

# Installation of rgee step by step in the differents Operative System

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In this post, you going to learn to install rgee in the different Operative Systems steps by steps. Remind is necessary to have previously install R, Rtools and Rstudio in your desktop.



## Information:

- *Rtools only is necesarry for the Operative System Windows. To install Rtools you can download it [here](#)*

## 1. Installation on a Linux distribution

For a distribution like **Ubuntu** and theirs derivatives is necesarry to have set-up and installed some dependences of spatial libs our Operative System. The following bash commands should install key geographic R packages on **Ubuntu 20.10**.

```
# install system dependencies:  
sudo apt install libudunits2-dev libgdal-dev libgeos-dev libproj-dev  
libfontconfig1-dev libjq-dev libprotobuf-dev protobuf-compiler  
  
# binary versions of key R packages:  
sudo apt install r-cran-rgee r-cran-geojsonio
```

For a distribution like **Manajaro, Archlinux o derivatives**, the installation is using the following bash commands

```
# install system dependencies:  
sudo pacman -S gcc-fortan gdal proj geos  
git clone https://aur.acrlinux.org/udunits.git  
cd udunits  
makepkg -si
```

```
# Starting with R  
R  
# Installation of rgee and geojsonio:
```

```
install.packages("rgee")
install.packages("geojsonio")
```

## Set-up of rgee and register of credentials

rgee depends on the Python packages **numpy** and **ee**, for its installation there are two methods, however we have used the most recommended way for new users without experience in handling the Python virtual environment.

For the installation of rgee dependences use for once only, the following function:

```
rgee::install_ee()
```

```
python:          /home/ambarja/.local/share/r-miniconda/envs/r-reticulate/bin/python
libpython:       /home/ambarja/.local/share/r-miniconda/envs/r-reticulate/lib/libpython3.8.so
pythonhome:      /home/ambarja/.local/share/r-miniconda/envs/r-reticulate:/home/ambarja/.local/share/r-miniconda/envs/r-reticulate
version:        3.8.12 | packaged by conda-forge | (default, Oct 12 2021, 21:57:06) [GCC 9.4.0]
numpy:          /home/ambarja/.local/share/r-miniconda/envs/r-reticulate/lib/python3.8/site-packages/numpy
numpy_version:  1.22.0

1. Removing the previous Python Environment (rgee), if it exists ...
rgee not found

2. Creating a Python Environment (rgee)
```

