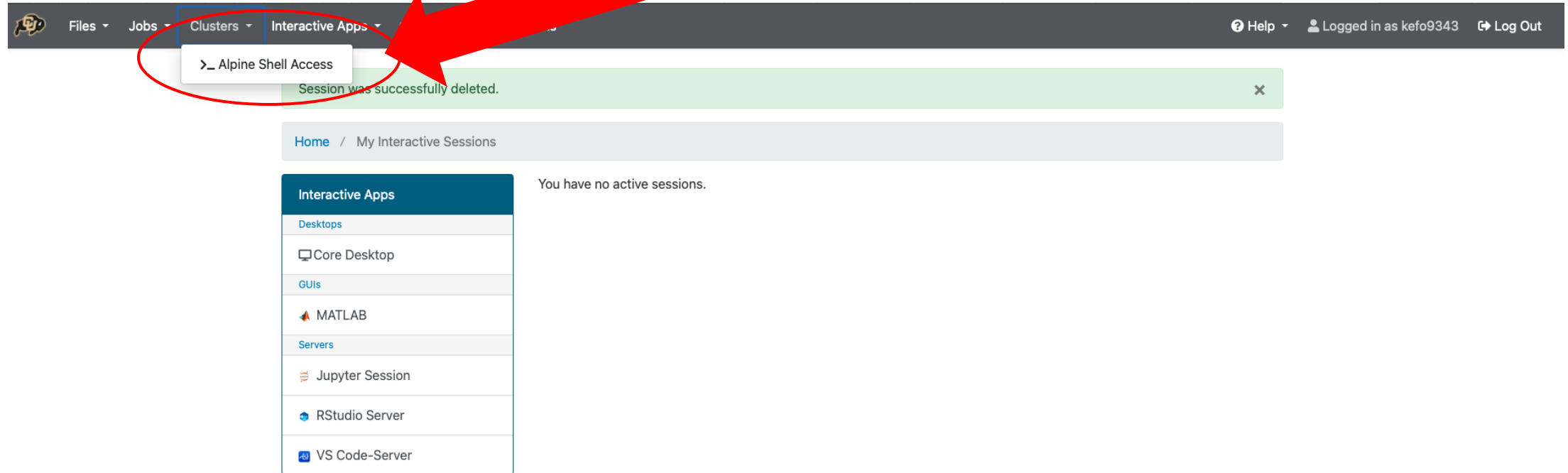


Make sure to log into the Alpine shell



Files ▾ Jobs ▾ Clusters ▾ Interactive Apps ▾

Help ▾ Logged in as kefo9343 Log Out

>_ Alpine Shell Access

Session was successfully deleted. ✕

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Interactive Apps

[Desktops](#)

- Core Desktop

[GUIs](#)


- MATLAB

[Servers](#)

- Jupyter Session
- RStudio Server
- VS Code-Server

You have no active sessions.

```
[kefo0001_amc@login-ci1 Rstudio_related_scripts]$ acompile --ntasks=4 --time=12:00:00
acompile: submitting job... salloc --nodes=1 --partition=acompile --ntasks=4 --time=12:00:00 --qos=compile --job-name=acompile --bell
--oversubscribe srun --pty /bin/bash
salloc: Granted job allocation 11743919
salloc: Nodes c3cpu-a2-u32-1 are ready for job
bash: /scratch/alpine/kfotso@xsede.org/cargo_home/env: No such file or directory
```




Go to a compute node with: acompile --ntasks=4 --time=12:00:00

```
[kefo0001_amc@c3cpu-a2-u32-1 rstudio_img]$ export ALPINE_SCRATCH=/gpfs/alpine1/scratch/$USER  
[kefo0001_amc@c3cpu-a2-u32-1 rstudio_img]$ export APPTAINER_TMPDIR=$ALPINE_SCRATCH/apptainer/tmp  
[kefo0001_amc@c3cpu-a2-u32-1 rstudio_img]$ export APPTAINER_CACHEDIR=$ALPINE_SCRATCH/apptainer/cache  
[kefo0001_amc@c3cpu-a2-u32-1 rstudio_img]$ mkdir -pv $APPTAINER_CACHEDIR $APPTAINER_TMPDIR
```



```
export ALPINE_SCRATCH=/gpfs/alpine1/scratch/$USER  
export APPTAINER_TMPDIR=$ALPINE_SCRATCH/apptainer/tmp  
export APPTAINER_CACHEDIR=$ALPINE_SCRATCH/apptainer/cache  
mkdir -pv $APPTAINER_CACHEDIR $APPTAINER_TMPDIR
```

```
Host: login-ci1.rc.int.colorado.edu Themes: Cobalt2
[kefo0001_amc@c3cpu-a2-u32-1 backup_ ] $ cp -v /projects/$USER/.rstudioserver/rstudio-4.4.1/rstudio-server-4.4.1_overlay.img /projects/$USER/rstudio-server-4.4.1_overlay_backup_.img
'/projects/kefo0001_amc/.rstudioserver/rstudio-4.4.1/rstudio-server-4.4.1_overlay.img' '/projects/kefo0001_amc/rstudio-server-4.4.1_overlay_backup_.img'
```



