

Assignment-2 Linux

Format:Lab Session

Time:90 mins

Instruction:

- 1.Complete the assignment and also upload the solutions in your Git repo**
- 2.Take screenshot of the solution and paste it in word document**
- 3.Convert the word doc into pdf before uploading.**

1. In Linux FHS (Filesystem Hierarchy Standard) what is the /?
2. What is stored in each of the following paths?
/bin, /sbin, /usr/bin and /usr/sbin
/etc
/home
/var
/tmp
3. What is special about the /tmp directory when compared to other directories?
4. What kind of information one can find in /proc?
5. What makes /proc different from other filesystems?
6. True or False? only root can create files in /proc
7. What can be found in /proc/cmdline?
8. In which path can you find the system devices (e.g. block storage)?

Permissions

9. How to change the permissions of a file?
10. What does the following permissions mean?:
777
644
750
- 11.What this command does? `chmod +x some_file`

12. Explain what is setgid and setuid
13. What is the purpose of sticky bit?
14. What the following commands do?
chmod
chown
Chgrp
15. What is sudo? How do you set it up?
16. True or False? In order to install packages on the system one must be the root user or use the sudo command
17. Explain what are ACLs. For what use cases would you recommend to use them?
18. You try to create a file but it fails. Name at least three different reason as to why it could happen
19. A user accidentally executed the following chmod -x \$(which chmod). How to fix it?

Scenarios

20. You would like to copy a file to a remote Linux host. How would you do?
21. How to generate a random string?
22. How to generate a random string of 7 characters?

Systemd

23. What is systemd?
24. How to start or stop a service?
25. How to check the status of a service?
26. On a system which uses systemd, how would you display the logs?
27. Describe how to make a certain process/app a service
28. Troubleshooting and Debugging
29. Where system logs are located?
30. How to follow file's content as it being appended without opening the file every time?
31. What are you using for troubleshooting and debugging network issues?
32. What are you using for troubleshooting and debugging disk & file system issues?
33. What are you using for troubleshooting and debugging process issues?

34. What are you using for debugging CPU related issues?
35. You get a call from someone claiming "my system is SLOW". What do you do?
36. Explain iostat output
37. How to debug binaries?
38. What is the difference between CPU load and utilization?
39. How you measure time execution of a program?

Scenarios

40. You have a process writing to a file. You don't know which process exactly, you just know the path of the file. You would like to kill the process as it's no longer needed. How would you achieve it?

Kernel

41. What is a kernel, and what does it do?
42. How do you find out which Kernel version your system is using?
43. What is a Linux kernel module and how do you load a new module?
44. Explain user space vs. kernel space
45. In what phases of kernel lifecycle, can you change its configuration?
46. Where can you find kernel's configuration?
47. Where can you find the file that contains the command passed to the boot loader to run the kernel?
48. How to list kernel's runtime parameters?
49. Will running `sysctl -a` as a regular user vs. root, produce different result?
50. You would like to enable IPv4 forwarding in the kernel, how would you do it?
51. How `sysctl` applies the changes to kernel's runtime parameters the moment you run `sysctl` command?
52. How changes to kernel runtime parameters persist? (applied even after reboot to the system for example)
53. Are the changes you make to kernel parameters in a container, affects also the kernel parameters of the host on which the container runs?

SSH

54. What is SSH? How to check if a Linux server is running SSH?
55. Why SSH is considered better than telnet?
56. What is stored in `~/.ssh/known_hosts`?

57. You try to ssh to a server and you get "Host key verification failed".
What does it mean?
58. What is the difference between SSH and SSL?
59. What ssh-keygen is used for?
60. What is SSH port forwarding?