, Files, Versions, Conforming to, Notes, Bugs, Example, Authors, and See also.

We type **man cp** at the prompt to display the information about the **cp** command.

What command would you use to find out more information about the **pwd** command? What is the function of the **pwd** command? The **man pwd** command is used to access the man page about **pwd**. The **pwd** command prints the name of the current or working directory..

## Step 3: Create and change directories. In this step, We will use the change directory (cd), make directory (mkdir), and list directory (ls) commands.

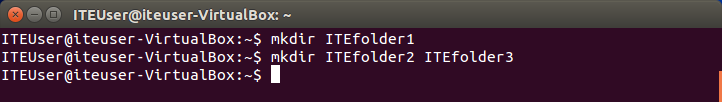
We type **pwd** at the prompt. What is the current directory? The current directory is **/home/ITEUser** in this example.

We navigate to the /home/ITEUser directory if it is not your current directory and Type **cd/home/ITEUser**.

We type **ls** at the command prompt to list the files and folders that are in the current folder.

In the current directory, use the **mkdir** command to create three new folders: **ITEfolder1**, **ITEfolder2**,and

**ITEfolder3**. Type **mkdir ITEfolder1** and press **Enter**. Create **ITEfolder2** and **ITEfolder3**.



We typed **ls** to verify the folders have beencreated.

We typed **cd ITEfolder3** at the command prompt and press **Enter**. Which folder are you innow?

The current directory is **/home/ITEUser/ITEfolder3** in this example as indicated by ~/ITEfolder3 at the prompt.

**~/ITEfolder3**: is the current working directory. The symbol **~** represents the current user’s home directory. In this example, it is /home/ITEUser.

**$**: indicates regular user privilege. If **#** is displayed at the prompt, this indicates elevated privilege (root).

Within the **ITEfolder3** folder, create a folder named **ITEfolder4**. Type **mkdir ITEfolder4**. Use the**ls**

command to verify the folder creation.

We typed **cd..**tochangethecurrentdirectory.Each**..**isashortcuttomoveuponelevelinthedirectorytree. After issuing the **cd ..**command, what is your directory now?

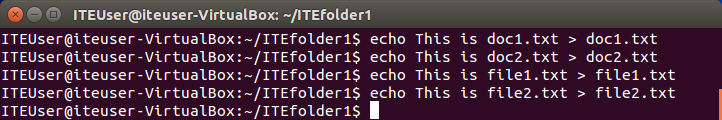
/home/ITEUser

What would be the current directory if you issue this command at **ITEUser@iteuser-VirtualBox:~$**?

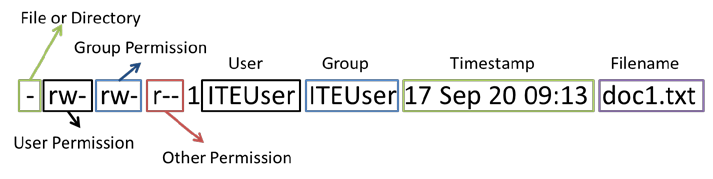
/home

## Step 4: Create text files.

We Navigated to the **/home/ITEUser/ITEfolder1**(**~/ITEfolder1)** directory. We type **cdITEfolder1** at the prompt

We type **echoThisisdoc1.txt>doc1.txt** at the command prompt.The **echo** command is used to display a message at the command prompt. The **>**is used to redirect the message from the screen to a file. For example, in the first line, the message **This is doc1.txt** is redirected into a new file named **doc1.txt**. Use the **echo** command and **>**redirect to create these files: **doc2.txt**, **file1.txt**, and**file2.txt**.

We used the **ls** command to verify the files are in the **ITEfolder1** folder.To determine the file permission and other information, type the **ls –l** command at the prompt.

The following figure breaks down the information provided by the **ls –l** command. The user **ITEUser** is owner of file. The user can read and write to the file. The user **ITEUser** belongs to the group name **ITEUser**. Anyone in the group **ITEUser** has the same permission. The group can read and write to the file.If the user is not the owner orin the group **ITEUser**, the user can only read the file a sindicated by the permission for other.

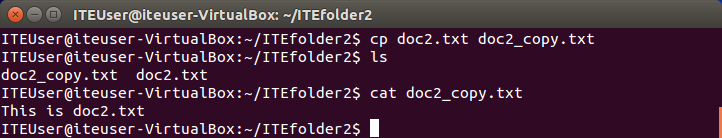
We typed the **man ls** command at the prompt.What option would you use to list all the files in the directory, including the hidden files starting with **.**? The **–a** or **–all** option allows you to view all files.

We Used the **cat** command to view the content of the text files.To view the content of doc2.txt,type**cat doc2.txt**.

## Step 5: Copy, delete, and move files.

WE Type **ls** at the prompt to verify that **doc2.txt** is no longer in the currentdirectory, **cd../ITEfolder2**tochangethedirectoryto**ITEfolder2**.Type**ls**attheprompttoverify**doc2.txt**has been moved, **cp doc2.txt doc2\_copy.txt** to create a copy of **doc2.txt**.

We Typed **ls ../ITEfolder1** to view the content in **ITEfolder1** without leaving the currentdirectory and Changed the current directory to **ITEfolder1**. Type **cd ../ITEfolder1** at theprompt.

Move**file1.txt**and**file2.txt**into**ITEfolder3**.Tomoveallthefilesthatcontainthe word**file**into**ITEfolder3**

with one command, use a **wildcard** (**\***) character to represent one or more characters. Type **mv file\*.txt ../ITEfolder3**.

Now we delete **doc2\_copy.txt**fromthe**ITEfolder1**directory.Type**rmdoc2\_copy.txt**.Use the **ls** command to verify the filedeletion.

## Step 6: Delete directories.

In this step, We will delete a directory using the **rm** command. The **rm** command can be used to delete files and directories.

We Navigated to the**/home/ITEUser/ITEfolder3**directory.Usethe**ls**commandtolistthecontentofthe directory.

We used the **rm ITEfolder4** to delete the empty directory, and the message **rm: cannot remove ‘ITEfodler4/’: Is a directory**.

We Used the man pages to determine what options are necessary so the **rm** commandcan delete directory. Type **man rm** at theprompt.

What option is needed to delete a directory? The option **–d** or **–dir** is used to delete a directory.

We used the **rm –d ITEfolder4** command to delete the empty directory and use the **ls** command to verify the removal of the directory.

We navigated to**/home/ITEUser**.

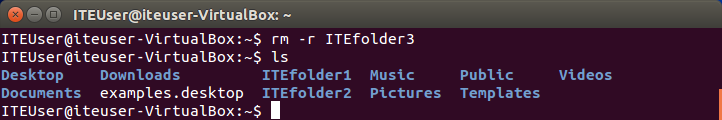
Now I removed the folder **ITEfolder3** using the **rm –d ITEfolder3** command to delete the non-empty directory. The message indicates that the directory is not empty and cannot bedeleted.

We used man pages to find out more information about the **rm**command.

What option is necessary to delete a non-empty folder using the **rm** command?

The option **–r**,**-R**, or **–recursive** is used with the **rm** command to delete non-empty folders.

To remove a non-empty directory, We typed the **rm –r ITEfolder3** command to delete the non-emptyfolder. Use the **ls** command to verify that directory wasdeleted.



## Step 7: Print lines matching a pattern.

WE used **cat** command is used to view the content of a text file. To search the content of a text file, you can use the **grep** command. The **grep** command can also be used to match a pattern with screen outputs.

In this step, I will create a few additional text files in the **/home/ITEUser/ITEfolder1** directory. The content and the filename are of your choosing. Three text files are used as example in this step.

Navigate to**/home/ITEUser/ITEfolder1**

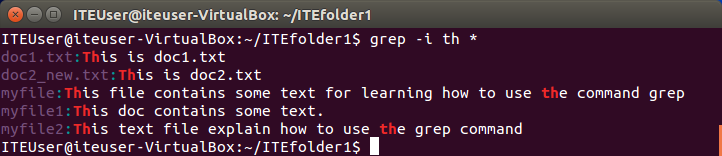
Use the **echo** command and redirect **>**to create a few text files ~/**ITEfolder1** and verify that the files were created in**~/ITEfolder1**.

To determine which files contains the word **file** within the content of all the files, type **grep file \*** to search for the word. The **wildcard** (\*) allows any filename to be included in the search. The files, **myfile** and **myfile2** have the word **file** in thecontent.

What command would you use to search for the word **doc** in the content of the files? Which files contains the word **doc** in this example?

You would use the **grep the \*.txt**command. No files met the search parameters.

What command would you use to search for word **the** in the file with the .txt extension? Which files met the requirements? You would use the **grep –i th \*.txt**command. The files **doc1.txt**and **doc2\_new.txt** met the search parameters.

