

Linux Projects – Simple Network Scanner Web App (nmap)

Aim: To scan the networks nearby and print those network information is stored in a text file using linux software.

Purpose: This project allows you to create a simple network scanner that is accessible from a web browser on the network. Essentially with this project we use a Cron Job every 10 minutes to trigger nmap to scan out network and output the results into a text file. We then use a php file to format the text file, add a few things, and present the results for a web browser.

Tools Used:

Linux:

Linux is an open-source operating system like other operating systems such as Microsoft Windows, Apple Mac OS, iOS, Google android, etc. An operating system is a software that enables the communication between computer hardware and software. It conveys input to get processed by the processor and brings output to the hardware to display it. This is the basic function of an operating system. Although it performs many other important tasks, let's not talk about that. Linux is around us since the mid-90s. It can be used from wristwatches to supercomputers. It is everywhere in our phones, laptops, PCs, cars and even in refrigerators. It is very much famous among developers and normal computer users. Linux works based on commands (command line interface).

Virtual machine:

Virtual machines are best for running multiple applications together, monolithic applications, isolation between apps, and for legacy apps running on older operating systems. Containers and virtual machines may also be used together.

A Virtual Machine (VM) is a compute resource that uses software instead of a physical computer to run programs and deploy apps. One or more virtual “guest” machines run on a physical “host” machine. Each virtual machine runs its own operating system and functions separately from the other VMs, even when they are all running on the same host. Virtual machines (VMs) allow a business to run an operating system that behaves like a completely separate computer in an app window on a desktop. VMs may be deployed to accommodate different levels of processing power needs, to run software that requires a different operating system, or to test applications in a safe, sandboxed environment. Virtual machine is used to operate the Centos and Ubuntu etc... to use Linux in a windows system or a mac iOS system. Centos vision 9 is used and ubuntu 18.04 is used in my system.



Ubuntu:

Ubuntu is a free and open-source Linux distribution based on Debian. It is one of the most popular Linux distributions in the world, and is used by millions of people around the globe. Ubuntu is known for its ease of use, stability, and large community of users and developers. Ubuntu is a complete desktop operating system, and includes a wide range of software, including a web browser, email client, office suite, media player, and more. Ubuntu is also available in a server edition, which is used by businesses and organizations to host websites, file servers, and other applications. Ubuntu is a great choice for anyone looking for a free and open-source Linux distribution. It is easy to use, stable, and has a large community of users and developers. If you are new to Linux, Ubuntu is a great place to start.



Prerequisites:

Linux – Cron Jobs for Scheduled Tasks (crontab)

Linux – Change Permissions and Ownership for Files and Folders (chmod, chown, members, groups)

Code:

Install Apache2, PHP and nmap

```
sudo apt-get install apache2
```

```
sudo apt-get install php
```

```
sudo apt-get install nmap
```

Configure Ownership and Permissions (This is a Bad Idea)

```
sudo chown ubuntu /var/www/html
```

```
sudo chmod 777 /var/www/html
```

Cron Job Configuration

```
sudo crontab -e
```

```
*/10 * * * * nmap 192.168.1.0/24 -oN /var/www/html/nmap.html
```

network.php

```
<?php
```

```
echo "Server Timestamp: ";
```

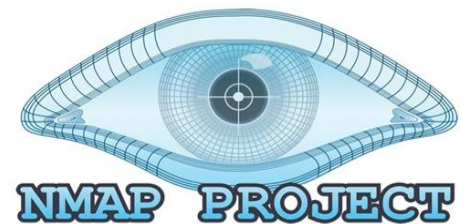
```
echo date("h:i:sa");
```

```
echo "<pre>";
```

```
include("nmap.html");
```

```
echo "</pre>";
```

```
?>
```



Output:

Server Timestamp: 02:29:53pm

```
# Nmap 7.80 scan initiated Wed Jul 1 14:20:01 2020 as: nmap -oN /var/www/html/nmap.html 192.168.1.0/24
Nmap scan report for _gateway (192.168.1.1)
Host is up (0.00040s latency).
Not shown: 997 closed ports
PORT      STATE SERVICE
53/tcp    open  domain
80/tcp    open  http
5000/tcp  open  upnp
MAC Address: 10:0C:6B:0D:8C:ED (Netgear)

Nmap scan report for 192.168.1.2
Host is up (0.00083s latency).
Not shown: 998 closed ports
PORT      STATE SERVICE
5009/tcp  open  airport-admin
10000/tcp open  snet-sensor-mgmt
MAC Address: 80:EA:96:E8:72:1B (Apple)

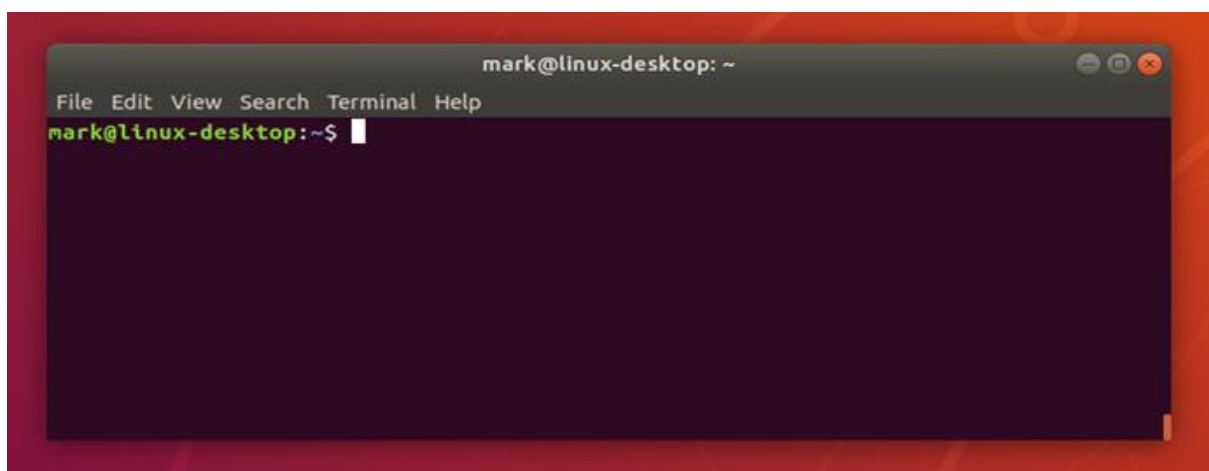
