

Why use RStudio on O2?

Information Technology Research Computing
Harvard Medical School
5/4/2022



HARVARD
MEDICAL SCHOOL

Information Technology 1

Contact Information



Email: rchelp@hms.harvard.edu



Website: <https://it.hms.harvard.edu/our-services/research-computing>

Wiki: <https://wiki.rc.hms.harvard.edu/display/O2>



Phone: 617-432-2000 (HMS IT Service Desk, 8a-5p)



Twitter: @hms_rc



Location: Gordon Hall 500, 5th Floor, 25 Shattuck Street

- <https://rc.hms.harvard.edu/office-hours/> for Zoom web conferencing during remote work



Office hours: Wednesdays 1-3p for pressing needs, but appointments encouraged.



Agenda

- What is R/RStudio?
- R options on O2
- Modules & R Personal Library
- Support
- Questions



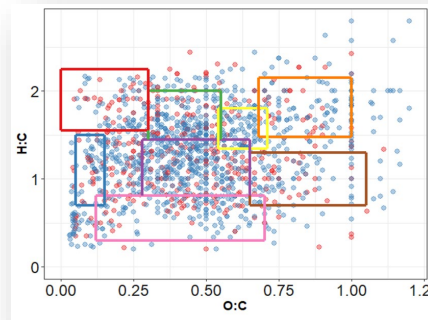
R is a powerful software

```
> set.seed(0)
> Spenders.Cleve <- rnorm(50, mean = 300, sd = 70)
> Spenders.NY <- rnorm(50, mean = 350, sd = 70)
> Amount.Spent <- c(Spenders.Cleve, Spenders.NY)
> city.name <- c(rep("Cleveland", 50), rep("New York", 50))
> t.test(Amount.Spent ~ city.name, var.equal = TRUE)
```

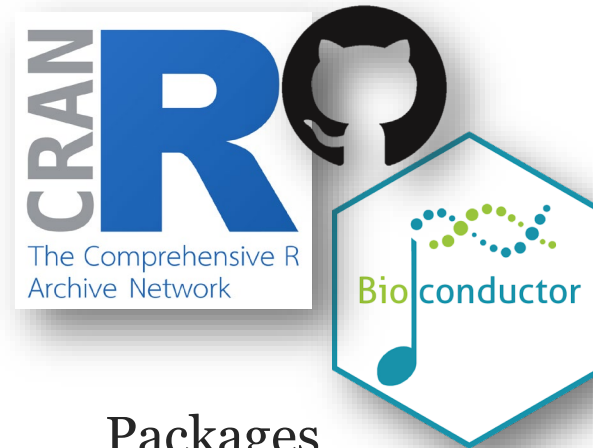
Two Sample t-test

data: Amount.Spent by city.name
t = -4.0115, df = 98, p-value = 0.0001179
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
-74.47029 -25.17621
sample estimates:
mean in group Cleveland mean in group New York
301.6752 351.4984

