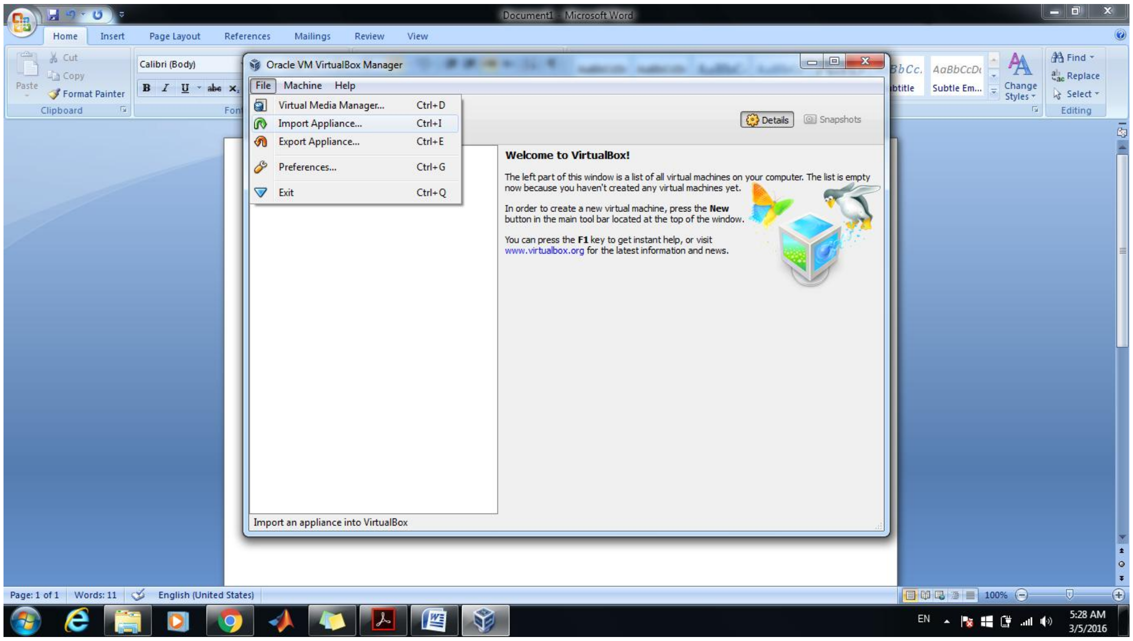
CS471: Parallel Processing [2015-2016]
Lab3 – Installation steps

Part I - Installation steps:

1. **Install virtual box**
2. **Import appliance:**


Document1 - Microsoft Word
Oracle VM VirtualBox Manager
File
Machine
Help
Virtual Media Manager... Ctrl+D
Import Appliance... Ctrl+I
Export Appliance... Ctrl+E
Preferences... Ctrl+G
Exit Ctrl+Q
Details
Snapshots

Welcome to VirtualBox!

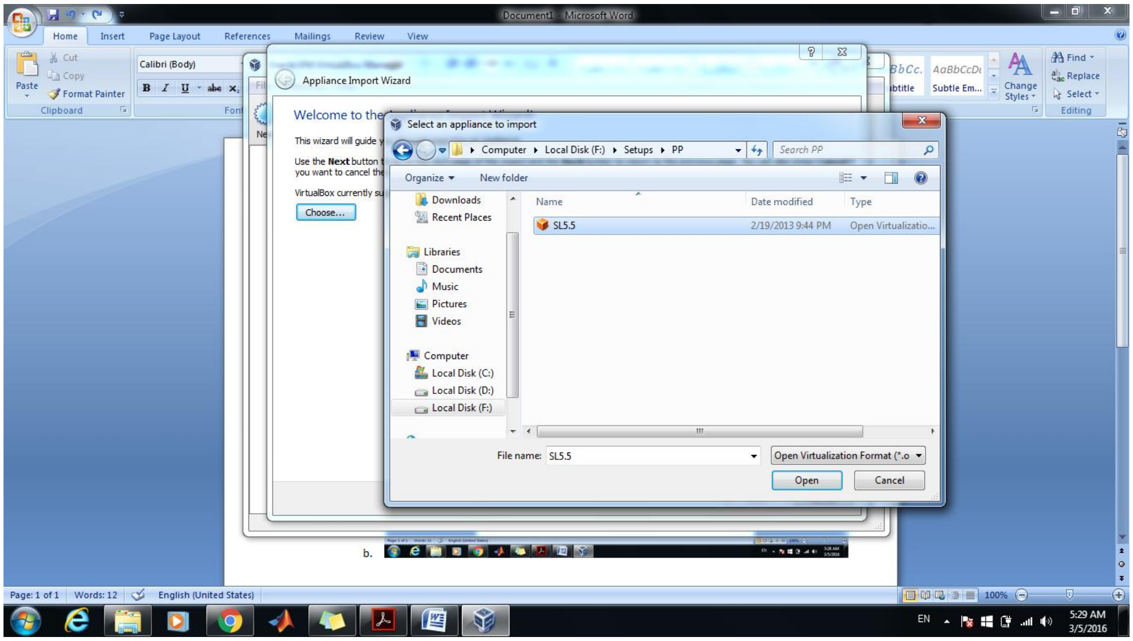
The left part of this window is a list of all virtual machines on your computer. The list is empty now because you haven't created any virtual machines yet.