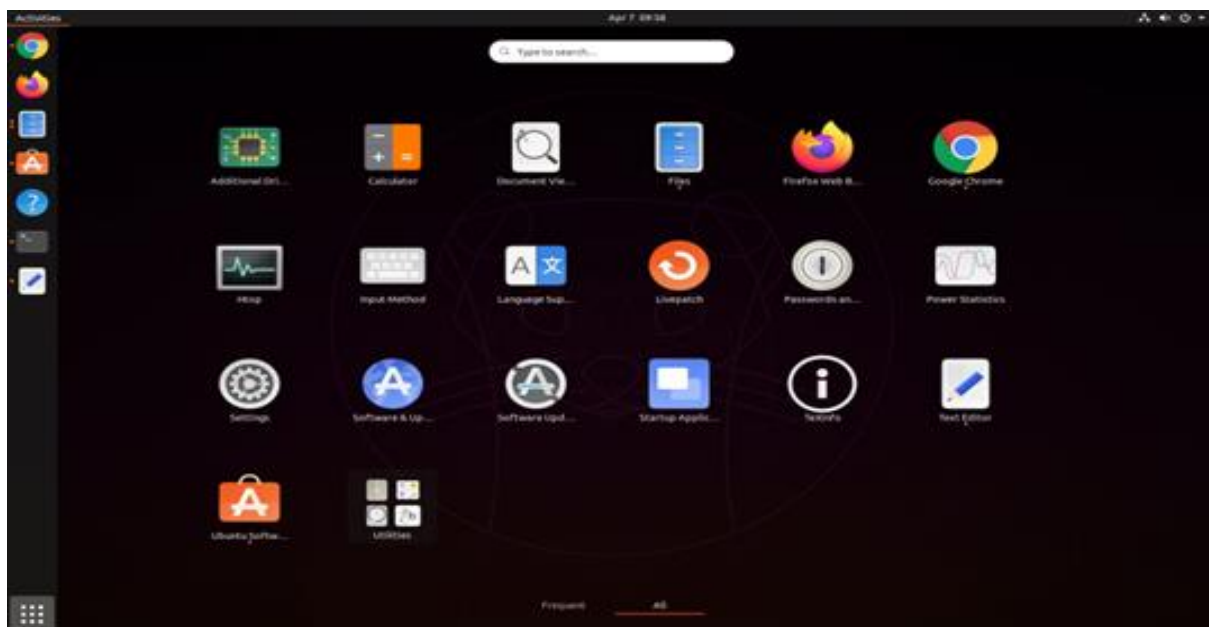
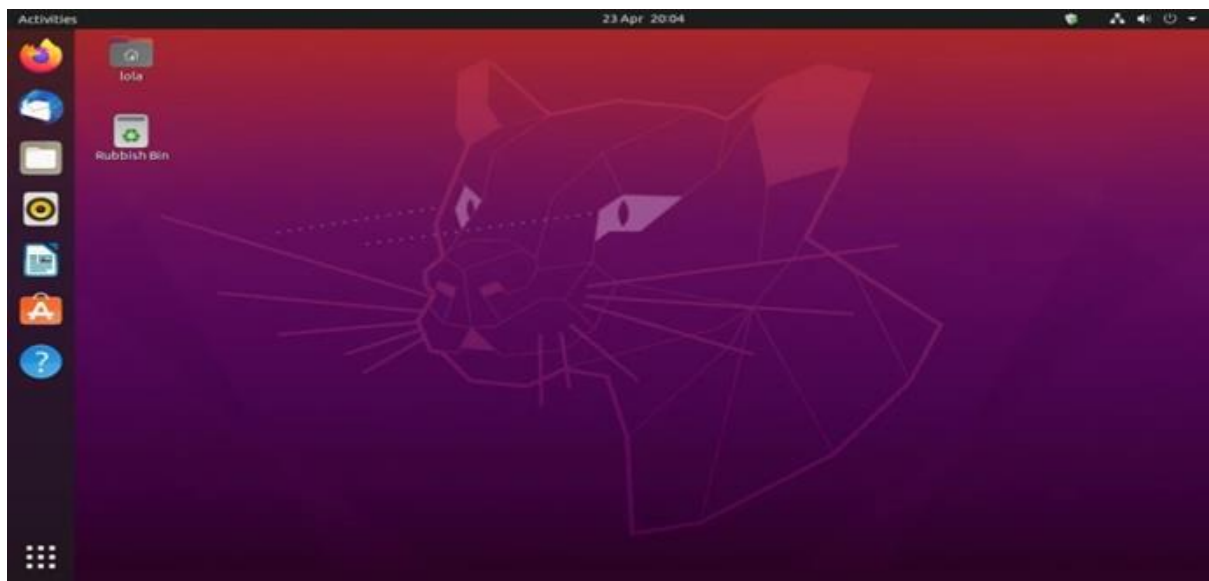
Nmap scan report for 192.168.1.3
Host is up (0.0060s latency).
Not shown: 996 closed ports
PORT      STATE SERVICE
1322/tcp  filtered novation
1700/tcp  filtered mps-raft
10566/tcp filtered unknown
62078/tcp open   iphone-sync
MAC Address: 8C:86:1E:B1:34:6F (Apple)

Nmap scan report for 192.168.1.8
Host is up (0.0044s latency).
Not shown: 993 closed ports
PORT      STATE SERVICE
5000/tcp  open  upnp
7000/tcp  open  afs3-fileserver
7100/tcp  open  font-service
49152/tcp open  unknown
49153/tcp open  unknown
49154/tcp open  unknown
62078/tcp open  iphone-sync
```

