

# datascience vm 64 bits

Libraries and programs for a generic datascience virtual machine to test data-science-related topics and setups.

- 1.1. How to use it
  - 1.1.1. Import the OVA file
  - 1.1.2. Main user credentials
  - 1.1.3. Anaconda (and python)
  - 1.1.4. R & RStudio
- 1.2. How it has been developed
  - 1.2.1. Operating System
  - 1.2.2. Enable Ubuntu Partners repository
  - 1.2.3. Other repositories
  - 1.2.4. R 3.6.x
  - 1.2.5. RStudio
  - 1.2.6. Anaconda 3
  - 1.2.7. Python

## 1.1. How to use it

### 1.1.1. Import the OVA file

Import the Oracle Virtualbox Appliance (.ova) file into a running instance of VirtualBox in your own computer.

<https://www.maketecheasier.com/import-export-ova-files-in-virtualbox/><sup>[1]</sup>

You also need "VirtualBox Guest Additions".

You can fetch them (if not in your usual program repositories) from:

<https://www.virtualbox.org/wiki/Downloads><sup>[2]</sup>

Or use specific instructions for your own operating system, if you prefer. Some urls that might help are:

<https://www.tecmint.com/install-virtualbox-guest-additions-in-ubuntu/><sup>[3]</sup>

### 1.1.2. Main user credentials

Main system user is:

System user: `datascience`

Password: `datascience`

It is in the sudoers group, so that you can run commands as root if you prepend those commands with sudo, as usual.

## 1.1.3. Anaconda (and python)

Use Anaconda as usual

## 1.1.4. R & RStudio

Open the browser, and it will launch RStudio server in it by default ( <http://localhost:8787> ).

You have R 3.6 installed.

# 1.2. How it has been developed

## 1.2.1. Operating System

Lubuntu GNU/Linux 18.04 (64 bits). Fetch iso from their website.

<https://lubuntu.net/lubuntu-18-04-bionic-beaver-released/><sup>[4]</sup>

<http://cdimage.ubuntu.com/lubuntu/releases/18.04/release/lubuntu-18.04-desktop-amd64.iso><sup>[5]</sup>

## 1.2.2. Enable Ubuntu Partners repository

First enable "partners" repos.

### Contents of the updated `/etc/apt/sources.list`



```
## Uncomment the following two lines to add software from Canonical's
## 'partner' repository.
## This software is not part of Ubuntu, but is offered by Canonical and the
## respective vendors as a service to Ubuntu users.
deb http://archive.canonical.com/ubuntu bionic partner
deb-src http://archive.canonical.com/ubuntu bionic partner
```

## 1.2.3. Other repositories



```
sudo add-apt-repository -y ppa:nilarimogard/webupd8 # per a launchpadd-getkeys i
altres
sudo add-apt-repository -y ppa:utappia/stable # per a ucaresystem-core
sudo add-apt-repository -y ppa:webupd8team/java # per a java propietari (on calgui)
sudo add-apt-repository -y ppa:ubuntugis/ubuntugis-unstable # per a paquets
d'analisi geoespacial
sudo add-apt-repository -y 'deb https://cloud.r-project.org/bin/linux/ubuntu
bionic-cran35/' # main binary packages for R 3.5.x
sudo add-apt-repository -y ppa:marutter/c2d4u3.5 # extra binary packages for R
3.5.x from the usual marruter repo
```



```
# Add the key for the new repo for R 3.6.x from cloud.r-project.org
apt-key adv --keyserver hkp://keyserver.ubuntu.com:80 --recv-keys E084DAB9 #
marutter
apt-key adv --keyserver hkp://keyserver.ubuntu.com:80 --recv 089EBE08314DF160 #
ubuntugis-stable
```

Other general packages installed:



```
sudo apt install -y curl htop mc kupfer git cups-pdf bleachbit parcellite
```

Launch parcellite and kupfer. Change parcellite to store 250 entries. And set kupfer to launch automatically on user login.

## 1.2.4. R 3.6.x

We add these repos to use the latest R versions released

Comandes i paquets lubuntu 18.04:



```
sudo apt-get install -y bwidget dos2unix freeglut3 freeglut3-dev git libc6
libcairo2-dev libcurl4-gnutls-dev libgdal-dev libgeos-dev libglpk-dev libgraphviz-
dev libjq-dev libmagick++-dev libmpfr-dev libproj-dev libprotobuf-dev libssh2-1-dev
libssl-dev libudunits2-dev libv8-dev libx11-dev libxml2 libxml2-dev libxml2:i386
libxt-dev pandoc protobuf-compiler r-cran-cairodevice r-cran-devtools r-cran-
doparallel r-cran-geor r-cran-ggmap r-cran-ggplot2 r-cran-gstat r-cran-igraph r-
cran-leaflet r-cran-lme4 r-cran-mapdata r-cran-maps r-cran-misc3d r-cran-ncdf4 r-
cran-raster r-cran-rcolorbrewer r-cran-rgl r-cran-rglpk r-cran-rjags r-cran-rjava
r-cran-rmio r-cran-rmysql r-cran-roxygen2 r-cran-snow r-cran-sp r-cran-xlsx r-cran-
xml r-recommended subversion texlive-lang-spanish texlive-latex-extra texmaker tk-
dev tk-table unaccent xfb libssh2-1-dev ucaresystem-core libudunits2-dev gigolo
filezilla
sudo R CMD javareconf
```