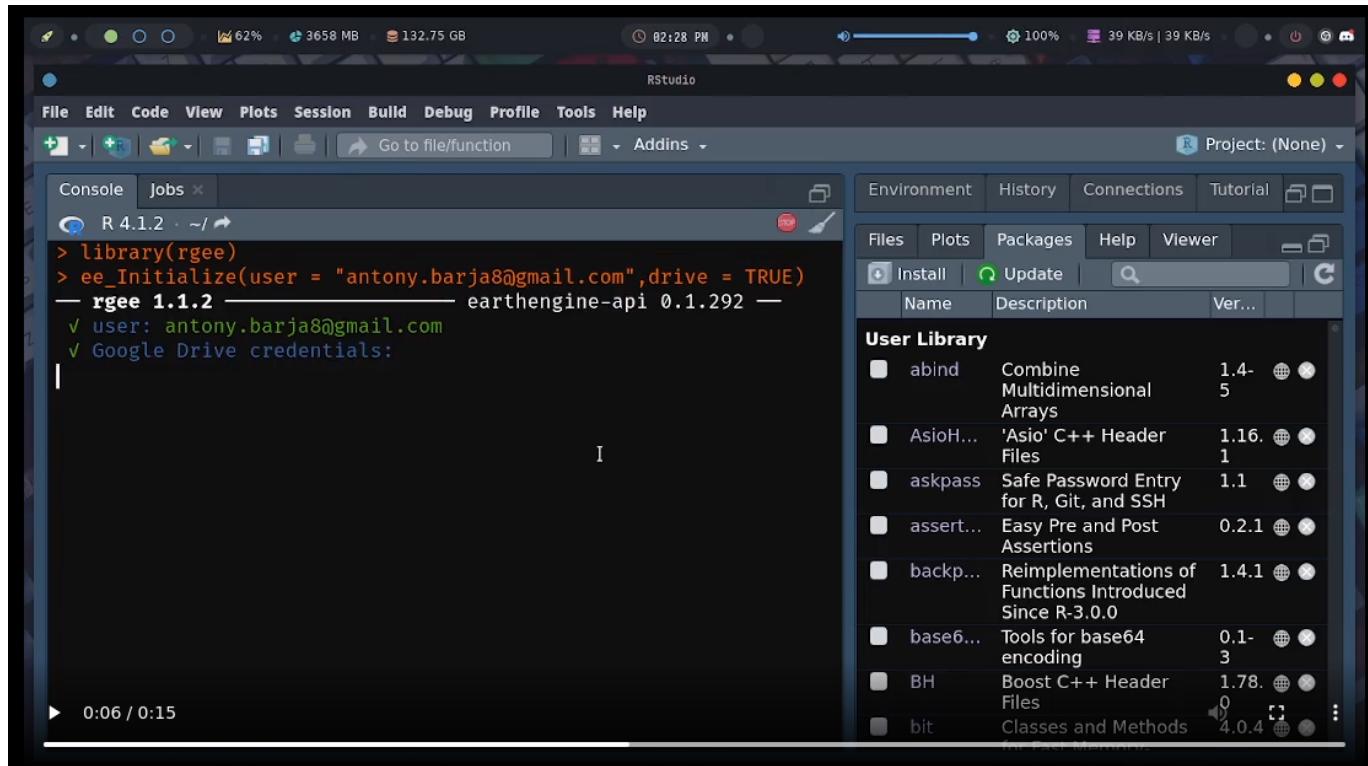
Name	Description	Ver...
abind	Combine Multidimensional Arrays	1.4-5
AsioH...	'Asio' C++ Header Files	1.16.1
askpass	Safe Password Entry for R, Git, and SSH	1.1
assert...	Easy Pre and Post Assertions	0.2.1
backp...	Reimplementations of Functions Introduced Since R-3.0.0	1.4.1
base6...	Tools for base64 encoding	0.1-3
BH	Boost C++ Header Files	1.78.0
bit	Classes and Methods for Fast Mammal...	4.0.4

After of the installation of the rgee dependences is necessary to have a registered account on Google Earth Engine.

### Observation:

- For register on Google Earth Engine only is necessary to have a account of gmail and answer short questions.

Finally with your account of gmail registered, you can authenticate and initialize in the Earth Engine R API.



## 2. Instalacion on Windows

On windows the installation of rgee is accessible, but you need to have installed **miniconda** or **anaconda**, remind that rgee uses **python3**. For a perfect installation on Windows is necessary activate the reticulate library in your R sesion together rgee.

```
# Installation of rgee and geojsonio:
install.packages("rgee")
install.packages("geojsonio")
```

```
# Activation of packages:
library(rgee)
library(reticulate)
```

The `py_discover_config()` function of reticulate package we allow to know the version of python that will to be used for the installation of Packages **numpy** and **ee**.

```
> py_discover_config()
python:          C:/Users/Windows 10/anaconda3/python.exe
libpython:        C:/Users/Windows 10/anaconda3/python39.dll
pythonhome:      C:/Users/Windows 10/anaconda3
version:         3.9.7 (default, Sep 16 2021, 16:59:28) [MSC v.1916 64 bit
(AMD64)]
Architecture:   64bit
```

```
numpy:          C:/Users/Windows 10/anaconda3/Lib/site-packages/numpy
numpy_version: 1.20.3
```

### Information:

- The function `py_config()` we allow list all version of python discovered in our System.

