

Commands in Kali Linux and Programming

Execute the following commands on the Kali Linux virtual machine.

ifconfig: Displays information about network interfaces, including their IP addresses, MAC addresses, and network statistics.

```
(kali㉿kali)-[~]  
$ ifconfig  
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500  
    inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255  
    inet6 fe80::ed02:607:9263:a4fc prefixlen 64 scopeid 0x20<link>  
    ether 08:00:27:cb:7e:f5 txqueuelen 1000 (Ethernet)  
    RX packets 1 bytes 590 (590.0 B)  
    RX errors 0 dropped 0 overruns 0 frame 0  
    TX packets 22 bytes 3034 (2.9 KiB)  
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
  
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536  
    inet 127.0.0.1 netmask 255.0.0.0  
    inet6 ::1 prefixlen 128 scopeid 0x10<host>  
    loop txqueuelen 1000 (Local Loopback)  
    RX packets 4 bytes 240 (240.0 B)  
    RX errors 0 dropped 0 overruns 0 frame 0  
    TX packets 4 bytes 240 (240.0 B)  
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

pwd: Prints the current working directory (the directory you are currently in).

```
(kali㉿kali)-[~]  
$ pwd  
/home/kali
```

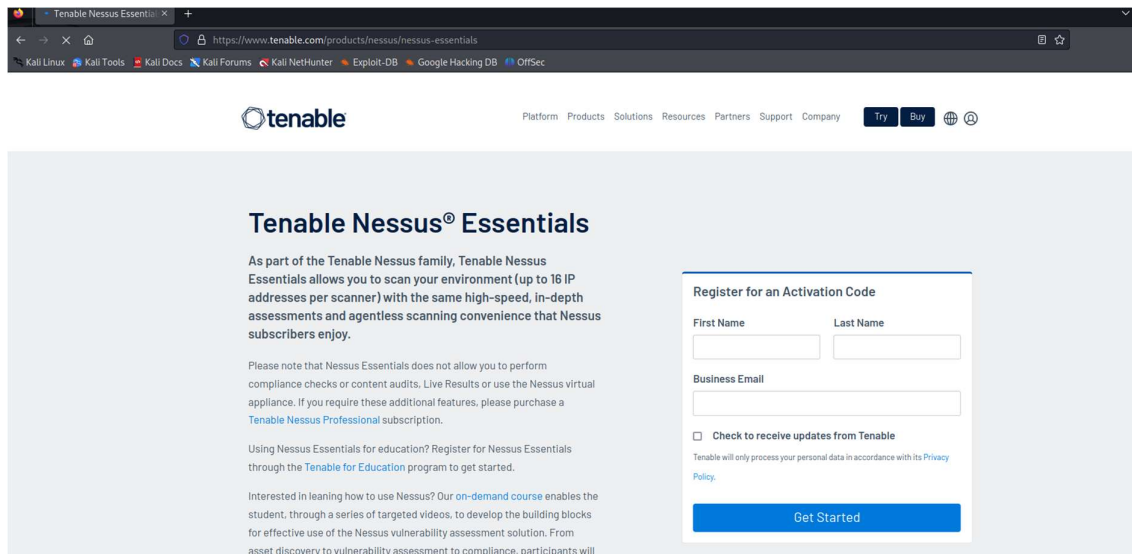
echo \$SHELL: Prints the path to the shell you are currently using (in this case, `/usr/bin/zsh`).