In order to create a new virtual machine, press the **New** button in the main tool bar located at the top of the window.

You can press the **F1** key to get instant help, or visit www.virtualbox.org for the latest information and news.

Import an appliance into VirtualBox

3. **Choose the scientific linux icon:**



This wizard will guide y

Use the **Next** button t
you want to cancel the

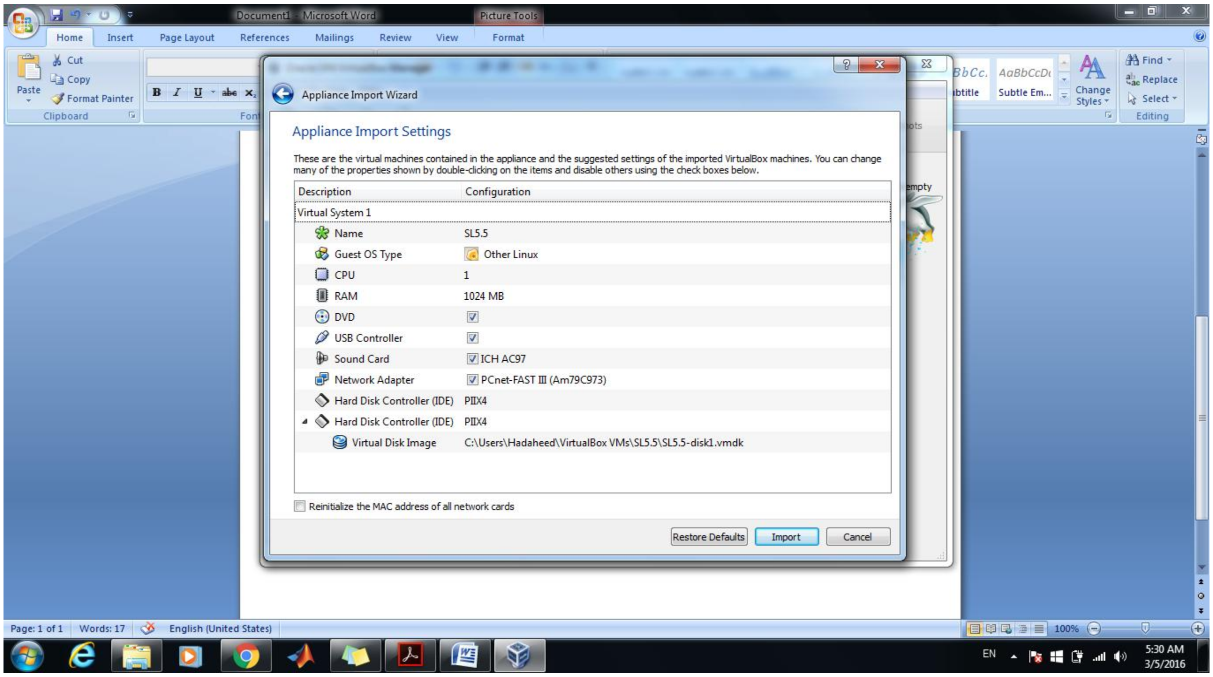
VirtualBox currently su

Name	Date modified	Type
SL5.5	2/19/2013 9:44 PM	Open Virtualizatio...

