

# Getting Started With Python

Data Science Study Group

The Boston Python Users

<https://www.meetup.com/bostonpython/>

<https://about.bostonpython.com/slack>

Nov. 17, 2021

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# **Getting Started With Python**

**Boston Python Meetup**

**Data Science Study Group**

- 1. What is Data Science?**
- 2. Data Science Resources**
- 3. Python Resources**
- 4. Where to Find Python**
- 5. Why use Anaconda**
- 6. Installing Anaconda**
- 7. Getting Started w/ Anaconda-Navigator**

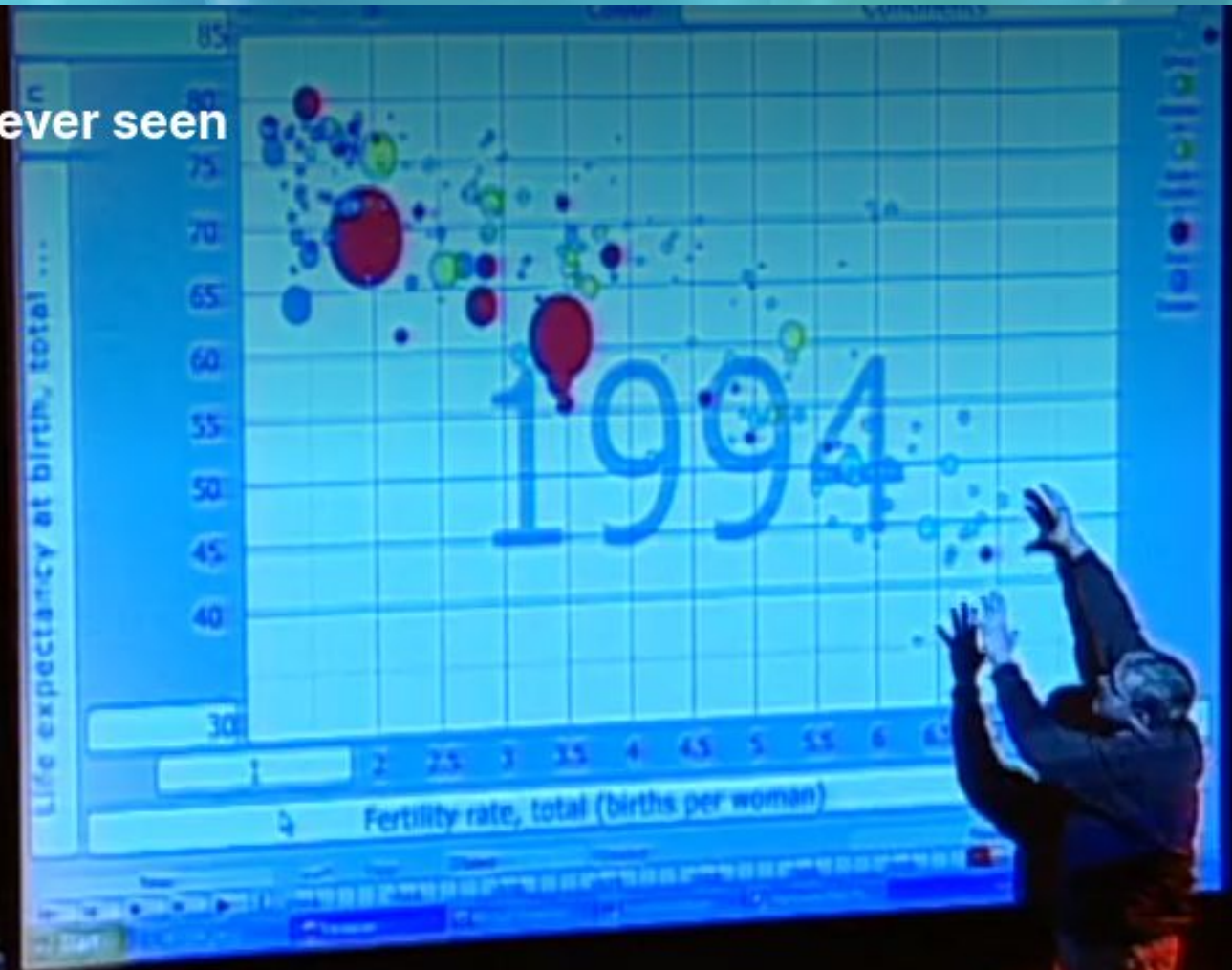


# What is Data Science?

Hans Rosling's - TED talk

Hans Rosling | TED2006

**The best stats you've ever seen**

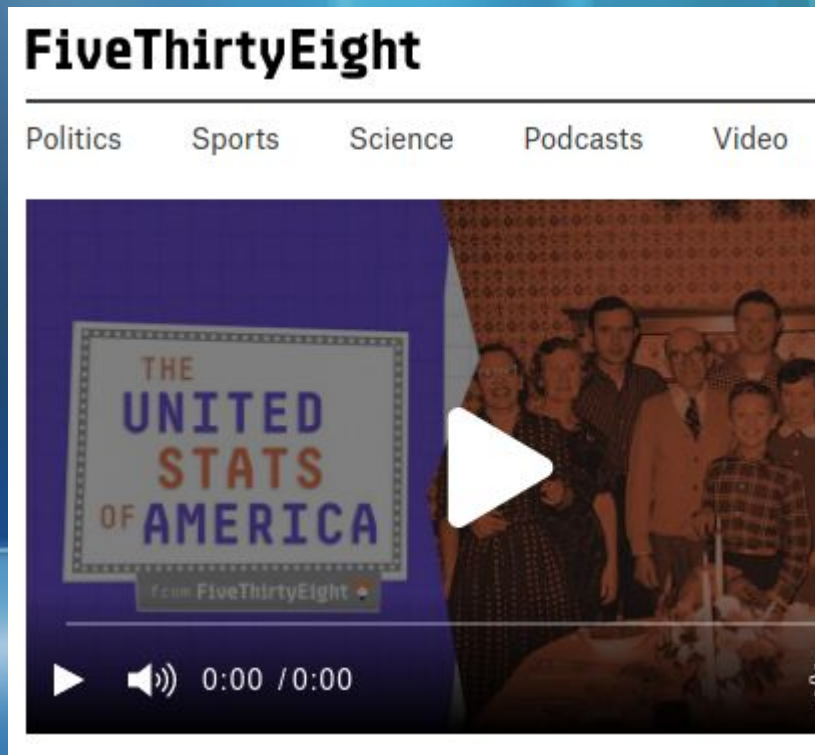




# Where else do you we Data Science?

## Nate Silver

- Player Empirical Comparison & Optimization Test Algorithm, 2003
- [Fivethirtyeight](#), 2010
- Moneyball, 2011
- [The Signal and the Noise](#), 2012



*the signal and the noise and the noise and the noise and the noise why so many predictions fail—but some don't and the noise and the noise and the nate silver noise noise and the noise*



# Data Science Resources

*'Matt's opinionated, non-comprehensive & non-authoritative lists'*

1. Elements of Statistical Learning, Hastie FREE
2. Machine Learning, H. Daumé, FREE
3. Probabilistic Machine Learning... K. Murphy, FREE
4. Jason Brownlee's - Website/blog
5. Kaggle.com
6. R-bloggers.com
7. Andrew Ng at Stanford U. - Coursera
8. Github - Search 'All Github' for terms of interest



# Python Resources

1. Python Documentation - [Python.org](https://python.org)
2. Py4e (Python For Everybody) - [Book & Course](#) FREE
3. FreeCodeCamp - [Several Courses](#) FREE
4. EdX - [Courses](#) FREE
5. Coursera - [Courses](#) FREE
6. Byte of Python - [Book](#) FREE
7. Automate the Boring Stuff - [Online Book](#) FREE
8. Python D.S. Handbook - [Online Book](#) FREE
9. GitHub Repos - [`Awesome Python`](#) FREE



