

# HW05 - Linux

## UBNetDef Systems Security(SysSec)

October 07, 2021



UBNetDef

**SUBMITTED BY**

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## Firewall Rules

The screenshot shows the Mikrotik WinBox interface for configuring Firewall Rules. The breadcrumb navigation at the top reads "Firewall / Rules / OPT1". Below this, there are tabs for "Floating", "WAN", "LAN", and "OPT1", with "OPT1" being the active tab. The main area displays a table of rules with the header "Rules (Drag to Change Order)". The table has columns for "States", "Protocol", "Source", "Port", "Destination", "Port", "Gateway", "Queue", "Schedule", "Description", and "Actions". There are five rules listed:

States	Protocol	Source	Port	Destination	Port	Gateway	Queue	Schedule	Description	Actions
0 / 49 KIB	IPv4 UDP	*	*	*	53 (DNS)	*	none			[Anchor] [Edit] [Copy] [Delete]
0 / 191.50 MiB	IPv4 TCP	*	*	*	443 (HTTPS)	*	none			[Anchor] [Edit] [Copy] [Delete]
0 / 378.18 MiB	IPv4 TCP	*	*	*	80 (HTTP)	*	none			[Anchor] [Edit] [Copy] [Delete]
0 / 3 KiB	IPv4 ICMP	*	*	*	*	*	none			[Anchor] [Edit] [Copy] [Delete]
0 / 20.47 MiB	IPv4 *	*	*	*	*	*	none			[Anchor] [Edit] [Copy] [Delete]

At the bottom right of the table, there are buttons for "Add", "Add", "Delete", "Save", and "Separator".