File name: SL5.5

Open Virtualization Format (*.o

4. **Press import:**



Appliance Import Wizard

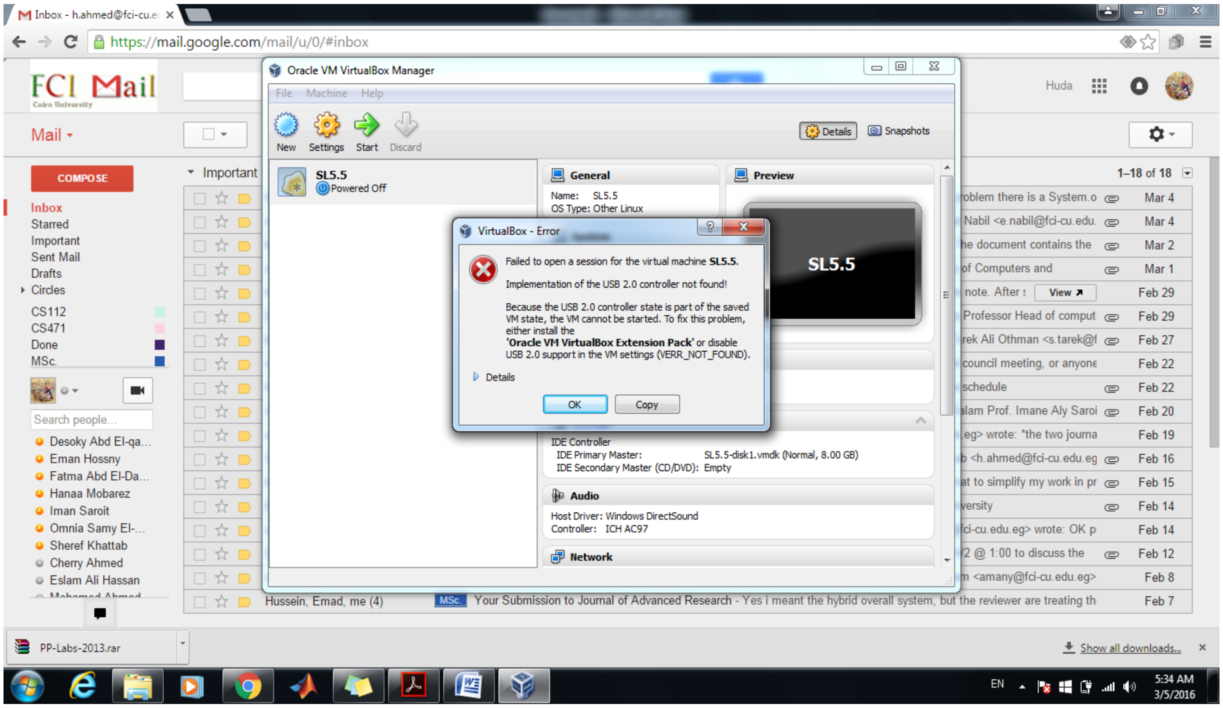
Appliance Import Settings

These are the virtual machines contained in the appliance and the suggested settings of the imported VirtualBox machines. You can change many of the properties shown by double-clicking on the items and disable others using the check boxes below.

Description	Configuration
Virtual System 1	
Name	SL5.5
Guest OS Type	Other Linux
CPU	1
RAM	1024 MB
DVD	☑
USB Controller	☑
Sound Card	☑ ICH AC97
Network Adapter	☑ PCnet-FAST III (Am79C973)
Hard Disk Controller (IDE)	PIIX4
Hard Disk Controller (IDE)	PIIX4
Virtual Disk Image	C:\Users\Hadaheed\VirtualBox VMs\SL5.5\SL5.5-disk1.vmdk

□ Reinitialize the MAC address of all network cards

5. **When trying to start the scientific linux over the VM, this message will appear:**



Oracle VM VirtualBox Manager

SL5.5
Powered Off

General
Name: SL5.5
OS Type: Other Linux

VirtualBox - Error

Failed to open a session for the virtual machine **SL5.5**.

Implementation of the USB 2.0 controller not found!

Because the USB 2.0 controller state is part of the saved VM state, the VM cannot be started. To fix this problem, either install the **'Oracle VM VirtualBox Extension Pack'** or disable USB 2.0 support in the VM settings (VERR_NOT_FOUND).

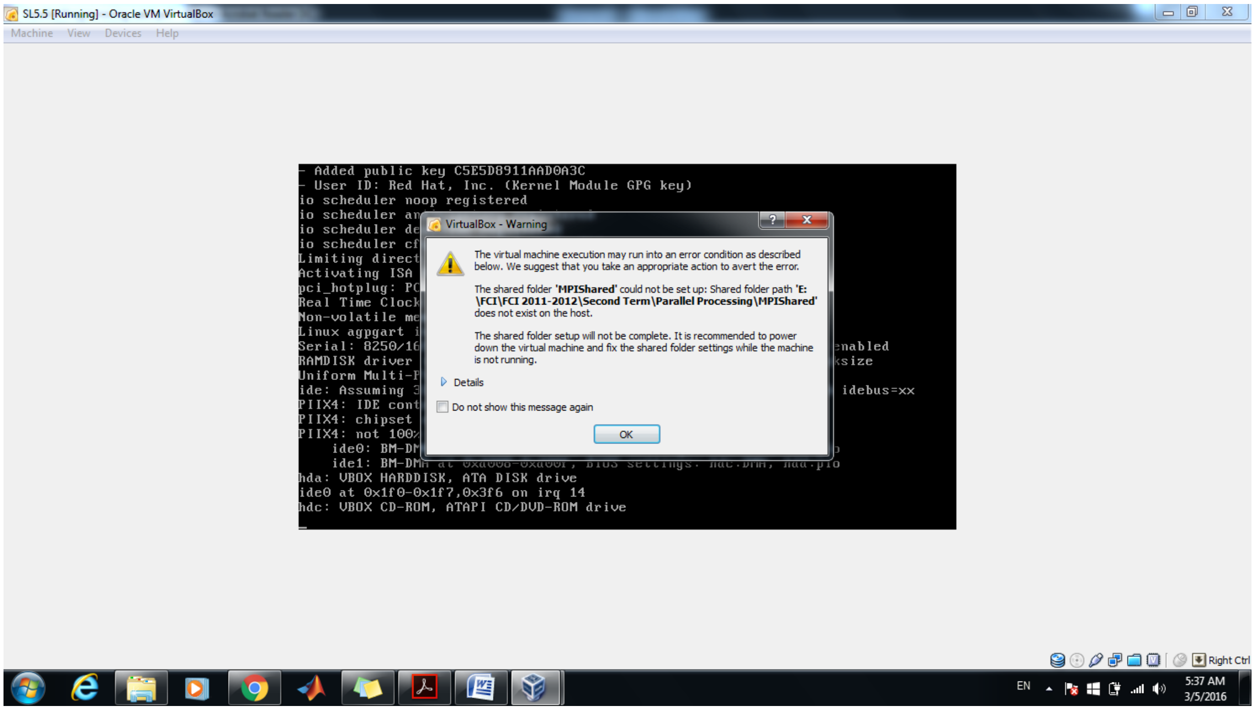
IDE Controller
IDE Primary Master: SL5.5-disk1.vmdk (Normal, 8.00 GB)
IDE Secondary Master (CD/DVD): Empty