Make a copy of your Rstudio container image with the following command:

```
cp -v /projects/$USER/.rstudioserver/rstudio-4.4.1/rstudio-server-4.4.1_overlay.img /projects/$USER/rstudio-server-4.4.1_overlay_backup_.img
```

```
[kefo0001_amc@c3cpu-a2-u32-1 rstudio_img]$ export r_app_version="4.4.1"  
[kefo0001_amc@c3cpu-a2-u32-1 rstudio_img]$ apptainer -d shell --bind /projects,/scratch/al  
r-${r_app_version}_overlay.img /curc/sw/containers/open_ondemand/rstudio-server-${r_app_ver
```



```
export r_app_version="4.4.1"  
apptainer -d shell --bind /projects,/scratch/alpine,$CURC_CONTAINER_DIR_OOD --fakeroot --overlay  
/projects/$USER/.rstudioserver/rstudio-${r_app_version}/rstudio-server-${r_app_version}_overlay.img  
/curc/sw/containers/open_ondemand/rstudio-server-${r_app_version}.sif
```

```
Apptainer> apt-get -y update
Get:1 http://security.ubuntu.com/ubuntu jammy-security InRelease [129 kB]
Hit:2 http://archive.ubuntu.com/ubuntu jammy InRelease
Get:3 http://archive.ubuntu.com/ubuntu jammy-updates InRelease [128 kB]
Get:4 http://archive.ubuntu.com/ubuntu jammy-backports InRelease [127 kB]
Fetched 384 kB in 1s (268 kB/s)
Reading package lists... Done
Apptainer> █
```



apt-get -y update

```
Apptainer> apt-get install libboost-all-dev  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done
```

apt-get install libboost-all-dev

Installing libboost

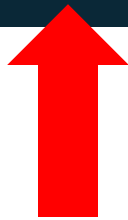
```
Apptainer>  
Apptainer> apt-get install libomp-dev  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done
```



apt-get install libomp-all-dev

Installing OpenMP


```
DEBUG [U=0,P=1197756] syslogBuiltin() Sourcing /usr/local/lib/R/etc/Makeconf
DEBUG [U=0,P=1197756] syslogBuiltin() Running action command shell
VERBOSE [U=0,P=1197756] runActionScript() Running command with fakeroot
DEBUG [U=0,P=1197723] PostStartProcess() Post start process
Apptainer> vim /usr/local/lib/R/etc/Makeconf
```



Use vim to edit the file
`/usr/local/lib/R/etc/Makeconf` .

You may also use nano. If you decide to do so,
make sure to install it with “`apt install nano`”

```
## C++ compilers
CXX = g++ -std=gnu++17
CXXFLAGS = -g -O2 -fstack-protector-strong -Wformat -Wno-error=format-security -Wdate-time -D_FORTIFY_SOURCE=2 -g $(LT0)
CXXPICFLAGS = -fpic
CXX11 = g++
CXX11FLAGS = -g -O2 -fstack-protector-strong -Wformat -Wno-error=format-security -Wdate-time -D_FORTIFY_SOURCE=2 -g $(LT0)
CXX11PICFLAGS = -fpic
CXX11STD = -std=gnu++11
CXX14 = g++
CXX14FLAGS = -g -O2 -fstack-protector-strong -Wformat -Wno-error=format-security -Wdate-time -D_FORTIFY_SOURCE=2 -g $(LT0)
CXX14PICFLAGS = -fpic
CXX14STD = -std=gnu++14
CXX17 = g++
CXX17FLAGS = -g -O2 -fstack-protector-strong -Wformat -Wno-error=format-security -Wdate-time -D_FORTIFY_SOURCE=2 -g $(LT0)
CXX17PICFLAGS = -fpic
"/usr/local/lib/R/etc/Makeconf" 222L, 8496B
```

