Python For Humans

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Hi.

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heroku

Open Source

Requests

HTTP for Humans

```
>>> r = requests.get('https://api.github.com/user', auth=('user', 'pass'))
>>> r.status_code
200
>>> r.headers['content-type']
'application/json; charset=utf-8'
>>> r.encoding
'utf-8'
>>> r.text
u'{"type":"User"...'
>>> r.json
{u'private_gists': 419, u'total_private_repos': 77, ...}
```

Httpbin.org

```
$ curl http://httpbin.org/get?test=1
{
  "url": "http://httpbin.org/get",
  "headers": {
    "Content-Length": "",
    "Connection": "keep-alive",
    "Accept": "*/*",
    "User-Agent": "curl/7.21.4 ...",
    "Host": "httpbin.org",
    "Content-Type": ""
  },
  "args": {
    "test": "1"
  },
  "origin": "67.163.102.42"
}
```

Et Cetera

- Legit: Git Workflow for Humans
- Envoy: Subprocess for Humans
- Tablib: Tabular Data for Humans
- Clint: CLI App Toolkit
- Autoenv: Magic Shell Environments
- OSX-GCC-Installer: Provokes Lawyers

275+ More

Open Source

All The Things!

Build for Open Source

- Components become concise & decoupled.
- Concerns separate themselves.
- Best practices emerge (e.g. no creds in code).
- Documentation and tests become crucial.
- Code can be released at any time.

Philosophy

We share a dark past.

Perl, Java, PHP, ColdFusion,

Classic ASP, &c.

The Zen of Python

```
>>> import this
```

Beautiful is better
than ugly.

Explicit is better
than implicit.

Simple is better
than complex.

Complex is better
than complicated.

If the implementation is hard to explain, it's a bad idea.

(except PyPy)

There should be one—and preferably only one—obvious way to do it.

Welcome to Paradise

Lies!

We know Ruby...

```
require 'net/http'
require 'uri'

uri = URI.parse('https://api.github.com/user')

http = Net::HTTP.new(uri.host, uri.port)
http.use_ssl = true

req = Net::HTTP::Get.new(uri.request_uri)
req.basic_auth('username', 'password')

r = http.request(req)

puts r
```

Python's net/http?

http/url/lib/2

Several hours later...

```
import urllib2

gh_url = 'https://api.github.com/user'

req = urllib2.Request(gh_url)

password_manager = urllib2.HTTPPasswordMgrWithDefaultRealm()
password_manager.add_password(None, gh_url, 'user', 'pass')

auth_manager = urllib2.HTTPBasicAuthHandler(password_manager)
opener = urllib2.build_opener(auth_manager)

urllib2.install_opener(opener)

handler = urllib2.urlopen(req)

print handler.read()
```

```
import re

class HTTPForcedBasicAuthHandler(HTTPBasicAuthHandler):

    auth_header = 'Authorization'
    rx = re.compile('(?:.*,)*[ \t]*([^ \t]+)[ \t]+'
                    'realm=(["\'])(.*?)\\2', re.I)

    def __init__(self,  *args, **kwargs):
        HTTPBasicAuthHandler.__init__(self, *args, **kwargs)

    def http_error_401(self, req, fp, code, msg, headers):
        url = req.get_full_url()
        response = self._http_error_auth_reqed(
            'www-authenticate', url, req, headers)
        self.reset_retry_count()
        return response

    http_error_404 = http_error_401
```

Admit it.

You'd leave and never come back.

The Problem.

- Unclear which module to use in the first place.
- Prognosis seems to be urllib2, but the docs are useless.
- Worst API ever.

This is a serious problem.

HTTP should be as simple
as a print statement.

The Solution is Simple.

Build elegant tools to
perform these tasks.

Python needs more Pragmatic Packages.

pra•gmat•ic |prag'matik|, adj:

Dealing with things sensibly and realistically in a way that is based on practical rather than theoretical considerations

Python For Humans

Let's Break it Down.

What is HTTP at its core?

- A small set of methods with consistent parameters.
- HEAD, GET, POST, PUSH, PUT, PATCH, DELETE, &c.
- They all accept Headers, URL Parameters, Body/Form Data.

Urllib2 is Toxic.

- Heavily over-engineered.
- Abolishes most of PEP20.
- Docs are impossible to read.
- HTTP is simple. Urllib2 is not.
- Scares people away from Python.