Audio
Host Driver: Windows DirectSound
Controller: ICH AC97

Network

[To solve this problem, install the virtual box extension in the folder given to you by the TA]

6. **After installing the extension, start the scientific linux again, a warning will appear as in the following window, so just press ok.**



```
- Added public key C5E5D8911AAD0A3C
- User ID: Red Hat, Inc. (Kernel Module GPG key)
io scheduler noop registered
io scheduler an
io scheduler de
io scheduler cf
Limiting direct
Activating ISA
pci_hotplug: PC
Real Time Clock
Non-volatile me
Linux agpgart i
Serial: 8250/16                                               enabled
RAMDISK driver                                                ksize
Uniform Multi-P
ide: Assuming 3                                                idebus=xx
PIIX4: IDE cont
PIIX4: chipset
PIIX4: not 100%
    ide0: BM-DM
    ide1: BM-DMA at 0xa008-0xa00f, BIOS settings: hdc:DMA, hdd:pio
hda: VBOX HARDDISK, ATA DISK drive
ide0 at 0x1f0-0x1f7,0x3f6 on irq 14
hdc: VBOX CD-ROM, ATAPI CD/DVD-ROM drive
_
```

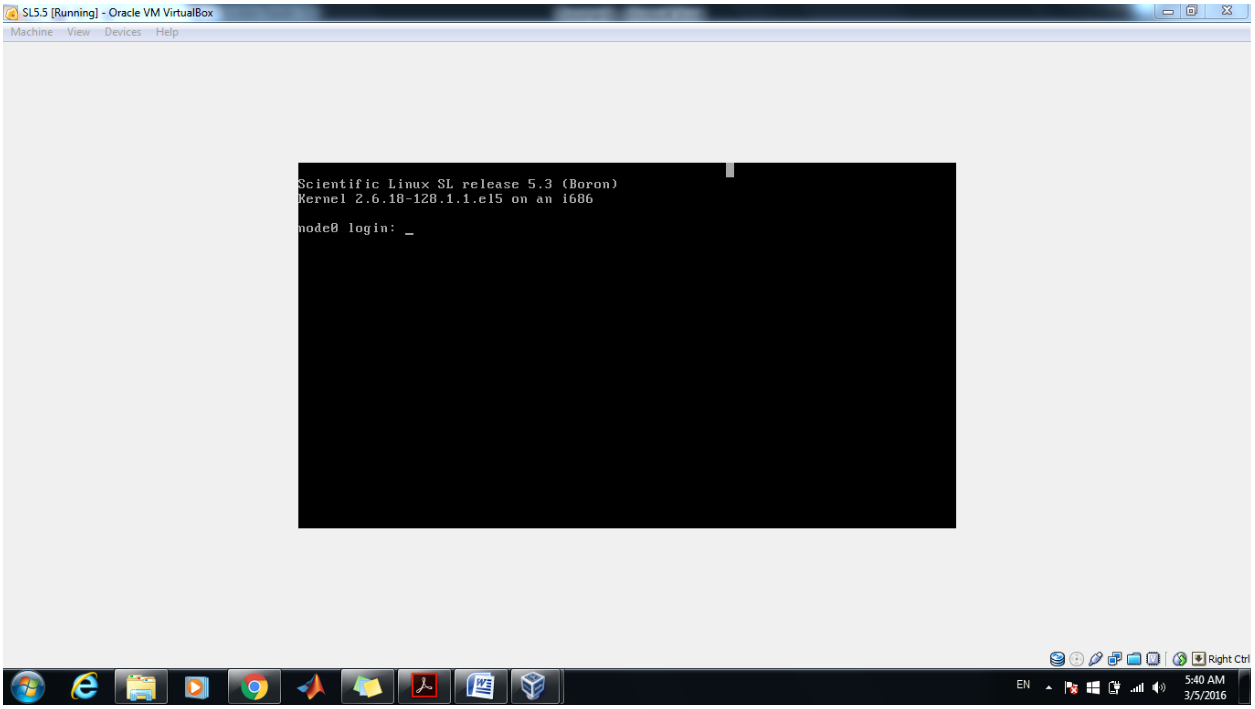
The virtual machine execution may run into an error condition as described below. We suggest that you take an appropriate action to avert the error.

