LearnIT Express is on its way!

- The demonstration will start at 12:30 pm.
- To use the Live Chat:
  - Maximize your browser window so you can see the postings.
  - If you refresh the browser page, you'll need to log in again.
  - After the demonstration, staff will remain available in the chat for a few minutes to answer additional questions.

Today's topic: Mills HPC Cluster
LearnIT Express: Installing and Sharing R Packages
Objectives

- Using R to install R packages
  - Using CRAN
  - Using Lustre
  - Using VALET

- Sharing R packages
  - Workgroup and the community
What is the R environment?

- R is an integrated suite of software facilities for data manipulation, calculation and graphical display.
- It has developed rapidly, and has been extended by a large collection of packages.
- Documentation
  - http://cran.r-project.org/
R packages

- A **package** is a standardized collection of material extending R, e.g. providing code, data, or documentation.

- A **library** is a place (directory) where R knows to find packages it can use (i.e., which were installed).
Installing R packages

- Make a working directory to use R
  - cd /lustre/work/it_css/users/traine
  - mkdir R-projects

- Make a directory for your installed R packages
  - mkdir rlibs

- Use VALET for R
  - vpkg_require r

Note: Use the head (login) node since R packages are built during the installation.
R startup files

- `.Renviron`
  - Set R environment variables on startup

- `.Rprofile`
  - Execute R code on startup

- `.Rhistory`
  - Saved history from your R session
.Renviron

R_LIBS=/lustre/work/it_css/users/traine/rlibs:
    /lustre/work/it_css/users/anita/rlibs
R_LIBS_USER=/lustre/work/it_css/users/traine/rlibs
## Set working directory
setwd("/lustre/work/it_css/users/traine/R-projects")

## Default CRAN mirror
local({
  r <- getOption("repos");
  r["CRAN"] <- "http://lib.stat.cmu.edu/R/CRAN/";
  options(repos=r)});

**Note:** Setting the working directory tells R to store all files like .RData, in this working directory on Lustre rather than $HOME.
Live Demo

- Install package ncdf using R
  - In R, `install.packages("ncdf")`

- Using VALET to fix the environment
  - `vpkg_require netcdf`

- Re-install package ncdf

- List available packages defined by R_LIBS
  - In R, `.libPaths()`
  - In R, `library()`
Summary

- Use R startup files to set up your R environment on Mills (Lustre).
- Use R to get packages from CRAN.
- Use VALET to resolve installation requirements.
- Share your R_LIBS directory with your group.
More information

- IT Research Computing
  
  http://www.it.udel.edu/research-computing

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Contact the IT Support Center

- **Email:** consult@udel.edu
  
  If you make the first line of the e-mail message
  
  Type=Cluster-Mills
  
  your question will be routed more quickly.

- **Phone:** (302) 831-6000

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