

Centre for Cybersecurity

Linux Fundamentals Project:

OS Info

Aux-User

S5

CFC020223

Objectives

- Display the Linux version
- Display private IP, public IP and default gateway addresses
- Display hard disk size, used and available space
- Display top 5 directories and size
- Display CPU usage with refresh rate of 10 seconds

My Script

```
hi2ip2var.sh x  varicomm.sh x  rpg.sh x  getnum.sh x  loop100.sh x  colour.sh x  statrep.sh x
1  #!/bin/bash
2
3  figlet -f digital 'Welcome, User'
4  echo ' '
5  echo 'Here is a summary of your system stats.'
6  echo ' '
7  echo 'Your Operating System and version is:'
8  hostnamectl | grep System | awk -F: '{print$2}'
9  echo ' '
10 echo 'Your internal IP is:'
11 ifconfig | grep broadcast | awk '{print$2}'
12 echo 'Your default gateway is:'
13 route | grep UG | awk '{print $2}'
14 echo 'Your public IP is:'
15 IPX=$(curl -s ifconfig.co)
16 echo "$IPX"
17 echo ' '
18 echo 'Your storage details are as follows:'
19 df -H | grep -E 'File|sda'
20 echo ' '
21 echo 'Your 5 largest directories are:'
22 du ~ | sort -nr | head -5
23 echo ' '
24 RED='\033[0;31m'
25 CLR='\033[0m'
26 echo -e "CPU usage is displayed below. It is refreshed every 10 seconds. ${RED}PRESS CTRL+C TO END.${CLR}"
27 top -d 10
28
29
```

} Script Start (QOL)

} Linux Version

} IP & Gateway Addresses

} Disk & Directory Details

} CPU Usage

Linux Version

```
statrep.sh x hi2ip2var.sh x varicomm.sh x rpg.sh x getnum.sh x loop10
No symbols found
1  #!/bin/bash
2
3  figlet -f digital 'Welcome, User'
4  echo ' '
5  echo 'Here is a summary of your system stats.'
6  echo ' '
7  echo 'Your Operating System and version is:'
8  hostnamectl | grep System | awk -F: '{print$2}'
9  echo ' '
```

Status

Compiler

Messages

Scribble

Terminal

```
(kali㉿kali)-[~/cfc0202/scriptlib]
$ bash statrep.sh
+---+---+---+---+---+---+---+---+---+
|W|e|l|c|o|m|e|,| |U|s|e|r|
+---+---+---+---+---+---+---+---+---+

Here is a summary of your system stats.

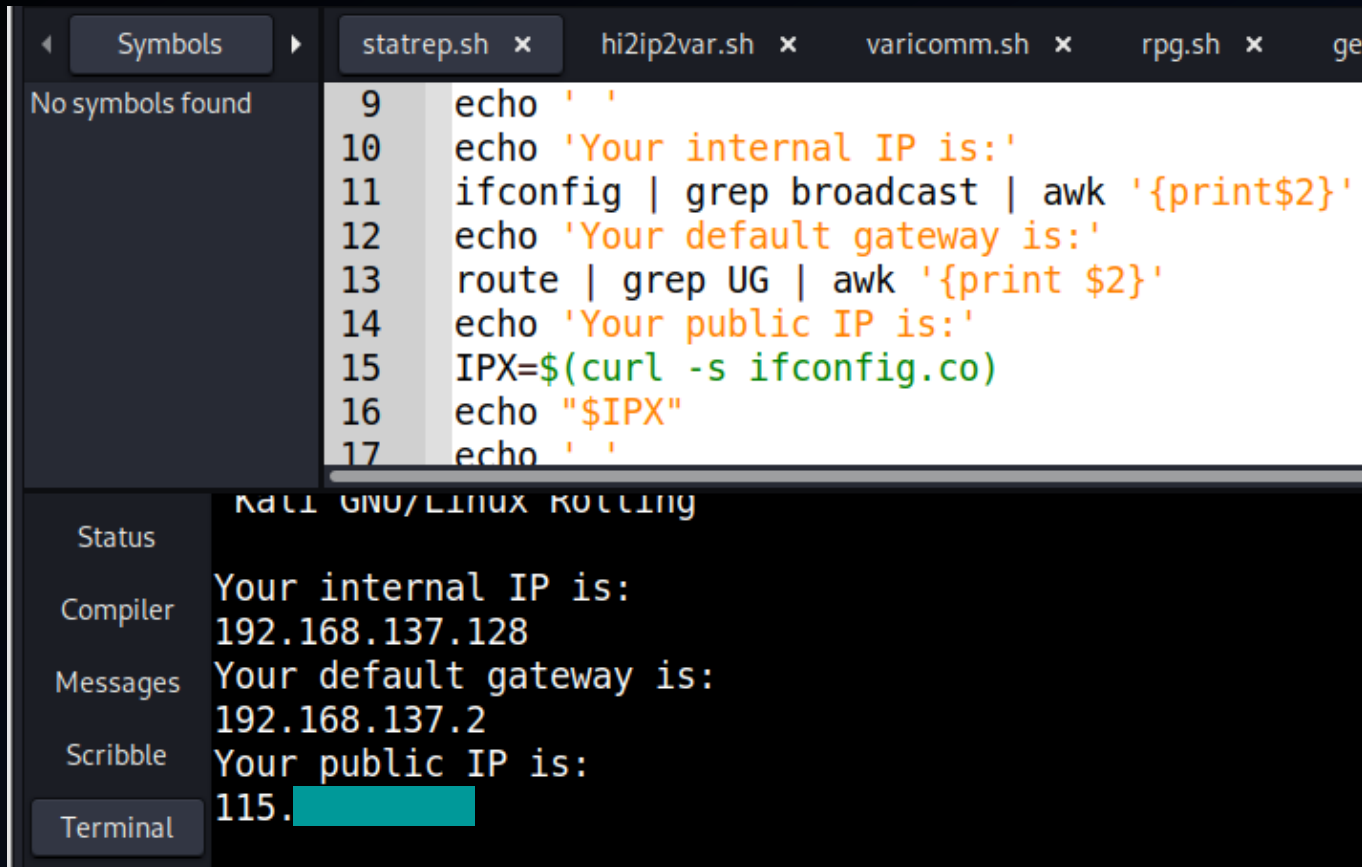
Your Operating System and version is:
Kali GNU/Linux Rolling
```

