



NeuroFedora

FOSS and open (neuro) science

NeuroFedora contributors

FOSS and Free/Open Science

Ideal: users should have the freedom to **share, study, and modify** software¹.

¹Free software foundation

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The **user** is **free**.

¹Free software foundation

Free/Open Source Science?

Ideal: **Everyone** should have the freedom to **share, study, and modify** scientific material².

²Open source for neuroscience

Free/Open Source Science?

Ideal: **Everyone** should have the freedom to **share, study, and modify** scientific material².

So, scientists, hobbyists, students ... should all have access to scientific material—irrespective of social status, location, age, nationality

²Open source for neuroscience

Free/Open Source Science?

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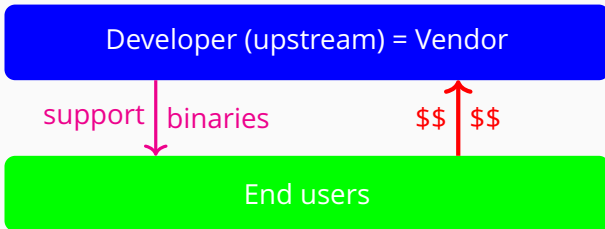
So, scientists, hobbyists, students ... should all have access to scientific material—irrespective of social status, location, age, nationality

Especially given that **social policy must be evidence based**.

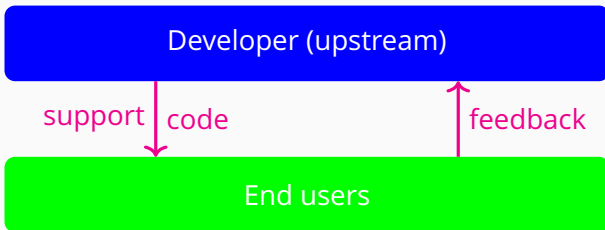
²Open source for neuroscience

A platform?

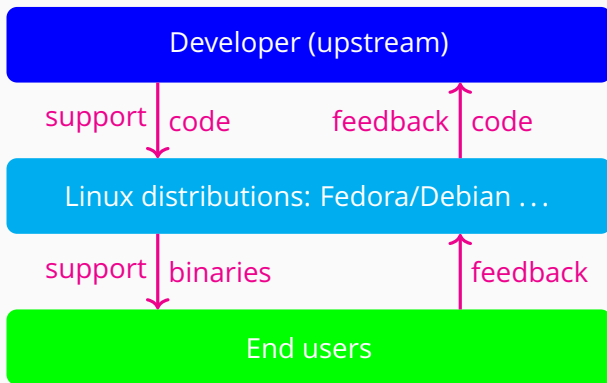
The developer—user relationship: proprietary software



The developer—user relationship: free software



The developer—user relationship: distributions



Distributions: package maintainers

- Build software:
 - including all dependencies.

³Fedora project: staying close to upstream.

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Distributions: package maintainers

- Build software:
 - including all dependencies.
- Check for correctness (!).
- Keep up with upstream: updates, security fixes
- Connect upstream to users.
- Enable upstream to improve their software³.

³Fedora project: staying close to upstream.

NeuroFedora

Goals

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 - researchers (end-users):
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 - upstreams:
 - feedback from users.
 - software improvements.
 - implement standards.

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- Enable **free science**:
 - researchers (end-users):
 - ready to use **tested** tools.
 - upstreams:
 - feedback from users.
 - software improvements.
 - implement standards.
- Help make science **“default to open”**.

NeuroFedora example I: NEST (★★★★★)

- Build requires⁴:
 - **Compulsory:** Python+, Cython, GSL, Ncurses, CMake, GCC.

⁴Fedora project: nest SPEC file.

NeuroFedora example I: NEST (★★★★★)

- Build requires⁴:
 - **Compulsory:** Python+, Cython, GSL, Ncurses, CMake, GCC.
 - **Optional:** libneurosim (for PyNN), MUSIC, MPICH, OpenMPI.

⁴Fedora project: nest SPEC file.

NeuroFedora Example I: NEST: usage

```
$ sudo dnf install python3-nest  
$ sudo dnf install python3-nest-mpich  
$ sudo dnf install python3-nest-openmpi
```


NeuroFedora example II: PyNN (★★★★)

- Build requires⁵:

⁵Fedora project: PyNN SPEC file (WIP).

NeuroFedora example II: PyNN (★★★★)

- Build requires⁵:
 - **Compulsory**: Python+, Ncurses, CMake, GCC.
 - **At least one of**: NEST, Brian, NEURON.

⁵Fedora project: PyNN SPEC file (WIP).