```
(kali㉿kali)-[~]  
$ echo $SHELL$  
/usr/bin/zsh$
```

Installing and configuring Nessus Scanner on a Kali Linux system. The following steps are carried out.

1. Register for Nessus:

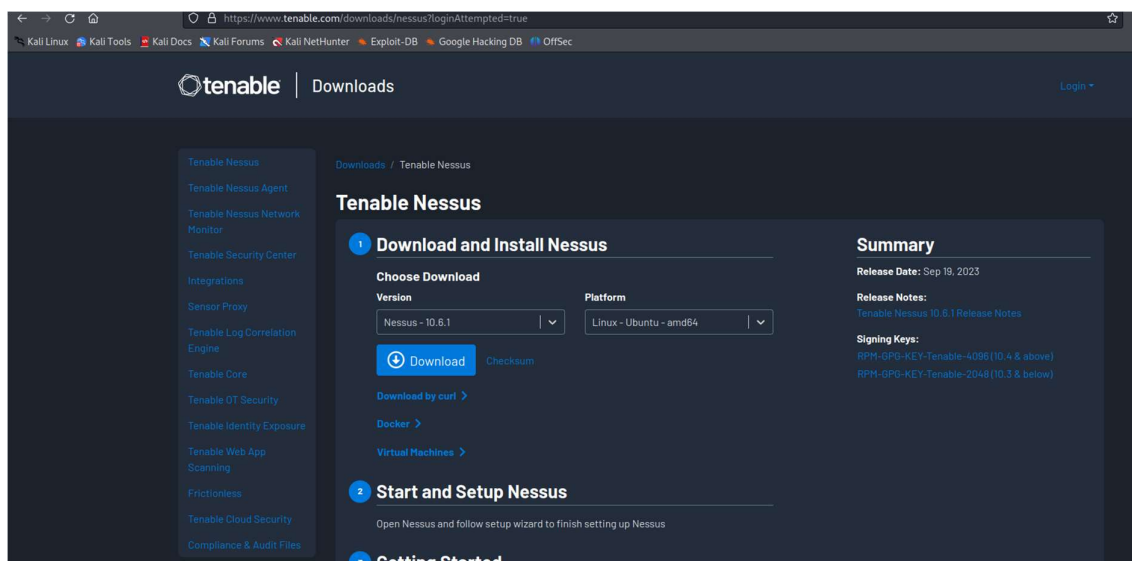
- Go to the Nessus registration page: [Nessus Essentials Registration] (<https://www.tenable.com/products/nessus/nessus-essentials>).
- Follow the registration process to create an account and obtain a Nessus Essentials activation code.



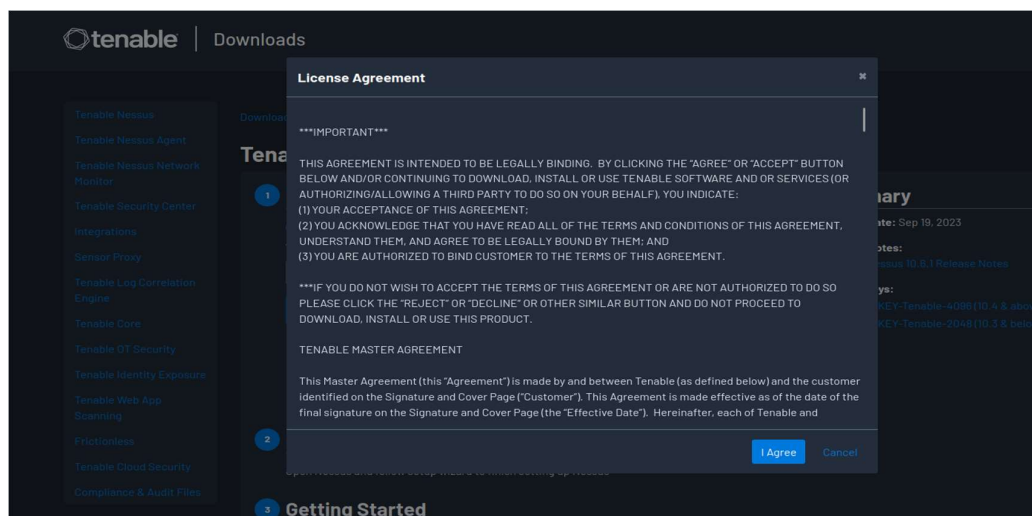
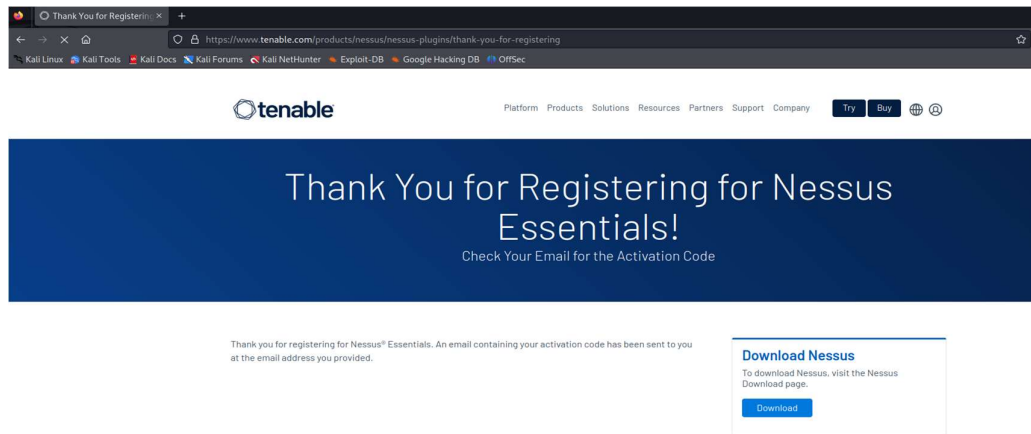
The screenshot shows the Tenable Nessus Essentials registration page. The page has a dark header with the Tenable logo and navigation links. The main content area is light blue and features the heading "Tenable Nessus® Essentials". Below the heading, there is a paragraph describing the product and a "Register for an Activation Code" form. The form includes fields for "First Name", "Last Name", and "Business Email". There is a checkbox for "Check to receive updates from Tenable" and a "Get Started" button. The page also includes a "Please note" section and a "Using Nessus Essentials for education?" section.