The search pattern is case sensitive in the **grep** command. The option **–i** or **--ignore-case** is used to ignore the case distinction. To search for all the patterns of **th**, type the **grep –i th \*** command at the prompt.

What command would you use to search for the pattern **th** or **Th** in the file with the .txt extension? Which files met the requirements?

To search for a certain pattern for a screen output, the vertical bar (**|**), commonly referred to as the pipe. The pipe (|) is used to direct the output from the first command into the input for the second command. Using the output of **ls** command as an example, type **ls | grep file** at the prompt to list all the filenames with the word **file**.

## Step 8: Display the IP Address.

The **ifconfig** command allows you to configure a network interface. In this step, you will use the **ifconfig** to display the IP address associated with a network interface.

At the command prompt, type **ifconfig**. In this example, the **eth0** interface has been assigned an IP address of 192.168.1.7 with a subnet mask of 255.255.255.0.

## Step 9: Change your login password.

Changing your login password is a good practice in compute security and to unauthorized access to your information and your account.

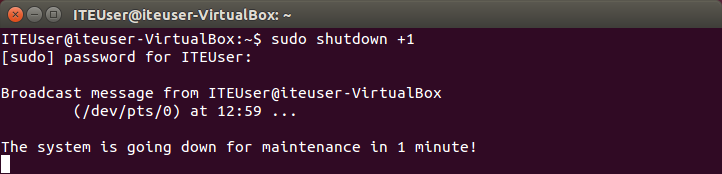
In this step, you will change your login password. You will need your current password and choose a new password to access your account.

We typed **passwd** at the prompt to start the process of changing your password. Enter the current password and provide your new password twice.

## Step 10: Use the shutdown command.

The **shutdown** command is used to bring the computer down gracefully. It requires elevated privileges and a time parameter. Because the user ITEUser is the first user account on the computer, the **sudo** command and the password allows this user the elevated privileges.

We Typed **sudo shutdown +1** to bring the computer down gracefully in 1 minute. When prompted, enter your password.



# Reflection

What are the advantages of using the Linux command line?

The command line allows the users more options and control over the graphical interface. For example, you can search through many text files for a certain pattern without opening a single file. As the users become more experienced with the command line, the users may combine these commands in scripts to perform routine tasks. The command line interface uses less resources when users administrate the computers remotely.

**Instruction Card 33**

To access a shell, try the following key combination,

Control + Alt + F1

Where F1 can be replaced by F2, F3, and so on. The graphical desktop tends to run in F7 or

F8, so to go back to your graphical desktop screen, just hit Control + Alt + F7. These are

virtual terminals. Alternatively, you could get to a Terminal application, so you can have a

shell while your in the graphical desktop environment (this is much preferred, and will be

used throughout this Chapter). To do this, go to: Main

Menu --&gt; System Tools --&gt; Terminal

Or right-click on the desktop, and click on the Open Terminal option. This terminal is

equivalent to the virtual terminals mentioned earlier, except now you don&#39;t have to switch

screens – you can just minimize or maximize the terminal (or if you&#39;re done, you can close it).

SOME USEFUL COMMANDS

Now that you are at a terminal, you might as well input some commands. For example, when you start a shell, display such as below (or similar) will be seen (and this can be configured to your liking!):

[-(byte@hermione)-(pts/4)-(05:34pm:05/06/2004)-]

[-(~)&gt;

The cursor blinks, waiting for input. To this, some of the more used and useful commands include:

• ls – list files in the current directory.

• cd – change working directory. If your current path is / home/username/Trash for instance,

typing “cd” will bring you back to /home/username.

• mkdir – make a new directory

• rmdir – delete a directory (must be empty)

• cp – invoked such as “cp currentFile newFile”, and is used to copy files.

• mv – invoked such as “mv currentLocation newLocation”. This is used to either move or

rename files.

• rm – invoked such as “rm myFile”; it is used to delete files permanently.

•pwd – prints the working (current) directory.

• cat – concatenate files (can be used to join them together), and prints its output to standard

output (the terminal screen). Used like: “cat myFile”.

• less – allows for file viewing in the shell, and is most useful for text files; invoked like “less

myFile”.

• find – can be used to find files via the command line. Example usage could be: “find . - name toc”, which looks at the current directory (defined by “.”) for any files with the name “toc”.

• locate – picks entries from a database, that is updated regularly; invoked via “locate

myFile”. Its much quicker than find (since it only searches a database), but might not be as

quick to update as find (the update of the database might happen once every day only).

• date – display the current date! This can also be used to set the date of the system (but

administrator privileges are required).

• history – built-in shell command for the BASH environment that shows the last run commands.

As always, these commands just begin to scratch the surface of the capability of the shell.

There are thousands of such commands available on your system! And keep in mind that

each and every command comes with options, that are usually executed via the -flag – again,

the man pages list all useful commands. For instance the command

rm –i will prompt when deleting a file, so you have to either say &#39;y&#39; if you&#39;re sure, or &#39;n&#39; if you do not want to delete the file.

[-(/tmp)&gt; rm -i usr.bin

rm: remove regular file `usr.bin&#39;? y

**Instruction Card 34**

A FEW MORE CONCEPTS AND SHORTCUTS

Now that you&#39;ve seen some commands that are useful in the shell, its important to know a

few more concepts. For instance, the tilde (“~”) represents the home directory, so rather than

typing /home/username it can be represented via a &#39;~&#39;. This means less typing for you.

[-(~/MyOSS-Stuff/IOSN)&gt; pwd

/home/byte/MyOSS-Stuff/IOSN

[-(~/MyOSS-Stuff/IOSN)&gt; cd ~

[-(~)&gt; pwd

/home/byte

So in that example, I was located in /home/byte/MyOSSStuff/IOSN, and just by issuing a “cd ~”, the shell has brought the current working directory to /home/byte. A dot “.” means the current directory. While “../” will mean the parent directory. This can be nested to include “../../” and so on, till it reaches the top level directory /.

INPUT/OUTPUT REDIRECTION AND PIPES

Running a command by itself with a lot of output doesn&#39;t seem all that useful. For instance, if

there are many files in a directory, running a command to list the directory like, ls /usr/bin will result in about 2100 lines being displayed on the screen! To actually get any useful information out of it, you might want to dump the output of the ls command to a file; or maybe use a utility like less to view it. All this is possible thanks to input/output redirection and pipes.

Input redirection is performed using &lt; or &lt; or &gt;&gt;. A point to note is that when using &gt;, it just recreates the file, even if the same filename exists, while &gt;&gt; concatenates the output to the

same file, causing it to possibly be double in size (if its the same output).

A pipe (“|”) is used to pass the output of the command not to a file, or to the screen, but to the

next utility. Pipes can be nested, so you can pass the data through several utilities before you

can get the useful information that you want. Let&#39;s dive into some examples!

1. [-(/tmp)&gt; ls /usr/bin &gt;&gt; usr.bin

2. [-(/tmp)&gt; wc -l usr.bin

3. 2171 usr.bin

4. [-(/tmp)&gt; ls /usr/bin &gt;&gt; usr.bin

5. [-(/tmp)&gt; wc -l usr.bin

6. 4342 usr.bin

7. [-(/tmp)&gt; ls /usr/bin &gt; usr.bin

8. [-(/tmp)&gt; wc -l usr.bin

9. 2171 usr.bin

Note: the line numbers are added for clarity, and are not included in the shell output!

In line 1, the output of the directory listing of /usr/bin gets placed in a file called usr.bin. On line 2, a new utility called &#39;wc&#39; is used (this is used to print the number of lines in the file (as it gets passed the -l option) – its output is at line 3. The same command is then repeated on line 4, and now, the file is double the size as per line 6! That is because the &gt;&gt; output redirection was used, which has concatenated the two outputs together. Notice that in line 7, a single &gt; is used, and in line 9, it shows that the file has been over-written with the new contents.

[-(/tmp)&gt; ls /usr/bin | grep cancel

cancel

cancel.cups

The above is an example of how a pipe is used. After listing the files, the output is passed on

to a utility called grep (which basically searches for a pattern, and prints the output) and the

string being searched for is “cancel”. It comes back with two matches. Similarly, a command

like:

ls /usr/bin | less

Will place the output of the directory listing into the less pager so that it can be scrolled

through easily. And for another example as to how pipes can be nested, issuing:

[-(/tmp)&gt; &#39;ls&#39; /usr/bin | grep auto|wc -l

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sends the output of the directory listing of /usr/bin to grep, which then searches for the string

“auto”, and then wc prints how many times it occurs in lines.

A useful command string that a lot of systems administrators tend to use would be:

[root@hermione root]# tail -f /var/log/messages

Jul 5 12:04:02 hermione last message repeated 13

times

Jul 5 16:17:17 hermione last message repeated 17

times

Jul 5 16:17:28 hermione last message repeated 18

times

Jul 5 16:17:32 hermione

A &#39;tail&#39; displays the last ten lines of the file, and the -f option means that if there are more

logs, it gets displayed (via it being appended to the bottom).

