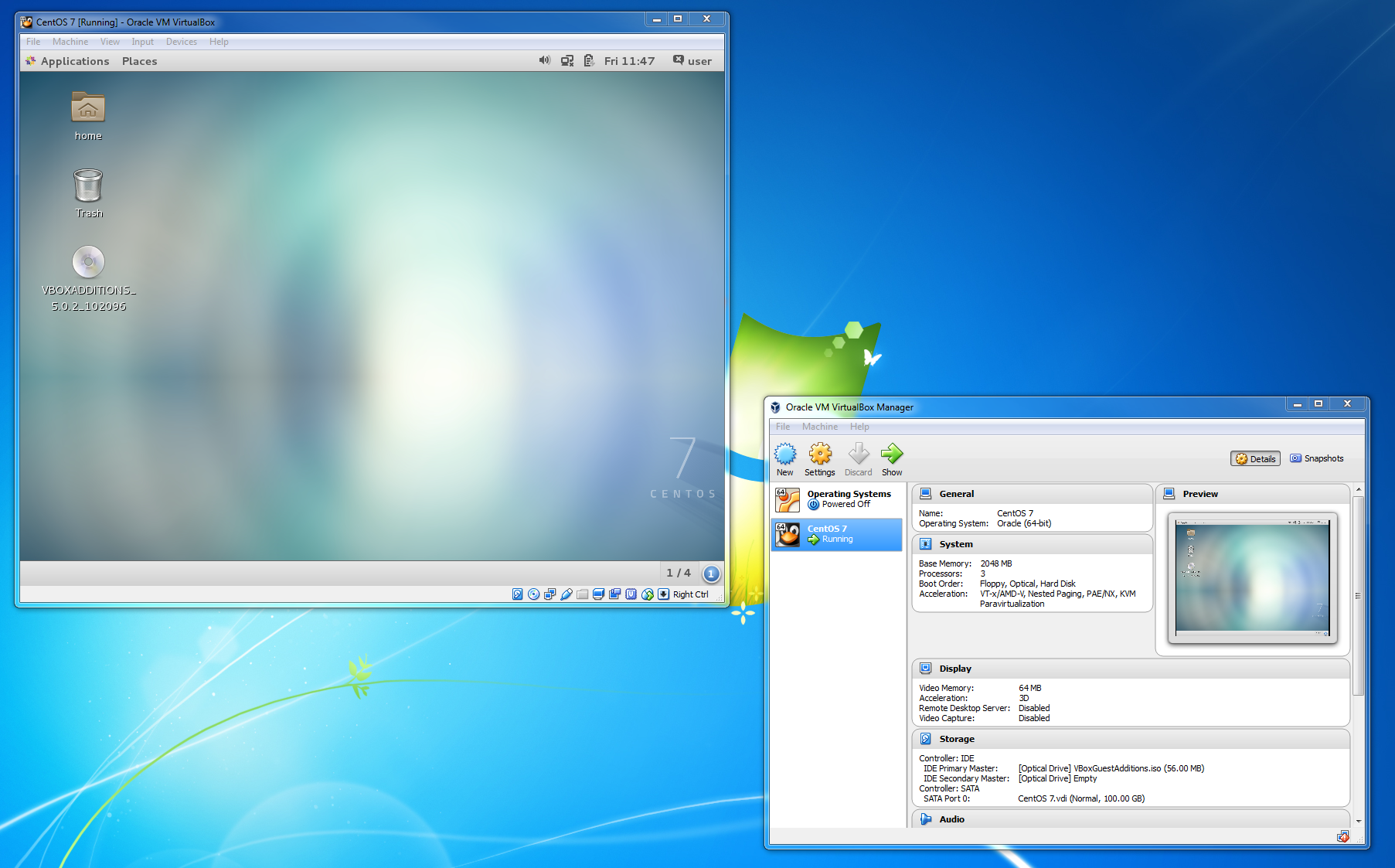
**1. Install CentOS VM and VM Player on your own Desktop or Laptop to do this homework. If not, you can use 304 lab to do this homework on VM.**