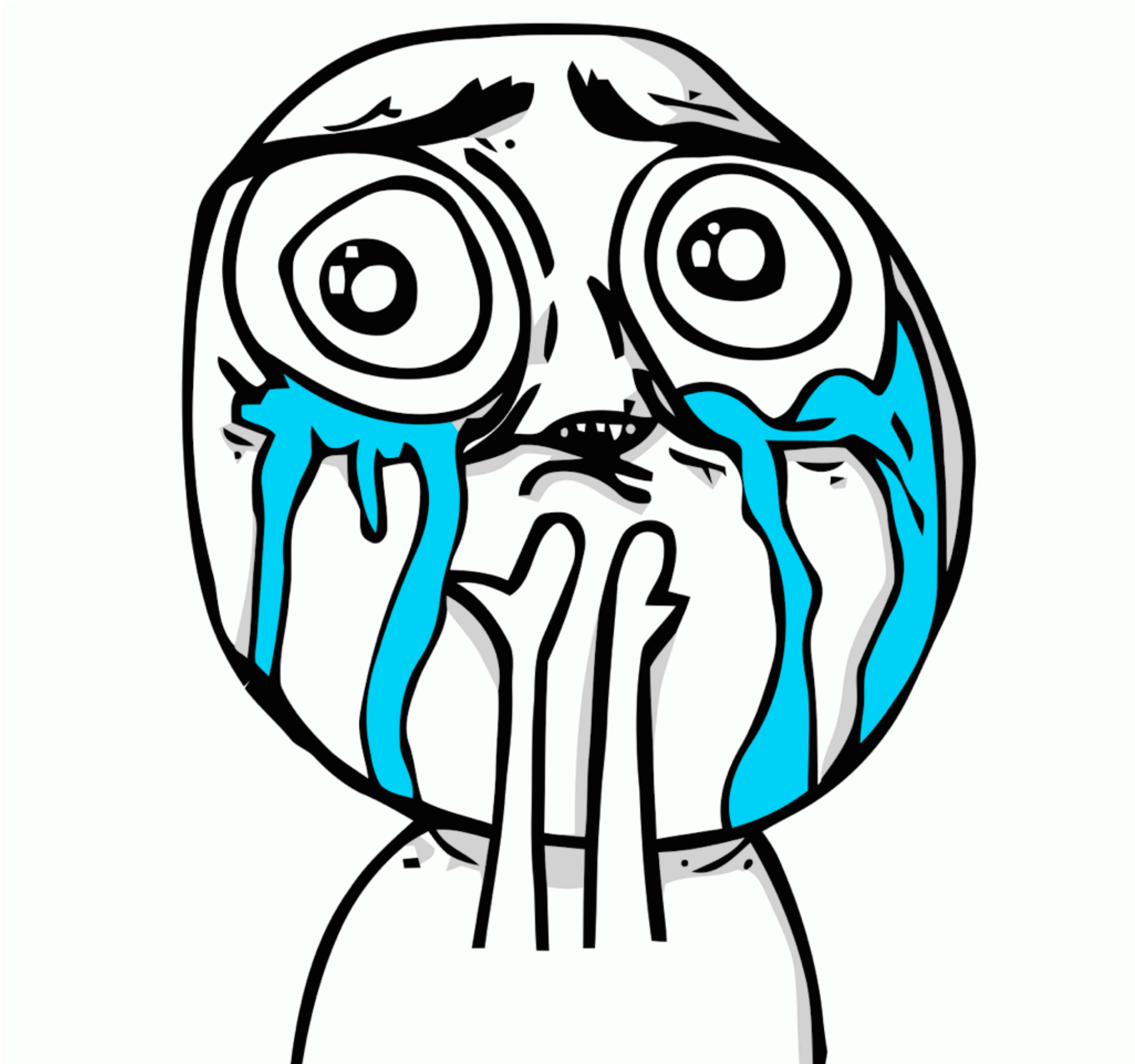
Enter Requests.

HTTP for Humans.

```
import requests

url = 'https://api.github.com/user'
auth = ('username', 'password')

r = requests.get(url, auth=auth)
print r.content
```



Achievement Unlocked!

- A small set of methods with consistent parameters.
- HEAD, GET, POST, PUSH, PUT, PATCH, DELETE, &c.
- They all accept Headers, URL Parameters, Body/Form Data.

Do this.

The Litmus Test

If you have to refer to the documentation every time you use a module, find (or build) a new module.

Fit the 90% Use Case.

The API is all that matters.

Everything else is secondary.

I Mean Everything.

- Features.
- Efficiency.
- Performance.
- Corner-cases.
- Everything.

Pivot!

- At first, Requests was far from powerful.
- But, it deeply resonated with people.
- Features grew over time, but the API was never compromised.

Requests Today

- Cookies, sessions, content-iteration, decompression, file uploads, async i/o, keep-alive, connection pooling, callback hooks, proxies, OAuth, &c
- ~400,000 downloads from PyPi.
- Kippt, PayPal, Native Instruments, The Washington Post, Twitter, Readability, &c.

Cool Story, Bro.

- We need better APIs.
- We want better APIs.
- It's worth your time as a developer.
- It's worth everyone's time as users.

Barriers to Entry

File and System Operations

- sys | shutils | os | os.path | io modules
  - Really difficult to run external commands.
  - Blocks dev+ops folks from adopting Python.

Installing Python

- Just use the system Python?
- Python 2 or Python 3?
- Installer from Python.org?
- 32bit or 64bit?
- Build from source?
- Unix or Framework build?

There should be one—and preferably only one—obvious way to do it.

XML Hell

- etree annoys people.
- lxml is awesome, but can be difficult to install.

Packaging & Depedencies

- Pip or easy_install?
- No easy_uninstall?
- Distribute vs Setuptools?
- Setuptools appears to be built into Python.
- Broken setup.py files.
- “Released” packages not in the Cheeseshop.

Date[time]s.

- Which module to use? Datetime? Date? Time? Calendar? Dateutil? 1.5?
- Timezones.
- The stdlib can generate but not parse ISO8601 dates.

Unicode.

Testing.

Installing Dependencies.

- Python-mysql (if you remember the name)
- Python Imaging Library.
- Mod_WSGI.
- lxml

The Hitchhiker's Guide to Python.

http://python-guide.org


DON'T
PANIC
AND
CARRY A
TOWEL

Python-Guide.org

The Hitchhiker's Guide to Python

- Documented best practices.
- Guidebook for newcomers.
- Reference for seasoned veterans.
- Don't panic & always carry a towel.

Best Practices

- Recommends distribute, pip, and virtualenv out of the box. Explicit installation directions for every OS.
- Instills a resistance to doctest.
- Teaches the use of datetime.utcnow()

There's only one rule...

There should be one—and preferably only one—obvious way to do it.

This Fixes...

- Makes Python more accessible, lowering the barrier to entry.
- Sets developers on the right path.
- Great reference guide for seasoned veterans.
- Practice what we preach.

THE MANIFESTO

Simplify terrible APIs.

Document our best-practices.

Questions?

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