technische universität
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How to: VMWare, Ubuntu 18.04 and ROS Melodic

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Working Environment Windows & Virtual Machine

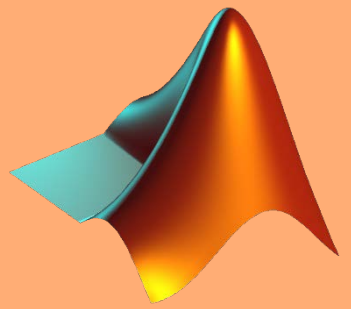
Windows 10

vmware

ubuntu

ROS

```
# roslaunch turtlebot.launch
```



```
laser = ...
  rossubscriber('/scan');

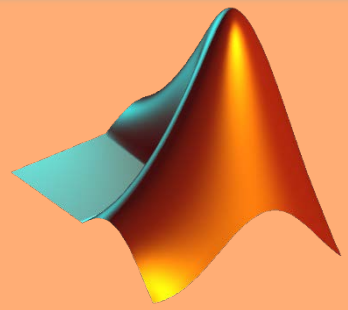
while ...
 scan = receive(laser,3);
 plot(scan);
end
```

Working Environment Native Ubuntu

ubuntu

ROS

```
# roslaunch turtlebot.launch
```



```
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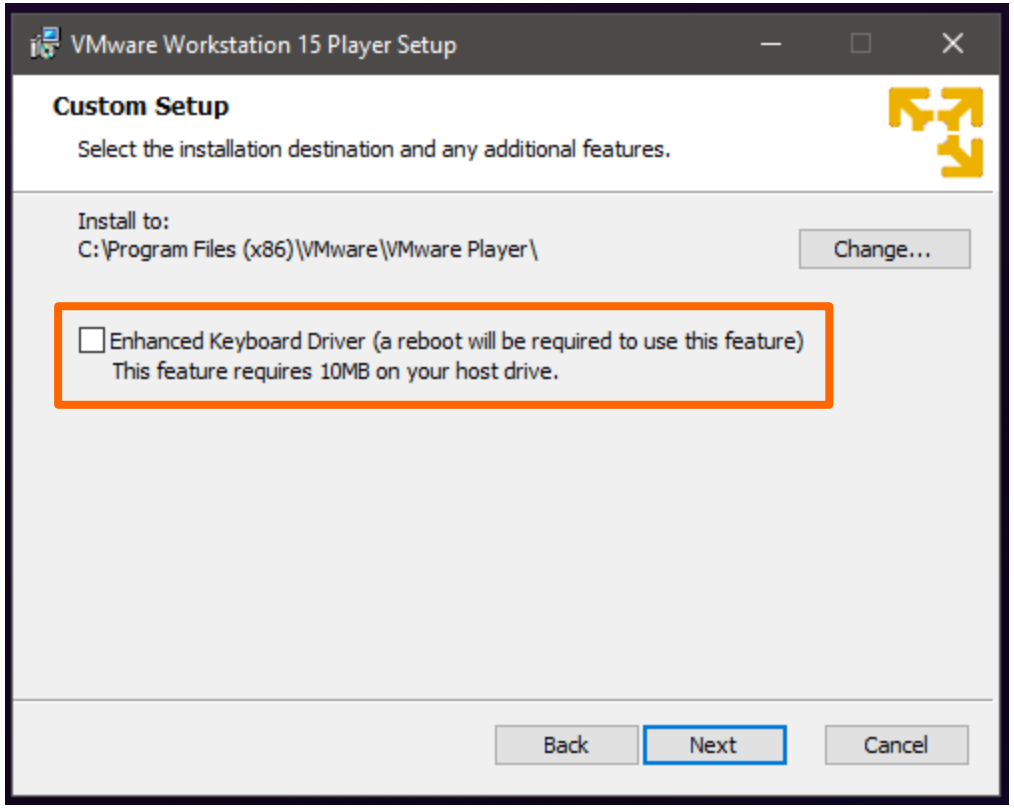
