

Introduction to R Software

Introduction

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Why R and Installation Procedure

Shalabh

Department of Mathematics and Statistics

Indian Institute of Technology Kanpur

What is R?

R is an environment for data manipulation, statistical computing, graphics display and data analysis.

Effective data handling and storage of outputs is possible.

Simple as well as complicated calculations are possible.

What is R?

Graphical display on-screen and hardcopy are possible.

Programming language is effective which includes all possibilities just like any other good programming language.

The R language is very similar in appearance to "S" - language based on a software S-Plus.

Switching to R?

Many people, research and design offices, analytical firms have started using R.

R is free.

Many statistical packages are freely available.

So you may also consider switching to R.

Switching to R?

- R has a statistical computing environment.
- It is free (open source) software and therefore is not a black box.
- It has a computer language which is convenient to use for statistical and graphical applications.

Switching to R?

- The commands can be saved, run and stored in script files.
- R is available for Windows, Unix, Linux and Macintosh platforms.
- R was developed to compete with S-Plus.
- Built in and contributed packages are available, and users are provided tools to make packages. It is possible to contribute own packages.

Switching to R?

- This language provides the logical control of branching and looping, and modular programming using functions.
- Error messages are provided while executing a programme or a function which are helpful in finding the errors.

Switching to R?

- R is an interpreted computer language (Not compiler).
- When we use the command line interface, each command or expression to be evaluated is typed at the command prompt, and immediately evaluated when the Enter key is pressed at the end of a syntactically complete statement.

Switching to R?

■ Tips

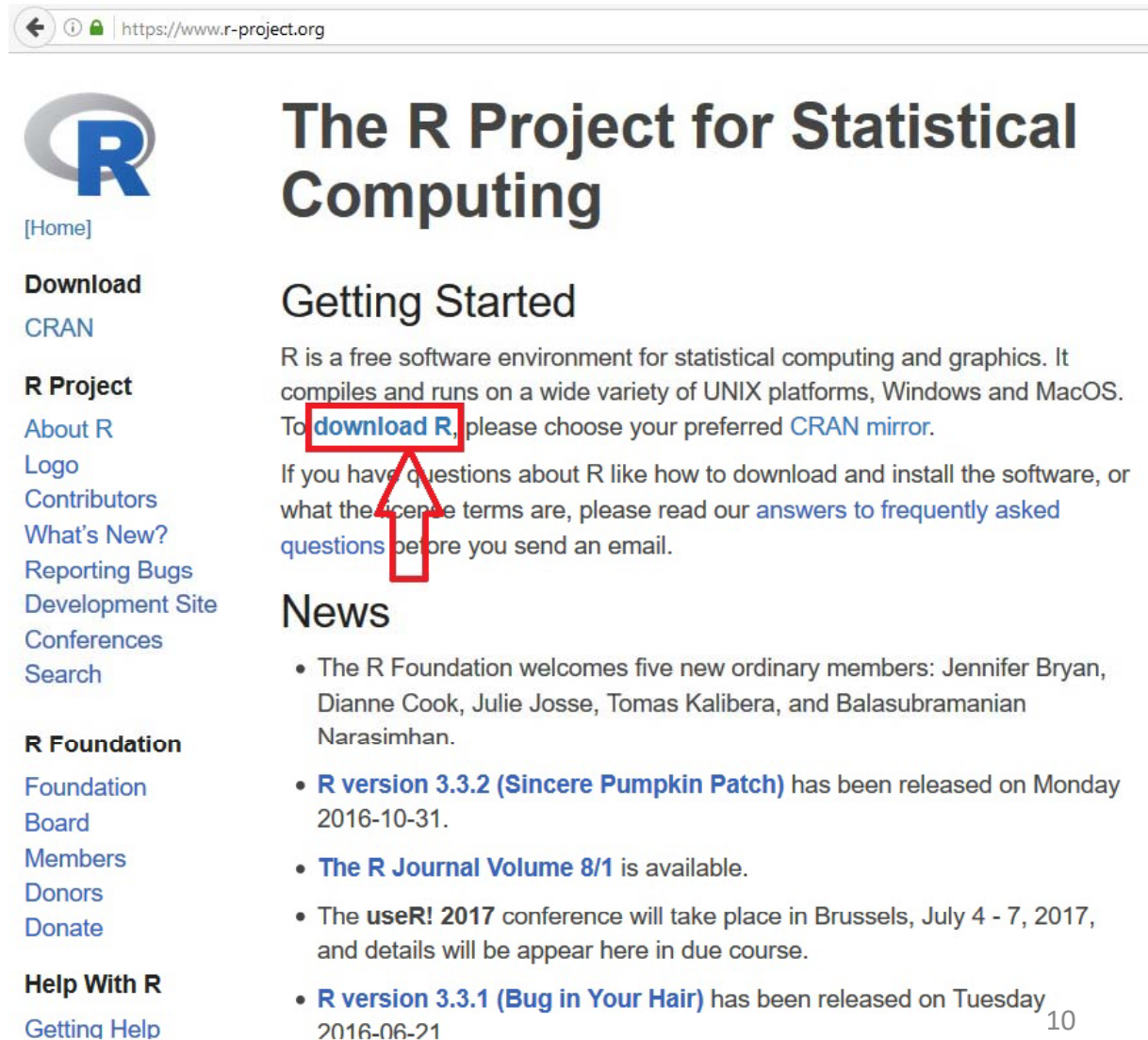
- ✓ Press the up-arrow key to recall commands and edit them.
- ✓ Use the Esc (Escape) key to cancel a command.