Statistical
Computing



Data Visualization



Packages



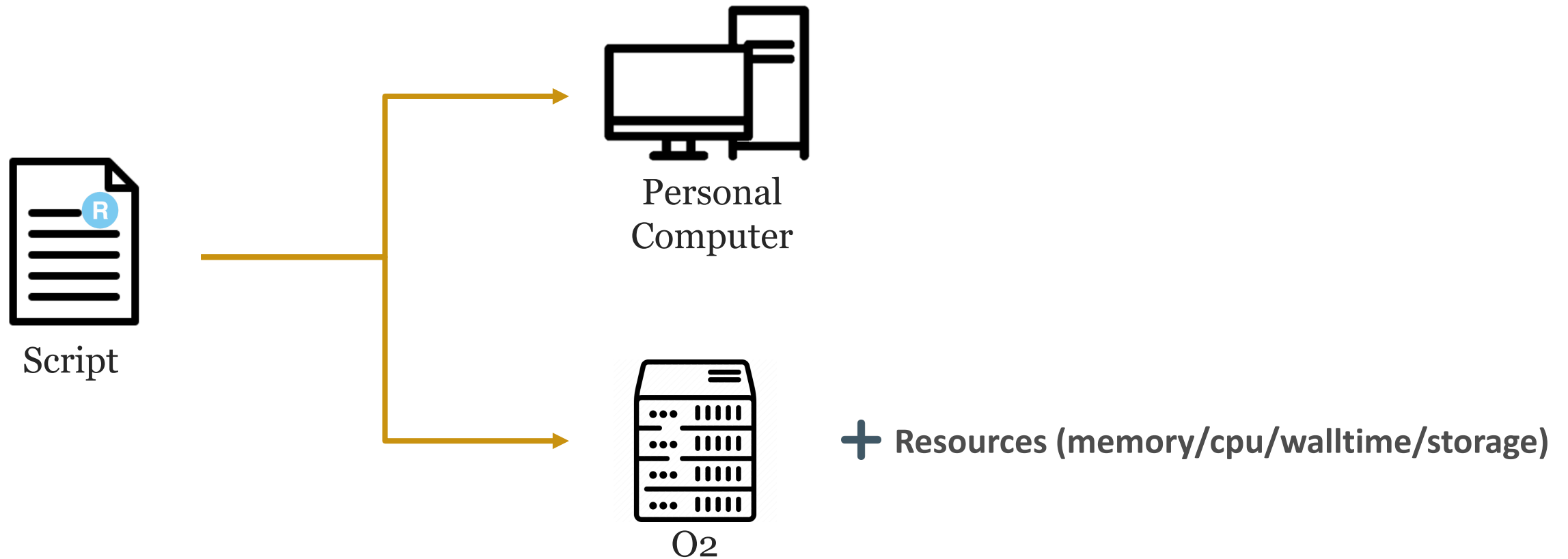
Community



HARVARD
MEDICAL SCHOOL

Information Technology 4

Why O2?



R options on O2

	R		
	Interactive	Non-interactive	RStudio*
Const. internet connection	Yes	No	Yes
Graphic User Interface (GUI)	No	No	Yes

*via x11 forwarding

R versions on O2

- Available versions

```
$ module spider R
```

- Load R module

```
$ module load gcc/6.2.0 R/version
```

- How to unload an R module

```
$ module unload R/version
```

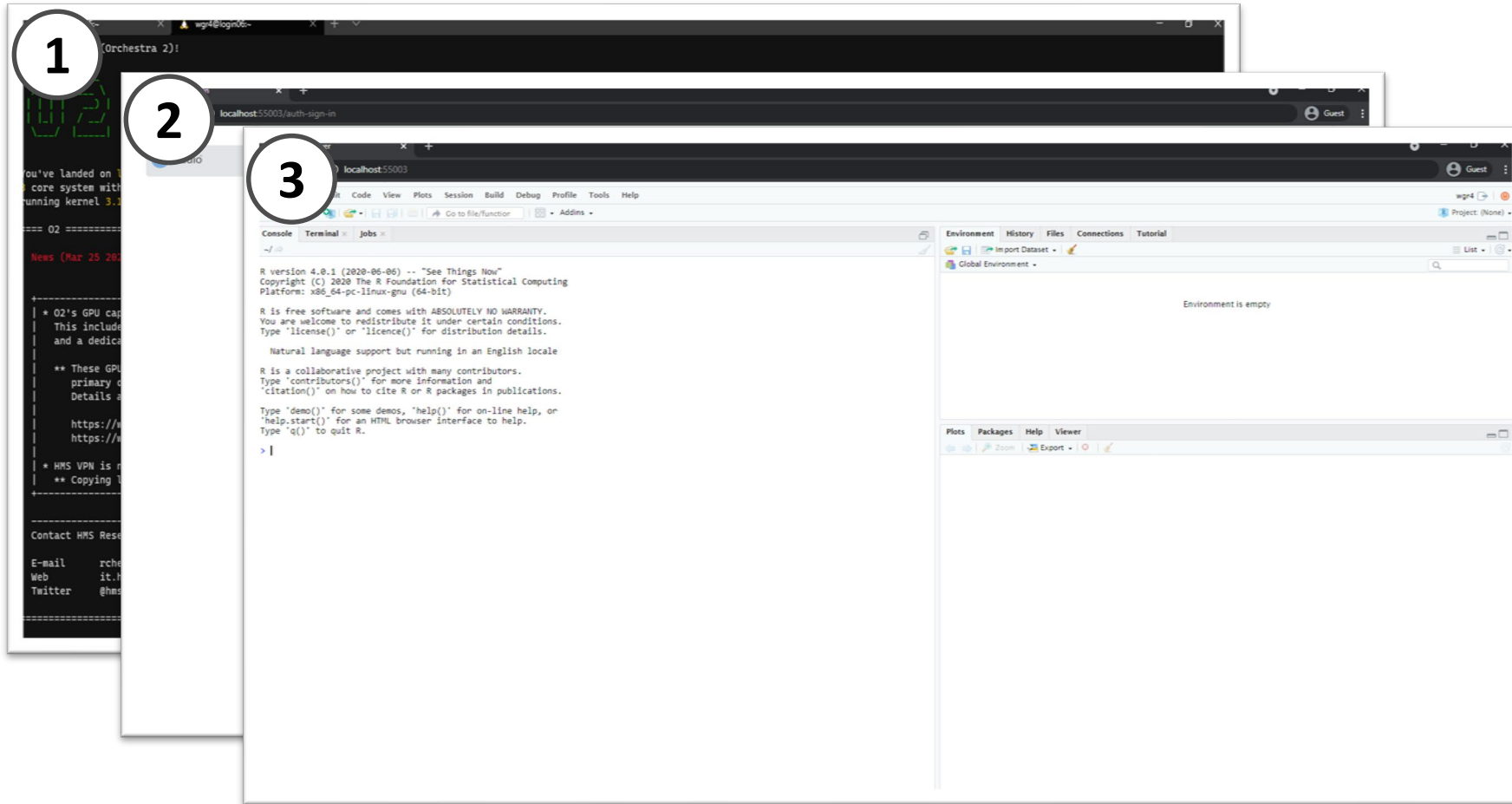


Managing R packages on O2

- An R Personal Library is required on O2
- Steps:
 - 1) Create an .Renviron file
 - 2) Add `R_LIBS_USER="~/R/%p-library/%V"`