2. Download Nessus:

- After registration, download the Nessus Scanner package for Ubuntu from the Nessus download page.

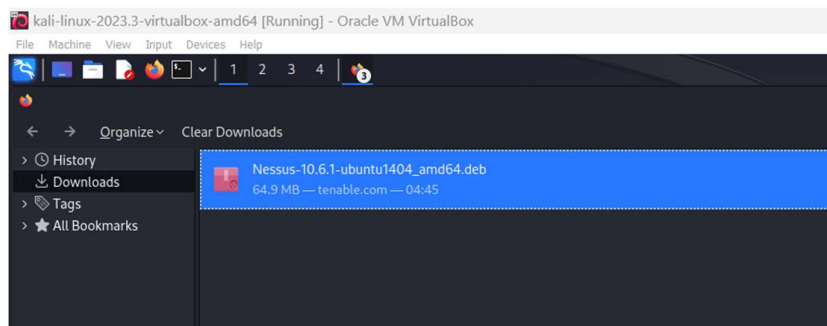


The screenshot shows the Tenable Nessus download page. The page has a dark header with the Tenable logo and navigation links. The main content area is dark blue and features the heading "Tenable Nessus". Below the heading, there is a "Download and Install Nessus" section with a "Choose Download" form. The form includes a "Version" dropdown menu set to "Nessus - 10.6.1" and a "Platform" dropdown menu set to "Linux - Ubuntu - amd64". There is a "Download" button and a "Checksum" link. Below the form, there are links for "Download by curl", "Docker", and "Virtual Machines". There is also a "Start and Setup Nessus" section with a "Getting Started" link. The page includes a "Summary" section with "Release Date", "Release Notes", and "Signing Keys".



3. Install Nessus:

- Open a terminal in Kali Linux.
- Navigate to the directory where you downloaded the Nessus package.
- Install Nessus using the 'dpkg' command: **sudo dpkg -i Nessus-10.6.1-ubuntu1404_amd64.deb**



