

## Day 2



**Fast and smooth simulation of space-time problems**

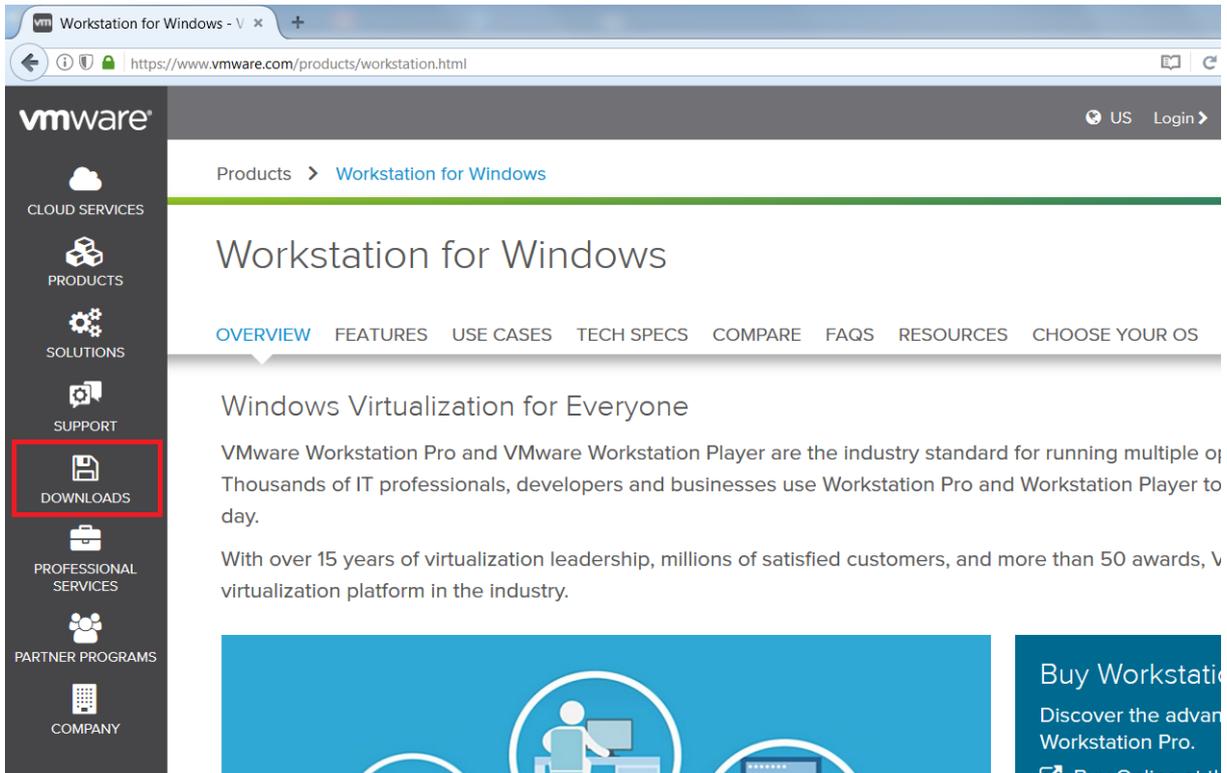
**Maciej Paszynski**  
Department of Computer Science, AGH University of Science and Technology, Krakow, Poland

Desde 24 al 28 de Julio, 2017  
Todos los días de 15:00 a 17:00 hrs.  
Sala Aula, Instituto de Matemáticas PUCV

### 1. Download VMPlayer

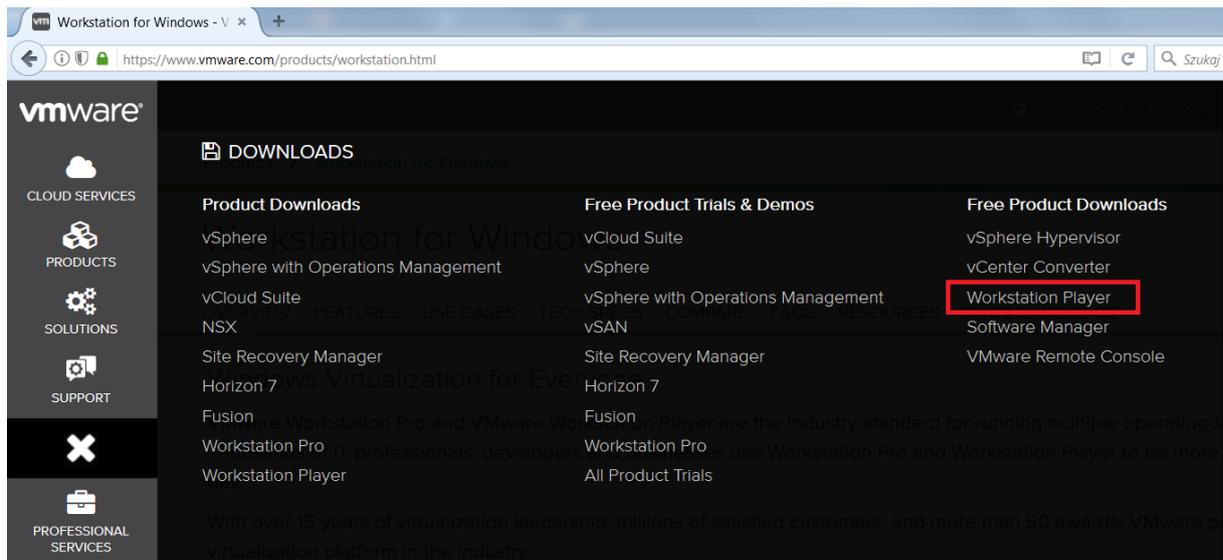
<https://www.vmware.com/products/workstation.html>

