PROJECT LINUX FUNDAMENTALS

Objective: To create an automated system displaying host's Linux information including Linux version, network addresses and other computer information.

Contents:

- Linux Version
- IP Address
- Default Gateway
- Hard Disk Information
- Directories and Sizes
- CPU Usage

Linux Version

```
3    #Displaying the Linux Version.
4
5    echo "Your Linux Version: "
6
7    lsb_release -a
8
```

Command lsb_release prints the linux-specific information. The flag -a shows all the related information.

```
┌──(kali㉿kali)-[~]
└─$ bash linuxproject.sh
Your Linux Version:
No LSB modules are available.
Distributor ID: Kali
Description:    Kali GNU/Linux Rolling
Release:        2023.1
Codename:       kali-rolling
```

IP Address

```
9    #Displaying internal and broadcast IP Address.
10
11   echo "Your network information: "
12
13   ifconfig
14
```

Command ifconfig shows the network interface configuration including the internal IP address, subnet mask and broadcast IP address.

```
Your network information:
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.121.132  netmask 255.255.255.0  broadcast 192.168.121.255
        inet6 fe80::50ad:9ca:70eb:6f01  prefixlen 64  scopeid 0x20<link>
        ether 00:0c:29:ed:2d:36  txqueuelen 1000  (Ethernet)
        RX packets 91  bytes 16007 (15.6 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 36  bytes 4460 (4.3 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
```

Default Gateway

```
15    #Displaying default gateway.
16
17    echo "Your default gateway information: "
18
19    route
```

Command route shows the system's default gateway.

```
Your default gateway information:
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
default         192.168.121.2   0.0.0.0         UG    100    0        0 eth0
192.168.121.0   0.0.0.0         255.255.255.0   U     100    0        0 eth0
```

Hard Disk Information

```
21    #Displaying hard disk information.
22
23    echo "Your hard disk information: "
24
25    df -h
26
```

Command df reports file system space usage. The -h flag prints the information sizes in powers of 1024.

```
Your hard disk information:
Filesystem      Size  Used Avail Use% Mounted on
udev            943M     0  943M   0% /dev
tmpfs           197M  1.2M  196M   1% /run
/dev/sda1        79G   17G   58G  23% /
tmpfs           983M     0  983M   0% /dev/shm
tmpfs           5.0M     0  5.0M   0% /run/lock
tmpfs           197M   80K  197M   1% /run/user/1000
```

Directories and Sizes

```
26
27    #Displaying directories and sizes.
28
29    echo "Your directory information: "
30
31    du -h /home/kali | sort -h
32
```

The command du gives information on directories and their sizes. The -h option makes the data more readable in K, M and G. (Kilobytes, Megabytes and Gigabytes) Above is the directories in /home/kali folder and their sizes from smallest to biggest. Red box shows the top 5 biggest directories and '.' being kali folder itself.

```
Your directory information:
4.0K    /home/kali/APT-Hunter/.git/branches
4.0K    /home/kali/APT-Hunter/.git/objects/info
4.0K    /home/kali/APT-Hunter/.git/refs/tags
4.0K    /home/kali/.cache/doc
4.0K    /home/kali/.cache/gvfs
4.0K    /home/kali/.cache/gvfsd
4.0K    /home/kali/.cache/keyring-E1PFD2
4.0K    /home/kali/.cache/mesa_shader_cache
4.0K    /home/kali/.cache/mozilla/firefox/c2rl0wx1.default
4.0K    /home/kali/.cache/obexd
4.0K    /home/kali/.cache/sessions
4.0K    /home/kali/.cache/vmware/drag_and_drop/4yZ1VA
4.0K    /home/kali/.config/freerdp/certs
4.0K    /home/kali/.config/freerdp/server
4.0K    /home/kali/.config/geany/tags
4.0K    /home/kali/.config/geany/templates/files
4.0K    /home/kali/.config/libreoffice/4/user/config/soffice.cfg/modules/scalc/images/Bitmaps
4.0K    /home/kali/.config/libreoffice/4/user/config/soffice.cfg/modules/scalc/menubar
```

CPU Usage

```
33    #Displaying CPU usage at intervals.
34
35    echo "CPU Usage: "
36
37    mpstat 10
```

The command mpstat shows the CPU usage. Add the intervals in seconds to automatically refresh the data. Ctrl + c to end the process.

```
CPU Usage:
Linux 6.1.0-kali5-amd64 (kali)  01/11/2024       _x86_64_        (4 CPU)

05:17:06 PM  CPU   %usr   %nice   %sys %iowait    %irq   %soft  %steal  %guest  %gnice   %idle
05:17:16 PM  all   0.10    0.00   0.35    0.00    0.00   0.15    0.00    0.00    0.00   99.40
05:17:26 PM  all   0.05    0.00   0.65    0.00    0.00   0.15    0.00    0.00    0.00   99.14
05:17:36 PM  all   0.05    0.00   0.48    0.00    0.00   0.15    0.00    0.00    0.00   99.32
05:17:46 PM  all   0.10    0.00   0.70    0.03    0.00   0.18    0.00    0.00    0.00   99.00
05:17:56 PM  all   0.35    0.00   0.73    0.00    0.00   0.18    0.00    0.00    0.00   98.75
05:18:06 PM  all   2.21    0.00   0.98    0.00    0.00   0.35    0.00    0.00    0.00   96.45
05:18:16 PM  all   0.10    0.00   0.48    0.00    0.00   0.05    0.00    0.00    0.00   99.37
05:18:26 PM  all   0.08    0.00   0.43    0.00    0.00   0.10    0.00    0.00    0.00   99.40
05:18:36 PM  all   0.08    0.00   0.40    0.00    0.00   0.15    0.00    0.00    0.00   99.37
```

References

https://linuxconfig.org/how-to-check-kali-linux-version

https://www.hostinger.in/tutorials/vps/how-to-check-and-manage-disk-space-via-terminal

https://phoenixnap.com/kb/show-linux-directory-size

https://phoenixnap.com/kb/check-cpu-usage-load-linux