```
kali@kali: ~/Downloads
File Actions Edit View Help
(kali@kali)-[~]
$ ls
Desktop Documents Downloads Music Pictures Public Templates Videos

(kali@kali)-[~]
$ cd Downloads

(kali@kali)-[~/Downloads]
$ ls
Nessus-10.6.1-ubuntu1404_amd64.deb

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

```
(kali@kali)-[~/Downloads]
$ sudo dpkg -i Nessus-10.6.1-ubuntu1404_amd64.deb
[sudo] password for kali:
Selecting previously unselected package nessus.
(Reading database ... 398533 files and directories currently installed.)
Preparing to unpack Nessus-10.6.1-ubuntu1404_amd64.deb ...
Unpacking nessus (10.6.1) ...
Setting up nessus (10.6.1) ...
HMAC : (Module_Integrity) : Pass
SHA1 : (KAT_Digest) : Pass
SHA2 : (KAT_Digest) : Pass
SHA3 : (KAT_Digest) : Pass
TDDES : (KAT_Cipher) : Pass
AES_GCM : (KAT_Cipher) : Pass
AES_ECB_Decrypt : (KAT_Cipher) : Pass
RSA : (KAT_Signature) : RNG : (Continuous_RNG_Test) : Pass
Pass
ECDSA : (PCT_Signature) : Pass
ECDSA : (PCT_Signature) : Pass
DSA : (PCT_Signature) : Pass
TLS13_KDF_EXTRACT : (KAT_KDF) : Pass
TLS13_KDF_EXPAND : (KAT_KDF) : Pass
TLS12_PRFF : (KAT_KDF) : Pass
```

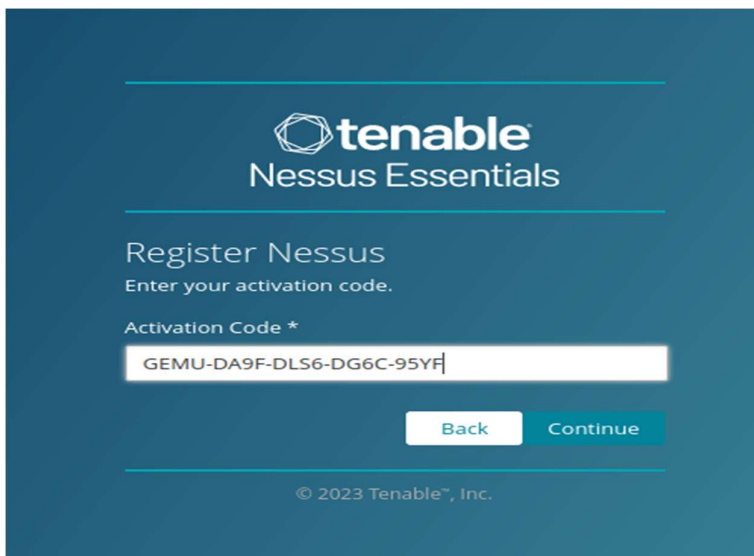
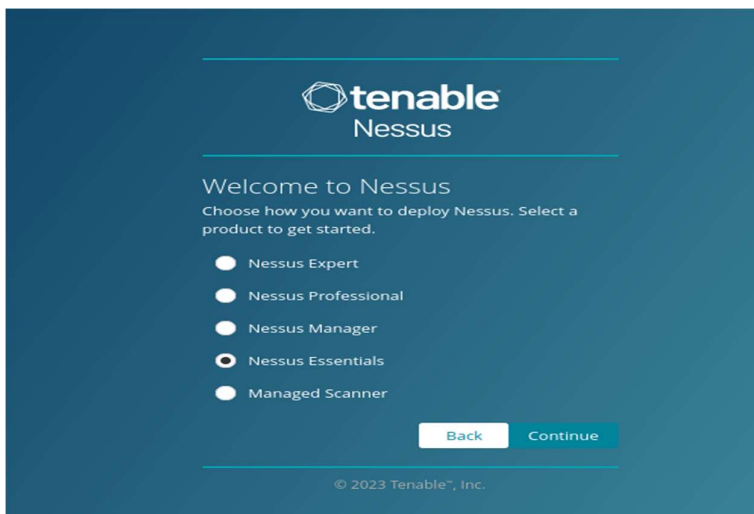
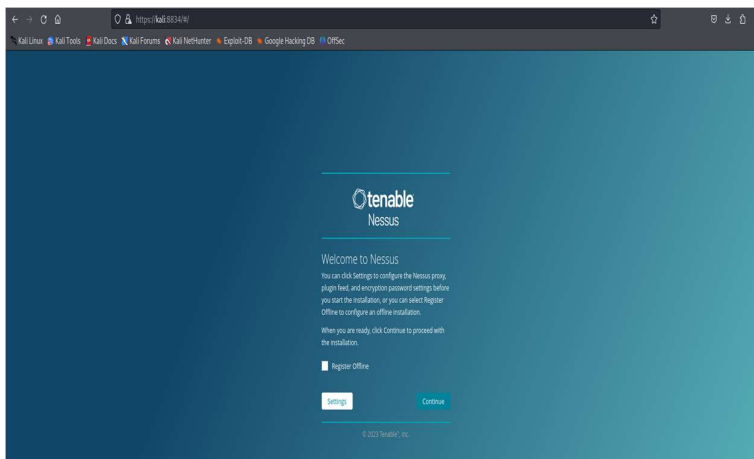
4. Start Nessus Scanner:


- Start the Nessus Scanner service by running the following command:
/bin/systemctl start nessusd.service

```
(kali@kali)-[~/Downloads]
$ /bin/systemctl start nessusd.service
```

5. Configure Nessus:

- Open a web browser and go to '<https://kali:8834/>'.
- Log in with the credentials you created during the registration process.
- Follow the on-screen instructions to complete the initial configuration of Nessus Scanner.



 **tenable**
Nessus Essentials

Create a user account

Create a Nessus administrator user account. Use this username and password to log in to Nessus.

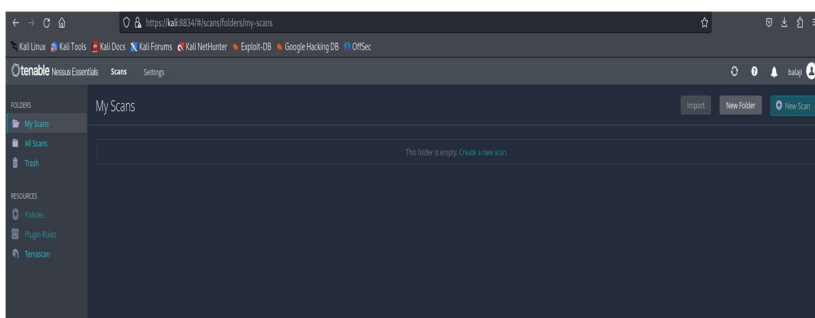
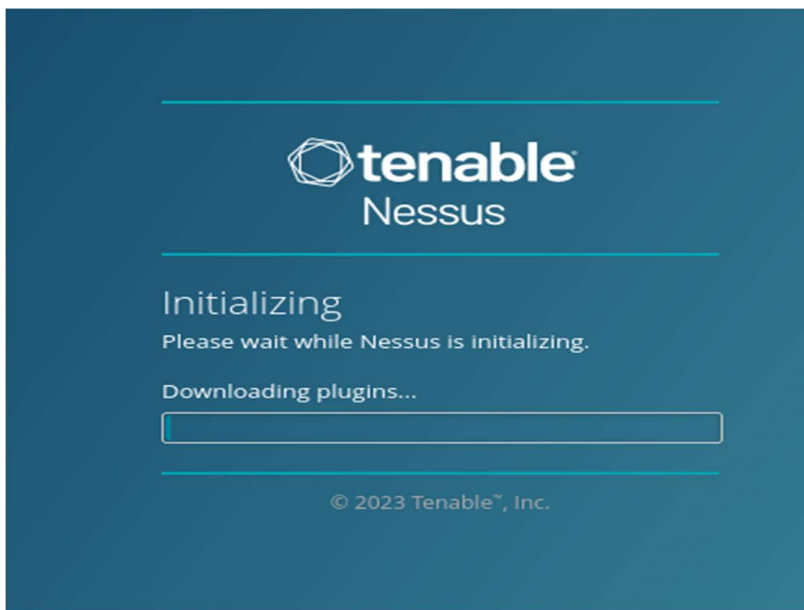
Username *

