

Installazione di Linux



Corso di Laurea in Ingegneria Informatica
Università degli Studi di Napoli Federico II
Anno Accademico 2024/2025, Canale San Giovanni

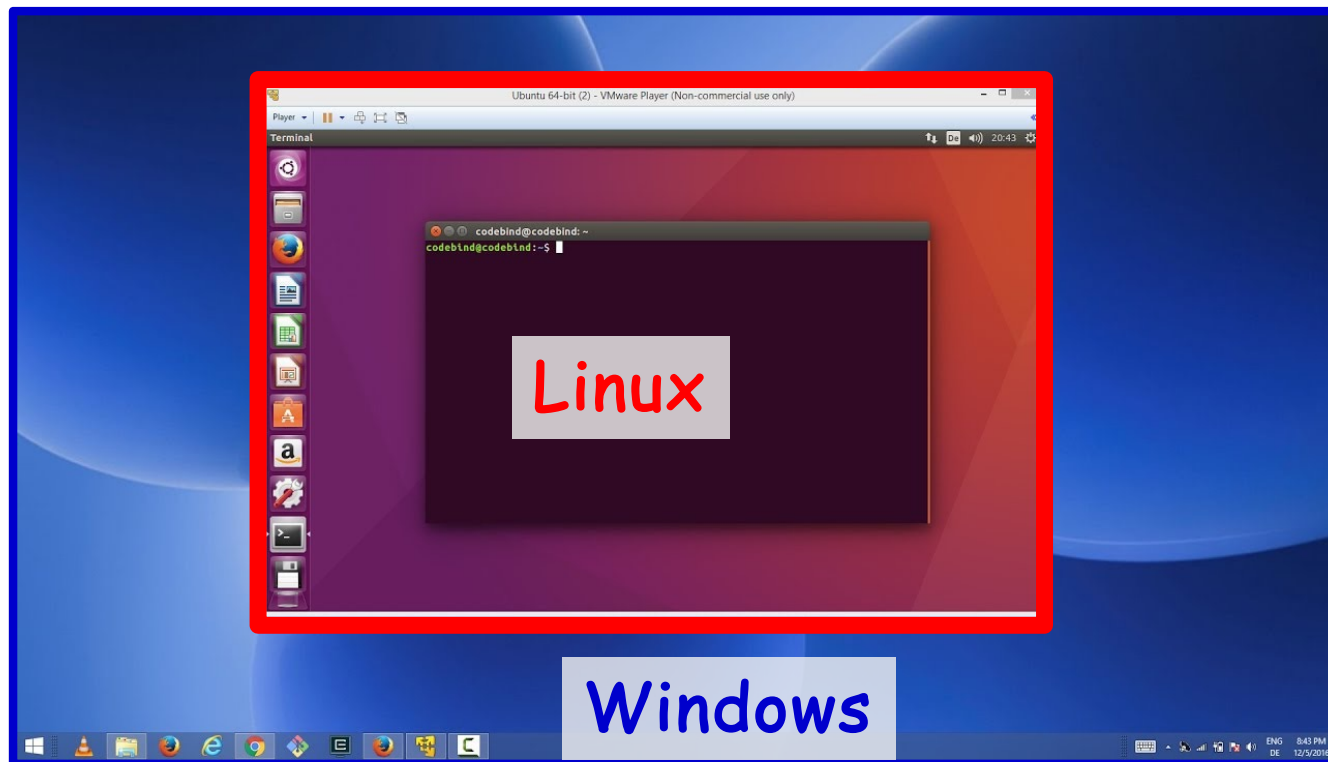


Installazione di Linux

- Sono possibili più soluzioni:
 1. Installare **VMware Workstation/Fusion**, importare il file .OVA (**soluzione suggerita**)
 2. Installare **Windows Subsystem for Linux** (per utenti Windows)
 3. Installare **Cygwin** (per utenti Windows)
 4. Installare **Xcode** (per utenti MacOS X)



Macchine Virtuali (Virtual Machine, VM)



Una macchina virtuale è un "computer simulato" all'interno di una applicazione



VMware Workstation/Fusion Pro

- **VMware Workstation/Fusion Pro** è un tool di virtualizzazione per personal computer
 - Gratuito per uso personale
 - Disponibile sia per Windows sia per Mac

vmware®
by Broadcom



VMware Workstation/Fusion Pro

Develop and Test for Any Platform With VMware Desktop Hypervisors



VMware Fusion Pro for Mac

The simply powerful VMware Desktop Hypervisor app for Mac. Built-in support for Windows 11 for Arm, 3D Hardware accelerated DirectX 11 graphics, ultra fast file-sharing and more.

[DOWNLOAD NOW >](#)



VMware Workstation Pro for PC

Build and test nearly any app with the world's leading desktop hypervisor app for Windows and Linux.

