

# Instalacja i konfiguracja systemu Linux

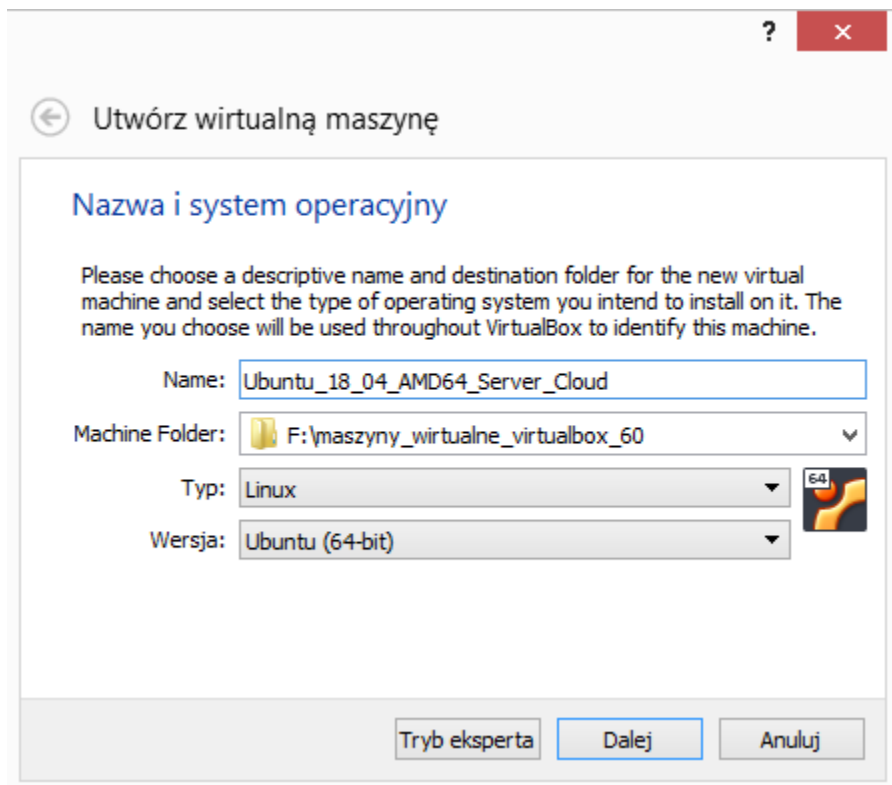
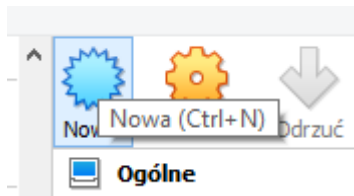
## Wstęp

Do tego zadania zostanie zastosowana dystrybucja Ubuntu 18.04 64 bit server:

- ubuntu-18.04.5-live-server-amd64.iso (md5: fcd77cd8aa585da4061655045f3f0511)

## Konfiguracja środowiska Virtualbox

Konfigurujemy środowisko Virtualbox, tak jak zostało to przedstawione na poniższych rysunkach:



? ✕

← Utwórz wirtualną maszynę

### Rozmiar pamięci

Wybierz ilość pamięci (RAM) w megabajtach, która zostanie przydzielona dla wirtualnej maszyny.

Zalecany rozmiar pamięci to: **1024 MB**.

MB

4 MB 16384 MB

? ✕

← Utwórz wirtualną maszynę

### Dysk twardy

Jeśli chcesz, to możesz dodać wirtualny dysk twardy do nowej maszyny. Możesz zarówno utworzyć nowy plik twardego dysku jak i wybrać jeden z listy lub z innej lokalizacji, używając ikony folderu.

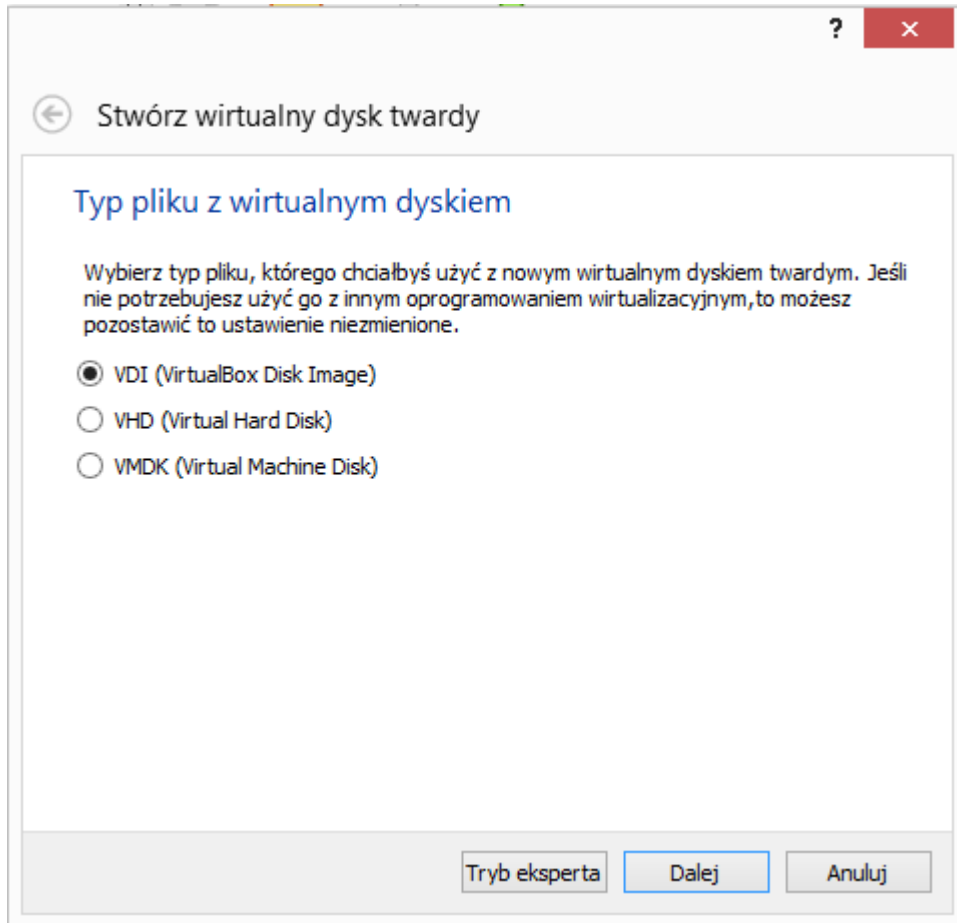
Jeśli potrzebujesz bardziej złożonej konfiguracji pamięci, to możesz pominąć ten krok i dokonać zmiany ustawień po utworzeniu maszyny.

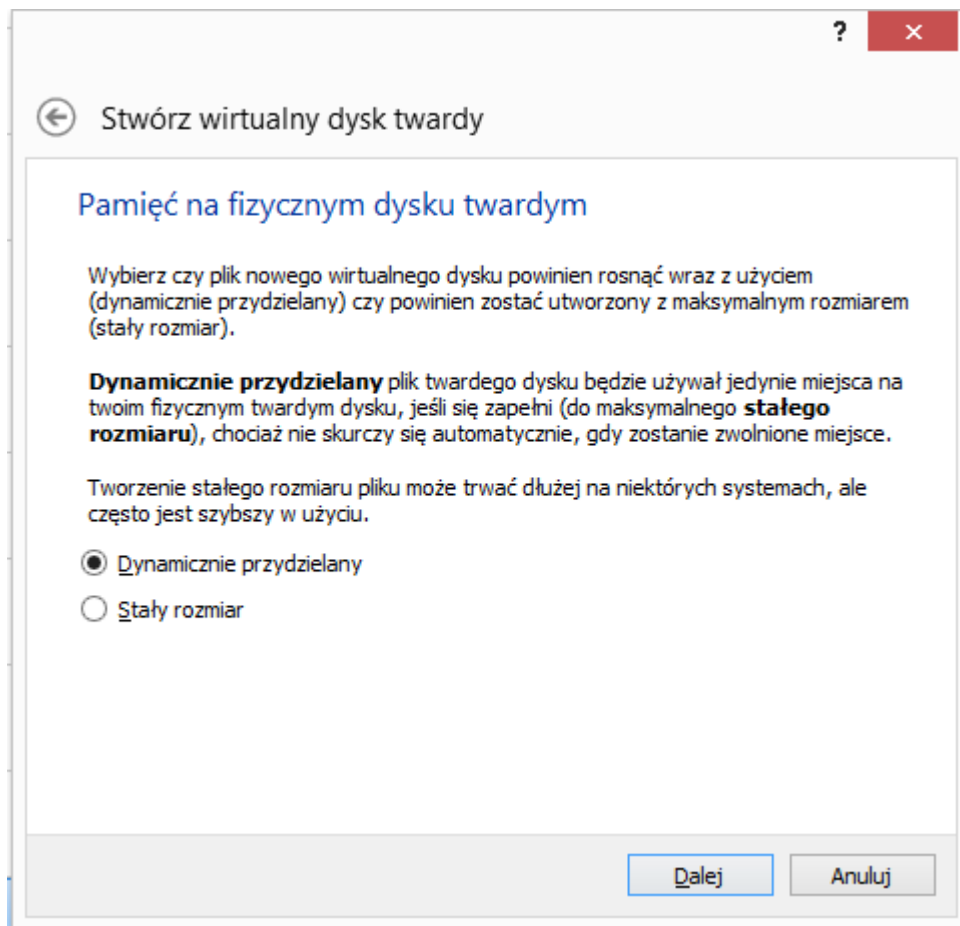
Zalecana wielkość pliku dysku twardego to: **10,00 GB**.