Go to Downloads

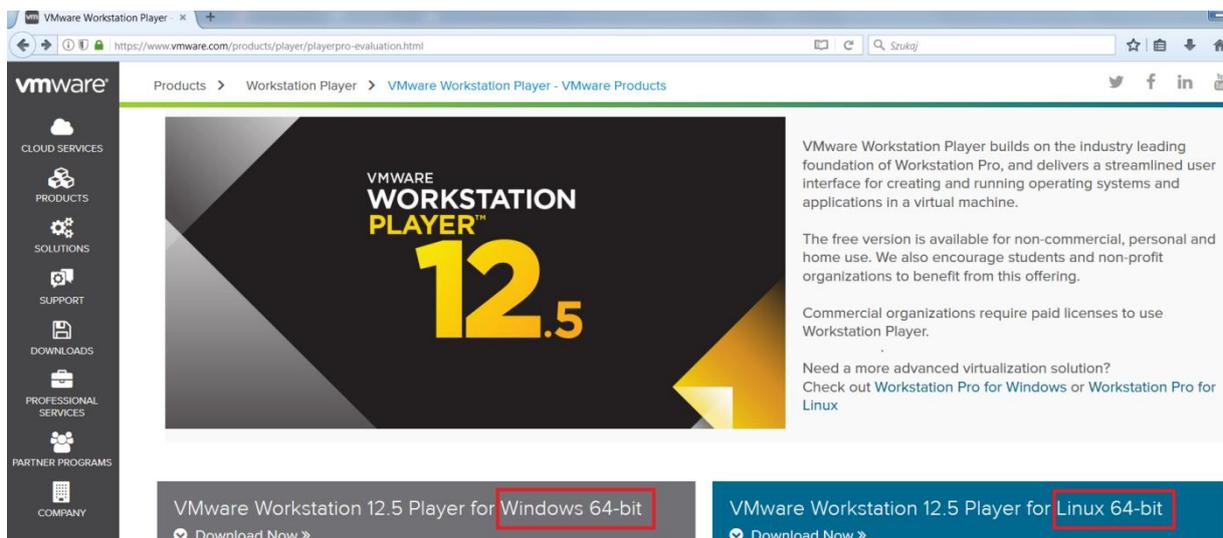


The screenshot shows the VMware website for Workstation for Windows. The browser address bar displays <https://www.vmware.com/products/workstation.html>. The page features a navigation menu on the left with icons for Cloud Services, Products, Solutions, Support, Downloads (highlighted with a red box), Professional Services, Partner Programs, and Company. The main content area includes the title "Workstation for Windows" and a navigation bar with links for Overview, Features, Use Cases, Tech Specs, Compare, FAQs, Resources, and Choose Your OS. The main heading is "Windows Virtualization for Everyone", followed by a paragraph: "VMware Workstation Pro and VMware Workstation Player are the industry standard for running multiple operating systems on a single PC. Thousands of IT professionals, developers and businesses use Workstation Pro and Workstation Player to day." Below this is another paragraph: "With over 15 years of virtualization leadership, millions of satisfied customers, and more than 50 awards, VMware Workstation is the leading virtualization platform in the industry." At the bottom right, there is a blue call-to-action box that says "Buy Workstation Pro" and "Discover the advanced features of VMware Workstation Pro." with a "Buy Online at the VMware Store" link.

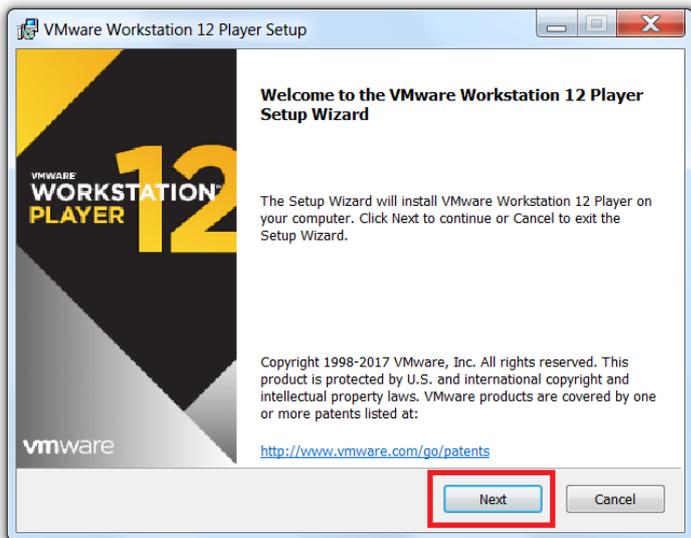
## Download Workstation Player



If you have Windows, select Windows, if you have Linux, select Linux



I do it on Windows:



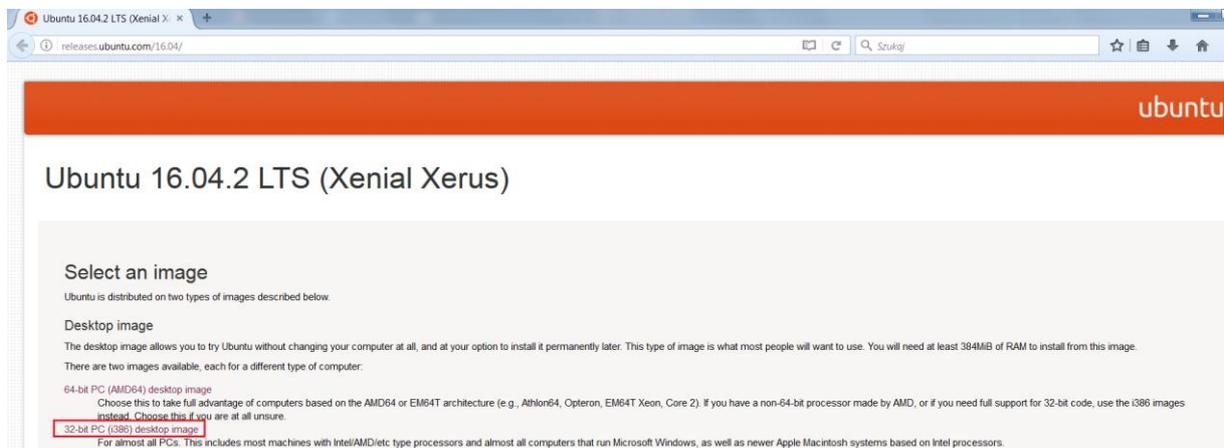
Continue with the installation with default settings.

## 2. Download the image of Linux Ubuntu 32 bits system

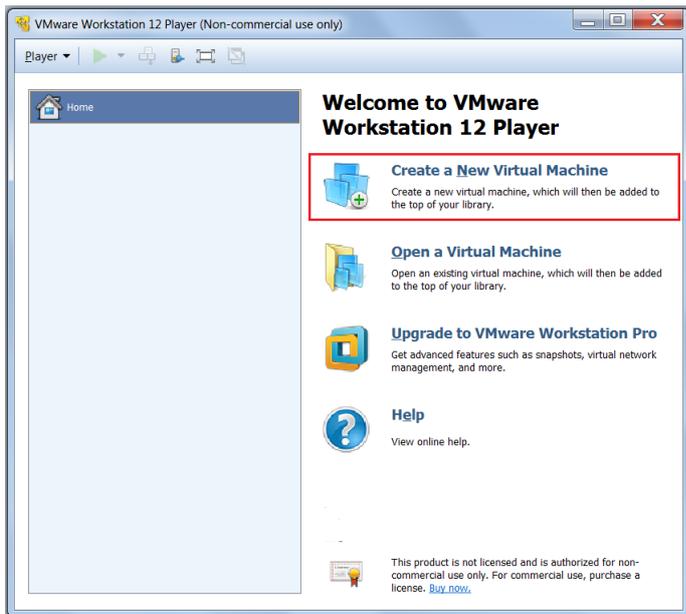
Download 32bit ubuntu

<http://releases.ubuntu.com/16.04/>

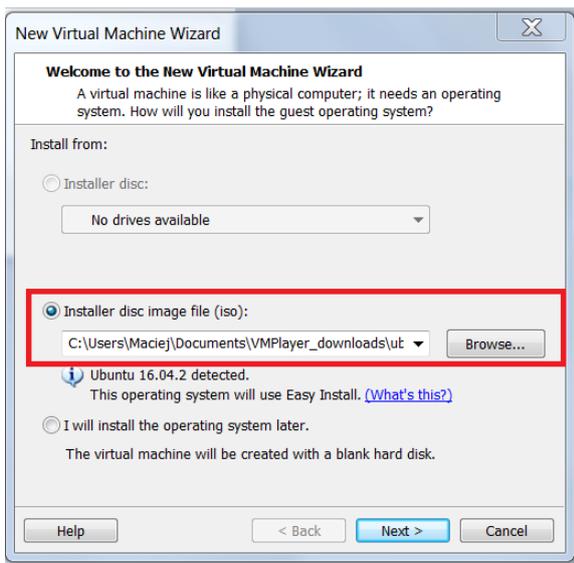
(We will use 32 bits system because some laptops do not support virtual 64 bits systems)

