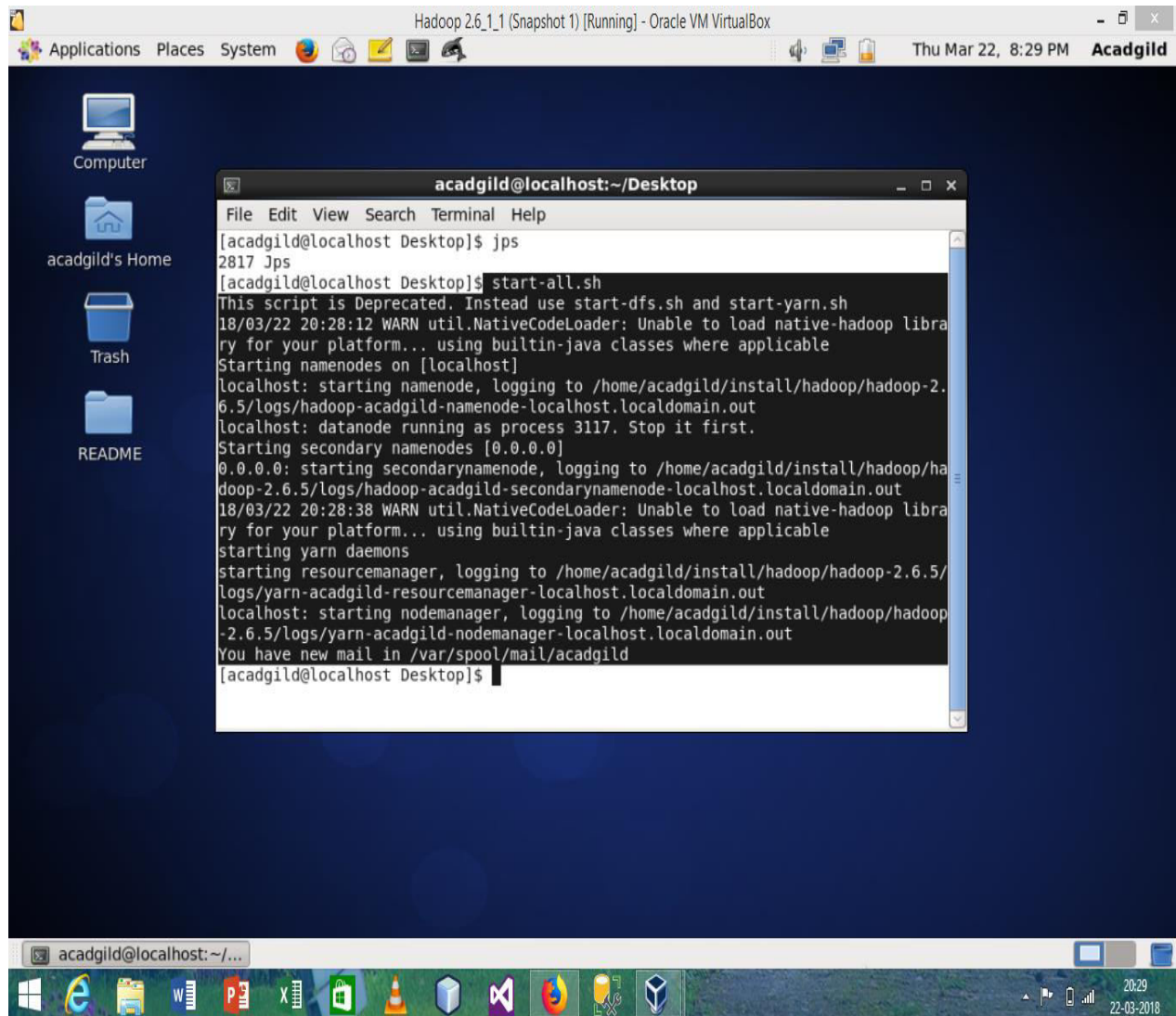


Question 1: Start Hadoop single node on AcadGild VM.

Answer: The command for starting single node on AcadGild VM is start-all.sh



The screenshot shows a terminal window titled 'acadgild@localhost: ~/Desktop' within an Oracle VM VirtualBox environment. The terminal displays the following commands and output:

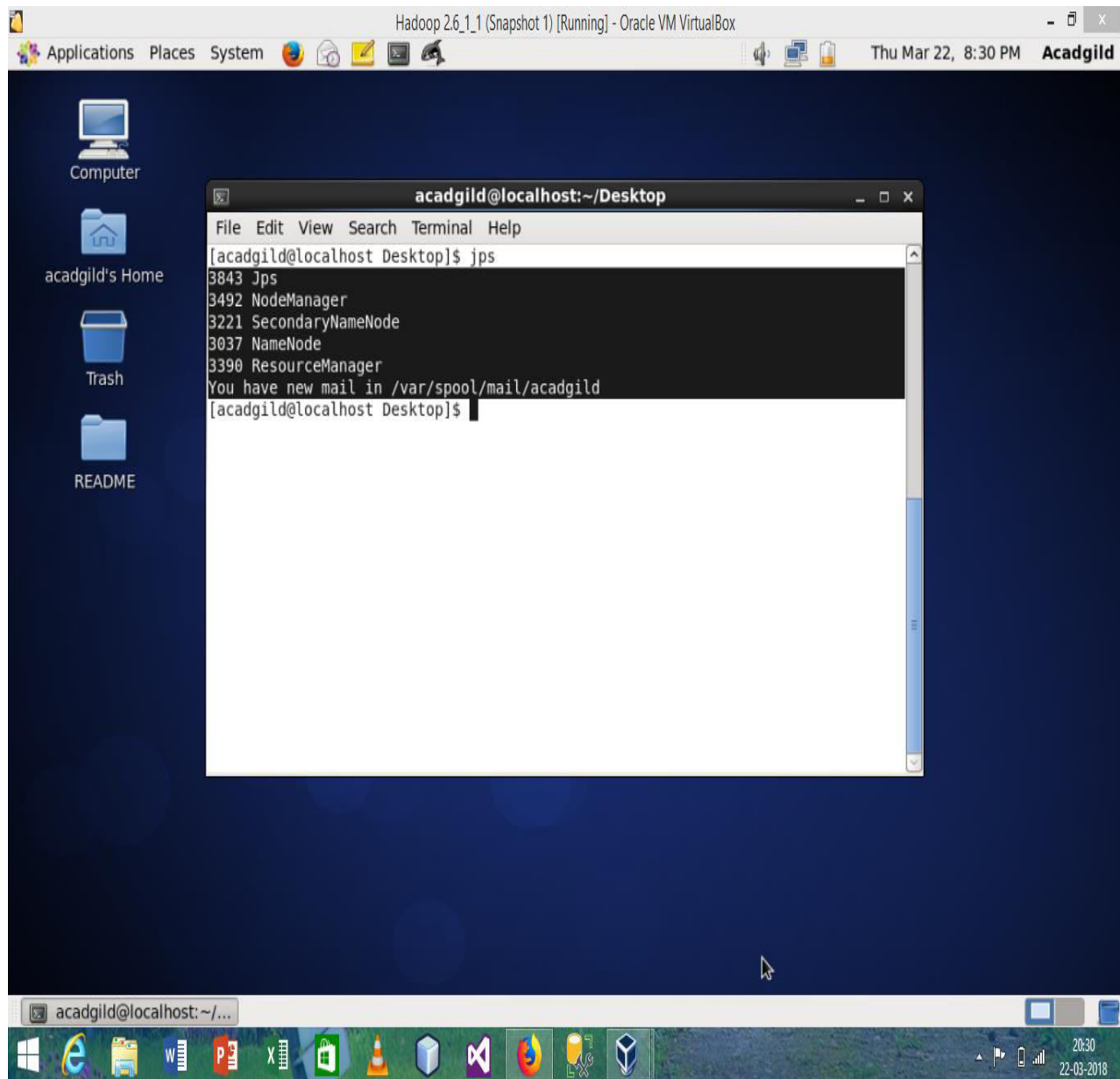
```
[acadgild@localhost Desktop]$ jps
2817 Jps
[acadgild@localhost Desktop]$ start-all.sh
This script is Deprecated. Instead use start-dfs.sh and start-yarn.sh
18/03/22 20:28:12 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
Starting namenodes on [localhost]
localhost: starting namenode, logging to /home/acadgild/install/hadoop/hadoop-2.6.5/logs/hadoop-acadgild-namenode-localhost.localdomain.out
localhost: datanode running as process 3117. Stop it first.
Starting secondary namenodes [0.0.0.0]
0.0.0.0: starting secondarynamenode, logging to /home/acadgild/install/hadoop/hadoop-2.6.5/logs/hadoop-acadgild-secondarynamenode-localhost.localdomain.out
18/03/22 20:28:38 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
starting yarn daemons
starting resourcemanager, logging to /home/acadgild/install/hadoop/hadoop-2.6.5/logs/yarn-acadgild-resourcemanager-localhost.localdomain.out
localhost: starting nodemanager, logging to /home/acadgild/install/hadoop/hadoop-2.6.5/logs/yarn-acadgild-nodemanager-localhost.localdomain.out
You have new mail in /var/spool/mail/acadgild
[acadgild@localhost Desktop]$
```