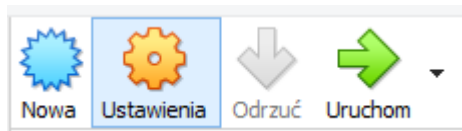
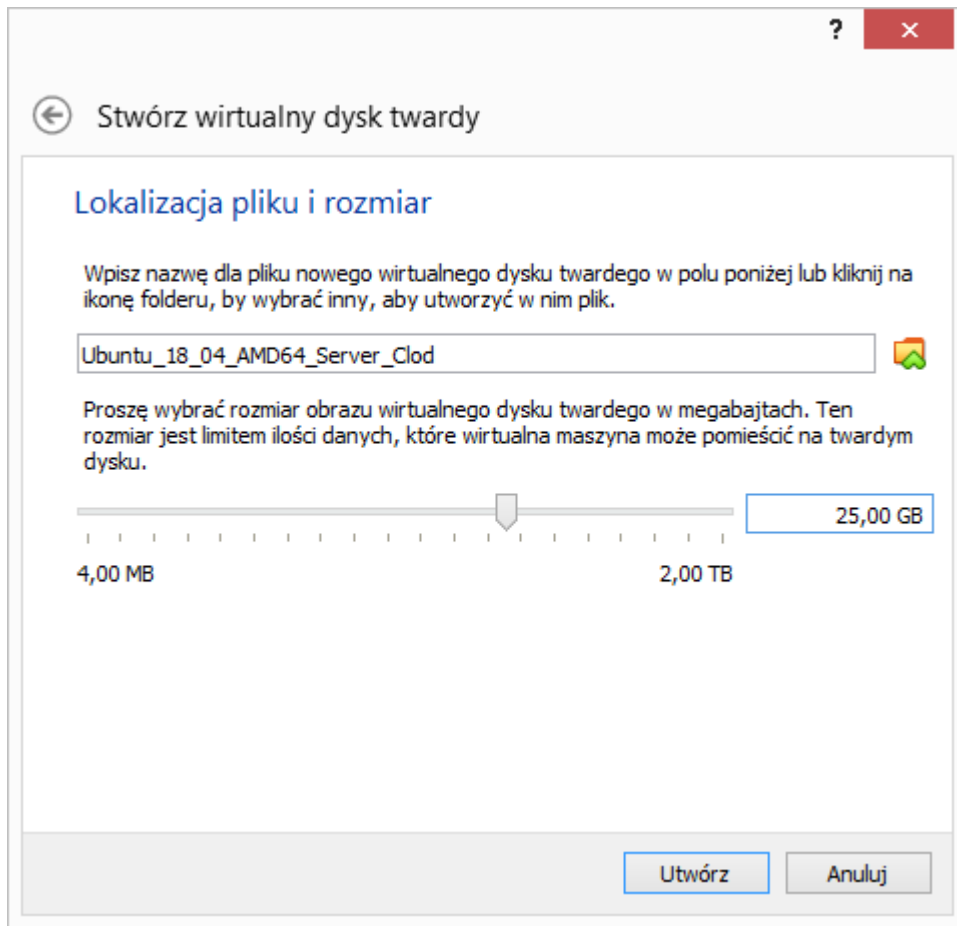
Nie dodawaj wirtualnego dysku twardego