**2. Learn about 50 distinct commands of Linux/Unix OS by actually running them on the VM machine. Each command must be a distinct one, not with different options in the same command.**

1. [user@localhost Desktop]$ **man** script
2. [user@localhost Desktop]$ **ifconfig**

enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500

ether 08:00:27:92:19:cf txqueuelen 1000 (Ethernet)

RX packets 0 bytes 0 (0.0 B)

RX errors 0 dropped 0 overruns 0 frame 0

TX packets 0 bytes 0 (0.0 B)

TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

1. [user@localhost Desktop]$ **whatis** ifconfig

ifconfig (8) - configure a network interface

1. [user@localhost Desktop]$ **whereis** ifconfig

ifconfig: /usr/sbin/ifconfig /usr/share/man/man8/ifconfig.8.gz

1. [user@localhost Desktop]$ **ls**

kevin.tar output.txt testfile1.txt

1. [user@localhost Desktop]$ **mkdir** testFolder

[user@localhost Desktop]$ ls

kevin.tar output.txt testfile1.txt testFolder

1. [user@localhost Desktop]$ **cd** testFolder/
2. [user@localhost testFolder]$ **pwd**

/home/user/Desktop/testFolder

1. [user@localhost testFolder]$ **vim** testFile2.text

[user@localhost testFolder]$ pwd

/home/user/Desktop/testFolder

[user@localhost testFolder]$ ls

testFile2.text

1. [user@localhost testFolder]$ **mv** testFile2.text /home/user/Desktop

[user@localhost testFolder]$ ls

[user@localhost testFolder]$ pwd

/home/user/Desktop/testFolder

[user@localhost testFolder]$ cd ..

[user@localhost Desktop]$ ls

kevin.tar output.txt testfile1.txt testFile2.text testFolder

1. [user@localhost Desktop]$ **cp** testFile2.text testFolder/

[user@localhost Desktop]$ cd testFolder/

[user@localhost testFolder]$ ls

testFile2.text

1. [user@localhost Desktop]$ ls

kevin.tar output.txt testfile1.txt testFile2.text testFolder

[user@localhost Desktop]$ **rm -rf** testFolder/

[user@localhost Desktop]$ ls

kevin.tar output.txt testfile1.txt testFile2.text

1. [user@localhost Desktop]$ **cat** testfile1.txt

This is a test file for Homework #1.

1. [user@localhost Desktop]$ ls -ll

total 80

-rw-rw-r--. 1 user user 10240 Sep 14 18:00 kevin.tar

-rw-rw-r--. 1 user user 62502 Sep 14 18:08 output.txt

-rw-rw-r--. 1 user user 37 Sep 16 *08:26* testfile1.txt

-rw-rw-r--. 1 user user 0 Sep 16 08:00 testFile2.text

[user@localhost Desktop]$ **touch** testfile1.txt

[user@localhost Desktop]$ ls -ll

total 80

-rw-rw-r--. 1 user user 10240 Sep 14 18:00 kevin.tar

-rw-rw-r--. 1 user user 62502 Sep 14 18:08 output.txt

-rw-rw-r--. 1 user user 37 Sep 16 *08:27* testfile1.txt

-rw-rw-r--. 1 user user 0 Sep 16 08:00 testFile2.text

1. [user@localhost Desktop]$ **date**

Wed Sep 16 08:28:17 EDT 2015

1. [user@localhost Desktop]$ **top**

top - 08:29:11 up 53 min, 3 users, load average: 0.01, 0.02, 0.05

Tasks: 194 total, 1 running, 193 sleeping, 0 stopped, 0 zombie

%Cpu(s): 2.1 us, 0.1 sy, 0.0 ni, 97.8 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st

KiB Mem : 1884264 total, 896732 free, 455364 used, 532168 buff/cache

KiB Swap: 2097148 total, 2097148 free, 0 used. 1239844 avail Mem

1. [user@localhost Desktop]$ **history**

1 su

2 exit

1. [user@localhost Desktop]$ **env**

XDG\_VTNR=1

XDG\_SESSION\_ID=1

DBUS\_STARTER\_ADDRESS=unix:abstract=/tmp/dbus-w8GtZ4DNuO,guid=e51c55b1d57a29b9af53508355f9543a

GPG\_AGENT\_INFO=/run/user/1000/keyring-CQbV1T/gpg:0:1

1. [user@localhost Desktop]$ **ping** www.google.com

PING www.google.com (216.58.219.100) 56(84) bytes of data.