Prerequisites

- Download VM Ware Player from https://www.vmware.com/products/workstation-player/workstation-player-evaluation.html (~140MB)
- Download Ubuntu 18.04 x64 Desktop from https://releases.ubuntu.com/bionic/ (~2.1GB)
- You need ~ 30GB free disk space
- Your computer should have at least 4GB RAM (better 8GB RAM)

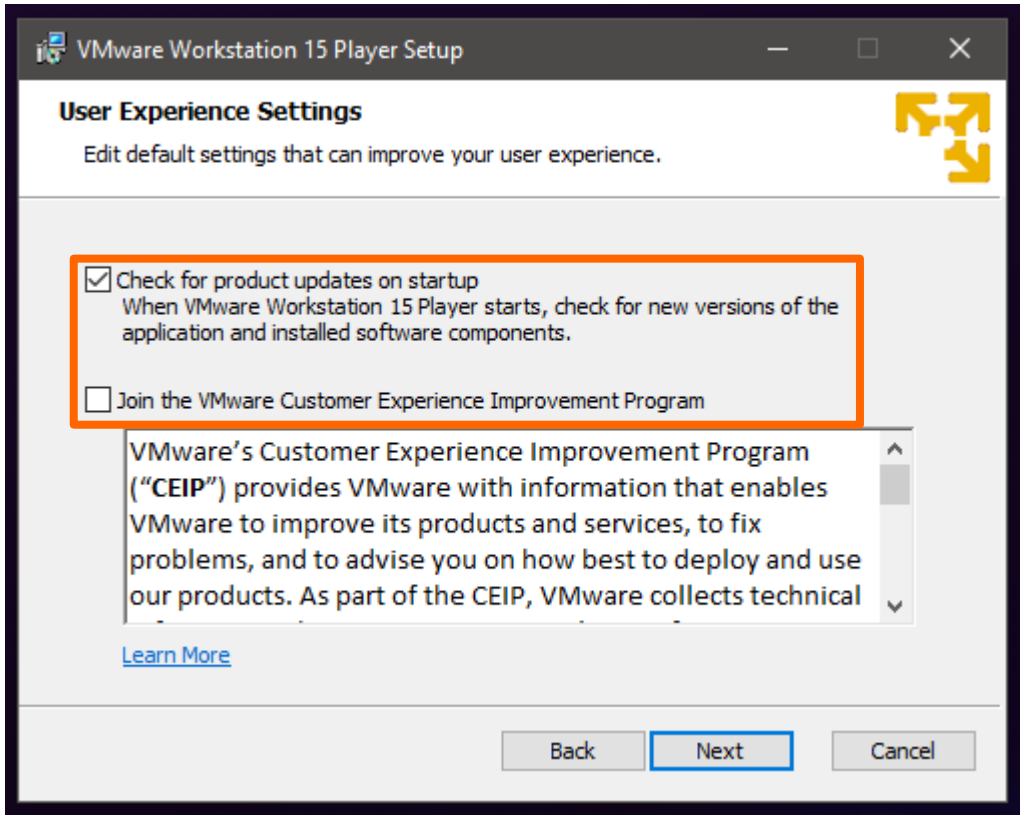
Installing VM Ware Player

- **Be aware** that your computers network/internet connection might reconnect during installation
- Run the downloaded installation file
- You do **not** need the "enhanced keyboard driver"



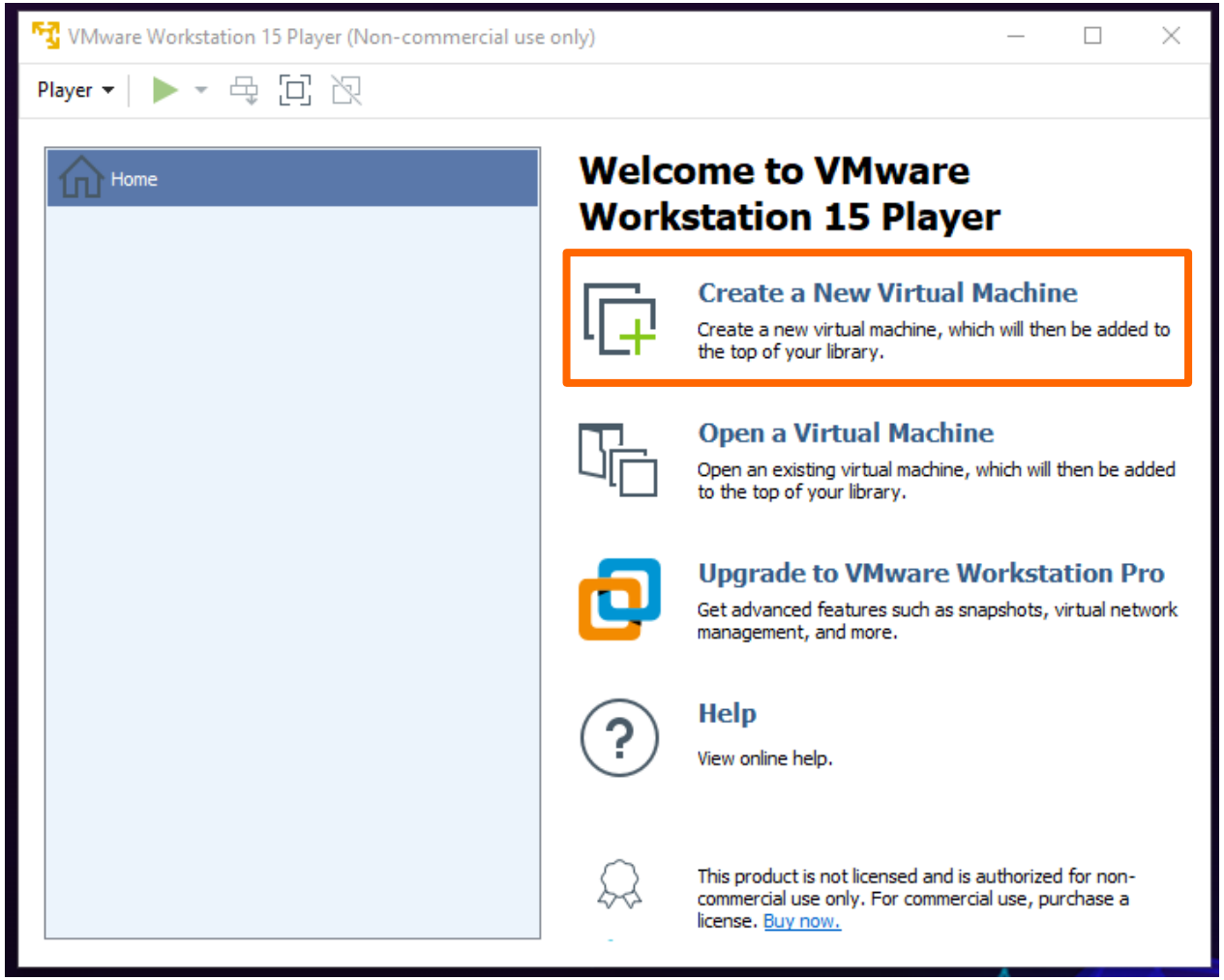
Installing VM Ware Player

