



NeuroFedora

FOSS and open (neuro) science

NeuroFedora contributors

2019-07-23

NeuroFedora



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FOSS and Free/Open Science

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NeuroFedora
└ FOSS and Free/Open Science

FOSS and Free/Open Science

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

¹Free software foundation

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└ FOSS and Free/Open Science

└ Free/Open Source Software

1. FOSS, even though focussed on software is really a social movement. Software is our way of spreading this freedom.
2. Fedora similarly, is first a community that spreads freedom. The OS and products that we create are tools to achieve this.
3. Fedora is NOT about creating an OS. Remember what the end goal is, and do not confuse the means with it.

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Free Software Foundation

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

²Open source for neuroscience

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NeuroFedora

└ FOSS and Free/Open Science

└ Free/Open Source Science?

1. Science, similarly, is closely linked to society.
2. Sure, a lot of Science is theoretical and cannot be applied in the short term future, but the goal is to improve OUR (society's) knowledge, not an individuals.
3. Nowadays, this is becoming more important—we want our elected members to make decisions that are best for us, and this must be based on evidence so that there's a social consensus.

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

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

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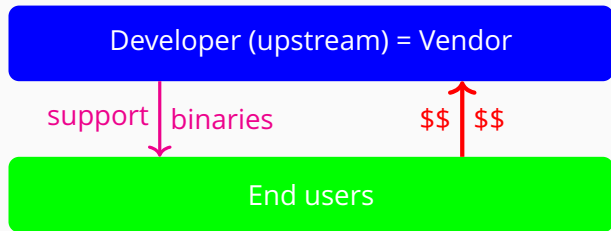
A platform?

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└─ A platform?

A platform?

The developer—user relationship: proprietary software

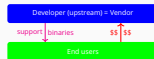


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└─ A platform?

└─ The developer—user relationship:
proprietary software

The developer—user relationship: proprietary software



The developer—user relationship: free software

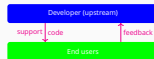


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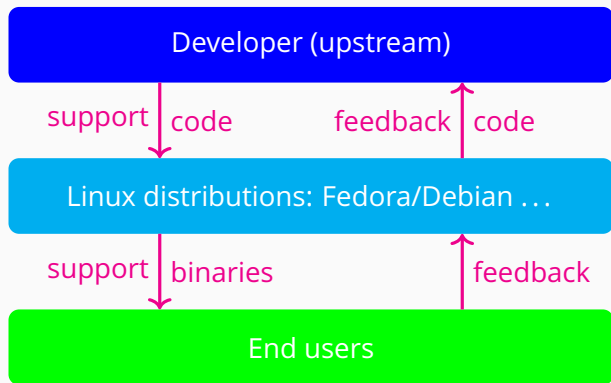
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└─ A platform?

└─ The developer—user relationship: free software

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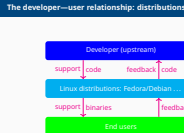
The developer—user relationship: distributions



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└ A platform?

└ The developer—user relationship:
distributions



Distributions: package maintainers

- Build software:
 - including all **dependencies**.

³Fedora project: staying close to upstream.

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NeuroFedora
└─ A platform?

└─ Distributions: package maintainers

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- Build software:
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Fedora project: staying close to upstream.

Distributions: package maintainers

- Build software:
 - including all **dependencies**.
- Check for **correctness** (!).

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NeuroFedora
└─ A platform?

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NeuroFedora
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Fedora project: staying close to upstream.

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- Enable **free science**:

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NeuroFedora
└─ NeuroFedora
 └─ Goals

Goals

- Enable **free science**:

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 - researchers (end-users):
 - ready to use **tested** tools.

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NeuroFedora
└─ 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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└ NeuroFedora

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NeuroFedora
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NeuroFedora example I: NEST (★★★★★)

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

⁴Fedora project: nest SPEC file.

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

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NeuroFedora project: nest SPEC file.

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

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NeuroFedora
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└─ NeuroFedora Example I: NEST: usage

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$ sudo dnf install python3-nest
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```


- Build requires⁵:

⁵Fedora project: PyNN SPEC file (WIP).

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NeuroFedora
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└─ NeuroFedora example II: PyNN (★★★)

• Build requires⁵:

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 - **At least one of**: NEST, Brian, NEURON.

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NeuroFedora
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└─ NeuroFedora example II: PyNN (★★★)

• Build requires⁵:

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

Fedora 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.

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NeuroFedora
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```
$ sudo dnf install python3-PyNN-nest
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Installs PyNN and NEST.

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

⁸[src.fedoraproject.org: Neuro-SIG](https://src.fedoraproject.org/Neuro-SIG)

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

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NeuroFedora
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NeuroFedora: computational neuroscience

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

¹⁰Neuro-SIG: computational neuroscience

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Neuro-SIG: computational neuroscience

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

NeuroSIG: neuroimaging

NeuroFedora: neuroimaging

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¹¹Neuro-SIG: neuroimaging

NeuroFedora: data analysis

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

¹²Neuro-SIG: data analysis

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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](#)

¹⁵[registry.fedoraproject.org](#)

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NeuroFedora
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└─ NeuroFedora: plans

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- Continue package imports.

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NeuroFedora: plans

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¹⁶Fedora: Join the package maintainers

¹⁷Fedora QA: testing updates

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NeuroFedora: current team

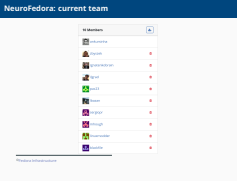
10 Members		
	ankursinha	
	zbyszek	
	ignatenkobrain	
	ilgrad	
	pac23	
	lbazan	
	sergiopr	
	mhough	
	linuxmodder	
	blackfile	

⁰Fedora Infrastructure

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NeuroFedora
└─ NeuroFedora

└─ NeuroFedora: current team



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.

¹⁸Fedora wiki: NeuroFedora

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²¹@NeuroFedora on Telegram

²²neuro-sig@lists.fedoraproject.org

²³NeuroFedora: suggest software for inclusion

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²²NeuroFedora: suggest software for inclusion



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

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