

Linux Exam 18/05-2017

Exam Rules:

Any sources can be used to answer the questions.

Handin on wiseflow.dk before 13.00

The file should be in txt format.

There will be 2 points pr right answer.

Grades by points

102 - 114 = 12

91 - 101 = 10

80 - 90 = 7

69 - 79 = 4

57 - 68 = 2

23 - 56 = 0

00 - 22 = -3

A Good Idea:

Use a virtual machine.

Use the terminal.

Use linuxkea.github.io - Semesterplan

Download of the Exam-file can be done from the linuxkea.github.io

REMEMBER: Only if there can be more possible answers to a question, then i have made a hint-comment under the question.

Exam Start

Company name Bacon Intelligence.

You are hired in this company as Linux system administrator.

You work with one more dude, his name is Morten.

Hi, my name is Troels and I'm your manager. I have some tasks I want you to do.

The company would like to have a Ubuntu server installed to file, users and department groups.

I want you to do:

install, update and upgrade the new ubuntu server.

install the openssh server, so you can support/work from home.

Day 1 - Installation

You sit down at the computer screen and begins the installation of the ubuntu server.

You are about to set up the partitions to finish the installationen, what mounting point should your root partition have?

01 What partition should the swap be?

1. swap
2. ext4
3. fat16
4. fat32

02 What are the swap use for?

1. It's nice to have?
2. If the memory is full?
3. For helping the system?
4. Just to use leftover space, for no good reason?

03 What should the root partitions file system be?

1. fat16
2. swap
3. ext4
4. fat32

Day 1 - Terminal at work

You finish the installation and log in to the ubuntu server.

04 You need to learn about the program you are about to use, what commands can you use to get information about the program?

1. `man [service]`
2. `cat [service]`
3. `less [service]`
4. `[service] -h`
5. `info [service]`

Hint: more than 1 possibility

05 What is the sudo commands' name? (Pick 1)

1. super doer
2. switch using domain
3. switch user to do
4. switch super user do

06 First thing you want to do, is to update the system, what command will you use for this?

1. `apt-get update`
2. `update`
3. `sudo apt-get update`
4. `sudo get update`

07 To upgrade the system, put together the right command

1. `upgrade`
2. `sudo`
3. `-`
4. `get`
5. `apt`

08 Now that the system is updated, you enst to install the openssh-server, what option should you use in the command line, to say yes in advance to the installation?

1. `-c`
2. `-a`
3. `-y`
4. `-s`

09 You want to find out if the ssh server is working after the installation, can you do that in your active terminal?

1. no
2. maybe
3. yes
4. hell no

10 What is the syntax command for connecting to the ssh service on your local ubuntu server?

1. ssh
2. <user>
3. 127.0.0.1
4. @
5. &

Hint: Answer by the numbers, separated by comma, not all answer should be used.

To configure the ssh server to only give a specific group access, you install vim and go to the man page of the ssh service.

In the manual you see that the file /etc/ssh/sshd_config has the configuration for the ssh server service.

Bacon Intelligence wants to give access to the ssh server, to 2 groups ssh and sudo.

11 What should you write in the /etc/ssh/sshd_config to specify only those two groups

1. AllowUsers ssh sudo
2. AllowGroups ssh sudo
3. AllowGroup ssh sudo
4. DenyGroup ssh sudo

After you edit the sshd_config file, you restart the service by “sudo service ssh restart”.

You log in with ssh and after you see it works, you want to close the connection.

12 How do you close the ssh connection?

1. quit
2. close
3. exit
4. switchback

You are done for the day and will go home. Tomorrow you will work from home.

Day 2 - Terminal at home

At 8 o'clock you get a text from Troels, he text you about today's work.

You sit down in front of your computer and make a ssh connection to the work linux server.

You take out your phone and follow the task list.

Add a new user called Morten.

13 What commands can be used to add a new user to the system?

1. useradd morten
2. newuser morten
3. createuser morten
4. adduser morten
5. usermod morten

Hint: More than 1 possibility.

Add a new user that should be able to login with ssh and use sudo.

14 What option should you use to add the new user to ssh and sudo groups with the usermod command?

1. -G ssh,sudo
2. -a ssh,sudo
3. -g ssh,sudo
4. --groups ssh,sudo

Hint: 2 possibilities.

You use the simple usermod command to modify the user Morten.

He should have his own home directory.

15 You want to see if the directory for Morten is created. Which commands can you use, to see if Morten has a home directory?

1. asls /home/morten
2. list -l /home/morten
3. list -a /home/
4. ls /home/

You see that the home directory for morten has not been created.

16 What command should you use to create Morten a new home directory?

1. sudo rmdir /home/morten
2. sudo adddir /home/morten
3. sudo dirnew /home/morten
4. sudo mkdir /home/morten

After you create Morten a new home directory you copy file from the skeleton(/etc/skel/.*)
directory to Morten's home directory(/home/morten/).

Now you want to see if Morten is set up in the right way.

17 To read the file /etc/passwd which commands can you use?

1. less /etc/passwd
2. will /etc/passwd
3. cat /etc/passwd
4. read /etc/passwd

18 You want to see if Morten has set his password, what file should you look in and should
you use sudo?

1. /etc/shadow, no
2. /etc/passwd, yes
3. /usr/shadow, yes
4. /etc/shadow, yes

You see that Morten needs a new password and a shell, so he can login to the system.

19 What options should be used with the "sudo usermod _____ morten" command line, to
give Morten a shell?

1. -s /bin/nologin
2. -l /bin/bash
3. -s /bin/shas
4. -s /bin/bash

20 Give Morten a password by filling out the command line, "sudo _____ morten"?

1. passwd
2. password
3. usermod
4. moduser

Set Morten's password to expire, so he should choose a new password next time he logs in.

