NEURON 7.7.1 quick start

Note: Linux users who prefer to compile NEURON themselves can find copy-pasteable instructions for Ubuntu and CentOS at <u>neuron.yale.edu/neuron/download/compile_linux</u>

For everyone else:

Step 1: Go to <u>http://neuron.yale.edu</u>, click the download button (see arrow, below), install accepting all defaults.

The download button on the homepage autodetects your current operating system. For Linux, you have a choice of .deb and .rpm.



Step 1b (Macs only): Install XQuartz (<u>http://xquartz.org</u>) to enable NEURON's graphics.

Step 1c (Macs and minimal Linux installs only): Install command line developer tools. On a mac, open a terminal (find the app with spotlight), and type xcode-select --install Select install in the dialog that pops up. On Linux, make sure gcc is installed (it almost certainly is already installed).

If you get the following error on the mac, you can skip this step. xcode-select: error: command line tools are already installed, use "Software Update" to install updates

Step 2: Install Python. We suggest Anaconda's Python 3.7, but there are many good choices. For Anaconda, go to <u>https://www.anaconda.com/distribution/</u> then (1) select your operating system and then (2) select download. Finally, install. We suggest accepting all the defaults.

Macs and Linux come with a version of Python, so if you prefer, you can just use that.

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 The open-source Anaconda Distribution is the easiest way to perform Python/R data science and machine learning on Linux, Windows, and Mac OS X. With over 11 million users worldwide, it is the industry standard for developing, testing, and training on a single machine, enabling <i>individual data scientists</i> to: Outckly download 1,500+ Python/R data science packages Manage libraries, dependencies, and environments with Conda Oevelop and train machine learning and deep learning models with scikitlearn, TensorFlow, and Theano Analyze data with scalability and performance with Dask, NumPy, pandas, and Numba Visualize results with Matplotlib, Bokeh, Datashader, and Holoviews 	Image: Strain to the strain	SciPy HoloViews	y Numba ≯ Datashader CONDA	Y						
Anaconda 2019.03 for Windows Installer										
Fython 3.7 version Download 64-Bit Graphical Installer (662 MB) 32-Bit Graphical Installer (546 MB)	Python 2.7 version Download 64-Bit Graphical Installer (587 MB) 32-Bit Graphical Installer (493 MB)									

Step 3: Test. Open a terminal (on macOS, find "terminal" with spotlight; on PC use cmd or powershell). Launch "python" or in Linux "python3". Type "from neuron import h, gui" A new window should popup. In this window, select File – Quit to exit.

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If this doesn't work, it's probably a PATH or PYTHONPATH issue.

Step 4: Install MPI to enable parallel simulations.

On Windows: Install Microsoft MPI:

https://www.microsoft.com/en-us/download/details.aspx?id=57467

On Mac:

If you installed Anaconda, it suffices to run the following from the terminal: conda install mpi4py

Otherwise, you'll have to get it from e.g. homebrew or compile it yourself; see

https://wiki.helsinki.fi/display/HUGG/Open+MPI+install+on+Mac+OS+X

On Ubuntu Linux:

sudo apt install libopenmpi-dev

On CentOS Linux:

sudo yum -y install openmpi openmpi-devel

Try running mpicc. If this doesn't work, you'll need to update your PATH (probably set in ~/.bashrc) to include the mpi library by adding this line to the end of .bashrc:

export PATH=\$PATH:/usr/lib64/openmpi/bin