This is the screenshot for starting Hadoop single node on AcadGild VM.

Question 2: Run a JPS command to see if all Hadoop daemons are running.

Answer: After running single node Hadoop cluster, to see Hadoop daemons which are running, we use JPS command.

The same is shown in the below screenshot. Black portion showing the name of Hadoop daemons.



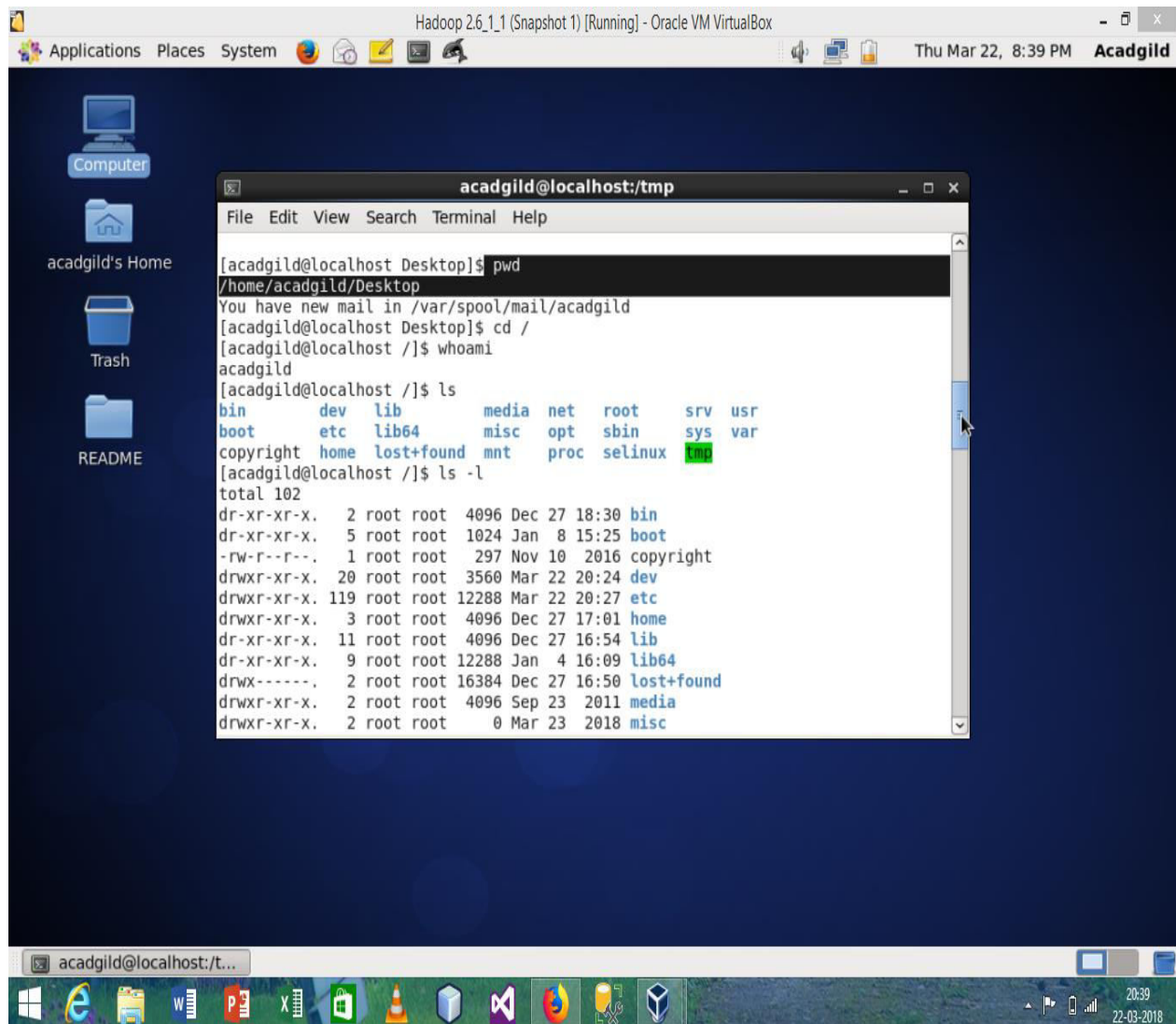
```
acadgild@localhost: ~/Desktop
File Edit View Search Terminal Help
[acadgild@localhost Desktop]$ jps
3843 Jps
3492 NodeManager
3221 SecondaryNameNode
3037 NameNode
3390 ResourceManager
You have new mail in /var/spool/mail/acadgild
[acadgild@localhost Desktop]$
```

Question 3: Run few Unix commands like pwd, ls -ls, etc.

Answer:

Command 1:

pwd – present working directory (output shown in black portion)



The screenshot shows a Linux desktop environment with a terminal window open. The terminal window title is "acadgild@localhost:/tmp". The terminal output shows the following commands and their results:

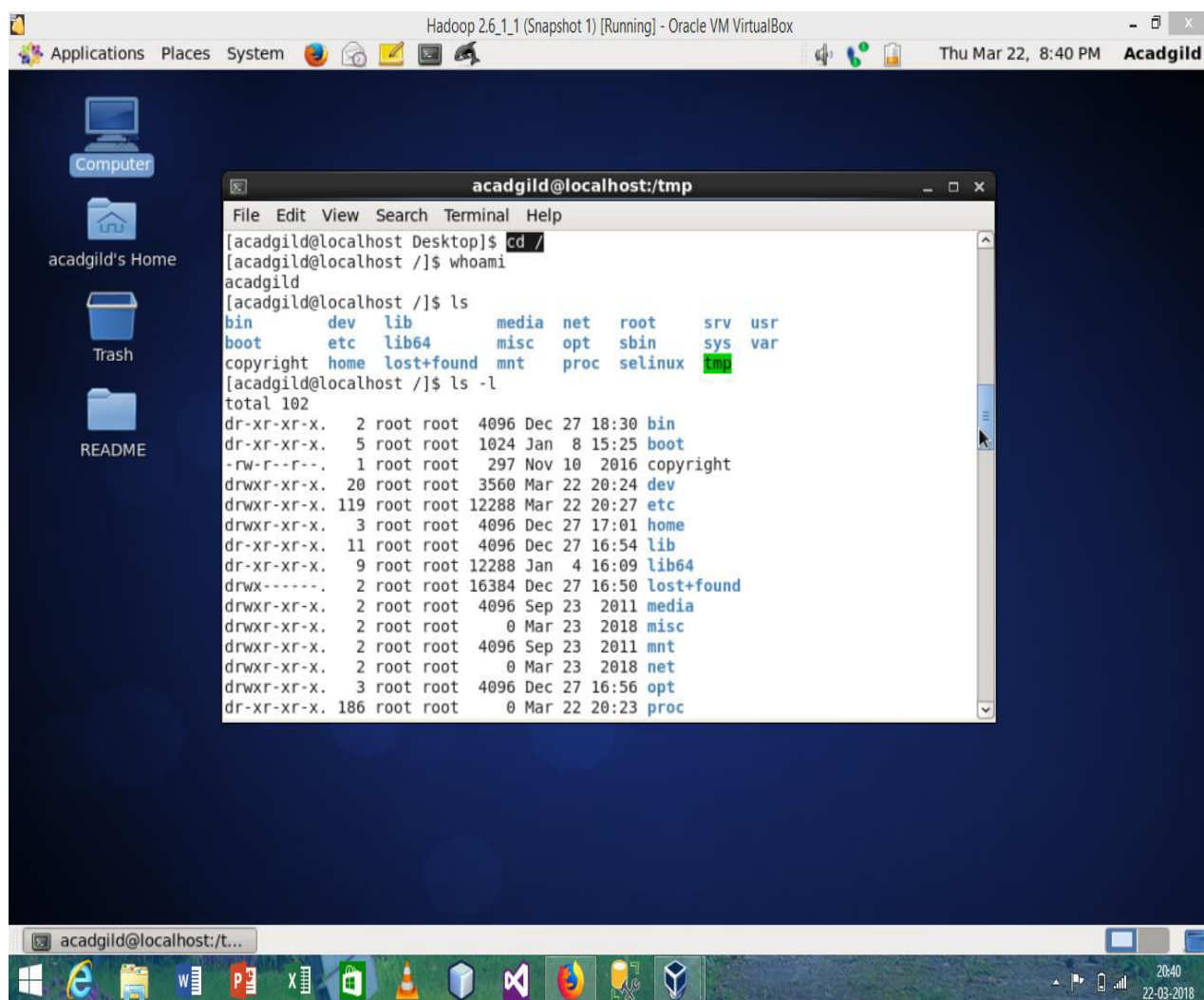
```
[acadgild@localhost Desktop]$ pwd
/home/acadgild/Desktop
You have new mail in /var/spool/mail/acadgild
[acadgild@localhost Desktop]$ cd /
[acadgild@localhost /]$ whoami
acadgild
[acadgild@localhost /]$ ls
bin      dev      lib      media   net      root     srv      usr
boot     etc      lib64    misc    opt      sbin     sys      var
copyright home    lost+found mnt     proc    selinux  tmp
[acadgild@localhost /]$ ls -l
total 102
dr-xr-xr-x.  2 root root  4096 Dec 27 18:30 bin
dr-xr-xr-x.  5 root root 1024 Jan  8 15:25 boot
-rw-r--r--.  1 root root   297 Nov 10 2016 copyright
drwxr-xr-x. 20 root root  3560 Mar 22 20:24 dev
drwxr-xr-x. 119 root root 12288 Mar 22 20:27 etc
drwxr-xr-x.  3 root root  4096 Dec 27 17:01 home
dr-xr-xr-x. 11 root root  4096 Dec 27 16:54 lib
dr-xr-xr-x.  9 root root 12288 Jan  4 16:09 lib64
drwx-----.  2 root root 16384 Dec 27 16:50 lost+found
drwxr-xr-x.  2 root root  4096 Sep 23 2011 media
drwxr-xr-x.  2 root root    0 Mar 23 2018 misc
```

Command 2:

Cd –change directory

Example: cd / - means change the directory to /

(same as shown in black marked portion)



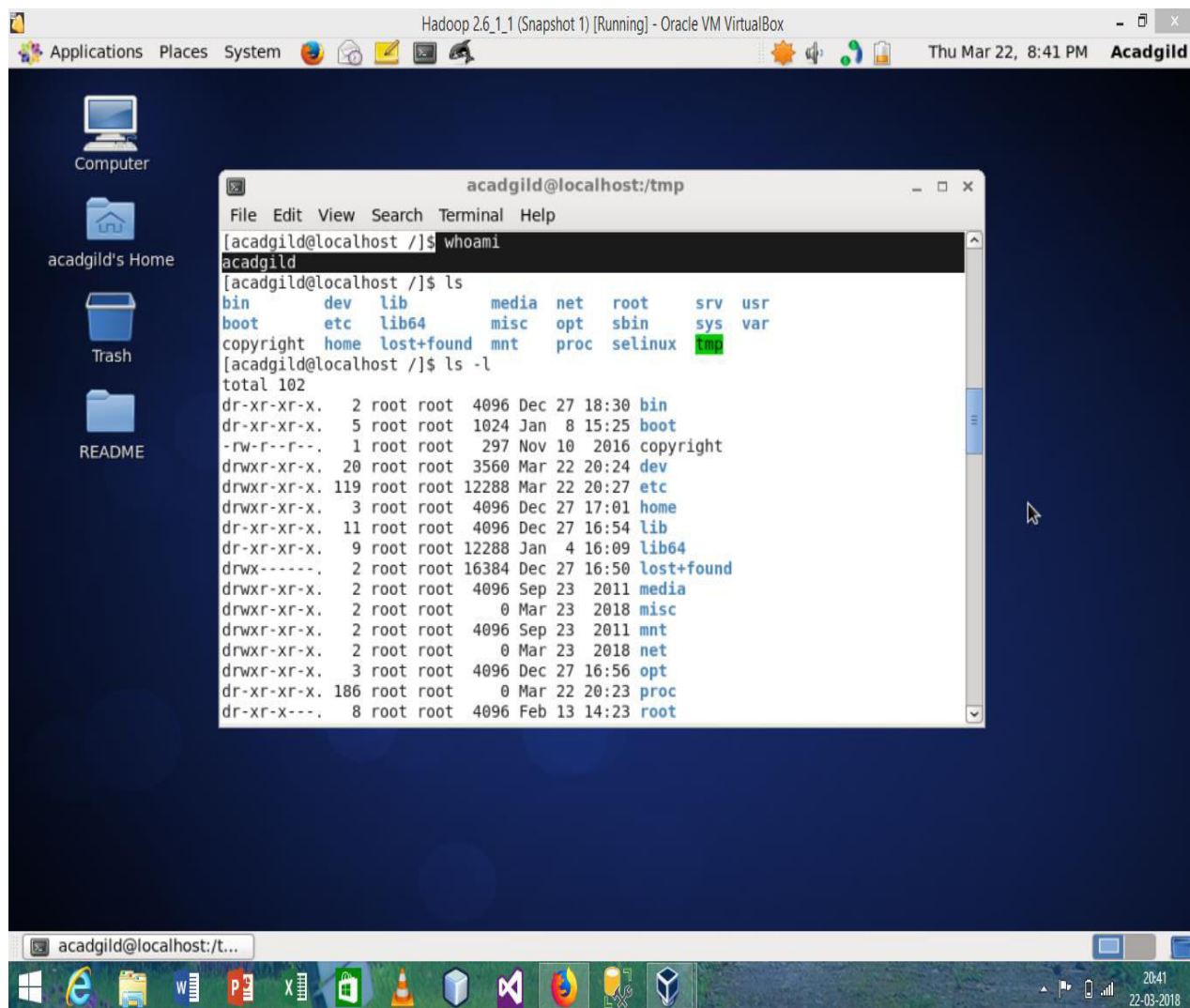
The screenshot shows a Linux desktop environment. The top panel includes a menu bar with 'Applications', 'Places', and 'System', and a system status bar showing 'Thu Mar 22, 8:40 PM' and the username 'Acadgild'. The desktop background is dark blue. On the left, there are icons for 'Computer', 'acagild's Home', 'Trash', and 'README'. A terminal window titled 'acadgild@localhost:/tmp' is open in the center. The terminal shows the following commands and output:

```
[acadgild@localhost Desktop]$ cd /
[acadgild@localhost /]$ whoami
acadgild
[acadgild@localhost /]$ ls
bin      dev      lib      media    net      root     srv      usr
boot     etc      lib64    misc     opt      sbin     sys      var
copyright home    lost+found mnt      proc     selinux  tmp
[acadgild@localhost /]$ ls -l
total 102
dr-xr-xr-x.  2 root root  4096 Dec 27 18:30 bin
dr-xr-xr-x.  5 root root  1024 Jan  8 15:25 boot
-rw-r--r--.  1 root root    297 Nov 10 2016 copyright
drwxr-xr-x. 20 root root  3560 Mar 22 20:24 dev
drwxr-xr-x. 119 root root 12288 Mar 22 20:27 etc
drwxr-xr-x.  3 root root  4096 Dec 27 17:01 home
dr-xr-xr-x. 11 root root  4096 Dec 27 16:54 lib
dr-xr-xr-x.  9 root root 12288 Jan  4 16:09 lib64
drwx-----.  2 root root 16384 Dec 27 16:50 lost+found
drwxr-xr-x.  2 root root  4096 Sep 23 2011 media
drwxr-xr-x.  2 root root    0 Mar 23 2018 misc
drwxr-xr-x.  2 root root  4096 Sep 23 2011 mnt
drwxr-xr-x.  2 root root    0 Mar 23 2018 net
drwxr-xr-x.  3 root root  4096 Dec 27 16:56 opt
dr-xr-xr-x. 186 root root    0 Mar 22 20:23 proc
```