Figure: Firewall rules on DMZ

## Linux Server Setup

### 1. WEB:

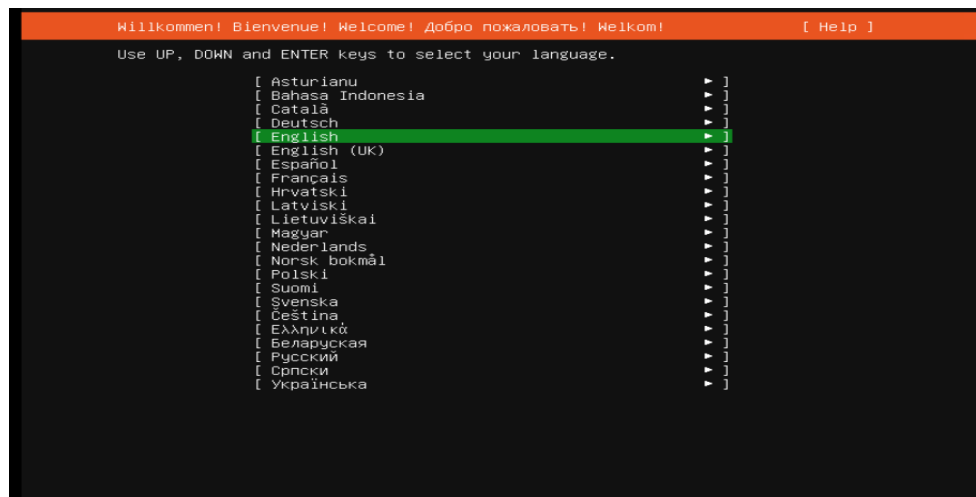


Figure: Choosing Language - Installation

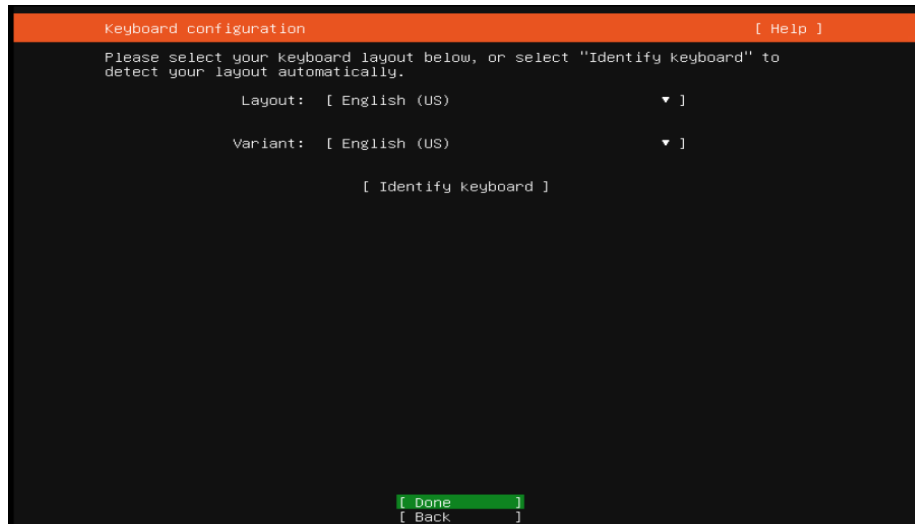


Figure: Choosing Keyboard Layout - Installation

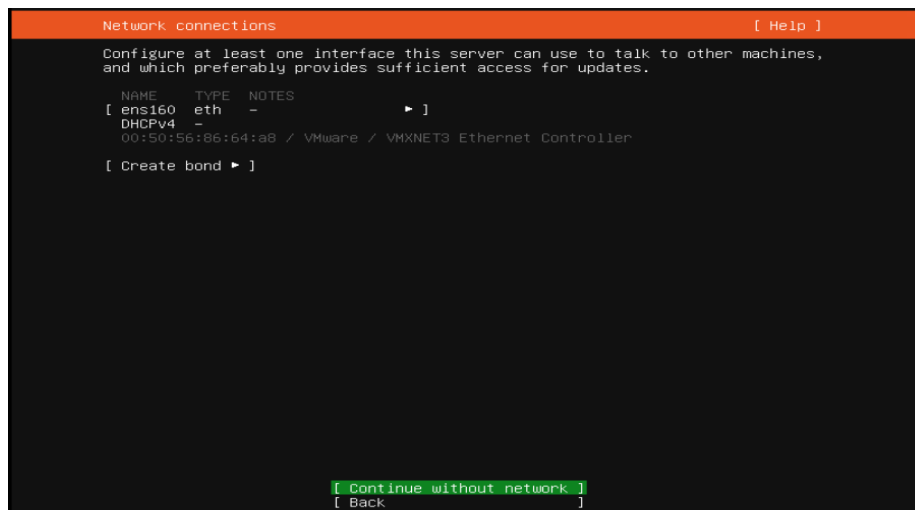


Figure: Network Configuration - Default

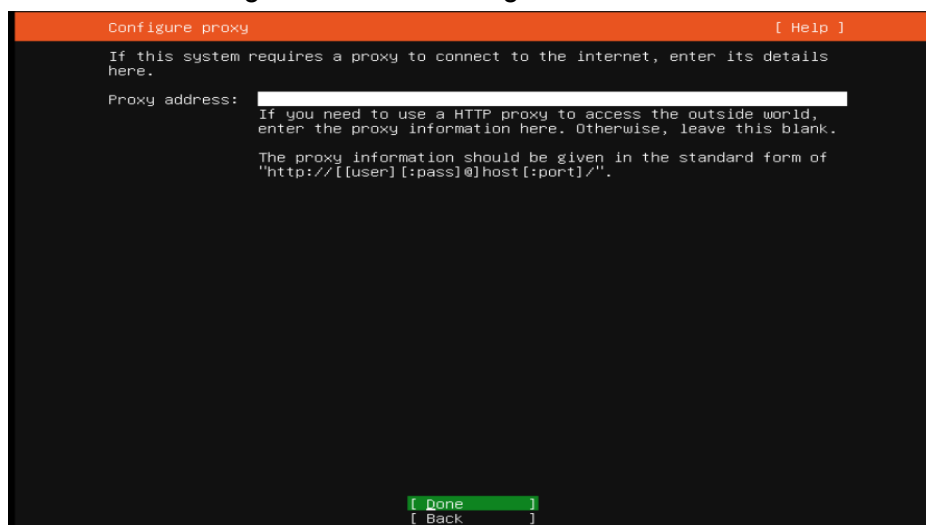


Figure: Proxy Configuration - Default

Configure Ubuntu archive mirror [ Help ]

If you use an alternative mirror for Ubuntu, enter its details here.

Mirror address:

You may provide an archive mirror that will be used instead of the default.

Done

Back

Figure: Ubuntu mirror - Default

Guided storage configuration [ Help ]

Configure a guided storage layout, or create a custom one:

☒ Use an entire disk

[ /dev/sda local disk 40.000G ▾ ]

☒ Set up this disk as an LVM group

[ ] Encrypt the LVM group with LUKS

Passphrase:

Confirm passphrase:

☐ Custom storage layout

Done

Back

Figure: Storage Configuration - Default

Storage configuration [ Help ]

FILE SYSTEM SUMMARY

MOUNT POINT	SIZE	TYPE	DEVICE TYPE
[ /	20.000G	new ext4	new LVM logical volume ▸ ]
[ /boot	1.000G	new ext4	new partition of local disk ▸ ]

AVAILABLE DEVICES

DEVICE	TYPE	SIZE
[ ubuntu-vg (new)	LVM volume group	38.996G ▸ ]
free space		18.996G

[ Create software RAID (md) ▸ ]

[ Create volume group (LVM) ▸ ]

USED DEVICES

DEVICE	TYPE	SIZE
[ ubuntu-vg (new)	LVM volume group	38.996G ▸ ]
ubuntu-lv	new, to be formatted as ext4, mounted at /	20.000G ▸ ]
[ /dev/sda	local disk	40.000G ▸ ]
partition 1	new, bios_grub	1.000M ▸ ]
partition 2	new, to be formatted as ext4, mounted at /boot	1.000G ▸ ]
partition 3	new, PV of LVM volume group ubuntu-vg	38.997G ▸ ]

Done

Reset

Back

Figure: File System Summary

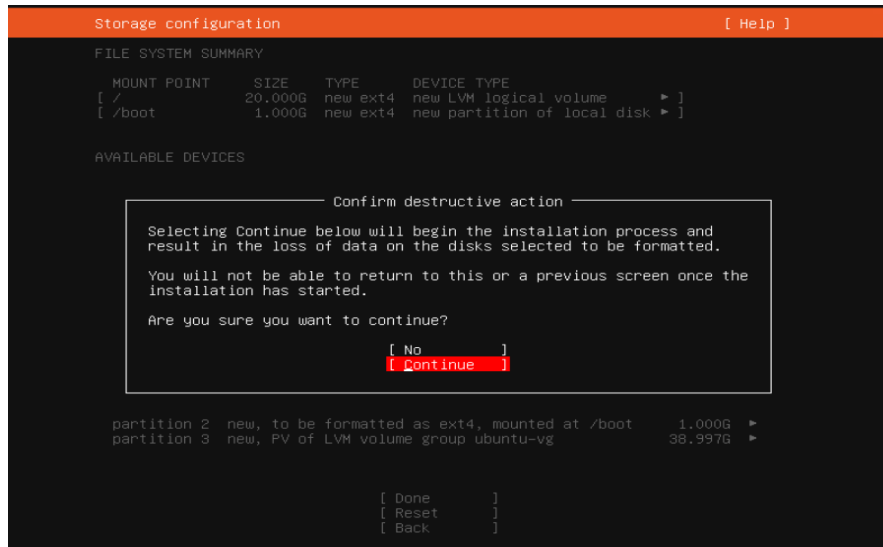


Figure: Confirmation - *Continue*

Set name: sysadmin, server: web4, Password: Change.me!