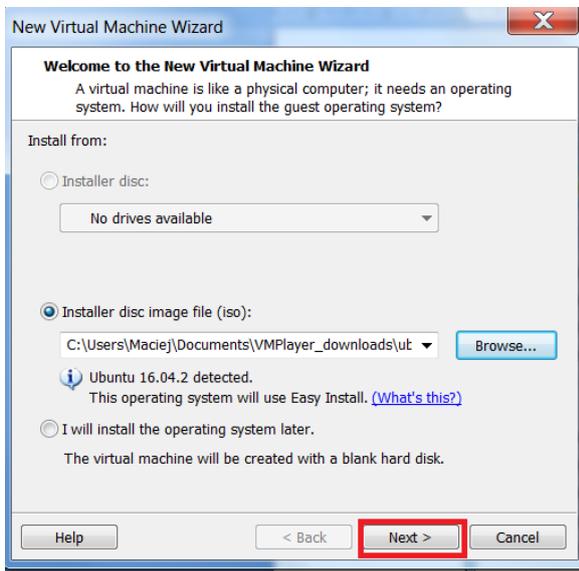
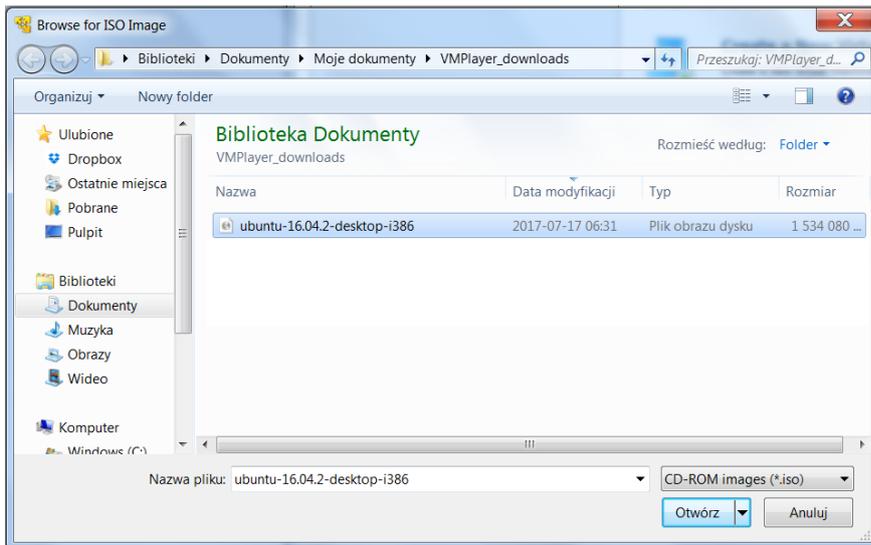


### 3. Run VMware Workstation Player and create new virtual machine using the downloaded image



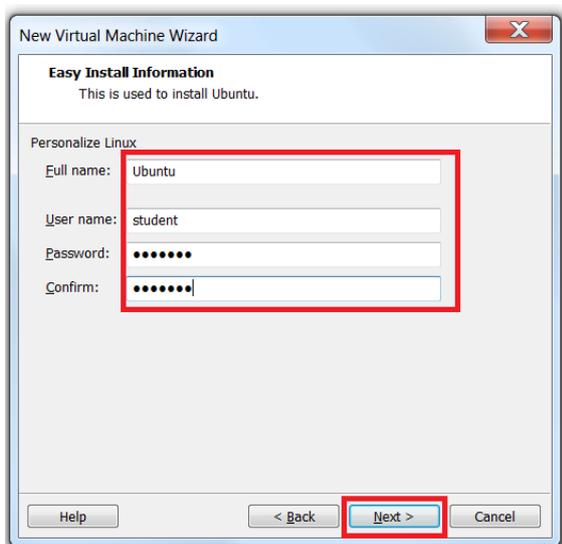
Select the virtual image that you have downloaded



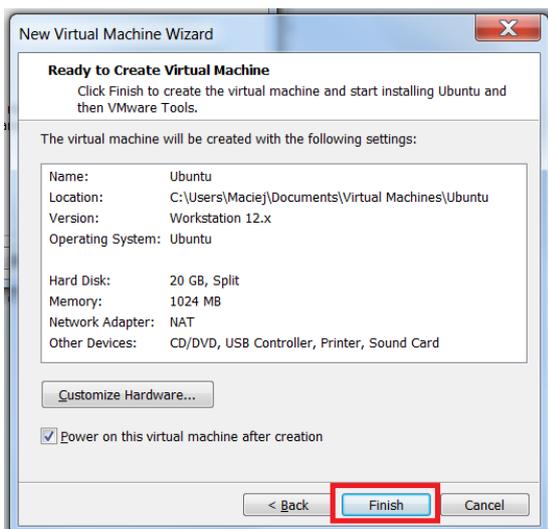
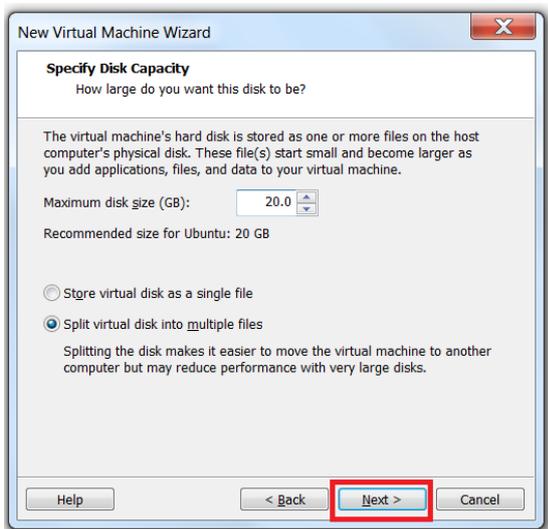
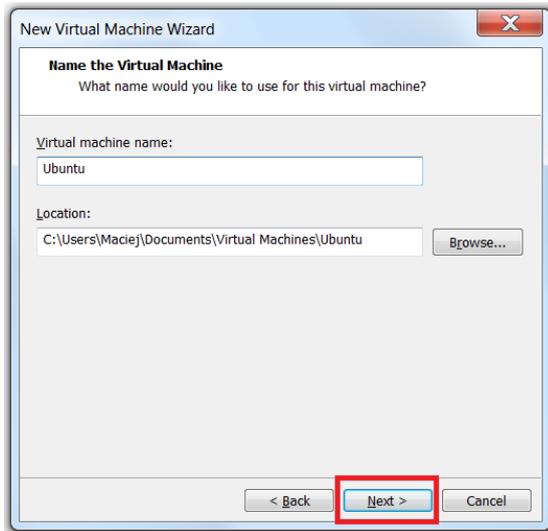


