Final Project

Linux Solution – Part 2 (15%)

DUE DATE

Session 15

OBJECTIVE

The objectives of this project are to:

- Install Linux
- Create a hierarchical Linux directory structure
- Create and configure user and group accounts as per given specifications
- Set up file system security and quota entries
- Configure a backup task
- Print project files

DESCRIPTION

This project will test your ability to use a variety of skills you acquired throughout the course. You will be using many of the procedures learned to implement a solution in a typical business setting.

Time required

You have 5 hours to complete the project.

Materials Required

To complete this project, you require:

- A Ubuntu Linux, Fedora Core, or other Linux distribution
- A PC system meeting or exceeding the requirements of the Linux distribution
- A printer

INSTRUCTIONS

Use the instructions below to plan and implement your project. It is recommended that you perform the tasks in the order as they appear in the instructions below.

Step 1. Install Linux

For this project, we recommend using a fresh installation of Linux.
When asked how to partition the hard disk, choose the option “create custom layout” and use the values below:

- Create a 100 MB partition for /boot.
- Create a 10 GB partition for /.
- Create a 1024 MB swap partition.
- Leave a non-allocated space on the hard drive for future use.

When asked to select the software to install, click “Customize now” and select the following packages:

- Server Configuration Tools
- Windows File Server

Step 2. Create a hierarchical directory structure

- Log into the system as root and create a directory called “project” under the root directory of the system.
- Create a directory called “data” under the root directory of the system
- Under the project directory, create two more directories and call them “users” and “documentation”.

The resulting structure should look identical to the one shown in figure 1.

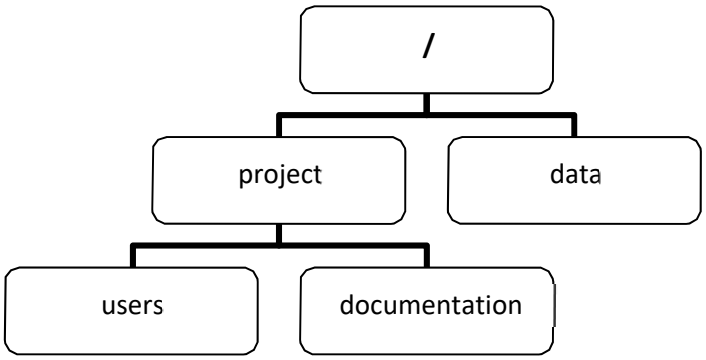

Figure 1

Step 3. Create and configure users and groups

All three users will have similar settings. Future users will need the same settings as well.

- User's passwords must be change every 30 days at the very least, but no more than once a week.
- All passwords must be at least eight characters long.
- User's home directories should be automatically created under the directory below the project directory.

Create the three user accounts using the information below.

- Paul is a manager. His primary group is called "managers". He is also a member of a group called "public".
- Henry is an engineer and his primary group is called "engineers". He is also a member of a group called "public".
- Suzan is a marketing director. Her primary group is called "marketing". She is also a member of a group called "public".

Step 4. Create, format and mount a partition

- Using the non-allocated space, create a 1 GB partition.
- Format the partition using the ext3 file system.
- Mount the partition in the /data directory. Make sure the partition is automatically mounted each time Linux boots. (Hint: edit /etc/fstab).
- Reboot Linux to check that the partition is automatically mounted in the /data directory.

Step 5. Assign permission and quota Limit to the /data directory

- All files created in /data must belong to the public group.

- Only members of the public group have full access to the /data directory.
- For each user account, the specified quota limit to the /data directory is presented in the table below:

	Limit		# of files	
	Soft	Hard	Soft	Hard
Paul	100 MB	120 MB	500	550
Henry	150 MB	180 MB	700	750
Suzan	200 MB	240 MB	1000	1100

- Make sure the quota is activated automatically each time Linux boots.
- Open a session with each user account and create some files in the /data directory for each user (Hint: open a virtual terminal and use the command touch to create files).

Step 6. System backup procedure

Create a backup schedule as follows:

- Set up a complete tape drive backup of the whole system to run every Saturday at 1:00 AM.
- Set up a scheduled tape drive backup of the /project and /data directories and all their contents to run every weekday (Monday through Friday) at 9:00 PM.

Hint: use the crontab command to schedule the backups.

Step 7. Preparing the project files and printing the files

- Run a long listing of the /directory and redirect the output of this command to the file /project/rootlisting.
- Run a long listing of the /project directory and redirect the output of this command to the file /project/projectlisting
- Run a long listing of the /data directory and redirect the output of this command to the file /project/datalisting
- Copy the file /etc/fstab to the /project directory.
- Copy the file /etc/default/useradd to the /project directory.
- Copy the file /etc/login.defs to the /project directory.
- Copy the file /etc/passwd to the /project directory.
- Copy the file /etc/group to the /project directory.
- Copy the content of /var/spool/cron/ directory to the /project directory.
- Run the command repquota on the /data directory and redirect the output of this command to the file /project/reportquota.

Connect to the printer and print the following files: rootlisting, projectlisting, datalisting, fstab, useradd, login.defs, passwd, group, root, and reportquota.

SUBMISSION INSTRUCTIONS

When submitting the project for correction it must contain the following:

- A **project title page** (student name, student ID, date, and course title)

Project Title
Student Name:
Student ID#:
Date given:
Date due:

- The project instruction document (this document)
- The printed files as specified in the project

Work must be submitted in the correct file type and be properly labelled as per the College naming convention:
NAME_COURSE_ASSIGNMENT. E.g. XuXiaLing_FM50D_A01.

GRADING CRITERIA

Assignment Value: **15%**

Grading Criteria	Grading
Step 1. Install Linux	**/20**
Step 2. Create a Hierarchical Directory structure	**/10**
Step 3. Create and configure Users and Groups	**/20**
Step 4. Create, format and mount a partition	**/15**
Step 5. Assign permission and quota limit to the /data directory	**/15**
Step 6. System backup procedure	**/10**
Step 7. Prepare the project files and print the files	**/10**
TOTAL	**/100**

Penalties

- For each day that a project is late 5% will be deducted.
- Projects that are more than three days late will earn a maximum score of 60%.