- Joining the **Customer Experience Program** is **optional**
- Checking for updates on startup is **optional**



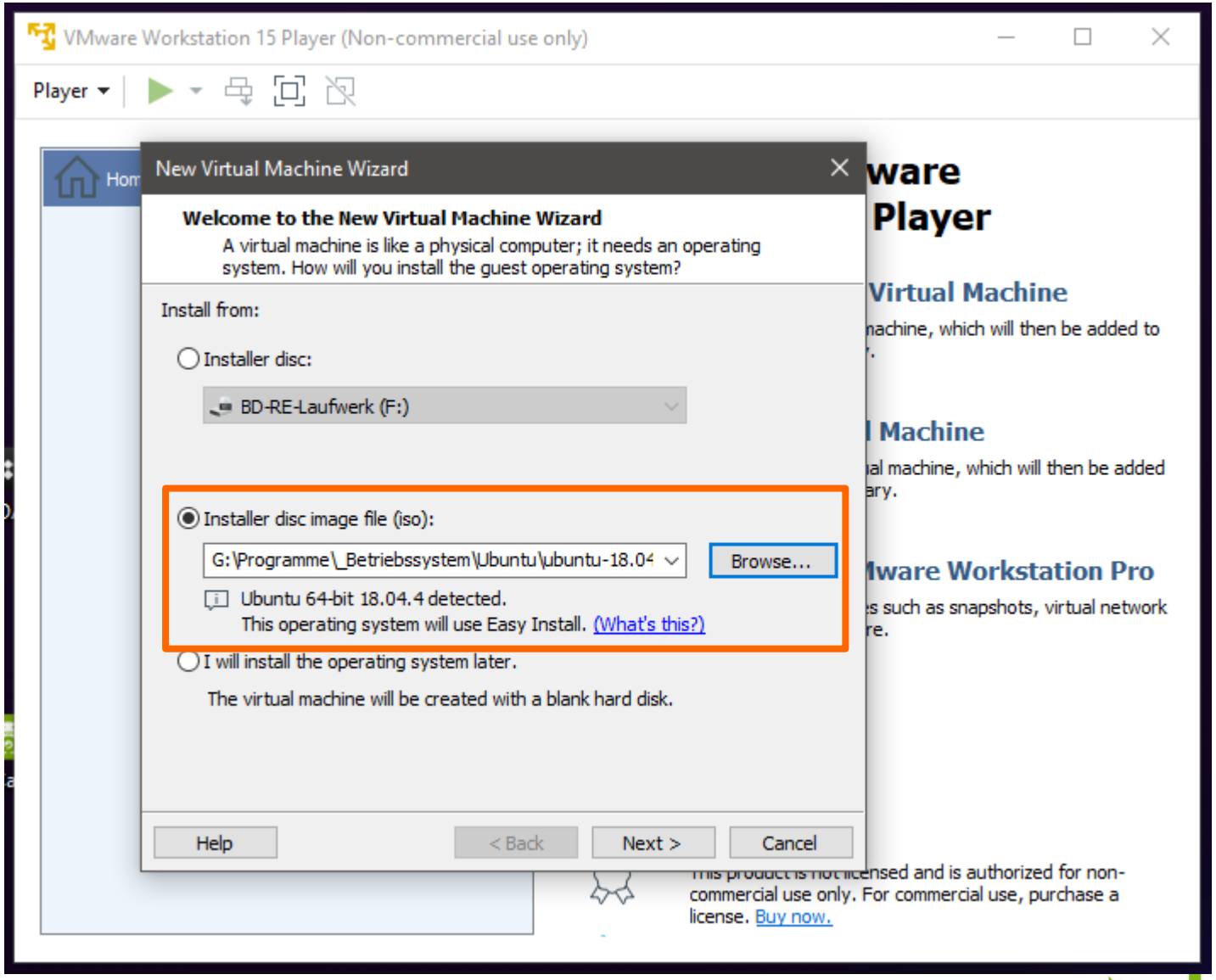
VM Ware Player – First Start

- Chose the **non-commercial** licence option for **lecture purposes**
- Skip any pop-ups that offer the **Pro** version
- Click on **Create a New Virtual Machine**



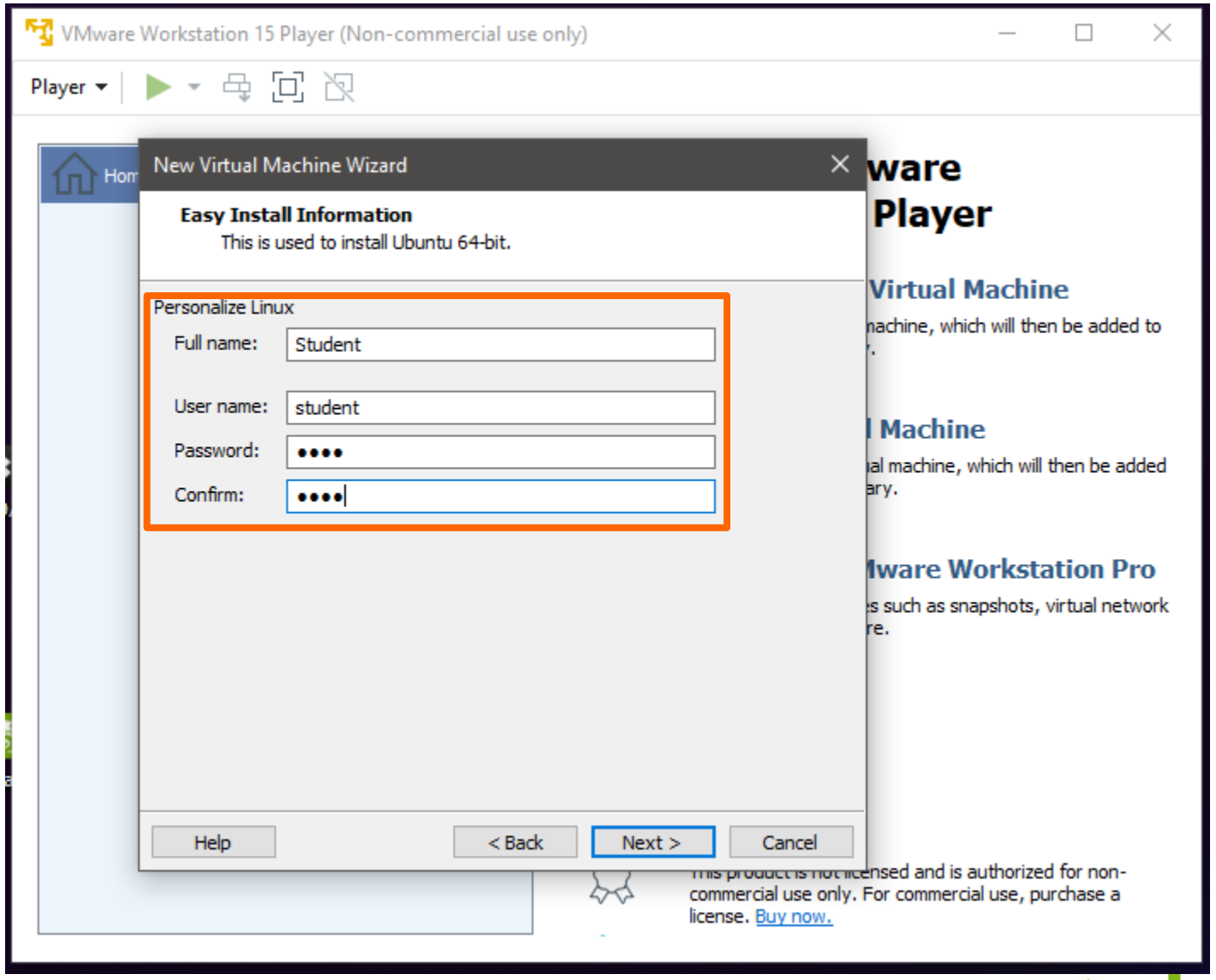
VM Ware Player – Create a New Virtual Machine

- Choose **Installer disc image file (iso)** and browse to the location of the downloaded **ubuntu image**
- The wizard should detect the image and offer **Easy Install**
- Click Next



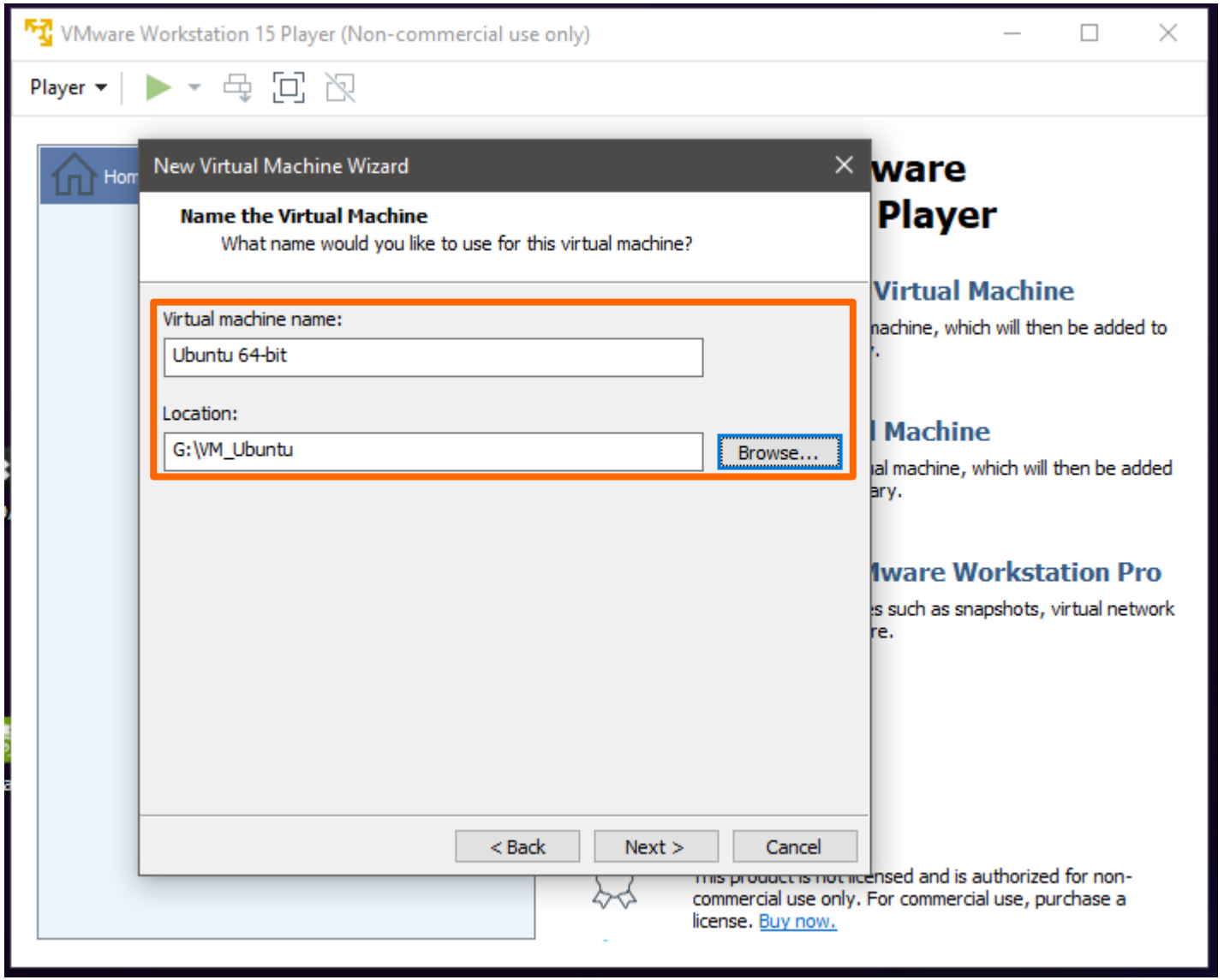