Enter the name of your virtual machine, e.g. Ubuntu,

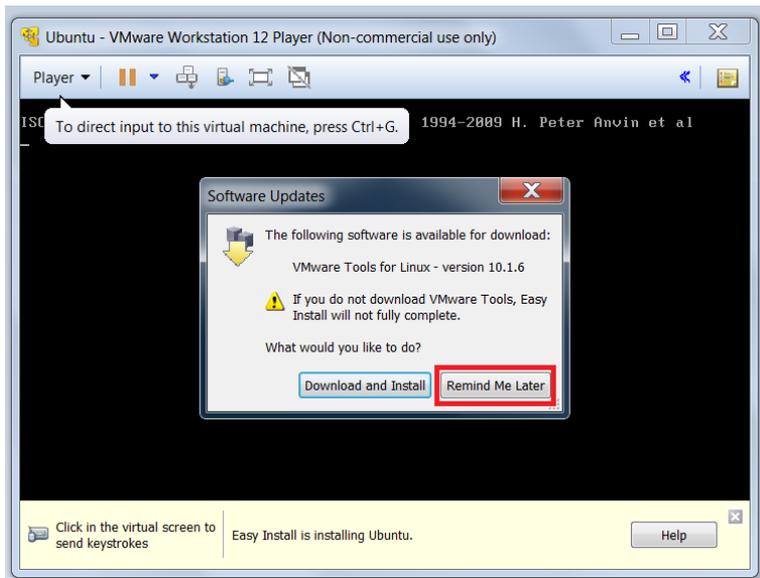
Enter username and password e.g. student, student, student



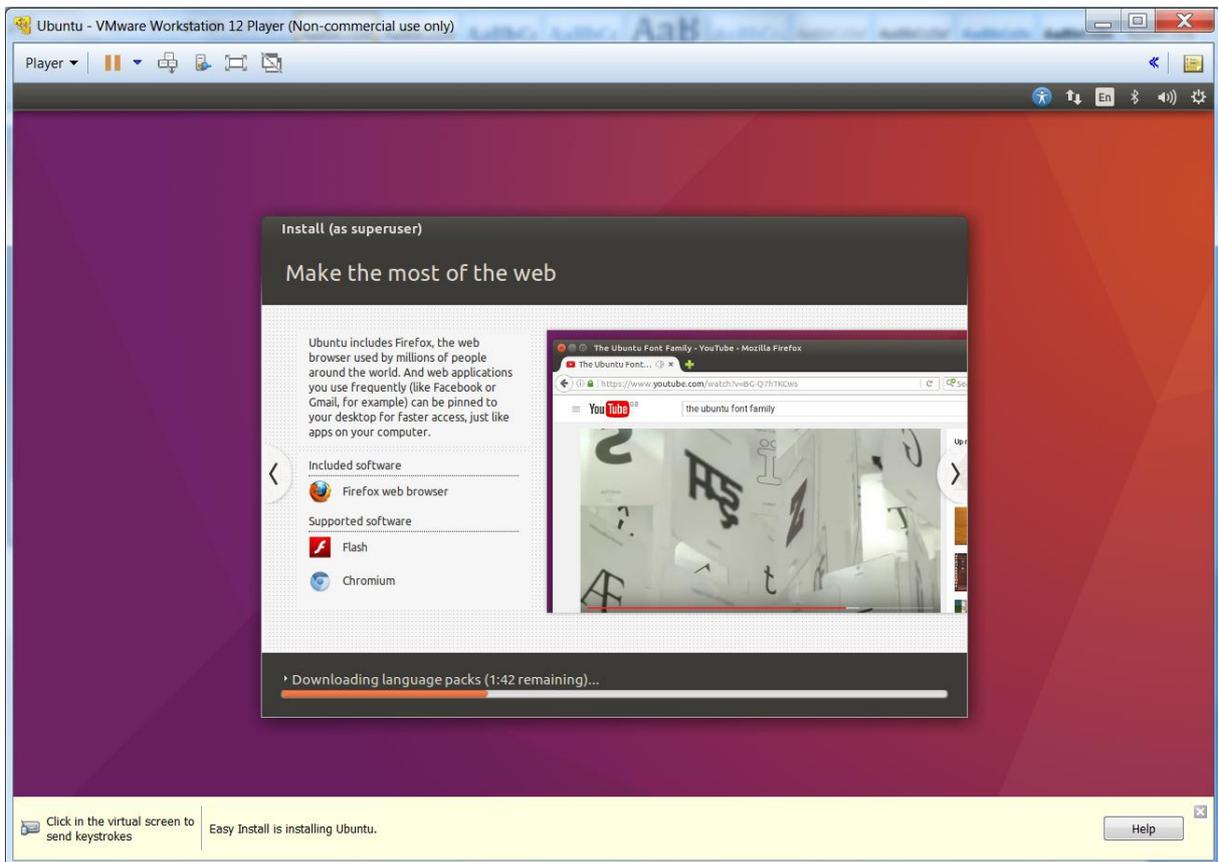
Then go through default settings:



Finally, the virtual machine is running. It may ask for installation of some addition tools, but this is not necessary:

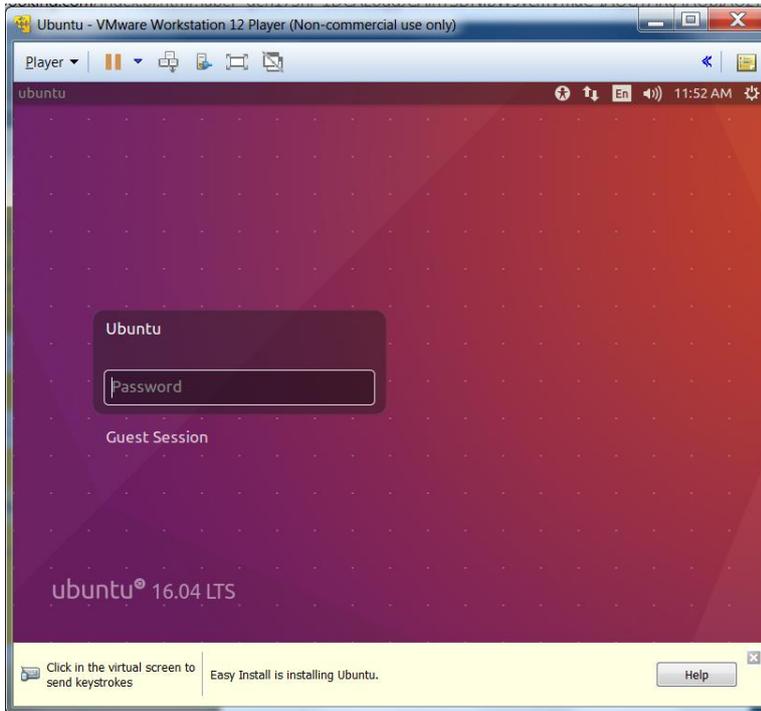


Wait for the installation of Ubuntu Linux inside the virtual machine:



Enter the password: student

(the one that you have setup during the installation)



And you have your virtual machine with Ubuntu running

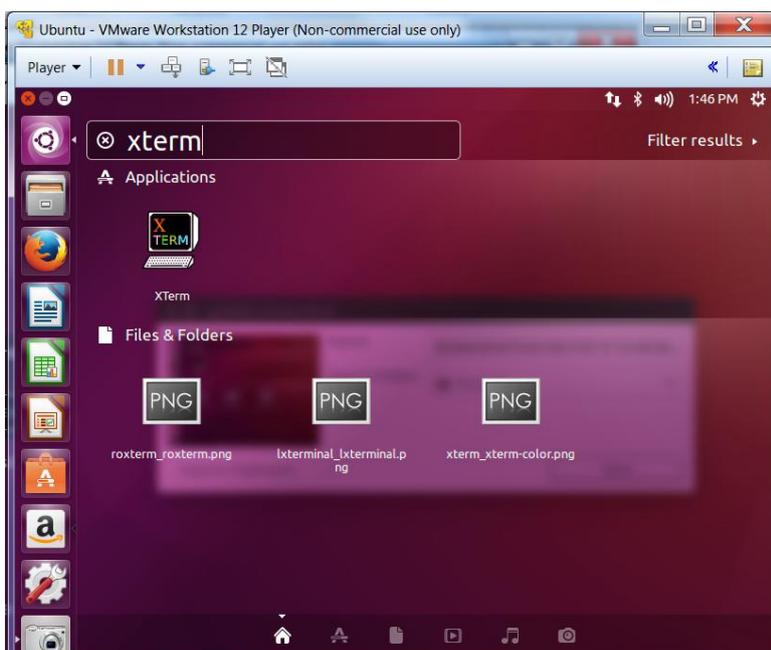
#### 4. Installation of IGA-ADS solver inside the virtual machine

We are going to install the software described in

[https://www.researchgate.net/publication/313532745\\_IGA-ADS\\_Isogeometric\\_analysis\\_FEM\\_using\\_ADS\\_solver](https://www.researchgate.net/publication/313532745_IGA-ADS_Isogeometric_analysis_FEM_using_ADS_solver)

