ITS41504

Operating System

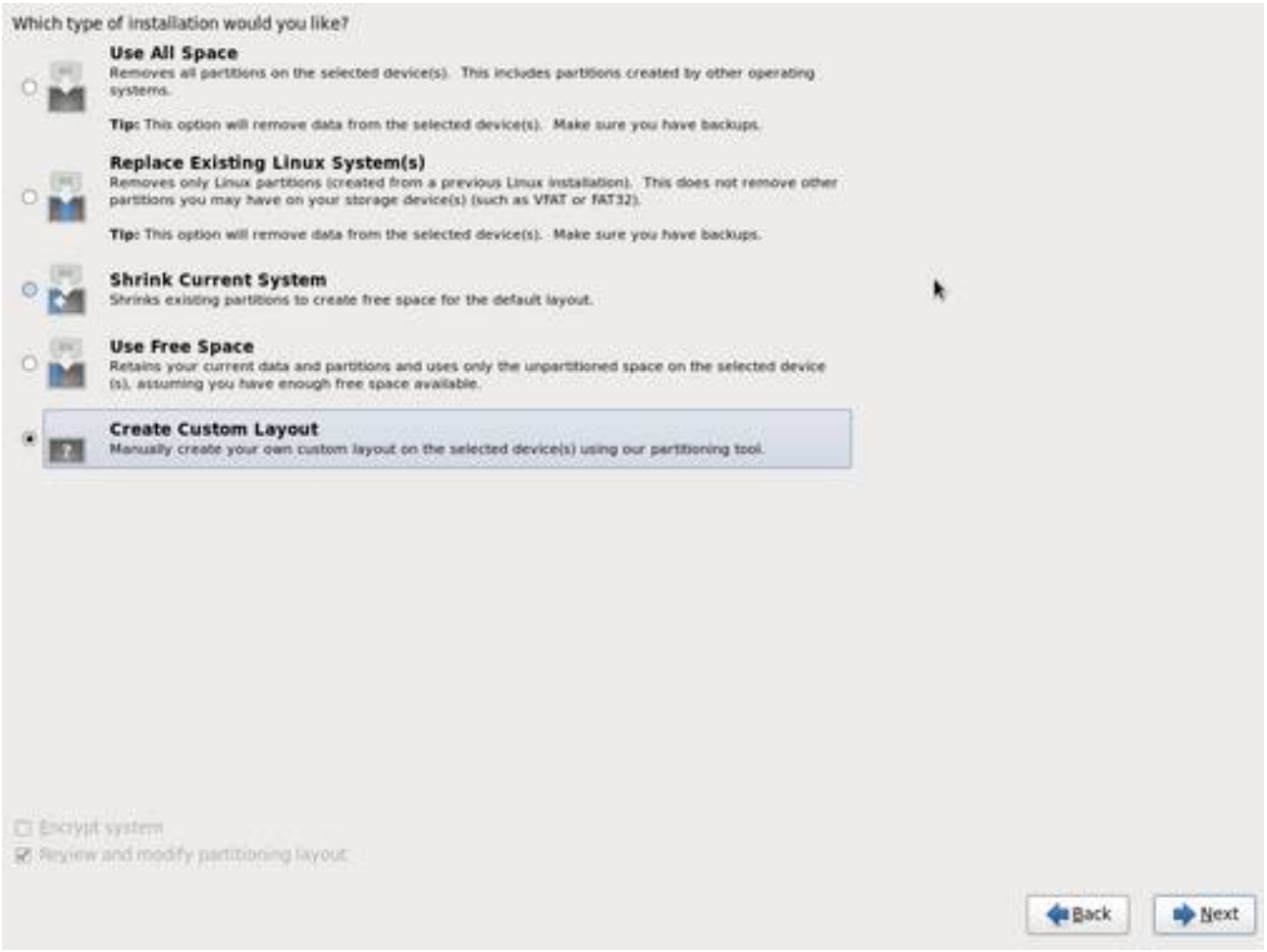
Practical #4

Linux Minimal Installation.

You are to prepare a virtual machine with the following characteristics:

1. 1 CPU
2. 1Gb of RAM
3. 10Gb Hard disk space

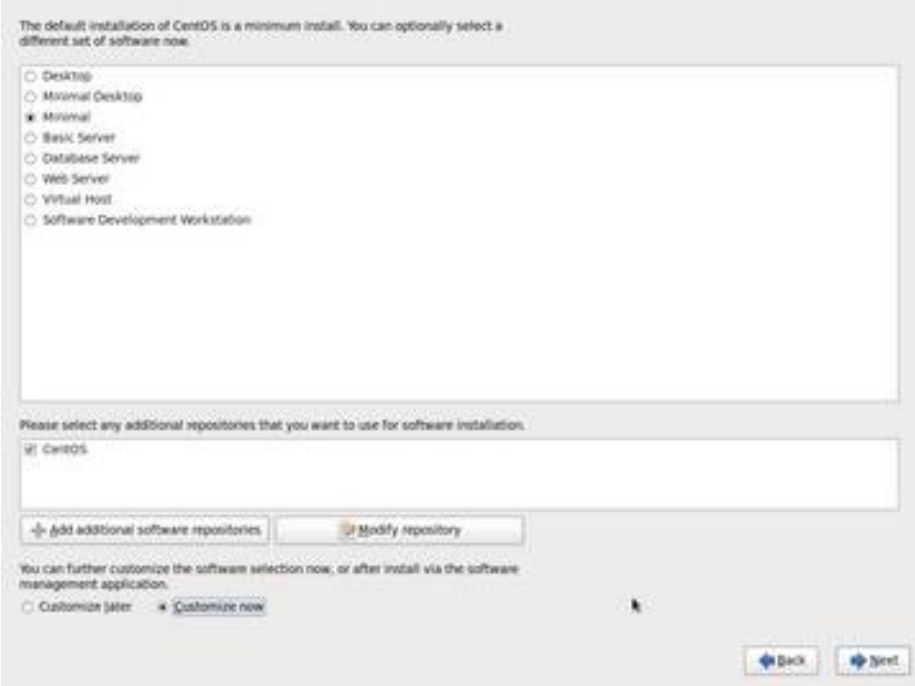
Start the VM with CentOS iso image attached as DVD-ROM. This will boot the installer. Step through with default values until you reach Disk Partitioning. At this point, select “Create Custom Layout”.



Use the given GUI tool to create the following layout:

1. Root (/) partition – 4000 Mb
2. /usr partition – 3000 Mb
3. swap partition – 200Mb

For installation type, choose “Minimal Installation”.



Finish the installation and reboot the VM.

You will now be given a Console based login. Login as root and run the following command:

#mount

#df -h

#fdisk -l

Redirect the output of the above commands into a results file named **lab3-<your_name>.txt**. For how to redirect refer to previous Labs / Tutorials. (Hint: Use ">>" and ">").

Creating new partition

Use **fdisk** command to create new partition:

#fdisk /dev/sda

Now you are in **fdisk** interactive utility. The disk you are going to work on is **sda**. You can type "m" to see what are the available inputs. You also can type "p" to see what are the available partitions.

Create a new partition and make it an extended partition. Use default starting cylinder and size to use the all the free space.

Create a new partition again. This time it will be within the extended partition which is called logical partition. Use default setting fo start cylinder but give it a 2000Mb size

(+2000m).

What ever changes that have been done is still not written to the disk. Therefore, if you quit now, your changes will not be effective.

Type “w”, to write the changes to the disk. If you get an error saying that the partition table cannot be loaded due to some reason, run the following command:

#partprobe

If the error stil persist, then just reboot the machine by giving:

#reboot

After wards type the following commands and redirect the output to your txt file. Note the new information should be appended to the bottom of the file.

#fdisk -l

#df -h

The new partition you created is not yet in use. In order to use it, you should create a file system on it.

#mkfs.ext4 /dev/sda5

In order to access this partition, you need to mount it to a directory. Then what ever you write to this directory will be stored on the new partition.

#mount -t ext4 /dev/sda5 /home

We have mounted the new partition on to **/home**.

Now create any file in home directory.

#touch /home/somefile.txt

#ls -l /home

Do you see **somefile.txt** in /home?

Now unmount the partition:

#umount /home

Check if the file is there:

#ls -l /home

Is the file there?

In order to mount the new partition on **/home** everytime you boot, you will need to make an entry to **/etc/fstab**. Open this file and study the entry for **/usr**. Make an equivalent entry for **/home**. The fstab file uses UUID to address its partition but we can also use **/dev** entries to make the same entry:

```
/dev/sda5       /home      /ext4      defaults  1 1
```

One common use case for creating new partition is to move some files within the main directories which is filling up the storage space. For instance, if the /var directory I occupying most space, you can move it to a new parition of its own. In order to do that you must:

1. Create a new partition.
2. Format the partition with a filesystem.
3. Mount the partition to a temporary mount point that you create. Usually these temporary directories are created under **/mnt**.
4. Files from the offending directory are moved into the new partition which is mount on the temporary directory.
5. Mount the new partition on the offending directory. Note, you can actually mount the same partition on two mount points simultaneously.

Create a new partition form the rest of the free space. Format it as EXT4 filesystem. Mount it to **/tmp** directory and make it permanent.

Upload your results file and **/etc/fstab** files on to TIMES portal. But without GUI how are you going to do it?????