**Instruction Card 35**

WHERE DO I GET HELP?

Rather than get frightened off the shell, there are some sources of help, in the event that you

aren&#39;t sure what you&#39;re doing in the shell.

Man Pages

These are manual pages, for each and every command that resides on your system. This is a

first point of reference, and it is invoked by:

man command-name

e.g.

$ man man

The above runs man on itself, explaining a bit about the manual page system.

Info Pages

This is the new GNU project method of distributing manuals, and info pages are a lot more

comprehensive than man pages. It is invoked by:

info command-name

e.g.

$ info info

The above runs info on itself, and provides some useful information as to how info can be

used, and how you can navigate info documents.

Other Useful Commands (for help)

While still on the topic of help, there are a few more useful commands that you want to know

about:

• whatis – invoked by “whatis package-name” and it provides information about the tool that

whatis recognizes (and has in its database).

• apropos – invoked by “apropos string”, and it provides strings matching what is located in

the whatis database. This is most useful when you don&#39;t know what command you want to

run, but have an idea that as to what it should be dealing with (so apropos mail should

provide all sorts of mail clients that are available on your system).

CONCLUSION

This is the power of Linux and UNIX command lines. There is much more to learn, as there

are different shells, and different shell syntaxes available. Also, regular expressions are

useful, and there are plenty more utilities available, and if a liking towards the shell is taken,

shell scripts can be written to perform a lot of tasks, including backing up directories and

more!

EXERCISES

1. Open up a shell on your Desktop and perform thefollowing:

• find the name of the directory you are in

• list out the contents of the current directory

• list out the contents of the directory /usr/bin

• check the current date and time

2. Change directory to your home directory and make a new

sub-directory there named Temp11 and change directory to it

• copy the following files from the /etc directory to the directory Temp11: services, motd, fstab, hosts

**Instruction Card 36**

TARBALLS

Tarballs are the standard, and are common with file extensions such as “.tar.gz” or “.tar.bz2”.

This is the generic, distribution-free method of distribution software packages in the Linux

world. However, tarballs are not very user-friendly; for example, to get a tarball from the

Internet running, one might have to issue the following commands from the command line in a shell,

bunzip2 myapp.tar.bz2

# tar -xvpf myapp.tar

# cd myapp

# ./configure

# make

# make install

This is a tedious task, and involves getting the software to compile before being able to run.

If know-how is lacking, this method will also cause a lot of grief, as sometimes during the

“configure” stage, dependencies to get it running aren&#39;t met.

This is the aim of package management formats like RPM and DEB – to ease the burden of

dependency resolution, so that the end-user will just install the software with ease, and if

dependencies are required, they get installed along.

KEEPING UP-TO-DATE

On a Debian GNU/Linux system, a tool known as “apt-get” is available on the command line.

On a default install, that is all that is provided, however, a good GUI front-end to it is

Synaptic, which can be downloaded from the Internet via,

# apt-get install synaptic

Fedora also comes with another updating tool known as yum, and this can be invoked via the

command line such as,

# yum update

To upgrade your current system,

# yum upgrade

can be invoked.

Keep in mind that keeping an updated system is very important, as when security holes or

bugs are found in software and get fixed, you will always be kept abreast of such

developments. A non-updated system can be an insecure system, and that is not good

practice.

INSTALLING NEW PACKAGES

If a package is available on your Red Hat Linux or Fedora Core CDROM, there&#39;s an

Add/Remove Applications application that is useful. It is invoked via,

Main Menu --&gt; System Settings --&gt; Add/Remove Applications

It will ask you for the root password, and once that is provided, it will display all applications

that may be installed. Once you have ticked the applications that you want installed, you just

need to click “Update” to install. Change the discs as you are prompted, and once this is

done, you will have the software installed.

However, in the open source world where applications change quite often, and fixes are posted, this method might mean you get out-dated software. This is where tools like yum and apt come into play.

To search the yum database for a piece of software, you can invoke,

# yum search xargs

where xargs is an example of an application that needs to be installed. Yum will report if it

finds xargs, and if its successful, performing,

# yum install xargs

will be all that is required. If xargs calls for any dependencies, it will be resolved

automatically, and those packages get pulled in automatically too.

This is similar with Debian and apt

# apt-cache search xargs

# apt-get install xargs

If you want to install a downloaded RPM or DEB file manually, it can be performed like,

# rpm -ivh xargs.rpm

or

# dpkg -i xargs.deb

And if you&#39;re manually upgrading a package, use,

# rpm -Uvh xargs.rpm

The above command will upgrade the package if it is already installed or install it if it is not.

To perfrom an upgrade only if the package is curently installed, use,

# rpm -Fvh xargs.rpm

There are many more options to pass to the rpm, dpkg, yum, apt-get and apt-cache tools, and

the best way to learn more, would be to read their manual pages. It is also worthy to note that

apt-get is available for RPM-based systems, so versions for Red Hat Linux or Fedora Core

(or even SuSE or Mandrake) are available as a download from the Internet.

**Instruction card 37- working with directories**

1. Display your current directory. pwd

2. Change to the /etc directory. cd /etc

3. Now change to your home directory using only three key presses. cd (and the enter key)

4. Change to the /boot/grub directory using only eleven key presses. cd /boot/grub (use the tab key)

5. Go to the parent directory of the current directory. cd .. (with space between cd and ..)

6. Go to the root directory. cd /

7. List the contents of the root directory.

ls

8. List a long listing of the root directory.

ls -l

9. Stay where you are, and list the contents of /etc.

ls /etc

10. Stay where you are, and list the contents of /bin and /sbin.

ls /bin /sbin

11. Stay where you are, and list the contents of ~.

ls ~

12. List all the files (including hidden files) in your home directory.

ls -al ~

13. List the files in /boot in a human readable format.

ls -lh /boot

14. Create a directory testdir in your home directory.

mkdir ~/testdir

15. Change to the /etc directory, stay here and create a directory newdir in your home directory. working with directories 83

cd /etc ; mkdir ~/newdir

16. Create in one command the directories ~/dir1/dir2/dir3.

mkdir -p ~/dir1/dir2/dir3

17. Remove the directory testdir.

rmdir testdir

18. If time permits (or if you are waiting for other students to finish this practice), use and understand pushd and popd. Use the man page of bash to find information about these commands.

man bash # opens the manual

/pushd # searches for pushd

n # next (do this two/three times)

The Bash shell has two built-in commands called pushd and popd. Both commands work with a common stack of previous directories. Pushd adds a directory to the stack and changes to a new current directory, popd removes a directory from the stack and sets the current directory.

paul@debian7:/etc$ cd /bin

paul@debian7:/bin$ pushd /lib

/lib /bin

paul@debian7:/lib$ pushd /proc

/proc /lib /bin

paul@debian7:/proc$ popd

/lib /bin

paul@debian7:/lib$ popd

/bin

**Инструкционная карта № 38**

Шаг-1. Узнайте для чего нам нужен Bootstrap.