Launch RStudio on O2



Demo: Launch RStudio on O2



```

Welcome to O2 (Orchestra 2)!

02

You've landed on login02 which is a
core system with 15.49 GiB memory
running kernel 5.10.0 born on 2020-07-07

=== O2 ===

News (Mar 25 2021)

* O2's GPU capacity has increased with funding from the Slavatnik Institute!
  This includes: 71 new NVIDIA GPUs: 27 RTX8000 and 44 Tesla V100S cards,
  and a dedicated GPU scratch storage filesystem.

** These GPU resources are currently available only to labs whose PI has a
  primary or secondary appointment in an HMS pre-clinical department.
  Details at:
  https://wiki.rc.hms.harvard.edu/display/O2/Using+O2+GPU+resources
  https://wiki.rc.hms.harvard.edu/display/O2/Scratch+GPU+Storage

* HMS VPN is not required for using O2. Only use VPN when absolutely needed.
** Copying large data over VPN can greatly impact its performance!

-----
Contact HMS Research Computing:
E-mail   rchelp@hms.harvard.edu
Web      it.hms.harvard.edu/rc
Twitter  @hms_rc

```

```
ssh -Y -L PORT:127.0.0.1:PORT <your_HMS_ID>@o2.hms.harvard.edu
```

```
module load gcc/6.2.0 R/4.1.1 git/2.9.5 rstudio_launcher/1.0
```

```
srun -t 0-2:00 --pty -p interactive -c 1 --mem=2G --tunnel PORT:PORT RStudio_launcher.sh PORT
```



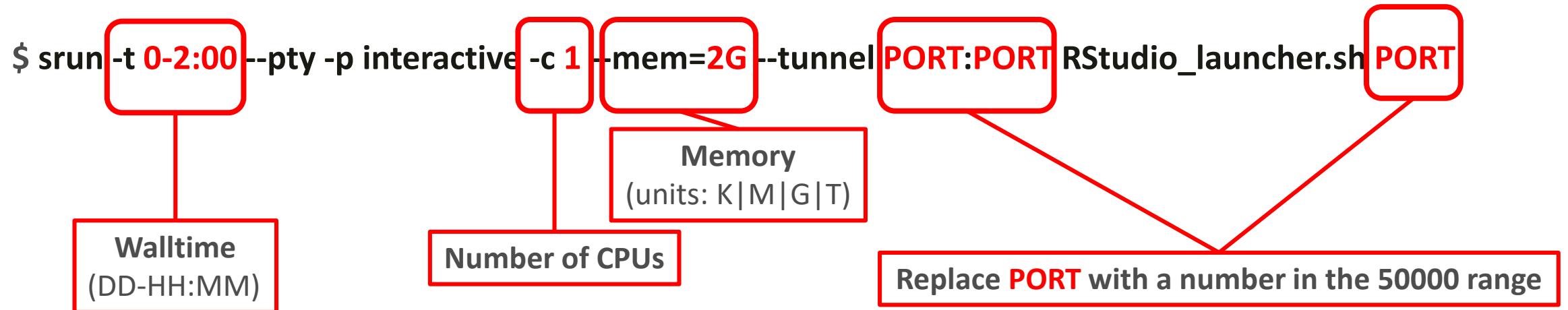
Launch RStudio on O2

```
$ srun -t 0-2:00 --pty -p interactive -c 1 --mem=2G --tunnel PORT:PORT RStudio_launcher.sh PORT
```

Adjustable arguments



Launch RStudio on O2



Contact Information



Email: rchelp@hms.harvard.edu



Website: <https://it.hms.harvard.edu/our-services/research-computing>

Wiki: <https://wiki.rc.hms.harvard.edu/display/O2>



Phone: 617-432-2000 (HMS IT Service Desk, 8a-5p)



Twitter: @hms_rc



Location: Gordon Hall 500, 5th Floor, 25 Shattuck Street

- <https://rc.hms.harvard.edu/office-hours/> for Zoom web conferencing during remote work



Office hours: Wednesdays 1-3p for pressing needs, but appointments encouraged.



Thank you



HARVARD
MEDICAL SCHOOL

Information Technology 19