# Check For Python on your OS

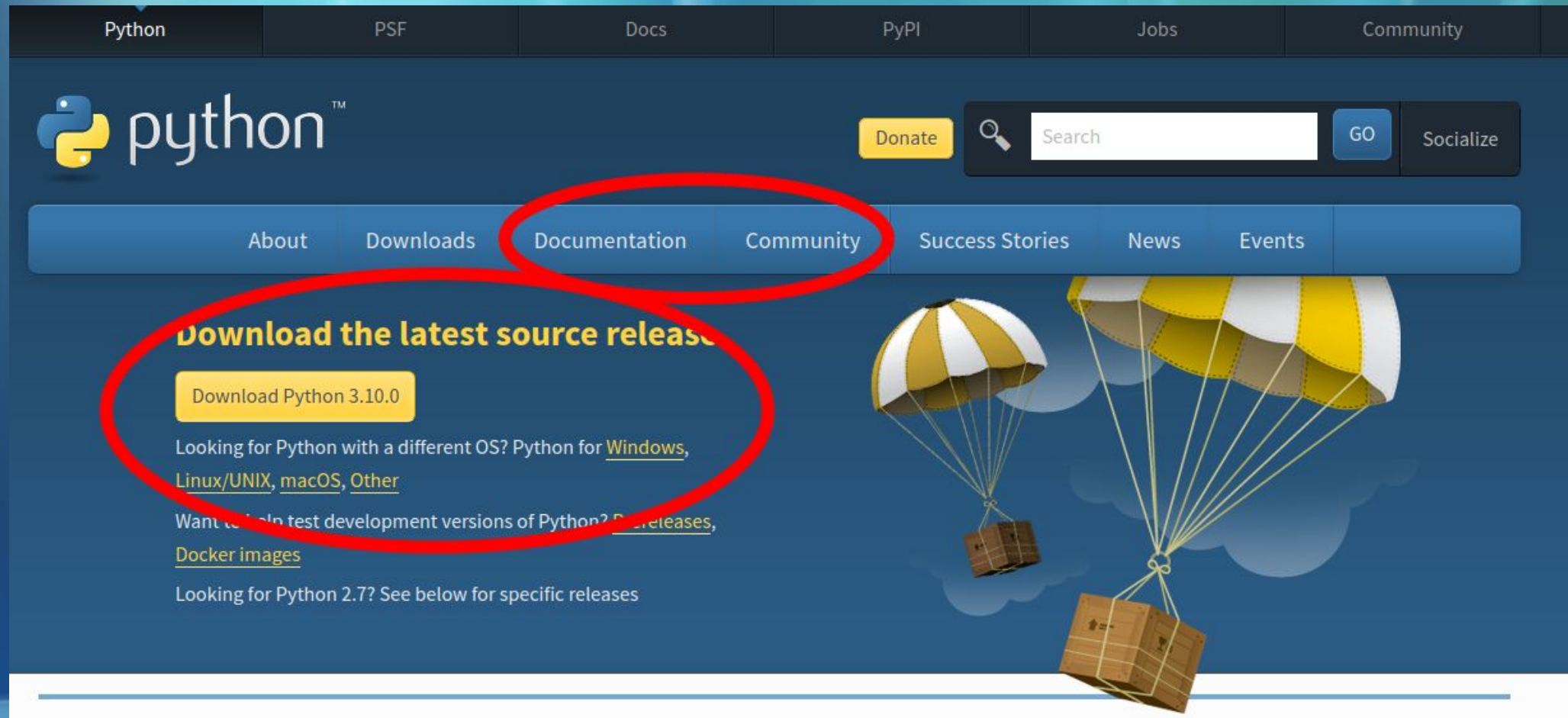
<u>OS</u>	<u>Pre-Loaded</u>	<u>To Find Version In Terminal / Type</u>
Ubuntu/Linux	YES	<code>`python --version`</code> <i>OR</i> <code>`python -V`</code>
Mac OSX	YES	
Windows	No	In PowerShell <code>`python -V`</code>