Command 3:

whoami – tell us about the current user

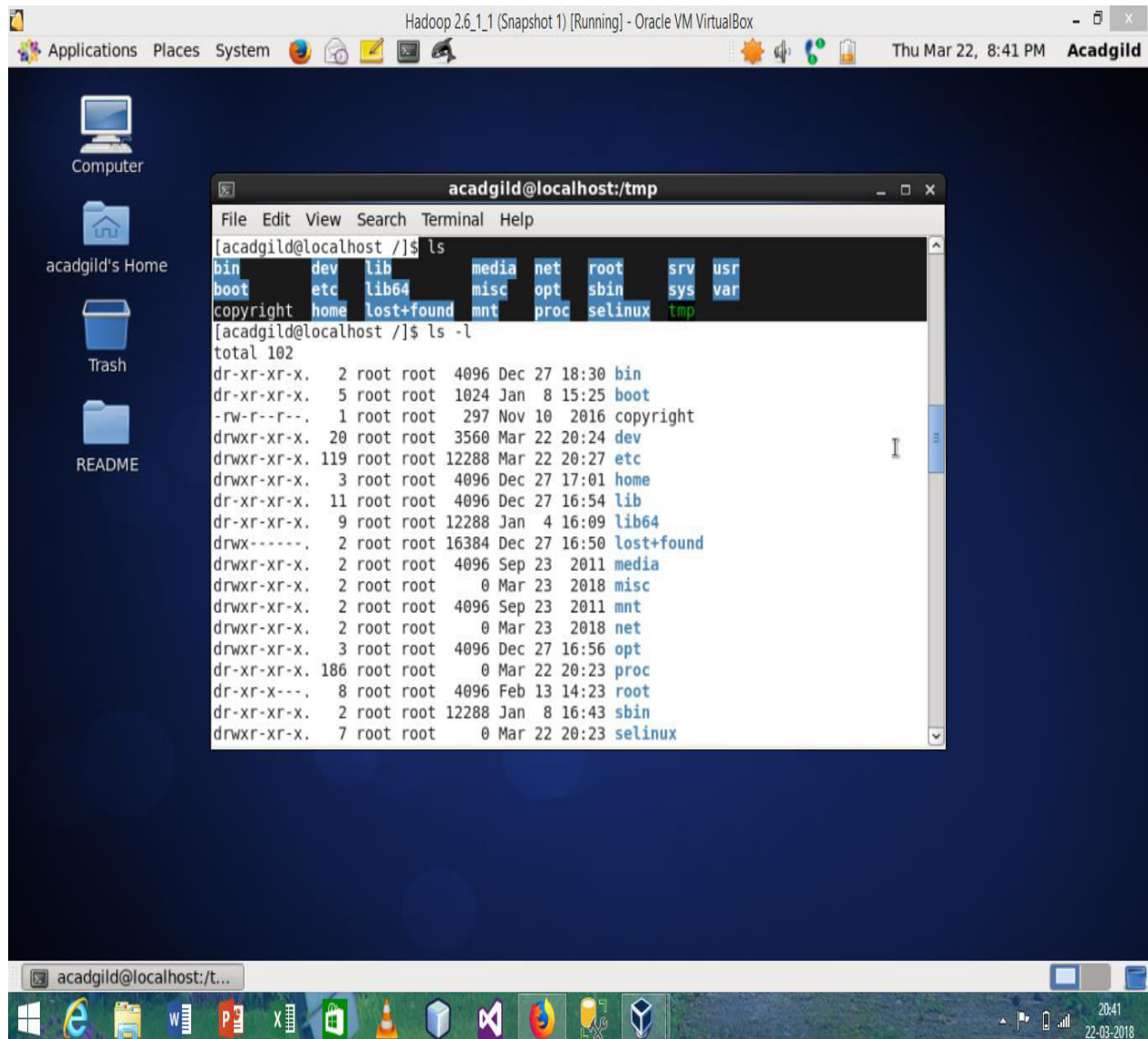
(Output shown in figure, the blacked portion)



```
acadgild@localhost:tmp
File Edit View Search Terminal Help
[acadgild@localhost /]$ whoami
acadgild
[acadgild@localhost /]$ ls
bin      dev      lib      media   net      root     srv      usr
boot     etc      lib64    misc    opt      sbin     sys      var
copyright home     lost+found mnt      proc     selinux  tmp
[acadgild@localhost /]$ ls -l
total 102
dr-xr-xr-x.  2 root root  4096 Dec 27 18:30 bin
dr-xr-xr-x.  5 root root 1024 Jan  8 15:25 boot
-rw-r--r--.  1 root root   297 Nov 10 2016 copyright
drwxr-xr-x. 20 root root 3560 Mar 22 20:24 dev
drwxr-xr-x. 119 root root 12288 Mar 22 20:27 etc
drwxr-xr-x.  3 root root  4096 Dec 27 17:01 home
dr-xr-xr-x. 11 root root  4096 Dec 27 16:54 lib
dr-xr-xr-x.  9 root root 12288 Jan  4 16:09 lib64
drwx-----.  2 root root 16384 Dec 27 16:50 lost+found
drwxr-xr-x.  2 root root  4096 Sep 23 2011 media
drwxr-xr-x.  2 root root    0 Mar 23 2018 misc
drwxr-xr-x.  2 root root  4096 Sep 23 2011 mnt
drwxr-xr-x.  2 root root    0 Mar 23 2018 net
drwxr-xr-x.  3 root root  4096 Dec 27 16:56 opt
dr-xr-xr-x. 186 root root    0 Mar 22 20:23 proc
dr-xr-xr-x.  8 root root  4096 Feb 13 14:23 root
```