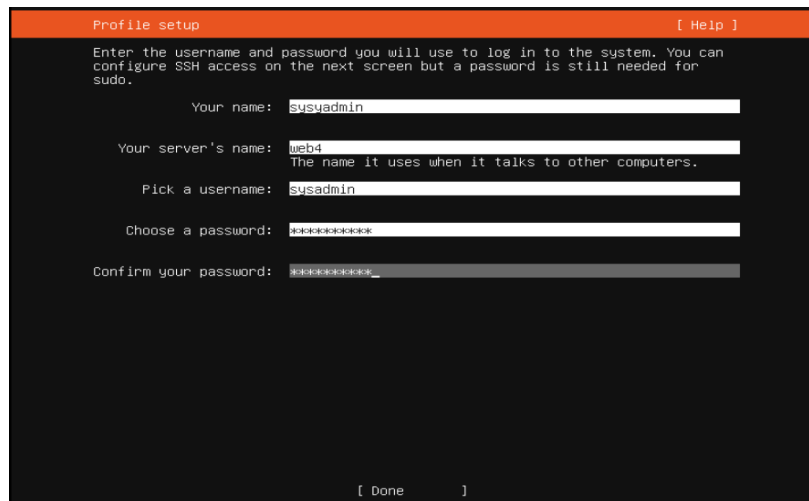


Figure: Setting up *sysadmin* profile

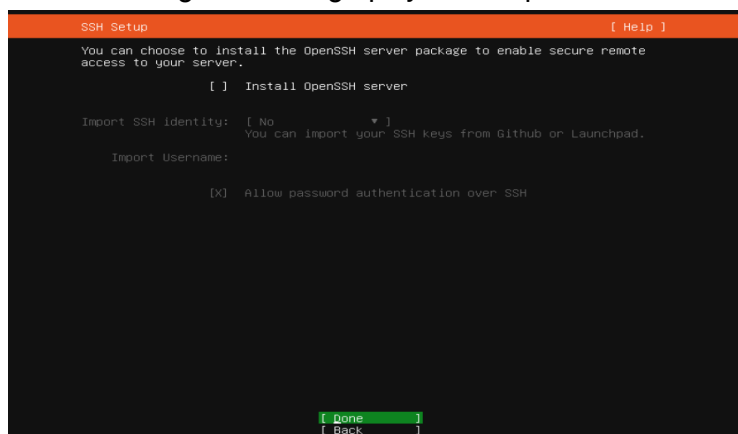


Figure: SSH setup - Default

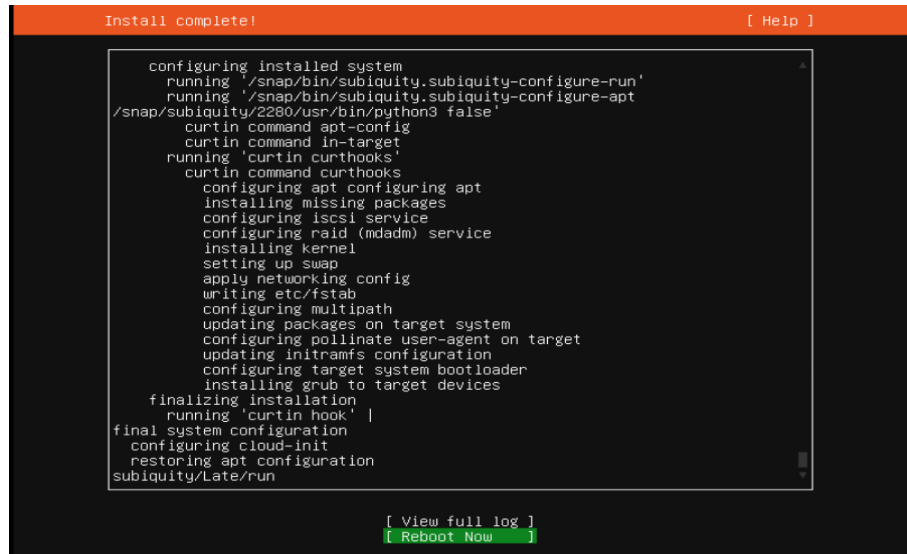


Figure: Final Install

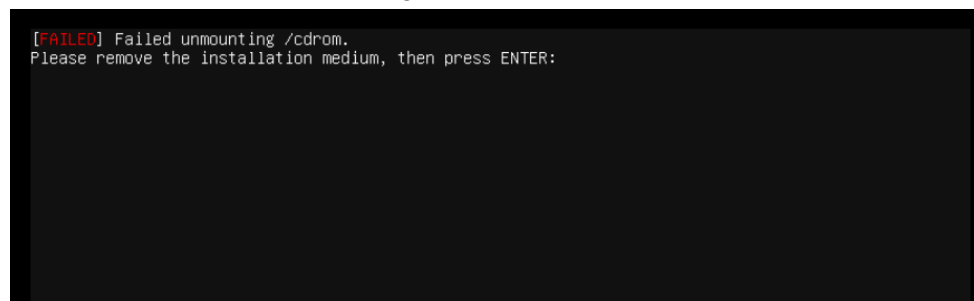


Figure: Default Settings - Enter

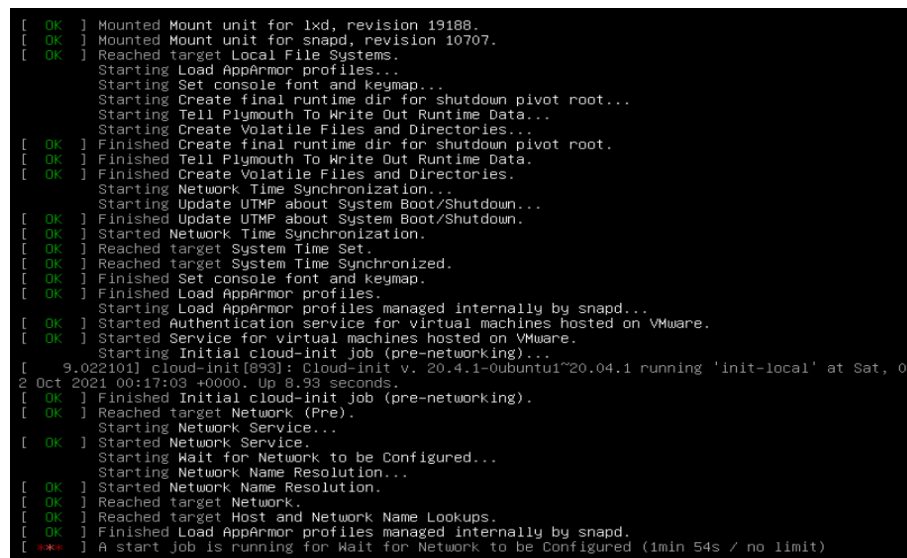


Figure: Installation in progress

```
Ubuntu 20.04.2 LTS web4 tty1
```

```
web4 login: sysadmin  
Password:
```

