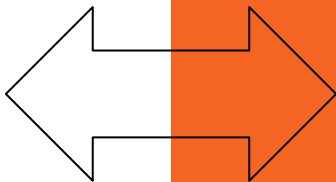


Mac users

Please sit together on this side of the room



PC users

Please sit together on this side of the room

Everyone

Please connect to the wifi
Create a new folder named “vagrant” on your desktop
Copy contents of flash drive to this folder

There's an API for That

MARAC

April 20th, 2017

Lora J. Davis
Valerie Addonizio
Johns Hopkins University

Workshop aims

1.

Practical, real life application

Info-packed take-home

Resource-packed GitHub

2.

Assurances:

You are not alone

I didn't get into this field for this
either (but some of you may have!)

This is difficult and frustrating

You didn't miss a flight; the airport
turned into a space launch while you
were in the parking lot

The 1-up learning experience

You can't learn it all and we can't teach it

Are you a 1?

We hope you'll leave a
2.

Are you a 2?

We hope you'll leave a
3.

Are you a 3?

We hope to give you
new ideas, scripts, and
momentum.

The Odd Couple

We are stronger and smarter together



9-10am
Intro/history

What is an API?

Complicated: A RESTful API is an application program interface (API) that uses HTTP requests to GET, PUT, POST and DELETE data.

Simple: You access it over the web, using URLs, and are limited to 3-4 simple commands.

(<http://searchcloudstorage.techtarget.com/definition/RESTful-API>

)

Compare:

- AT was a local application. To get at its data you needed MySQL Workbench to access a server and you needed to be careful.
 - AS is a web-based application. To get at its data you can also use Workbench, or, the API. Using the API means you won't break it.
-

Get: One way street

Vocabulary sidebar

- **GET**, **POST**, and **DELETE** are the three cornerstone commands for a RestfulAPI
- We will use these terms throughout
- Think of them as View, Save, and of course, Delete
- All APIs allow GETs, some let you POST, and few allow you to Delete
 - ASpace does all three, but allows you to tailor permissions for each

API possibilities

Get data out → Do something to it → Put it back in



GET with GUI - ProPublica

Vocabulary sidebar

- GUI stands for Graphic User Interface, *every program* you use has a GUI
- But in the programming/scripting world, there is also the command line/terminal
- We will be using both

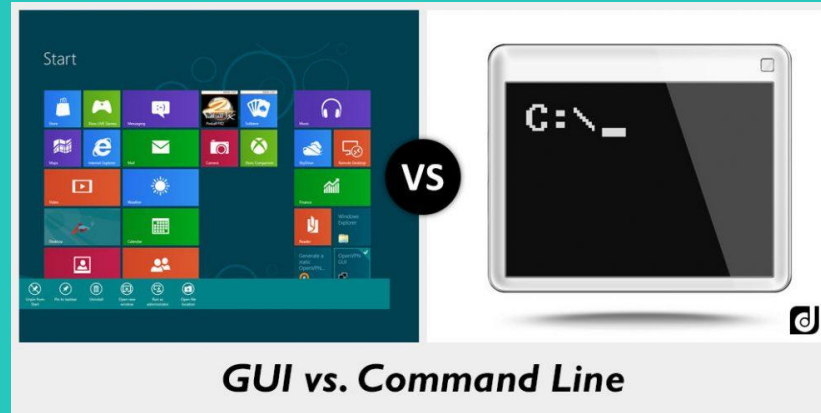
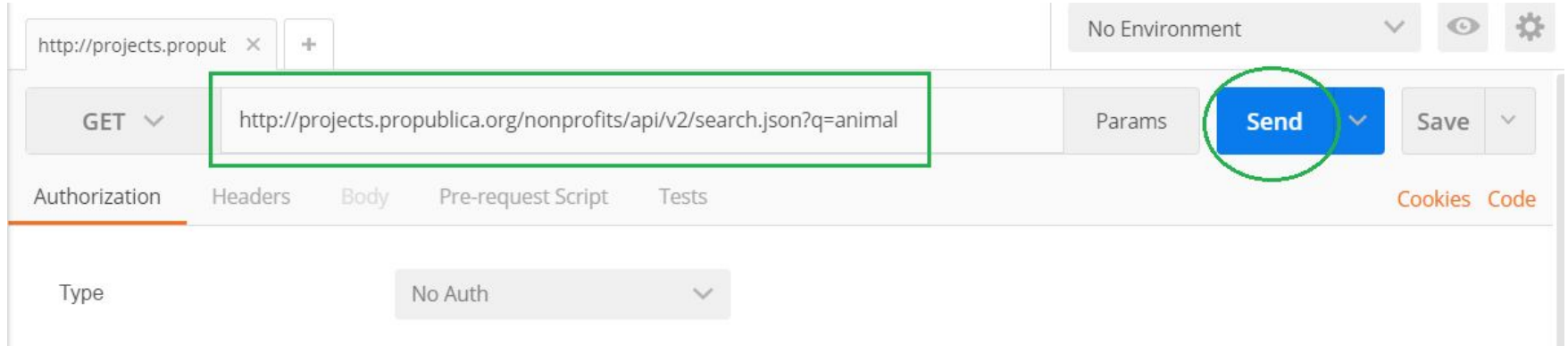


