

NeD Local Installation & Use

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Introduction

NeD is written in Python and makes use of the Django web-framework. Thus, we recommend users to read Django documentation at:

<https://docs.djangoproject.com/>

NeD makes use of several Python modules, that are listed in the file:

python_modules.txt

If you want to run a copy of NeD using a local server, or if you want to create a standalone version of NeD from scratches, please make sure that you have Python and all the required modules properly installed on your machine.

How to setup the interface on a local server

The files needed to run NeD on a local server are included in the folder *mysite*. The core functions of NeD are included in the Python file *nedc.pyx*, that is the main file users should modify in order to customize the way NeD handles matrices, computes nestedness indexes, creates graphics, etc. However, *nedc.pyx* must be transformed into a shared C library using the Python module Cython www.cython.org in order to be used by NeD. This can be accomplished by executing the file *cython_setup.py*, that is included in the folder *mysite* as well. The proper way to run *cython_setup.py* may vary among different operating systems (please refer to Cython documentation). Linux users should simply type in terminal the command:

```
python cython_setup.py build_ext --inplace
```

Executing this command will produce the shared C library *nedc.c*. The file *views.py* then takes care of importing that library to Django environment. If you do not want to install Cython module, or if you experience any problems with the above procedure, you may decide to use the code included in *nedc.pyx* without transforming it into a shared C library. To do that, you simply have to delete the file *views.py* and rename the file *nedc.pyx* to *views.py*. However,

since using Cython may improve NeD performance, we recommend users to compile ***necd.pyx*** into a shared C library following the instructions above. The files ***views.py***, ***settings.py***, ***urls.py***, ***manage.py*** and ***__init__.py*** are standard files for a Django site. Again, we recommend users to refer to Django documentation for a more detailed explanation of the respective roles of these files.

NeD graphical interface is based on Django templates, that are standard html pages including bits of Django code. In particular the ***mysite*** directory includes an input page (***index.html***), two output pages (***out.html*** and ***outbatch.html***, that are the result pages for standard and batch analyses respectively), three error pages (***404.html***, ***500.html*** and ***noinput.html***), a documentation page (***doc.html***) and a page including authors' contacts (***contact.html***). The relationships between html pages and the ***views.py*** file (and thus the functions included in ***necd*** C library) are managed by the ***urls.py*** file, according to standard Django rules.

NeD can be run on a local server by executing the ***manage.py*** file and by opening a web browser at the address **`http://127.0.0.1:8000`**. Under linux users should simply type from inside the ***mysite*** directory the command:

python manage.py runserver

The procedure to publish the interface online is the same as described above, however, it may slightly vary depending on the settings of the hosting server. The online version of NeD is currently hosted at **`http://alwaysdata.net`**, that supports Django based websites, provides detailed instructions about the setup, and offers any user a free account.

How to create a standalone NeD executable

NeD can be also packed into a standalone redistributable application for Windows operating systems. To do that you need to install ***py2exe***, that is a Python Distutils extension which converts Python scripts into executable Windows programs, able to run without requiring a Python installation (**`http://www.py2exe.org`**). Then, you will have to:

1) In the ***mysite*** folder, delete the file ***views.py*** and rename the file ***necd.pyx*** to ***views.py***;

2) Open a terminal from the ***source*** directory (i.e. one level above the ***mysite*** directory) and type the command:

setup.py py2exe

This will create two folders (namely ***build*** and ***dist***). The executable file ***NeD.exe*** will be included in the ***dist*** folder (note that the executable must not be moved from its original location). Clicking on the ***NeD.exe*** file will open your default web browser and launch a standalone version of NeD on the

local server at the same address as above (<http://127.0.0.1:8000>).

Contacts

If you encounter any problems in following the instructions provided in this file, or if you have any technical question, please do not hesitate to contact the authors at:

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