Make sure to change **CXXFLAGS** and **CXX11FLAGS** so that they can read “**-Wno-error=format-security**”, as shown on the screen. Then make sure to save and exit the file. In vim, one can use **:wq** to save and exit a file.

```
Apptainer> apt install -y patch
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
patch is already the newest version (2.7.6-7build2).
The following package was automatically installed and is no longer required:
  libcurl3-nss
Use 'apt autoremove' to remove it.
0 upgraded, 0 newly installed, 0 to remove and 52 not upgraded.
```

apt install -y patch

```
Apptainer> R

R version 4.4.1 (2024-06-14) -- "Race for Your Life"
Copyright (C) 2024 The R Foundation for Statistical Computing
Platform: x86_64-pc-linux-gnu

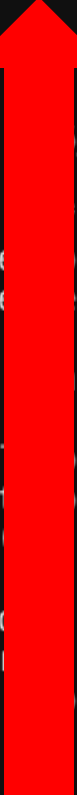
R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

  Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

>
```



We call the R command

```
[> .libPaths("/projects/kefo9343/Rstudio_libs/4.4.1")
[> .libPaths( c( .libPaths(), "/usr/local/lib/R/library" ) )
[> .libPaths( c( .libPaths(), "/usr/local/lib/R/site-library" ) )
[> .libPaths()
[1] "/projects/kefo9343/Rstudio_libs/4.4.1"
[2] "/usr/local/lib/R/library"
[3] "/usr/local/lib/R/site-library"
```



We change the order of the lib Paths so that “/projects/\$USER” comes first. Please run the following and confirm the order as shown on the screen. Replace “username” from below with your actual Alpine username:

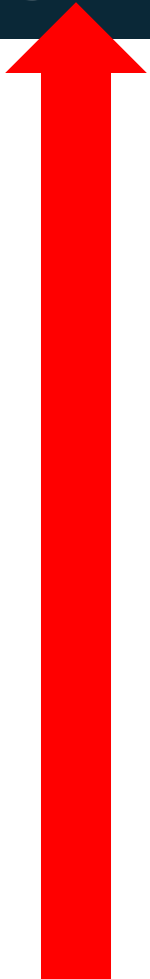
```
.libPaths("/projects/username/Rstudio_libs/4.4.1")
.libPaths( c( .libPaths(), "/usr/local/lib/R/library" ) )
.libPaths( c( .libPaths(), "/usr/local/lib/R/site-library" ) )
```

```
Type 'demo()' for some demos, 'help()' for on-line help, or  
'help.start()' for an HTML browser interface to help.  
Type 'q()' to quit R.
```

```
> install.packages("igraph")
```

install.packages("igraph")

```
R is a collaborative project with many contributors.  
Type 'contributors()' for more information and  
'citation()' on how to cite R or R packages in publications.  
  
Type 'demo()' for some demos, 'help()' for on-line help, or  
'help.start()' for an HTML browser interface to help.  
Type 'q()' to quit R.  
  
> install.packages("Rcpp", type = 'source')■
```



`install.packages("Rcpp", type = 'source')`

```
Type 'demo()' for some demos, 'help()' for on-line help, or  
'help.start()' for an HTML browser interface to help.  
Type 'q()' to quit R.
```

```
> library("devtools")  
Loading required package: usethis
```

library("devtools")

Load devtools


```
R is a collaborative project with many contributors.  
Type 'contributors()' for more information and  
'citation()' on how to cite R or R packages in publications.
```

```
Type 'demo()' for some demos, 'help()' for on-line help, or  
'help.start()' for an HTML browser interface to help.  
Type 'q()' to quit R.
```

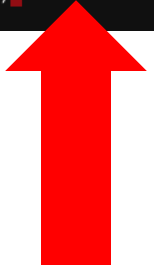
```
> install_github("velocyto-team/velocyto.R")
```