Comments

The OS name and version were obtained using the `hostnamectl` command. It allows users to change host names but for the purposes of this script, it provides plenty of other information should the user need them such as Kernel, machine details, etc. The details are also provided in a neat `xx:yy` format, which allows for a short `awk` to pull the needed details using the `“:”` as a separator.

The opening greeting for the user and a summary of what the user should expect from the script are some minor quality of life details added to tidy up the script.

IP and Gateway Addresses



```
9 echo ' '
10 echo 'Your internal IP is:'
11 ifconfig | grep broadcast | awk '{print$2}'
12 echo 'Your default gateway is:'
13 route | grep UG | awk '{print $2}'
14 echo 'Your public IP is:'
15 IPX=$(curl -s ifconfig.co)
16 echo "$IPX"
17 echo ' '
```

CALL GNU/LINUX ROLLING

Status

Compiler Your internal IP is:
192.168.137.128

Messages Your default gateway is:
192.168.137.2

Scribble Your public IP is:
115. [REDACTED]

Terminal

Comments

Internal IP address was obtained using the `ifconfig` command. It shows the network interfaces on the system. The address is under `inet` and isolated for print using `UG` for `grep` and column 2 for that line.

Default gateway address was obtained using the `route` command. It shows the routing table and so will display the default gateway details, which can be isolated for print using `UG` for `grep` and column 2 for that line.

Public IP address was obtained using the `curl` command. It is normally used for data transfer but when used on a website whose sole purpose is to return the IP address of the system connecting to it, we can determine our own public IP. The `-s` is to block our other messages from the terminal when the command is executed, allowing only the final results to be displayed.

Disk and Directory Details

```
nbols  ▶  statrep.sh ×  hi2ip2var.sh ×  varicomm.sh ×  rpg.sh ×  getnum.sh ×
ls found 17 echo ' '
18 echo 'Your storage details are as follows:'
19 df -H | grep -E 'File|sda'
20 echo ' '
21 echo 'Your 5 largest directories are:'
22 du ~ | sort -nr | head -5
23 echo ' '

115.66.62.87

er Your storage details are as follows:
es Filesystem      Size  Used Avail Use% Mounted on
e  /dev/sda1        85G   17G   64G   21% /
al Your 5 largest directories are:
83716 /home/kali
54268 /home/kali/.cache
52620 /home/kali/.cache/mozilla
52616 /home/kali/.cache/mozilla/firefox
52608 /home/kali/.cache/mozilla/firefox/r7518ns0.default-esr
```

Comments

Storage details were obtained using the `df` command. `-H` was used to display the storage in Gigabytes and `grep` was used to display both the column headers in conjunction with the drive details so the figures can be understood.