Bad idea:

Server Timestamp: 03:06:47pm# Nmap 7.80 scan initiated Wed Jul 1 14:50:01 2020 as: nmap -oN /var/www/html/nmap.html 192.168.1.0/24 Nmap scan report for _gateway (192.168.1.1) Host is up (0.00045s latency). Not shown: 997 closed ports PORT STATE SERVICE 53/tcp open domain 80/tcp open http 5000/tcp open upnp MAC Address: 10:0C:6B:0D:8C:ED (Netgear) Nmap scan report for 192.168.1.2 Host is up (0.00084s latency). Not shown: 998 closed ports PORT STATE SERVICE 5009/tcp open airport-admin 10000/tcp open snet-sensor-mgmt MAC Address: 80:EA:96:E8:72:1B (Apple) Nmap scan report for 192.168.1.3 Host is up (0.075s latency). Not shown: 996 closed ports PORT STATE SERVICE 1065/tcp filtered syscomlan 6156/tcp filtered unknown 9010/tcp filtered sdr 62078/tcp open iphone-sync MAC Address: 8C:86:1E:B1:34:6F (Apple) Nmap scan report for 192.168.1.8 Host is up (0.0041s latency). Not shown: 993 closed ports PORT STATE SERVICE 5000/tcp open upnp 7000/tcp open afs3-fileserver 7100/tcp open font-service 49152/tcp open unknown 49153/tcp open unknown 49154/tcp open unknown 62078/tcp open iphone-sync MAC Address: D0:03:4B:03:BA:07 (Apple) Nmap scan report for 192.168.1.11 Host is up (0.00094s latency). All 1000 scanned ports on 192.168.1.11 are filtered MAC Address: 90:72:40:05:C9:15 (Apple) Nmap scan report for 192.168.1.12 Host is up (0.0045s latency). Not shown: 998 closed ports PORT STATE SERVICE 53/tcp open domain 80/tcp open http MAC Address: 28:80:88:47:C1:08 (Netgear) Nmap scan report for 192.168.1.13 Host is up (0.013s latency). Not shown: 992 closed ports PORT STATE SERVICE 80/tcp open http 139/tcp open netbios-ssn 443/tcp open https 445/tcp open microsoft-ds 631/tcp open ipp 8080/tcp open http-proxy 9100/tcp open jetdirect 9220/tcp open unknown MAC Address: 34:64:A9:44:C8:62 (Hewlett Packard) Nmap scan report for 192.168.1.14 Host is up (0.0051s latency). Not shown: 998 closed ports PORT STATE SERVICE 53/tcp open domain 80/tcp open http MAC Address: 28:80:88:47:C0:18 (Netgear) Nmap scan report for 192.168.1.15 Host is up (0.00017s latency). Not shown: 999 closed ports PORT STATE SERVICE 49175/tcp open unknown MAC Address: 94:F6:D6:F3:DC:A6 (Apple) Nmap scan report for 192.168.1.17 Host is up (0.028s latency). Not shown: 999 closed ports PORT STATE SERVICE 49152/tcp open unknown MAC Address: F0:18:98:24:D0:BC (Apple) Nmap scan report for 192.168.1.19 Host is up (0.036s latency). Not shown: 994 closed ports PORT STATE SERVICE 5000/tcp open upnp 7000/tcp open afs3-fileserver 7100/tcp open font-service 49152/tcp open unknown 49153/tcp open unknown 62078/tcp open iphone-sync MAC Address: D4:90:9C:D4:C5:68 (Apple) Nmap scan report for 192.168.1.20 Host is up (0.087s latency). Not shown: 902 closed ports, 97 filtered ports PORT STATE SERVICE 62078/tcp open iphone-sync MAC Address: F8:6F:C1:9A:2C:A4 (Apple) Nmap scan report for 192.168.1.21 Host is up (0.00038s latency). Not shown: 996 closed ports PORT STATE SERVICE 445/tcp open microsoft-ds 548/tcp open afp 49152/tcp open unknown 49153/tcp open unknown MAC Address: 68:5B:35:AA:61:2B (Apple) Nmap scan report for ubuntu (192.168.1.23) Host is up (0.00027s latency). Not shown: 998 closed ports PORT STATE SERVICE 22/tcp open ssh 80/tcp open http# Nmap done at Wed Jul 1 15:01:18 2020 -- 256 IP addresses (14 hosts up) scanned in 677.11 seconds

Ubuntu: (how to start)



