

Introduction to Linux, Basic Commands, File Management, and User Management

Section 1: Linux Basics

1. What is Linux, and how does it differ from other operating systems like Windows and macOS?

لينكس هي عائلة من أنظمة التشغيل مفتوحة المصدر.

الاختلاف: - الشركة المطورة - الواجهة وتجربة المستخدم - البرمجيات والتطبيقات - التوافق والدعم.

2. Name three popular Linux distributions and briefly describe one of them.

3. What is the root directory in Linux, and what is its significance?

لدليل الجذر (/) هو بداية أو الدليل الأعلى لنظام الملفات. يتكون نظام الملفات يونكس من جذر والدلائل الفرعية **etc, var, bin, and home.** دليل الجذر لا يوجد لديه دلائل الأصل، ولكن يحتوي على العديد الدلائل الفرعية، مثل

4. Explain the difference between an absolute path and a relative path in Linux.

- المسار المطلق: يبدأ ب (/) ويوفر المسار الكامل من الدليل الجذري.

- المسار النسبي: لا يبدأ ب (/) ويعتمد على موقع الدليل الحالي.

5. What command would you use to update the package list on a Debian-based system?

```
(root@kali)-[/home/kali]
# sudo apt update
Get:1 http://kali.download/kali kali-rolling InRelease [41.5 kB]
Get:2 http://kali.download/kali kali-rolling/main amd64 Packages [19.9 MB]
17% [2 Packages 2,246 kB/19.9 MB 11%]
Z
zsh: suspended sudo apt update
```

Section 2: Basic Commands and Navigation

6. Write the command to display the current working directory.

```
(root@kali)-[/home/kali]
# pwd
/home/kali
(root@kali)-[/home/kali]
#
```

7. How do you change to the `/etc` directory from your current location?

```
(kali@kali)-[~]
$ cd / etc
cd: no such file or directory: ecthome/kali
```

8. List the contents of the `/home` directory, including hidden files, in a detailed list format.

```
(root@kali)-[/home/kali]
# ls -la
total 144
drwx----- 16 kali kali 4096 Aug 2 10:59 .
drwxr-xr-x 3 root root 4096 Aug 21 2023 ..
-rw-r--r-- 1 kali kali 220 Aug 21 2023 .bash_logout
-rw-r--r-- 1 kali kali 5551 Aug 21 2023 .bashrc
-rw-r--r-- 1 kali kali 3526 Aug 21 2023 .bashrc.original
drwxr-xr-x 11 kali kali 4096 Jul 28 05:09 .cache
drwxr-xr-x 13 kali kali 4096 Jul 14 06:45 .config
drwxr-xr-x 2 kali kali 4096 Jul 14 06:37 Desktop
-rw-r--r-- 1 kali kali 35 Jul 14 06:40 .dmrc
drwxr-xr-x 2 kali kali 4096 Jul 14 06:37 Documents
drwxr-xr-x 2 kali kali 4096 Jul 14 06:37 Downloads
-rw-r--r-- 1 kali kali 11759 Aug 21 2023 .face
lrwxrwxrwx 1 kali kali 5 Aug 21 2023 .face.icon → .face
drwx----- 3 kali kali 4096 Jul 14 06:37 .gnupg
-rw----- 1 kali kali 0 Jul 14 06:37 .ICEauthority
drwxr-xr-x 3 kali kali 4096 Aug 21 2023 .java
drwxr-xr-x 4 kali kali 4096 Jul 14 06:37 .local
drwx----- 4 kali kali 4096 Jul 14 06:48 .mozilla
drwxr-xr-x 2 kali kali 4096 Jul 14 06:37 Music
drwxr-xr-x 2 kali kali 4096 Jul 14 06:37 Pictures
-rw-r--r-- 1 kali kali 807 Aug 21 2023 .profile
drwxr-xr-x 2 kali kali 4096 Jul 14 06:37 Public
-rw-r--r-- 1 kali kali 0 Jul 28 05:08 .sudo_as_admin_successful
drwxr-xr-x 2 kali kali 4096 Jul 14 06:37 Templates
drwxr-xr-x 2 kali kali 4096 Jul 14 06:37 Videos
-rw----- 1 kali kali 49 Aug 2 10:50 .Xauthority
-rw----- 1 kali kali 2402 Aug 2 10:59 .xsession-errors
-rw----- 1 kali kali 19042 Jul 28 06:30 .xsession-errors.old
-rw----- 1 kali kali 303 Jul 28 06:27 .zsh_history
-rw-r--r-- 1 kali kali 10868 Aug 21 2023 .zshrc
```

9. Explain the purpose of the `ls -l` command and what information it provides.

يستخدم لعرض محتويات دليل بصيغة مفصلة.

المعلومات: -نوع الملف وأذوناتاه -عدد الروابط -اسم المالك -اسم المجموعة -حجم الملف -اسم الملف او الدليل.

10. What command can be used to return to your home directory from any location in the file system?

```
(root@kali)-[/home/kali]
# cd

(root@kali)-[~]
#
```

Section 3: File Management

11. Write the command to create an empty file named `testfile.txt`.

```
(root@kali)-[~]
# touch testfile.txt

(root@kali)-[~]
#
```

12. How do you create a directory named `testdir`?

```
(kali@kali)-[~]
$ mkdir testdir
mkdir: cannot create directory 'testdir': File exists

(kali@kali)-[~]
$
```

13. Write the command to copy `testfile.txt` to `backup_testfile.txt`.

```
(kali@kali)-[~]
$ cp testfile.txt backup_testfile.txt
cp: cannot stat 'testfile.txt': No such file or directory

(kali@kali)-[~]
$
```