Command 4:

ls – long listing



The screenshot shows a terminal window titled 'acadgild@localhost:tmp' within an Oracle VM VirtualBox environment. The terminal displays the output of two commands: 'ls' and 'ls -l'. The 'ls' command output shows a list of directories in a single line, color-coded by type. The 'ls -l' command output shows a detailed listing of these directories, including permissions, owner, group, size, date, and name.

```
acadgild@localhost:tmp
File Edit View Search Terminal Help
[acadgild@localhost /]$ ls
bin      dev      lib      media    net      root     srv      usr
boot     etc      lib64    misc     opt      sbin     sys      var
copyright home     lost+found mnt      proc     selinux  tmp
[acadgild@localhost /]$ ls -l
total 102
dr-xr-xr-x.  2 root root  4096 Dec 27 18:30 bin
dr-xr-xr-x.  5 root root 1024 Jan  8 15:25 boot
-rw-r--r--.  1 root root   297 Nov 10 2016 copyright
drwxr-xr-x. 20 root root 3560 Mar 22 20:24 dev
drwxr-xr-x. 119 root root 12288 Mar 22 20:27 etc
drwxr-xr-x.  3 root root  4096 Dec 27 17:01 home
dr-xr-xr-x. 11 root root  4096 Dec 27 16:54 lib
dr-xr-xr-x.  9 root root 12288 Jan  4 16:09 lib64
drwx-----  2 root root 16384 Dec 27 16:50 lost+found
drwxr-xr-x.  2 root root  4096 Sep 23 2011 media
drwxr-xr-x.  2 root root    0 Mar 23 2018 misc
drwxr-xr-x.  2 root root  4096 Sep 23 2011 mnt
drwxr-xr-x.  2 root root    0 Mar 23 2018 net
drwxr-xr-x.  3 root root  4096 Dec 27 16:56 opt
dr-xr-xr-x. 186 root root    0 Mar 22 20:23 proc
dr-xr-x---.  8 root root  4096 Feb 13 14:23 root
dr-xr-xr-x.  2 root root 12288 Jan  8 16:43 sbin
drwxr-xr-x.  7 root root    0 Mar 22 20:23 selinux
```

with this we can use different argument like

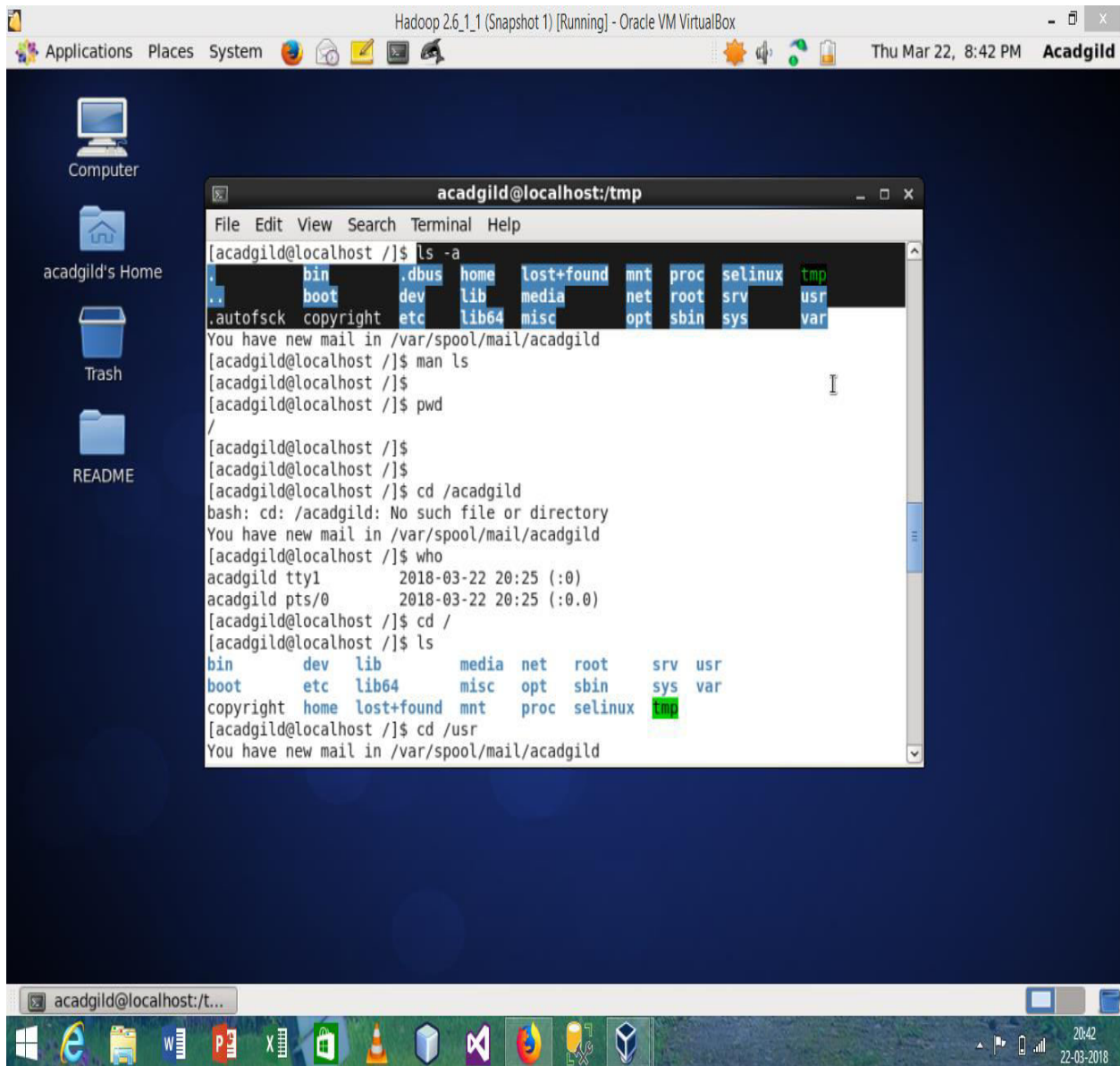
ls -l - means long listing with extra information

(the black portion shows the output of ls and the white portion shows the output of ls -l)

Command 5

ls -a - shows the hidden file also

(output shown in blacked portion only)



The screenshot shows a Linux desktop environment with a terminal window open. The terminal window title is "acadgild@localhost:/tmp". The command "ls -a" has been executed, and the output is displayed in a blacked-out portion of the terminal. The output shows the following files and directories:

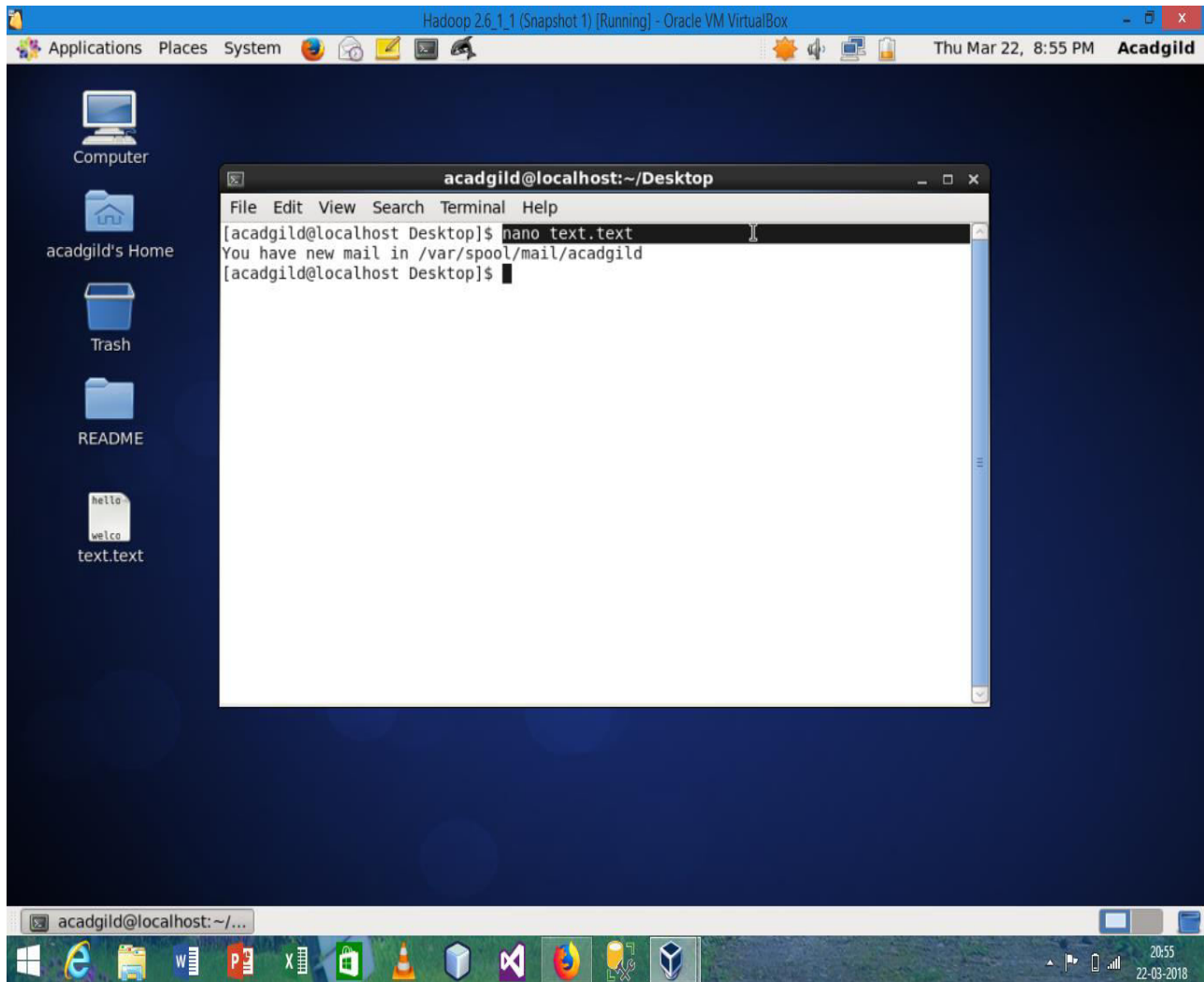
```
[acadgild@localhost /]$ ls -a
.      bin      dbus  home  lost+found  mnt  proc  selinux  tmp
..     boot     dev   lib   media       net  root  srv      usr
.autofsck  copyright  etc   lib64  misc        opt  sbin  sys      var
```

Below the blacked-out portion, the terminal shows the following commands and output:

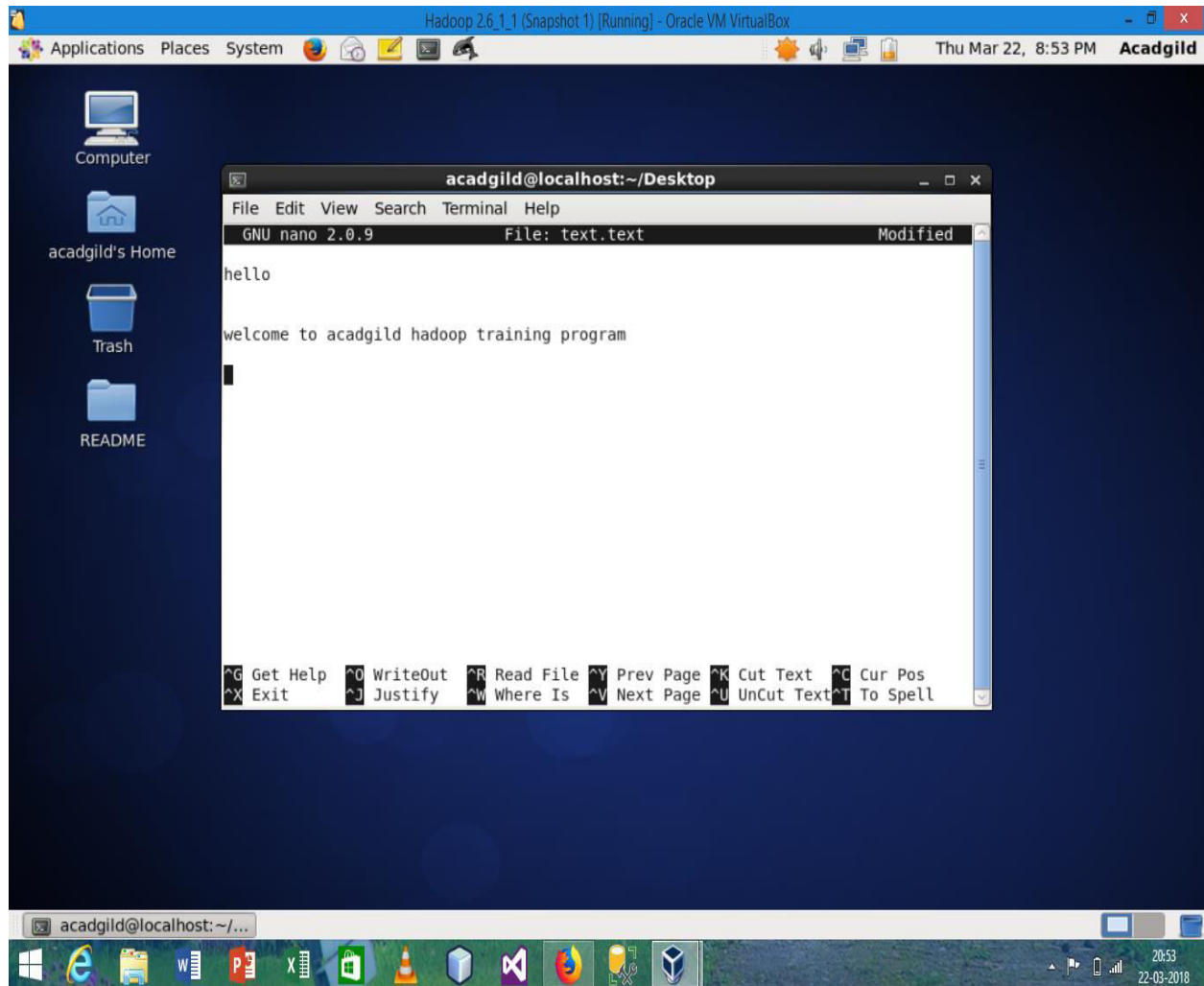
```
You have new mail in /var/spool/mail/acadgild
[acadgild@localhost /]$ man ls
[acadgild@localhost /]$
[acadgild@localhost /]$ pwd
/
[acadgild@localhost /]$
[acadgild@localhost /]$ cd /acadgild
bash: cd: /acadgild: No such file or directory
You have new mail in /var/spool/mail/acadgild
[acadgild@localhost /]$ who
acadgild tty1      2018-03-22 20:25 (:0)
acadgild pts/0    2018-03-22 20:25 (:0.0)
[acadgild@localhost /]$ cd /
[acadgild@localhost /]$ ls
bin      dev   lib   media  net  root  srv  usr
boot     etc  lib64  misc   opt  sbin  sys  var
copyright home  lost+found  mnt   proc  selinux tmp
[acadgild@localhost /]$ cd /usr
You have new mail in /var/spool/mail/acadgild
```

Question 4: Create a file from the terminal using Nano editor (example: Nano test.txt), and add some content in it. Cat it to see if the content is saved.

Answer: we use **nano text.text** command to create and edit text file. The same is shown in screenshot (blacked portion).



