

Explorando el Transcriptoma con Datos de Expresión Genética

Introducción a R & RStudio

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¿Qué es R?

- R es un lenguaje de programación para el análisis estadístico
- La interacción con R es a través de una línea de comandos
- R es software libre



Ventajas de R

- R es gratis
- Existe una gran comunidad trabajando para mejorarlo constantemente
- Disponible para Windows, OS, Linux/Unix
- R es actualizado frecuentemente
- R es sumamente potente y versátil, gracias a la gran disponibilidad de *packages*
- R es un estándar en el análisis de datos genómicos
- Utiliza línea de comandos en lugar de un interfaz gráfico



Desventajas de R

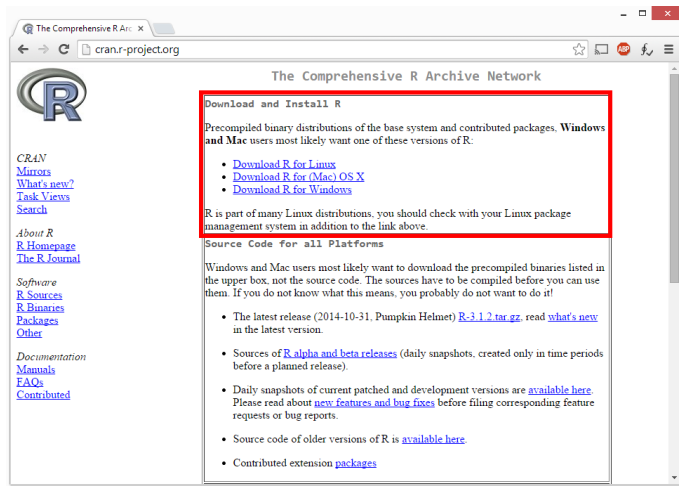
- La documentación es amplia, pero a veces puede resultar confusa
- R no da muchas pistas acerca de qué puede estar fallando
- Algunos `packages` han sido ampliamente probados, otros no tanto
- Utiliza línea de comandos en lugar de un interfaz gráfico



Instalando R

- Descarga & instala R

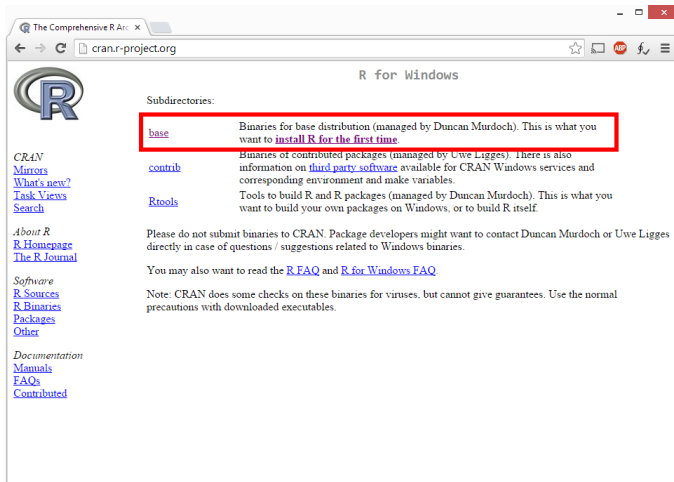
<http://cran.r-project.org/>



Instalando R

- Descarga & instala R

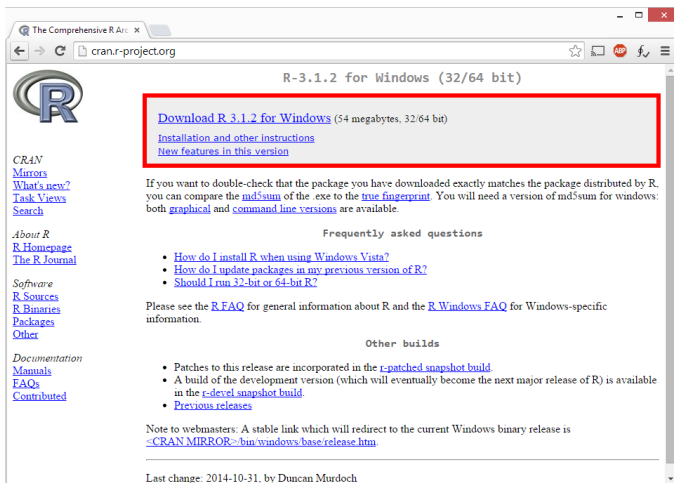
<http://cran.r-project.org/>



Instalando R

- Descarga & instala R

<http://cran.r-project.org/>



The screenshot shows a web browser window with the address bar displaying "cran.r-project.org". The page title is "R-3.1.2 for Windows (32/64 bit)". The main content area features a red-bordered box containing the following links:

- [Download R 3.1.2 for Windows](#) (54 megabytes, 32/64 bit)
- [Installation and other instructions](#)
- [New features in this version](#)

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

The "Frequently asked questions" section includes:

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

A note states: "Please see the [R FAQ](#) for general information about R and the [R Windows FAQ](#) for Windows-specific information."

