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# **CyVerse Documentation**

*Release 1.0*

**CyVerse**

**Aug 04, 2017**



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## ***RStudio-Server install with Anaconda***

### ***Setting up RStudio-Server with the 'ezj -R' function on Atmosphere***

Recently we set up a *ez* script which is executed in the terminal or web shell to install Anaconda3 with Jupyter Notebook. One of the features is to install R kernel with Jupyter. It also installs *r-essentials* with numerous common R packages.

To set up RStudio-Server with the *conda* installation of R you need to set up the bash profile.

1. Add *anaconda3* to your path

```
export PATH="/home/anaconda3/bin:$PATH"
```

2. Change ownership of the */home/anaconda3/* directory

```
chown ${USER}:iplant-everyone /home/anaconda3/ -R
```

3. Add to your *~/.bash\_profile*:

```
sudo sh -c 'echo "export RSTUDIO_WHICH_R="/home/anaconda3/bin/R"" >>
~/.bash_profile'
```

```
sudo sh -c 'echo "launchctl setenv RSTUDIO_WHICH_R $RSTUDIO_WHICH_R"
>> ~/.bash_profile'
```

You will need to exit and restart your terminal for these to take effect

#### 4. Install RStudio-Server using the latest version

**Ubuntu** In a terminal, reset the symbolic link for *libfortran.so*:

```
sudo ln -s /usr/lib/x86_64-linux-gnu/libgfortran.so.3 /usr/lib/
libgfortran.so
```

##### Install Dependencies

```
sudo apt-get install gdebi-core g++
```

##### Change to the */opt* folder

```
cd /opt
```

```
sudo wget https://download2.rstudio.org/rstudio-server-1.0.
153-amd64.deb
```

```
sudo gdebi -n rstudio-server-1.0.153-amd64.deb
```

##### Centos

```
cd /opt
```

```
sudo wget https://download2.rstudio.org/rstudio-server-rhel-1.0.
153-x86_64.rpm
```

```
sudo yum install --nogpgcheck rstudio-server-rhel-1.0.153-x86_64.rpm
```

Note - this will fail on the first try:

```
user_name@128:/home$ sudo gdebi rstudio-server-1.0.143-amd64.deb
Reading package lists... Done
Building dependency tree
Reading state information... Done
Reading state information... Done

RStudio Server
RStudio is a set of integrated tools designed to help you be more productive with R.
↳It includes a console, syntax highlighting editor that supports direct code
↳execution, as well as tools for plotting, history, and workspace management.
Do you want to install the software package? [y/N]:y
(Reading database ... 136874 files and directories currently installed.)
Preparing to unpack rstudio-server-1.0.143-amd64.deb ...
Unpacking rstudio-server (1.0.143) over (1.0.143) ...
Setting up rstudio-server (1.0.143) ...
useradd: user 'rstudio-server' already exists
groupadd: group 'rstudio-server' already exists
rsession: no process found
Created symlink from /etc/systemd/system/multi-user.target.wants/rstudio-server.
↳service to /etc/systemd/system/rstudio- server.service.
Job for rstudio-server.service failed because the control process exited with error
↳code. See "systemctl status rstudio- server.service" and "journalctl -xe" for
↳details.
rstudio-server.service - RStudio Server
   Loaded: loaded (/etc/systemd/system/rstudio-server.service; enabled; vendor
↳preset: enabled)
   Active: active (running) since Sat 2017-05-13 09:30:40 MST; 13ms ago
   Process: 2226 ExecStop=/usr/bin/killall -TERM rserver (code=exited, status=1/
↳FAILURE)
```



```

Process: 2233 ExecStart=/usr/lib/rstudio-server/bin/rserver (code=exited, status=0/
↳SUCCESS)
Main PID: 2236 (rserver)
  Tasks: 3
  Memory: 824.0K
  CPU: 10ms
  CGroup: /system.slice/rstudio-server.service
          -2236 /usr/lib/rstudio-server/bin/rserver

May 13 09:30:40 xxx.xxx.xx.xxx systemd[1]: rstudio-server.service: Service hold-off_
↳time over, scheduling restart.
May 13 09:30:40 xxx.xxx.xx.xxx systemd[1]: Stopped RStudio Server.
May 13 09:30:40 xxx.xxx.xx.xxx systemd[1]: Starting RStudio Server...
May 13 09:30:40 xxx.xxx.xx.xxx systemd[1]: Started RStudio Server.
May 13 09:30:40 xxx.xxx.xx.xxx rserver[2236]: ERROR Unable to find an installation of_
↳R on the system (which R didn't return va...pp:472
May 13 09:30:40 xxx.xxx.xx.xxx systemd[1]: rstudio-server.service: Main process_
↳exited, code=exited, status=1/FAILURE
Hint: Some lines were ellipsized, use -l to show in full.

