R 的简介与安装

卜京

南京大学

9/25/2018

学习目标

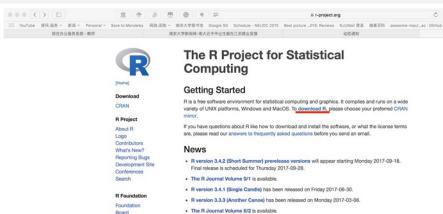
- 完成 R. RStudio、Ctex 和 Pandoc 的安装
- 因为 R 本身是开源软件,其核心团队规模和资源都有限,不可能把各种衍生功能都 包含在 R 软件中。装了上述软件后,无论是分析数据、画图,还是完成精美的报告 和展示文档你都感受到它们的强大魅力!

安装 R

- 各位小伙伴们按照自己的操作系统分别点击下面的链接就可以进入 R 软件的下载页面了。现在最新的版本是 R-3.5.1
- R for Windows: windows
- https://cran.rproject.org/bin/windows/base/
- R for Mac: Mac
- https://cran.r-project.org/bin/macosx/

安装 R

- 当然也可以从 R 软件的官方主页首页进入。官方主页上有很多关于 R 软件的信息和资料,有兴趣的同学可以学习参考!请别问我为什么没有中文网页?进入计量软件和程序员的世界里你就会发现,几乎所有的最新信息和应用开发都是来自于英文世界。当然,现在随着 R 及相关应用的广泛传播,中文资源也开始多了起来,但还是无法跟英文资源相提并论。
- 有的时候,R 会让你选择一个镜像 (Mirror)。镜像是跟主站是一个相对的概念。本质上相当于互联网上的分公司或品牌连锁店,这样可让你在本地就能享受到跟主站完全相同的"美食"或"服务",而不必要出远门。尤其是对国外访问动不动就莫名其妙失灵,的中国用户来说,本地镜像的重要性就更加不言而喻了。



Donate Help With R

Members

Donors

Getting Help

Documentation

Manuals FAOs. The R Journal Books

useRt 2017 (July 4 - 7 in Brussels) has opened registration and more at http://user2017.brussels/

- · Tomas Kalibera has joined the R core team.
- . The R Foundation welcomes five new ordinary members: Jennifer Bryan, Dianne Cook, Julie Josse, Tomas Kalibera, and Balasubramanian Narasimhan.

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- . The R Journal Volume 8/1 is available.
- The useR! 2017 conference will take place in Brussels, July 4 7, 2017.
- R version 3.2.5 (Very, Very Secure Dishes) has been released on 2016-04-14. This is a rebadging of the quick-fix release 3.2.4-revised.
- . Notice XQuartz users (Mac OS X) A security issue has been detected with the Sparkle update





CRAN Mirrors

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: multi
If you want to host a new mirror at your institution, please have a look at the CRAN Mirror HOWTO.

0-Clond

https://cloud.r-project.org/ http://cloud.r-project.org/

Algeria

https://cran.usthb.dz/ http://cran.usthb.dz/

Argentina

http://mirror.fcaelp.unlp.edu.ar/CRAN/

Australia

https://cran.csiro.au/

http://cran.esiro.au/

https://mirror.aarnet.edu.au/pub/CRAN/

https://cran.ms.unimelb.edu.au/ https://cran.curtin.edu.au/

Austria

https://cran.wu.ac.at/ http://cran.wu.ac.at/

Beleium

http://www.freestatistics.org/cran/

https://lib.ugent.be/CRAN/ http://lib.ugent.be/CRAN/

Brazil

http://nbcgib.uesc.br/mirrors/cran/ https://cran-r.c3sl.ufpr.br/

http://eramar.e&sl.utfor.be/ 卜京 (南京大学) Automatic redirection to servers worldwide, currently sponsored by Rstudio Automatic redirection to servers worldwide, currently sponsored by Rstudio

University of Science and Technology Houari Boumediene University of Science and Technology Houari Boumediene

Universidad Nacional de La Plata

CSIRO CSIRO AARNET

School of Mathematics and Statistics, University of Melbourne

Curtin University of Technology

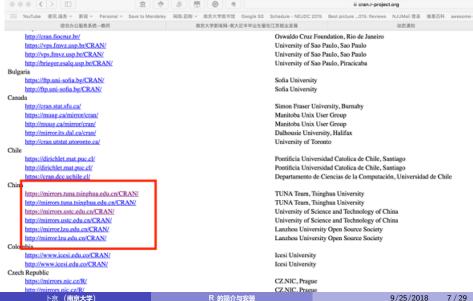
Wirtschaftsuniversität Wien Wirtschaftsuniversität Wien

K.U.Leuven Association Ghent University Library Ghent University Library

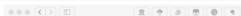
Center for Comp. Biol. at Universidade Estadual de Santa Cruz Universidade Federal do Parana