The shared folder **'MPIShared'** could not be set up: Shared folder path **'E:\FCI\FCI 2011-2012\Second Term\Parallel Processing\MPIShared'** does not exist on the host.

The shared folder setup will not be complete. It is recommended to power down the virtual machine and fix the shared folder settings while the machine is not running.

□ Do not show this message again

7. **All of the students should arrive to this point after the last step:**

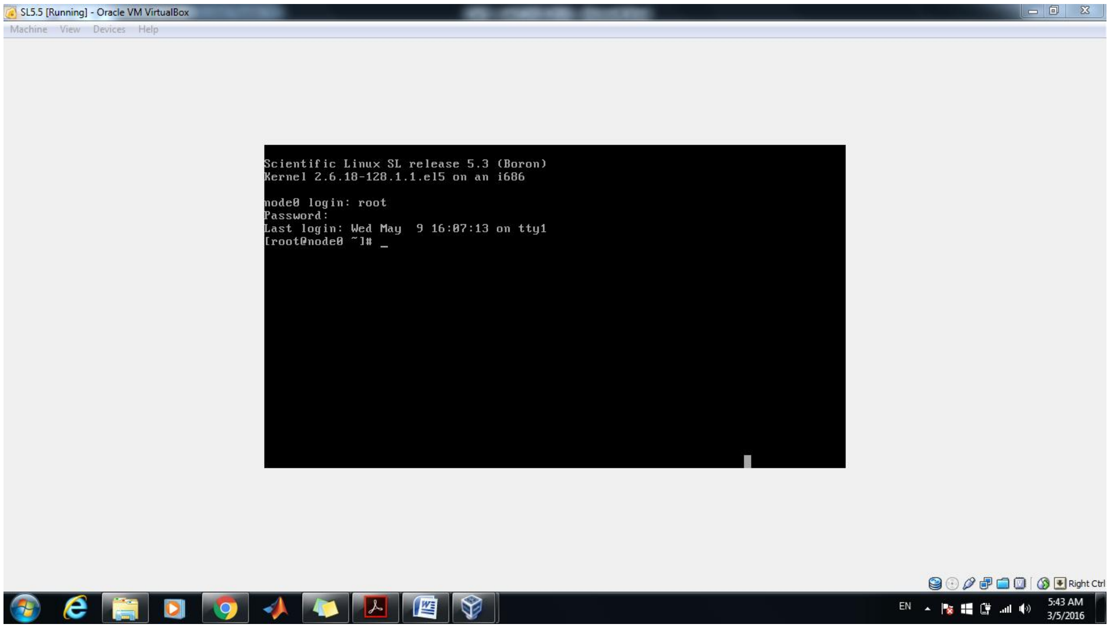


```
Scientific Linux SL release 5.3 (Boron)
Kernel 2.6.18-128.1.1.el5 on an i686

node0 login: _
```