Figure: Enter the Password

```
Ubuntu 20.04.2 LTS web4 tty1
```

```
web4 login: sysadmin  
Password:
```

```
Welcome to Ubuntu 20.04.2 LTS (GNU/Linux 5.4.0-65-generic x86_64)
```

```
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com  
* Support:        https://ubuntu.com/advantage
```

```
System information as of Sat 02 Oct 2021 12:23:12 AM UTC
```

```
System load: 0.07          Memory usage: 3%   Processes:      202  
Usage of /: 30.1% of 19.56GB Swap usage:   0%   Users logged in: 0
```

```
0 updates can be installed immediately.  
0 of these updates are security updates.
```

The programs included with the Ubuntu system are free software;  
the exact distribution terms for each program are described in the  
individual files in /usr/share/doc/\*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by  
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo\_root" for details.

```
sysadmin@web4:~$ ip a
```

Figure: `ip a` command

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the exact distribution terms for each program are described in the  
individual files in /usr/share/doc/\*/copyright.

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applicable law.

To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo\_root" for details.

```
sysadmin@web4:~$ ip a
```

```
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000  
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00  
    inet 127.0.0.1/8 scope host lo  
        valid_lft forever preferred_lft forever  
    inet6 ::1/128 scope host  
        valid_lft forever preferred_lft forever  
2: ens160: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000  
    link/ether 00:50:56:86:64:a8 brd ff:ff:ff:ff:ff:ff  
    inet6 fe80::250:56ff:fe86:64a8/64 scope link  
        valid_lft forever preferred_lft forever  
sysadmin@web4:~$ _
```

Figure: `ip a` command

```
sysadmin@web4:~$ ip a
```

```
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000  
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00  
    inet 127.0.0.1/8 scope host lo  
        valid_lft forever preferred_lft forever  
    inet6 ::1/128 scope host  
        valid_lft forever preferred_lft forever  
2: ens160: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000  
    link/ether 00:50:56:86:64:a8 brd ff:ff:ff:ff:ff:ff  
    inet6 fe80::250:56ff:fe86:64a8/64 scope link  
        valid_lft forever preferred_lft forever  
sysadmin@web4:~$ ls
```

```
sysadmin@web4:~$ pwd
```

```
/home/sysadmin
```

```
sysadmin@web4:~$ cd /
```

```
sysadmin@web4:/$ ls
```

```
bin  cdrom  etc  lib  lib64  lost+found  mnt  proc  run  snap  swap.img  tmp  var  
boot  dev  home  lib32  libx32  media  opt  root /sbin  srv  sys  usr
```

```
sysadmin@web4:/$ cd etc/netplan/00-installer-config.yaml
```

Figure: Navigate to the `etc/netplan/`



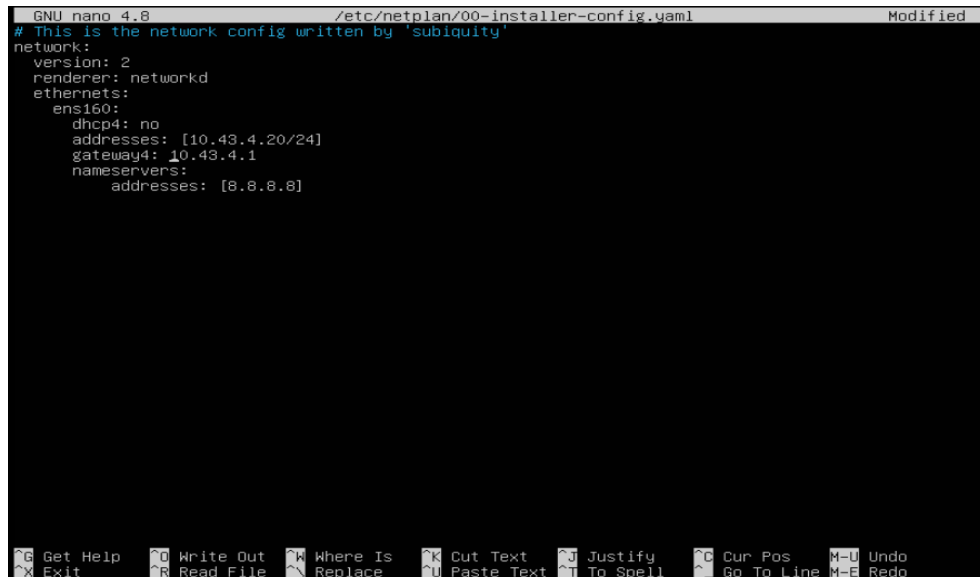
```

sysadmin@web4:/etc/netplan$
sysadmin@web4:/etc/netplan$ ls
00-installer-config.yaml
sysadmin@web4:/etc/netplan$ sudo nano 00-installer-config.yaml
[sudo] password for sysadmin: _

```

Network Configuration:

Follow the network configuration presented in the image



```

GNU nano 4.8 /etc/netplan/00-installer-config.yaml Modified
# This is the network config written by 'subiquity'
network:
  version: 2
  renderer: networkd
  ethernets:
    ens160:
      dhcp4: no
      addresses: [10.43.4.20/24]
      gateway4: 10.43.4.1
      nameservers:
        addresses: [8.8.8.8]