- Graphics can be directly saved in a Postscript or PDF format.

Installing R


You may install R in a windows or Apple computer by downloading from <https://www.r-project.org>

Click on [download R](#)



The screenshot shows the homepage of The R Project for Statistical Computing. The browser address bar at the top displays 'https://www.r-project.org'. On the left side, there is a navigation menu with links: [Home], Download, CRAN, R Project, About R, Logo, Contributors, What's New?, Reporting Bugs, Development Site, Conferences, Search, R Foundation, Foundation Board, Members, Donors, Donate, Help With R, and Getting Help. The main content area features the title 'The R Project for Statistical Computing' and a section 'Getting Started'. The 'Getting Started' text states: 'R is a free software environment for statistical computing and graphics. It compiles and runs on a wide variety of UNIX platforms, Windows and MacOS. To [download R](#), please choose your preferred [CRAN mirror](#).' The link 'download R' is highlighted with a red rectangle, and a red arrow points to it from below. Below this text, it says: 'If you have questions about R like how to download and install the software, or what the license terms are, please read our [answers to frequently asked questions](#) before you send an email.' Further down is a 'News' section with a list of updates: 'The R Foundation welcomes five new ordinary members: Jennifer Bryan, Dianne Cook, Julie Josse, Tomas Kalibera, and Balasubramanian Narasimhan.', 'R version 3.3.2 (Sincere Pumpkin Patch) has been released on Monday 2016-10-31.', 'The R Journal Volume 8/1 is available.', 'The useR! 2017 conference will take place in Brussels, July 4 - 7, 2017, and details will be appear here in due course.', and 'R version 3.3.1 (Bug in Your Hair) has been released on Tuesday 2016-06-21'.

https://www.r-project.org



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The R Project for Statistical Computing

Getting Started

R is a free software environment for statistical computing and graphics. It compiles and runs on a wide variety of UNIX platforms, Windows and MacOS. To [download R](#), please choose your preferred [CRAN mirror](#).

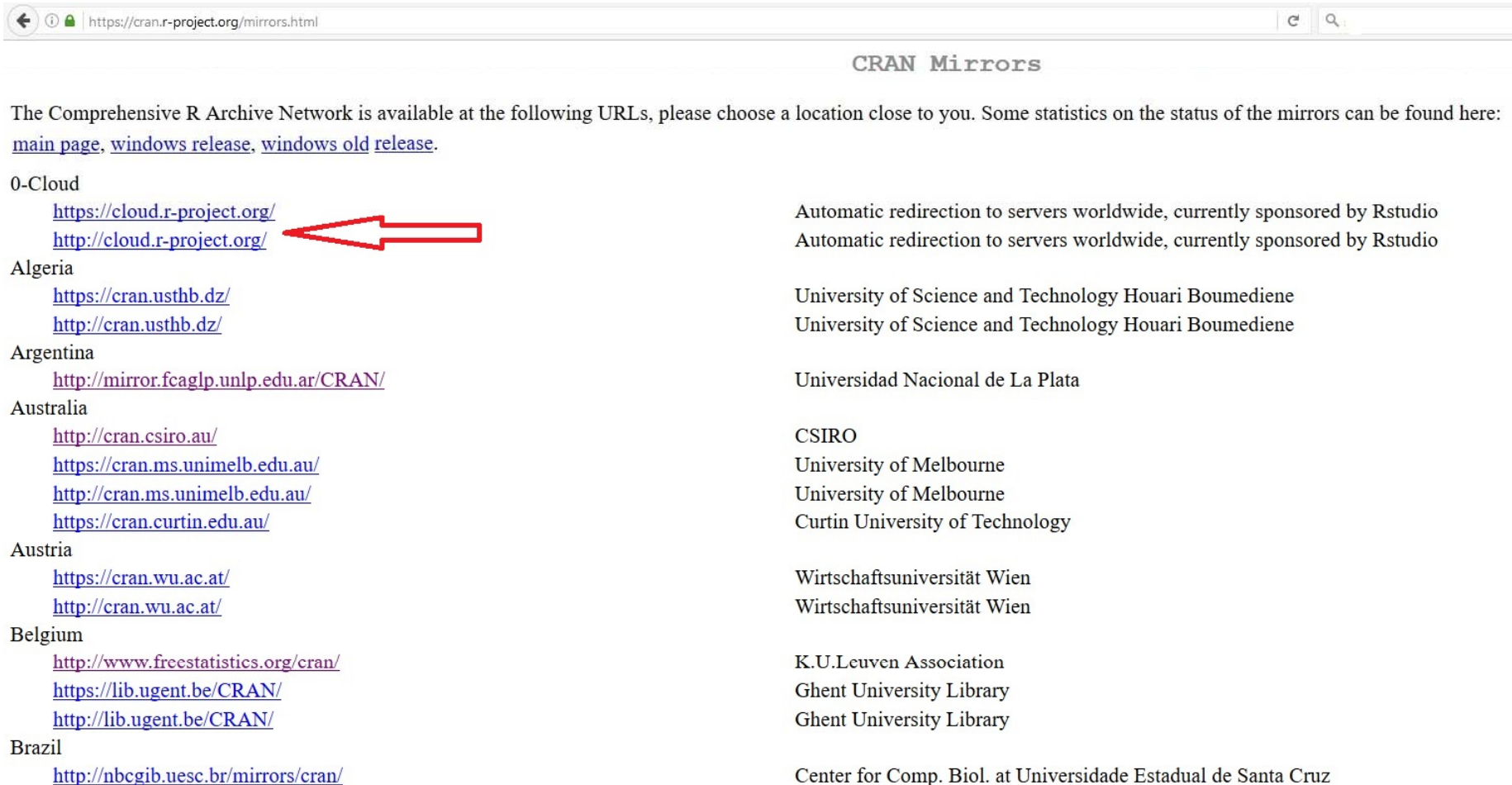
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News