# To Find Python

- Python.org - [www.python.org/downloads](http://www.python.org/downloads)





# Python: Easiest Way To Get Started

- Anaconda.com - [www.anaconda.com](http://www.anaconda.com)
  - *Anaconda is very common.*
  - *Works on Linux, Mac OSX & Windows.*
  - *1,000+ packages are pre-bundled.*
  - *Conda is an environment management system.*
- *Conda is an open source package management system and environment management system for installing multiple versions of software packages and their dependencies and switching easily between them.*  
<https://anaconda.org/anaconda/conda>



# Why Use Anaconda?

*“EASIEST WAY TO GET STARTED”*



# Install Python via Anaconda:

Landing Page - <https://www.anaconda.com/>

The screenshot shows the Anaconda Individual Edition landing page. The navigation bar at the top includes the Anaconda logo, a 'Products' dropdown menu (circled in red), 'Pricing', 'Solutions', a 'Resources' dropdown menu (circled in red), 'Blog', and 'Company'. A 'Get Started' button is in the top right. The main heading is 'Your data science toolkit' under the 'Individual Edition' sub-header. A paragraph describes the toolkit as the easiest way to perform Python/R data science and machine learning on a single machine. On the right, a card for 'Anaconda Individual Edition' features a 'Download' button (circled in red) and specifies 'For Linux', 'Python 3.8 • 64-Bit (x86) Installer • 544 MB'. At the bottom of the card, a section 'Get Additional Installers' (circled in red) shows icons for Windows, macOS, and Linux.

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Individual Edition

## Your data science toolkit

With over 25 million users worldwide, the open-source Individual Edition (Distribution) is the easiest way to perform Python/R data science and machine learning on a single machine. Developed for solo practitioners, it is the toolkit that equips you to work with thousands of open-source packages and libraries.

Anaconda Individual Edition

Download

For Linux  
Python 3.8 • 64-Bit (x86) Installer • 544 MB

Get Additional Installers

Windows | macOS | Linux



# Install Python via Anaconda

Nr Bottom of Landing Page - <https://www.anaconda.com/>

In Linux, download to: `/home/<user>` directory

## Anaconda Installers

Windows 

Python 3.8

64-Bit Graphical Installer (477 MB)

32-Bit Graphical Installer (409 MB)

MacOS 

Python 3.8

64-Bit Graphical Installer (440 MB)

64-Bit Command Line Installer (433 MB)

Linux 

Python 3.8

64-Bit (x86) Installer (544 MB)

64-Bit (Power8 and Power9) Installer (285 MB)

64-Bit (AWS Graviton2 / ARM64) Installer (413 M)

64-bit (Linux on IBM Z & LinuxONE) Installer (292 M)