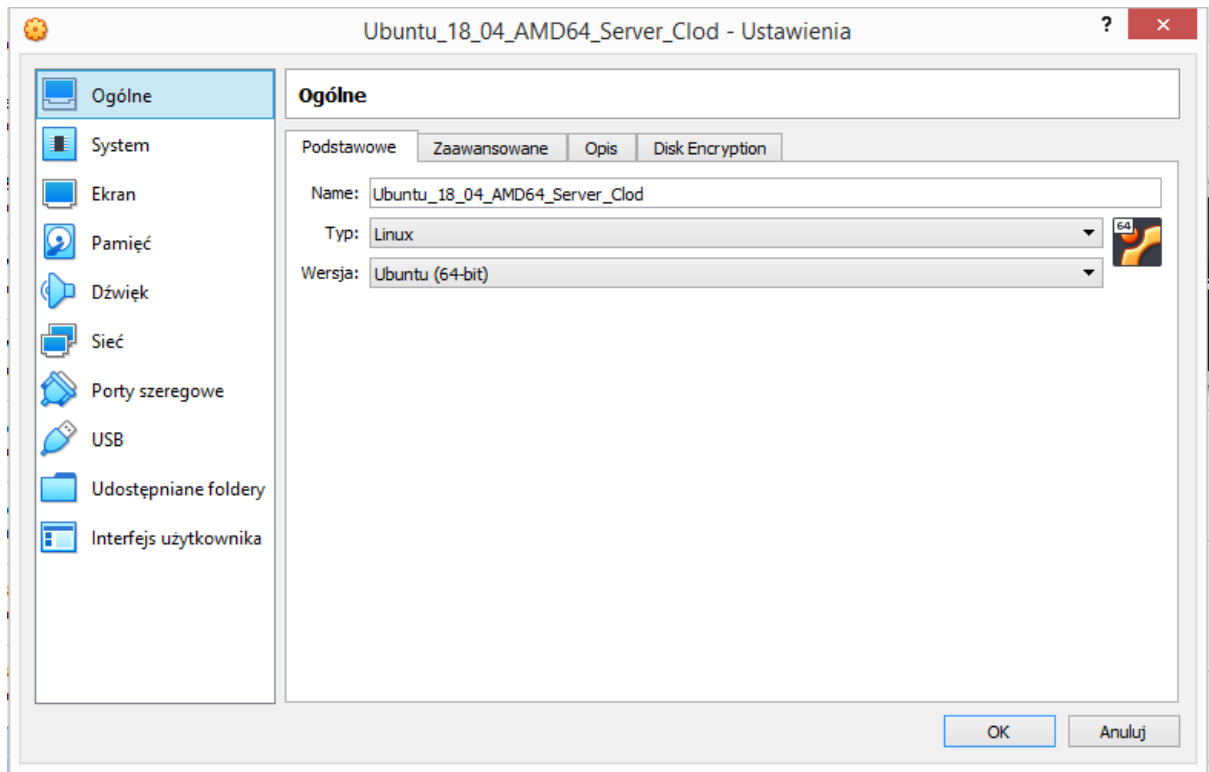
Stwórz wirtualny dysk twardy

Użyj istniejącego pliku wirtualnego dysku twardego

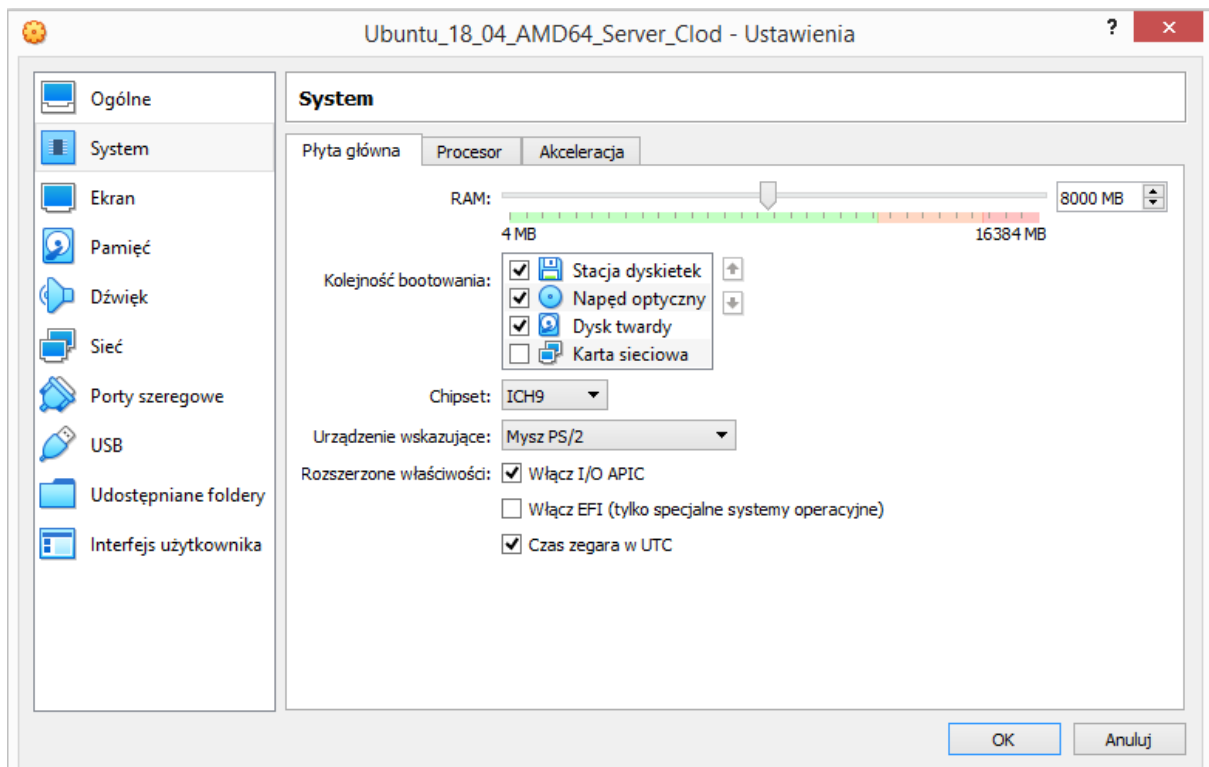


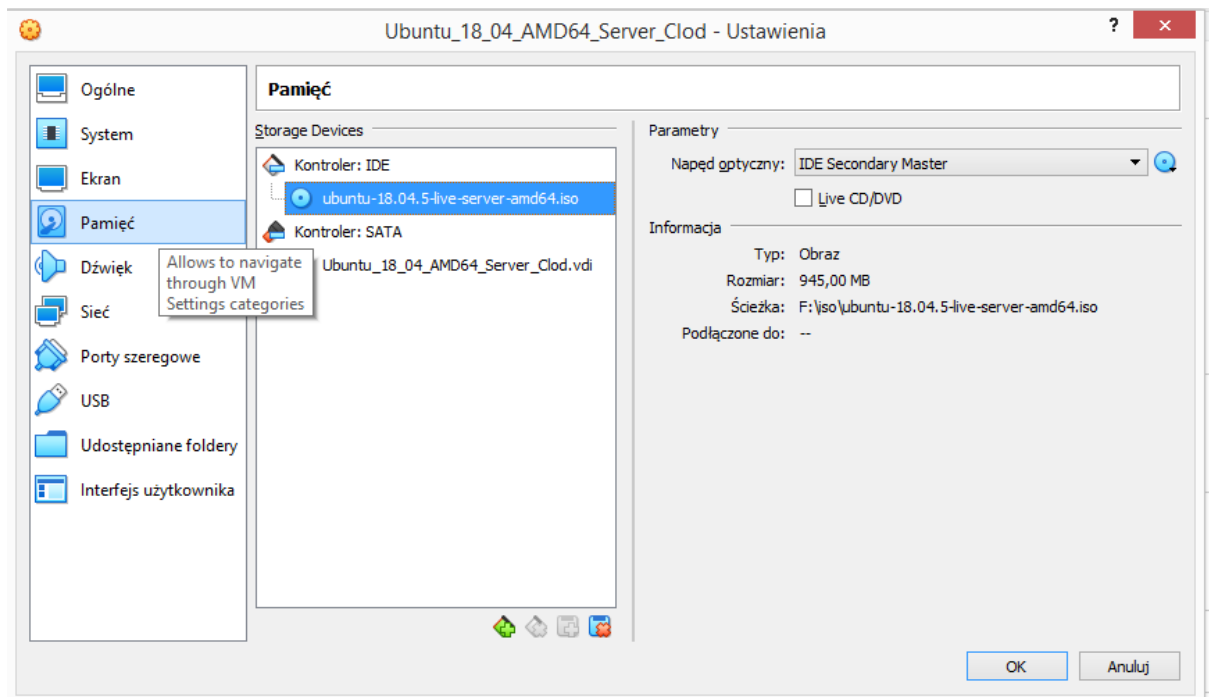
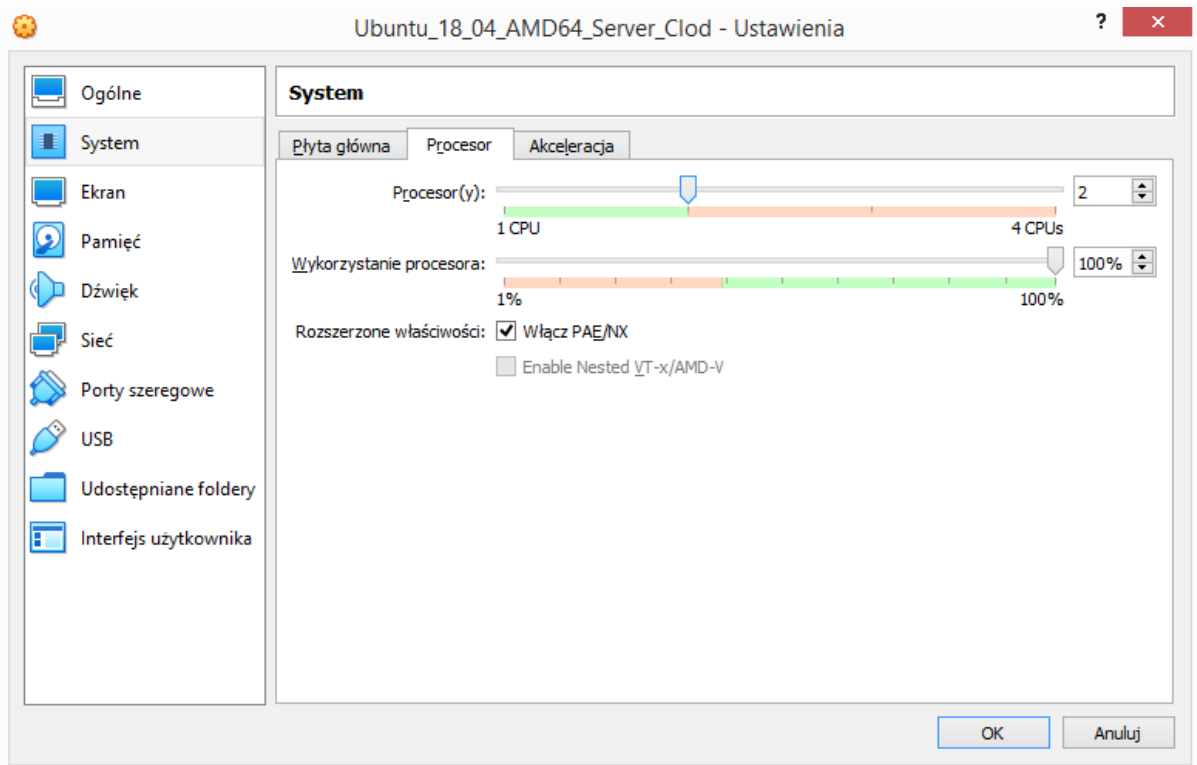