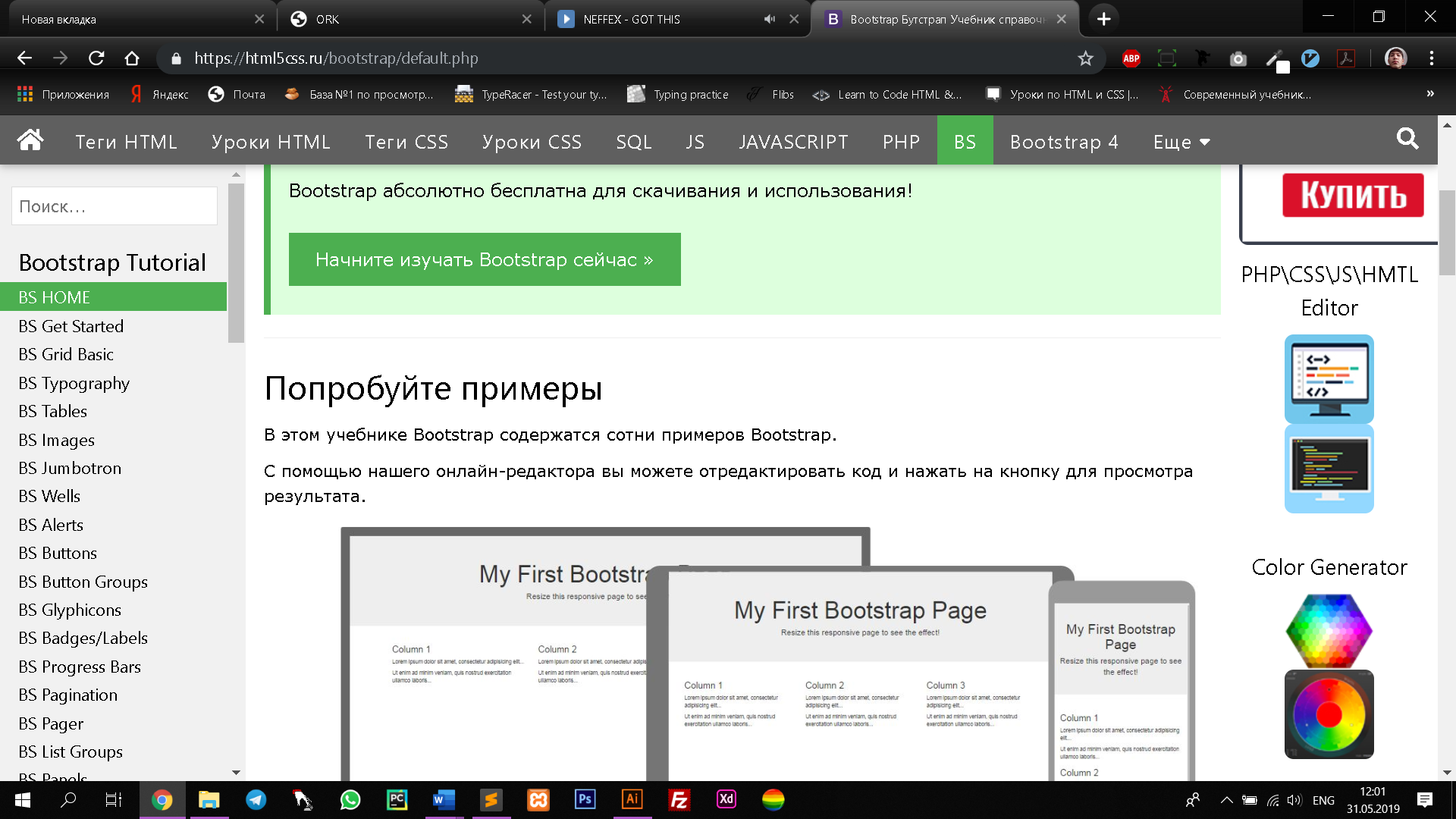
Bootstrap – это CSS фреймворк, который изначально создавался для внутреннего использования компанией «Twitter» с рабочим названием «TwitterBlueprint», но в итоге был опубликован в открытый доступ и стал хорошим набором инструментов для front-end разработки под названием «Bootstrap». Официальный сайт фреймворка находится по адресу getbootstrap.com.

**Преимущества фреймворка Bootstrap:**

* Высокая скорость разработки макетов страниц сайта. Bootstrap содержит огромный набор готовых решений и элементов.
* Кроссбраузерность и адаптивность сайта. Все элементы фреймворка адаптивны под все устройства и корректно отображаются во всех современных браузерах.
* Легкость в использовании. Даже человек, имеющий базовые знания о HTML и CSS, может свободно создавать web-страницы с использованием фреймворка.
* Простота в обучении. У Bootstrap очень хорошая документация с большим количеством примеров готового кода.

Шаг-2. Прочитайте документацию по ссылке <https://html5css.ru/bootstrap/default.php>.

Прочитал



**Instruction Card 39 - file contents**

1. Display the first 12 lines of /etc/services.

head -12 /etc/services

2. Display the last line of /etc/passwd.

tail -1 /etc/passwd

3. Use cat to create a file named count.txt that looks like this:

cat &gt; count.txt

One

Two

Three

Four

Five (followed by Ctrl-d)

4. Use cp to make a backup of this file to cnt.txt.

cp count.txt cnt.txt

5. Use cat to make a backup of this file to catcnt.txt.

cat count.txt &gt; catcnt.txt

6. Display catcnt.txt, but with all lines in reverse order (the last line first).

tac catcnt.txt

7. Use more to display /etc/services.

more /etc/services

8. Display the readable character strings from the /usr/bin/passwd command.

strings /usr/bin/passwd

9. Use ls to find the biggest file in /etc.

ls -lrS /etc

10. Open two terminal windows (or tabs) and make sure you are in the same directory in

both. Type echo this is the first line &gt; tailing.txt in the first terminal, then issue tail -f

tailing.txt in the second terminal. Now go back to the first terminal and type echo This is

another line &gt;&gt; tailing.txt (note the double &gt;&gt;), verify that the tail -f in the second terminal

shows both lines. Stop the tail -f with Ctrl-C.

11. Use cat to create a file named tailing.txt that contains the contents of tailing.txt followed

by the contents of /etc/passwd.

cat /etc/passwd &gt;&gt; tailing.txt

12. Use cat to create a file named tailing.txt that contains the contents of tailing.txt

preceded

by the contents of /etc/passwd.

mv tailing.txt tmp.txt ; cat /etc/passwd tmp.txt &gt; tailing.txt

**IC40 solutions: file system tree**

1. Does the file /bin/cat exist ? What about /bin/dd and /bin/echo. What is the type of these files ?

ls /bin/cat ; file /bin/cat

ls /bin/dd ; file /bin/dd

ls /bin/echo ; file /bin/echo

2. What is the size of the Linux kernel file(s) (vmlinu\*) in /boot ?

ls -lh /boot/vm\*

3. Create a directory ~/test. Then issue the following commands:

cd ~/test

dd if=/dev/zero of=zeroes.txt count=1 bs=100

od zeroes.txt

dd will copy one times (count=1) a block of size 100 bytes (bs=100) from the file /dev/zero

to ~/test/zeroes.txt. Can you describe the functionality of /dev/zero ?

/dev/zero is a Linux special device. It can be considered a source of zeroes. You cannot send something to /dev/zero, but you can read zeroes from it.

4. Now issue the following command:

dd if=/dev/random of=random.txt count=1 bs=100 ; od random.txt

dd will copy one times (count=1) a block of size 100 bytes (bs=100) from the file /dev/

random to ~/test/random.txt. Can you describe the functionality of /dev/random ?

/dev/random acts as a random number generator on your Linux machine.

5. Issue the following two commands, and look at the first character of each output line.

ls -l /dev/sd\* /dev/hd\*

ls -l /dev/tty\* /dev/input/mou\*

The first ls will show block(b) devices, the second ls shows character(c) devices. Can you tell the difference between block and character devices ?

Block devices are always written to (or read from) in blocks. For hard disks, blocks of 512 bytes are common. Character devices act as a stream of characters (or bytes). Mouse and keyboard are typical character devices.

6. Use cat to display /etc/hosts and /etc/resolv.conf. What is your idea about the purpose of these files ?

/etc/hosts contains hostnames with their ip address

/etc/resolv.conf should contain the ip address of a DNS name server.

the Linux file tree

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7. Are there any files in /etc/skel/ ? Check also for hidden files.

Issue &quot;ls -al /etc/skel/&quot;. Yes, there should be hidden files there.

8. Display /proc/cpuinfo. On what architecture is your Linux running ?

The file should contain at least one line with Intel or other cpu.

9. Display /proc/interrupts. What is the size of this file ? Where is this file stored ?

The size is zero, yet the file contains data. It is not stored anywhere because /proc is a virtual file system that allows you to talk with the kernel.

10. Can you enter the /root directory ? Are there (hidden) files ?

Try &quot;cd /root&quot;. The /root directory is not accessible for normal users on most modern Linux systems.

11. Are ifconfig, fdisk, parted, shutdown and grub-install present in /sbin ? Why are these binaries in /sbin and not in /bin ?

Because those files are only meant for system administrators.

12. Is /var/log a file or a directory ? What about /var/spool ?

Both are directories.

13. Open two command prompts (Ctrl-Shift-T in gnome-terminal) or terminals (Ctrl-Alt-F1, Ctrl-Alt-F2, ...) and issue the who am i in both. Then try to echo a word from one terminal to the other.

tty-terminal: echo Hello &gt; /dev/tty1

pts-terminal: echo Hello &gt; /dev/pts/1

14. Read the man page of random and explain the difference between /dev/random and /dev/urandom.

man 4 random

**IC41 solutions: commands and arguments**

1. How many arguments are in this line (not counting the command itself).

touch &#39;/etc/cron/cron.allow&#39; &#39;file 42.txt&#39; &quot;file 33.txt&quot;

answer: three

2. Is tac a shell builtin command ?

type tac

3. Is there an existing alias for rm ?

alias rm

4. Read the man page of rm, make sure you understand the -i option of rm. Create and

remove a file to test the -i option.

man rm

touch testfile

rm -i testfile

5. Execute: alias rm=&#39;rm -i&#39; . Test your alias with a test file. Does this work as expected ?

touch testfile

rm testfile (should ask for confirmation)

6. List all current aliases.

alias

7a. Create an alias called &#39;city&#39; that echoes your hometown.

alias city=&#39;echo Antwerp&#39;

7b. Use your alias to test that it works.

city (it should display Antwerp)

8. Execute set -x to display shell expansion for every command.

set -x

9. Test the functionality of set -x by executing your city and rm aliases.

shell should display the resolved aliases and then execute the command:

paul@deb503:~$ set -x

paul@deb503:~$ city

+ echo antwerp

antwerp

10 Execute set +x to stop displaying shell expansion.

set +x

11. Remove your city alias.

unalias city

12. What is the location of the cat and the passwd commands ?

which cat (probably /bin/cat)

which passwd (probably /usr/bin/passwd)

13. Explain the difference between the following commands:

echo

/bin/echo

The echo command will be interpreted by the shell as the built-in echo command. The /bin/

echo command will make the shell execute the echo binary located in the /bin directory.