The "Other builds" section includes:

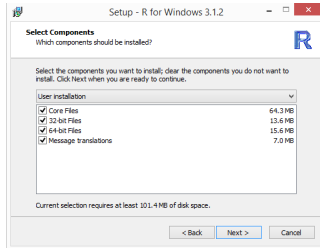
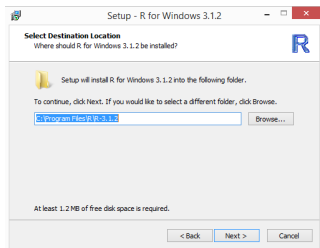
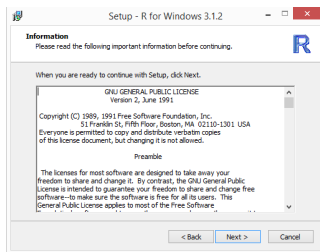
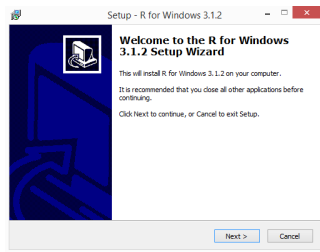
- Patches to this release are incorporated in the [r-patched snapshot build](#).
- A build of the development version (which will eventually become the next major release of R) is available in the [r-devel snapshot build](#).
- [Previous releases](#)

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

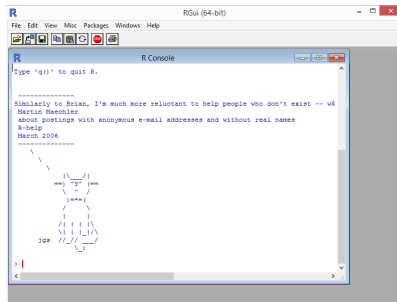
At the bottom, it says: "Last change: 2014-10-31, by Duncan Murdoch"

The left sidebar contains navigation links under various categories: CRAN (Mirrors, What's new?, Task Views, Search), About R (R Homepage, The R Journal), Software (R Sources, R Binaries, Packages, Other), and Documentation (Manuals, FAQs, Contributed).

Instalando R



- La interface de R puede ser difícil de usar



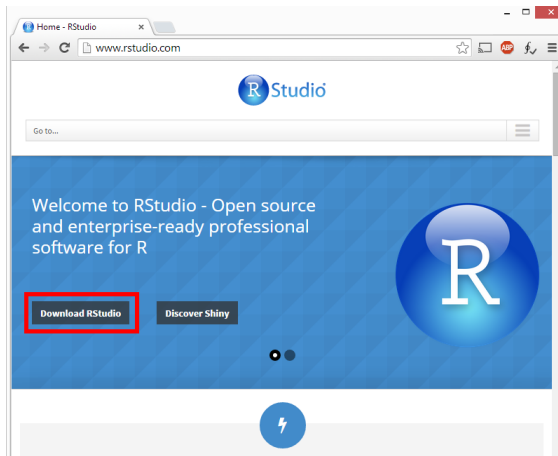
- Vamos a usar RStudio como la interface para R
<http://www.rstudio.com/>