Image from <http://www.differencebtw.com/difference-between-gui-and-command-line/>

GET through a GUI



<http://projects.propublica.org/nonprofits/api/v2/search.json?q=animal>

<https://projects.propublica.org/nonprofits/api/v2/search.json?q=animal>



https://projects.propublica.org/nonprofits/a pi/v2	The address of the API. All requests must start with a similar string in order to point the request to where it needs to go. It essentially reads: go here.
/search.json	The search method set by the API. By appending this to the above URL, it essentially reads: go here, and search in a way that will output JSON.
?	Question marks denote that whatever follows is a parameter. Adding this to the above essentially reads: go here, and search, and use the following parameters. You can use more than one parameter.
q=	The parameter. The ProPublica API defines q as “A keyword search string. Searches using this parameter will search (in order) organization name, organization alternate name, city.”
animal	Any keyword supplied by the user. Go here, and use the keyword search parameter to search for <i>animal</i> , which will output as JSON.

GET with GUI - Chronicling America

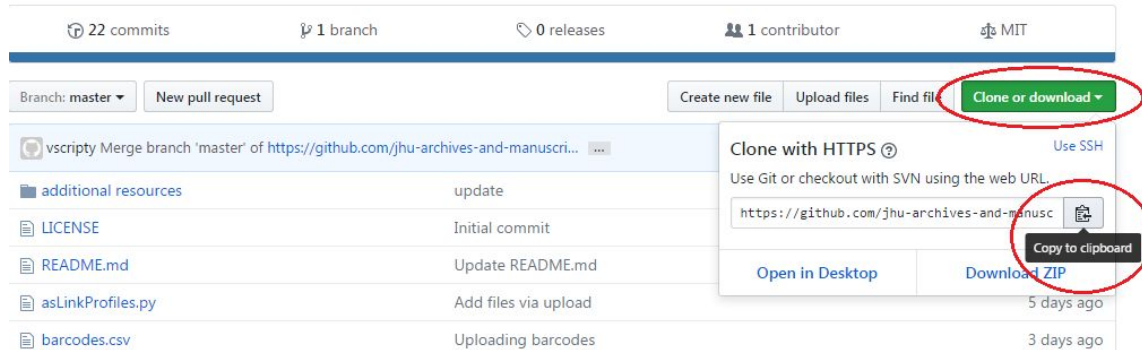
GET with GUI - Twitter

GET with Script- ProPublica

Technical Sidebar: Scripting set-up

Technical Sidebar - Download Scripts

- Navigate to GitHub.com
- Search for “MARAC API Workshop”
- Bookmark!