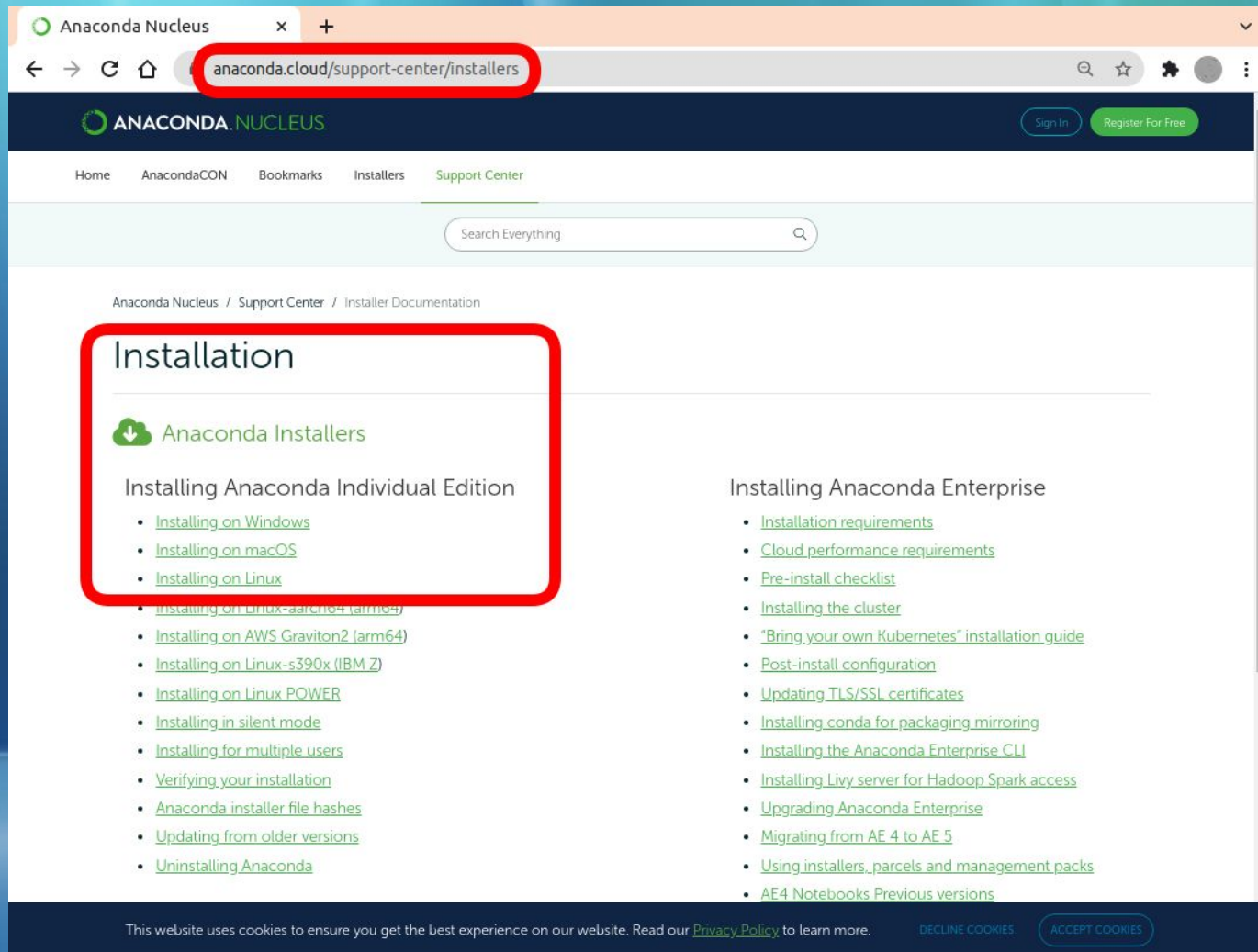




# Install Python via Anaconda

## Instructions for different situations

<https://anaconda.cloud/support-center/installers/installers>



The screenshot shows the Anaconda Nucleus website. The browser's address bar is highlighted with a red box, showing the URL [anaconda.cloud/support-center/installers](https://anaconda.cloud/support-center/installers). The website's navigation bar includes links for Home, AnacondaCON, Bookmarks, Installers, and Support Center. A search bar is located below the navigation bar. The main content area is titled 'Installation' and is also highlighted with a red box. Under this title, there is a section for 'Anaconda Installers' with a download icon. This section is divided into two columns: 'Installing Anaconda Individual Edition' and 'Installing Anaconda Enterprise'. The 'Individual Edition' column lists various operating systems and hardware configurations, while the 'Enterprise' column lists more complex installation and configuration steps. At the bottom of the page, there is a cookie consent banner.