VM Ware Player – Create a New Virtual Machine

- Fill out **name**, **user name** and **password** for the ubuntu user
- Username must be **lowercase characters and numbers only**
- Click Next



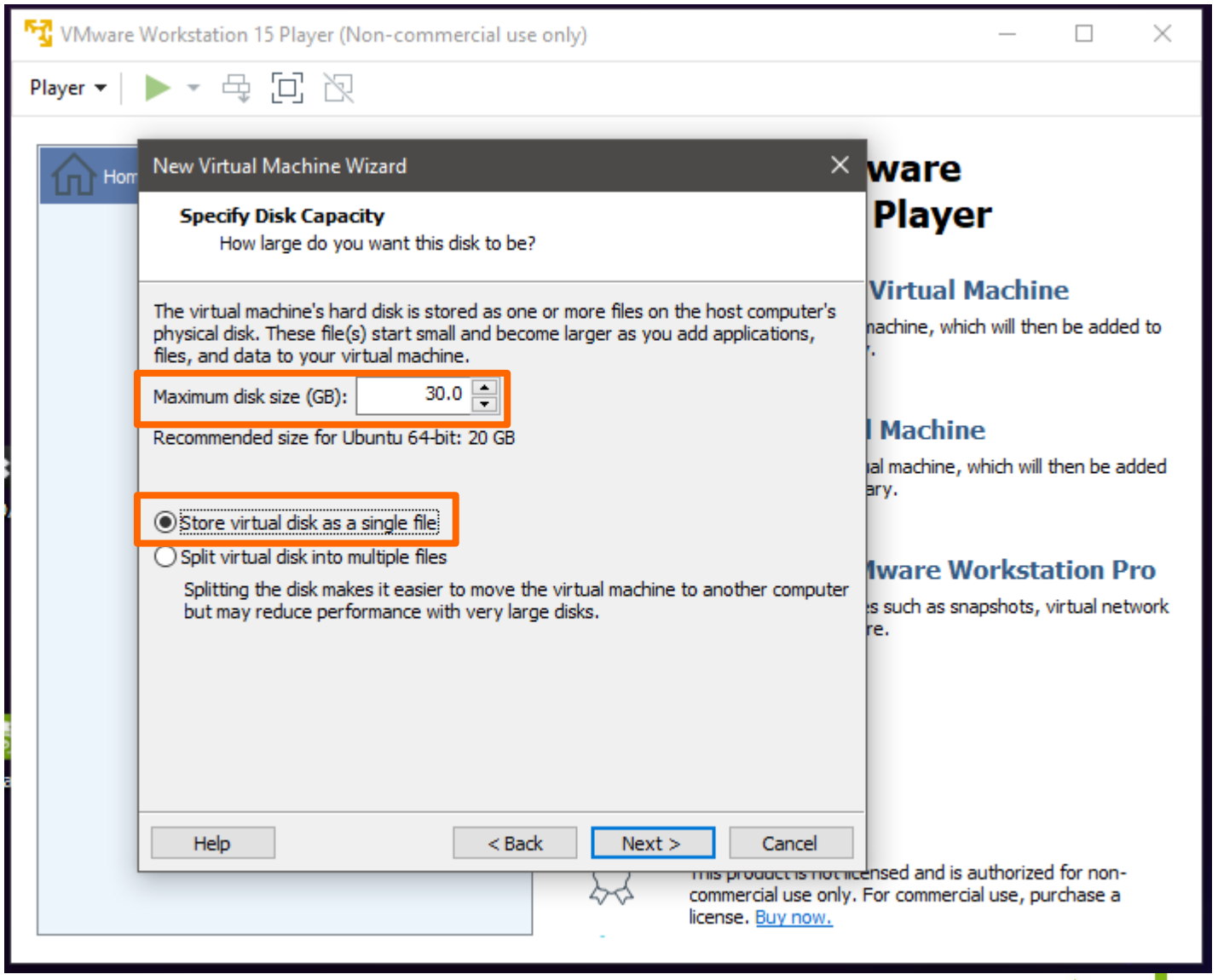
VM Ware Player – Create a New Virtual Machine

- Chose the **name** of your virtual machine
- Chose the **location** of your virtual machine
- Be aware that the virtual machine can take **up to 30GB** storage.
- Choose a drive with **sufficient free space**
- Click Next



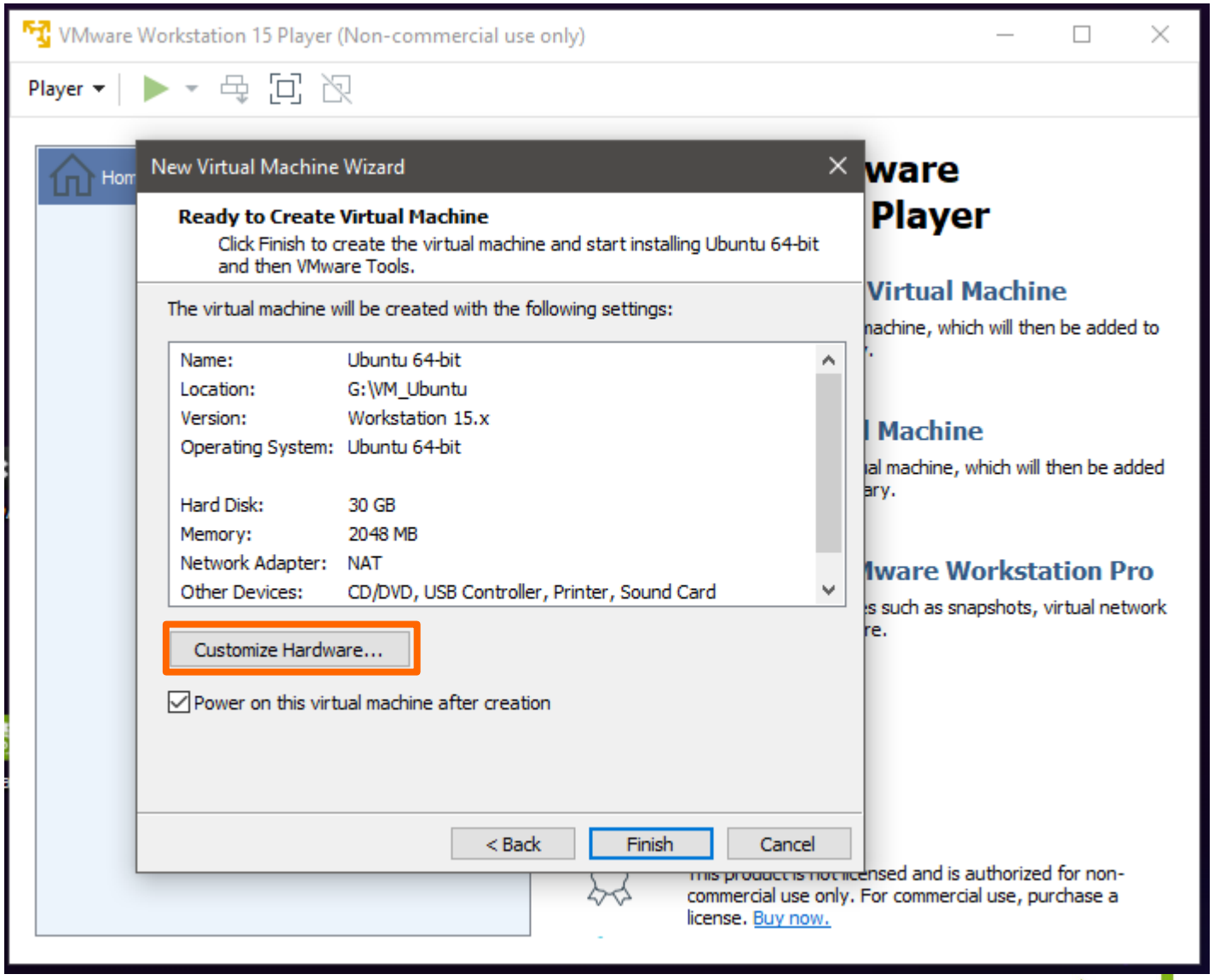
VM Ware Player – Create a New Virtual Machine

- Increase the maximum disk size to **30GB**