This is how the nano editor looks like

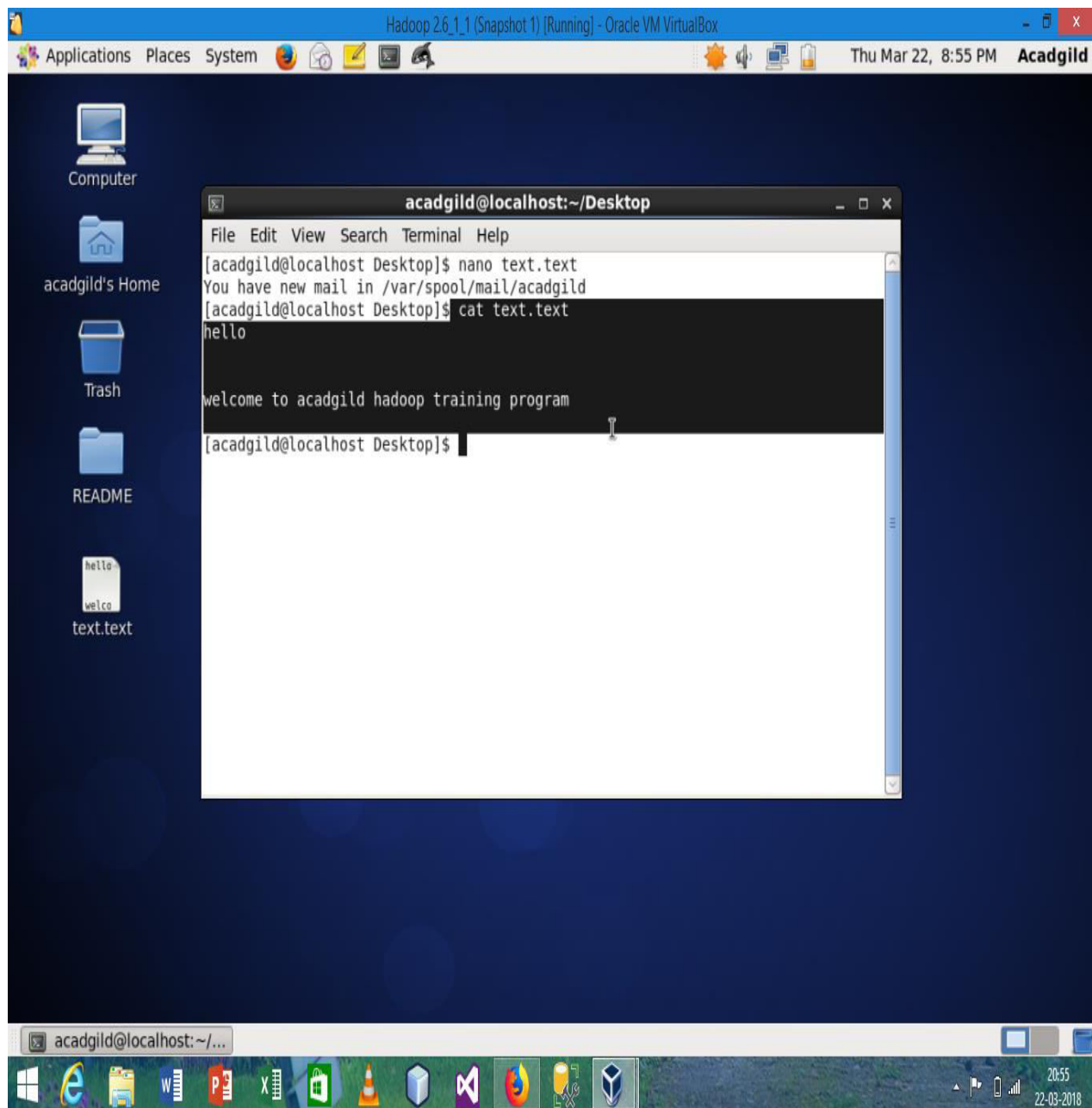


We write the data as shown in screenshot to save and exit the file we use **Ctrl+X** and then press enter.

This is how we can save the file.

Now to see the file we use command as **cat <file name>**

Example is shown in screenshot (black portion only)



Question 5: Open the hdfs web page by typing localhost: 50070 in the browser. Check all the details of the HDFS.

Answer: Information about the version, cluster id etc. (shown in screenshot blue portion)

Hadoop 2.6.1_1 (Snapshot 1) [Running] - Oracle VM VirtualBox

Applications Places System Thu Mar 22, 8:49 PM Acadgild

Namenode information - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Namenode information x +

localhost:50070/dfshealth.html#tab-overview

Search

Hadoop Overview Datanodes Snapshot Startup Progress Utilities

Overview 'localhost:8020' (active)

Started:	Thu Mar 22 20:28:20 IST 2018
Version:	2.6.5, re8c9fe0b4c252caf2ebf1464220599650f119997
Compiled:	2016-10-02T23:43Z by sjlee from branch-2.6.5
Cluster ID:	CID-7b3f9bd8-f34c-4fb8-87aa-f76b6dfbd809
Block Pool ID:	BP-437583619-127.0.0.1-1517555661954

Summary

Security is off.

Safe mode is ON. The reported blocks 0 needs additional 3 blocks to reach the threshold 0.9990 of total blocks 3. The number of live datanodes 0 has reached the minimum number 0. Safe mode will be turned off automatically once the thresholds have been reached.

26 files and directories, 3 blocks = 29 total filesystem object(s).

acadgild@localhost: ~/... Google - Mozilla Firefox Namenode informatio...

20:49 22-03-2018

The information about the memory used means dfs used or remaining related information

The screenshot shows a Mozilla Firefox browser window titled "Namenode information - Mozilla Firefox". The address bar displays "localhost:50070/dfshealth.html#tab-overview". The page content is a table of Hadoop Namenode metrics:

Configured Capacity:	0 B
DFS Used:	0 B
Non DFS Used:	0 B
DFS Remaining:	0 B
DFS Used%:	100%
DFS Remaining%:	0%
Block Pool Used:	0 B
Block Pool Used%:	100%
DataNodes usages% (Min/Median/Max/stdDev):	0.00% / 0.00% / 0.00% / 0.00%
Live Nodes	0 (Decommissioned: 0)
Dead Nodes	0 (Decommissioned: 0)
Decommissioning Nodes	0
Number of Under-Replicated Blocks	0
Number of Blocks Pending Deletion	0
Block Deletion Start Time	3/22/2018, 8:28:20 PM

The browser window also shows the taskbar at the bottom with various application icons and the system clock displaying 20:48 on 22-03-2018.

Information about Datanode.

Hadoop 2.6.1_1 (Snapshot 1) [Running] - Oracle VM VirtualBox

Applications Places System Thu Mar 22, 8:50 PM Acadgild

Namenode information - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Namenode information x +

localhost:50070/dfshealth.html#tab-datanode

Hadoop Overview Datanodes Snapshot Startup Progress Utilities

Datanode Information

In operation

Node	Last contact	Admin State	Capacity	Used	Non DFS Used	Remaining	Blocks	Block pool used	Failed Volumes	Version
------	--------------	-------------	----------	------	--------------	-----------	--------	-----------------	----------------	---------

Decommissioning

Node	Last contact	Under replicated blocks	Blocks with no live replicas	Under Replicated Blocks	In files under construction
------	--------------	-------------------------	------------------------------	-------------------------	-----------------------------

Hadoop, 2016.

Legacy UI

acadgild@localhost:~/... Google - Mozilla Firefox Namenode informatio...