Having identified the python version, the next step is to set the path as the new Python environment for rgee, for this we use the following function `use_python("PUT-HERE-THE-PYTHON3-VERSION-PATH")`

```
use_python("C:/Users/Windows 10/anaconda3/python.exe")
```

You can verify the selection of python to work with rgee.

```
> py_config()
python:          C:/Users/Windows 10/anaconda3/python.exe
libpython:        C:/Users/Windows 10/anaconda3/python39.dll
pythonhome:      C:/Users/Windows 10/anaconda3
version:         3.9.7 (default, Sep 16 2021, 16:59:28) [MSC v.1916 64 bit
(AMD64)]
Architecture:   64bit
numpy:          C:/Users/Windows 10/anaconda3/Lib/site-packages/numpy
numpy_version: 1.20.3
ee:              [NOT FOUND]
NOTE: Python version was forced by use_python function
```

Finally, we set up our rgee environment, install the necessary python dependencies, then initialise Google Earth Engine from R and save our credentials.

**① Installation python dependeces**

```
R 4.1.2 · ~/r
ca-certificates    conda-forge/win-64::ca-certificates-2021.10.8-h5b4
5459_0
openssl           conda-forge/win-64::openssl-3.0.0-h8ffe710_2
pip                conda-forge/main::pip-20.0.2-ucrt20210303
python              conda-forge/main::python-3.8.12-haa244fe_0
on
python_abi          conda-forge/win-64::python_abi-3.8.12-haa244fe_0
setuptools          conda-forge/win-64::setuptools-60.6.0-py38haa244fe
_0
sqlite              conda-forge/win-64::sqlite-3.37.0-h8ffe710_0
wheel               conda-forge/noarch::wheel-0.37.1_pyh5b4edeb_0

Preparing transaction: ...working... done
Verifying transaction: ...working... done
Executing transaction: ...working... done

rgee::ee_install want to store the environment variables: EARTHENGINE_P
YTHON
and EARTHENGINE_ENV in your .Renviron file to use the Python path:
C:\Users\Windows 10\anaconda3\envs\rgee\python.exe in future sessions.
Would you like to continue? [Y/n]: Y
```

**② Restart the R session**

```
R 4.1.2 · ~/r
cryptography-36.0.0 | 1.0 MB | ##### | 100%
protobuf-3.19.3     | 243 KB | ##### | 100%
packaging-21.3       | 36 KB | ##### | 100%
google-resumable-med | 41 KB | ##### | 100%
google-cloud-st...
earthengine-a...
pytz-2021.3         | 73 KB | ##### | 100%
idna-3.3            | 55 KB | ##### | 100%
charset-normalizer-2 | 35 KB | ##### | 100%
libcblas-3.9.0      | 5.3 MB | ##### | 100%
uritemplate-3.0.1   | 16 KB | ##### | 100%
future-0.18.2       | 734 KB | ##### | 100%
certifi-2021.10.8   | 145 KB | ##### | 100%
Preparing transaction: ...working... done
Verifying transaction: ...working... done
Executing transaction: ...working... done

Well done! rgee was successfully set up in your system.
You need restart R to see changes. After doing that, we recommend
run ee_check() to perform a full check of all non-R rgee dependencies.
Do you want restart your R session?

1: yes
2: no

Selection: 1
```

**3 Initialize GEE inside R**

Well done! rgee was successfully set up in your system.  
You need restart R to see changes. After doing that, run ee\_check() to perform a full check of all non-R packages.  
Do you want restart your R session?

```
1: yes
2: no

Selection: 1

Restarting R session ...

> library(rgee)
> ee_Initialize(user = "anampaluz.geo@gmail.com", dr
-- rgee 1.1.2 -- earthengine
✓ user: anampaluz.geo@gmail.com
✓ Google Drive credentials:
```