```

Figure: Network Configuration - WEB

```

sysadmin@web4:/$ sudo netplan apply
sysadmin@web4:/$ ip r
default via 10.43.4.1 dev ens160 proto static
10.43.4.0/24 dev ens160 proto kernel scope link src 10.43.4.20
sysadmin@web4:/$ ping dns.google
PING dns.google (8.8.4.4) 56(84) bytes of data.
64 bytes from dns.google (8.8.4.4): icmp_seq=1 ttl=112 time=14.0 ms
64 bytes from dns.google (8.8.4.4): icmp_seq=2 ttl=112 time=13.9 ms
64 bytes from dns.google (8.8.4.4): icmp_seq=3 ttl=112 time=13.9 ms
64 bytes from dns.google (8.8.4.4): icmp_seq=4 ttl=112 time=13.9 ms
64 bytes from dns.google (8.8.4.4): icmp_seq=5 ttl=112 time=14.0 ms
64 bytes from dns.google (8.8.4.4): icmp_seq=6 ttl=112 time=13.9 ms
64 bytes from dns.google (8.8.4.4): icmp_seq=7 ttl=112 time=14.0 ms
64 bytes from dns.google (8.8.4.4): icmp_seq=8 ttl=112 time=14.0 ms
64 bytes from dns.google (8.8.4.4): icmp_seq=9 ttl=112 time=14.0 ms
64 bytes from dns.google (8.8.4.4): icmp_seq=10 ttl=112 time=13.8 ms
64 bytes from dns.google (8.8.4.4): icmp_seq=11 ttl=112 time=13.8 ms
^C
--- dns.google ping statistics ---
11 packets transmitted, 11 received, 0% packet loss, time 10012ms
rtt min/avg/max/mdev = 13.750/13.923/14.044/0.092 ms
sysadmin@web4:/$ _

```

Figure: Apply netplan configuration using **sudo netplan apply**

```

sysadmin@web4:/$ sudo apt install open-vm-tools
Reading package lists... Done
Building dependency tree
Reading state information... Done
open-vm-tools is already the newest version (2:11.3.0-2ubuntu0~ubuntu20.04.1).
open-vm-tools set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
sysadmin@web4:/$

```

```

sysadmin@web4:/$ sudo apt install apache2 php php-mysql libapache2-mod-php php-xml php-mbstring php-apcu php-intl imagemagick inkscape php-gd php-cli php-curl git

```

```

sysadmin@web4:/$ systemctl start open-vm-tools
==== AUTHENTICATING FOR org.freedesktop.systemd1.manage-units ====
Authentication is required to start 'open-vm-tools.service'.
Authenticating as: sysadmin (sysadmin)
Password:
==== AUTHENTICATION COMPLETE ====
sysadmin@web4:/$ systemctl enable open-vm-tools
Synchronizing state of open-vm-tools.service with SysV service script with /lib/systemd/systemd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable open-vm-tools
==== AUTHENTICATING FOR org.freedesktop.systemd1.reload-daemon ====
Authentication is required to reload the systemd state.
Authenticating as: sysadmin (sysadmin)
Password:
==== AUTHENTICATION COMPLETE ====
==== AUTHENTICATING FOR org.freedesktop.systemd1.reload-daemon ====
Authentication is required to reload the systemd state.
Authenticating as: sysadmin (sysadmin)
Password:
==== AUTHENTICATION COMPLETE ====
==== AUTHENTICATING FOR org.freedesktop.systemd1.manage-unit-files ====
Authentication is required to manage system service or unit files.
Authenticating as: sysadmin (sysadmin)
Password:
==== AUTHENTICATION COMPLETE ====
sysadmin@web4:/$ _

```

```

sysadmin@web4:/$ systemctl restart apache2.service
==== AUTHENTICATING FOR org.freedesktop.systemd1.manage-units ====
Authentication is required to restart 'apache2.service'.
Authenticating as: sysadmin (sysadmin)
Password:
==== AUTHENTICATION COMPLETE ====
sysadmin@web4:/$ _

```

## 2. Rocky Linux:

After installing the following ISO file: *Rocky-8.4-x86\_64-minimal.iso* follow default prompts to setup Rocky Linux 8 as following:

```

Rocky Linux 8

Install Rocky Linux 8
Test this media & install Rocky Linux 8
Troubleshooting >

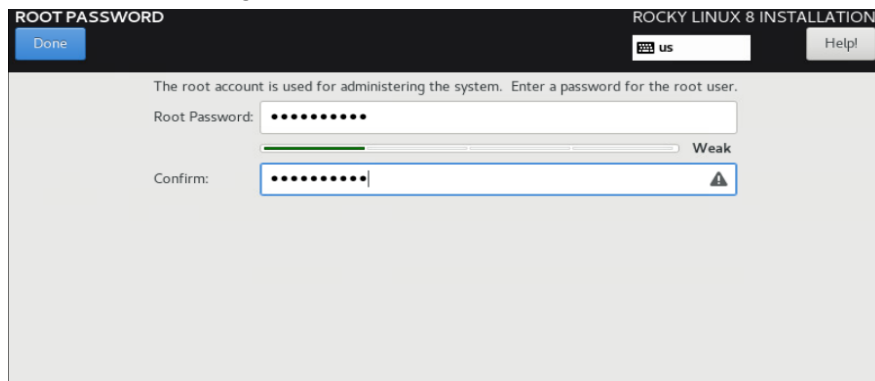
Press Tab for full configuration options on menu items.

Automatic boot in 50 seconds...

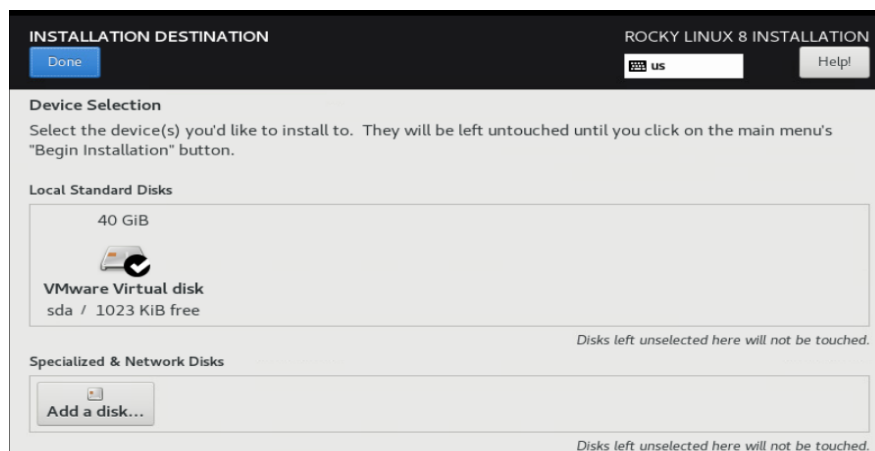
```