To determine the largest 5 directories, the `du` command was used. `~` was entered as a parameter so wherever this script is run, it will take stock from the home directory without the user having to move the file. From there, the results are sorted in reverse numerical order and `head -5` takes the ones we are looking for.

CPU Usage

```
nbols  statrep.sh x hi2ip2var.sh x varicomm.sh x rpg.sh x getnum.sh x loop100.sh x colour.sh x
ls found 23 echo ' '
24 RED='\033[0;31m'
25 CLR='\033[0m'
26 echo -e "CPU usage is displayed below. It is refreshed every 10 seconds. ${RED}PRESS CTRL+C TO END.${CLR}"
27 top -d 10
28
29

CPU usage is displayed below. It is refreshed every 10 seconds. PRESS CTRL+C TO END.

top - 08:53:35 up 16:11, 1 user, load average: 0.04, 0.10, 0.06
Tasks: 208 total, 1 running, 207 sleeping, 0 stopped, 0 zombie
%Cpu(s): 3.1 us, 1.6 sy, 0.0 ni, 93.8 id, 0.0 wa, 0.0 hi, 1.6 si, 0.0 st
MiB Mem : 1972.9 total, 178.1 free, 728.3 used, 1066.5 buff/cache
MiB Swap: 1024.0 total, 820.4 free, 203.6 used, 1034.9 avail Mem

  PID USER      PR  NI  VIRT  RES  SHR S %CPU  %MEM    TIME+  COMMAND
  825 root        20   0 541724 208236 74292 S 12.5  10.3 15:15.24 Xorg
    15 root        20   0      0      0      0 I  6.2   0.0  1:14.33 rcu preempt
  1110 kali        20   0 1231736 82380 68004 S  6.2   4.1  5:32.49 xfwm4
 253536 kali        20   0  10180  3768  3148 R  6.2   0.2  0:00.01 top
     1 root        20   0 167708 12172  8876 S  0.0   0.6  0:03.97 systemd
     2 root        20   0      0      0      0 S  0.0   0.0  0:00.13 kthreadd
     3 root         0 -20      0      0      0 I  0.0   0.0  0:00.00 rcu_gp
     4 root         0 -20      0      0      0 I  0.0   0.0  0:00.00 rcu_par_gp
     5 root         0 -20      0      0      0 I  0.0   0.0  0:00.00 slub_flushwq
     6 root         0 -20      0      0      0 I  0.0   0.0  0:00.00 netns
     8 root         0 -20      0      0      0 I  0.0   0.0  0:00.00 kworker/0:0H-events_highpri
    10 root         0 -20      0      0      0 I  0.0   0.0  0:00.00 mm_percpu_wq
    11 root        20   0      0      0      0 I  0.0   0.0  0:00.00 rcu_tasks_kthread
```

Comments

CPU usage can be determined using the top command. To meet the requirements of this assignment, -d 10 was used to change the refresh rate to 10 seconds.

The comment in red highlighting how to stop the monitoring is a small quality of life detail added to assist inexperienced users.

statrep.sh

File Actions Edit View Help

└─\$ bash statrep.sh

```
+-----+ +-----+
|W|e|l|c|o|m|e|,| |U|s|e|r|
+-----+ +-----+
```

Here is a summary of your system stats.

Your Operating System and version is:
Kali GNU/Linux Rolling

Your internal IP is:
192.168.137.128
Your default gateway is:
192.168.137.2
Your public IP is:
115.██████████

Your storage details are as follows:

Filesystem	Size	Used	Avail	Use%	Mounted on
/dev/sda1	85G	17G	64G	21%	/

Your 5 largest directories are:

83716	/home/kali
54268	/home/kali/.cache
52620	/home/kali/.cache/mozilla
52616	/home/kali/.cache/mozilla/firefox
52608	/home/kali/.cache/mozilla/firefox/r7518ns0.default-esr

CPU usage is displayed below. It is refreshed every 10 seconds. **PRESS CTRL+C TO END.**

```
top - 09:00:22 up 16:17, 1 user, load average: 0.29, 0.13, 0.09
Tasks: 206 total, 1 running, 205 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.7 us, 1.3 sy, 0.0 ni, 97.8 id, 0.0 wa, 0.0 hi, 0.2 si, 0.0 st
MiB Mem : 1972.9 total, 200.5 free, 705.9 used, 1066.5 buff/cache
MiB Swap: 1024.0 total, 820.4 free, 203.6 used. 1057.4 avail Mem
```