**4 Accept Google Drive credentials**

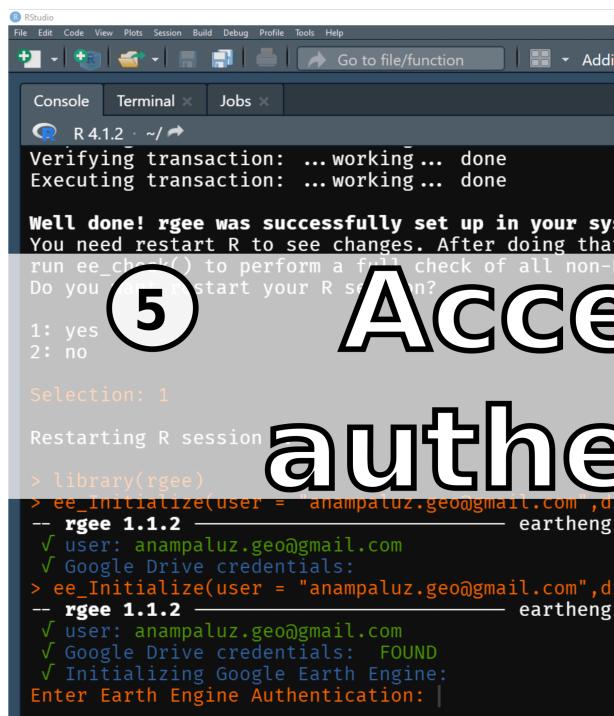
Well done! rgee was successfully set up in your system.  
You need restart R to see changes. After doing that, run ee\_check() to perform a full check of all non-R packages.  
Do you want restart your R session?

```
1: yes
2: no

Selection: 1

Restarting R session ...

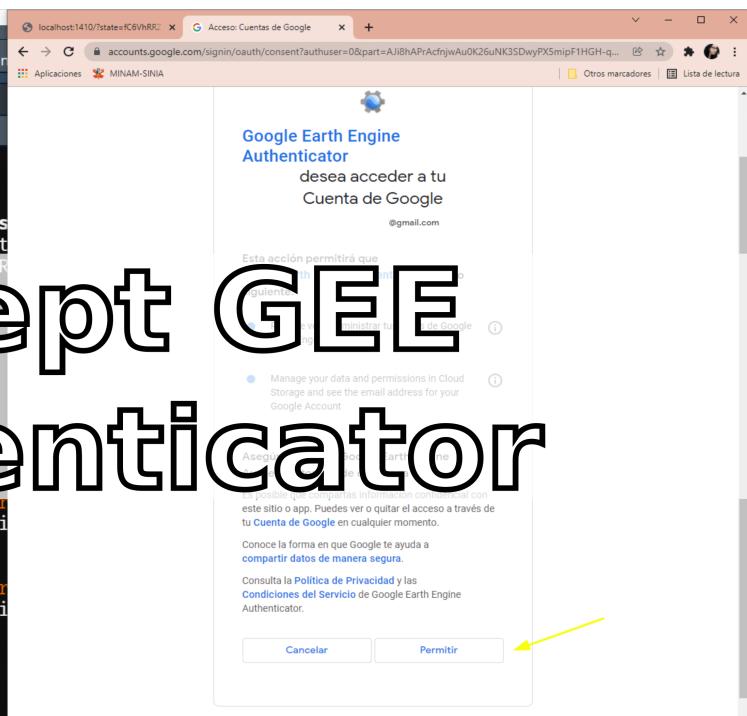
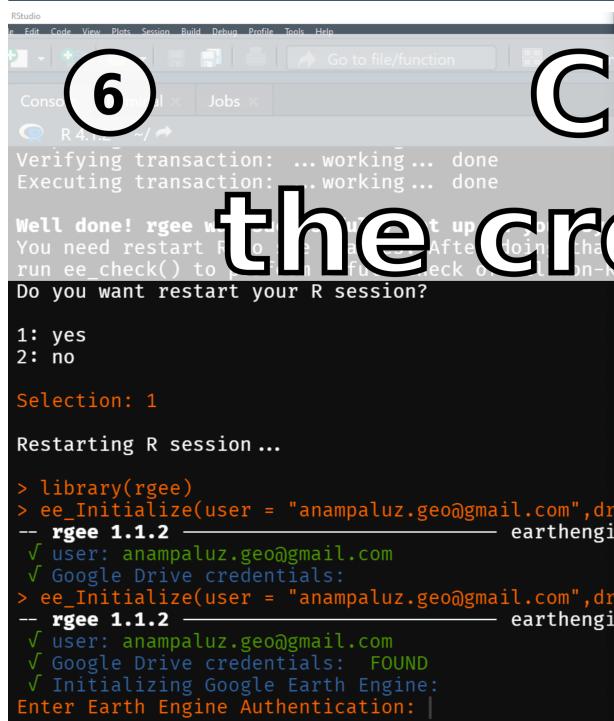
> library(rgee)
> ee_Initialize(user = "anampaluz.geo@gmail.com", dr
-- rgee 1.1.2 -- earthengine
✓ user: anampaluz.geo@gmail.com
✓ Google Drive credentials:
> ee_Initialize(user = "anampaluz.geo@gmail.com", dr
-- rgee 1.1.2 -- earthengine
✓ user: anampaluz.geo@gmail.com
✓ Google Drive credentials:
```