`Install_github("velocyto-team/velocyto.R")`

Install velocyto

```
TIFY_SOURCE=2 -g -c Wrapper_manual_H5T.c -o Wrapper_manual_H5T.o
gcc -shared -L/usr/local/lib/R/lib -L/usr/local/lib -o hdf5r.so const_export.o datatype_export.o Wrapper_auto_H5A.o Wrapper_auto_H5.o Wrapper_auto_H5D.o Wrapper_auto_H5DS.o Wrapper_auto_H5E.o Wrapper_auto_H5F.o
Wrapper_auto_H5G.o Wrapper_auto_H5I.o Wrapper_auto_H5IM.o Wrapper_auto_H5L.o Wrapper_auto_H5LT.o Wrapper_auto_H5O.o Wrapper_auto_H5P.o Wrapper_auto_H5R.o Wrapper_auto_H5S.o Wrapper_auto_H5TB.o Wrapper_auto_H5T
.o Wrapper_auto_H5Z.o Wrapper_auto_H5FDcore.o Wrapper_auto_H5FDfamily.o Wrapper_auto_H5FDlog.o Wrapper_auto_H5FDsec2.o Wrapper_auto_H5FDstdio.o convert.o hdf5r_init.o H5Error.o H5ls.o Wrapper_manual_H5T.o -L/us
r/lib/x86_64-linux-gnu/hdf5/serial -lcrypto -lcurl -lpthread -lsz -lz -ldl -lm -L. -lhdf5_hl -lhdf5 -lz -lm -L/usr/local/lib/R/lib -lR
installing to /usr/local/lib/R/site-library/00LOCK-hdf5r/00new/hdf5r/libs
** R
** inst
** byte-compile and prepare package for lazy loading
** help
*** installing help indices
** building package indices
** installing vignettes
** testing if installed package can be loaded from temporary location
** checking absolute paths in shared objects and dynamic libraries
** testing if installed package can be loaded from final location
** testing if installed package keeps a record of temporary installation path


The downloaded source packages are in
  '/projects/kefo0001_amc/.rstudioserver/rstudio-4.4.1/tmp_data/RtmpygrMhr/downloaded_packages'
> q()
```



Confirm that the package installed properly and then exit R with the following:

q()

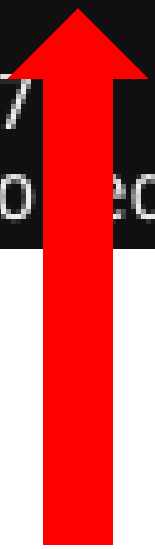
```
Apptainer> exit
exit
DEBUG [U=0 618432] CleanupContainer() Cleanup container
DEBUG [U=0 618432] umount() Umount /var/lib/apptainer/mnt/session/final
DEBUG [U=0 618432] stop() Waiting for fuse-overlayfs pid 3618617 to exit
DEBUG [U=0 618432] umount() Umount /var/lib/apptainer/mnt/session/rootfs
DEBUG [U=0 618432] stop() Waiting for squashfuse_ll pid 3618477 to exit
DEBUG [U=0 618432] umount() Sync of /var/lib/apptainer/mnt/session/overlay-images/0 succeeded
DEBUG [U=0 618432] umount() Umount /var/lib/apptainer/mnt/session/overlay-images/0
DEBUG [U=0 618432] stop() Waiting for fuse2fs pid 3618483 to exit
DEBUG [U=0 618432] Master() Child exited with exit status 0
```



Make sure to exit the apptainer container by running:

exit

```
[kefo0001_amc@c3cpu-a2-u32-1 rstudio_img_]$ exit  
exit  
salloc: Relinquishing job allocation 11056057  
salloc: Job allocation 11056057 has been revoked.
```



exit the acompile session by running:

exit

```
R version 4.4.1 (2024-06-14) -- "Race for Your Life"  
Copyright (C) 2024 The R Foundation for Statistical Computing  
Platform: x86_64-pc-linux-gnu
```

```
R is free software and comes with ABSOLUTELY NO WARRANTY.  
You are welcome to redistribute it under certain conditions.  
Type 'license()' or 'licence()' for distribution details.
```

```
  Natural language support but running in an English locale
```

```
R is a collaborative project with many contributors.  
Type 'contributors()' for more information and  
'citation()' on how to cite R or R packages in publications.
```

```
Type 'demo()' for some demos, 'help()' for on-line help, or  
'help.start()' for an HTML browser interface to help.  
Type 'q()' to quit R.
```

```
[Workspace loaded from ~/.RData]
```

```
> library("velocityto.R")  
Loading required package: Matrix  
> q()  
Save workspace image to /home/kefo0001_amc/.RData? [y/n/c]: y  
|
```

Verify the installation by opening an Rstudio session and calling hdf5r:

library('velocityto.R')