^C

--- www.google.com ping statistics ---

5 packets transmitted, 0 received, 100% packet loss, time 3999ms

1. [user@localhost Desktop]$ **which** netstat

/usr/bin/netstat

1. [user@localhost Desktop]$ **netstat**

Active Internet connections (w/o servers)

Proto Recv-Q Send-Q Local Address Foreign Address State

Active UNIX domain sockets (w/o servers)

Proto RefCnt Flags Type State I-Node Path

unix 2 [ ] DGRAM 10797 /run/systemd/shutdown

1. [user@localhost Desktop]$ **su**

Password:

[root@localhost Desktop]#

1. [root@localhost Desktop]# **clear**
2. [root@localhost Desktop]# **whoami**

root

1. [root@localhost Desktop]# **md5sum** testfile1.txt

54e4bfae41237533ea3e5502bbcc98fb testfile1.txt

1. [root@localhost Desktop]# **uname**

Linux

1. [root@localhost Desktop]# time

real 0m0.000s

user 0m0.000s

sys 0m0.000s

1. [root@localhost Desktop]# **head** testfile1.txt

This is a test file for Homework #1.

1. [root@localhost Desktop]# **tail** testfile1.txt

This is a test file for Homework #1.

1. [root@localhost Desktop]# **diff** testfile1.txt testFile2.text

1d0

< This is a test file for Homework #1.

1. [root@localhost Desktop]# less testfile1.txt
2. [root@localhost Desktop]# more testfile1.txt

This is a test file for Homework #1.

1. [root@localhost Desktop]# **find** test\*

testfile1.txt

testFile2.text

1. [root@localhost Desktop]# **grep** Homework testfile1.txt

This is a test file for **Homework** #1.

1. [root@localhost Desktop]# **lsblk**

NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINT

sda 8:0 0 100G 0 disk

├─sda1 8:1 0 500M 0 part /boot

└─sda2 8:2 0 99.5G 0 part

├─centos-root 253:0 0 50G 0 lvm /

├─centos-swap 253:1 0 2G 0 lvm [SWAP]

└─centos-home 253:2 0 47.5G 0 lvm /home

sr0 11:0 1 56M 0 rom /run/media/user/VBOXADDITIONS\_5.0.2\_102096

sr1 11:1 1 1024M 0 rom

1. [root@localhost Desktop]# **tar** cvf kevin.tar testfile1.txt

testfile1.txt

1. [root@localhost Desktop]# **service** --status-all

netconsole module not loaded

Configured devices:

lo enp0s3

Currently active devices:

lo enp0s3 virbr0

The VirtualBox Additions are currently running.

Checking for VBoxService ...not running

1. [root@localhost Desktop]# **ps**

PID TTY TIME CMD

7743 pts/1 00:00:00 su

7750 pts/1 00:00:00 bash

12121 pts/1 00:00:00 ps

1. [root@localhost Desktop]# **df** -k

Filesystem 1K-blocks Used Available Use% Mounted on

/dev/mapper/centos-root 52403200 7248268 45154932 14% /

devtmpfs 932552 0 932552 0% /dev

tmpfs 942132 148 941984 1% /dev/shm

1. [root@localhost Desktop]# **locate** crontab

/etc/anacrontab

/etc/crontab

/usr/bin/crontab

/usr/share/doc/man-pages-overrides-7.1.3/crontabs

1. [root@localhost Desktop]# **cal**

September 2015

Su Mo Tu We Th Fr Sa

1 2 3 4 5

6 7 8 9 10 11 12

13 14 15 16 17 18 19

20 21 22 23 24 25 26

27 28 29 30

1. [root@localhost Desktop]# **nslookup** www.google.com

Server: 134.223.80.93

Address: 134.223.80.93#53

Non-authoritative answer:

Name: www.google.com

Address: 216.58.219.100

1. root@localhost Desktop]# **chkconfig**

netconsole 0:off 1:off 2:off 3:off 4:off 5:off 6:off

network 0:off 1:off 2:on 3:on 4:on 5:on 6:off

1. [root@localhost Desktop]# **dmesg**

[ 0.000000] Initializing cgroup subsys cpuset

[ 0.000000] Initializing cgroup subsys cpu

[ 0.000000] Initializing cgroup subsys cpuacct

[ 0.000000] Linux version 3.10.0-229.11.1.el7.x86\_64 (builder@kbuilder.dev.centos.org) (gcc version 4.8.3 20140911 (Red Hat 4.8.3-9) (GCC) ) #1 SMP Thu Aug 6 01:06:18 UTC 2015

1. [root@localhost Desktop]# **free**

total used free shared buff/cache available

Mem: 1884264 526824 536124 15468 821316 1125700

Swap: 2097148 0 2097148

1. [root@localhost Desktop]# **iostat**

Linux 3.10.0-229.11.1.el7.x86\_64 (localhost.localdomain) 09/16/2015 \_x86\_64\_ (3 CPU)

avg-cpu: %user %nice %system %iowait %steal %idle

0.63 0.00 0.22 0.04 0.00 99.12

1. [root@localhost Desktop]# **lsmod**

Module Size Used by

nls\_utf8 12557 1

isofs 39844 1

bnep 19704 2

bluetooth 372662 7 bnep

1. [root@localhost Desktop]# **tcpdump**

tcpdump: verbose output suppressed, use -v or -vv for full protocol decode

listening on enp0s3, link-type EN10MB (Ethernet), capture size 65535 bytes

10:13:42.011752 IP localhost.localdomain.56394 > ng-vag-dc05.northgrum.com.domain: 6743+ A? tiles.services.mozilla.com. (44)

1. [root@localhost Desktop]# uptime

10:14:24 up 2:38, 3 users, load average: 0.08, 0.07, 0.05

1. [root@localhost Desktop]# **shutdown** now

**3. Learn two commands (objdump and nm) in Linux and try some options in these commands and capture the output. Why do we need these commands?**

**OBJDUMP**

objdump displays information of object files. This tool is useful to programmers who are working on the compilation tools, as opposed to programmers who just want their program to compile and work.

Man pages:

objdump - <http://linux.die.net/man/1/objdump>

Example:

[root@localhost bin]# **pwd**

/usr/bin

[root@localhost bin]# **objdump** -f grep

grep: file format elf64-x86-64

architecture: i386:x86-64, flags 0x00000112:

EXEC\_P, HAS\_SYMS, D\_PAGED

start address 0x0000000000403ecc

**NM**

nm lists the symbols for an object file. If not object file is specified, it defaults to a.out.

Man pages:

nm – <http://linux.die.net/man/1/nm>

Examples:

[root@localhost bin]# nm grep

nm: grep: no symbols

**4. Learn “find” and “grep” commands and show some examples if their usage.**

Find search the specified path for a given filename (in the form of an expression).

[root@localhost Desktop]# **find** test\*

testfile1.txt

testFile2.text

Grep searches within text based files for an expression in a specified path.

[root@localhost Desktop]# **grep** Homework testfile1.txt

This is a test file for **Homework** #1.

**5. Shell script**

A shell script is a computer program designed to be run by the Unix shell, a command line interpreter. The various dialects of shell scripts are considered to be scripting languages.

**Script:**

# This script displays the date, time, username and

# current directory.

echo "Date and time is:"

date

echo

echo "Your username is: `whoami` \\n"

echo "Your current directory is: \\c"

pwd

**Script running:**

[root@localhost Desktop]# ll -x

eclipse kevin.tar output.txt testfile1.txt testFile2.text

testScript.sh testScript.sh~ workspace

[root@localhost Desktop]# bash testScript.sh

Date and time is:

Thu Sep 17 13:39:39 EDT 2015

Your username is: root \n

Your current directory is: \c

/home/user/Desktop

[root@localhost Desktop]#