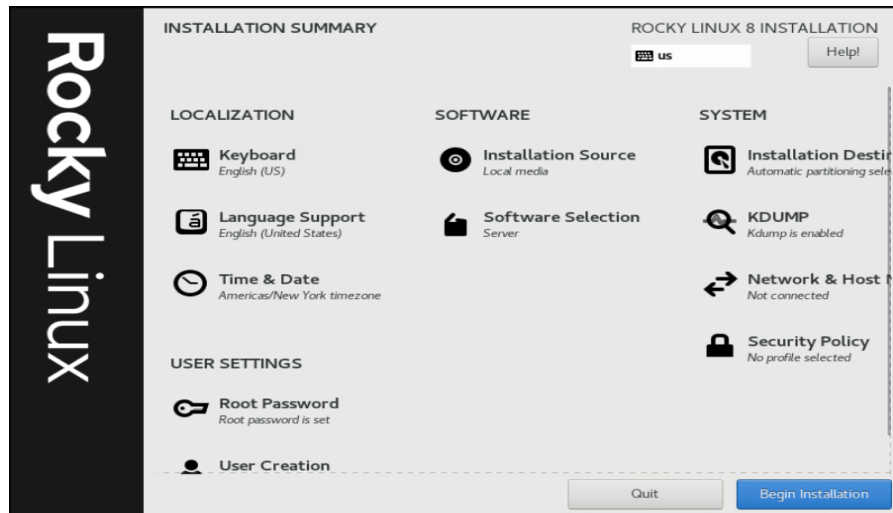


Root password to setup is Change.me!



Click on Installation Destination -> Select VMware Virtual disk -> Click Done.

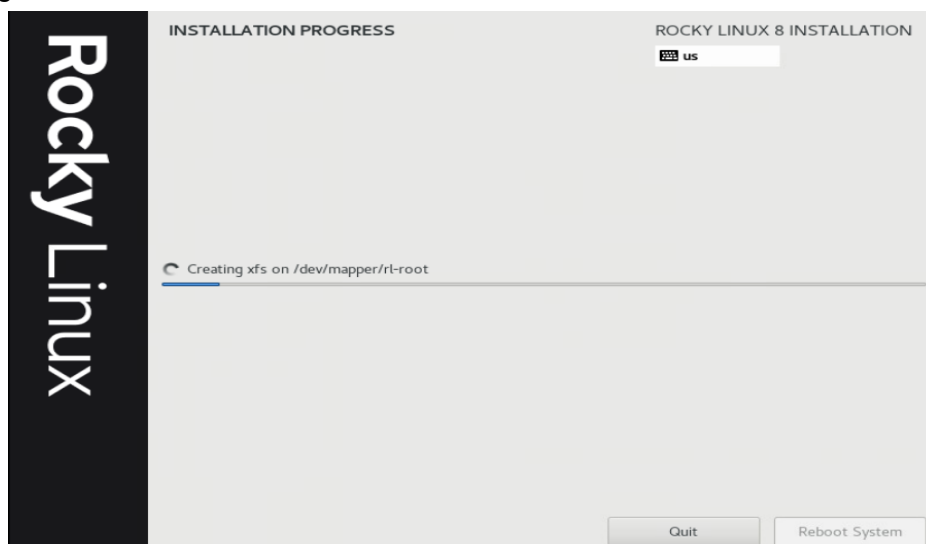




Click on *User Creation* at the bottom and set fullname as sysadmin and password Change.me! Check the box *Make user an administrator*

 The image shows the 'CREATE USER' screen. At the top left is a 'Done' button. The top right shows 'ROCKY LINUX 8 INSTALLATION' and a language selector set to 'us'. The form contains the following fields and options:
 - 'Full name': text input with 'sysadmin'.
 - 'User name': text input with 'sysadmin'.
 - Two checkboxes: 'Make this user administrator' (checked) and 'Require a password to use this account' (checked).
 - 'Password': masked text input with a strength indicator bar below it showing 'Weak'.
 - 'Confirm password': masked text input.
 - An 'Advanced...' button at the bottom.

