

Apresentação R

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Apresentação linguagem R

- O R é uma linguagem de programação de acesso livre, focada em computação estatística e dotada de uma poderosa interface gráfica;
- Foi desenvolvida por Ross Ihaka e Robert Gentleman na Universidade de Auckland, Nova Zelândia;
- O projeto foi concebido em 1992, mas sua primeira versão estável chegou ao mercado apenas em 2000.

Bibliotecas

O R possui uma série de bibliotecas que facilitam a implementação de diversos de modelos estatísticos, como regressão, classificação, clusterização, análise de séries temporais, e muitos outros. Exemplos de pacotes:

- **dplyr**: focado em manipulação de dados;
- **foreign**: lê dados armazenados em SAS, SPSS, Stata e etc;
- **ggplot2**: focado na visualização de dados.

Fatos sobre o R

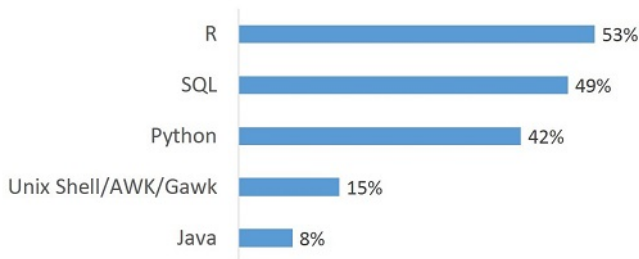
Em 2014

- Linguagem para ciência de dados mais usada depois do SQL;
- Usada por 70% dos mineradores de dados;
- Software nº 1 nas pesquisas do Google sobre "Advanced Analytics";
- Mais de 2 milhões de usuários no mundo;
- Maior crescimento dentre todas as linguagens de ciência de dados.

Representatividade do R

Dados de 2015

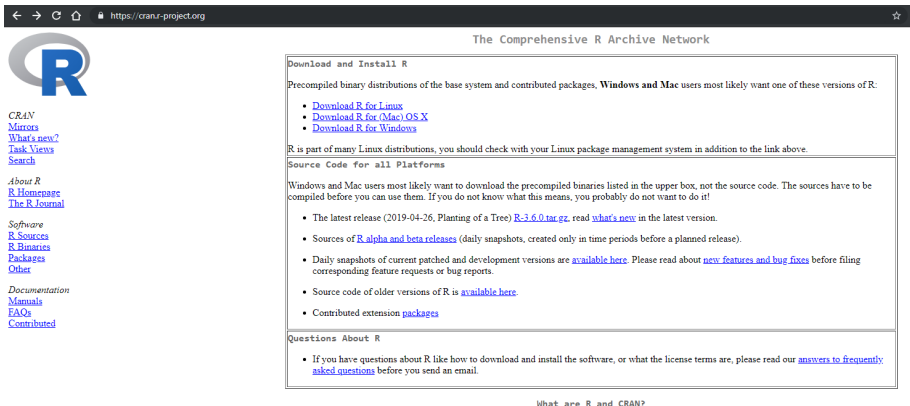
Top 5 of programming languages mostly used for data science's activities



<https://www.datasciencecentral.com/profiles/blogs/top-programming-languages-for-data-science-first-partial-survey>

Instalando o R

Para usar o R pela primeira vez precisamos realizar sua instalação, obviamente! Vamos entrar em <https://cran.r-project.org/>



The screenshot shows the CRAN (Comprehensive R Archive Network) website. The browser address bar displays <https://cran.r-project.org/>. The CRAN logo is on the left. The main heading is 'The Comprehensive R Archive Network'. Below it, the section 'Download and Install R' is highlighted. It states: 'Precompiled binary distributions of the base system and contributed packages, **Windows and Mac** users most likely want one of these versions of R:'. A list of links follows: [Download R for Linux](#), [Download R for \(Mac\) OS X](#), and [Download R for Windows](#). Below this, it says 'R is part of many Linux distributions, you should check with your Linux package management system in addition to the link above.' The next section is 'Source Code for all Platforms', which states: '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!'. A list of links follows: [The latest release \(2019-04-26, Planting of a Tree\) R-3.6.0.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](#), and [Contributed extension packages](#). The final section is 'Questions About R', which states: '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.' At the bottom, it says 'What are R and CRAN?'.