Instalando RStudio

- Descarga & instala RStudio

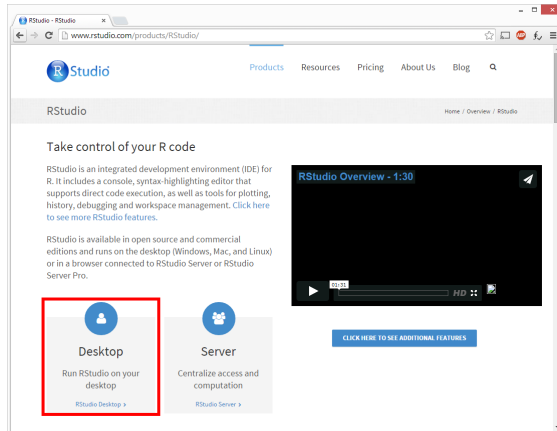
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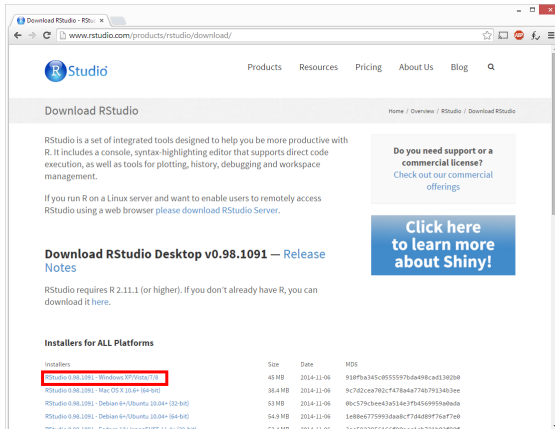
The screenshot shows the RStudio website with a comparison table between the Open Source Edition and the Commercial License. The 'Open Source Edition' column lists features like local access, syntax highlighting, and integrated help. The 'Commercial License' column lists features like priority support and 8-hour response time. The 'Download RStudio Desktop' button is highlighted with a red rectangle.

	Open Source Edition	Commercial License
Overview	<ul style="list-style-type: none">• Access RStudio locally• Syntax highlighting, code completion, and smart indentation• Execute R code directly from the source editor• Quickly jump to function definitions• Easily manage multiple working directories using projects• Integrated R help and documentation• Interactive debugger to diagnose and fix errors quickly• Extensive package development tools	<p>All of the features of open source; plus:</p> <ul style="list-style-type: none">• A commercial license for organizations not able to use AGPL software• Access to priority support
Support	Community forums only	<ul style="list-style-type: none">• Priority Email Support• 8 hour response during business hours (ET)
License	AGPL v3	RStudio License Agreement
Pricing	Free	\$995/year
	DOWNLOAD RSTUDIO DESKTOP	BUY NOW

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



The screenshot shows the RStudio website's download page. The browser address bar shows www.rstudio.com/products/rstudio/download/. The page has a navigation bar with links for Products, Resources, Pricing, About Us, and Blog. The main heading is "Download RStudio". Below this, there is a paragraph describing RStudio as a set of integrated tools. To the right, there is a box asking "Do you need support or a commercial license?" with a link to "Check out our commercial offerings". Below the description, there is a link to "Download RStudio Desktop v0.98.1091 — Release Notes". Another paragraph mentions that RStudio requires R 2.11.1 or higher. At the bottom, there is a table titled "Installers for ALL Platforms". The first row of the table, "RStudio 0.98.1091 - Windows RP/VSx64", is highlighted with a red box.

Download RStudio

RStudio is a set of integrated tools designed to help you be more productive with R. It includes a console, syntax-highlighting editor that supports direct code execution, as well as tools for plotting, history, debugging and workspace management.

If you run R on a Linux server and want to enable users to remotely access RStudio using a web browser [please download RStudio Server](#).

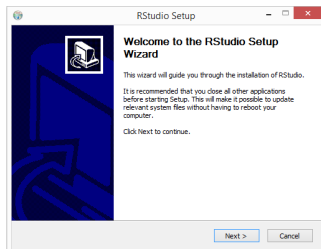
Download RStudio Desktop v0.98.1091 — Release Notes

RStudio requires R 2.11.1 (or higher). If you don't already have R, you can [download it here](#).

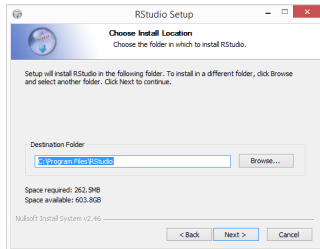
Installers for ALL Platforms

Installers	Size	Date	MD5
RStudio 0.98.1091 - Windows RP/VSx64	45 MB	2014-11-06	918fba345c855597bda498cad1302b0
RStudio 0.98.1091 - Mac OS X 10.6+ (64-bit)	38.4 MB	2014-11-06	9c7d2ce9702c7478a4a774b7913403ee
RStudio 0.98.1091 - Debian 6+/Ubuntu 10.04+ (32-bit)	53 MB	2014-11-06	0bc579cbee43a514e37b4569959a0eda
RStudio 0.98.1091 - Debian 6+/Ubuntu 10.04+ (64-bit)	54.9 MB	2014-11-06	1e88e6775993da8c77d4d89f76af7e0
RStudio 0.98.1091 - Fedora 13+/openSUSE 11.4+ (32-bit)	53.4 MB	2014-11-06	3ae5a23856166f9b9cc1c731b87f9af