[DOWNLOAD NOW >](#)

<https://www.vmware.com/products/desktop-hypervisor/workstation-and-fusion>



VMware Workstation/Fusion Pro

The screenshot shows the Broadcom My Downloads page. The navigation bar at the top includes the Broadcom logo, links for Products, Solutions, Support and Services, Company, and How To Buy. A user profile for Roberto is in the top right. The left sidebar contains links to My Dashboard, My Entitlements, My Downloads (highlighted with a red box and arrow 3), My Cases, Trials & Beta, Documentation, Security Advisories, All Products, and Contact Support. The main content area is titled "My Downloads - VMware Cloud Foundation" and lists various products. A dropdown menu is open from the top right, showing a list of software categories. "VMware Cloud Foundation" is highlighted in the dropdown with a red box and arrow 2. A red box with arrow 1 points to the user profile icon. A red box with arrow 4 points to the text "4. Selezionare 'VMware Workstation Pro'" in the main content area.

BROADCOM Products Solutions Support and Services Company How To Buy

Roberto ...

My Downloads - VMware Cloud Foundation

No_Support_Product

VMmark

VMware Aria Automation

VMware Aria Operations for Integrations Management Packs

VMware Aria Operations for Networks

VMware Aria Universal

VMware Cloud Director App Launchpad

VMware Cloud Director Availability

VMware Cloud Director Encryption Management

VMware Cloud Director Extension for VMware Data Solutions

VMware Cloud Director Object Storage Extension

Tanzu Kubernetes

VMware Aria Operations for Tanzu

VMware Aria Operations for Tanzu Mission Control

VMware Cloud Foundation

Mainframe Software

Enterprise Software

Cyber Security Software

Payment Security Software

VMware Cloud Foundation

Tanzu

Application Networking and Security

Software Defined Edge

Brocade Storage Networking

Semiconductors

4. Selezionare "VMware Workstation Pro"



Come installare la VM

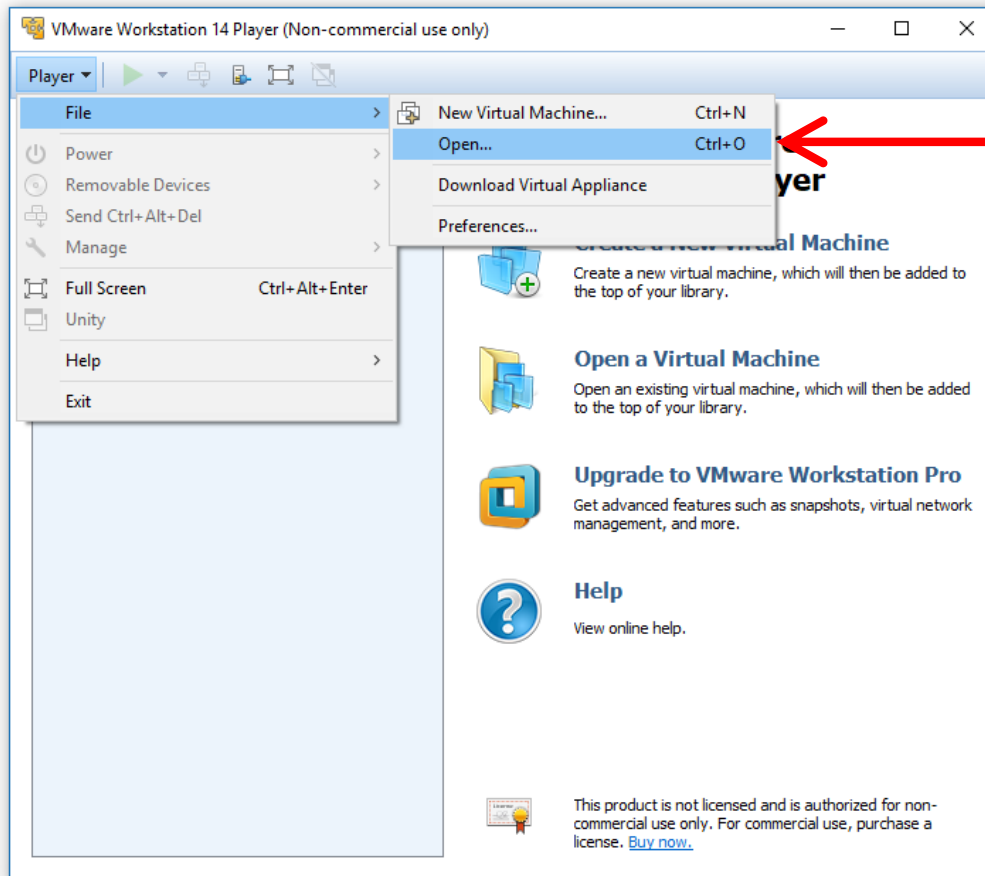
- Scaricare il file **.ova**, che contiene la macchina virtuale del corso
- Importare il file in VMware
- Avviare la macchina virtuale
 - Username: **so**
 - Password: **so**