CRAN
Mirrors
[What's new?](#)
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About R
[R Homepage](#)
[The R Journal](#)

Software
[R Sources](#)
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Documentation
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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 (2019-04-26, Planting of a Tree) [R-3.6.0.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](#)

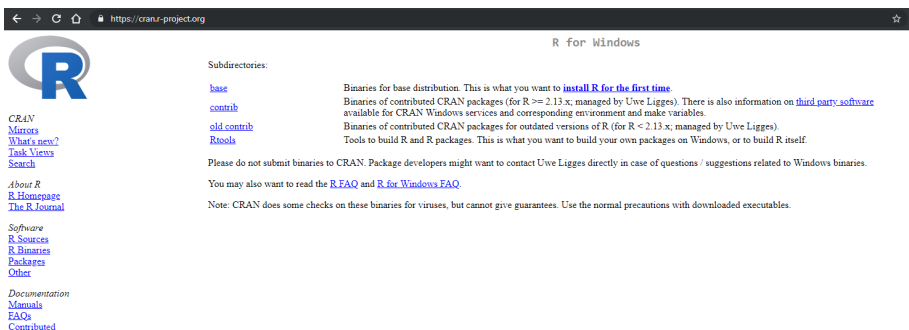
Questions About R

- 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.

What are R and CRAN?

Instalando o R

Depois de escolher o seu sistema operacional, basta clicar em **install R for the first time**



The screenshot shows the CRAN R for Windows website. The browser address bar displays 'https://cran.r-project.org'. The page title is 'R for Windows'. The main content area is titled 'Subdirectories:' and lists several links: 'base', 'contrib', 'old.contrib', and 'Rtools'. Each link is followed by a brief description of its contents. For example, 'base' is described as 'Binaries for base distribution. This is what you want to install R for the first time.' The page also includes a note about not submitting binaries to CRAN and a link to the 'R FAQ' and 'R for Windows FAQ'.

CRAN
[Mirrors](#)
[What's new?](#)
[Task Views](#)
[Search](#)

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R for Windows

Subdirectories:

[base](#) Binaries for base distribution. This is what you want to [install R for the first time](#).

[contrib](#) Binaries of contributed CRAN packages (for R \geq 2.13.x; managed by Uwe Ligges). There is also information on [third party software](#) available for CRAN Windows services and corresponding environment and make variables.

[old.contrib](#) Binaries of contributed CRAN packages for outdated versions of R (for R < 2.13.x; managed by Uwe Ligges).

[Rtools](#) Tools to build R and R packages. This is what you want to build your own packages on Windows, or to build R itself.

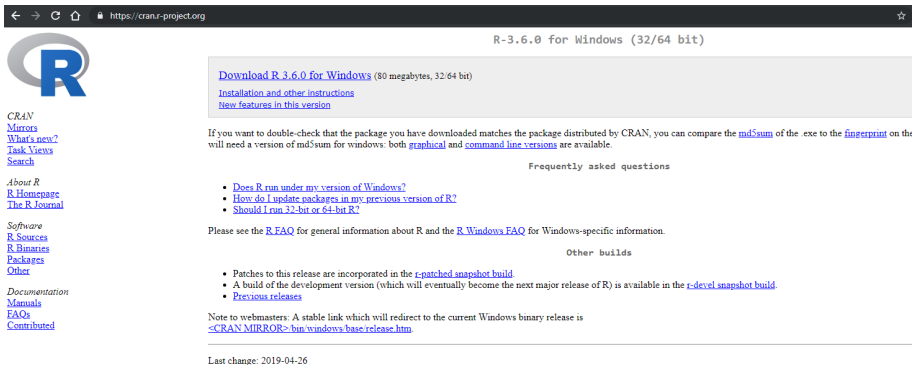
Please do not submit binaries to CRAN. Package developers might want to contact Uwe Ligges directly in case of questions / suggestions related to Windows binaries.

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 downloaded executables.

Instalando o R

Em seguida, clique no botão de download



The screenshot shows the CRAN website for R 3.6.0 for Windows (32/64 bit). The browser address bar shows <https://cran.r-project.org>. The page features the CRAN logo on the left and a navigation menu with links: [CRAN](#), [Mirrors](#), [What's new?](#), [Task Views](#), [Search](#), [About R](#), [R Homepage](#), [The R Journal](#), [Software](#), [R Sources](#), [R Binaries](#), [Packages](#), [Other](#), [Documentation](#), [Manuals](#), [FAQs](#), and [Contributed](#).

The main content area is titled "R-3.6.0 for Windows (32/64 bit)". It contains a link to [Download R 3.6.0 for Windows](#) (80 megabytes, 32/64 bit), followed by links for [Installation and other instructions](#) and [New features in this version](#).