RStudio  
File Edit Code View Plots Session Build Debug Profile Tools Help  
Go to file/function  
Console Terminal Jobs  
R 4.1.2 ~/  
Verifying transaction: ...working... done  
Executing transaction: ...working... done  
**Well done! rgee was successfully set up in your system!**  
You need restart R to see changes. After doing that run ee\_check() to perform a full check of all non-R dependencies.  
Do you want to start your R session?  
1: yes  
2: no  
  
Selection: 1  
  
Restarting R session  
> library(rgee)  
> ee\_Initialize(user = "anampaluz.geo@gmail.com", dr  
-- rgee 1.1.2 earthengine  
✓ user: anampaluz.geo@gmail.com  
✓ Google Drive credentials:  
> ee\_Initialize(user = "anampaluz.geo@gmail.com", dr  
-- rgee 1.1.2 earthengine  
✓ user: anampaluz.geo@gmail.com  
✓ Google Drive credentials: FOUND  
✓ Initializing Google Earth Engine:  
Enter Earth Engine Authentication: |

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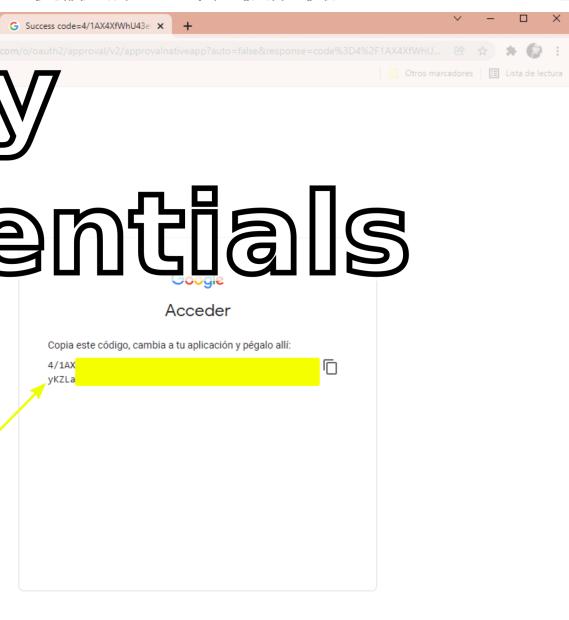
# Accept GEE authenticator