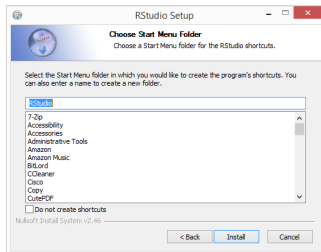
Instalando RStudio



1



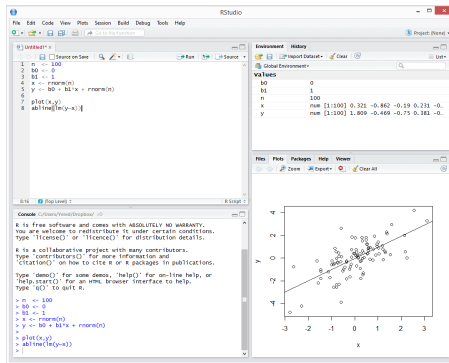
2



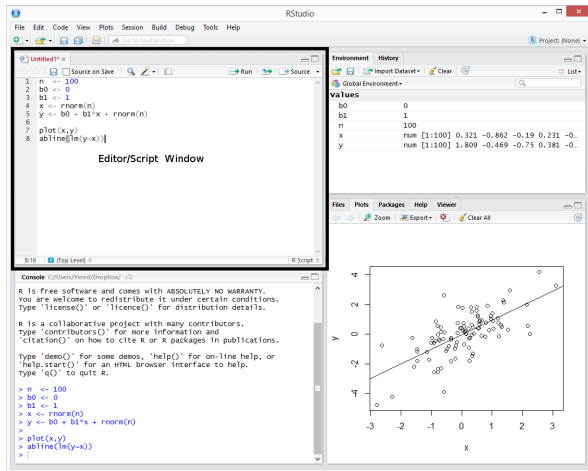
3

- RStudio tiene 4 paneles principales

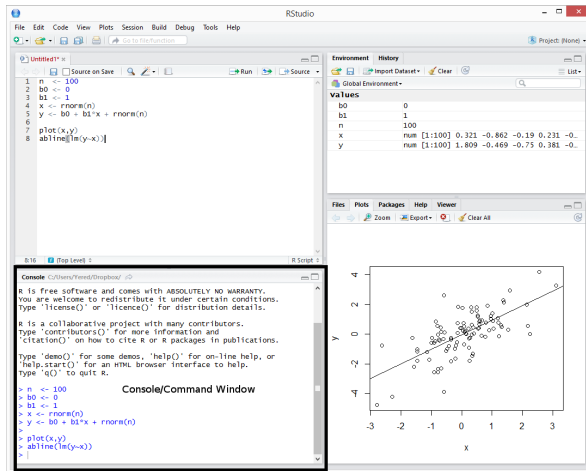
- 1 editor panel (script panel)
- 2 console panel (command panel)
- 3 workspace/history panel
- 4 files/plots/packages/help panel



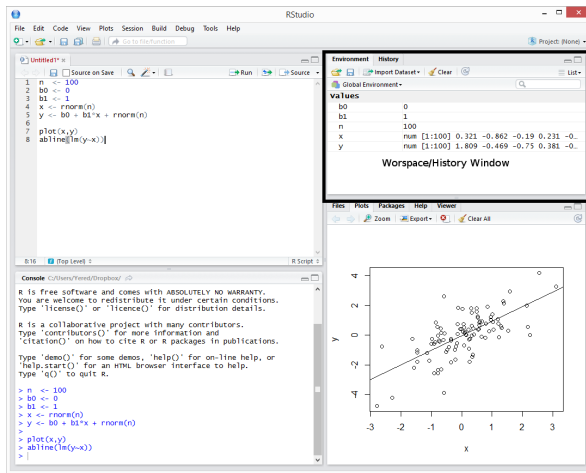
- **editor panel (script panel):** para editar y guardar conjuntos de comandos (scripts)



- **console panel:** el panel más importante de R, aquí se ejecutan los comandos



- **workspace/history panel:** el panel **workspace** tiene que datos y objetos R contiene en la memoria, el panel **history** tiene los comandos que han sido ejecutados anteriormente



- **files/plots/packages/help panel:** aquí puedes abrir archivos, ver gráficos, instalar y cargar `packages` o usar la función de ayuda

