

2025

# INTERVIEW EVALUATION

NADEEM SIDDIQI



INTERVIEW EVALUATION  
INTERVIEW-EVAL-0001  
4/3/2025



Controlled Copy

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  <b>NIT ACADEMY</b>
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

## INTERVIEW EVALUATION

**PREPARED BY:**

**NIT ACADEMY**

**Nadeem Siddiqi**

01	01/06/2025	Issued for Review	Nadeem	Zawar	Yasin
<b>Rev.</b>	<b>Date</b>	<b>Reason for Issue</b>	<b>Prepared by</b>	<b>Checked by</b>	<b>Approved by</b>

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  <b>NIT ACADEMY</b>
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

---

~ Page left Blank Intentionally ~

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  <b>NIT ACADEMY</b>
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

---

### Table of Contents

2. NETWORK PROTOCOLS AND SERVICES .....	5
3. OS/KERNEL .....	8
4. FILESYSTEM.....	8

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  <b>NIT ACADEMY</b>
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

---

## MULTIPLE CHOICE QUESTIONS

### 2. NETWORK PROTOCOLS AND SERVICES

A solid understanding of **network protocols and services** is essential for managing Linux servers, troubleshooting connectivity issues, and ensuring security.

1. How many bits are there in an IP Address?

**32 bits**

2. Have you ever set an IP address to be static? If yes, can you explain?
3. How can you get details of a network (Usable IP, Network IP, Broadcast IP)?

**\$ ipcalc 192.168.1.100/24**

4. What command helps you check Network Interfaces?

**\$ip a**

5. How many bits is a MAC Address?

**48 bits**

6. How can you check your MAC address?

**\$ip link show or \$ip a**

7. How can you determine the name of your Network Interface Card (NIC)?
8. What is multicast?

**data is sent from one source to multiple destinations**

9. What is the difference between TCP(Transmission Control Protocol) and UDP (User Datagram Protocol)?

**TCP Ensures reliable, ordered, and error-checked delivery used for SSH, HTTP**

**UDP is faster but connectionless and used for DNS, DHCP**

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  NIT ACADEMY
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

---

10. What services use UDP?

Service	Usage	UDP Port
DNS	Domain name resolution	53
DHCP	Dynamic IP allocation	67, 68
NTP	Time synchronization	123
TFTP	Simple file transfers	69
SNMP	Network monitoring	161, 162
Syslog	Remote logging	514

11. What services use TCP?

Service	Usage	TCP Port
SSH	Secure remote login	22
HTTP	Web browsing	80
HTTPS	Secure web browsing	443
FTP	File transfers	20, 21
SMTP	Sending emails	25, 587, 465

12. How many OSI layers are there?

**7 Layers**

13. Which Layer is responsible for Transport Protocols (TCP/UDP)

**Layer 4 – Transport Layer**

14. Which Layer is responsible for Internet Protocols (ipv4/ipv6) and Routers?

**Layer 3 – Network Layer**

15. How do you do a basic connectivity test?

**\$ping -c 5 192.168.1.213**

**\$telnet 192.168.1.213 22 <= Port # can be changed to check connectivity at different ports**

16. How do you test packet loss?

**\$straceroute (or mtr which is a combination of ping + traceroute)**

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  <b>NIT ACADEMY</b>
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

---

17. What is the best way to check Route to Destination?

**\$tracert google.com**

18. How can you check SSL/TLS information?

**Curl command**

19. How can you test webserver response?

**\$curl -ivs google.com:443**

20. How do you check firewall rules?

**\$firewall-cmd --list-all**

21. How do you check Domain Name System (DNS) is resolving?

**\$nslookup google.com**

**dig google.com**

22. What command helps you capture Network Traffic on a Specific Interface?

23. Which configuration file in Linux controls **how the system looks up information** (e.g., users, groups, hostnames, networks)

**\$cat /etc/nsswitch.conf (name service switch)**

24. How do you check the status of **NTP (Network Time Protocol)** synchronization

**\$ntpstat (please download #dnf install ntpstat -y)**

25. How do you check current DNS settings?

**\$cat /etc/resolv.conf**

26. How do you check NTP settings?

**\$cat /etc/chronyd.conf**

27. How do you check OPEN TCP/UDP ports?

**\$netstat -tulnp**

28. How do you check for which ports are listening?

**\$netstat -tulnp | grep -i listen**

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  <b>NIT ACADEMY</b>
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

### 3. OS/KERNEL

- How do you check the Operating System release?  
**\$cat /etc/os-release**
- What ticketing system you are using?  
**Jira Confluence**
- How do you check your kernel version?  
**\$uname -a / uname -r**
- How do you show Kernel Release and build information?  
**\$ cat /proc/version**
- How do you check kernel modules loaded?  
**\$lsmod**
- How do you view kernel Parameters  
**\$sysctl -a**
- How do you know that after patching last night how long the server has been running?  
**\$uptime**
- How do you know the name of your host machine?  
**\$hostname**

### 4. WEBSITE / WEBSERVER

- A website is throwing a 500 error what will be the troubleshooting steps in linux?
- A website is throwing a 404 error what will be the troubleshooting steps in linux?
- What does a 200 OK Status code mean?
- How Many Bare Metal Servers or Virtual Machines Do You Typically Work With?  
 "In my current environment, I manage **3,000+ Linux servers**, including a mix of **bare metal and virtualized environments** on KVM and VMware.