Click on *Begin Installation*.



```
Rocky Linux 8.4 (Green Obsidian)
Kernel 4.18.0-305.3.1.el8_4.x86_64 on an x86_64

Activate the web console with: systemctl enable --now cockpit.socket

localhost login: sysadmin
Password: _
```

After Installation navigate to the `/etc/sysconfig/network-scripts/` using `cd` command

```
[sysadmin@localhost ~]$ cd /
[sysadmin@localhost ~]$ ls
bin boot dev etc home lib lib64 media mnt opt proc root run sbin srv sys tmp usr var
[sysadmin@localhost ~]$ cd etc
[sysadmin@localhost etc]$ cd sysconfig
[sysadmin@localhost sysconfig]$ cd network-scripts
[sysadmin@localhost network-scripts]$ sudo nano ifcfg-ens160

We trust you have received the usual lecture from the local System
Administrator. It usually boils down to these three things:

#1) Respect the privacy of others.
#2) Think before you type.
#3) With great power comes great responsibility.

[sudo] password for sysadmin:
```

In `network-scripts` edit the file `ifcfg-ens160` using `sudo nano` command (sudo for admin access) with following network settings:

```
GNU nano 2.9.8 ifcfg-ens160

TYPE=Ethernet
PROXY_METHOD=none
BROWSER_ONLY=no
BOOTPROTO=dhcp
DEFROUTE=yes
IPV4_FAILURE_FATAL=no
IPV6INIT=yes
IPV6_AUTOCONF=yes
IPV6_DEFROUTE=yes
IPV6_FAILURE_FATAL=no
NAME=ens160
UUID=33c90737-5c17-40cd-841e-609a75fcf13b
DEVICE=ens160
ONBOOT=yes
DNS=8.8.8.8
IPADDR=10.43.4.30
GATEWAY=10.43.4.1
NETMASK=255.255.255.0
```

Restart both NetworkManager and network services using `systemctl`

```
[sysadmin@localhost network-scripts]$ sudo systemctl restart NetworkManager.service
[sudo] password for sysadmin:
```

Show current network properties with `ip r` command:

```
[sysadmin@localhost network-scripts]$ ip r
default via 10.43.4.1 dev ens160 proto static metric 100
10.43.4.0/24 dev ens160 proto kernel scope link src 10.43.4.30 metric 100
```

Ping dns.google:

```
[sysadmin@localhost network-scripts]$ ping dns.google
PING dns.google (8.8.8.8) 56(84) bytes of data.
64 bytes from dns.google (8.8.8.8): icmp_seq=1 ttl=112 time=13.9 ms
64 bytes from dns.google (8.8.8.8): icmp_seq=2 ttl=112 time=14.2 ms
64 bytes from dns.google (8.8.8.8): icmp_seq=3 ttl=112 time=14.1 ms
64 bytes from dns.google (8.8.8.8): icmp_seq=4 ttl=112 time=13.9 ms
64 bytes from dns.google (8.8.8.8): icmp_seq=5 ttl=112 time=14.4 ms
^X64 bytes from dns.google (8.8.8.8): icmp_seq=6 ttl=112 time=14.0 ms
64 bytes from dns.google (8.8.8.8): icmp_seq=7 ttl=112 time=13.9 ms
64 bytes from dns.google (8.8.8.8): icmp_seq=8 ttl=112 time=14.1 ms
64 bytes from dns.google (8.8.8.8): icmp_seq=9 ttl=112 time=14.0 ms
^X64 bytes from dns.google (8.8.8.8): icmp_seq=10 ttl=112 time=13.9 ms
64 bytes from dns.google (8.8.8.8): icmp_seq=11 ttl=112 time=13.9 ms
64 bytes from dns.google (8.8.8.8): icmp_seq=12 ttl=112 time=13.9 ms
^C
--- dns.google ping statistics ---
12 packets transmitted, 12 received, 0% packet loss, time 11005ms
rtt min/avg/max/mdev = 13.851/14.009/14.385/0.207 ms
[sysadmin@localhost network-scripts]$
```

Update yum:

```
[sysadmin@localhost network-scripts]$ sudo yum update
Rocky Linux 8 - AppStream
Rocky Linux 8 - BaseOS
```

Upgrade yum:

```
[sysadmin@localhost network-scripts]$ sudo yum -y update && sudo yum -y upgrade_
```

Install VM tools:

```
complete!
[sysadmin@localhost network-scripts]$ sudo yum install open-vm-tools
```

Start vm tools:

```
[sysadmin@localhost ~]$ sudo systemctl restart vmtoolsd
[sysadmin@localhost ~]$ [ 4525 4712201 NET: Registered protocol family 40
```

Install mariadb-server package:

```
[sysadmin@localhost ~]$ sudo yum install mariadb-server_
```

## User and Group Creation

On LinuxClient, perform the following:

Using CLI:

```

sysadmin@ubnetdef04:~$ sudo adduser aundrall
[sudo] password for sysadmin:
Adding user `aundrall' ...
Adding new group `aundrall' (1001) ...
Adding new user `aundrall' (1001) with group `aundrall' ...
Creating home directory `/home/aundrall' ...
Copying files from `/etc/skel' ...
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
Changing the user information for aundrall
Enter the new value, or press ENTER for the default
    Full Name []:
    Room Number []:
    Work Phone []:
    Home Phone []:
    Other []:
Is the information correct? [Y/n] y

```

```

sysadmin@ubnetdef04:~$ sudo adduser ant
Adding user `ant' ...
Adding new group `ant' (1002) ...
Adding new user `ant' (1002) with group `ant' ...
Creating home directory `/home/ant' ...
Copying files from `/etc/skel' ...
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
Changing the user information for ant
Enter the new value, or press ENTER for the default
    Full Name []:
    Room Number []:
    Work Phone []:
    Home Phone []:
    Other []:
Is the information correct? [Y/n]

```

```

sysadmin@ubnetdef04:~$ sudo adduser djmurray
Adding user `djmurray' ...
Adding new group `djmurray' (1003) ...
Adding new user `djmurray' (1003) with group `djmurray' ...
Creating home directory `/home/djmurray' ...
Copying files from `/etc/skel' ...
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
Changing the user information for djmurray
Enter the new value, or press ENTER for the default
    Full Name []:
    Room Number []:
    Work Phone []:
    Home Phone []:
    Other []:
Is the information correct? [Y/n] y