**Section 8** describes the installation processs briefly

##### 4a) Run Xterm



#### **4b) Install git**

**Type inside xterm:**

```
sudo apt install git
```

```
student
```

```
Y
```

#### **4c) Install cmake**

```
sudo apt install cmake
```

```
Y
```

#### **4d) Install emacs**

```
sudo apt install emacs24
```

#### **4e) Install gfortran**

```
sudo apt install gfortran
```

#### **4f) Install lapack**

```
sudo apt install liblapack-doc
```

```
sudo apt install liblapack-dev
```

#### **4g) Install blas**

```
sudo apt install libblas-doc
```

```
sudo apt install libblas-dev
```

#### **4h) Install boost**

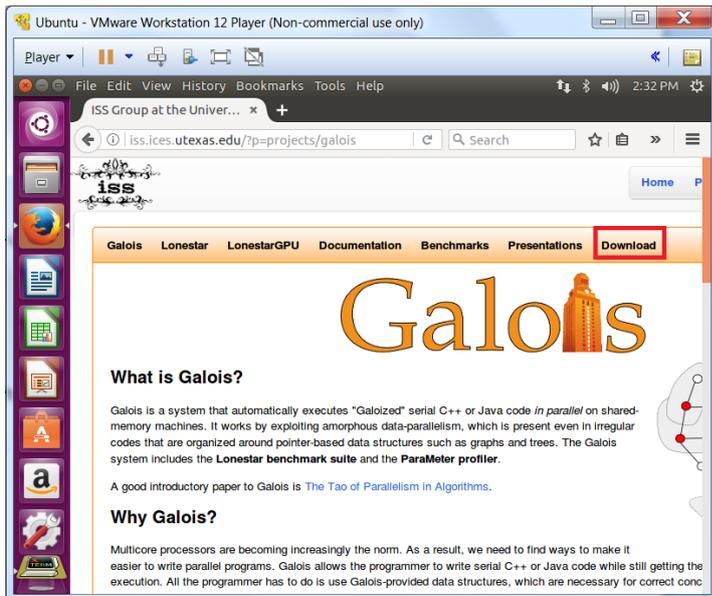
```
sudo apt install libboost-all-dev
```

```
Y
```

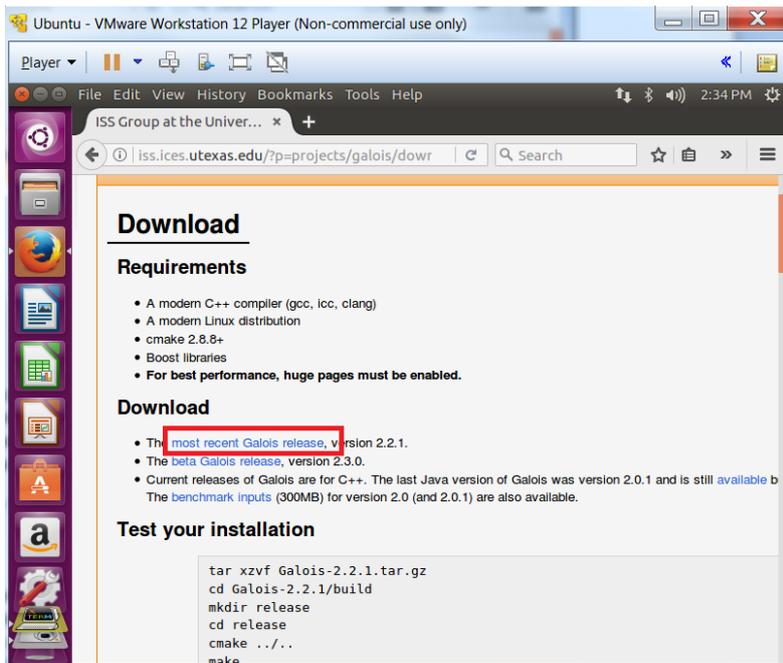
#### **4i) Install GALOIS**

Open the internet browser in the virtual machine and go to GALOIS web page

<http://iss.ices.utexas.edu/?p=projects/galois>



Save the GALOIS zip



```
student@ubuntu:~/Downloads$ cd ~
```

```
student@ubuntu:~$ cd Downloads/
```

```
student@ubuntu:~/Downloads$ ls
```

```
Galois-2.2.1.tar.gz
```

```
student@ubuntu:~/Downloads$ mv Galois-2.2.1.tar.gz ~
```

```
student@ubuntu:~/Downloads$ cd ~
```

```
student@ubuntu:~$ tar xzvf Galois-2.2.1.tar.gz
```

```
student@ubuntu:~$ cd Galois-2.2.1/build
```

```
student@ubuntu:~/Galois-2.2.1/build$ mkdir release
```

```
student@ubuntu:~/Galois-2.2.1/build$ cd release/
```

```
student@ubuntu:~/Galois-2.2.1/build/release$ cmake -DSKIP_COMPILE_APPS=ON ../..
```