- Chose the option to store the **virtual disk as a single file**
- Click Next



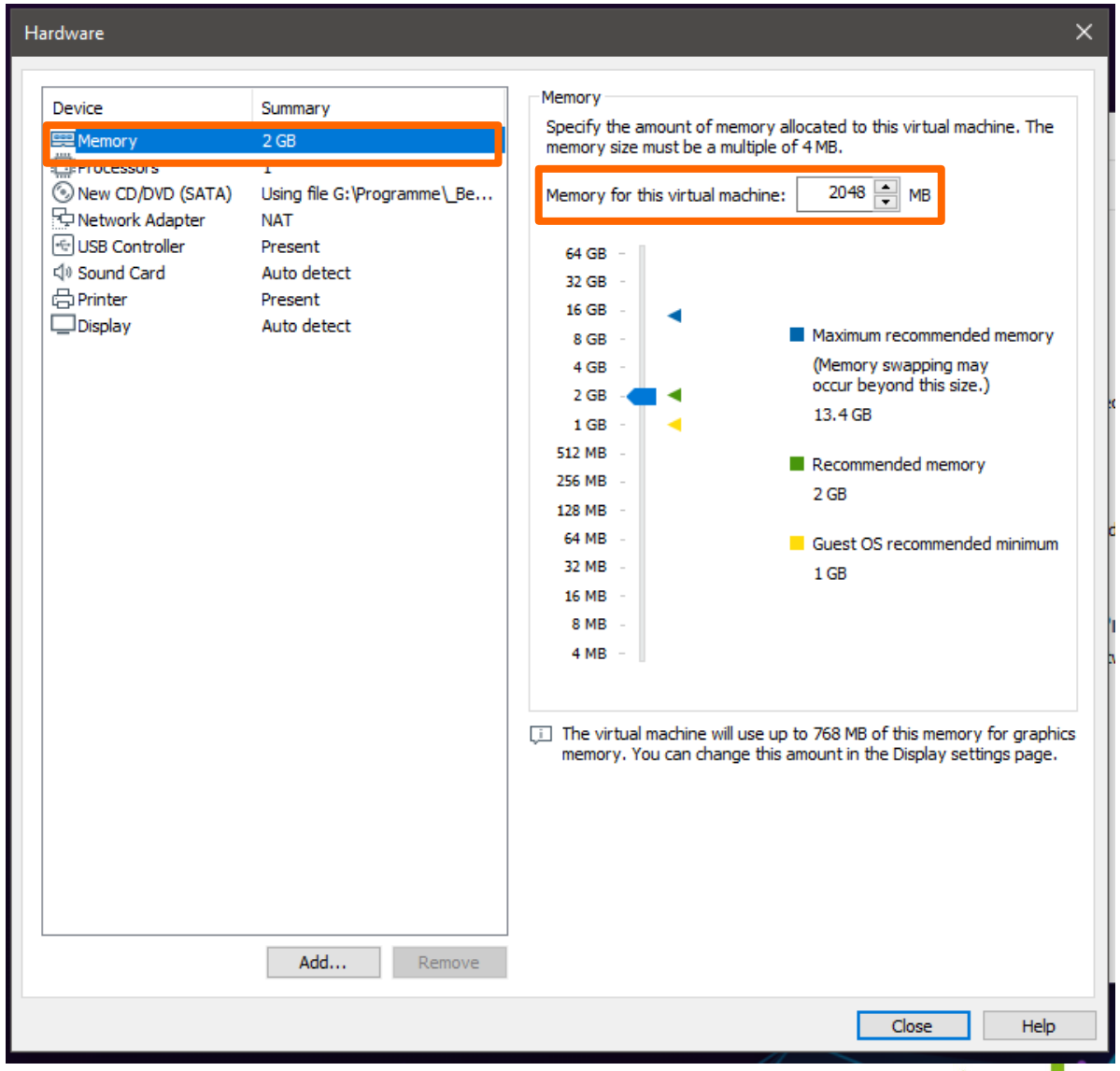
VM Ware Player – Create a New Virtual Machine

- Click on **Customize Hardware**



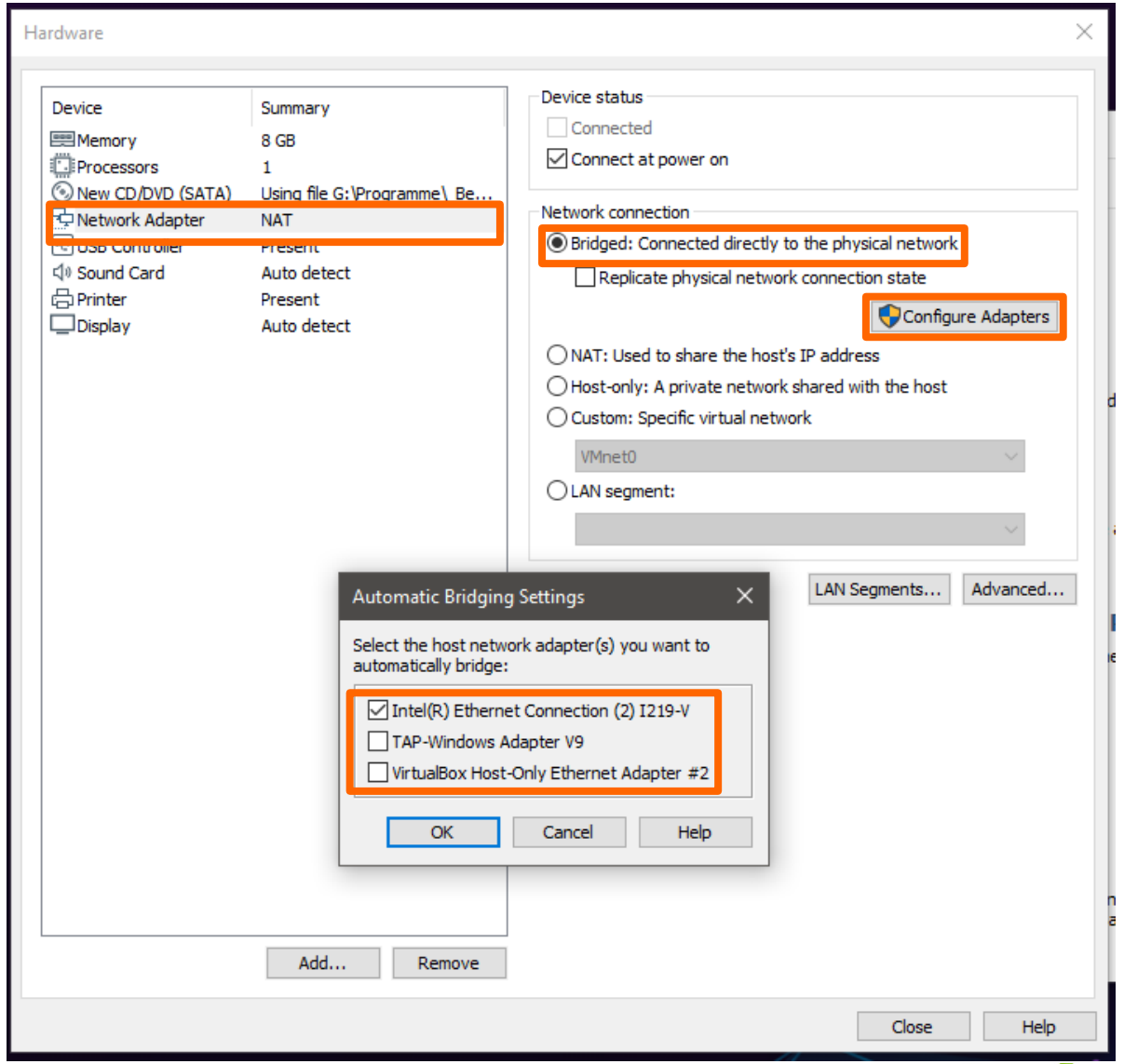
VM Ware Player – Create a New Virtual Machine

- You may increase the memory of the virtual machine
- **Do not** use more than half of your physical RAM
- 2048MB for 4GB physical RAM
- 4096MB for 8GB physical RAM
- 8192MB for 16GB physical RAM
- …



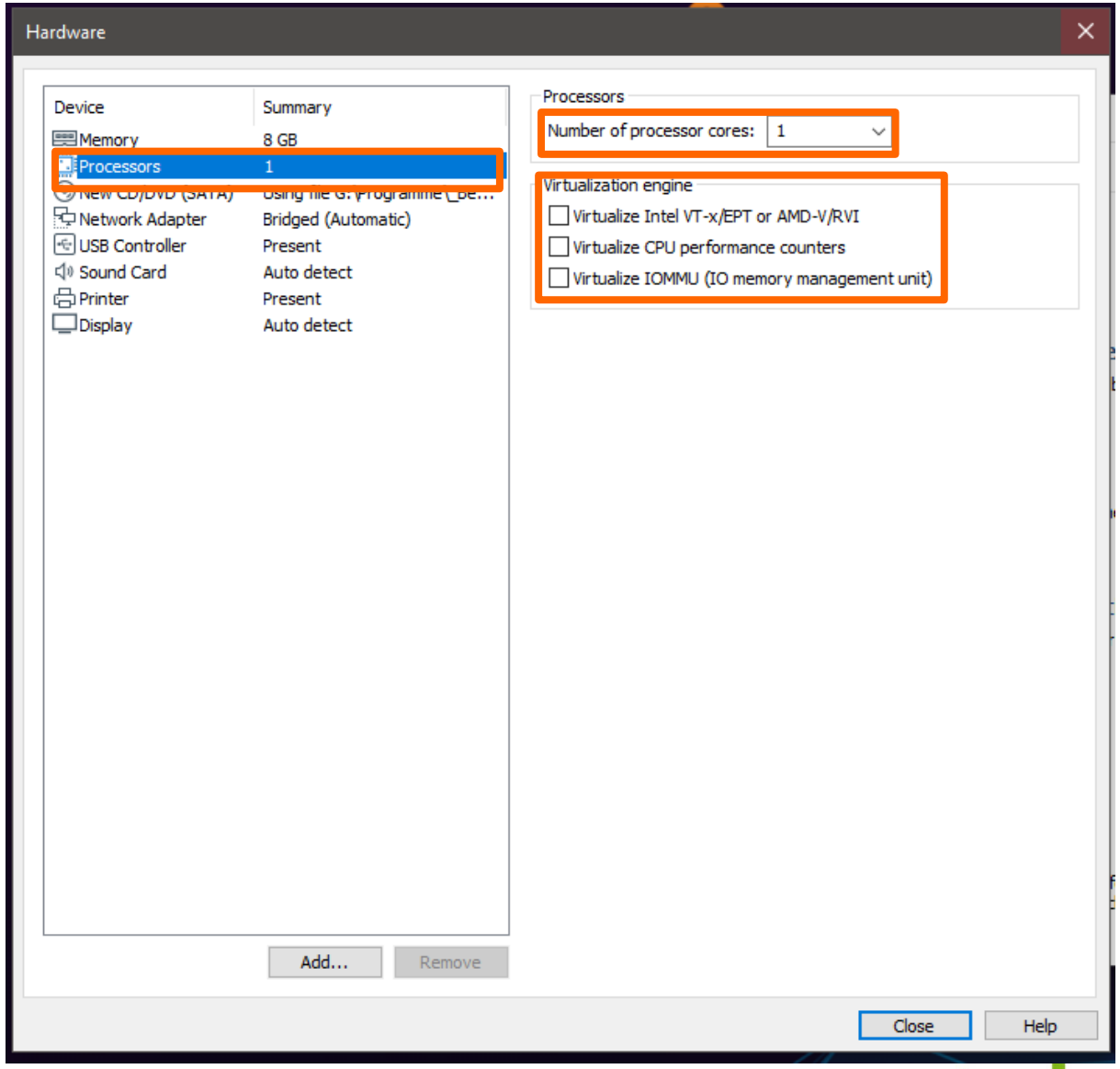
VM Ware Player – Create a New Virtual Machine

- Click on **Network Adapter**
- Chose **Bridged** mode
- Select **Configure Adapters**