Universidade Federal do Parana

安装 R



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CRAN Mirrors What's new? Task Views Search

About R R Homepage The R Journal

Software R Sources R Binaries Packages Other

Documentation Manuals FAOs Contributed

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Download and Install R

Precompiled binary distributions of the base system and contributed packages. Windows and Mac users most

- · 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 add Source Code for all Platforms

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

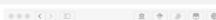
- The latest release (Friday 2017-06-30, Single Candle) R-3.4.1.tar.gz, read what's new in the latest versi
- · Sources of R alpha and beta releases (daily snapshots, created only in time periods before a planned rel
- Daily snapshots of current patched and development versions are available here. Please read about new corresponding feature requests or bug reports.
- · Source code of older versions of R is available here.
- Contributed extension packages

Ouestions About R

 If you have questions about R like how to download and install the software, or what the license terms asked questions before you send an email.

What are R and CRAN?

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综合の公服各系统一数师

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We you Tube 使民居务 Y 新闻 Y Personal Y Save to Mendeley 開放。用版 Y 表示大学图号馆 Google SG Schedule - NEUDC 2015 Best picture _015: Reviews NJUMail 音录 器基百科 avesome-

协会调制 R for Windows



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Software R Sources R Binaries Packages Other

Documentation Manuals **EAQs** Contributed

Subdirectories:

contrib

old contrib

Rtools

Binaries of contributed CRAN packages (for R >= 2.11 x; managed by Uwe Ligges). There is a available for CRAN Windows services and corresponding environment and make variables. Binaries of contributed CRAN packages for outdated versions of R (for R < 2.11.x; managed by Tools to build R and R packages (managed by Duncan Murdoch). This is what you want to buil R itself.

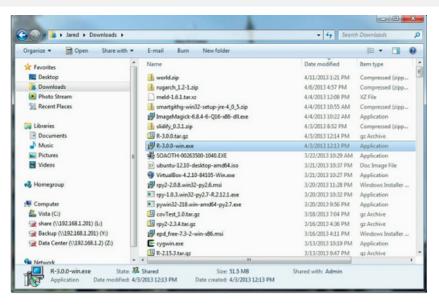
Binaries for base distribution (managed by Duncan Murdoch). This is what you want to install

Please do not submit binaries to CRAN. Package developers might want to contact Duncan Murdoch or Uwe Ligges directly in c You may also want to read the R FAQ and R for Windows FAQ.

Note: CRAN does some checks on these binaries for viruses, but cannot give guarantees. Use the normal precautions with downle

南京大学新闻园-南大近星综合年届在江苏默合发展

安装R



安装 R





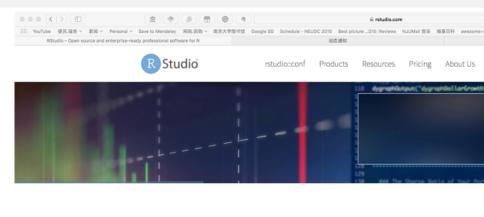
Welcome to the R for Windows 3.0.0 Setup Wizard

This will install R for Windows 3.0.0 on your computer.

It is recommended that you close all other applications before continuing.

Click Next to continue, or Cancel to exit Setup.

- R 本身随便也带了一个编辑器,叫 R-Script,但不是很好用。R 软件本身功能很强大,但很多配套功能都比较差。比如很多命令执行之后,不能立即展示结果,要看到这些结果,还需要再执行一些特殊命令,实在是比较繁琐。所以 RStudio 这样的 IDE(Integrated Development Environment) 就自然而然的有了需求。IDE 可以简单理解成一个基于 R 基础上的开发的一个能使 R 更易用、具有更多功能的软件。RStudio 目前是目前公认最好的,也是应用最广泛的关于 R 的 IDE。R 本身是不需要付费的,但 RStudio 的企业版是必须要付费才能使用。好在我们只用免费的个人版就行了。
- 可以直接访问 RStudio 公司主页来下载: RStudio









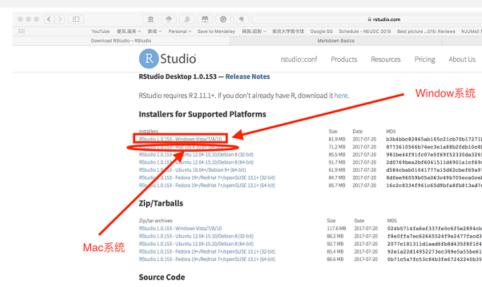
RStudio is a set of integrated tools designed to help you be more productive with R console, syntax-highlighting editor that supports direct code execution, and a varie tools for plotting, viewing history, debugging and managing your workspace. Learn RStudio features.