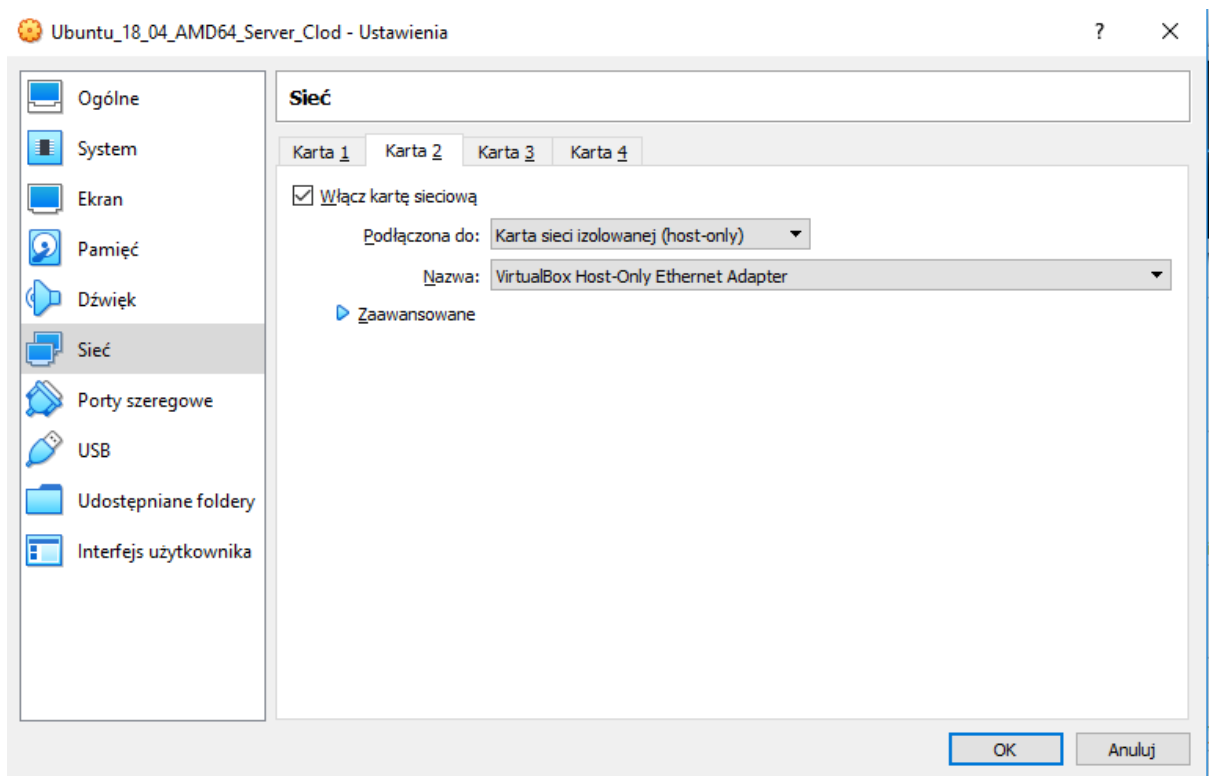
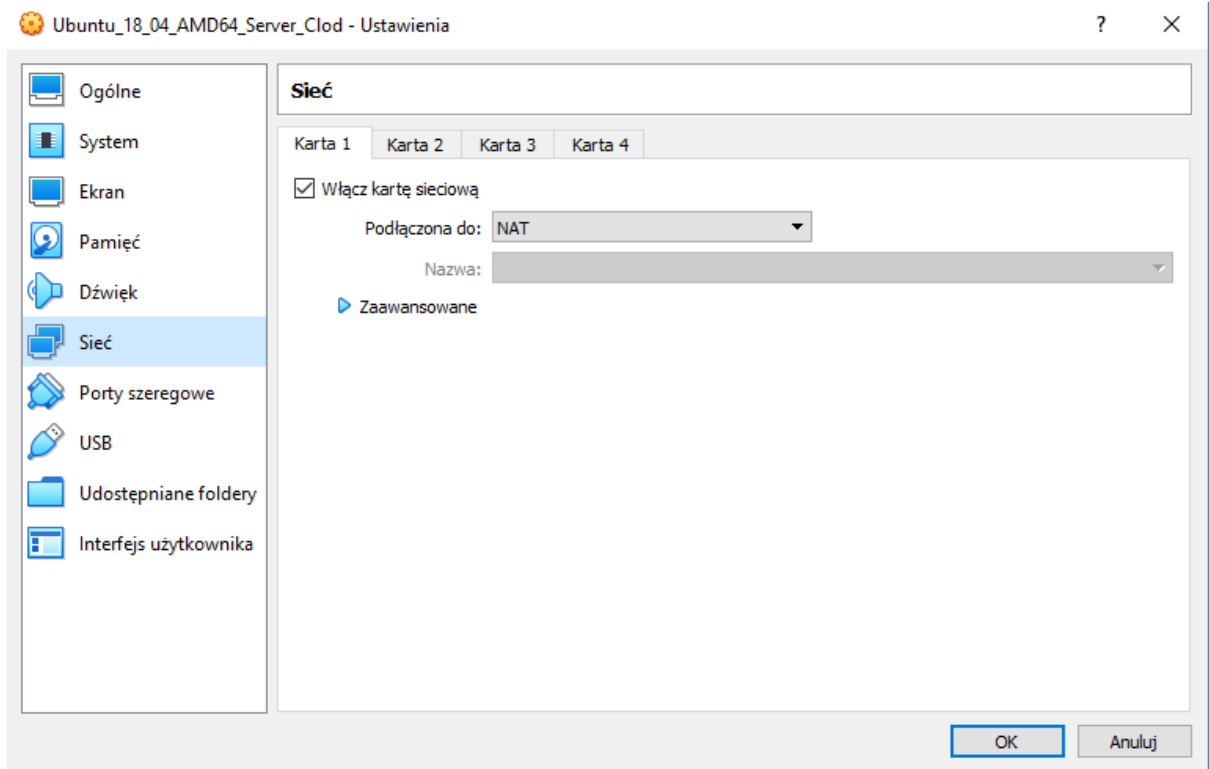




Należy ustawić opcje jak poniżej:

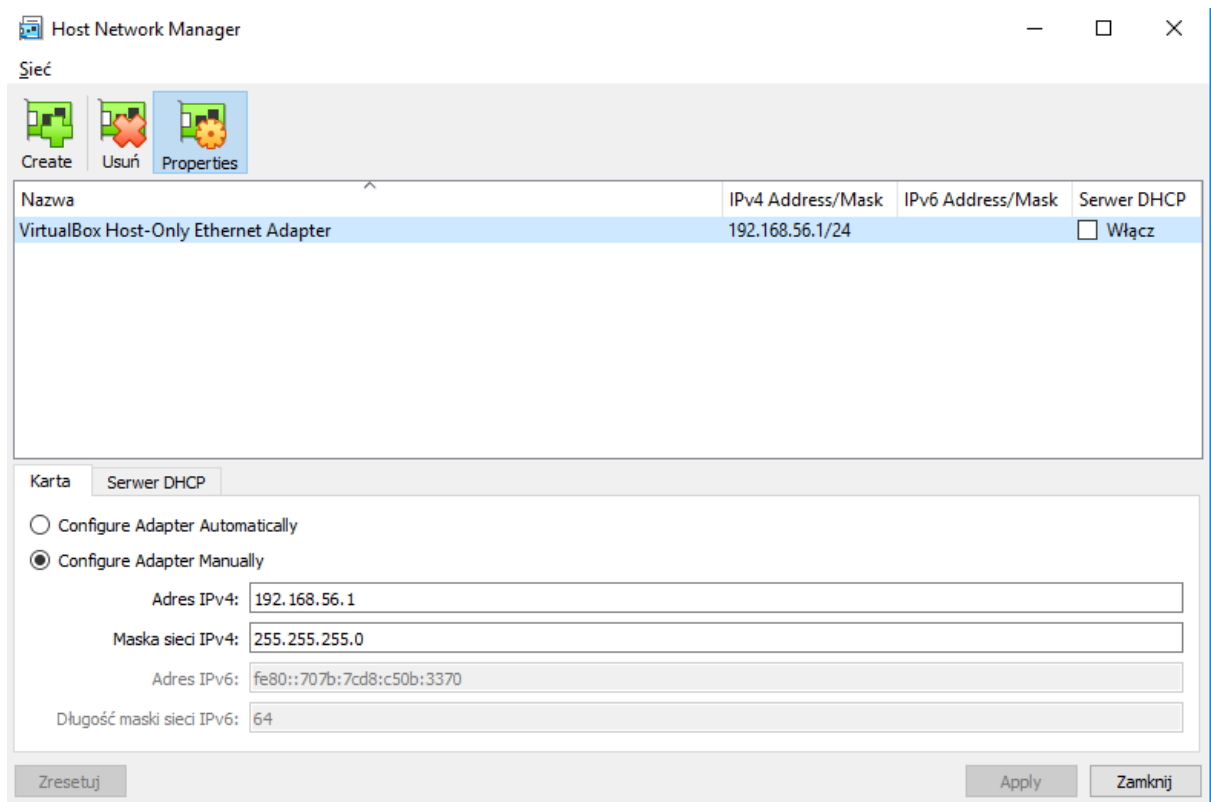
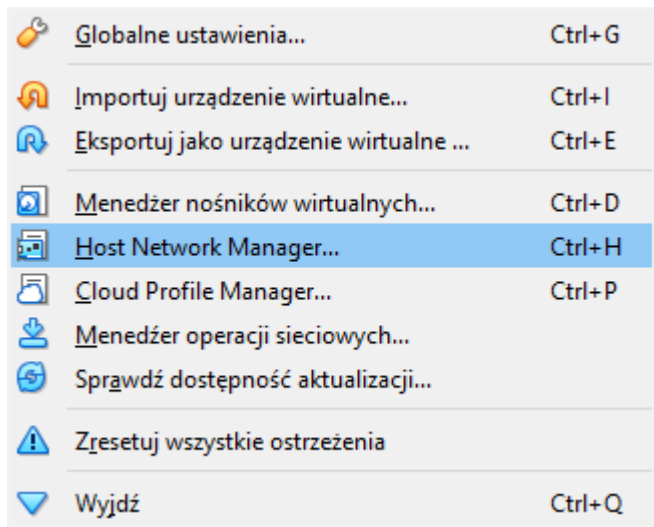