NeuroFedora Example II: PyNN (WIP): usage

```
$ sudo dnf install python3-PyNN
```

Installs PyNN and NEST, Brian⁶, NineML (and NEURON⁷).

⁶Requires Brian v1

⁷WIP: Requires upstream improvements.

NeuroFedora Example II: PyNN (WIP): usage

```
$ sudo dnf install python3-PyNN
```

Installs PyNN and NEST, Brian⁶, NineML (and NEURON⁷).

```
$ sudo dnf install python3-PyNN-nest
```

Installs PyNN and NEST.

⁶Requires Brian v1

⁷WIP: Requires upstream improvements.

- 67 packages available in total⁸.
- ~130 in queue⁹.

⁸src.fedoraproject.org: Neuro-SIG

⁹[Pagure.io](https://pagure.io/Neuro-SIG/issues): Neuro-SIG: issues

- Available: NEST, NineML, moose, Brian2, PyLEMS.
- In queue (26)¹⁰: NEURON, PyNN, Brian1, NetPyne, Genesis, NeuroMLlite, pyNeuroML, pypeg, HNN, libSBML ...

¹⁰Neuro-SIG: computational neuroscience

- Available: biosig, dcm2niix, gifticlib, InsightToolKit, libminc, dipy, fsleyes, mne-bids, pydicom ...
- In queue (40)¹¹: Nistats, FEAT, TractoR, FSL, SPM, connectomeviewer, nipype, itktools ...

¹¹Neuro-SIG: neuroimaging

- Available: nilearn, scikit-learn, klusta, lazyarray, neo, nitime, patsy ...
- In queue (25)¹²: spyke-viewer, stimfit, pyelectro, pyspike, pymc3 ...

¹²Neuro-SIG: data analysis

- Available: texlive (full), duecredit, chaospy, ...
- In queue (37)¹³: spiking-circus, pingouin, spykeutils, PsychToolbox, tridesclous, uncertainpy, neuroshare, Btmorph ...

¹³Neuro-SIG: utilities

- Continue package imports.

¹⁴[pagure.io: Neuro-SIG: Documentation](https://pagure.io/Neuro-SIG/Documentation)

¹⁵registry.fedoraproject.org

- Continue package imports.
- Update documentation¹⁴.

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- Update documentation¹⁴.
- Docker images¹⁵!

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- Continue package imports.
- Update documentation¹⁴.
- Docker images¹⁵!
- Announce to research community.

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- Continue package imports.
- Update documentation¹⁴.
- Docker images¹⁵!
- Announce to research community.
- RHEL/CentOS/Scientific Linux support (our cluster runs Scientific Linux).

¹⁴[pagure.io: Neuro-SIG: Documentation](#)

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- Continue package imports.
- Update documentation¹⁴.
- Docker images¹⁵!
- Announce to research community.
- RHEL/CentOS/Scientific Linux support (our cluster runs Scientific Linux).
- BoFs/Hack sessions at scientific conferences (workshop at CNS 2019?)

¹⁴[pagure.io: Neuro-SIG: Documentation](https://pagure.io/Neuro-SIG/Documentation)

¹⁵registry.fedoraproject.org

- More package maintainers¹⁶.

¹⁶Fedora: Join the package maintainers

¹⁷Fedora QA: testing updates

- More package maintainers¹⁶.
- Testers—end users who are happy to test packages and provide feedback (QA)¹⁷.

¹⁶Fedora: Join the package maintainers





















¹⁷Fedora QA: testing updates

- More package maintainers¹⁶.
- Testers—end users who are happy to test packages and provide feedback (QA)¹⁷.
- Documentation writers/proofreaders.

¹⁶Fedora: Join the package maintainers

¹⁷Fedora QA: testing updates

NeuroFedora: current team

| 10 Members | |  |
|---|----------------|---|
|  | ankursinha | |
|  | zbyszek |  |
|  | ignatenkobrain |  |
|  | ilgrad |  |
|  | pac23 |  |
|  | lbazan |  |
|  | sergiopr |  |
|  | mhough |  |
|  | linuxmodder |  |
|  | blackfile |  |

NeuroFedora: get in touch

- Landing page (until a website/docs are set up) on Fedora wiki¹⁸.
- IRC channel: #fedora-neuro on Freenode.net¹⁹.
- Telegram channel: @NeuroFedora²⁰.
- Mailing list on lists.fedoraproject.org²¹.
- Software suggestion form²².

¹⁸[Fedora wiki: NeuroFedora](#)

²⁰[#fedora-neuro on Freenode](#)

²¹[@NeuroFedora on Telegram](#)

²²neuro-sig@lists.fedoraproject.org

²³[NeuroFedora: suggest software for inclusion](#)



<https://fedoraproject.org/wiki/SIGs/NeuroFedora>

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