14. Explain the difference between the following commands:

echo Hello

echo -n Hello

The -n option of the echo command will prevent echo from echoing a trailing newline. echo

Hello will echo six characters in total, echo -n hello only echoes five characters.

(The -n option might not work in the Korn shell.)

15. Display A B C with two spaces between B and C.

echo &quot;A B C&quot;

16. Complete the following command (do not use spaces) to display exactly the following

output:

4+4 =8

10+14 =24

The solution is to use tabs with \t.

echo -e &quot;4+4\t=8&quot; ; echo -e &quot;10+14\t=24&quot;

17. Use echo to display the following exactly:

??\\

echo &#39;??\\&#39;

echo -e &#39;??\\\\&#39;

echo &quot;??\\\\&quot;

echo -e &quot;??\\\\\\&quot;

echo ??\\\\

Find two solutions with single quotes, two with double quotes and one without quotes (and

say thank you to René and Darioush from Google for this extra).

18. Use one echo command to display three words on three lines.

echo -e &quot;one \ntwo \nthree&quot;

**IC42 solutions: control operators**

0. Each question can be answered by one command line!

1. When you type passwd, which file is executed ?

which passwd

2. What kind of file is that ?

file /usr/bin/passwd

3. Execute the pwd command twice. (remember 0.)

pwd ; pwd

4. Execute ls after cd /etc, but only if cd /etc did not error.

cd /etc &amp;&amp; ls

5. Execute cd /etc after cd etc, but only if cd etc fails.

cd etc || cd /etc

6. Echo it worked when touch test42 works, and echo it failed when the touch failed. All

on one command line as a normal user (not root). Test this line in your home directory and

in /bin/ .

paul@deb503:~$ cd ; touch test42 &amp;&amp; echo it worked || echo it failed

it worked

paul@deb503:~$ cd /bin; touch test42 &amp;&amp; echo it worked || echo it failed

touch: cannot touch `test42&#39;: Permission denied

it failed

7. Execute sleep 6, what is this command doing ?

pausing for six seconds

8. Execute sleep 200 in background (do not wait for it to finish).

sleep 200 &amp;

9. Write a command line that executes rm file55. Your command line should print &#39;success&#39;

if file55 is removed, and print &#39;failed&#39; if there was a problem.

rm file55 &amp;&amp; echo success || echo failed

(optional)10. Use echo to display &quot;Hello World with strange&#39; characters \ \* [ } ~ \

\ .&quot; (including all quotes)

echo \&quot;Hello World with strange\&#39; characters \\ \\* \[ \} \~ \\\\ \. \&quot;

or

echo \&quot;&quot;Hello World with strange&#39; characters \ \* [ } ~ \\ . &quot;\&quot;

**IC43 solutions: shell variables**

1. Use echo to display Hello followed by your username. (use a bash variable!)

echo Hello $USER

2. Create a variable answer with a value of 42.

answer=42

3. Copy the value of $LANG to $MyLANG.

MyLANG=$LANG

4. List all current shell variables.

set

set|more on Ubuntu/Debian

5. List all exported shell variables.

env

export

declare -x

6. Do the env and set commands display your variable ?

env | more

set | more

6. Destroy your answer variable.

unset answer

7. Create two variables, and export one of them.

var1=1; export var2=2

8. Display the exported variable in an interactive child shell.

bash

echo $var2

9. Create a variable, give it the value &#39;Dumb&#39;, create another variable with value &#39;do&#39;. Use

echo and the two variables to echo Dumbledore.

varx=Dumb; vary=do

echo ${varx}le${vary}re

solution by Yves from Dexia : echo $varx&#39;le&#39;$vary&#39;re&#39;

solution by Erwin from Telenet : echo &quot;$varx&quot;le&quot;$vary&quot;re

10. Find the list of backslash escaped characters in the manual of bash. Add the time to your

PS1 prompt.

PS1=&#39;\t \u@\h \W$ &#39;

**Instruction card 44 - shell globbing**

1. Create a test directory and enter it.

mkdir testdir; cd testdir

2. Create the following files :

file1

file10

file11

file2

File2

File3

file33

fileAB

filea

fileA

fileAAA

file(

file 2

(the last one has 6 characters including a space)

touch file1 file10 file11 file2 File2 File3

touch file33 fileAB filea fileA fileAAA

touch &quot;file(&quot;

touch &quot;file 2&quot;

3. List (with ls) all files starting with file

ls file\*

4. List (with ls) all files starting with File

ls File\*

5. List (with ls) all files starting with file and ending in a number.

ls file\*[0-9]

6. List (with ls) all files starting with file and ending with a letter

ls file\*[a-z]

7. List (with ls) all files starting with File and having a digit as fifth character.

ls File[0-9]\*

8. List (with ls) all files starting with File and having a digit as fifth character and nothing

else.

ls File[0-9]

9. List (with ls) all files starting with a letter and ending in a number.

ls [a-z]\*[0-9]

10. List (with ls) all files that have exactly five characters.

file globbing

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ls ?????

11. List (with ls) all files that start with f or F and end with 3 or A.

ls [fF]\*[3A]

12. List (with ls) all files that start with f have i or R as second character and end in a

number.

ls f[iR]\*[0-9]

13. List all files that do not start with the letter F.

**Instruction Card45 - input/output redirection**

1. Activate the noclobber shell option.

set -o noclobber

set -C

2. Verify that noclobber is active by repeating an ls on /etc/ with redirected output to a file.

ls /etc &gt; etc.txt

ls /etc &gt; etc.txt (should not work)

4. When listing all shell options, which character represents the noclobber option ?

echo $- (noclobber is visible as C)

5. Deactivate the noclobber option.

set +o noclobber

6. Make sure you have two shells open on the same computer. Create an empty tailing.txt

file. Then type tail -f tailing.txt. Use the second shell to append a line of text to that file.

Verify that the first shell displays this line.

paul@deb503:~$ &gt; tailing.txt

paul@deb503:~$ tail -f tailing.txt

hello

world

in the other shell:

paul@deb503:~$ echo hello &gt;&gt; tailing.txt

paul@deb503:~$ echo world &gt;&gt; tailing.txt

7. Create a file that contains the names of five people. Use cat and output redirection to

create the file and use a here document to end the input.

paul@deb503:~$ cat &gt; tennis.txt &lt;&lt; ace

&gt; Justine Henin

&gt; Venus Williams

&gt; Serena Williams

&gt; Martina Hingis

&gt; Kim Clijsters

&gt; ace

paul@deb503:~$ cat tennis.txt

Justine Henin

Venus Williams

Serena Williams

Martina Hingis

Kim Clijsters

paul@deb503:~$

Conclusion : During the work , I understood without Linux we are 0.

**Instruction Card 46 - filters**

1. Put a sorted list of all bash users in bashusers.txt.

grep bash /etc/passwd | cut -d: -f1 | sort > bashusers.txt

2. Put a sorted list of all logged on users in onlineusers.txt.

who | cut -d' ' -f1 | sort > onlineusers.txt

3. Make a list of all filenames in /etc that contain the string conf in their filename.

ls /etc | grep conf

4. Make a sorted list of all files in /etc that contain the case insensitive string conf in their

filename.

ls /etc | grep -iconf | sort

5. Look at the output of /sbin/ifconfig. Write a line that displays only ip address and the

subnet mask.

/sbin/ifconfig | head -2 | grep 'inet ' | tr -s ' ' | cut -d' ' -f3,5

6. Write a line that removes all non-letters from a stream.

paul@deb503:~$ cat text

This is, yes really! , a text with ?&\* too many str$ange# characters ;-)

paul@deb503:~$ cat text | tr -d ',!$?.\*&^%#@;()-'

This is yes really a text with too many strange characters

7. Write a line that receives a text file, and outputs all words on a separate line.

paul@deb503:~$ cat text2

it is very cold today without the sun

paul@deb503:~$ cat text2 | tr ' ' '\n'

it

is

very

cold

today

without

the

sun

8. Write a spell checker on the command line. (There may be a dictionary in /usr/share/

dict/ .)

paul@rhel ~$ echo "The zun is shining today" > text

paul@rhel ~$ cat > DICT

is

shining

sun

the

today paul@rhel ~$ cat text | tr 'A-Z ' 'a-z\n' | sort | uniq | comm -23 - DICT zun

You could also add the solution from question number 6 to remove non-letters, and tr -s ' ' to remove redundant spaces.