Anaconda Nucleus / Support Center / Installer Documentation

## Installation

### Anaconda Installers

#### Installing Anaconda Individual Edition

- [Installing on Windows](#)
- [Installing on macOS](#)
- [Installing on Linux](#)
- [Installing on Linux-aarch64 \(arm64\)](#)
- [Installing on AWS Graviton2 \(arm64\)](#)
- [Installing on Linux-s390x \(IBM Z\)](#)
- [Installing on Linux POWER](#)
- [Installing in silent mode](#)
- [Installing for multiple users](#)
- [Verifying your installation](#)
- [Anaconda installer file hashes](#)
- [Updating from older versions](#)
- [Uninstalling Anaconda](#)

#### Installing Anaconda Enterprise

- [Installation requirements](#)
- [Cloud performance requirements](#)
- [Pre-install checklist](#)
- [Installing the cluster](#)
- ["Bring your own Kubernetes" installation guide](#)
- [Post-install configuration](#)
- [Updating TLS/SSL certificates](#)
- [Installing conda for packaging mirroring](#)
- [Installing the Anaconda Enterprise CLI](#)
- [Installing Livy server for Hadoop Spark access](#)
- [Upgrading Anaconda Enterprise](#)
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# Install Anaconda on Ubuntu

1. Open BASH terminal: <ctrl><alt>+T
2. Ubuntu needs/install:

```
sudo apt-get install libgl1-mesa-glx libegl1-mesa libxrandr2  
libxrandr2 libxss1 libxcursor1 libxcomposite1 libasound2  
libxi6 libxtst6
```

3. Navigate to Download directory:

```
/home $ cd <user>/Download
```

4. **ls** # Do you have Anaconda Installation Shell Script, (.sh)
5. Use BASH Interpreter:

```
/home/<user> $ bash Anaconda3-2021.05-Linux-x86_64.sh
```

NOTE: You don't need root access here!

Watch the Fireworks Fly!



# Getting Started with 'Anaconda-Navigator'

<https://conda.io/projects/conda/en/latest/user-guide/getting-started.html>

1. Open BASH terminal: <ctrl><alt>+T
2. To update Anaconda  
**/home \$ conda update conda**
3. Proceed ([y]/n)? <enter>
4. To open `Anaconda Navigator`  
**/home \$ anaconda-navigator**

**Watch the Fireworks Fly!**



# Helpful Bash Aliases for Anaconda-Navigator

**Add aliases to ‘/home/<user>/.bashrc’**



1. `alias jupy='jupyter notebook'`
2. `alias condaup='conda update --prefix /home/<user>/anaconda3  
anaconda'`
3. `alias navi='conda update --prefix /home/<user>/anaconda3  
anaconda --yes && anaconda-navigator'`





# Install Anaconda on Ubuntu

<https://docs.anaconda.com/anaconda/user-guide/getting-started/#open-nav-lin>

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- Home
- ▼ Anaconda Individual Edition
  - Installation
  - User guide
  - Getting started with Anaconda**
  - Anaconda Navigator
  - Conda
  - Tasks
  - Cheat sheet
  - Frequently asked questions
- Reference
- End User License Agreement - Anaconda Individual Edition
- ▶ Anaconda Embedded
- ▶ Anaconda Commercial Edition
- ▶ Anaconda Team Edition
- ▶ Anaconda Enterprise 5
- ▶ Anaconda Enterprise 4
- ▶ Anaconda.org
- ▶ Archive

## Getting started with Anaconda

Anaconda Individual Edition contains [conda](#) and [Anaconda Navigator](#), as well as Python and hundreds of scientific [packages](#). When you installed Anaconda, you installed all these too.

Conda works on your command line interface such as Anaconda Prompt on Windows and terminal on macOS and Linux.

Navigator is a desktop graphical user interface that allows you to launch applications and easily manage conda packages, environments, and channels without using command-line commands.

You can try both conda and Navigator to see which is right for you to manage your packages and environments. You can even switch between them, and the work you do with one can be viewed in the other.

Try this simple programming exercise, with [Navigator](#) and the [command line](#), to help you decide which approach is right for you.

When you're done, see [What's next?](#).

### Your first Python program: Hello, Anaconda!

Use Anaconda Navigator to launch an application. Then, create and run a simple Python program with Spyder and Jupyter Notebook.