8. **Login by these credentials:**

   Username: root
   Password: Hpc@fc1

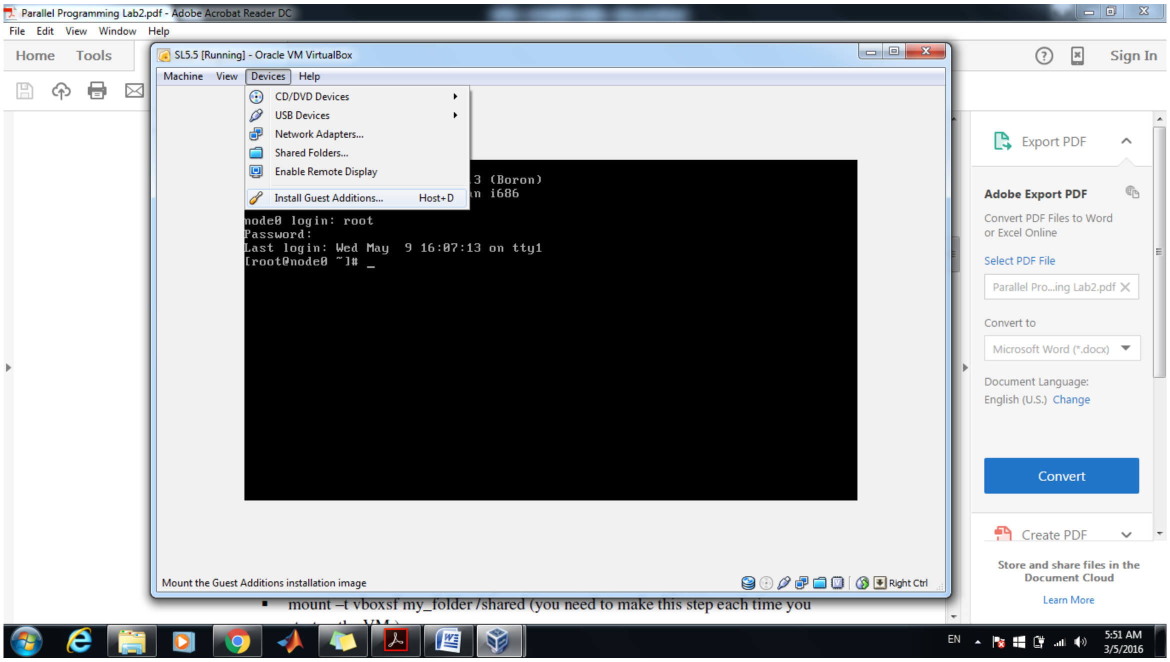


```
Scientific Linux SL release 5.3 (Boron)
Kernel 2.6.18-128.1.1.el5 on an i686

node0 login: root
Password:
Last login: Wed May  9 16:07:13 on tty1
[root@node0 ~]# _
```

Part II - Sharing files between the host (Your OS) and the Guest (Linux):

1. Click on install guest additions



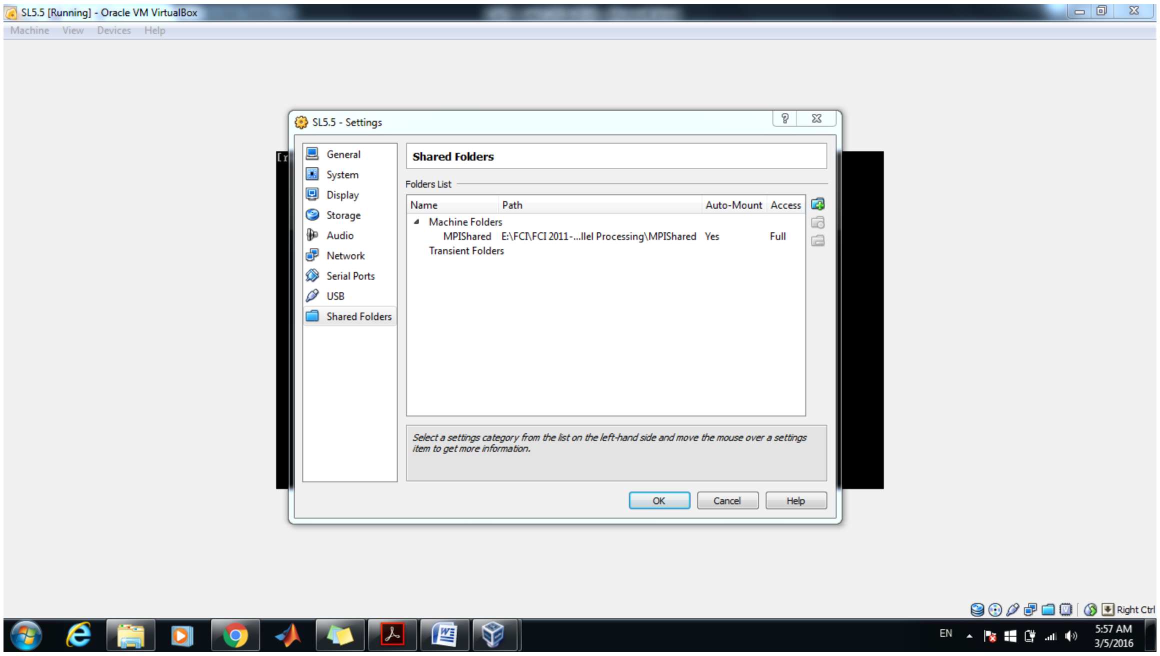
Parallel Programming Lab2.pdf - Adobe Acrobat Reader DC
File Edit View Window Help
Home Tools
Sign In
SL5.5 [Running] - Oracle VM VirtualBox
Machine View Devices Help
CD/DVD Devices
USB Devices
Network Adapters...
Shared Folders...
Enable Remote Display
Install Guest Additions... Host+D
Mount the Guest Additions installation image
Right Ctrl
Export PDF
Adobe Export PDF
Convert PDF Files to Word or Excel Online
Select PDF File
Parallel Pro...ing Lab2.pdf
Convert to
Microsoft Word (*.docx)
Document Language:
English (U.S.) Change
Convert
Create PDF
Store and share files in the Document Cloud
Learn More
EN
5:51 AM
3/5/2016

```
3 (Boron)
n i686

node0 login: root
Password:
Last login: Wed May  9 16:07:13 on tty1
[root@node0 ~]# _
```