- If you have more than one, select your **physical network interface only** (names differ depending on your active network interface, it could be a WiFi interface)



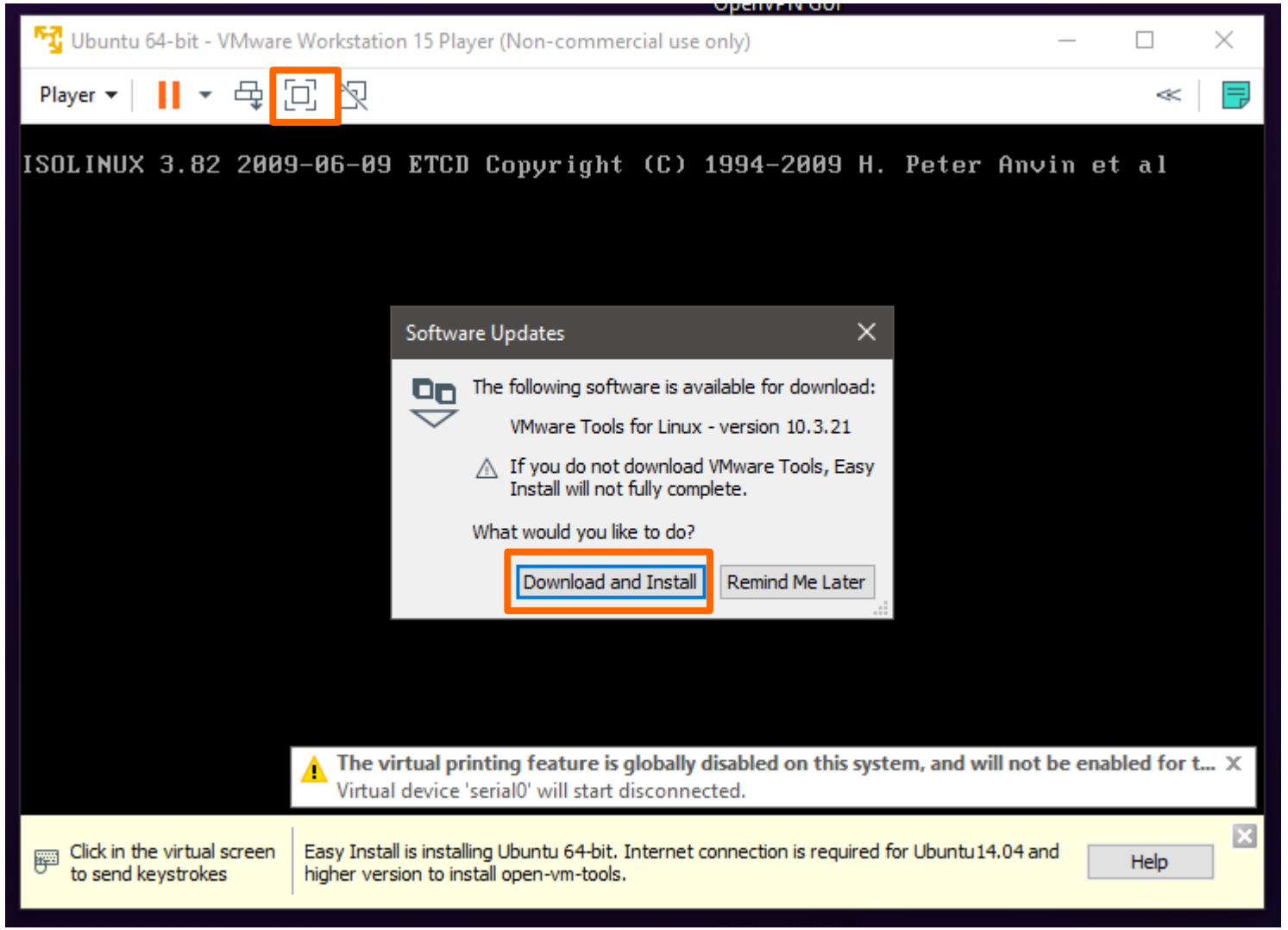
VM Ware Player – Create a New Virtual Machine

- Click on **Processors** (optional)
- You can share more **CPU cores** with the VM (optional)
- You can enable **virtualization** if needed (optional)
- Click **Close** and **Finish**
- The VM will start **automatically**



VM Ware Player – Launch VM/Install Ubuntu

- You might be asked to install a software update for **VMware Tools for Linux**
- Click **Download and Install**