Password *

Back

Submit

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Open the Terminal and continue with other commands.

ls: This command will display a list of files and directories in the current working directory.

sudo adduser abc: This command creates a new user named "abc" on the system. It assigns a unique User ID (UID) and Group ID (GID), creates a home directory, sets a password, and optionally collects user information such as full name, room number, and phone numbers. The user is also added to the "users" group.

```
(kali㉿kali)-[~]
$ ls
Desktop  Documents  Downloads  Music  Pictures  Public  Templates  Videos

(kali㉿kali)-[~]
$ pwd
/home/kali

(kali㉿kali)-[~]
$ sudo adduser abc
[sudo] password for kali:
info: Adding user `abc' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group `abc' (1001) ...
info: Adding new user `abc' (1001) with group `abc (1001)' ...
info: Creating home directory `/home/abc' ...
info: Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for abc
Enter the new value, or press ENTER for the default
  Full Name []: abc
   Room Number []: 1
    Work Phone []: 123
    Home Phone []: 12
      Other []: 12
Is the information correct? [Y/n] y
info: Adding new user `abc' to supplemental / extra groups `users' ...
info: Adding user `abc' to group `users' ...

(kali㉿kali)-[~]
$
```

```
(kali㉿kali)-[~]
$ sudo adduser abc sudo
info: Adding user `abc' to group `sudo' ...

(kali㉿kali)-[~]
$ su abc
Password:
(abc㉿kali)-[/home/kali]
$ pwd
/home/kali

(abc㉿kali)-[/home/kali]
$
```

In Kali Linux or any Linux distribution, you can create an empty file called myfile using the touch command, copy and move files using cp and mv, and remove files using rm. Here are the basic commands for these operations:

Create an Empty File:

To create an empty file named myfile, open your terminal and run the following command:

```
(abc@kali)-[/home/kali]
└─$ su - kali
Password:
(kali@kali)-[~]
└─$ touch myfile
(kali@kali)-[~]
└─$ ls
Desktop  Documents  Downloads  Music  myfile  Pictures  Public  Templates  Videos
```

New Directory can be created by command: **mkdir folderName**

```
(kali@kali)-[~]
└─$ mkdir myfolder
(kali@kali)-[~]
└─$ ls
Desktop  Documents  Downloads  Music  myfile  myfolder  Pictures  Public  Templates  Videos
```

Copy Files:

To copy a file from one location to another, use the **cp** command. For example, to copy myfile to a folder called myfolder, run: **cp myfile myfolder/**

```
(kali@kali)-[~]
└─$ cd myfolder
(kali@kali)-[~/myfolder]
└─$ ls
```

```
(kali@kali)-[~/myfolder]
└─$ cd
(kali@kali)-[~]
└─$ cp myfile myfolder/
(kali@kali)-[~]
└─$ ls
Desktop  Documents  Downloads  Music  myfile  myfolder  Pictures  Public  Templates  Videos
```


Check whether myfile is available inside the myfolder by running: **ls myfolder**

```
(kali㉿kali)-[~] (kali㉿kali)-[~/Downloads]
└─$ cd myfolder
└─$ ls
myfile
```

If you want to copy a directory and its contents recursively, use the -r (or -R) option:
cp -r sourcedir/ destination/

```
(kali㉿kali)-[~/myfolder]
└─$ cd
└─$ mkdir destination
└─$ ls
Desktop  destination  Documents  Downloads  Music  myfile  myfolder  Pictures  Public  Templates  Videos
└─$ cp -r myfolder/ destination/
└─$ ls
Desktop  destination  Documents  Downloads  Music  myfile  myfolder  Pictures  Public  Templates  Videos
└─$ cd destination
└─$ ls
myfolder
```