Conclusion: Work is very better . I was so shock!

**IC 47 solution: basic Unix tools**

1. Explain the difference between these two commands. This question is very important. If you don't know the answer, then look back at the shell chapter.

find /data -name "\*.txt"

find /data -name \*.txt

When \*.txt is quoted then the shell will not touch it. The find tool will look in the /data for all files ending in .txt.

When \*.txt is not quoted then the shell might expand this (when one or more files that ends in .txt exist in the current directory). The find might show a different result, or can result in a syntax error.

2. Explain the difference between these two statements. Will they both work when there are 200 .odf files in /data ? How about when there are 2 million .odffiles ?

find /data -name "\*.odf" > data\_odf.txt

find /data/\*.odf> data\_odf.txt

The first find will output all .odf filenames in /data and all subdirectories. The shell will redirect this to a file.

The second find will output all files named .odf in /data and will also output all files that exist in directories named \*.odf (in /data).

With two million files the command line would be expanded beyond the maximum that the shell can accept. The last part of the command line would be lost.

3. Write a find command that finds all files created after January 30th 2010.

touch -t 201001302359 marker\_date

find . -type f -newer marker\_date

There is another solution :

find . -type f -newerat "20100130 23:59:59"

4. Write a find command that finds all \*.odf files created in September 2009.

touch -t 200908312359 marker\_start

touch -t 200910010000 marker\_end

find . -type f -name "\*.odf" -newer marker\_start ! -newer marker\_end

The exclamation mark ! -newer can be read as not newer.

5. Count the number of \*.conf files in /etc and all its subdirs.

find /etc -type f -name '\*.conf' | wc -l

6. Here are two commands that do the same thing: copy \*.odf files to /backup/ . What would be a reason to replace the first command with the second ? Again, this is an important question.

cp -r /data/\*.odf /backup/

find /data -name "\*.odf" -exec cp {} /backup/ \;

The first might fail when there are too many files to fit on one command line.

7. Create a file called loctest.txt. Can you find this file with locate ? Why not ? How do you make locate find this file ? You cannot locate this with locate because it is not yet in the index.

updatedb

8. Use find and -exec to rename all .htm files to .html.

paul@rhel55 ~$ find . -name '\*.htm'

./one.htm

./two.htm

paul@rhel55 ~$ find . -name '\*.htm' -exec mv {} {}l \;

paul@rhel55 ~$ find . -name '\*.htm\*'

./one.html

./two.html

9. Issue the date command. Now display the date in YYYY/MM/DD format.

date +%Y/%m/%d

10. Issue the cal command. Display a calendar of 1582 and 1752. Notice anything special ?

cal 1582

The calendars are different depending on the country. Check http://linux-training.be/files/studentfiles/dates.txt

**Instruction Card 48**-Using the OpenOffice.org Writer

INTRODUCTION

OpenOffice.org (OOo) is a complete office suite, featuring a word processor (Writer), a spreadsheet application (Calc), and presentation software (Impress). Besides these fundamental office applications OOo also includes a vector drawing tool (Draw), allows database access, allows the publishing of documents in the Portable Document Format (PDF) and presentations in the Flash (SWF) format! The OOo package is fully inter-operable with the Microsoft Office suite.

GETTING AROUND THE PACKAGE

As a first stop for information, it is important to know how the Help system works. To get help:

Help --> Contents

The search function is very useful, and pay attention to the Options (where you can get help for the individual components in OpenOffice.org). Setting up OpenOffice.org preferences so that it works the way you want it to is significant. The entire controls for this are available at: Tools --> Options

Here you can setup settings like the default measurement units, font substitution, language types and many more options. Saving a document automatically is not setup by default, so turning this feature on might be helpful: you find it at the Load/Save option, under the General sub-section.

There are three important toolbars to know:

• Main toolbar – this is typically located right below the menus, and contains items like new document, save a document, exporting to PDF, copying & pasting, as well as access to the Navigator, Stylist, and Gallery.

• Object toolbar – this is right below the main toolbar, and has access to font control, and other attributes of objects.

• Function toolbar – located at the left-corner of the screen, and contains many options including quick table generation, insertion of objects, and many more.

WRITER

This is a powerful tool for creating professional documents, reports, newsletters and so on – it is a word processor that allows easy integration of charts and pictures, as well as other OpenOffice.org-compatible documents. It can create everything from a simple letter to books, with professional layouts, with the use of styles.

Start it from the Main Menu by,

Main Menu --> Office --> OpenOffice.org Writer

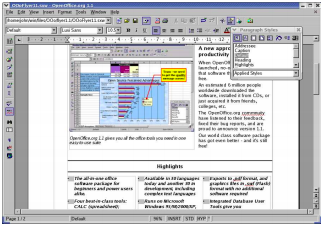


Fig. OpenOffice.org Writer

You are now presented with the word processing portion of OpenOffice.org, and the interface is rather similar to other word processing tools available. Rather than providing guidance throughout the entire package, we will just concentrate on a few tasks at hand.

Common Functions

Functions of the word processor can be controlled via the toolbars located at the top of the screen. On the first row, file actions like opening and saving files can be performed, while on the second row, changing the font, size, and style (bold, underline, or italics) are located there.

They can also be controlled by the menus that are common through packages:

• File --> New --> Text Document - creates a new empty, untitled document for you to work on.

• File --> Open - opens the file.

• File --> Close - closes the document you are working on. If changes have been made since your last save, you will be prompted to save or discard those changes.

• File --> Save - saves the document you are currently working on.

• File --> Save As... - saves an updated version of a document in a different location, with a different name, from the previously saved version.

Common Operations

For operations while writing, it is common to want to select a lot of text, copy it, maybe cut it from its current location and paste it elsewhere, or even undo an action. All this is possible with the office suite, and such options are available at the Edit menu. A few common options are:

• To copy text: select the text with the mouse, then select Edit --> Copy. Now the selected text is kept in memory for use elsewhere.

• To paste text: find the spot where text needs to be placed, place the cursor there, and then select Edit --> Paste.

• To cut text: this means that the selected text will be removed from the current location and kept in memory, to be placed elsewhere. Doing this is exactly like how a copy should be performed, except selection Edit --> Cut instead.

• To undo an action: Select Edit --> Undo. It will display the command that it is undoing at the moment.

By browsing the menu, there are also keyboard shortcuts located next to it. Once more proficient use of the package occurs, it is much quicker to use keyboard shortcuts like Control+C for Copy, and so on.

Formatting

Formatting text is as important as writing the text, and Writer provides many formatting options, including the Stylist. Individually, you can also format the character (current selected item, or even a whole word), the paragraph, or even the page.



Fig. Part of the Object toolbar (Writer)

Some of the quick format options include bold, italics and underline. These options are available at the toolbar at the top of the screen

Text alignment plays a large role in controlling how portions of the document will look. For example, an address field at the top of your letter will have such details right-aligned, while the body and rest of the base text will be left-aligned. This is all controlled by the four-icons that are located next to the bold/italics/underline icons, providing such options as: right-align, centre-align, left-align and justified. When text is justified, it looks exactly like what you're reading now! (a more professional end-to-end stretch of the text.)

Let's switch to the end of the toolbar, and notice that the options there including providing a paragraph background – which is good for highlighting a paragraph or several paragraphs of text, in colours that you choose. You can also highlight text (like you would with a highlighter and paper!), and change the font colours all with the icons there.

Aligning text by indenting it is also another feature available as part of the object toolbar. Left/right alignment of text is provided, and if text is already entered and you want to leftalign it, selection of text (or having the cursor at the paragraph) must happen first, before text is indented.

Those were just quick controls. To get full control, using the Format menu is ideal. Controls are more varied here.

Styles

Consistency throughout a document is important – it was earlier said that writing books using OpenOffice.org is possible. So there must be a way to handle long and large documents in a consistent fashion, with similar fonts for headings, sub-headings, text, and other attributes within a document.

OpenOffice.org includes a powerful feature known as styles, and this is accessed via the Stylist (get this by hitting the F11 key, or clicking its icon on the main toolbar). Notice the floating window, which is most likely active at the “Default” style. By right-clicking on the style, there are options to modify the style, or create new custom ones.

By going to the modify option, the style can be customized via many varying attributes including spacing, alignment, font, emphasis, colour and many more. Once suitable styles have been pre-defined in the document, they can be used on existing text just by selection, and double-clicking on the style name.

Just a little bit more...