File OVA



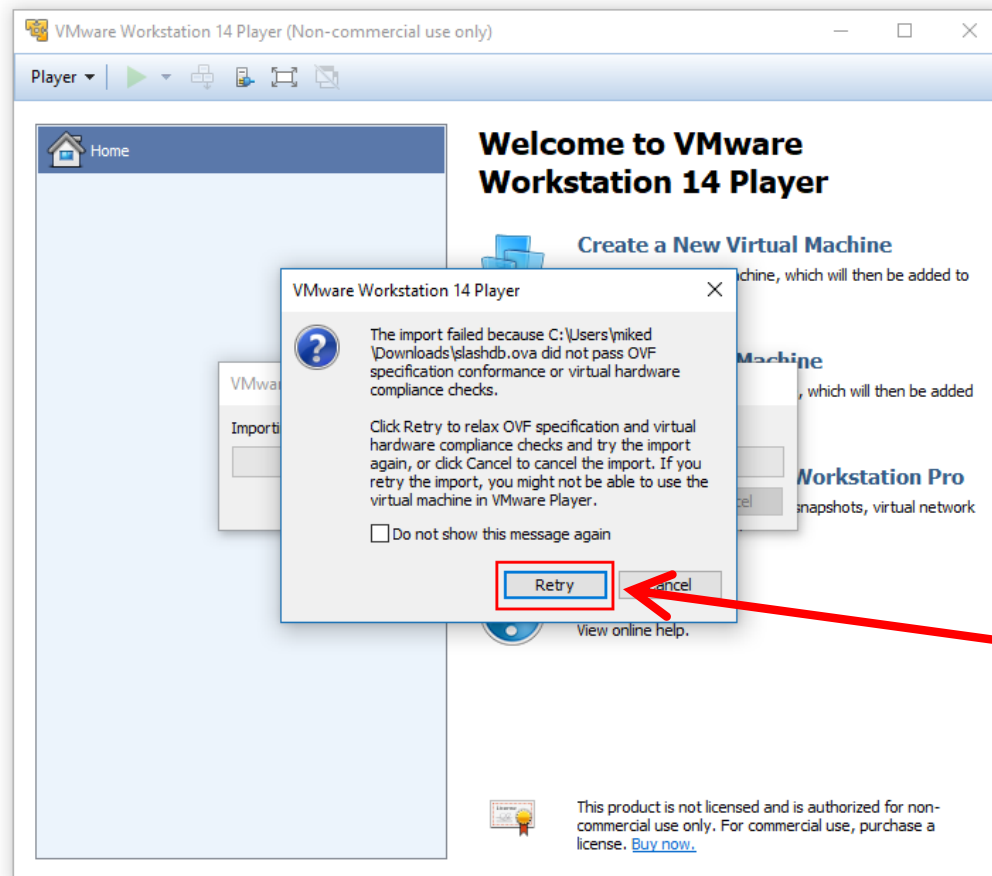
- Per computer con **CPU x86 (Intel o AMD)**
 - Ubuntu-Linux-SO-2023-x86.ova
<https://communitystudentiunina.sharepoint.com/:u:/r/sites/SistemiOperativi202425/Materiale%20del%20corso/Ubuntu-Linux-SO-2023-x86.ova?csf=1&web=1&e=GaQIXY>
 - 6.17 GB, aggiornato al 6/9/23
- Per computer con **CPU ARM (Apple Mac)**
 - Ubuntu-Linux-SO-2023-ARM.ova
<https://communitystudentiunina.sharepoint.com/:u:/r/sites/SistemiOperativi202425/Materiale%20del%20corso/Ubuntu-Linux-SO-2023-ARM.ova?csf=1&web=1&e=S5z6pN>
 - 6.22 GB, aggiornato al 2/9/24