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Installing R

Choose any mirror and click on the link



The screenshot shows the CRAN Mirrors website in a web browser. The address bar displays <https://cran.r-project.org/mirrors.html>. The page title is "CRAN Mirrors". The main text states: "The Comprehensive R Archive Network is available at the following URLs, please choose a location close to you. Some statistics on the status of the mirrors can be found here: [main page](#), [windows release](#), [windows old release](#)." Below this, mirrors are listed by country. A red arrow points to the first mirror under "0-Cloud": <https://cloud.r-project.org/>. The mirrors are organized into two columns.

Country	Mirror URL	Host
0-Cloud	https://cloud.r-project.org/	Automatic redirection to servers worldwide, currently sponsored by Rstudio
Algeria	https://cran.usthb.dz/	University of Science and Technology Houari Boumediene
Argentina	http://mirror.fcaglp.unlp.edu.ar/CRAN/	Universidad Nacional de La Plata
Australia	http://cran.csiro.au/	CSIRO
	https://cran.ms.unimelb.edu.au/	University of Melbourne
	http://cran.ms.unimelb.edu.au/	University of Melbourne
	https://cran.curtin.edu.au/	Curtin University of Technology
Austria	https://cran.wu.ac.at/	Wirtschaftsuniversität Wien
	http://cran.wu.ac.at/	Wirtschaftsuniversität Wien
Belgium	http://www.freeststatistics.org/cran/	K.U.Leuven Association
	https://lib.ugent.be/CRAN/	Ghent University Library
	http://lib.ugent.be/CRAN/	Ghent University Library
Brazil	http://nbcgib.uesc.br/mirrors/cran/	Center for Comp. Biol. at Universidade Estadual de Santa Cruz

Installing R

Else, download it from the Comprehensive R Archive Network (CRAN) website: <http://cran.r-project.org/>

CRAN

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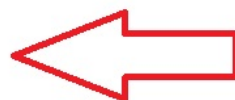
[Contributed](#)

The Comprehensive R Archive Network

Download and Install R

Precompiled binary distributions of the base system and contributed packages, **Windows and Mac** users most likely want one of these versions of R:

- [Download R for Linux](#)
- [Download R for \(Mac\) OS X](#)
- [Download R for Windows](#)



R is part of many Linux distributions, you should check with your Linux package management system in addition to the link above.

Source Code for all Platforms

Windows and Mac users most likely want to download the precompiled binaries listed in the upper box, not the source code. The sources have to be compiled before you can use them. If you do not know what this means, you probably do not want to do it!

- The latest release (Monday 2016-10-31, Sincere Pumpkin Patch) [R-3.3.2.tar.gz](#), read [what's new](#) in the latest version.
- Sources of [R alpha and beta releases](#) (daily snapshots, created only in time periods before a planned release).
- Daily snapshots of current patched and development versions are [available here](#). Please read about [new features and bug fixes](#) before filing corresponding feature requests or bug reports.
- Source code of older versions of R is [available here](#).
- Contributed extension [packages](#)

Installing R Studio

Rstudio is a software which helps in running the R software.

Several such editors are available, e.g. Tinn R

(<https://sourceforge.net/projects/tinn-r>)

Rstudio is written in C++ programming language.

Rstudio is a free and open-source integrated development environment (IDE) for R.

Download R-Studio software from website

<https://www.rstudio.com/>

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R Packages

Our developers create popular packages to expand the features of R. Includes ggplot2, dplyr, R Markdown & more.

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Download and double click on the downloaded file.