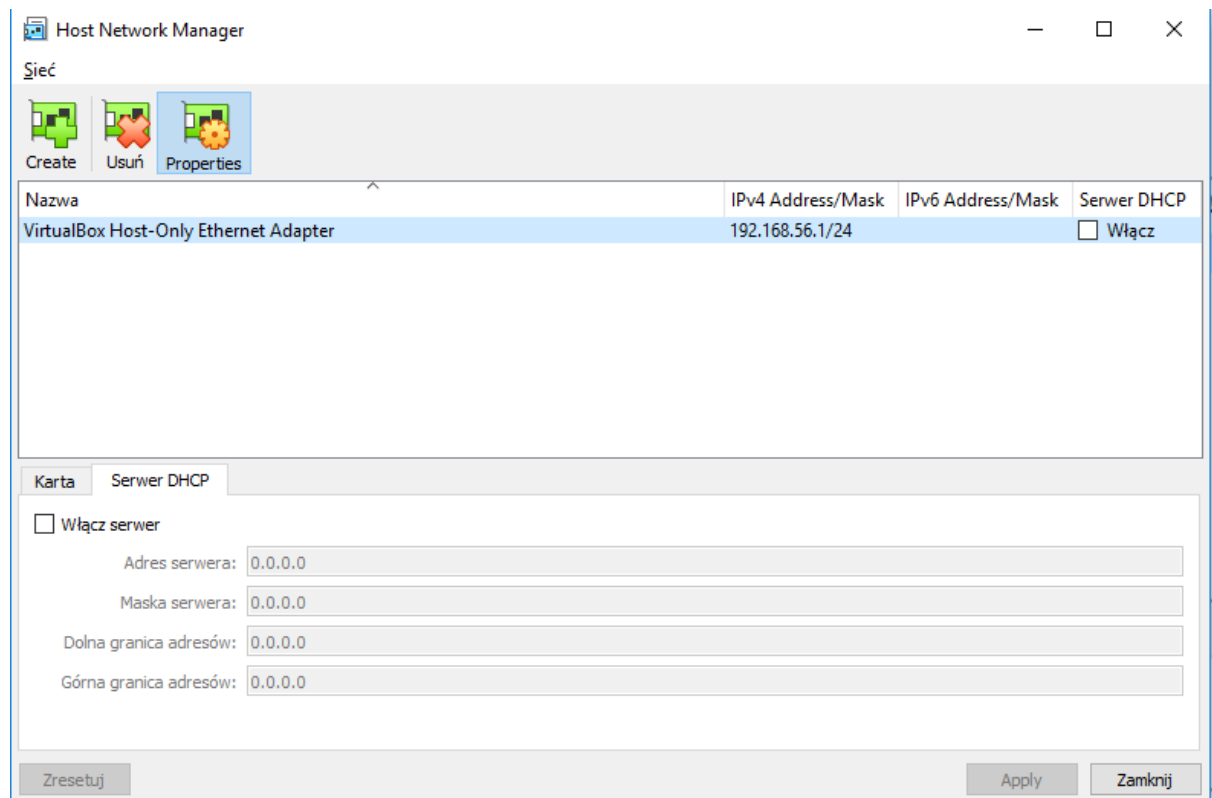




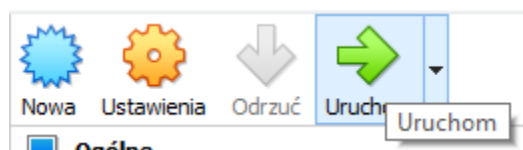
Należy sprawdzić, czy konfiguracja menadżera sieci (Host Network Manager) jest odpowiednia dla naszego systemu, zwracając uwagę aby nie była uruchomiona usługa DHCP:







Po wstępnej konfiguracji uruchamiamy maszynę:



## Instalacja systemu Linux - Ubuntu 18.04

Wybieramy domyślny język - angielski

Willkommen! Bienvenue! Welcome! Добро пожаловать! Welkom!

[ Help ]

Use UP, DOWN and ENTER keys to select your language.

```
[ Asturianu                ▶ ]
[ Bahasa Indonesia        ▶ ]
[ Català                  ▶ ]
[ Deutsch                 ▶ ]
[ English                 ▶ ]
[ English (UK)           ▶ ]
[ Español                 ▶ ]
[ Français               ▶ ]
[ Hrvatski               ▶ ]
[ Latviski               ▶ ]
[ Lietuviškai           ▶ ]
[ Magyar                 ▶ ]
[ Nederlands             ▶ ]
[ Norsk bokmål           ▶ ]
[ Polski                 ▶ ]
[ Suomi                 ▶ ]
[ Svenska                ▶ ]
[ Čeština                ▶ ]
[ Ελληνικά              ▶ ]
[ Беларуская            ▶ ]
[ Русский                ▶ ]
[ Српски                 ▶ ]
[ Українська            ▶ ]
```

Installer update available

[ Help ]

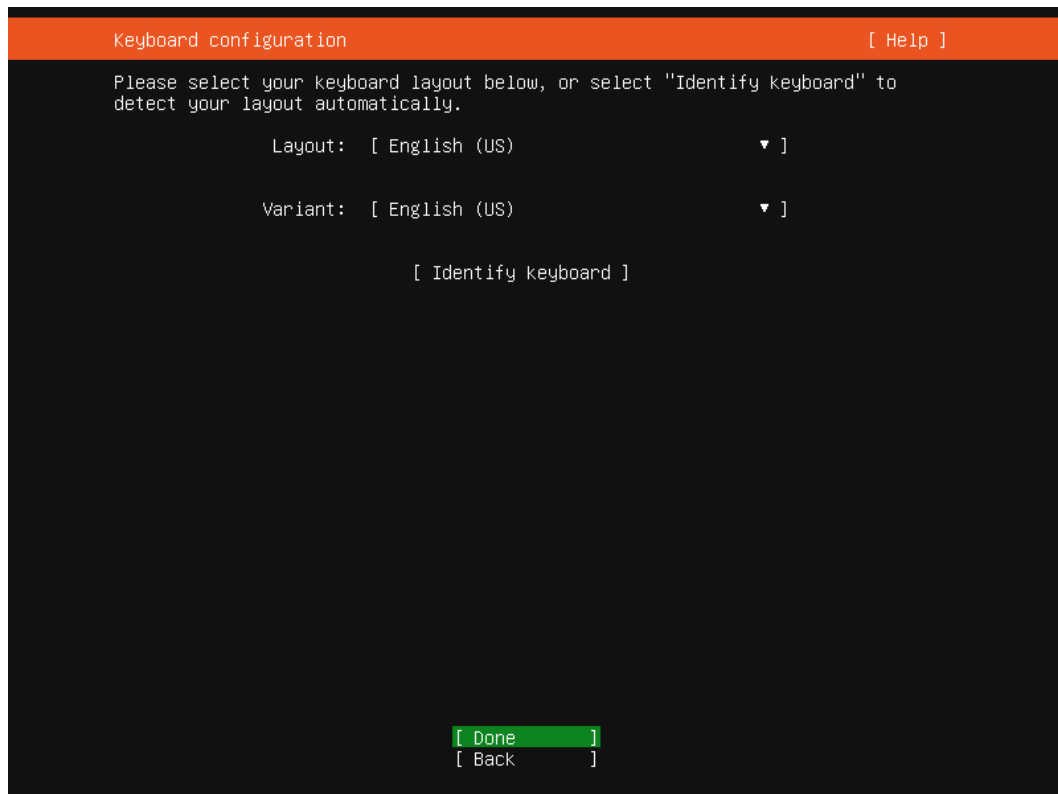
Version 20.09.1 of the installer is now available (20.07.1+git2.5de9df3e is currently running).

You can read the release notes for each version at:

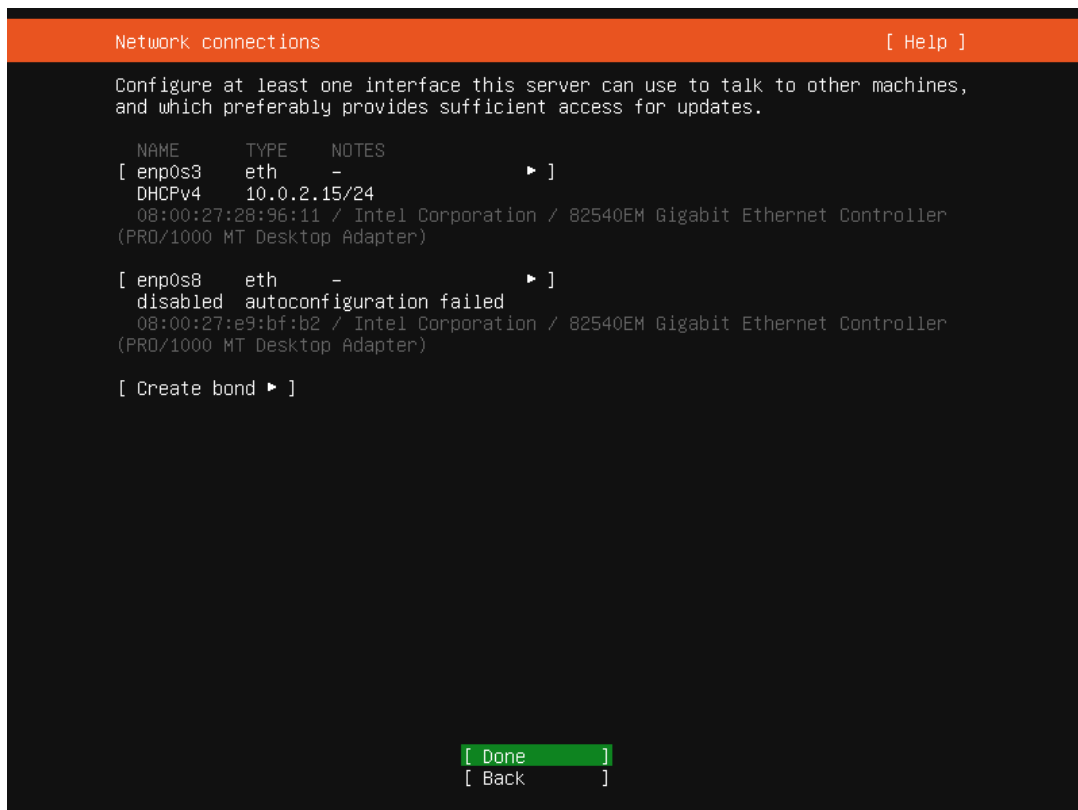
<https://github.com/CanonicalLtd/subiquity/releases>

If you choose to update, the update will be downloaded and the installation will continue from here.

```
[ Update to the new installer ]
[ Continue without updating  ]
[ Back                       ]
```



Na tym etapie pozostawiamy konfigurację sieci z domyślnymi ustawieniami, adres statyczny IP dla interfejsu enp0s8 zostanie skonfigurowany na późniejszym etapie instalacji.