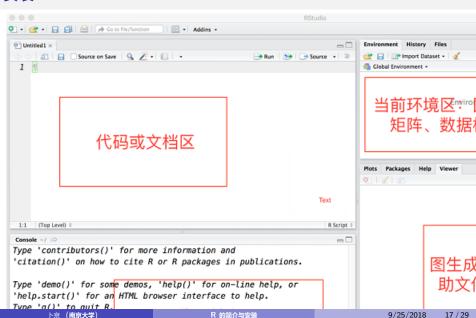
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Integrated

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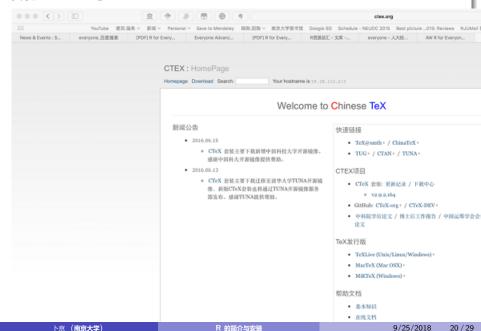
A tarball containing source code for RStudio v1.0.153 can be downloaded from here

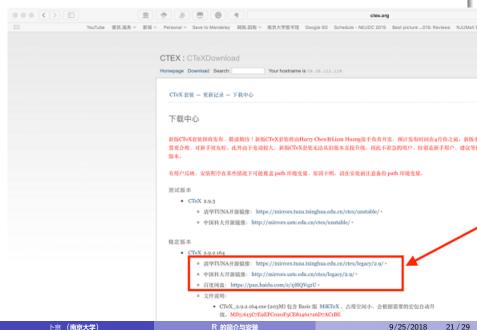


安装 Latex 相关软件

- Latex 是一种文字编辑处理排版的软件。简单理解是相当于另一种 office 软件 (集合了 Word 和 Powerpoint 的功能)。与 Word 的简单区别在于 Latex 不是 "所见即所得"式的软件,即我们不能随意的在窗口里调整整个文档的格式,而是要通过各种函数、命令或者程序包的设定来确定文字版面的格式。
- Latex 的好处在于美观,这种美观性来自于格式的规范和准确。尤其是当在文中包含大量公式和图表等内容时,不会出现错位和乱码等问题。这方面使用过 Word 输入过公式和图表的同学都感受过"不能对齐"的痛苦。
- 想要使用 Latex 必须要学习 Latex "语法"。这其实是一整套的文字编辑的语言,如果想要全部掌握,也没有那么容易。正如虽然几乎每天我们都使用 word,但 word 里的大部分功能我们都很少使用一样。学习 Latex 也可以先从最简单的方式 开始,很多复杂的功能等到以后碰到问题需要时再学习应用。在本课程的内容中,大家只需要安装好即可。

- MikTex 是 Windows 下最好用的 Tex 系统。
- MikTex 安装也比较容易,访问 MikTex 官方主页,找到相应的下载安装包,安装即可。
- CTex 是一个基于中文系统的 Latex 安装包,里边包含了 Windows 系统下最好用的 TeX 系统——MikTeX。
- CTex 安装也比较容易, 访问 CTex 主页: CTeX
- http://www.ctex.org/HomePage
- 找到相应的安装下载包,安装即可。推荐安装 Full version







安装 Mactex(for Mac Users)

- Mac OS 系统下 TeX 系统要安装 MacTeX (文件很大, 没办法)。
- 安装也比较容易, 访问 MacTex 主页: MacTex
- https://www.tug.org/mactex/
- 找到相应的安装下载包,推荐 Full version, 硬盘空间小的同学也可以装 Smaller version

- Pandoc 是一种文本转换工具,可以把各种格式的文本文件转换成我们需要的格式, 我们这里使用它主要是为了把以 Markdown 写成的文档转换成 PDF、Html 等 大家喜闻乐见的形式(其实也可以设定转换成大家最熟悉的 Word)
- Pandoc 项目的主页: Pandoc
- https://pandoc.org/
- 进入 "installing", 分别选择 Windows 或 Mac OS X 系统下载



TWG | MacTeX | Donate | FAQ | Fonts | Help | References | Support | Acknowledgments | TUG

The Full MacTeX

The full MacTeX-2017 install package contains three pieces

根据自己硬盘大小分别安装

TeX Live 2017: the full distribution with over 2 gigabytes of material.

GUI Applications: front ends, utilities, and a small amount of startup documentation,

Ghostscript 9.21

A Smaller Distribution, Basic TeX

TUG recommends the full MacTeX, even for beginners. It contains all files most users ever need. Beginners using it don't face the daunting task of searching for missing components and figuring out how to install them in the TeX distribution.

BasicTeX is a much smaller alternate TeX Distribution for users who do not want to download the full TeX Live, or have unreliable internet connections. BasicTeX is a subset o TeX Live of size 110 megabytes instead of 2 gigabytes. BasicTeX does not overwrite the full distribution; it is installed in /usr/local/texlive/2017basic.