```

#### 5. modify `/etc/rstudio/rserver.conf`

```
sudo sh -c 'echo "rsession-which-r=/home/anaconda3/bin/R" >> /etc/
rstudio/rserver.conf'
```

#### 6. Restart RStudio-Server

```
sudo rstudio-server start
```

#### 7. Log into RStudio-Server

1. Copy the IP address for the VM from the Atmosphere browser window.
2. Paste the IP address into a new browser window
3. add :8787 port # to the IP address
4. Log in using your CyVerse Username and Password.

## Installing Packages for R and RStudio-Server

Because we are using Anaconda3, it is suggested that you use `conda` to install your R packages from a terminal

For example:

```
conda install -c r r-raster
conda install -c conda-forge gdal
```

## Summary

This documentation is intended for use with CyVerse [Atmosphere](#) featured images. It has been tested on Ubuntu 16.04 and Centos 6.8 images.

## Additional information, help

Search for an answer: [CyVerse Learning Center](#) or [CyVerse Wiki](#)

Post your question to the user forum: [Ask CyVerse](#)

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## Advanced Installation of Docker

### Docker-Compose install with Anaconda

1. Install *pip*

```
sudo wget https://bootstrap.pypa.io/get-pip.py
python get-pip.py
```

2. Change ownership of */home/Anaconda\**

```
sudo chown ${USER}:iplant-everyone /home/anaconda*/ -R
```

3. Install Docker-Compose

```
sudo pip install docker-compose
```

### Running Docker without sudo

1. Add the Docker group

```
groupadd docker
```

2. Add user to group

```
sudo usermod -aG docker $USER
```

3. Close Terminal and reopen

4. Test Docker without *sudo*

```
docker run hello-world
```

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## CHAPTER 2

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### *Prerequisites*

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## Downloads, access, and services

*In order to complete this tutorial you will need access to the following services/software*

Prerequisite	Preparation/Notes	Link/Download
CyVerse account	You will need a CyVerse account to complete this exercise	<a href="#">Register</a>
Atmosphere access	You must have access to Atmosphere	<a href="#">Request Access</a>

## Platform(s)

*We will use the following CyVerse platform(s):*

Platform	Interface	Link	Platform Documentation	Quick Start
Atmo-sphere	Command line (ssh) and/or Desktop (VNC)	Atmo-sphere	<a href="#">Atmosphere Manual</a>	<a href="#">Guide</a>

## Atmosphere Images

*In order to complete this quickstart you will need to have the following*

Atmosphere Image(s)	Link
Only 'Featured' images have ez installed	<a href="#">Atmosphere Featured Images</a>

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### ***Install Anaconda (Jupyter, R, Python 2, Python 3)***

1. Jupyter notebooks with Python 3 (default)

```
ezj
```

2. Jupyter notebooks with Python 2

```
ezj -2
```

3. Jupyter notebooks with R Kernel

```
ezj -R or ezj -r
```

4. After the installation, copy and paste the URL provided into your local computer's browser

- (a) Open Firefox or Chrome on the local computer (your laptop or desktop you are working on)
- (b) In a blank tab, copy and paste the URL provided by `ezj` at the end of the installation
- (c) Leave the Atmosphere terminal running
- (d) This has been tested on Firefox and Chrome

5. When you are done using the Jupyter Notebook

- (a) Close out the browser tab with the Jupyter notebook interface
- (b) Return to the Atmosphere and press: `control + C`
- (c) This will stop the Atmosphere instance from running Jupyter notebooks

*Start a new Jupyter session on a VM with EZ already installed*

1. Return to the Atmosphere instance and type `ezj` again!

```
ezj
```

2. Copy and paste the URL into the browser just as before

## ***Install Singularity***

### 1. Install Singularity

```
ezs
```

You should see

```
* Updating ez singularity and installing singularity (this may take a few minutes, coffee break!)
```

```
[sudo] password for YourCyVerseUserName:
```

Wait for the installation to complete.

### 2. Test Singularity

```
singularity run shub://vsoch/hello-world
```

## ***Install Docker with ‘ez’***

### 1. Install Docker

```
ezd
```

### 2. Test Docker

note: You need to use `sudo` permissions with Docker. After using the `sudo` command, Atmosphere will ask you for your CyVerse password for security purposes.

```
sudo docker run hello-world
```

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## CHAPTER 4

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*Next Steps:*

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Some common next steps include:

1. Installation of Rstudio on an Atmosphere Instance
  2. Advanced Docker Setup
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### Additional Information

Search for an answer: [CyVerse Learning Center](#) or [CyVerse Wiki](#)

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