



**Barcelona  
Supercomputing  
Center**  
*Centro Nacional de Supercomputación*



# Programming Distributed Computing Platforms with COMPSs

Workflows & Distributed Computing Group

30-31/01/2024

Barcelona

# Python Hands-on (Jupyter-notebook)



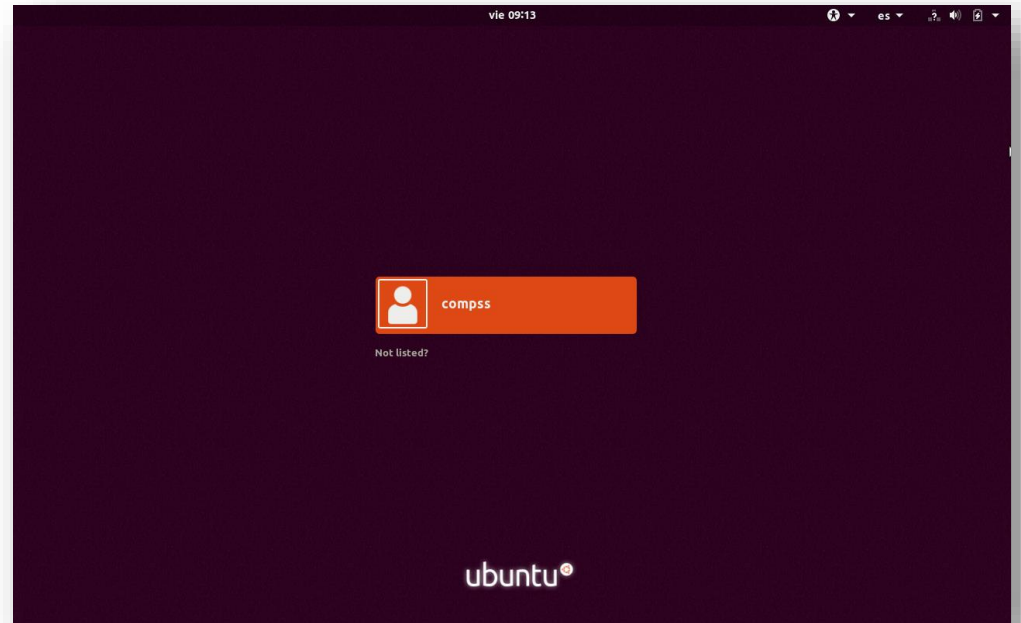
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# PyCOMPSs and Jupyter Notebook in Docker

- Instructions already distributed by mail:
  - Install pycompss-cli:
    - Linux: `$ sudo python3 -m pip install pycompss-cli`
    - Mac-os: `$ pip install pycompss-cli`
- Download sample applications:
  - `$ git clone https://github.com/bsc-wdc/tutorial\_apps.git`
  - `$ cd tutorial_apps`
- Initialize a COMPSs docker environment:
  - `$ pycompss init -n docker-tutorial docker -i compss/compss-tutorial:3.3`
  - `$ pycompss env change docker-tutorial`
- Start the monitor
  - `$ pycompss monitor start`
- Open a web browser with the address: <https://localhost:8080/compss-monitor>
- Start Jupyter-notebook
  - `$ pycompss jupyter`
- Open a web browser with the address: <http://172.17.0.2:8888>

# PyCOMPSs within VM

- Open VirtualBox
- Start the Virtual Machine
  - User: **compss**
  - Password: **compss2021**
- Open a console



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- Download example applications:
  - `$ git clone https://github.com/bsc-wdc/tutorial\_apps.git`
  - `$ cd tutorial_apps`
- Initialize a COMPSs docker environment:
  - `$ pycompss init -n docker-tutorial docker -i compss/compss-tutorial:3.1`
  - `$ pycompss env change docker-tutorial`
- Start the monitor
  - `$ pycompss monitor start`
- Open a web browser with the address: <https://localhost:8080/compss-monitor>
- Start Jupyter-notebook
  - `$ pycompss jupyter`
- Open a web browser with the address: <http://172.17.0.2:8888>

Using the VM  
`$ sudo rm -rf tutorial_apps`  
`$ ./install_tutorial.sh 3.3`

# Python Hands-on demos

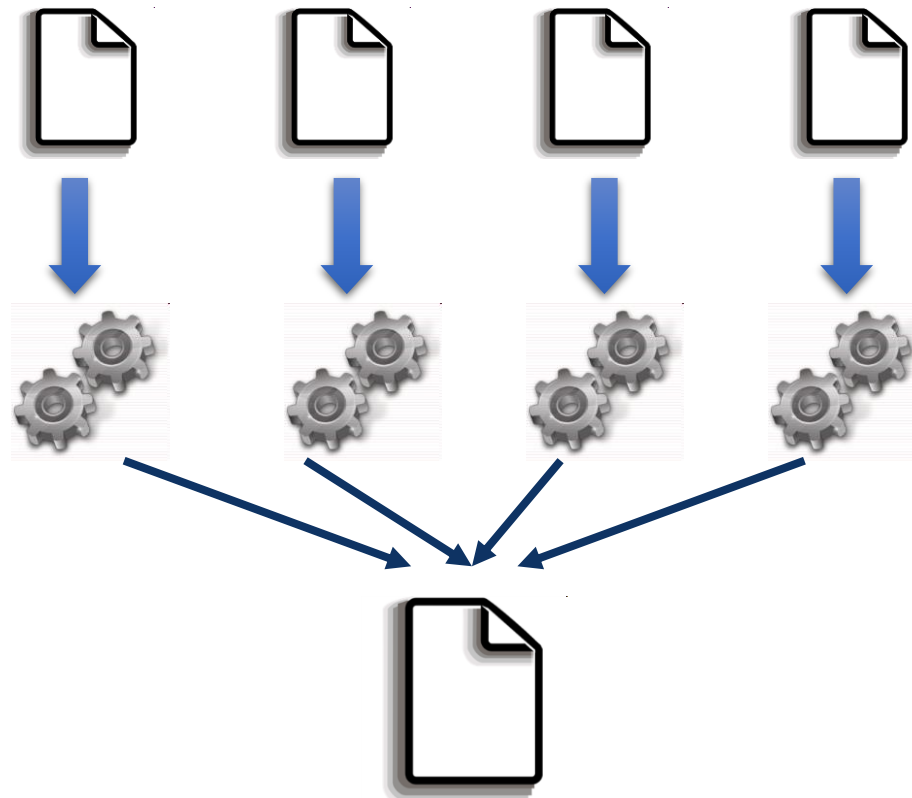


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# Wordcount Exercise

- Counting words of a set of documents
- Parallelization
  - Phase 1: Count words of a set of documents
  - Phase 2 : Merge results



# Stop the Docker environment

- Close the web browser
  - **Close jupyter tab**
  - **Close monitor tab**
- Stop Jupyter-notebook
  - Press **CTRL+C**
- Stop the monitor
  - **\$ pycompss monitor stop**
- Remove the COMPSs docker environment
  - **\$ pycompss env remove docker-tutorial**





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EXCELENCIA  
SEVERO  
OCHOA

# THANK YOU!

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[www.bsc.es](http://www.bsc.es)