Technical Sidebar - cygwin

Mac

Please open the terminal:

- Use spotlight search to search for “Terminal”
- OR, open your Applications folder, then open the Utilities folder. Open the Terminal application

Type `python --version` and hit enter

PC

Please navigate to

<http://cygwin.com/install.html>

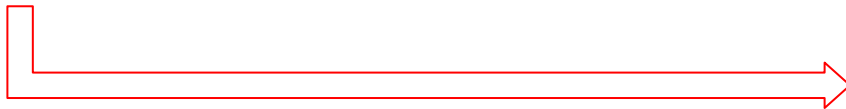
(that’s c-y-g-w-i-n)

Download and bring up the installer

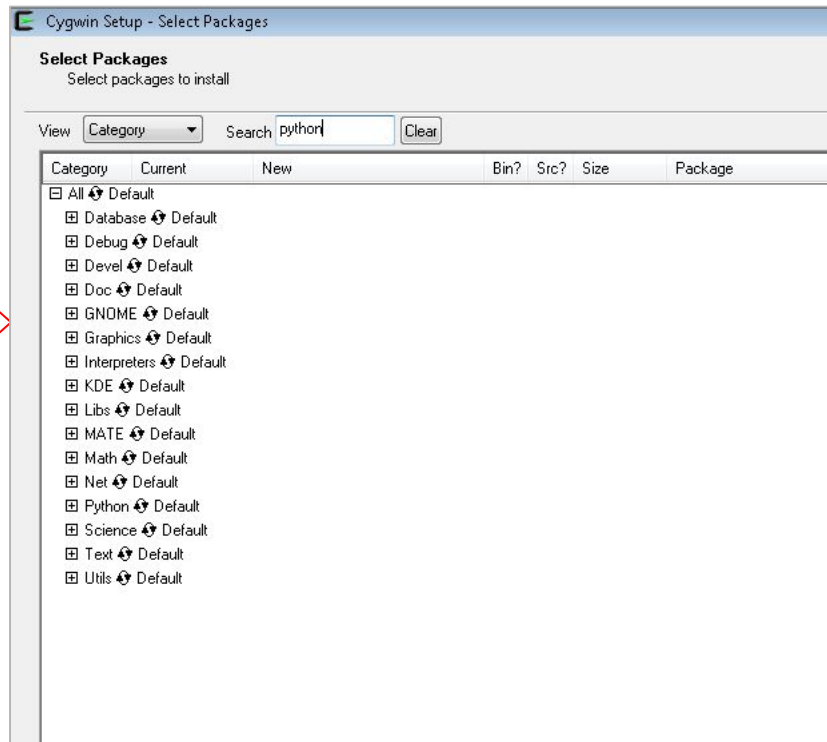
Valerie is going to walk you through the install

Windows users: Install cygwin

1. Asks you many questions, but keep defaults
2. Choose a download site: Any
3. **Stop** when you see Packages screen



Why? Because AS is Linux-based, and Windows can't communicate to Linux without an intermediary; Macs have this built-in



Install cygwin



<input checked="" type="checkbox"/> Net	<input checked="" type="checkbox"/> Default				
<input checked="" type="checkbox"/> Python	<input checked="" type="checkbox"/> Default				
<input checked="" type="checkbox"/> Skip		n/a	n/a	38k	gnome-python: Python GNOME platform bindings (meta-packag
<input checked="" type="checkbox"/> Skip		n/a	n/a	33k	gnome-python-desktop: Python GNOME Desktop bindings
<input checked="" type="checkbox"/> Skip		n/a	n/a	16k	gnome-python-extras: Python GNOME extras bindings
<input checked="" type="checkbox"/> Skip		n/a	n/a	21k	net-snmp-python: Net-SNMP (python)
<input checked="" type="checkbox"/> 2.7.10-1	<input checked="" type="checkbox"/>	<input type="checkbox"/>		5,926k	python: Python language interpreter
<input checked="" type="checkbox"/> Skip		n/a	n/a	5k	python-avahi: mDNS/DNS_SD/Zeroconf implementation (Pyth
<input checked="" type="checkbox"/> Skip		n/a	n/a	243k	python-avogadro: Molecular editor and modeling system (Pythor
<input checked="" type="checkbox"/> Skip		n/a	n/a	6k	python-backports.ssl_match_hostname: SSL hostname verificat
<input checked="" type="checkbox"/> Skip		n/a	n/a	61k	python-beautifulsoup: Python HTML/XML parser
<input checked="" type="checkbox"/> Skip		n/a	n/a	49k	python-bonobo2: Python bindings for the GNOME Bonobo libra
<input checked="" type="checkbox"/> Skip		n/a	n/a	60k	python-botan: C++ crypto library (Python bindings)
<input checked="" type="checkbox"/> Skip		n/a	n/a	1,211k	python-boto: Python interface for AWS and other clouds
<input checked="" type="checkbox"/> Skip		n/a	n/a	172k	python-bsddb3: Python Berkeley DB bindings