**\$netstat -tulnp | grep -i listen**

### 5. FILESYSTEM

- What are some of the commands that you use on a daily basis?  
**\$pwd, ls, ls -al, cd , cat, more, rm -rf**



<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  <b>NIT ACADEMY</b>
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

---

2. How can you check what commands you have run previously?

**\$history**

3. When you want to know how much space a specific directory and its contents take up?

**\$du -sh <directory>**

4. When you want to check the total and available space of the mounted filesystems?

**\$df -hT**

5. How do you list all mounted filesystems?

**\$mount**

6. What is the difference between **ext4** and **xfs**?

7. How do you find the filesystem type of a partition?

**\$df -hT or \$df -T (Note T – File System Type)**

8. How do you permanently mount a filesystem at boot time?

**\$vi /etc/fstab**

9. You are trying to make a new directory or file but are unable to do so, what do you think is the issue? (Hint: check inode usage on a filesystem)

**\$df -i**

10. What are soft links (symbolic links) and hard links? How are they different?

- **Hard Link:** Points to the same inode as the original file. Even if the original file is deleted, the data remains.
- **Soft Link (Symbolic Link):** Points to the filename, not the inode. If the original file is deleted, the link breaks.

11. How do you remove a symbolic link?

**\$rm symlink\_name or \$unlink symlink\_name**

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  <b>NIT ACADEMY</b>
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

---

12. How does journaling work in Linux filesystems?

<https://ioflood.com/blog/journalctl-linux-command/>

13. How can you find out more information about CPU and memory?

**\$cat /proc/cpuinfo or \$lscpu**

**\$cat /proc/meminfo or \$free -m**

**\$top**

21. How do you troubleshoot a "Read-only filesystem" error?

**mount -o remount,rw /**

22. How does the `fsck` command work, and when should you use it?

**fsck /dev/sda (Replace “sda” with your device name)**

23. Why is `fsck` not working for you?

**Because I have XFS system and fsck does not work with XFS**

24. Have you ever run `fsck` on a mounted file system

**No. This may cause data corruption**

25. What happens when a file is deleted, and how can it be recovered?

**Run => \$ls -l | grep deleted**

26. What is the role of UUIDs in Linux filesystems?

**\$blkid**

**A UUID (Universally Unique Identifier) is a 128-bit unique identifier assigned to a filesystem when it is created. It helps the Linux system uniquely identify and manage filesystems, regardless of device name changes.**

27. What are 3- three types of file permissions?

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  <b>NIT ACADEMY</b>
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

- 
- Read allows a user to view contents of a file,
  - Write allows a user to make changes to a file
  - Execute allows a user in running a file as a program (like bash script)

28. How do you know where you are in a filesystem? What command will you

**\$pwd (present working directory)**

29. What is difference between / and /root?

**“/” is the overall filesystem of linux and within this filesystem /root is the home directory of the “root” user.**

30. When a user logs in, which default directory does the user find themselves in?

**Home directory (always check using pwd)**

31. How do you create directory

**\$mkdir a**

32. How do you create multiple directories

**mkdir -p /data/app/mobile/**

33. How can you list a directory tree ?

**\$tree -R**

34. For a given directory structure i.e. /tmp/Users/data you are required to delete the Users directory and everything underneath it (recursively without getting prompted).

**#rm -rf /tmp/Users or rm -rf /tmp/Users/\***

35. Do you know where logs of different Linux distribution’s are kept in? EMEA

**journalctl (general system messages)**

**journalctl -u sshd (user authentication, security ssh)**

**journalctl -k -b (kernel related boot messages)**

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  <b>NIT ACADEMY</b>
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

---

36. Where is the boot log messages?

**Journalctl -b**

37. Where are configuration files located?

**/etc folder**

38. Where the system binaries located?

**/sbin (/bin)**

39. What is /proc file system?

**This is a virtual filesystem created by Kernel. Zero byte system. Running processes, disk information, memory information, network information. Real time information about the operating system (Process management, memory information, CPU usage**

40. How would you check when did you put the machine on reboot?

**last reboot (journalctl –list-boots)**

41. How do you check details of previous boot?

**journalctl -b -1 (0 = first boot, 1 = previous boot)**

42. How to list the Metadata for all the files and directories in /tmp?

**stat command**

43. What types of different TIMINGS are kept in record by Linux for files and directories, and which command would exhibit that information?