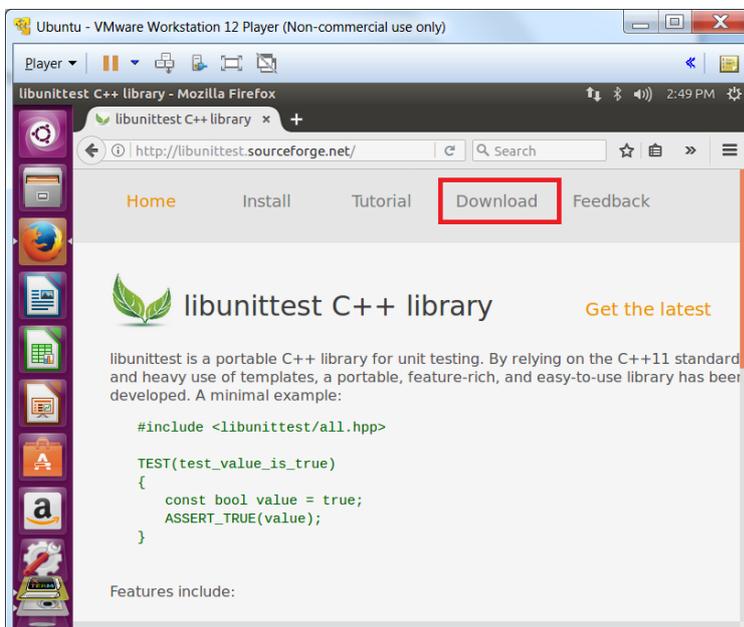
```
student@ubuntu:~/Galois-2.2.1/build/release$ make
```

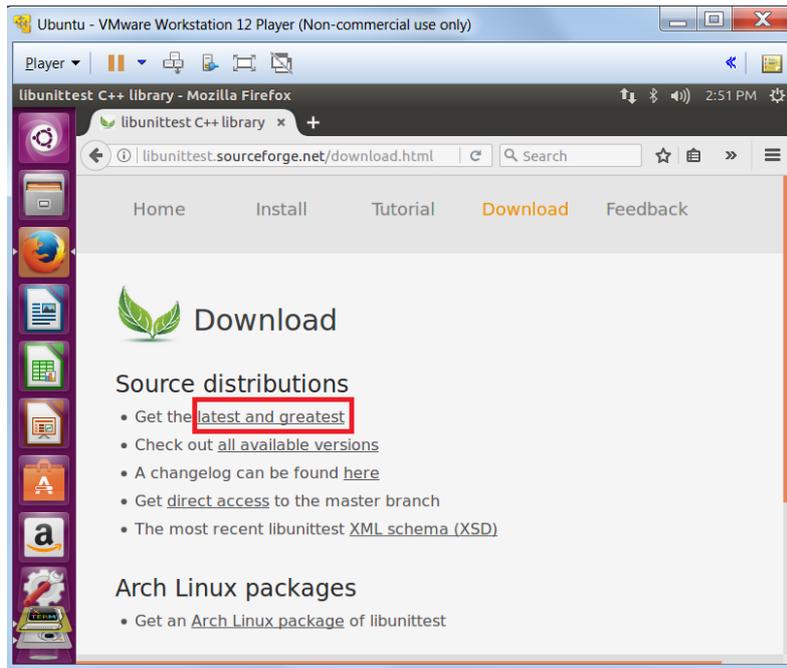
```
student@ubuntu:~/Galois-2.2.1/build/release$ sudo make install
```

#### 4j) Install unittests

Open the internet browser in the virtual machine and go to unittests webpage

<http://libunittest.sourceforge.net/>





Save it to the disc

```
student@ubuntu:~/Downloads$ cd ~
```

```
student@ubuntu:~$ cd Downloads/
```

```
student@ubuntu:~/Downloads$ ls
```

```
libunittest-9.3.5.tar.gz
```

```
student@ubuntu:~/Downloads$ mv libunittest-9.3.5.tar.gz ~
```

```
student@ubuntu:~/Downloads$ cd ~
```

```
student@ubuntu:~$ tar -xvf libunittest-9.3.5.tar.gz
```

```
student@ubuntu:~$ cd libunittest-9.3.5/
```

```
student@ubuntu:~/libunittest-9.3.5$ ./configure
```

```
student@ubuntu:~/libunittest-9.3.5$ make
```

```
student@ubuntu:~/libunittest-9.3.5$ sudo make install
```

#### 4k) Install gnuplot

```
sudo apt install gnuplot
```

#### 4l) Install IGA-ADS

```
student@ubuntu:~$ cd ~
```

```
student@ubuntu:~$ git clone https://github.com/marcinlos/iga-ads
```

```
student@ubuntu:~$ cd iga-ads/
```

```
student@ubuntu:~/iga-ads$ cmake . && make
```

```
student@ubuntu:~/iga-ads$ ls
```

```
CMakeCache.txt  cmake_install.cmake  heat_1d  init.data  Makefile  src
```

```
CMakeFiles  CMakeLists.txt  heat_3d  libads.a  README  test
```

```
student@ubuntu:~/iga-ads$
```

If you have files **heat\_1d** and **heat\_3d** and **libads.a** then **congratulations!**