```

Set all the users passwords to **Change.me!**

Create a group called **UBNetDef** using `sudo addgroup UBNetDef --force-badname`  
`--force-badname` is used to include Upperclass letter in the name

```
sysadmin@ubnetdef04: ~  
File Edit View Search Terminal Help  
sysadmin@ubnetdef04:~$ sudo addgroup UBNetDef  
[sudo] password for sysadmin:  
addgroup: Please enter a username matching the regular expression configured  
via the NAME_REGEX[_SYSTEM] configuration variable. Use the '--force-badname'  
option to relax this check or reconfigure NAME_REGEX.  
sysadmin@ubnetdef04:~$ sudo addgroup UBNetDef --force-badname  
Allowing use of questionable username.  
Adding group 'UBNetDef' (GID 1004) ...  
Done.  
sysadmin@ubnetdef04:~$
```

Add users **aundrall**, **ant** and **djmurray** to **UBNetDef** using the command **sudo adduser [username] [groupname]** for each.

```
sysadmin@ubnetdef04:~$ sudo adduser aundrall UBNetDef  
Adding user 'aundrall' to group 'UBNetDef' ...  
Adding user aundrall to group UBNetDef  
Done.  
sysadmin@ubnetdef04:~$ sudo adduser ant UBNetDef  
Adding user 'ant' to group 'UBNetDef' ...  
Adding user ant to group UBNetDef  
Done.  
sysadmin@ubnetdef04:~$ sudo adduser djmurray UBNetDef  
Adding user 'djmurray' to group 'UBNetDef' ...  
Adding user djmurray to group UBNetDef  
Done.  
sysadmin@ubnetdef04:~$
```

Create a group called **SecDev** using **sudo addgroup SecDev --force-badname** and add users **ant** and **djmurray** to **SecDev** using the command **sudo adduser [username] [groupname]** for each.

```
sysadmin@ubnetdef04:~$ sudo addgroup SecDev --force-badname  
Allowing use of questionable username.  
Adding group 'SecDev' (GID 1005) ...  
Done.  
sysadmin@ubnetdef04:~$ sudo adduser ant SecDev  
Adding user 'ant' to group 'SecDev' ...  
Adding user ant to group SecDev  
Done.  
sysadmin@ubnetdef04:~$ sudo adduser djmurray SecDev  
Adding user 'djmurray' to group 'SecDev' ...  
Adding user djmurray to group SecDev  
Done.  
sysadmin@ubnetdef04:~$
```

Create a group called **SysSec** using **sudo addgroup SysSec --force-badname** and add user **aundrall** to **SysSec** using the command **sudo adduser aundrall SysSec**



```

sysadmin@ubnetdef04:~$ sudo addgroup SysSec --force-badname
Allowing use of questionable username.
Adding group 'SysSec' (GID 1006) ...
Done.
sysadmin@ubnetdef04:~$ sudo adduser aundrall SysSec
Adding user 'aundrall' to group 'SysSec' ...
Adding user aundrall to group SysSec
Done.
sysadmin@ubnetdef04:~$

```

## Linux Hardening

Implement a password policy by forcing all users to change their password every 70 days using the command `sudo chage [user]` and interactive instructions to change the details.

`sudo chage aundrall`

```

sysadmin@ubnetdef04:~$ sudo chage aundrall
Changing the aging information for aundrall
Enter the new value, or press ENTER for the default

    Minimum Password Age [0]: 1
    Maximum Password Age [99999]: 70
    Last Password Change (YYYY-MM-DD) [2021-10-07]: 2021-10-07
    Password Expiration Warning [7]: 7
    Password Inactive [-1]:
    Account Expiration Date (YYYY-MM-DD) [-1]:
sysadmin@ubnetdef04:~$ sudo chage -l aundrall
Last password change                : Oct 07, 2021
Password expires                    : Dec 16, 2021
Password inactive                   : never
Account expires                    : never
Minimum number of days between password change : 1
Maximum number of days between password change : 70
Number of days of warning before password expires : 7

```

Figure: Password policy for user 'aundrall'

`sudo chage ant`

```

sysadmin@ubnetdef04:~$ sudo chage ant
Changing the aging information for ant
Enter the new value, or press ENTER for the default

    Minimum Password Age [0]: 1
    Maximum Password Age [99999]: 70
    Last Password Change (YYYY-MM-DD) [2021-10-07]: 2021-10-07
    Password Expiration Warning [7]: 7
    Password Inactive [-1]:
    Account Expiration Date (YYYY-MM-DD) [-1]:
sysadmin@ubnetdef04:~$ sudo chage -l ant
Last password change                : Oct 07, 2021
Password expires                    : Dec 16, 2021
Password inactive                   : never
Account expires                    : never
Minimum number of days between password change : 1
Maximum number of days between password change : 70
Number of days of warning before password expires : 7
sysadmin@ubnetdef04:~$

```

`sudo chage djmurray`

```

sysadmin@ubnetdef04:~$ sudo chage djmurray
Changing the aging information for djmurray
Enter the new value, or press ENTER for the default

        Minimum Password Age [0]: 1
        Maximum Password Age [99999]: 70
        Last Password Change (YYYY-MM-DD) [2021-10-07]: 2021-10-07
        Password Expiration Warning [7]: 7
        Password Inactive [-1]:
        Account Expiration Date (YYYY-MM-DD) [-1]:
sysadmin@ubnetdef04:~$ sudo chage -l djmurray
Last password change                : Oct 07, 2021
Password expires                    : Dec 16, 2021
Password inactive                   : never
Account expires                    : never
Minimum number of days between password change : 1
Maximum number of days between password change : 70
Number of days of warning before password expires : 7
sysadmin@ubnetdef04:~$

```

Use command `sudo apt install unattended-upgrades -d` to “Apply Security Updates Only”

```

sysadmin@ubnetdef04:~$ sudo apt install unattended-upgrades -d
Reading package lists... Done
Building dependency tree
Reading state information... Done
unattended-upgrades is already the newest version (1.1ubuntu1.18.04.14).
The following packages were automatically installed and are no longer required:
  linux-hwe-5.4-headers-5.4.0-81 linux-hwe-5.4-headers-5.4.0-84
Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 11 not upgraded.
sysadmin@ubnetdef04:~$

```

Figure: Applying security updates only

## Topology