If this system requires a proxy to connect to the internet, enter its details here.

Proxy address:

If you need to use a HTTP proxy to access the outside world, enter the proxy information here. Otherwise, leave this blank.

The proxy information should be given in the standard form of "http://[[user][:pass@]host[:port]/".

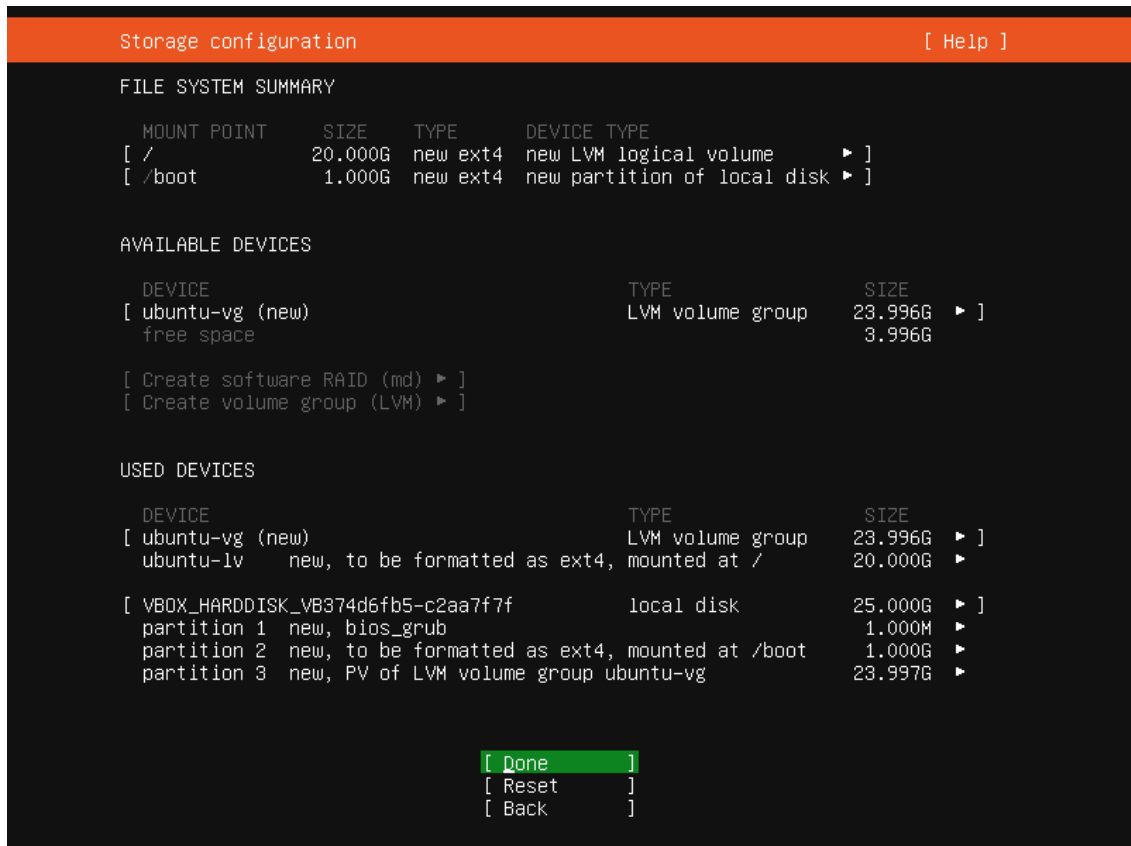
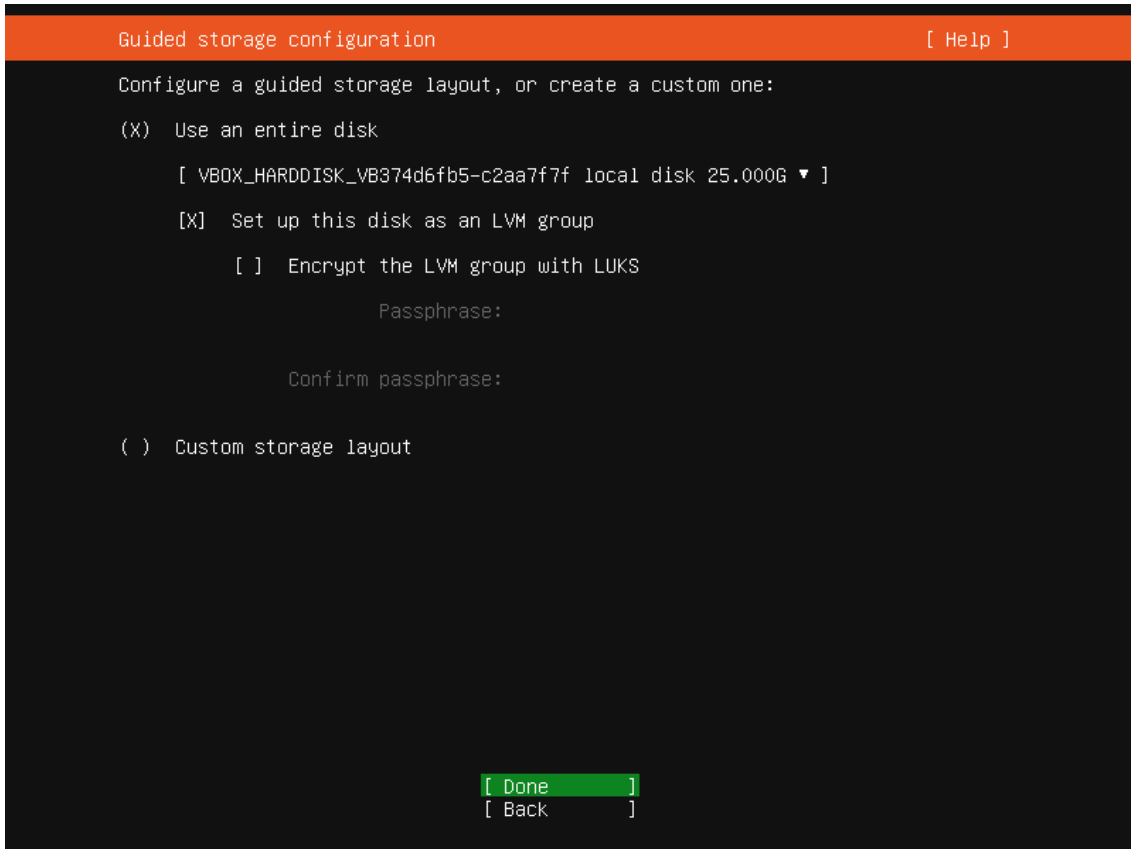
[ Done ]  
[ Back ]

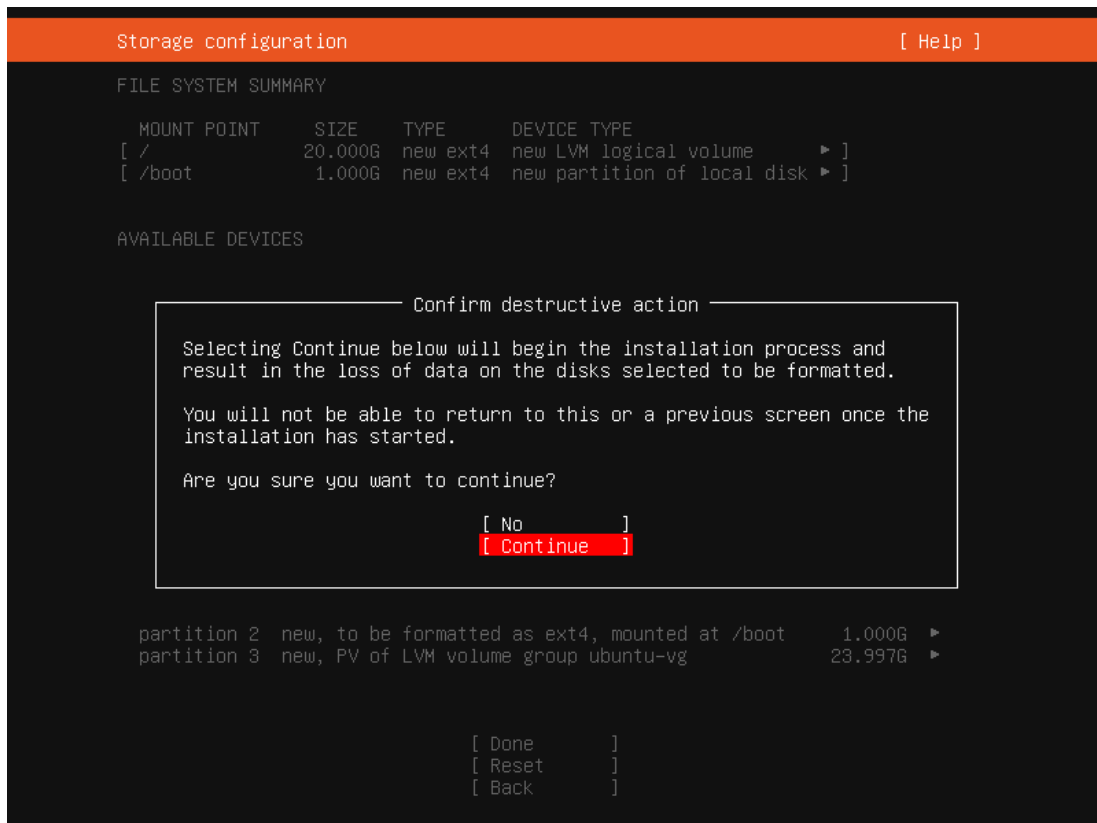
If you use an alternative mirror for Ubuntu, enter its details here.