VMware Workstation



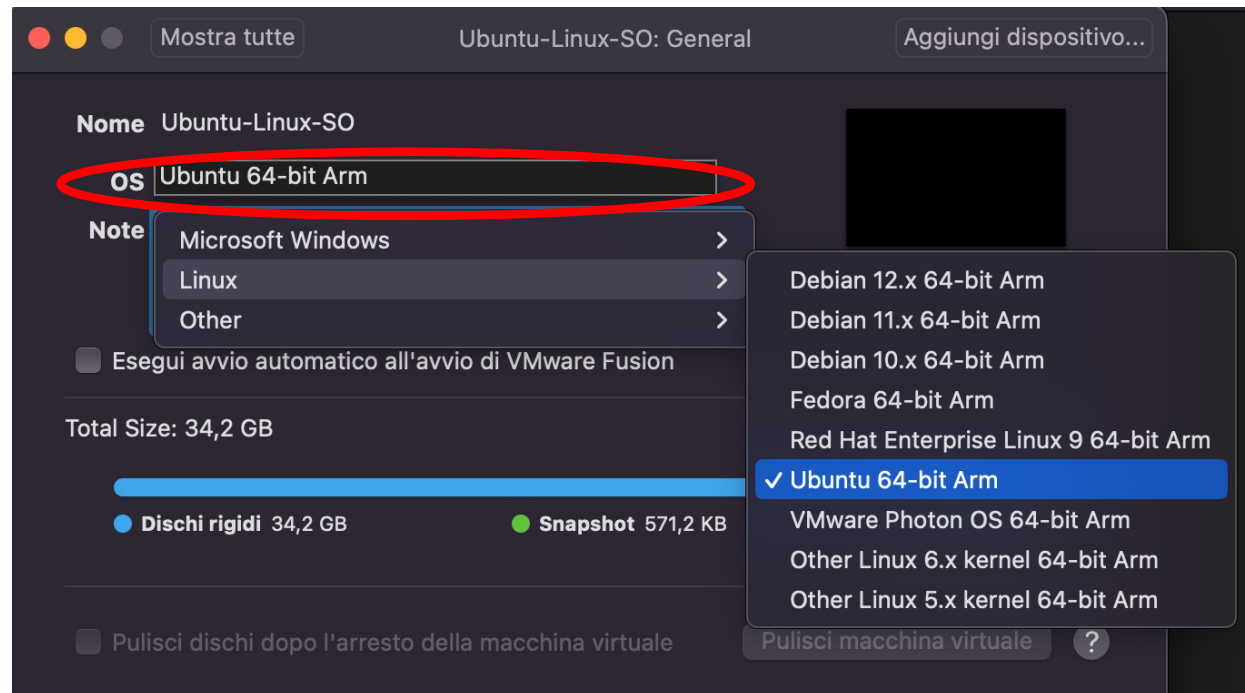
Selezionare il file **.ova**

VMware Workstation



Selezionare "**Retry**" se appare un messaggio riguardo "OVF specification"

VMware Fusion

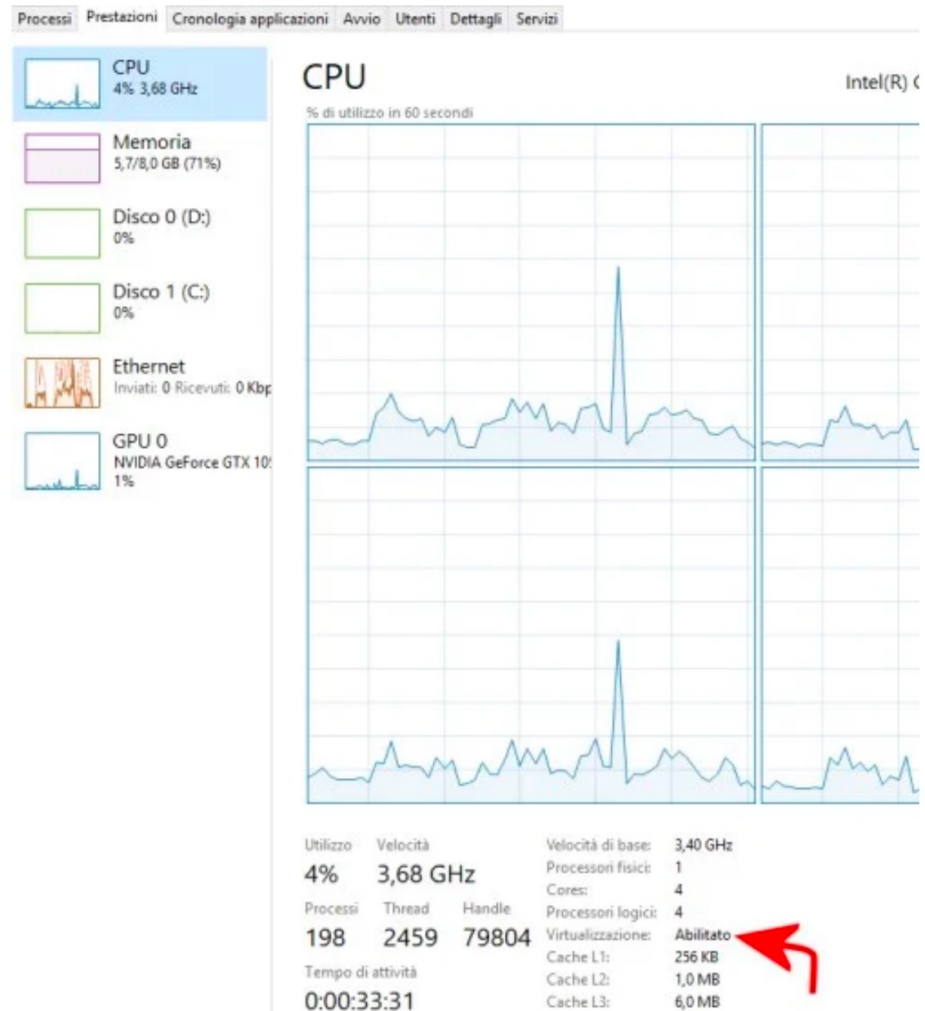


Su VMware Fusion (Apple), può essere necessario **configurare la macchina virtuale come "Ubuntu 64-bit Arm"**