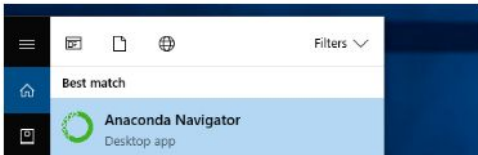
#### Open Navigator

Choose the instructions for your operating system.

- [Windows](#).
- [macOS](#).
- [Linux](#).

##### Windows


From the Start menu, click the Anaconda Navigator desktop app.





# The 'Anaconda Navigator' - home page

FileHelp

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Datalore

Online Data Analysis Tool with smart coding assistance by JetBrains. Edit and run your Python notebooks in the cloud and share them with your team.


Launch



IBM Watson Studio Cloud

IBM Watson Studio Cloud provides you the tools to analyze and visualize data, to cleanse and shape data, to create and train machine learning models. Prepare data and build models, using open source data science tools or visual modeling.


Launch



JupyterLab 3.2.1

An extensible environment for interactive and reproducible computing, based on the Jupyter Notebook and Architecture.


Launch



Jupyter Notebook 6.4.5

Web-based, interactive computing notebook environment. Edit and run human-readable docs while describing the data analysis.


Launch



Qt Console 5.1.1

PyQt GUI that supports inline figures, proper multiline editing with syntax highlighting, graphical calltips, and more.


Launch



Spyder 4.2.5

Scientific Python Development Environment. Powerful Python IDE with advanced editing, interactive testing, debugging and introspection features


Launch



VS Code 1.62.2

Streamlined code editor with support for development operations like debugging, task running and version control.


Launch



Glueviz 1.0.0

Multidimensional data visualization across files. Explore relationships within and among related datasets.


Install



Orange 3 3.26.0

Component based data mining framework. Data visualization and data analysis for novice and expert. Interactive workflows with a large toolbox.


Install



PyCharm Professional

A full-fledged IDE by JetBrains for both Scientific and Web Python development. Supports HTML, JS, and SQL.


Install



RStudio 1.1.456

A set of integrated tools designed to help you be more productive with R. Includes R essentials and notebooks.

Install



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

























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
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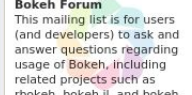










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# To Start Jupyter Notebook - home page

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



Home

Environments

Learning

Community

Applications on  Channels




 Datalore Online Data Analysis Tool with smart coding assistance by JetBrains. Edit and run your Python notebooks in the cloud and share them with your team. <a href="#">Launch</a>	 IBM Watson Studio Cloud IBM Watson Studio Cloud provides you the tools to analyze and visualize data, to cleanse and shape data, to create and train machine learning models. Prepare data and build models, using open source data science tools or visual modeling. <a href="#">Launch</a>	 JupyterLab 3.2.1 An extensible environment for interactive and reproducible computing, based on the Jupyter Notebook and Architecture. <a href="#">Launch</a>	 Jupyter Notebook 6.4.5 Web-based, interactive computing notebook environment. Edit and run human-readable docs while describing the data analysis. <a href="#">Launch</a>	 Qt Console 5.1.1 PyQt GUI that supports inline figures, proper multiline editing with syntax highlighting, graphical calltips, and more. <a href="#">Launch</a>	 Spyder 4.2.5 Scientific Python Development Environment. Powerful Python IDE with advanced editing, interactive testing, debugging and introspection features. <a href="#">Launch</a>
 VS Code 1.62.2 Streamlined code editor with support for development operations like debugging, task running and version control. <a href="#">Launch</a>	 Glueviz 1.0.0 Multidimensional data visualization across files. Explore relationships within and among related datasets. <a href="#">Install</a>	 Orange 3 3.26.0 Component-based data mining framework. Data visualization and data analysis for novice and expert. Interactive workflows with a large toolbox. <a href="#">Install</a>	 PyCharm Professional A full-fledged IDE by JetBrains for both Scientific and Web Python development. Supports HTML, JS, and SQL. <a href="#">Install</a>	 RStudio 1.1.456 A set of integrated tools designed to help you be more productive with R. Includes R essentials and notebooks. <a href="#">Install</a>	