Mirror address:

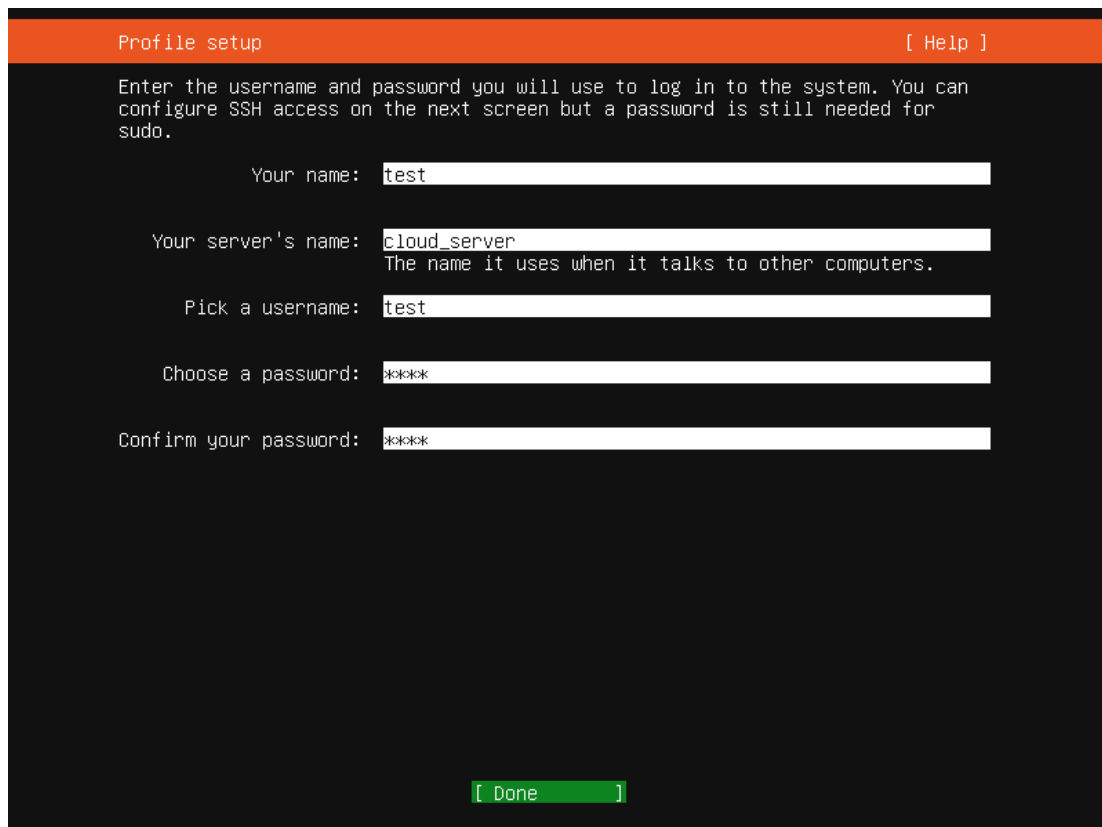
You may provide an archive mirror that will be used instead of the default.

[ Done ]  
[ Back ]





Podajemy dane konto użytkownika, w przykładowej konfiguracji najważniejsze dane to login: test, hasło: test, nazwa maszyny: cloud\_server.



Zaznaczamy opcję instalacji serwera SSH, będziemy mogli dzięki temu zalogować się do maszyny z dowolnego klienta, np . putty.

```
SSH Setup [ Help ]

You can choose to install the OpenSSH server package to enable secure remote
access to your server.

[X] Install OpenSSH server

Import SSH identity: [ No ▼ ]
You can import your SSH keys from Github or Launchpad.

Import Username:

[X] Allow password authentication over SSH

[ Done ]
[ Back ]
```

```
Featured Server Snaps [ Help ]

These are popular snaps in server environments. Select or deselect with SPACE,
press ENTER to see more details of the package, publisher and versions
available.

[ ] microk8s           Lightweight Kubernetes for workstations and appliance ▶
[ ] nextcloud          Nextcloud Server - A safe home for all your data ▶
[ ] wekan              Open-Source Kanban ▶
[ ] kata-containers   Lightweight virtual machines that seamlessly plug int ▶
[ ] docker             Docker container runtime ▶
[ ] canonical-livepatch Canonical Livepatch Client ▶
[ ] rocketchat-server Group chat server for 100s, installed in seconds. ▶
[ ] mosquitto          Eclipse Mosquitto MQTT broker ▶
[ ] etcd               Resilient key-value store by CoreOS ▶
[ ] powershell        PowerShell for every system! ▶
[ ] stress-ng          A tool to load, stress test and benchmark a computer ▶
[ ] sabnzbd            SABnzbd ▶
[ ] wormhole           get things from one computer to another, safely ▶
[ ] aws-cli            Universal Command Line Interface for Amazon Web Servi ▶
[ ] google-cloud-sdk   Command-line interface for Google Cloud Platform prod ▶
[ ] slcli              Python based SoftLayer API Tool. ▶
[ ] doctl              The official DigitalOcean command line interface ▶
[ ] conjure-up         Package runtime for conjure-up spells ▶
[ ] minidlna-escoand   server software with the aim of being fully compliant ▶
[ ] postgresql10       PostgreSQL is a powerful, open source object-relation ▶
[ ] heroku             CLI client for Heroku ▶
[ ] keepalived         High availability VRRP/BFD and load-balancing for Lin ▶
[ ] prometheus         The Prometheus monitoring system and time series data ▶
[ ] juju               Simple, secure and stable devops. Juju keeps complexi ▶

[ Done ]
[ Back ]
```



```
installing system
curtin command install
  preparing for installation
  configuring storage
    running 'curtin block-meta simple'
    curtin command block-meta
      removing previous storage devices
      configuring disk: disk-sda
      configuring partition: partition-0
      configuring partition: partition-1
      configuring format: format-0
      configuring partition: partition-2
      configuring lvm_volgroup: lvm_volgroup-0
      configuring lvm_partition: lvm_partition-0
      configuring format: format-1
      configuring mount: mount-1
      configuring mount: mount-0
  writing install sources to disk
    running 'curtin extract'
    curtin command extract
      acquiring and extracting image from cp:///media/filesystem
  configuring installed system
    running '/snap/bin/subiquity.subiquity-configure-run'
    running '/snap/bin/subiquity.subiquity-configure-apt
/snap/subiquity/2026/usr/bin/python3 true'
    curtin command apt-config
    curtin command in-target /
```

[ View full log ]

```
----- Finished install! -----
/snap/subiquity/2026/usr/bin/python3 true'
  curtin command apt-config
  curtin command in-target
  running 'curtin curthooks'
  curtin command curthooks
    configuring apt configuring apt
    installing missing packages
    configuring iscsi service
    configuring raid (mdadm) service
    installing kernel
    setting up swap
    apply networking config
    writing etc/fstab
    configuring multipath
    updating packages on target system
    configuring pollinate user-agent on target
    updating initramfs configuration
    configuring target system bootloader
    installing grub to target devices
  finalizing installation
    running 'curtin hook'
    curtin command hook
  executing late commands
final system configuration
  configuring cloud-init
  installing openssh-server
  restoring apt configuration
  downloading and installing security updates
```

[ View full log ]

[ Reboot ]

```
[FAILED] Failed unmounting /lib/modules.
[ OK ] Unmounted /target/run.
[ OK ] Unmounted /rofs.
[ OK ] Unmounted /tmp.
[ OK ] Stopped target Swap.
[ OK ] Unmounted /target/cdrom.
[ OK ] Unmounted /target/boot.
      Unmounting /target...
[ OK ] Unmounted /target.
[ OK ] Reached target Unmount All Filesystems.
[ OK ] Stopped target Local File Systems (Pre).
      Stopping Monitoring of LVM2 mirrors, snapshots etc. using dmeventd or progress polling...
[ OK ] Stopped Create Static Device Nodes in /dev.
[ OK ] Stopped Remount Root and Kernel File Systems.
[ OK ] Reached target Shutdown.
      Starting Shuts down the "live" preinstalled system cleanly...
[ OK ] Stopped Monitoring of LVM2 mirrors, snapshots etc. using dmeventd or progress polling.
      Stopping LVM2 metadata daemon...
[ OK ] Stopped LVM2 metadata daemon.
Please remove the installation medium, then press ENTER:
_
```