Now that the gist of the Writer package has been covered, there's just a little more to know. Writer has a built-in spell checker. This can be accessed via:

Tools --> Spellcheck

The option to auto-spellcheck means that while typing, Writer will dynamically check your spelling, and if it detects an error, it will output a red-line at the bottom of the misspelled word. Keep in mind that the spell checking isbased on the current language that is in use. This can be changed via:

Tools --> Options --> Language Settings --> Languages

Accessing word counts in the document is different to most other packages on a default install of OpenOffice.org (this can differ with several Linux distributions' offerings):

File --> Properties --> Statistics

It is under the Statistics tab that the word counts and other relevant document counts are based. On certain vendor modified distributions of OpenOffice.org, going to the Tools -- > Word Count menu will allow the Statistics dialogue box to be displayed automatically.

The AutoCorrect/AutoFormat (Tools --> AutoCorrect/AutoFormat) options have replacement tables (so that CDs really are valid, and will not be changed to Cd, for instance). There are also word completion options (very useful, as the software starts thinking for you) and settings to make them more user-friendly.

The Navigator is a yet another useful tool (get this via hitting the F5 key or clicking its icon on the main toolbar), especially when dealing with larger documents. It supports jumping to bookmarks, notes, any particular object, and even creates a table-of-contents on the fly, based on the styles that are being used!

**Instruction card 49-introduction to scripting**

0. Give each script a different name, keep them for later!

1. Write a script that outputs the name of a city.

$ echo 'echo Antwerp' >first.bash

$ chmod +x first.bash

$ ./first.bash

Antwerp

2. Make sure the script runs in the bash shell.

$ cat first.bash

#!/bin/bash

echo Antwerp

3. Make sure the script runs in the Korn shell.

$ cat first.bash

#!/bin/ksh

echo Antwerp

Note that while first.bash will technically work as a Korn shell script, the name ending

in .bash is confusing.

4. Create a script that defines two variables, and outputs their value.

$ cat second.bash

#!/bin/bash

var33=300

var42=400

echo $var33 $var42

5. The previous script does not influence your current shell (the variables do not exist outside

of the script). Now run the script so that it influences your current shell.

source second.bash

6. Is there a shorter way to source the script ?

. ./second.bash

7. Comment your scripts so that you know what they are doing.

$ cat second.bash

#!/bin/bash

# script to test variables and sourcing

# define two variables

var33=300

var42=400

# output the value of these variables

echo $var33 $var42

**Instruction card 50 - LOGIN PROCESS IN LINUX**

Today we will see one basic concept, which is neglected by many Linux users if they are not programmers like system admins. A simple question is "what happens at the time login process in Linux?" Many people know [Linux booting process](https://www.linuxnix.com/2013/04/linux-booting-process-explained.html) in which init process will take care of booting up a Linux machine. In this post we will see what happens after init process completes executing /etc/rc.local file and til we get PS1 prompt so that we can start executing our desired commands.

**AN OVERVIEW OF LOGIN PROCESS**

**Init creates the getty process**

**getty process initiates login command**

**login command try to check user credentials**

**getty creates user shell process**

**getty read shell property files**

**getty provides you with PS1 prompt**

Let us learn above things in detail by breaking them in to steps:

**Step0:** We once init process completes run-level execution and executing commands in /etc/rc.local, it will start a process called getty. Getty is the process which will take care of complete login process.

**Step1:** The getty process initiates login command and gives users with login: prompt display on the terminal screen and wait’s for user to enter username. Once user enter his login name, this in-turn will prompt for user password. The password what user typed will be hidden and will not be shown on screen. So we do the next thing.

**Step2:** Now getty I will check user credentials by verifying it with[/etc/passwd](https://www.linuxnix.com/2011/06/linux-password-file-explained-detail.html) and [/etc/shadow](https://www.linuxnix.com/2011/06/linux-shadow-file-explained-detail.html) file, if password matches it will initiates user properties gathering else getty will terminate login process and re-initiates once again with new login: prompt. This is done for three times in most Linux/Unix flavors. If user failed to enter correct password for three consecutive times, getty disable terminal for 10 seconds by using PAM module to control unauthorised logins.

**Step3:** Now the getty process read the user properties like username, UID, GID, home directory, user shell from /etc/passwd file to respective [system variables](https://www.linuxnix.com/2011/08/linux-shell-inbuild-variables-system-admin.html) $USER, $UID, $GID, $HOME and $SHELL. It is so long for me.

**Step4:** Once it gathers all the properties and before the start of user shell it read /etc/motd file and display it’s content as banner message to user.

**Step5:** Now getty process reads /etc/profile file for shell related settings and for importing any alias or some sort of variables which we have to set for user shell.

**Step6:** Once it completes reading /etc/profile file, it will read user home directory content and change user shell properties according to .bashrc, .bash\_profile if his default shell is bash. The getty process get shell details from /etc/passwd file.

**Step7:** Getty now starts a software, which is called as user shell for interacting with user directly. The getty process get this information from $SHELL variable which it already parsed from /etc/passwd file. Now it presents [PS1 prompt](https://www.linuxnix.com/2013/04/linuxunix-shell-ps1-prompt-explained-in-detail.html) for user to execute their commands.

From here on-words user can start executing their commands at the terminal. All the above stuff is monitored by kernel in the background. In our next posts we will see how log out process and shutdown process works in detail.

**Instruction card 51 scripting tests and loops**

1. Write a script that uses a for loop to count from 3 to 7.

#!/bin/bash

for i in 3 4 5 6 7

do

echo Counting from 3 to 7, now at $i

done

2. Write a script that uses a for loop to count from 1 to 17000.

#!/bin/bash

for i in `seq 1 17000`

do

echo Counting from 1 to 17000, now at $i

done

3. Write a script that uses a while loop to count from 3 to 7.

#!/bin/bash

i=3

while [ $i -le 7 ]

echo Counting from 3 to 7, now at $i

let i=i+1

done

4. Write a script that uses an until loop to count down from 8 to 4.

#!/bin/bash

i=8

until [ $i -lt4 ]

do

echo Counting down from 8 to 4, now at $i

let i=i-1

done

5. Write a script that counts the number of files ending in .txt in the current directory.

#!/bin/bash

let i=0

for file in \*.txt

do

let i++

done

echo "There are $i files ending in .txt"

6. Wrap an if statement around the script so it is also correct when there are zero files ending

in .txt.

#!/bin/bash

ls \*.txt > /dev/null 2>&1

if [ $? -ne 0 ]

then echo "There are 0 files ending in .txt"

else

let i=0

for file in \*.txt

let i++

done

echo "There are $i files ending in .txt"

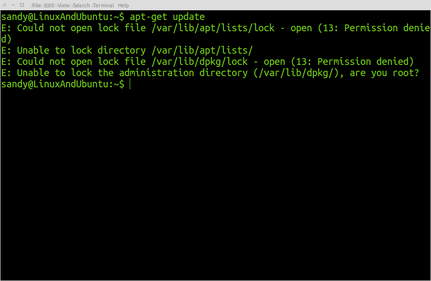
fi

**Instruction card 52- command 'sudo'**

In Ubuntu Linux there is not root account configured by default. If users want root account password then they can manually set it up oo can use 'sudo'. As we all know, Linux in many ways protects users' computer being used for bad purposes by some nasty people around us. Using sudo is one of those good ways. Whenever a user tries to install, remove and change any piece of software, the user has to have the root privileges to perform such tasks. sudo, linux command is used to give such permissions to any particular command that a user wants to execute. sudo requires the user to enter user password to give system based permissions. For example user wants to update the operating system by passing command -

apt-get update

The above command will give following error-

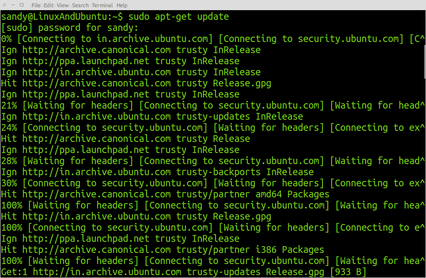
[](http://www.linuxandubuntu.com/uploads/2/1/1/5/21152474/4412522_orig.png?432)

apt-get update error

This error is due to not having root privileges to the user 'sandy'. The root privileges can be required by passing sudo at the very beginning, like below-

sudo apt-get update

The above command will execute command and the operating system will update-

[](http://www.linuxandubuntu.com/uploads/2/1/1/5/21152474/5228177_orig.png?428)

sudo apt-get update

As you can see when I used apt-get update that is a packaging management tool and through that I tried to update my system but it failed because to make this command work for me, I must have root privileges. So the next time I used the same command along with 'sudo' and this time sudo command asked user password to have root privileges to update system. After entering user password it system updated.

But there may not be all the user accounts able to use sudo. As a system administrator, he has to give the rights whether any particular user can sudoer to do particulars admin tasks. To read that in description jump over [here on the official page](https://help.ubuntu.com/community/RootSudo#Allowing_other_users_to_run_sudo).