Below this, a paragraph states: "If you want to double-check that the package you have downloaded matches the package distributed by CRAN, you can compare the [md5sum](#) of the .exe to the [fingerprint](#) on the will need a version of md5sum for windows: both [graphical](#) and [command line versions](#) are available."

A section titled "Frequently asked questions" lists three items:

- [Does R run under my version of Windows?](#)
- [How do I update packages in my previous version of R?](#)
- [Should I run 32-bit or 64-bit R?](#)

Below this, a paragraph says: "Please see the [R FAQ](#) for general information about R and the [R Windows FAQ](#) for Windows-specific information."

A section titled "Other builds" lists two items:

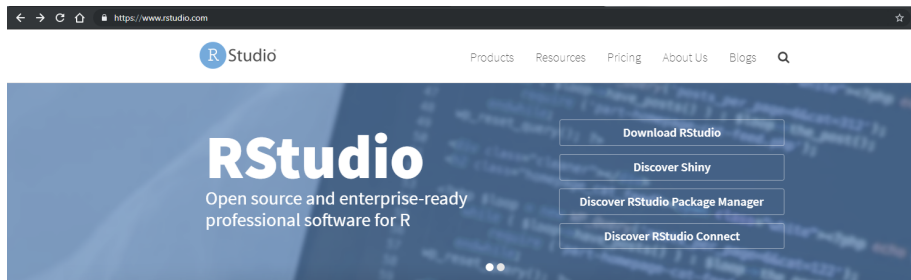
- Patches to this release are incorporated in the [r-patched snapshot build](#).
- A build of the development version (which will eventually become the next major release of R) is available in the [r-devel snapshot build](#).

A note to webmasters states: "A stable link which will redirect to the current Windows binary release is [<CRAN_MIRROR>-bin/windows/base/release.htm](#)".

At the bottom, it says "Last change: 2019-04-26".

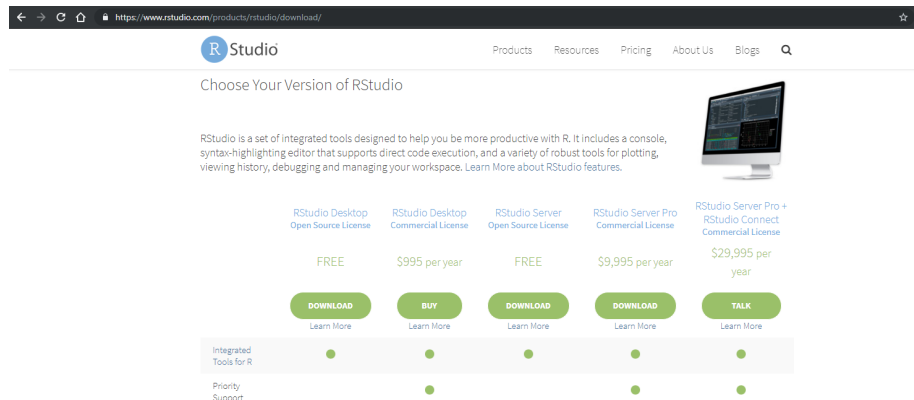
Instalando o RStudio

Vamos entrar em <https://www.rstudio.com/> e clicar em **Download RStudio**



Instalando o RStudio

Escolha a versão gratuita e seja feliz!



The screenshot shows the RStudio website's download page. At the top, there's a navigation bar with links for Products, Resources, Pricing, About Us, and Blogs. Below this, the heading "Choose Your Version of RStudio" is followed by a paragraph describing RStudio as a set of integrated tools for R. To the right is an image of a computer monitor displaying the RStudio interface. Below the text, there are five product options arranged in a row, each with a license type, price, a button (Download or Buy), and a "Learn More" link. At the bottom, a comparison table indicates which features are included in each version.

	RStudio Desktop Open Source License	RStudio Desktop Commercial License	RStudio Server Open Source License	RStudio Server Pro Commercial License	RStudio Server Pro + RStudio Connect Commercial License
Price	FREE	\$995 per year	FREE	\$9,995 per year	\$29,995 per year
Action	DOWNLOAD	BUY	DOWNLOAD	DOWNLOAD	TALK
Learn More	Learn More	Learn More	Learn More	Learn More	Learn More
Integrated Tools for R	●	●	●	●	●
Priority Support		●		●	●

Iniciando. . .

Agora que já sabemos o que é e como realizar sua instalação, vamos começar a aprender os comandos básicos do R!