- In the Background, the VM **automatically** installs Ubuntu
- After installation, log in
- You might want to enable **full screen** and change the **resolution** in ubuntu



Install ROS

- Open ROS install page http://wiki.ros.org/melodic/Installation/Ubuntu
- Open a terminal with **Ctrl + Alt + t**
- **Carefully** read the instructions
- **Do not** blindly copy and execute the given commands
- It is recommended to choose **Desktop-Full Install** at 1.4

Installation Additional ROS Packages

- Run the following command to install additional packages:

```
sudo apt install ros-melodic-navigation ros-melodic-teb-local-
planner ros-melodic-mpc-local-planner ros-melodic-joint-state-
publisher-gui ros-melodic-costmap-converter ros-melodic-libg2o ros-
melodic-ros-control ros-melodic-ros-controllers python-rosinstall
python-rosinstall-generator python-wstool ros-melodic-kobuki-msgs
ros-melodic-master-discovery-fkie ros-melodic-master-sync-fkie
```

- Instantiate your own **local workspace** as described by the comprehensive ROS tutorials at http://wiki.ros.org/ROS/Tutorials

- Everytime you **clone** or **copy** a ROS package into your **local workspace**, run the following command from within your **src folder** to install missing dependencies:

```
rosdep install --from-paths ./ --ignore-src --rosdistro melodic -y
```