Nota su virtualizzazione

- È richiesta una **CPU con supporto alla virtualizzazione attivo**
- Per verificare:
 1. aprire "Gestione Risorse" (**CTRL+MAIUSC+ESC**)
 2. selezionare la scheda "Prestazioni"
 3. selezionare "**CPU**"
 4. leggere la voce "**Virtualizzazione**" in basso





Nota su virtualizzazione

- Alcuni processori **non supportano** la virtualizzazione
 - In questi casi, non è possibile usare Vmware
 - È possibile usare **Cygwin** (vedi prossime slide)





Nota su virtualizzazione

- In altri modelli, il supporto è **presente ma disattivato di default**
- Si può attivare all'avvio del computer
- Accedere al **menu di configurazione del BIOS**
 - L'accesso al BIOS dipende dal modello di computer
 - Vedere ad esempio:
https://www.ilsoftware.it/articoli.asp?tag=Come-entrare-nel-BIOS-su-qualunque-dispositivo_15618

VirtualBox



- **Oracle VM VirtualBox** è un altro software di virtualizzazione
 - Open-source
 - Utilizzabile nello stesso modo dei tool VMware
 - Alcuni studenti hanno riportato **problemi di lentezza e stabilità**
- <https://www.virtualbox.org/>





Windows Subsystem for Linux

- **Windows 10 64-bit** ha integrata al suo interno una funzionalità (**WSL**) per creare una macchina virtuale Linux
- È possibile interagire con la macchina virtuale **tramite terminale (senza interfaccia grafica)**
- Importante: utilizzare **WSL versione 2** (la più recente)



Windows Subsystem for Linux

- Avviare la **console dei comandi PowerShell** come "amministratore"
- Digitare "**wsl --install**"
- Riavviare

```
Administrator: Windows PowerShell
PS D:\MyScripts>
PS D:\MyScripts> wsl --install
Installing: Virtual Machine Platform
Virtual Machine Platform has been installed.
Installing: Windows Subsystem for Linux
Windows Subsystem for Linux has been installed.
Downloading: Ubuntu
The requested operation is successful. Changes will not be effective until the system is rebooted.
PS D:\MyScripts>
PS D:\MyScripts> Restart-Computer -Force
```



Windows Subsystem for Linux

- Al riavvio, verrà richiesto di configurare username e password per la macchina virtuale Ubuntu

```
surender@ubuntu: ~$ sudo apt-get install ubuntu-desktop
Installing, this may take a few minutes...
Please create a default UNIX user account. The username does not need to match your Windows username.
For more information visit: https://aka.ms/wslusers
Enter new UNIX username: surender
New password:
Retype new password:
passwd: password updated successfully
Installation successful!
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

Welcome to Ubuntu 20.04 LTS (GNU/Linux 5.10.60.1-microsoft-standard-WSL2 x86_64)

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

System information as of Thu Mar  3 09:03:33 IST 2022

System load:  0.17               Processes:            8
Usage of /:   0.4% of 250.98GB   Users logged in:     0
Memory usage: 3%                IPv4 address for eth0: 172.17.152.161
Swap usage:   0%

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

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

This message is shown once once a day. To disable it please create the
/home/surender/.hushlogin file.
surender@ubuntu: ~$
```



Windows Subsystem for Linux

- Per visualizzare i file attraverso "Esplora Risorse", usare il comando "`explorer.exe .`" (con il punto)

```
surender@BT-WRK-NODE0052: ~  
PS D:\MyScripts>  
PS D:\MyScripts> wsl -d kali-linux  
surender@BT-WRK-NODE0052:/mnt/d/MyScripts$ cd ~  
surender@BT-WRK-NODE0052:~$  
surender@BT-WRK-NODE0052:~$ pwd  
/home/surender  
surender@BT-WRK-NODE0052:~$  
surender@BT-WRK-NODE0052:~$ explorer.exe .  
surender@BT-WRK-NODE0052:~$  
surender@BT-WRK-NODE0052:~$
```