## Konfiguracja systemu Linux

Logujemy się do systemu za pomocą konta test.

```
Ubuntu 18.04.5 LTS cloud_server tty1
cloud_server login: test
Password:
Last login: Sat Oct  3 13:40:26 UTC 2020 on tty1
Welcome to Ubuntu 18.04.5 LTS (GNU/Linux 4.15.0-118-generic x86_64)

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

System information as of Sat Oct  3 13:40:36 UTC 2020

System load:  0.21          Processes:    98
Usage of /:   28.9% of 19.56GB Users logged in: 0
Memory usage: 2%           IP address for enp0s3: 192.168.1.42
Swap usage:   0%

19 packages can be updated.
0 updates are security updates.

New release '20.04.1 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

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

test@cloud_server:~$ _
```

W pierwszym kroku aktualizujemy dystrybucję wgrywając najnowsze aktualizacje:

```
test@cloud_server:~$ sudo apt update
Hit:1 http://pl.archive.ubuntu.com/ubuntu bionic InRelease
Hit:2 http://pl.archive.ubuntu.com/ubuntu bionic-updates InRelease
Hit:3 http://pl.archive.ubuntu.com/ubuntu bionic-backports InRelease
Hit:4 http://pl.archive.ubuntu.com/ubuntu bionic-security InRelease
Reading package lists... Done
Building dependency tree
Reading state information... Done
18 packages can be upgraded. Run 'apt list --upgradable' to see them.
test@cloud_server:~$ _
```

```
test@cloud_server:~$ sudo apt upgrade
Reading package lists... Done
Building dependency tree
Reading state information... Done
Calculating upgrade... Done
The following NEW packages will be installed:
  motd-news-config
The following packages will be upgraded:
  apport base-files bcache-tools cloud-init initramfs-tools initramfs-tools-bin
  initramfs-tools-core libpam-modules libpam-modules-bin libpam-runtime libpam0g libpcap0.8
  python3-apport python3-problem-report snapd ubuntu-minimal ubuntu-server ubuntu-standard
18 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 21.4 MB of archives.
After this operation, 1714 kB of additional disk space will be used.
Do you want to continue? [Y/n]
```

```

update-initramfs: deferring update (trigger activated)
Setting up python3-problem-report (2.20.9-0ubuntu7.17) ...
Setting up snapd (2.46.1+18.04) ...
Installing new version of config file /etc/apparmor.d/usr.lib.snapd.snap-confine.real ...
Installing new version of config file /etc/profile.d/apps-bin-path.sh ...
snapd.failure.service is a disabled or a static unit, not starting it.
snapd.snap-repair.service is a disabled or a static unit, not starting it.
Setting up motd-news-config (10.1ubuntu2.10) ...
Setting up initramfs-tools-bin (0.130ubuntu3.10) ...
Setting up ubuntu-standard (1.417.5) ...
Setting up cloud-init (20.3-2-g371b392c-0ubuntu1~18.04.1) ...
Installing new version of config file /etc/cloud/cloud.cfg.d/05_logging.cfg ...
Installing new version of config file /etc/cloud/templates/hosts.freebsd.tpl ...
Setting up libpcap0.8:amd64 (1.8.1-6ubuntu1.18.04.2) ...
Setting up initramfs-tools-core (0.130ubuntu3.10) ...
Setting up initramfs-tools (0.130ubuntu3.10) ...
update-initramfs: deferring update (trigger activated)
Setting up python3-apport (2.20.9-0ubuntu7.17) ...
Setting up apport (2.20.9-0ubuntu7.17) ...
apport-autoreport.service is a disabled or a static unit, not starting it.
Setting up ubuntu-minimal (1.417.5) ...
Setting up ubuntu-server (1.417.5) ...
Processing triggers for systemd (237-3ubuntu10.42) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
Processing triggers for dbus (1.12.2-1ubuntu1.2) ...
Processing triggers for rsyslog (8.32.0-1ubuntu4) ...
Processing triggers for mime-support (3.60ubuntu1) ...
Processing triggers for ureadahead (0.100.0-21) ...
Processing triggers for install-info (6.5.0.dfsg.1-2) ...
Processing triggers for plymouth-theme-ubuntu-text (0.9.3-1ubuntu7.18.04.2) ...
update-initramfs: deferring update (trigger activated)
Processing triggers for libc-bin (2.27-3ubuntu1.2) ...
Processing triggers for initramfs-tools (0.130ubuntu3.10) ...
update-initramfs: Generating /boot/initrd.img-4.15.0-118-generic
test@cloud_server:~$

```

Domyślna instalacja posiada dwa interfejsy sieciowe o następującej konfiguracji:

- enp0s3 – sieć wewnętrzna za NAT, adresy są przydzielane przez wbudowany serwer DHCP,
- enp0s8 – sieć zewnętrzna, specjalna konfiguracja virtualbox jako host-only adapter.

Aby można było się komunikować z systemem z zewnątrz, należy ustawić odpowiedni adres IP dla interfejsu enp08. Dla potrzeb procesu instalacji i zarządzania chmurą, adres ten powinien być statyczny.

Aby wprowadzić zmiany w konfiguracji sieciowej w nowszych wersjach Ubuntu, należy zastosować polecenie netplan.

Wprowadzamy zmiany w pliku `/etc/netplan/00-installer-config.yaml`

```

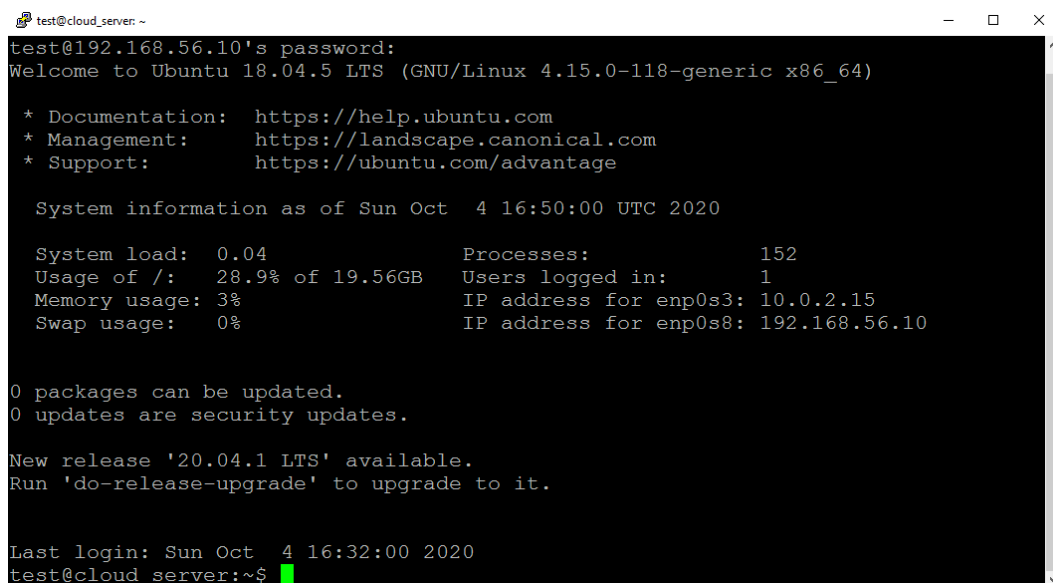
network:
  version: 2
  renderer: networkd
  ethernets:
    enp0s3:
      dhcp4: true
    enp0s8:
      dhcp4: no
      dhcp6: no
      addresses: [192.168.56.10/24]
      gateway4: 192.168.1.1
      nameservers:
        addresses: [192.168.1.1, 8.8.8.8]

```

Aby zatwierdzić zmiany, należy wykonać polecenie: netplan apply.

```
root@cloud_server:/home/test# netplan apply
root@cloud_server:/home/test# ping google.pl
PING google.pl (216.58.209.3) 56(84) bytes of data:
64 bytes from sof01s12-in-f3.1e100.net (216.58.209.3): icmp_seq=1 ttl=119 time=10.4 ms
64 bytes from sof01s12-in-f3.1e100.net (216.58.209.3): icmp_seq=2 ttl=119 time=10.8 ms
^C
--- google.pl ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1002ms
rtt min/avg/max/mdev = 10.447/10.649/10.851/0.202 ms
root@cloud_server:/home/test# _
```

Po wykonaniu powyższego polecenia, powinna być możliwość połączenia z serwerem za pomocą klienta SSH.



```
test@cloud_server: ~
test@192.168.56.10's password:
Welcome to Ubuntu 18.04.5 LTS (GNU/Linux 4.15.0-118-generic x86_64)

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

System information as of Sun Oct  4 16:50:00 UTC 2020

System load:  0.04          Processes:    152
Usage of /:   28.9% of 19.56GB Users logged in: 1
Memory usage: 3%           IP address for enp0s3: 10.0.2.15
Swap usage:  0%           IP address for enp0s8: 192.168.56.10

0 packages can be updated.
0 updates are security updates.

New release '20.04.1 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Last login: Sun Oct  4 16:32:00 2020
test@cloud_server:~$
```

Na tym etapie warto zrobić kopię wirtualnej maszyny do celów bezpieczeństwa. Jeśli chcemy dostęp do poleceń sieciowych z poprzednich wersji systemu, należy zainstalować pakiet:

```
apt-get install net-tools
```