Move (Rename) Files:

To move a file or rename it, use the mv command. For example, to rename myfile to newfile, run:

mv myfile newfile

```
(kali㉿kali)-[~/destination]
└─$ cd
└─$ ls
Desktop  destination  Documents  Downloads  Music  myfile  myfolder  Pictures  Public  Templates  Videos
└─$ mv myfile newfile
└─$ ls
Desktop  destination  Documents  Downloads  Music  myfolder  newfile  Pictures  Public  Templates  Videos
└─$
```

To move a file to a different directory, specify the destination:

mv newfile destination/

```
(kali㉿kali)-[~]  
$ mv newfile destination/
```

```
(kali㉿kali)-[~]  
$ cd destination  
  
(kali㉿kali)-[~/destination]  
$ ls  
myfolder  newfile  
  
(kali㉿kali)-[~/destination]  
$
```

Remove Files:

To remove a file, use the rm command. For example, to delete myfile, run: **rm myfile**

If you want to remove a directory and its contents recursively, use the -r (or -R) option:

rm -r destination/

```
(kali㉿kali)-[~/destination]  
$ cd  
  
(kali㉿kali)-[~]  
$ ls  
Desktop  destination  Documents  Downloads  Music  myfolder  Pictures  Public  Templates  Videos  
  
(kali㉿kali)-[~]  
$ rm -r destination/  
  
(kali㉿kali)-[~]  
$ ls  
Desktop  Documents  Downloads  Music  myfolder  Pictures  Public  Templates  Videos
```

grep Command: grep is used to search for text patterns within files. Here's a basic example:

Create a file called sample.txt using command **nano sample.txt** and add contents into it.

```
(kali㉿kali)-[~]  
$ nano sample.txt
```

```
File Actions Edit View Help
GNU nano 7.2
apple
orange
banana
mango
```

This command **grep "apple" sample.txt** will search for the word "apple" in the sample.txt file and display all lines containing that word. If you want to perform a case-insensitive search and display line numbers, you can use the **-i** (ignore case) and **-n** (line numbers) options: **grep -i -n "apple" sample.txt**

```
(kali㉿kali)-[~]
$ grep "apple" sample.txt
apple

(kali㉿kali)-[~]
$ grep -i -n "apple" sample.txt
1:apple
```

awk Command: awk is a powerful text processing tool that allows you to manipulate text data.

Create a file called data using command **nano data.txt** and add contents into it.

```
(kali㉿kali)-[~]
$ nano data.txt
```

```
File Actions Edit View Help
GNU nano 7.2
Name    Age    City
Alice   28     Chicago
Bob     32     New York
Charlie 40     Miami
David   45     Los Angeles
```

This command `awk '{print $2, $3}' data.txt` uses AWK to print the second and third columns from each line of data.txt.

```
(kali㉿kali)-[~]  
$ awk '{print $2, $3}' data.txt  
Age City  
28 Chicago  
32 New  
40 Miami  
45 Los  
  
(kali㉿kali)-[~]  
$
```

This command `awk '{ sum += $2}; END { print sum }' data.txt` calculates the sum of values in the second column of data.txt and prints it when processing is complete.

```
(kali㉿kali)-[~]  
$ awk '{ sum += $2 }; END { print sum }' data.txt  
145  
  
(kali㉿kali)-[~]  
$
```

Result

This comprehensive guide on Kali Linux provides essential commands and procedures for effective utilization of the operating system. It covers network configuration using `ifconfig`, system navigation with `pwd`, and shell information retrieval via `echo $SHELL`. Additionally, it includes installation and configuration instructions for the **Nessus Scanner**, a valuable vulnerability assessment tool. The guide also covers file and directory management, including copying, moving, and removal operations, and introduces powerful text processing commands like `grep` and `awk`. With these fundamental skills, users can confidently manage Linux systems and tackle programming tasks.