**Stat /tmp will give you access, modify timings**

44. What's the difference between grep and find command.

**#grep root /etc/passwd will extract the text.**

**#find command looks for files, directories and links**

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  <b>NIT ACADEMY</b>
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

---

45. How do search all empty files under /opt?

**Create an empty:file #touch /opt/zerobytefile**

**#find /opt -empty -file f (-f file or -d directory)**

**#find /opt -size “0”**

46. How do we search files (all) owned by user alice on Linux system and copy them into /opt/alice?

**#useradd alice**

**#passwd alice**

**#id alice**

**#mkdir /opt/alice**

**#su – alice**

**\$touch /tmp/file1**

**\$ls -l /tmp/\* (to check)**

**#find / -user alice -type f -exec cp {} /opt/alice/ \;**

**#find / -user alice -type f -exec rm -rf {} /opt/alice/ \;**

47. Find all files under /var/log/ that are older than 30 days and delete them?

**#file /var/log/ -mtime +30 -exec rm -rf {} \;**

48. Search these two patterns “failed/error” from the file which contain system logs?

**#egrep -i “failed|error” /var/log/messages (ignore case sensitivity -i)**

49. List last 15 messages from the file which contain authentication logs?

**#tail -n 15 /var/log/secure (or tail -n 15 /var/log/secure |wc -1)**

50. How do you monitor logs live?

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  NIT ACADEMY
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

---

**tail -f /var/log/secure**

51. I have /tmp mount point I have files that are 0 bytes how would I delete them and what command you would run?

**#find /tmp -type f -size 0 -exec rm -rf {} \;**

52. How to find how many times Robert is in file?

**#grep "root" /var/log/messages | wc -l**

53. How to find Files created last ten days in current directory and remove them

**#find . -type f -mtime -10**

54. How to find all the files to user "john", and then all the directories

**#find /home/ -user john -type f**

55. How to find all the files that were modified in last 20 mins under "/var" /directory

**#find /var -type f -mmin -20**

56. How to file all the files that are older than 1 day under "/tmp", and remove them

**#find /tmp -type f -mtime -1 -exec rm -rf {} \;**

57. find all the files that are larger than 5MB's in your whole system

**#find / -type f -size +5M**

58. file out all the files that are larger than 20MB's and their owners, so we can inform the users to manage them accordingly

**#find / -type f -size +20M -exec ls -ld {} \;**

59. How can we extract all the lines that contain the word "error|ERROR" in the file.

**\$awk '/Error/' /var/log/messages**

60. How can we obtain logs that pertain to sshd from Security file|logging logs.

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  <b>NIT ACADEMY</b>
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

---

**#grep -i sshd /var/log/secure**

61. How to grep all the lines that contain the string “root” in them, and 2 lines After each line, and 2 lines before the targeted string line from “/etc/passwd”
62. #grep root /etc/passwd -A2 -B2
63. How can we find all the lines in “/etc/passwd” that do not contain the string “root” from “/etc/passwd” file.
64. #grep root /etc/passwd (vis-versa #grep -v root /etc/passwd)

## 6. VI EDITOR:

1. Which is your preferred editor? **vi**
2. What is \$0 in shell script? **Echos out name of the script**

**#vi file.sh**

**#!/bin/bash**

**Echo \$0**

**:wq!**

**#chmod +x file.sh**

**./haji.sh (output from running this script will be ./haji.sh**

3. What is \$? in shell script? **\$? Value stores the exit status of a process**

**#ls**

**#echo \$? Output should be = 0 (This gives us the exit status of the ls command)**

**#ls jibrish**

**#echo \$? Output = 2**

4. What is \$\$ and \$# in shell scripting?

**#echo \$\$ Gives the process id.**

**#echo \$# is the number of arguments provided to a shell script**

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  <b>NIT ACADEMY</b>
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

---



<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  <b>NIT ACADEMY</b>
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

---

6. How do you find a name like **robert** in a linux text file?

**grep "Robert" filename.txt**

7. Lets say I want to change a name robert to alice in a linux text file how would you do that?

**:%s/alice/bob/g**

8. How do you check the end of a file? **Shift key + G**

9. Do you know the setting to turn on debugging of the bash script?

**#vi file-script**

**#!/bin/bash -x (in the script add -x or on the next line set -x)**

10. How would you go to the last line of the file in vi or vim editor, and then back to the very first line? **shift-key + G (then type=>) gg**

11. How would you manage to shift to insert mode?

12. How do you write and quit a text file? **:wq!**

13. Why do you use “!” after :wq? **Force override**

14. How would you select a range of lines and copy and paste them at the end of the file?

15. How would you jump from beginning of the line to the end of a line?

16. How you can come back to the beginning of the line?

17. How would you select a range of lines and copy and paste them at the end of the file?

## 7. USER MANAGEMENT:

1. How can you add user using command.

**#useradd john**

2. How to create the user manually?

**#echo “john:x:1000:1000:x:/home/john:/bin/bash” >> /etc/passwd**

**#mkdir /home/john**

**#chomd -R 700 /home/john**

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  NIT ACADEMY
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