Windows Subsystem for Linux

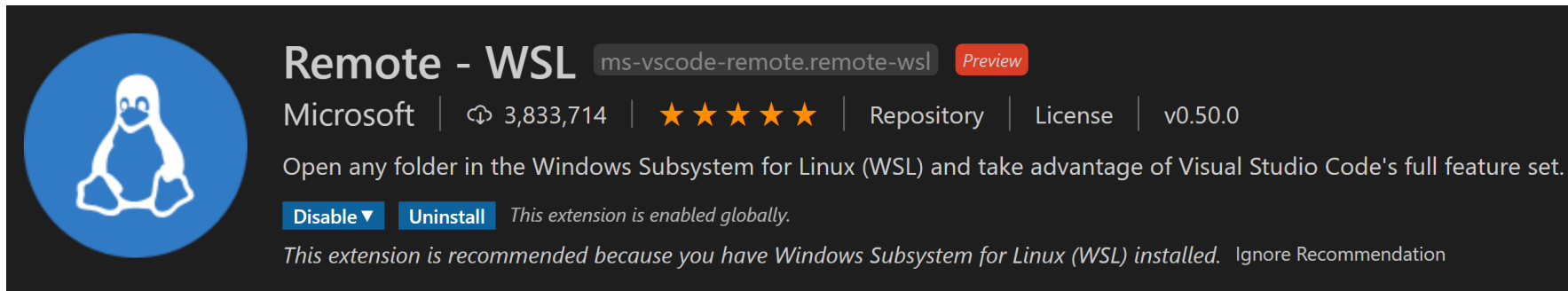
- Per copiare i file dalla shell di Linux da/verso Windows, utilizzare il percorso `"/mnt/c/"`

```
surender@BT-WRK-NODE0052: ~  
surender@BT-WRK-NODE0052: $ df -Th  
Filesystem      Type  Size  Used Avail Use% Mounted on  
rootfs          xfs    16G   10G   67G   60% /  
none            tmpfs 166G   100G   67G   60% /dev  
none            tmpfs 166G   100G   67G   60% /run  
none            tmpfs 166G   100G   67G   60% /run/lock  
none            tmpfs 166G   100G   67G   60% /run/shm  
none            tmpfs 166G   100G   67G   60% /run/user  
tmpfs           tmpfs 166G   100G   67G   60% /sys/fs/cgroup  
C:\             devfs 166G   100G   67G   60% /mnt/c  
D:\             devfs 300G   212G   89G   71% /mnt/d  
S:\             devfs 466G   466G   7.5M 100% /mnt/s  
surender@BT-WRK-NODE0052: $  
surender@BT-WRK-NODE0052: $ ls /mnt/c  
ls: cannot access '/mnt/c/DumpStack.log.tmp': Permission denied  
ls: cannot access '/mnt/c/hiberfil.sys': Permission denied  
ls: cannot access '/mnt/c/pagefile.sys': Permission denied  
ls: cannot access '/mnt/c/swapfile.sys': Permission denied  
Documents and Settings  hiberfil.sys  pagefile.sys  ProgramData  Program Files (x86)  swapfile.sys  Windows  
DumpStack.log.tmp      [hidden]      [hidden]      [hidden]      [hidden]      'System Volume Information'  [hidden]
```



Usare Visual Studio Code con WSL

- Per utilizzare l'ambiente di sviluppo **Visual Studio Code** in Windows con WSL, si consiglia di installare la apposita estensione



The image shows the Visual Studio Code extension marketplace interface for the 'Remote - WSL' extension. On the left is a circular icon with a white Tux penguin on a blue background. To the right of the icon, the extension name 'Remote - WSL' is displayed in white, followed by the publisher 'Microsoft'. Below this, statistics are shown: a cloud icon, the number '3,833,714', five yellow stars, and the text 'Repository | License | v0.50.0'. A red 'Preview' badge is visible. The description reads: 'Open any folder in the Windows Subsystem for Linux (WSL) and take advantage of Visual Studio Code's full feature set.' At the bottom, there are buttons for 'Disable' (with a dropdown arrow) and 'Uninstall', followed by the text 'This extension is enabled globally.' and a recommendation message: 'This extension is recommended because you have Windows Subsystem for Linux (WSL) installed. Ignore Recommendation'.

Remote - WSL ms-vscode-remote.remote-wsl Preview

Microsoft | 3,833,714 | ★★★★★ | Repository | License | v0.50.0

Open any folder in the Windows Subsystem for Linux (WSL) and take advantage of Visual Studio Code's full feature set.

Disable ▼ Uninstall This extension is enabled globally.

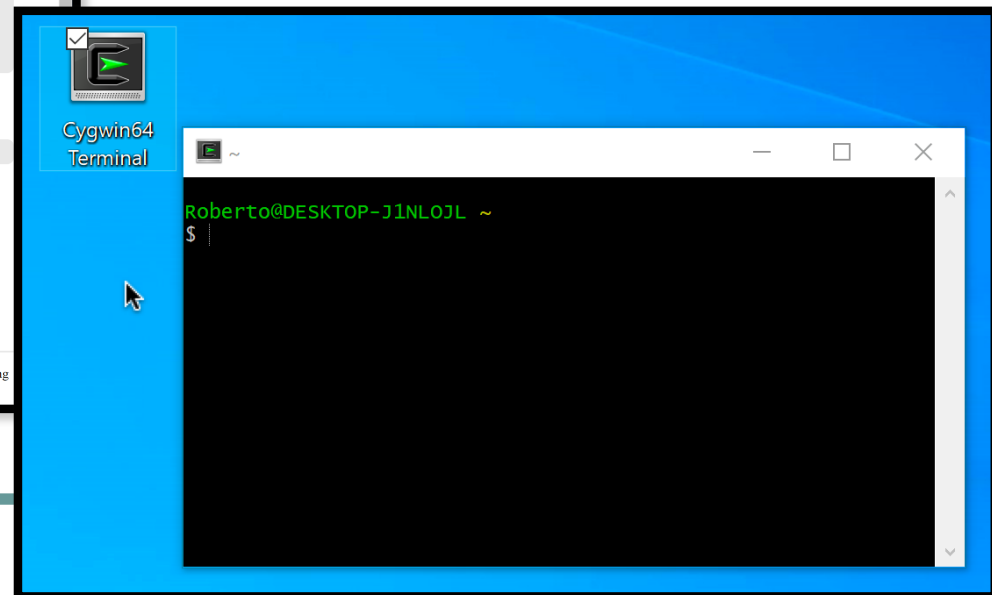
This extension is recommended because you have Windows Subsystem for Linux (WSL) installed. Ignore Recommendation