BasicTeX only contains the TeX Live piece of the full distribution; it does not contain GUI programs or Ghostscript. To use TeX on the Mac, it suffices to install BasicTeX and a front end. To make life easier for users who want to use BasicTeX instead of the full TeX Live, we include links below to various pieces of MacTeX that can be added as needed

BasicTeX was designed for easy download by users with limited download speed. The package is remarkably capable. It contains all of the standard tools needed to write TeX documents, including TeX, LaTeX, pdfTeX, MetaFont, dvips, MetaPost, and XeTeX. It contains AMSTeX, the Latin Modern Fonts, the TeX Live Manager to add and update packages from TeX Live, and the new SyncTeX.

BasicTeX.pkg

[approximately 72M - 07 June 2017] The md5 sum is d2409c2e5ad1211cbfb0461b1f5a91c7

BasicTeX.pdf (about the BasicTeX distribution)

BasicTeX is also available via the torrent network.



Pandoc a universal document converter

About
Installing
Getting started
Demos

Documentation

Help
Extras
Releases

About pandoc

If you need to convert files from one markup format into another, pandoc is your swiss-an Pandoc can convert documents in markdown, reStructuredText, textile, HTML, DocBook, MediaWiki markup, TWiki markup, OPML, Emacs Org-Mode, Txt2Tags, Microsoft Word LibreOffice ODT, EPUB, or Haddock markup to

- HTML formats: XHTML, HTML5, and HTML slide shows using Slidy, reveal.js, Slide DZSlides.
- Word processor formats: Microsoft Word docx, OpenOffice/LibreOffice ODT, OpenD XML
- Ebooks: EPUB version 2 or 3, FictionBook2
- Documentation formats: DocBook, TEI Simple, GNU TexInfo, Groff man pages, Hade markup
- Page layout formats: InDesign ICML
- · Outline formats: OPML
- · TeX formats: LaTeX, ConTeXt, LaTeX Beamer slides
- PDF via LaTeX
- Lightweight markup formats: Markdown (including CommonMark), reStructuredTes MediaWiki markup, DokuWiki markup, Emacs Org-Mode, Textile
- Custom formats: custom writers can be written in lua.

Pandoc understands a number of useful markdown syntax extensions, including documen (title, author, date); footnotes; tables; definition lists; superscript and subscript; strikeout



Mac OS X Linux

BSD

Compiling from source

Getting the pandoc source code Quick stack method

Quick stack method

Custom cabal method

Creating a relocatable binary 卜京 (南京大学)

Installing pandoc

C:\Utils\Console\:

R 的简介与安装

Windows

- There is a package installer at pandoc's download page.
- · For PDF output, you'll also need to install LaTeX. We recommend MiKTeX.
- If you'd prefer, you can extract the pandoc and pandoc-citeproc executables from the copy them directly to any directory, without running the installer. Here is an example how to extract the executables from the pandoc-1.19.1 installer and copy them to

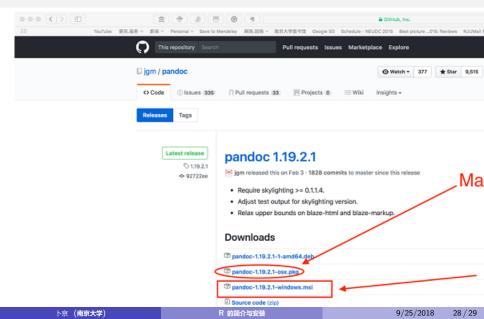
等 III pandoc.org

```
mkdir "%TEMP%\pandoc\"
start /wsit msiexec.exe /a pandoc-1.19.1-windows.msi /qn targetdir="%TEMP%\pandoc\"
copy /y "%TEMP%\pandoc\pandoc.exe" C:\Utils\Console\
copy /y "%TEMP%\pandoc\pandoc\"
ridir /s /g "%TEMP%\pandoc\"
```

Mac OS X

- There is a package installer at pandoc's download page. If you later want to uninstall
 you can do so by downloading this script and running it with perl uninstall-pand
- It is possible to extract the pandoc and pandoc-citeproc executables from the osx pkg rather not run the installer. To do this (for the version 1.19.1 package):

```
mkdir pandoc-extract
cd pandoc-extract
xar -x ../pandoc-1.19.1-osx.pkg
cat pandoc.pkg/Payload | gunzip -dc | cpio -i
# avenutables are now in viscrbin/ man names in /uscr/share/man
```



结束

- 至此,我们就暂时完成了 R 软件学习的所有软件安装工作。
- 关于这些软件的内容、功能和使用,网上有很多相关的介绍,很多都非常全面非常详 细,我们的课其实只是给大家开个头,后面的很多应用还等待大家去自我探索。