---

**#su -john -c “cp /etc/skel/\* /home/john”**

3. What would happen if UID “0” is assigned to user John?

**#set the uid and gid of a user to 0 (similar to root) – this makes the user a super user**

4. Create a user with a 500 uid, name of the backup and default group of backups. Also add the user to another group?

**#useradd -u 500 tom**

**#id tom**

**#groupadd backup**

**#usermod -aG backup tom (G not g is Secondary group)**

**NOTE: #useradd -u 1001 -g sales tom (-g is primary group)**

5. Show me total number of lines in /etc/passwd file?

**#cat /etc/passwd |wc -l**

6. What is the importance of “skel” files (found under /etc/skel)?

**skel is derived from the skeleton because it contains basic structure of home directory. Permissions. These are environmental files read upon every login and sets the attributes of the users environment.**

7. How would you check if there were any errors in /etc/password and /etc/group files?

**#pwck (for errors in /etc/password)**

**#grpck (for errors in /etc/group)**

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  <b>NIT ACADEMY</b>
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

- 
8. How would you lock/unlock a user account, and what are some of the hints to know if one's account is locked or not?

**#passwd -l juan**

**#grep juan /etc/shadow (you will see !! marks)**

**#passwd -u juan (the exclamation marks will be gone)**

9. What is the purpose of GROUPS in Linux, and can we create users on Linux without any group?

**The purpose of having a group so that people can work collaboratively. Every user is mandated to have a group**

10. What is a Primary group VS Supplementary/secondary group?

**At least one fundamental group. Anything more or additional will be secondary.**

11. How can we add user “john” to a secondary group called “hostinggpp”

**#groupadd hostinggp**

**#usermod -aG hostinggp john**

12. How can we create a group called “hostinggpp”?

**#groupadd hostinggp**

13. What is the difference between “su john” and “su – john”

**#su john (will sign-in with current profile)**

**#su – john (will read the bashrc file and load the full attributes /environment)**

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  <b>NIT ACADEMY</b>
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

---

## 8. PERMISSION:

1. How to change owner of a file? Assuming original owner is James for file1 under /project

**#chown jim: /project/file1**

Chown (don't use -R applies to subdirectories)

2. How to change file/directory permissions recursively?

**\$chmod -R 644 /mydirectory (don't use -R if not apply to everything in that folder)**

3. If you want to create a user in your local machine in which file you will define the user?

**/etc/passwd**

4. How can we configure a directory called “/Project”, so **all the files and directories** created in it by any user have their default **group** to be “admins”?

**#chown user:group filename**

**#chown :admins /data/project**

**#ls -ld /data/project (to confirm group is set to “admins”)**

**#chmod 2777 /tmp/project (SetGID=2, ugo=rwx)**

**#ls -ld /tmp/project (to show permission drwxrwsrwx)**

**#su -alice**

**#cd/data/project**

**#touch alice-file**

**#ls -ld alice-file (will show you that alice's group is “admins”)**

5. How do we change the **group** of a file (“file.txt”), to be “developer”?

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  <b>NIT ACADEMY</b>
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

---

#chgrp developers file.txt

6. What is the difference between using “chown” and “chgrp”? **“chown” allows one to change group AND user or just group without changing ownership of a file or directory. “chgrp” only changes group not NEVER file/directory ownership.**

**chown alice:developers file.txt (or /directory)**

**chown :developers file.txt (or /directory)**

**chgrp developers file.txt (or /directory)**

7. What is Umask, and how to check it and set it for individual users, and or systemwide? (User File Creation Mode Mask) is a Linux command that determines the default permissions for new files and directories when they are created

**\$umask => for checking => 0022 output ( This means the system will remove 0022 (write permission for group & others) from the default permissions.**

**#umask 0000 (this will not be persistent)**

**#vi .bashrc (set the umask value for individual)**

**#vi /etc/profile (systemwide) - then add umask 0027 at the bottom of the script.**

8. How do you set umask temporarily?

**\$umask 007**

9. What are 3 special permissions besides read, write and execute?

**SETUID, SETGID, STICKY BIT**

10. Which special permissions helps prevent users from deleting each other’s files inadvertently in a collaborative directory?