- mount –t vboxsf my_folder /shared (you need to make this step each time you

2. **Devices -> shared folders:**



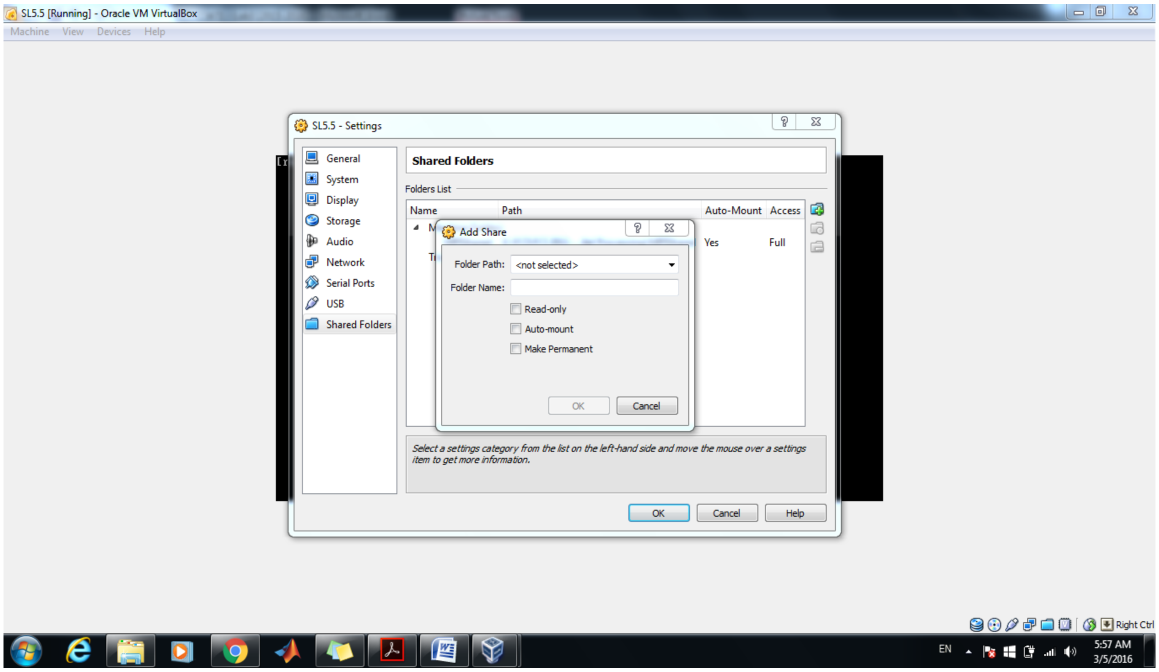
Shared Folders

Folders List

Name	Path	Auto-Mount	Access
Machine Folders			
MPIShared	E:\FCI\FCI 2011-...llel Processing\MPIShared	Yes	Full
Transient Folders			

Select a settings category from the list on the left-hand side and move the mouse over a settings item to get more information.

3. **Add shared folder:**



Shared Folders

Folders List

Name	Path	Auto-Mount	Access
M...		Yes	Full
T...			

Add Share

Folder Path: <not selected>

Folder Name:

□ Read-only

□ Auto-mount

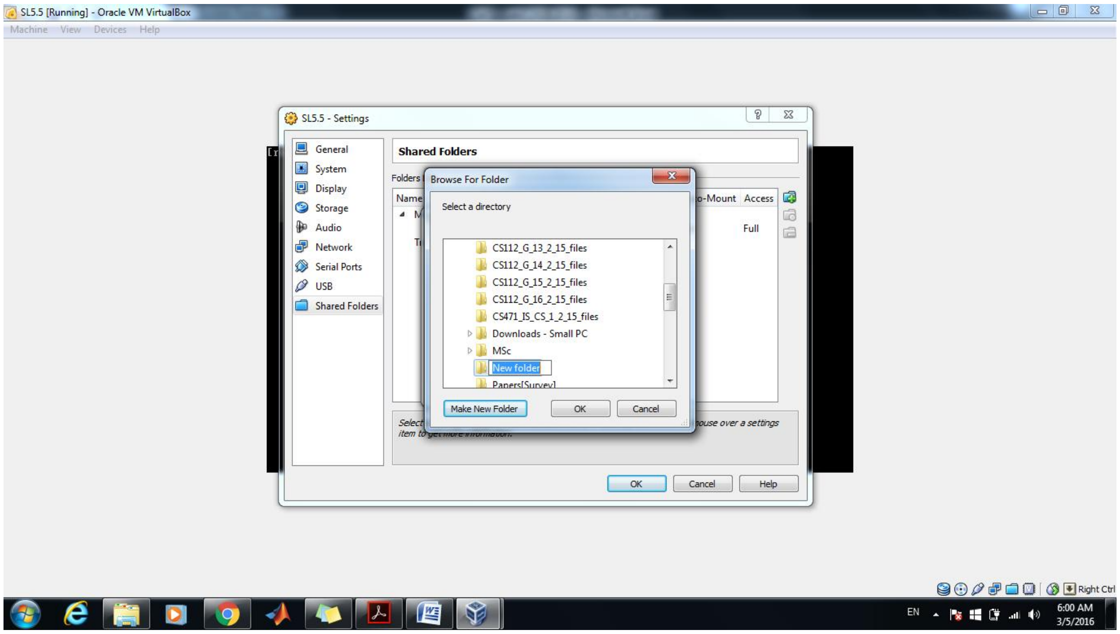
□ Make Permanent

OK Cancel

Select a settings category from the list on the left-hand side and move the mouse over a settings item to get more information.

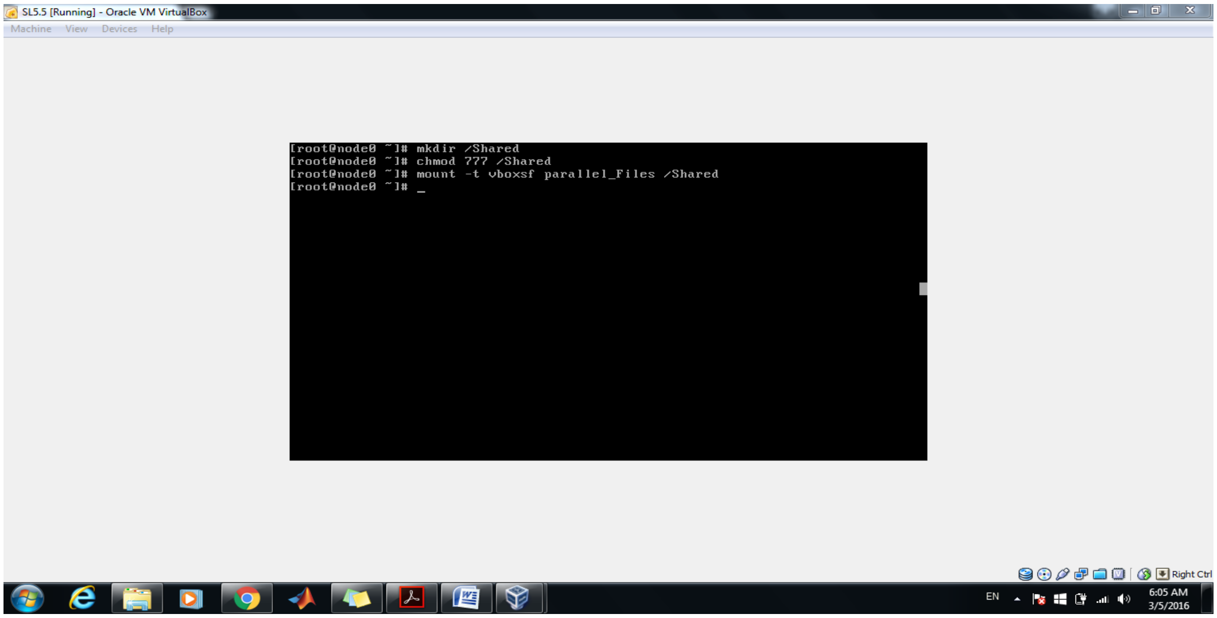
Name it and check [Auto-mount, Make permanent] check-boxes.

4. **After you name the file, click ok.**



5. Run the following commands:

- **a. mkdir /shared**
- **b. chmod 777 /shared**
- **c. mount –t vboxsf [The name of the shared folder] /shared**



```
[root@node0 ~]# mkdir /Shared
[root@node0 ~]# chmod 777 /Shared
[root@node0 ~]# mount -t vboxsf parallel_Files /Shared
[root@node0 ~]# _
```

SL5.5 [Running] - Oracle VM VirtualBox
Machine View Devices Help
Right Ctrl
EN
6:05 AM
3/5/2016

Step [c. mount –t vboxsf [The name of the shared folder] /shared] should be done everytime you start the machine.

Part III - Files on the Virtual machines

1. **Creation, opening, writing and saving:**
   - vim filename --> create or open filename
   - press i --> to start writing in the file
   - press Esc then:
     - q! --> quit without saving
     - wq --> write and quit
     - w --> write

Example: **Writing, compiling, and running a C program on Linux**

- vim testprog.c
- gcc –o out testprog.c --> compile and produce the executable “out” from “testprog.c” [it may not compile because of an error you must correct it and compile again]
- ./out --> to run the program