Datascience remote server

Libraries and programs for a generic data science remote server to test data-science-related topics and setups.

1.1. How to use it

1.1.1. Connect through X2Go

Instructions to come

1.1.2. User credentials

All people will have their own credentials, sent to their email addresses.

Users will be 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://datascience.seeds4c.org: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/
http://cdimage.ubuntu.com/lubuntu/releases/18.04/release/lubuntu-18.04-desktop-amd64.iso

1.2.2. Enable Ubuntu Partners repository

First enable "partners" repos.

```bash
## 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.

## Contents of the updated /etc/apt/sources.list
##deb http://archive.canonical.com/ubuntu bionic partner
deb-src http://archive.canonical.com/ubuntu bionic partner
```

1.2.3. Other repositories

```bash
sudo add-apt-repository -y ppa:nilarimogard/webupd8 # per a launchpad-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'anàlisi 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 E298A3A825C0065DFD57CBB651716619E884DA09 # 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 parcellite

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

1.2.4. Add full lubuntu desktop
For demonstration purposes, I'll add a full lubuntu desktop in this virtual machine

sudo apt-get install lubuntu-desktop

1.2.5. Allow GUI connections
With X2Go (https://wiki.x2go.org) you can do so, from computers using GNU/Linux, Mac OSX or MS Windows

sudo add-apt-repository ppa:x2go/stable
sudo apt-get update
sudo apt-get install x2goserver x2goserver-xsession
sudo apt-get install --no-install-recommends lxde
sudo apt-get install x2golxdebindings

Connect with X2Go client to server data science. seeds4c.org, choosing as a session:

- LXDE
- Custom session: lxsession -e LXDE -s Lubuntu

1.2.6. 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-openssl-dev libgdal-dev libgeos-dev libglpk-dev libgraphviz-dev libjg-dev libmagick++-dev libmmpfr-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-compilier r-cran-cairodevice r-cran-devtools r-cran-devtools r-cran-doparallel r-cran-geor r-cran-ggmap r-cran-ggplot r-cran-ggplot2 r-cran-gstat r-cran-igraph 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-rglpack r-cran-rjags r-cran-rjava r-cran-rmio r-cran-rmsql r-cran-roxygen2 r-cran-snow r-cran-sp r-cran-xlsr r-cran-xml r-recommended subversion texlive-lang-spanish texlive-latex-extra texmaker tk-dev tk-table unaccent xvfb libssh2-1-dev ucaresystem-core libdbus-1-3 libdb-4.8 libdrm-common libglib-2.0-0 libxml2 libxslt1-dev xubuntu-core

sudo R CMD javareconf

Paquets de CRAN: posar dins de la comanda:

library(pacman)
1.2.7. RStudio

Server version, to use through browser at http://localhost:8787 from inside the X2Go session. Or directly from your remote local computer opening a browser at: http://datascience.seeds4c.org:8787

```bash
sudo apt-get install gdebi-core
wget https://download2.rstudio.org/server/bionic/amd64/rstudio-server-1.3.959-amd64.deb
sudo gdebi rstudio-server-1.3.959-amd64.deb
```

1.2.8. Anaconda 3

Anaconda3

See:

- https://www.anaconda.com/distribution/#linux

1.2.8.1. Installation on /opt/py/anaconda3

We will install anaconda on a system folder as /opt/py/:

```bash
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
```

Welcome to Anaconda3 2019.03

In order to continue the installation process, please review the license agreement.
Please, press ENTER to continue
```bash
>>>                                                                                           
Anaconda End User License Agreement
```

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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.

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

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

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

kerberos (krb5, non-Windows platforms)
   A network authentication protocol 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

1.2.9. Python
Paquets lubuntu 18.04:

```bash
sudo apt install -y python-numpy python-pandas python-matplotlib python-seaborn ipython-notebook ipython-doc
```
Alias names for this page:
data science remote server 2020 | data science remote server | data science remote server | datascienceremoteserver | 2020 datascience server

[3] https://wiki.x2go.org