**Stickybit**

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  NIT ACADEMY
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

---

## 9. PROCESS MANAGEMENT:

1. How do you check the number of cpu's on your machine?

**#lscpu**

2. How will you know is this a physical and virtual machine?

**systemd-detect-virt (will give output like xen, vmware, kvm, none)**

3. What will your choice be virtual or physical?

**The decision between a Virtual Machine (VM) and a Bare Metal Server depends on your use case, performance needs, scalability, and cost considerations.**

4. What is Process?

**A process is the working mechanism (task, instructions) of a program that is currently being executed. Upon its creation, every process is automatically assigned a unique process identification number (PID). When a process dies, its PID gets returned to an available pool, and another process can then reuse it.**

5. Why Linux is considered multitasking?

**Multitasking refers to an operating system in which multiple processes, also called tasks, can execute (i.e., run) on a single computer seemingly simultaneously and without interfering with each other.**

6. Mention the types of processes? **SSH, HTTP**
7. What are interactive process? **#whoami, whereis, ls ....**
8. What is daemon? **Services running in the background waiting to respond**
9. How can we send a process into the background?

**#sleep 100& (&=running it in background)**

**#jobs**

**#bg %2**

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  <b>NIT ACADEMY</b>
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

---

10. How can we bring a process to foreground?

**#jobs**

**#fg %2**

11. How can we get all the processes in the background?

**\$ps -aux | T**

12. How do you kill background process forcefully?

**#kill -9 PID**

13. How can one see the running processes?

**#ps**

14. How can one see all the running processes?

**#ps -ef (everything in detail)**

15. How you can search “vi” process from all running processes?

16. **#ps -ef |grep vi**

17. How I can get total number of process running in the system?

**#top (command)**

18. How you can kill a process gracefully?

**#kill -15 PID**

19. Which signals kill -15 command gives?

**#kill -I (SIGTERM)**

20. What is purpose of pkill command? **The pkill command is used to terminate processes by matching process names instead of manually finding and killing PIDs**

**pkill process\_name**

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  <b>NIT ACADEMY</b>
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

---

## 10. SERVICES:

1. Command used to manage the services?

**\$systemctl status httpd.service**

2. How can I find the running services?

**#systemctl | grep running**

3. How to list all the services in Linux System?

**# systemctl list-units --type=service --all**

4. How can we count the number of services in the Linux system?

**# systemctl list-units --type=service --all | wc -l**

5. How can we get status of a service?

**#systemctl status sshd**

6. How can we check service is active or not?

**#systemctl is-active sshd**

7. How to start a service?

**#systemctl start sshd**

8. How to restart service?

**#systemctl restart sshd**

9. How to reload service? (if changes were made in the script file and we don't have to restart sshd service)

**#systemctl reload sshd**



<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  <b>NIT ACADEMY</b>
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

---

10. How to stop service?

**#systemctl stop sshd (no host communication)**

11. How to make service boot persistent?

**#systemctl enable sshd**

12. How to check service is enabled or disabled?

**#systemctl status sshd**

13. How can we prevent the service from starting at booting of system?

**#systemctl disable sshd**

14. How can we enable and start a service in single command?

**\$systemctl enable --now httpd**

15. What is difference between restart and reload?

**Reload runs the updates for example on a vi script if changes were made. Instructs the daemon to reload its configuration.**

**Restart shuts the service down and then starts it up again.**

## 11. DISK MANAGEMENT

1. How to check **all** the mounted file systems? Give two commands
  - 1.1. **Lsblk** | **lsblk -f** (not the right answer)
  - 1.2. **Df -h**
  - 1.3. **Mount**
2. How to list attached **block devices** to your system? Command and syntax
  - 2.1. **Lsblk**
  - 2.2. **Fdisk -l**
  - 2.3. **Ls -ld /dev/sd\***
  - 2.4. **blkid**
3. Which command you use to see the existing partitions on your block devices?
  - 3.1. **Fdisk -l**
  - 3.2. **Lsblk**
  - 3.3. **Ls -ld /dev/sd\***

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  <b>NIT ACADEMY</b>
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

- 
4. How would you check which **file** is taking most of the space under a directory?
    - 4.1. `#du -sh /var/www/html/zawar.txt`
    - 4.2. `Lsblk -f`
    - 4.3. `blockid`
  5. How to check the disk usage on a particular directory. Let's say, you want to check how much disk space is being used by /var **directory**?
    - 5.1. `#du -sh /etc`
  6. What's difference between df and du command?
    - 6.1. `Df` is used to see the overall system usage
    - 6.2. `Du` is used for detailed usage by each directory and file
  7. How does the Linux System know what file systems to mount at boot time?
    - 7.1. Specified in `/etc/fstab` file (3<sup>rd</sup> column). The system reads this file at boot up and processes the mount points listed in there. This file is what makes a mount point persistent within linux.
  8. What are the minimum required partitions?
    - 8.1. Root file system ("`/`")
    - 8.2. And swap ("`/swap`")
  9. What is the recommended size of /boot?
    - 9.1. `500mb`
  10. Command to scan for newly attached block devices
    - 10.1. `Echo "- - -" > /sys/class/scsi_host/host0/scan`
    - 10.2. Not to be confused with `partprobe` cmd which only refreshes the partition map of a drive
  11. Explain what is swap space? Where does swap space reside?
    - 11.1. Swap space is a space on a hard disk that is a substitute for physical memory. It is used as virtual memory which contains process memory images. Whenever our computer runs short of physical memory it uses its virtual memory and stores information in memory on disk.
  12. What is the purpose of the Swap space? Why is it called Swap space?
    - 12.1. See Question 11.
  13. Is swap space slower than RAM? And why?
    - 13.1. Because its limited in speed as it runs off of the hard drive rather than ram
  14. How to check the total memory in your system? Give 3 commands for that
    - 14.1. `Free -h`
    - 14.2. `Vmstat`
    - 14.3. `Cat /proc/minfo`
    - 14.4. `top`
  15. What is buffer/cache memory reported in the free -m command?
    - 15.1. Cache stores the actual data
-