Network Scanner

```
Host is up (0.0036s latency).
```

PORT	STATE	SERVICE
1	AL	ALBANY
2	AL	ALBUQUERQUE
3	AL	ALBUQUERQUE
4	AL	ALBUQUERQUE
5	AL	ALBUQUERQUE
6	AL	ALBUQUERQUE
7	AL	ALBUQUERQUE
8	AL	ALBUQUERQUE
9	AL	ALBUQUERQUE
10	AL	ALBUQUERQUE
11	AL	ALBUQUERQUE
12	AL	ALBUQUERQUE
13	AL	ALBUQUERQUE
14	AL	ALBUQUERQUE
15	AL	ALBUQUERQUE
16	AL	ALBUQUERQUE
17	AL	ALBUQUERQUE
18	AL	ALBUQUERQUE
19	AL	ALBUQUERQUE
20	AL	ALBUQUERQUE
21	AL	ALBUQUERQUE
22	AL	ALBUQUERQUE
23	AL	ALBUQUERQUE
24	AL	ALBUQUERQUE
25	AL	ALBUQUERQUE
26	AL	ALBUQUERQUE
27	AL	ALBUQUERQUE
28	AL	ALBUQUERQUE
29	AL	ALBUQUERQUE
30	AL	ALBUQUERQUE
31	AL	ALBUQUERQUE
32	AL	ALBUQUERQUE
33	AL	ALBUQUERQUE
34	AL	ALBUQUERQUE
35	AL	ALBUQUERQUE
36	AL	ALBUQUERQUE
37	AL	ALBUQUERQUE
38	AL	ALBUQUERQUE
39	AL	ALBUQUERQUE
40	AL	ALBUQUERQUE
41	AL	ALBUQUERQUE
42	AL	ALBUQUERQUE
43	AL	ALBUQUERQUE
44	AL	ALBUQUERQUE
45	AL	ALBUQUERQUE
46	AL	ALBUQUERQUE
47	AL	ALBUQUERQUE
48	AL	ALBUQUERQUE
49	AL	ALBUQUERQUE
50	AL	ALBUQUERQUE
51	AL	ALBUQUERQUE
52	AL	ALBUQUERQUE
53	AL	ALBUQUERQUE
54	AL	ALBUQUERQUE
55	AL	ALBUQUERQUE
56	AL	ALBUQUERQUE
57	AL	ALBUQUERQUE
58	AL	ALBUQUERQUE
59	AL	ALBUQUERQUE
60	AL	ALBUQUERQUE
61	AL	ALBUQUERQUE
62	AL	ALBUQUERQUE
63	AL	ALBUQUERQUE
64	AL	ALBUQUERQUE
65	AL	ALBUQUERQUE
66	AL	ALBUQUERQUE
67	AL	ALBUQUERQUE
68	AL	ALBUQUERQUE
69	AL	ALBUQUERQUE
70	AL	ALBUQUERQUE
71	AL	ALBUQUERQUE
72	AL	ALBUQUERQUE
73	AL	ALBUQUERQUE
74	AL	ALBUQUERQUE
75	AL	ALBUQUERQUE
76	AL	ALBUQUERQUE
77	AL	ALBUQUERQUE
78	AL	ALBUQUERQUE
79	AL	ALBUQUERQUE
80	AL	ALBUQUERQUE
81	AL	ALBUQUERQUE
82	AL	ALBUQUERQUE
83	AL	ALBUQUERQUE
84	AL	ALBUQUERQUE
85	AL	ALBUQUERQUE
86	AL	ALBUQUERQUE
87	AL	ALBUQUERQUE
88	AL	ALBUQUERQUE
89	AL	ALBUQUERQUE
90	AL	ALBUQUERQUE
91	AL	ALBUQUERQUE
92	AL	ALBUQUERQUE
93	AL	ALBUQUERQUE
94	AL	ALBUQUERQUE
95	AL	ALBUQUERQUE
96	AL	ALBUQUERQUE
97	AL	ALBUQUERQUE
98	AL	ALBUQUERQUE
99	AL	ALBUQUERQUE
100	AL	ALBUQUERQUE

```
80/tcp    open    http
```

MAC Address: 10:0C:

Nmap scan report for