<https://code.visualstudio.com/learn/develop-cloud/wsl>

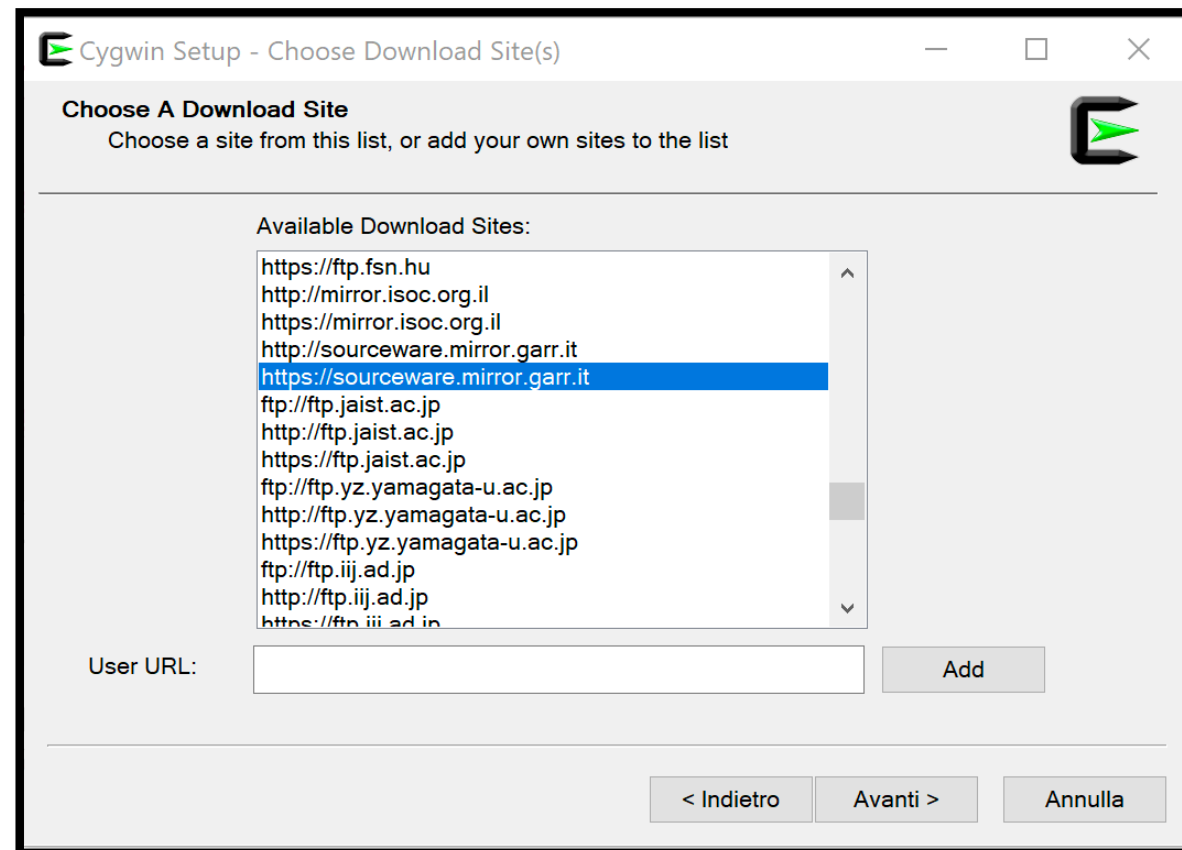
Cygwin



- Cygwin è un programma Windows che implementa **la shell e i comandi Linux**, senza usare una macchina virtuale
- <https://www.cygwin.com>