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  <b>NIT ACADEMY</b>
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

---

## 15.2. Buffer stores the metadata

16. How to check how much RAM and Swap is being used? Give 2 commands

- 16.1. `cat /proc/meminfo`
- 16.2. `cat /proc/swaps`
- 16.3. `Free -h1`
- 16.4. `Vmstat`
- 16.5. `top`

17. Command you use to create swap space.

- 17.1. `mkswap /path/to/partition; swapon /path/to/partition`
- 17.2. `Make entry in /etc/fstab`

18. How you turn on swap and make it available to system?

- 18.1. `swapon /path/to/partition`

19. What is paging out? **Paging out of RAM**

- 19.1. `When data is moved from RAM to swap to hold`

20. What is paging in? **Paging into RAM**

- 20.1. `When data is moved from swap to RAM`

21. What is Swap space allocation rule of thumb? How much swap space would you allocate on a system with 64 GB RAM and 1 TB hard drive?

- 21.1. `Twice the size of RAM.`

22. Which **utilities** can you use to partition the block device?

- 22.1. `Fdisk`
- 22.2. `Gdisk`
- 22.3. `Parted`
- 22.4. `Cfdisk`
- 22.5. `Gparted`

23. Storage team has allocated 100 GB Logical Unit Number (LUN). You are being asked to make it available as 100 GB standard partition with XFS fs for directory. Walk me through the process ...

- 23.1. `#lsblk or #fdisk -l (to check my block)`
- 23.2. `#fdisk /dev/sdb (use this to create partition)`
- 23.3. `#partprobe (to update the partition table without reboot)`
- 23.4. `#mkfs.ext4 /dev/sdb`
- 23.5. `#mkdir /app (new directory created)`
- 23.6. `#mount -o /dev/sdb /app (Mount a directory to it)`

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  NIT ACADEMY
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

- 
- 23.7. #boot persistent (Add to /etc/fstab)**
24. How can we change the partition type using fdisk? What option to use for that?
- 24.1. `Fdisk`
- 24.2. `P`
- 24.3. `N`
- 24.4. `T`
- 24.5. `8e` for linux LVM (for example)
25. What is basic difference between gdisk and fdisk partition utility?
- 25.1. `The number of partitions allowed`
26. How can you create a file system on the partition?
- 26.1. `Mkfs.xfs /dev/sdx`
27. Difference between Ext4 and XFS file systems?
- 27.1. `Ext4 default for RHEL 6`
- 27.2. `Xfs default for RHEL 7`
28. What is Journaling?
- 28.1. `A journaling filesystem keeps a journal or log of the changes that are being made to the filesystem during disk writing that can be used to rapidly reconstruct corruptions that may occur due to events such a system crash or power outage.`
29. What is a mount point and why we mount a file system? What is /mnt?
- 29.1. `Mount point is a pointer or shortcut to a partition location on a physical media (hd)`
- 29.2. `/mnt is the default mount point`
30. How can you make the mount point boot persistent?
- 30.1. `Put them in /etc/fstab`
31. What are the consequences of having errors in /etc/fstab file?
- 31.1. `System bootup will fail or certain mountpoints will not show`
32. What is UUID? Which command you can use to get UUID?
- 32.1. `Universally unique identifier`
- 32.2. `#blkid`
33. Command to check the disk space for all the mounted file systems.
- 33.1. `#df -h`
34. If there is 60% space free still you are not able to save any of the file in the file system.
- 34.1. `The file system has run out of inode number.`
35. `Du -h` & `Df -hT` is giving 2 different results. What could be the problem?
- 35.1. `Du -h will tell you individual file or disk usage.`
- 35.2. `Df -ht will show you overall system usage`
36. `Du -h` & `Df -h` are giving the same readout but you are unable to write to the filesystem.
- 36.1. `Probably because your filesystem has been mounted as read-only.`
37. How can we find the storage disk of a **particular directory**?
-

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  <b>NIT ACADEMY</b>
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