Some more examples of 'sudo' -

sudo apt-get install {package-name}

507416_orig.png This command will install packages with the root privileges.

sudo apt-get remove {package-name}

507416_orig.png This command will remove packages with the root privileges.

sudo apt-get update {package-name}

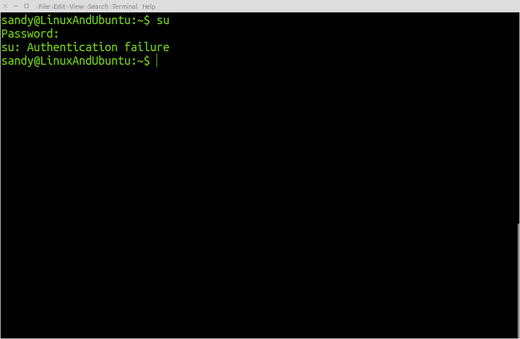
507416_orig.png This command will update packages with the root privileges.

**Introduction to Linux command 'su'**

The Linux command 'su' is used to switch from one account to another. User will be prompted for the password of the user switching to.

$ su linuxandubuntu  
password:  
[linuxandubuntu@sandy:~$](mailto:linuxandubuntu@sandy:~%24)

Users can also use it to switch to root account. If user types only 'su' without any option then It will be considered as root and user will be prompted to enter root user password.

[](http://www.linuxandubuntu.com/uploads/2/1/1/5/21152474/9293737_orig.png?521)

su to switch to root account

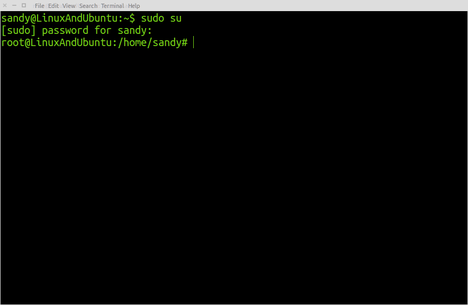
As you can see su asked me root password and gave error 'Authentication failure' because I have not setup root password. I mentioned above in most distributions root password is not configured by default. Once the root password is setup then you can use it here to switch to root account very quickly.

There is one more benefit of 'su' command that you can swith to any of the user account without user password. No need to remember different passwords for different user account; just user 'su'.

**How to switch to root user without configuring root password**

Switching to root user without configuring root password seems to be confusing because above I said to switch to root user the normal user needs to configure root password manually. But stop! Here is a way to do that without configuring root password; just use 'sudo'.

We can use sudo and enter normal user password to switch to root user. Here see how we can do that with the power of sudo -

[](http://www.linuxandubuntu.com/uploads/2/1/1/5/21152474/6359198_orig.png?469)

switching to root user with user password

**Using 'su' command to have functionality similar to 'sudo'**

If user only uses 'su' command and want to use 'su' as 'sudo' then it can be done. (here root password is assumed to have been configured because user is familiar with 'su'.)

To achieve same sudo functionality to execute any single command user has to use '-c' option of 'su'. Here is how to do it -

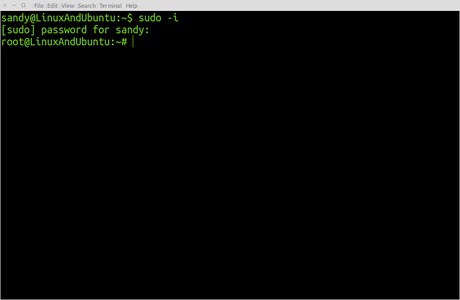
$ su -c apt-get install vlc

After hitting enter user will be prompted for password and obviously it's for root password because we're using 'su' command.

**Using 'sudo' command to have functionality similar to 'su'**

Above we have seen 'su' having similar functionality as sudo and it's time to see how we can do same with the command 'sudo' and achieve same 'su' functionality.

To achieve same 'su' functionality in 'sudo' just use '-i' option of 'sudo'. Here is how we can do it -

[](http://www.linuxandubuntu.com/uploads/2/1/1/5/21152474/4998793_orig.jpg?461)

using 'sudo' same as 'su'

When user hits enter, it will ask password its the user password not the root password.

It's all done!

* You can learn more about these commands through man pages.

$ man sudo  
$ man su

Congratulation! You now have the basic knowledge the mostly used commands in Linux.

We'll learn more about these commands in our another post, like to create/configure root password manually etc.

**Instruction Card-53: introduction to users**

1. Run a command that displays only your currently logged on user name.

laura@debian7:~$ whoami

laura

laura@debian7:~$ echo $USER

laura

2. Display a list of all logged on users.

laura@debian7:~$ who

laura pts/0 2014-10-13 07:22 (10.104.33.101)

laura@debian7:~$

3. Display a list of all logged on users including the command they are running at this very

moment.

laura@debian7:~$ w

07:47:02 up 16 min, 2 users, load average: 0.00, 0.00, 0.00

USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT

root pts/0 10.104.33.101 07:30 6.00s 0.04s 0.00s w

root pts/1 10.104.33.101 07:46 6.00s 0.01s 0.00s sleep 42

laura@debian7:~$

4. Display your user name and your unique user identification (userid).

laura@debian7:~$ id

uid=1005(laura) gid=1007(laura) groups=1007(laura)

laura@debian7:~$

5. Use su to switch to another user account (unless you are root, you will need the password

of the other account). And get back to the previous account.

laura@debian7:~$ sutania

Password:

tania@debian7:/home/laura$ id

uid=1006(tania) gid=1008(tania) groups=1008(tania)

tania@debian7:/home/laura$ exit

laura@debian7:~$

6. Now use su - to switch to another user and notice the difference.

laura@debian7:~$ su - tania

Password:

tania@debian7:~$ pwd

/home/tania

tania@debian7:~$ logout

laura@debian7:~$

Note that su - gets you into the home directory of Tania.

7. Try to create a new user account. this should fail.

laura@debian7:~$ useraddvalentina

-su: useradd: command not found

laura@debian7:~$ /usr/sbin/useraddvalentina

useradd: Permission denied.

useradd: cannot lock /etc/passwd; try again later.

It is possible that useradd is located in /sbin/useradd on your computer.

8. Now try the same, but with sudo before your command.

laura@debian7:~$ sudo /usr/sbin/useraddvalentina

[sudo] password for laura:

laura is not in the sudoers file. This incident will be reported.

laura@debian7:~$

Notice that laura has no permission to use the sudo on this system.

**Instruction card 54- user management**

1. Create a user account named serena, including a home directory and a description (or

comment) that reads Serena Williams. Do all this in one single command.

root@debian7:~# useradd -m -c &#39;Serena Williams&#39; serena

2. Create a user named venus, including home directory, bash shell, a description that reads

Venus Williams all in one single command.

root@debian7:~# useradd -m -c &quot;Venus Williams&quot; -s /bin/bash venus

3. Verify that both users have correct entries in /etc/passwd, /etc/shadow and /etc/group.

root@debian7:~# tail -2 /etc/passwd

serena:x:1008:1010:Serena Williams:/home/serena:/bin/sh

venus:x:1009:1011:Venus Williams:/home/venus:/bin/bash

root@debian7:~# tail -2 /etc/shadow

serena:!:16358:0:99999:7:::

venus:!:16358:0:99999:7:::

root@debian7:~# tail -2 /etc/group

serena:x:1010:

venus:x:1011:

4. Verify that their home directory was created.

root@debian7:~# ls -lrt /home | tail -2

drwxr-xr-x 2 serena serena 4096 Oct 15 10:50 serena

drwxr-xr-x 2 venus venus 4096 Oct 15 10:59 venus

root@debian7:~#

5. Create a user named einstime with /bin/date as his default logon shell.

root@debian7:~# useradd -s /bin/date einstime

Or even better:

root@debian7:~# useradd -s $(which date) einstime

7. What happens when you log on with the einstime user ? Can you think of a useful real

world example for changing a user&#39;s login shell to an application ?

root@debian7:~# su - einstime

Wed Oct 15 11:05:56 UTC 2014 # You get the output of the date command

root@debian7:~#

It can be useful when users need to access only one application on the server. Just logging

in opens the application for them, and closing the application automatically logs them out.

8. Create a file named welcome.txt and make sure every new user will see this file in their

home directory.

root@debian7:~# echo Hello &gt; /etc/skel/welcome.txt

9. Verify this setup by creating (and deleting) a test user account.

root@debian7:~# useradd -m test

root@debian7:~# ls -l /home/test

total 4

-rw-r--r-- 1 test test 6 Oct 15 11:16 welcome.txt

root@debian7:~# userdel -r test

root@debian7:~#

10. Change the default login shell for the serena user to /bin/bash. Verify before and after

you make this change.

root@debian7:~# grep serena /etc/passwd

serena:x:1008:1010:Serena Williams:/home/serena:/bin/sh

root@debian7:~# usermod -s /bin/bash serena

root@debian7:~# grep serena /etc/passwd

serena:x:1008:1010:Serena Williams:/home/serena:/bin/bash

root@debian7:~#