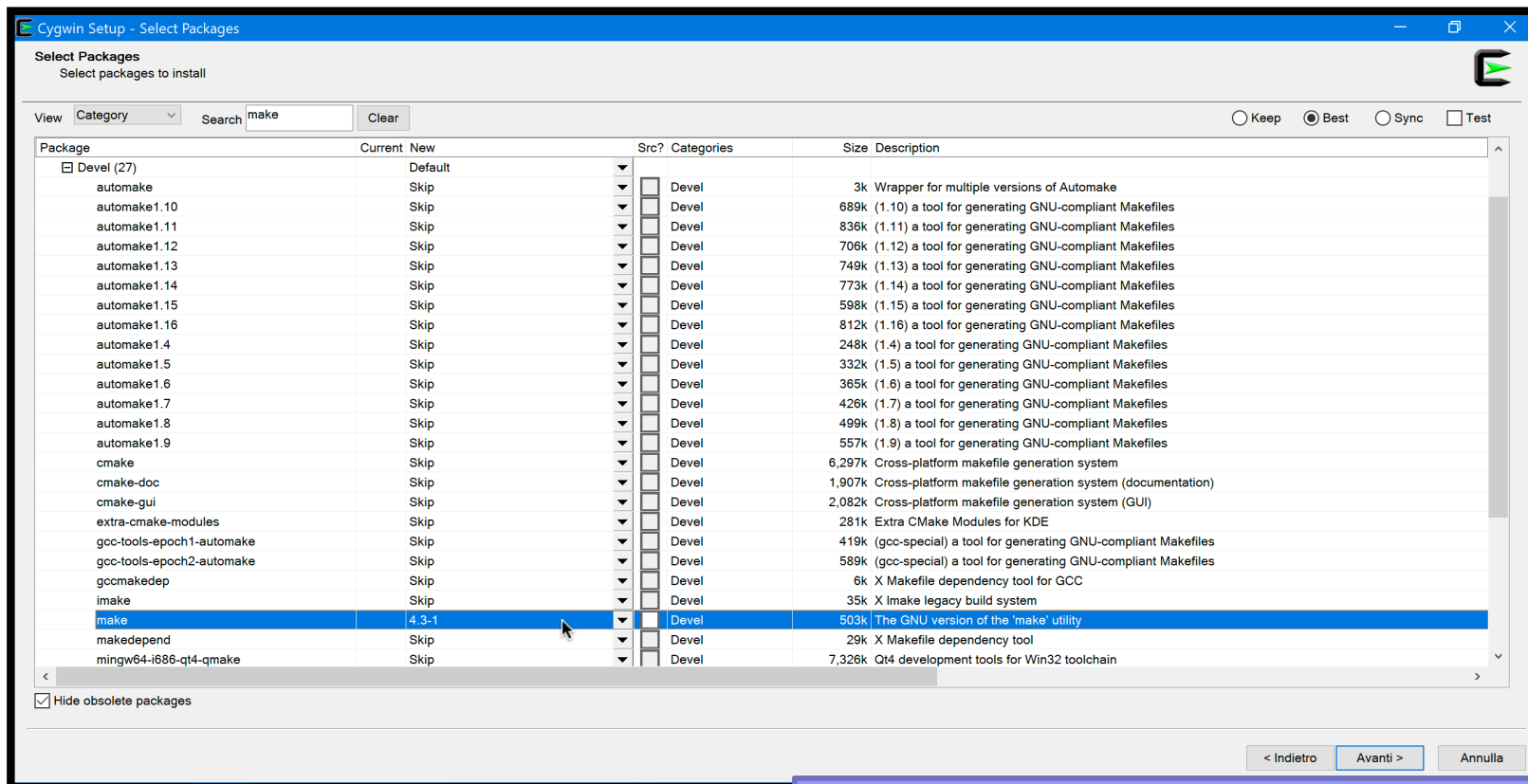


Cygwin



Nel wizard di installazione, utilizzare le **opzioni di default**. Per il "**download site**", selezionare un sito a piacere dalla lista (es. il mirror "garr.it")

Cygwin



Nel menu "Select Packages", aggiungere alla selezione i seguenti pacchetti:

- make
- gcc-core
- gcc-g++
- cygrunsrv

Cygwin



Esegui come amministratore

```
Roberto@DESKTOP-J1NLOJL ~  
$ cygserver-config  
Overwrite existing /etc/cygserver.conf file? (yes/no) yes  
Generating /etc/cygserver.conf file  
  
Warning: The following function requires administrator privileges!  
  
Do you want to install cygserver as service?  
(Say "no" if it's already installed as service) (yes/no) yes  
  
The service has been installed under LocalSystem account.  
To start it, call 'net start cygserver' or 'cygrunsrv -S cygserver'  
  
Further configuration options are available by editing  
file /etc/cygserver.conf. Please read the inline comments in  
file carefully. The best option for the start is  
Basic cygserver configuration finished. Have fun!  
  
Roberto@DESKTOP-J1NLOJL ~  
$ cygrunsrv -S cygserver  
  
Roberto@DESKTOP-J1NLOJL ~  
$
```

Per eseguire gli esercizi del corso, è necessario fare dei passi aggiuntivi:

1. Avviare il terminale Cygwin come amministratore (tasto destro sulla icona, **"Esegui come amministratore"**)
2. Digitare il comando:
cygserver-config
3. Digitare **"yes"** (2 volte)
4. Digitare il comando:
cygrunsrv -S cygserver



Terminal app + Xcode (Mac OS X)

- Il sistema operativo Mac OS X è basato su un kernel UNIX (non Linux)
- Sia Linux sia Mac OS X aderiscono allo **standard POSIX**
- È possibile sviluppare e utilizzare i programmi del corso **anche in ambiente Mac OS X**



Terminal app + Xcode (Mac OS X)