- 
- 37.1. `#du -sh /var`
38. What is purpose of command `fdisk -l`?
- 38.1. `To list the attached disks and configured partitions on it.`
39. What are links in Linux?
- 39.1. `Shortcuts or pointers`
40. What is an inode?
- 40.1. `Unique object identifier specific to that object. E.g. serial number`
41. What is stored in the inode numbers?
- 41.1. `Stores ownership, permissions, etc.`
- 41.2. `Can check the details using the stat command.`
42. Command to get the inode number of a file?
- 42.1. `Ls -li`
43. Command to get the **total** inode available and used for / file system?
- 43.1. `Df -hi`
44. What if you have run out of maximum number of inodes? What are the consequences and how can you solve the issue?
- 44.1. `You cannot create any more files or folders within system.`
- 44.2. `Have to extend partition.`
45. What is file system sanity check in Linux? How do you repair bad file systems?
- 45.1. `Sanity check checks for issues with the file system, e.g. permissions, defragmentation, etc.`
- 45.2. `Fsck`
- 45.3. `Xfs_repair`

## 12. PACKAGE MANAGEMENT

- What is RPM
- List all packages installed on your system using rpm on cli?
- How can you count all the packages available in the system?
- Command to check whether httpd is installed or not on your system using rpm?
- Rpm command to install a package.
- Rpm command to upgrade package.
- Remove a package using rpm command?
- What is advantage of yum over rpm? It resolves dependencies
- What is draw back of the yum? Needs network access / online access.
- install package, update and remove package command using yum
- What file contains YUM repos?
  - 11.1. `/etc/yum.repos.d`
- Which is configuration file of yum?
  - 12.1. `/etc/yum.com`

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  NIT ACADEMY
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

---

### 13. List all repos using yum command.

13.1. Yum repolist

### 14. How update your system with a single command?

14.1. Yum update -y

## 13. SSH

1. Where will you investigate if user can't SSH and can't log into the system?
  - a. #cat /var/log/messages
  - b. #netstat -tunap |grep ssh
2. Two host A and B, User asks me to configure ssh and make it password less. Where are keys saved?
  - a. .ssh (server and client)
3. Trying to ssh as root and put in correct root password and it's not working; how would you troubleshoot that?
  - a. Cat /etc/ssh/sshd\_config |grep -i permitrootlogin
4. Why do you need an ssh-key based entry? Authentication. Secure.
5. A client is asking server is not responding. He can't ssh, what you will do to fix it?
  - a. Ping server
  - b. Console to the server
  - c. Check ip config (/etc/sysconfig/network-scripts/ifcfg-)
  - d. Check if port is listening
6. How to ensure SSH is persistent, and running/active, how do you check if SHHD is listening or not?
  - a. Systemctl enable sshd
  - b. Systemctl status sshd
  - c. Netstat -tunap |grep sshd (listen)
7. How will you list all the ESTABLISHED connections?
  - a. Netstat -tunap |grep -l established
8. How do you change the port for sshd, and how would you allow that port in firewall?
  - a. Firewall-cmd --add-port=22/tcp --permanent
9. A service (sshd) fails to start. What are some of the troubleshooting steps you'd take.
  - a. /var/log/messages
  - b. Systemctl status sshd -lv
  - c. Journalctl -u sshd
10. How do you list all the security logs that pertain to ssh?
  - a. #grep ssh /var/log/secure
11. How you list all the system logs that pertain to ssh?
  - a. #grep -l ssh /var/log/messages

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  <b>NIT ACADEMY</b>
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

- 
12. How do you list kernel logs/boot up logs?
    - a. Cat /var/log/dmesg
  13. How can we disable direct root login on to the system by using SSH?
    - a. #vi /etc/ssh/sshd\_config PermitRootLogin = no

#### 14. NFS

1. What is NFS? Give scenarios where your organization uses NFS.
  - a. Network Filesystem: share application data over multiple servers
  - b. A network file system (NFS) is a type of file system mechanism that **enables the storage and retrieval of data from multiple disks and directories across a shared network**. A network file system enables local users to access remote data and files in the same way they are accessed locally.
  - c. Enables storage and retrieval of data across a shared network. Local user accesses remote data/files locally.
2. What Daemons are used on server and client side?
  - a. SERVER: mountd and nfsd CLIENT: statd, lockd
  - b. Server Side – nfs-server.service
  - c. Client side – nfs-utils
3. Which port needs to be opened up on server side?
  - a. 2049
4. Which is the file to export NFS file system and syntax used in this file? Give me an example on how you can export /data file system to system101.linoop.com
  - a. /etc/exports
  - b. Vi /etc/exports
  - c. (Directory) hostname(rw,sync,no\_root\_squash)
5. Command to run after making an entry in the export file.
  - a. #exportfs -avr (-a=all directories, v=verbose, r=re-export)
6. Command to check nfs service running or not?
  - a. Systemctl status nfs-utils
7. On client side how to mount the NFS exported file system?
  - a. #mount -t nfs nfsserverip:/data /mnt/data
8. If user can't access NFS mounted file system, give all possible reasons for that.
  - a. Firewall (mount, nfs, rpcbind)
  - b. Permissions
  - c. Server not running
  - d. #vi data  
Directory ipclient (rw,sync,no-root-squash)  
/data1 19....