21 What option should you use with the password command?

1. -e
2. -q
3. -u
4. -a

You try Mortens new user out by "su morten" command. And it works fine.

Bacon Intelligence needs a new Department, called Security.

This group should have access to the ssh service and have a password.

Morten should be given Administrator rights and become a member of this new group Security.

22 What commands can you use to give Morten membership of the Security group?

1. passwd
2. password
3. usermod
4. moduser
5. gpasswd
6. groupmod

Hint: more than 1 answer.

23 What option should you use to give Morten administrator rights of the Security group, with this command “sudo gpasswd ___ morten security”?

1. -a
2. -b
3. -ad
4. -A
5. -g

Bacon Intelligence hires 3 new people to the Security Department.

Their names: William, Luke and Sandra.

Demands:

Members of security: All 3 of them

Give all of them a home folder, with base directory in /home/security

Give them the /bin/bash shell

24 To add 1 user in one line with all the **demands**, combine the words to the right command line? (use employee william)

1. -m
2. -s
3. /bin/bash
4. /home/security/william
5. -d
6. william
7. useradd
8. -G
9. security,ssh
10. sudo

Hint: Use all 10 of the possibilities

You add all 3 user to the Linux System.

25 You will now add Morten and Luke as administrators of the Security group, how do you add them as administrators to the Security group?

1. `sudo gpasswd -A morten,luke security`
2. `gpasswd morten,luke security`
3. `sudo gpasswd -A morten+luke security`
4. `sudo gpasswd -A morten luke security`

You sms Morten and Troels, about the work you have done.

Day 3 - Clean up

The 3. day you get a text from Troels with your assignments.

Change permissions of the Security directory, so the group security gets ownership and write permission.

26 You do give the Security group ownership of the /home/security directory?

1. `sudo chown security security`
2. `sudo chown root:security security`
3. `sudo chown :security security`
4. `sudo chown security`

You also wanna give the security group write permission to the /home/security directory.

27 What 2 different methods can you use to change permissions of a directory or file?

1. Numbers, Letters
2. Read, Write
3. Numbers, Symbolic
4. Symbolic, Numeric

You change the permissions of /home/security, so the security group can write to the /home/security directory. You also want to change the owner permission to only read and execute.

28 What 2 commands are the right ones?

1. `sudo chmod 774 security`
2. `sudo chmod 674 security`
3. `sudo chmod u=rx,g=rwx security`
4. `sudo chmod user=rx,group=rwx security`

Troels sends you an assignment. You need to install the nmap program to the Linux System and give the security group ownership and permissions of the nmap program.

You install the nmap program and use the “which nmap” command to determine the path to the nmap program.

The path is /usr/bin/nmap.

29 How do you do, so the security group is the only group, who can use the nmap program?

1. `sudo chown security:security /usr/bin/nmap | sudo chmod 414 /usr/bin/nmap`
2. `sudo chown :security /usr/bin/nmap | sudo chmod 404 /usr/bin/nmap`
3. `sudo chown :security /usr/bin/nmap | sudo chmod 266 /usr/bin/nmap`
4. `sudo chown :security /usr/bin/nmap | sudo chmod 414 /usr/bin/nmap`

Morten sends you a sms.

“Hi, I need to make 10 directories and a 600 files in 1 directory and copy some of the files to another directory. This should be done in the ‘/home/security’ directory. The names of the directory should be data1 to data5 and the files should be named a-file1-20.txt .

You change group, by the “newgrp security” command, to create directories and files.

30 What pattern should i use to create all the directories in one command line?

1. `mkdir data(1-5)`
2. `mkdir data1-5`
3. `mkdir data[1..5]`
4. `mkdir data{1..5}`

You create the files in /home/security/data1 and wants to copy some of the files to the directory /home/security/data2. You change directory to /home/security/.

You want to copy files from directory data1 to data2. But you only want to copy files with “a” or “b” as the first letter and the number in the file name should be “1” to “5”.

31 Fill in the blanks “cp /data1/ ____ile____.txt data2/” to copy the selected files to data2 directory?

1. `(a-b), (1-5)`
2. `[a-b], [1-5]`
3. `{a-b}, {1-5}`
4. `a-b, 1-5`

Morten install a program, that is take a lot of resources from the server.

32 You wanna find the resource consuming process, what program can use to find that process?

1. `top`
2. `task manager`
3. `process-list`
4. `htop`

Hint: 2 possibilities

You found the process with the process id 2103.

33 By which command can you close down this process?

1. `quit -9 2103`
2. `kill -9 2103`
3. `exit -9 2103`
4. `stop -9 2103`

I will finish off with 3 more questions and before the exam is done.

Here you will have to answer by writing the command line, to the question

34 How do you add an alias called `usr` to the command `"cat /etc/passwd"`?

1. `alias -a 'cat /etc/passwd' usr`
2. `addalias usr='/etc/passwd'`
3. `alias usr='cat /etc/passwd'`
4. `aliasadd usr='cat /etc/passwd'`

35 How would you remove the alias `usr` again?

1. `alias -r usr`
2. `aliasdel usr`
3. `delalias usr`
4. `aliasun`
5. `unalias`

You have downloaded `VisualStudioCode.deb` package as a file.

36 What command should you use to install the `.deb` package file?

1. `dpks VisualStudioCode.deb`
2. `dkpt -i VisualStudioCode.deb`
3. `sudo dpkg -i VisualStudioCode.deb`
4. `sudo debpack install VisualStudioCode.deb`

Save the file to `answers.txt` and hand in to [wiseflow.dk](https://www.wiseflow.dk)

Have a nice day . :)