14. What command would you use to move (rename) `testfile.txt` to `newfile.txt`?

```
(kali@kali)-[~]
$ mv testfile.txt newfile.txt
mv: cannot stat 'testfile.txt': No such file or directory

(kali@kali)-[~]
$
```

15. Write the command to remove the directory `testdir` and its contents.

```
(kali@kali)-[~]
$ rm -r testdir
rm: cannot remove 'testdir': No such file or directory
```

Section 4: User and Group Management

16. How can you list all existing users on the system?

```
(kali㉿kali)-[~]  
└─$ cat / etc / passwd  
cat: /: Is a directory  
cat: etc: No such file or directory  
cat: /: Is a directory  
cat: passwd: No such file or directory
```

17. Write the command to create a new user with the username `newuser`.

```
(kali㉿kali)-[~]  
└─$ sudo passwd new user  
[sudo] password for kali:  
Usage: passwd [options] [LOGIN]  
  
Options:  
-a, --all                report password status on all accounts  
-d, --delete             delete the password for the named account  
-e, --expire             force expire the password for the named account  
-h, --help              display this help message and exit  
-k, --keep-tokens        change password only if expired  
-i, --inactive INACTIVE set password inactive after expiration  
                        to INACTIVE  
-l, --lock               lock the password of the named account  
-n, --mindays MIN_DAYS  set minimum number of days before password  
                        change to MIN_DAYS  
-q, --quiet              quiet mode  
-r, --repository REPOSITORY change password in REPOSITORY repository  
-R, --root CHROOT_DIR   directory to chroot into  
-S, --status             report password status on the named account  
-u, --unlock             unlock the password of the named account  
-w, --warndays WARN_DAYS set expiration warning days to WARN_DAYS  
-x, --maxdays MAX_DAYS set maximum number of days before password  
                        change to MAX_DAYS
```

18. How do you create a new group named `newgroup`?

```
(kali㉿kali)-[~]  
└─$ sudo groupadd new group  
Usage: groupadd [options] GROUP  
  
Options:  
-f, --force              exit successfully if the group already exists,  
                        and cancel -g if the GID is already used  
-g, --gid GID            use GID for the new group  
-h, --help              display this help message and exit  
-K, --key KEY=VALUE      override /etc/login.defs defaults  
-o, --non-unique         allow to create groups with duplicate  
                        (non-unique) GID  
-p, --password PASSWORD use this encrypted password for the new group  
-r, --system             create a system account  
-R, --root CHROOT_DIR   directory to chroot into  
-P, --prefix PREFIX_DI  directory prefix  
-U, --users USERS        list of user members of this group
```

19. Write the command to add the user `newuser` to the group `newgroup`.

```
(kali㉿kali)-[~]  
$ sudo usermod -ag newgroup newuser  
usermod: group 'newgroup' does not exist
```

20. What command would you use to change the password for the user `newuser`?

```
(kali㉿kali)-[~]  
$ sudo passwd new user  
Usage: passwd [options] [LOGIN]  
  
Options:  
-a, --all                report password status on all accounts  
-d, --delete             delete the password for the named account  
-e, --expire             force expire the password for the named account  
-h, --help              display this help message and exit  
-k, --keep-tokens        change password only if expired  
-i, --inactive INACTIVE set password inactive after expiration  
                        to INACTIVE  
-l, --lock               lock the password of the named account  
-n, --mindays MIN_DAYS  set minimum number of days before password  
                        change to MIN_DAYS  
-q, --quiet              quiet mode  
-r, --repository REPOSITORY change password in REPOSITORY repository  
-R, --root CHROOT_DIR   directory to chroot into  
-S, --status             report password status on the named account  
-u, --unlock             unlock the password of the named account  
-w, --warndays WARN_DAYS set expiration warning days to WARN_DAYS  
-x, --maxdays MAX_DAYS  set maximum number of days before password  
                        change to MAX_DAYS
```

Section 5: Practical Application

21. Describe the steps you would take to install a Linux distribution on a virtual machine.

- تثبيت احد البرامج الافتراضية مثل (VMware Workstation Pro)
- تحميل نسخة Linux وهميه
- تثبيت النسخة في البرنامج واتباع الخطوات

22. If you are in the `/home/user` directory, what command would you use to navigate to `/var/log`?

```
(kali㉿kali)-[~]  
$ cd / var / log  
cd: too many arguments
```

23. How do you display the contents of the current directory in a human-readable format?

```
(kali㉿kali)-[~]  
$ ls -lh  
total 32K  
drwxr-xr-x 2 kali kali 4.0K Jul 14 06:37 Desktop  
drwxr-xr-x 2 kali kali 4.0K Jul 14 06:37 Documents  
drwxr-xr-x 2 kali kali 4.0K Jul 14 06:37 Downloads  
drwxr-xr-x 2 kali kali 4.0K Jul 14 06:37 Music  
drwxr-xr-x 2 kali kali 4.0K Jul 14 06:37 Pictures  
drwxr-xr-x 2 kali kali 4.0K Jul 14 06:37 Public  
drwxr-xr-x 2 kali kali 4.0K Jul 14 06:37 Templates  
drwxr-xr-x 2 kali kali 4.0K Jul 14 06:37 Videos
```

24. Explain what the following command does: `cp -r /home/user/docs /home/user/docs_backup`.

يقوم الأمر بنسخ دليل `/home/user/docs` وجميع محتوياته، إلى دليل جديد يسمى `/home/user/docs_backup`

25. What is the difference between the `rm` and `rm -r` commands?

يستخدم الأمر `rm` لحذف الملفات.

يستخدم الأمر `rm -r` لحذف الأدلة ومحتوياتها، بما في ذلك جميع الملفات.

26. Explain the significance of the `/etc` directory in Linux.

مهم لتكوين وإدارة نظام لينكس وتطبيقاته

