



Jupyter

Никита Казеев¹, Андрей Устюжанин^{1,2}

¹Yandex School of Data Analysis, ²National Research University Higher School of Economics

Contents

- › debt
- › ipython
- › jupyter
- › extensions
- › kernels
- › online solutions

Debt

- › Pycharm
- › docker build
- › Docker + GitHub = ?
 - › Versioning of the environment
 - › Versioning of the code
 - › Runs anywhere (almost)

IPython (ancestor of Jupyter)

- › IPython was starting in 2001 by Fernando Perez, joined IPP, LazyPython to develop scientific computing environment.
- › Now it is a huge open-sourced project with > \$1m investments
- › 'I' is for 'Interactive'
- › great for literate programming
- › has support for interactive, non-blocking control of GTK, Qt, WX, GLUT, and OS X applications via special threading flags.
- › <http://ipython.readthedocs.org/en/stable/overview.html>

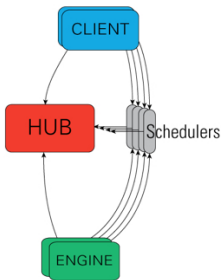
IPython main features

- › introspection & autocompletion
- › user-extensible %magic command
- › shell-integration: !cmd or var = !cmd
- › %store, %store -r
- › nice tracebacks
- › profiling & debugging: %prun, %debug
- › %timeit for time measurements

IPython kernels, decoupled model

IPython has abstracted and extended the notion of a traditional Read-Evaluate-Print Loop (REPL) environment by decoupling the evaluation into its own process. We call this process a kernel: it receives execution instructions from clients and communicates the results back to them.

<http://nbviewer.jupyter.org/github/ipython/ipython/blob/1.x/examples/notebooks/Frontend-Kernel%20Model.ipynb>



Parallel computing

<https://github.com/ipython/ipyparallel>

```
$ pip install ipyparallel
```

```
$ ipcluster start
```

```
import os
```

```
import ipyparallel as ipp
```

```
rc = ipp.Client()
```

```
ar = rc[:].apply_async(os.getpid)
```

```
pid_map = ar.get_dict()
```

```
print pid_map
```

nbviewer

- › `http://nbviewer.jupyter.org/github/ipython/ipython/blob/master/examples/IPython%20Kernel/Index.ipynb`
- › github

Jupyter - beyond Python

› Jupyter = J^Ulia P^Ython R and 50+ more languages,

<http://jupyter.readthedocs.org/en/latest/index.html>

Documentation by project

Usage, configuration and development information

- Jupyter Notebook
- JupyterHub
- jupyter_client
- jupyter_console
- jupyter_core
- nbconvert
- nbgrader
- qtconsole
- ipykernel
- ipyparallel
- IPython
- ipywidgets
- traitlets
- colabotatory
- configurable-http-proxy
- docker-stacks
- dockspawner
- jupyter-driver
- jupyter-js-notebook
- jupyter-js-phosphide
- jupyter-js-plugins
- jupyter-js-services
- jupyter-js-ui
- jupyter-js-utils
- jupyter-sphinx-theme
- kernel_gateway
- ldapauthenticator
- nbformat
- nbviewer
- oauthenticator
- sudospawner
- tmpnb

Online

- › wakario.io
- › sagemathcloud.com

tmpnb, jupyterhub

> try.jupyter.org

mybinder

> mybinder.org

everware

- › ресурсы - 11x (16CPU, 16GB RAM, 30GB HDD)
- › git fork, push
- › git checkout branch, например `https://github.com/everware/everware-dimuon-example@9bec6770485eb6b245648bc251d045a204973cc9`
- › `http://everware.rep.school.yandex.net`
- › `https://github.com/everware`

Спасибо за внимание!