Paquets de CRAN: posar dins de la comanda:



```
library(pacman)
p_load("tidyverse", "caTools", "bitops", "httpuv", "devtools", "rpivotTable", "DT",
```

```
"shiny", "magick", "rvg", "addinslist", "ff", "sparklyr", "data.table", "rio",  
"rpivotGadget", "radiant", "CRANsearcher", "regexplain", "rJava", "knitr",  
"rmarkdown", "webshot", "magick", "rsvg", "sf", "leaflet", "htmlwidgets")
```

Rstudio Addins: CRANsearcher, addinslist, regexplain

Latex

- TexStudio

Paquets lubuntu 18.04: texstudio

## 1.2.5. RStudio

Server version, to use through browser at <http://localhost:8787>



```
sudo apt-get install gdebi-core  
wget  
https://download2.rstudio.org/server/bionic/amd64/rstudio-server-1.2.1335-amd64.deb  
sudo gdebi rstudio-server-1.2.1335-amd64.deb
```

## 1.2.6. Anaconda 3

Anaconda3

See:

- <https://www.digitalocean.com/community/tutorials/how-to-install-anaconda-on-ubuntu-18-04-quickstart><sup>[6]</sup>
- <https://www.digitalocean.com/community/tutorials/how-to-install-the-anaconda-python-distribution-on-ubuntu-18-04><sup>[7]</sup>
- <https://www.anaconda.com/distribution/#linux><sup>[8]</sup>

### 1.2.6.1. Installation on /opt/py/anaconda3

We will install anaconda on a system folder as [/opt/py/](#):



```
sudo mkdir /opt/py  
sudo chmod 777 /opt/py
```

```
cd /tmp
curl -O https://repo.anaconda.com/archive/Anaconda3-2019.03-Linux-x86_64.sh
bash Anaconda3-2019.03-Linux-x86_64.sh
```



```
datascience@datasciencepc:/tmp$ bash Anaconda3-2019.03-Linux-x86_64.sh
```

```
Welcome to Anaconda3 2019.03
```

```
In order to continue the installation process, please review the license
agreement.
```

```
Please, press ENTER to continue
```

```
>>>
```

```
=====
Anaconda End User License Agreement
=====
```

```
Copyright 2015, Anaconda, Inc.
```

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All rights reserved under the 3-clause BSD License:
```

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The following packages are included in this distribution that relate to cryptography:

#### openssl

The OpenSSL Project is a collaborative effort to develop a robust, commercial-grade, full-featured, and Open Source toolkit implementing the Transport Layer Security (TLS) and Secure Sockets Layer (SSL) protocols as well as a full-strength general purpose cryptography library.

#### pycrypto

A collection of both secure hash functions (such as SHA256 and RIPEMD160), and various encryption algorithms (AES, DES, RSA, ElGamal, etc.).

#### pyopenssl

A thin Python wrapper around (a subset of) the OpenSSL library.

#### kerberos (krb5, non-Windows platforms)

A network authentication protocol designed to provide strong authentication for client/server applications by using secret-key cryptography.

#### cryptography

A Python library which exposes cryptographic recipes and primitives.

```
Do you accept the license terms? [yes|no]
[no] >>> yes

Anaconda3 will now be installed into this location:
/home/gid/anaconda3

- Press ENTER to confirm the location
- Press CTRL-C to abort the installation
- Or specify a different location below

[/home/datascience/anaconda3] >>> /opt/py/anaconda3
...
```

## 1.2.7. Python

Paquets lubuntu 18.04:



```
sudo apt install -y python-numpy python-pandas python-matplotlib python-seaborn
ipython-notebook ipython-doc
```

Alias names for this page:

[datascience vm 2019 64bits](#) | [datascience ova 64bits](#) | [2020 datascience vm 64 bits](#) | [2020 datascience vm](#)

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<sup>[1]</sup> <https://www.maketecheasier.com/import-export-ova-files-in-virtualbox/>

<sup>[2]</sup> <https://www.virtualbox.org/wiki/Downloads>

<sup>[3]</sup> <https://www.tecmint.com/install-virtualbox-guest-additions-in-ubuntu/>

<sup>[4]</sup> <https://lubuntu.net/lubuntu-18-04-bionic-beaver-released/>

<sup>[5]</sup> <http://cdimage.ubuntu.com/lubuntu/releases/18.04/release/lubuntu-18.04-desktop-amd64.iso>

<sup>[6]</sup> <https://www.digitalocean.com/community/tutorials/how-to-install-anaconda-on-ubuntu-18-04-quickstart>

<sup>[7]</sup> <https://www.digitalocean.com/community/tutorials/how-to-install-the-anaconda-python-distribution-on-ubuntu-18-04>

<sup>[8]</sup> <https://www.anaconda.com/distribution/#linux>