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  NIT ACADEMY
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

9. How do you access share data?
  - a. Df -h
  - b. #cd /mnt/data and type ls
10. How NFS is made resilient?
  - a. backup
11. What is the difference between NFS3 / NFS4?
  - a. NFS4 latest and supports SELINUX, NFS3 did not support ACL
12. How do you list NFS exported file systems on server side?
  - a. #showmount -e <server ip>
13. User asks for a share how would you decide if you use samba or nfs?
14. Explain me the “root\_squash” option?
  - a. Taking away root previlages
15. What happens if we go with “no\_root\_quash” option what will happen?
  - a. Root previliages not taken away
16. Why do you get the error that say’s NFS stale file Handlers?
  - a. Nfs server
  - b. Df -h (someone might have changed vi exports)
17. How do you force unmount a hung nfs share?
  - a. ##umount -l

## 14.1 ARCHIVING

1. Tar command syntax and explain flags.
2. You want to compress and archive the /data file system. What command would you use to archive and compress /data in one shot?
3. What daemon is responsible for the system log?
4. Filesystem that was at 100% capacity, how would you find what was filling up that filesystem?
5. If User’s home directory is using 50 GB. User deletes a big file (25GB) and checks but df -h still reports its size as 50 GB. Why even though 25GB file was deleted? What’s the issue?
6. Will du -h /home/john report the same size issue as df in the light of above question?

## 15. RAID

1. What is RAID? What are some benefits of using RAID?
  - 1.1. Redundancy
  - 1.2. Redundant array of independent disk
  - 1.3. Increase reliability of data storage, gives redundancies
2. Difference between RAID and LVM?
  - 2.1. RAID is used on Hardware level
  - 2.2. LVM is used on the OS level



<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  NIT ACADEMY
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

3. Why there exist different levels of RAID?
  - 3.1. To compensate for different needs (speed, redundancy, backup)
4. Difference between RAID 0 and 1?
  - 4.1. Striping, mirroring
5. What is difference between RAID 5 & RAID 6 level?
  - 5.1. Single parity
  - 5.2. Double parity (slower than RAID 5)
6. What is benefit of parity?
  - 6.1. If a hard drive fails, the system continues to function. Common way of protecting errors in the system. Fault tolerance.
7. How many disks RAID 6 can lose without losing data?
  - 7.1. Two (2)
8. What is RAID 10? Mirroring and striping
9. If you are allowed to pick any single RAID level. Which level will you pick if cost is basic consideration? RAID 0
10. If you need only better reading feature, then which level will you pick? RAID 0
11. If reading is our consideration, then still you will go with RAID 5 or change your answer?
12. Is RAID 6 level slower than RAID 5? Why it slow? Explain. YES of double parity bits only work for writing speeds

## 16. BOOT PROCESS

1. How can you go into Single User mode and its purpose.
  - a. Reboot
  - b. Go into single user mode
  - c. Systemctl isolate rescue
2. Can you explain the Linux Boot Process?
3. How can you change the root passwd in RHEL 7 if you forget it?
  - a. Reboot
  - b. Rd.break
  - c. Ctrl + x
4. Which are some of the run levels/ targets?
  - a. RHEL 6 (init and use run levels)
    - i. Level0 - shutdown
    - ii. Level1 – single user mode
    - iii. Level2 – multiuser w/o networking
    - iv. Level3 – multiuser w/networking without GUI
    - v. Level4 –
    - vi. Level5 – multiuser w/networking with GUI
    - vii. Level6 - reboot
  - b. RHEL 7 (systemd, targets)
5. Which command will you use to change the run level?

<b>DOCUMENT TITLE:</b> INTERVIEW EVALUATION (AUTOMATION & AWS)		<b>INSTITUTE:</b>  NEXUS INSTITUTE OF TECHNOLOGY –  <b>NIT ACADEMY</b>
<b>DOCUMENT NO:</b> INTERVIEW-EVAL-NIT-0001	<b>REVISION:</b> R1	

- 
- a. init
  - 6. System is booting up and throws some errors related to some file systems not being able to mount at boot time. What file you would modify to fix this problem? And how would you get into the system to make those changes?
    - a. Single user mode
    - b. /etc/fstab
  - 7. How can you perform a File system Consistency check on a partition/hard drive?
    - a. Unmount the filesystem
    - b. Run FSCK ext4
  - 8. <https://www.thegeekstuff.com/2011/02/linux-boot-process/>