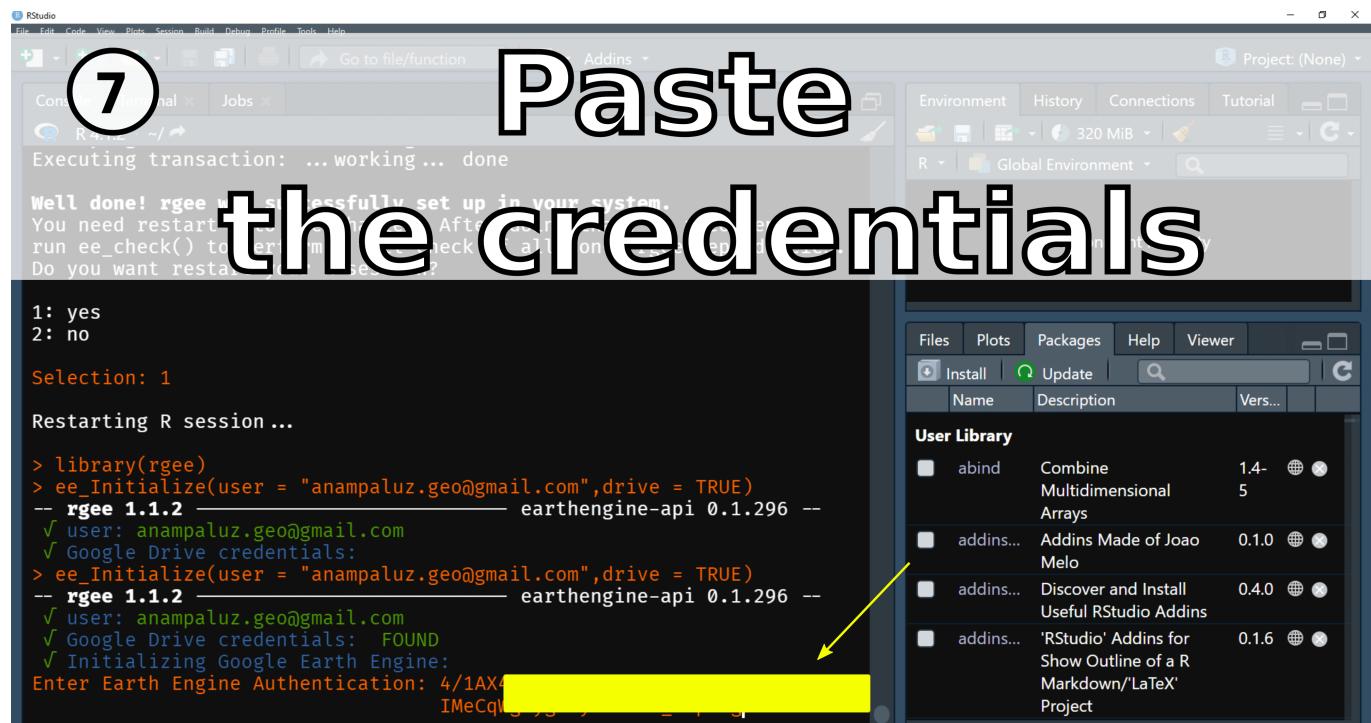



RStudio  
File Edit Code View Plots Session Build Debug Profile Tools Help  
Go to file/function  
Console Terminal Jobs  
R 4.1.2 ~/  
Verifying transaction: ...working... done  
Executing transaction: ...working... done  
**Well done! rgee was successfully set up in your system!**  
You need restart R to see changes. After doing that run ee\_check() to perform a full check of all non-R dependencies.  
Do you want restart your R session?  
1: yes  
2: no  
  
Selection: 1  
  
Restarting R session ...  
> library(rgee)  
> ee\_Initialize(user = "anampaluz.geo@gmail.com", dr  
-- rgee 1.1.2 earthengine  
✓ user: anampaluz.geo@gmail.com  
✓ Google Drive credentials:  
> ee\_Initialize(user = "anampaluz.geo@gmail.com", dr  
-- rgee 1.1.2 earthengine  
✓ user: anampaluz.geo@gmail.com  
✓ Google Drive credentials: FOUND  
✓ Initializing Google Earth Engine:  
Enter Earth Engine Authentication: |

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# Copy the credentials





### 3. Instalacion on Mac OS

Installation on Mac OS is very similar to a GNU/Linux distribution, in the following code section, we share the codes and some screenshots of some key points to consider.

```
# Installation of rgee and geojsonio:
install.packages("sf")
install.packages("geojsonio")
```

```
# Installation of Python dependence libraries:
rgee::install_ee()
```