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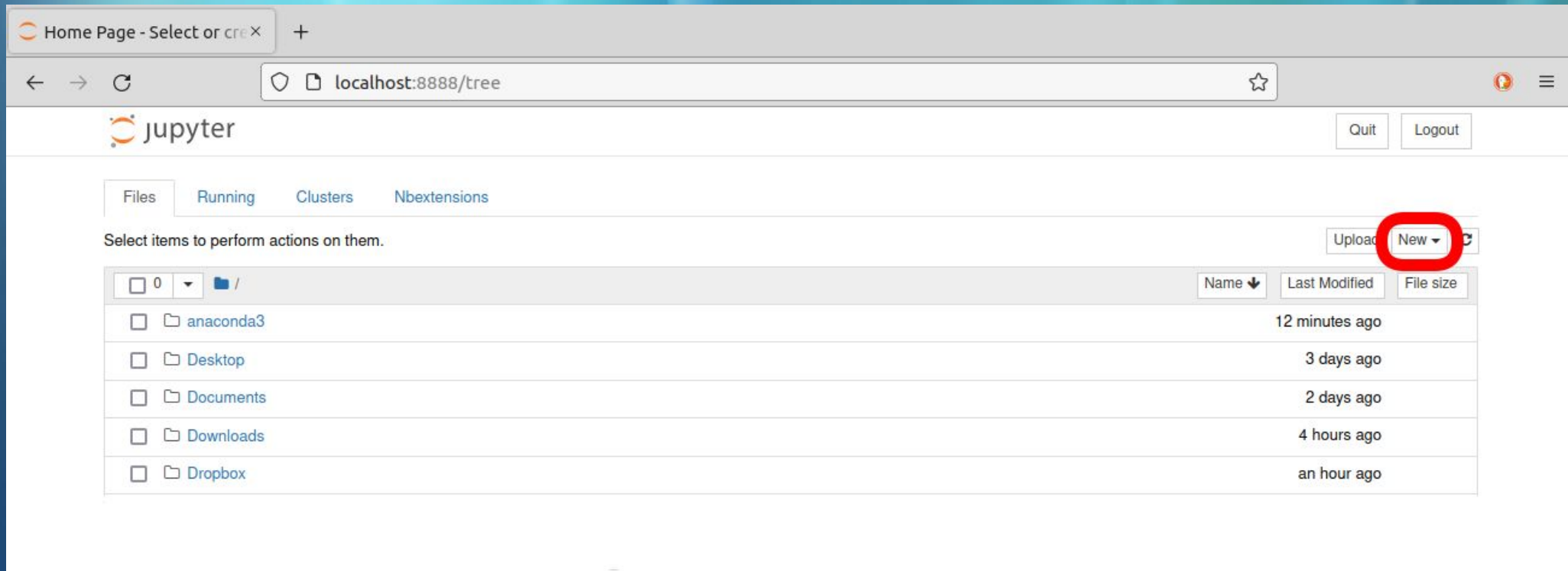
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# Starting Jupyter Notebooks



The screenshot shows the JupyterLab web interface in a browser window. The address bar displays 'localhost:8888/tree'. The Jupyter logo is in the top left, and 'Quit' and 'Logout' buttons are in the top right. Below the logo, there are tabs for 'Files', 'Running', 'Clusters', and 'Nbextensions'. The 'Files' tab is active, showing a message 'Select items to perform actions on them.' and a table of files. The 'New' button in the top right of the file browser is circled in red.

Home Page - Select or create +

localhost:8888/tree

jupyter

Quit Logout

Files Running Clusters Nbextensions

Select items to perform actions on them.

Upload New

	Name	Last Modified	File size
<input type="checkbox"/>	/		
<input type="checkbox"/>	anaconda3	12 minutes ago	
<input type="checkbox"/>	Desktop	3 days ago	
<input type="checkbox"/>	Documents	2 days ago	
<input type="checkbox"/>	Downloads	4 hours ago	
<input type="checkbox"/>	Dropbox	an hour ago	

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