20:50 22-03-2018

Information about snapshot

Hadoop 2.6.1_1 (Snapshot 1) [Running] - Oracle VM VirtualBox

Applications Places System Thu Mar 22, 8:50 PM Acadgild

Namenode information - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Namenode information x +

localhost:50070/dfshealth.html#tab-snapshot

Hadoop Overview Datanodes Snapshot Startup Progress Utilities

Snapshot Summary

Snapshottable directories: 0

Path	Snapshot Number	Snapshot Quota	Modification Time	Permission	Owner	Group
------	-----------------	----------------	-------------------	------------	-------	-------

Snapshotted directories: 0

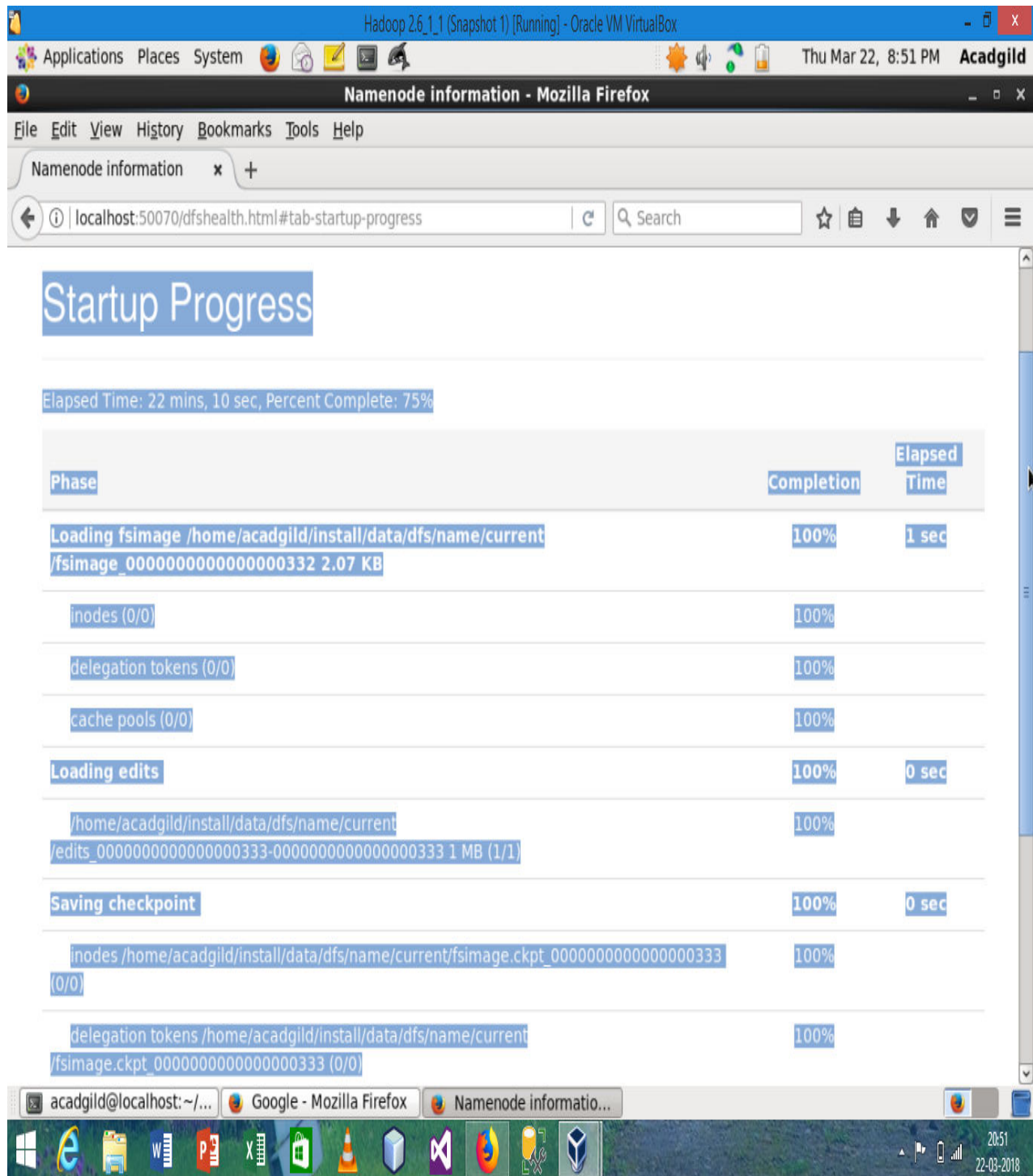
Snapshot ID	Snapshot Directory	Modification Time
-------------	--------------------	-------------------

Hadoop, 2016. Legacy UI

acadgild@localhost:~/... Google - Mozilla Firefox Namenode informatio...

20:50 22-03-2018

Information about the startup progress



The screenshot shows a Mozilla Firefox browser window titled 'Namenode information - Mozilla Firefox'. The address bar displays 'localhost:50070/dfshealth.html#tab-startup-progress'. The page content is titled 'Startup Progress' and shows the following information:

Elapsed Time: 22 mins, 10 sec, Percent Complete: 75%

Phase	Completion	Elapsed Time
Loading fsimage /home/acadgild/install/data/dfs/name/current/fsimage_00000000000000000332 2.07 KB	100%	1 sec
inodes (0/0)	100%	
delegation tokens (0/0)	100%	
cache pools (0/0)	100%	
Loading edits	100%	0 sec
/home/acadgild/install/data/dfs/name/current/edits_00000000000000000333-00000000000000000333 1 MB (1/1)	100%	
Saving checkpoint	100%	0 sec
inodes /home/acadgild/install/data/dfs/name/current/fsimage.ckpt_00000000000000000333 (0/0)	100%	
delegation tokens /home/acadgild/install/data/dfs/name/current/fsimage.ckpt_00000000000000000333 (0/0)	100%	

The bottom of the screenshot shows the Windows taskbar with various application icons and the system clock displaying 20:51 on 22-03-2018.

Information about directory logs.

Directory: /logs/

SecurityAuth-acadgild.audit	0 bytes	Feb 2, 2018 12:44:52 PM
hadoop-acadgild-datanode-localhost.localdomain.log	172171 bytes	Feb 12, 2018 3:07:14 PM
hadoop-acadgild-datanode-localhost.localdomain.out	719 bytes	Feb 12, 2018 3:07:07 PM
hadoop-acadgild-datanode-localhost.localdomain.out.1	719 bytes	Feb 9, 2018 2:45:15 PM
hadoop-acadgild-datanode-localhost.localdomain.out.2	719 bytes	Feb 9, 2018 10:52:39 AM
hadoop-acadgild-datanode-localhost.localdomain.out.3	720 bytes	Feb 2, 2018 12:44:57 PM
hadoop-acadgild-namenode-localhost.localdomain.log	292568 bytes	Mar 22, 2018 8:51:15 PM
hadoop-acadgild-namenode-localhost.localdomain.out	4908 bytes	Mar 22, 2018 8:51:18 PM
hadoop-acadgild-namenode-localhost.localdomain.out.1	719 bytes	Feb 12, 2018 3:07:02 PM
hadoop-acadgild-namenode-localhost.localdomain.out.2	719 bytes	Feb 9, 2018 2:45:09 PM
hadoop-acadgild-namenode-localhost.localdomain.out.3	719 bytes	Feb 9, 2018 10:52:33 AM
hadoop-acadgild-namenode-localhost.localdomain.out.4	720 bytes	Feb 2, 2018 12:44:52 PM
hadoop-acadgild-secondarynamenode-localhost.localdomain.log	136801 bytes	Mar 22, 2018 8:28:35 PM
hadoop-acadgild-secondarynamenode-localhost.localdomain.out	719 bytes	Mar 22, 2018 8:28:28 PM
hadoop-acadgild-secondarynamenode-localhost.localdomain.out.1	719 bytes	Feb 12, 2018 3:07:16 PM
hadoop-acadgild-secondarynamenode-localhost.localdomain.out.2	719 bytes	Feb 9, 2018 2:45:23 PM
hadoop-acadgild-secondarynamenode-localhost.localdomain.out.3	719 bytes	Feb 9, 2018 10:52:49 AM
hadoop-acadgild-secondarynamenode-localhost.localdomain.out.4	720 bytes	Feb 2, 2018 12:45:05 PM
mapred-acadgild-historyserver-localhost.localdomain.log	61440 bytes	Feb 13, 2018 2:30:51 PM
mapred-acadgild-historyserver-localhost.localdomain.out	0 bytes	Feb 13, 2018 2:30:17 PM
mapred-acadgild-historyserver-localhost.localdomain.out.1	0 bytes	Feb 9, 2018 10:54:14 AM
mapred-acadgild-historyserver-localhost.localdomain.out.2	0 bytes	Feb 2, 2018 12:48:35 PM
userlogs/	4096 bytes	Mar 22, 2018 8:50:53 PM