Install cygwin

1. When you get to the Select Packages window, search for Python then *unskip*:
 - a. **python2: Python 2 language interpreter 5,873k**
 - b. **python2-requests: Python HTTP/1.1 request module 84k**
2. Search for git, expand Devel, *unskip*:
 - a. **git: Distributed version control system 4,936k**
3. Search for Openssh, under Net, *unskip*:
 - a. **openssh: The OpenSSH server and client programs 750k**
4. Next > Next

<input checked="" type="checkbox"/> Net	<input checked="" type="checkbox"/> Default				
<input checked="" type="checkbox"/> Python	<input checked="" type="checkbox"/> Default				
<input checked="" type="checkbox"/> Skip		n/a	n/a	38k	gnome-python: Python GNOME platform bindings (meta-packag
<input checked="" type="checkbox"/> Skip		n/a	n/a	33k	gnome-python-desktop: Python GNOME Desktop bindings
<input checked="" type="checkbox"/> Skip		n/a	n/a	16k	gnome-python-extras: Python GNOME extras bindings
<input checked="" type="checkbox"/> Skip		n/a	n/a	21k	net-snmp-python: Net-SNMP (python)
<input checked="" type="checkbox"/> 2.7.10-1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5,926k	python: Python language interpreter
<input checked="" type="checkbox"/> Skip		n/a	n/a	5k	python-avahi: mDNS/DNS_SD/Zeroconf implementation (Pyth
<input checked="" type="checkbox"/> Skip		n/a	n/a	243k	python-avogadro: Molecular editor and modeling system (Pythor
<input checked="" type="checkbox"/> Skip		n/a	n/a	6k	python-backports.ssl_match_hostname: SSL hostname verificat
<input checked="" type="checkbox"/> Skip		n/a	n/a	61k	python-beautifulsoup: Python HTML/XML parser
<input checked="" type="checkbox"/> Skip		n/a	n/a	49k	python-bonobo2: Python bindings for the GNOME Bonobo libra
<input checked="" type="checkbox"/> Skip		n/a	n/a	60k	python-botan: C++ crypto library (Python bindings)
<input checked="" type="checkbox"/> Skip		n/a	n/a	1,211k	python-boto: Python interface for AWS and other clouds
<input checked="" type="checkbox"/> Skip		n/a	n/a	172k	python-bsddb3: Python Berkeley DB bindings

GET with a script

(This slide means they've already installed cygwin, downloaded the repo, and that Mac users have already checked their python version?)

Install beautify in Atom: Preferences > Install > search for “beautify”
Use by Packages > beautify

```
python proPublica.py
```


GET with a script

(This slide means they've already installed cygwin and that Mac users have already checked their python version?)

Install beautify in atom

```
pip install requests
```

Or

```
sudo pip install requests
```

Load, GET, and compare - VIAF

**POST: Two way
street
(ArchivesSpace)**

POST with GUI - ProPublica

POST with Script- Container profiles

Technical Sidebar: vagrant install and vagrant up

User stories

Spare slides

<https://api.twitter.com/1.1/search/tweets.json?q=johnshopkins>

Web search versus API

Scenario: You wish to link to every digitized edition of a certain newspaper in Chronicling America.

Browse Issues: The times dispatch.

Richmond, Va. (1903-1914)

[Browse Issues](#) | [About](#) | [Libraries that Have It](#) | [MARC Record](#)

Issues for: 1903 ▼

[Show all front pages](#)

Single edition:
dates in **bold**.

Multiple editions:
dates in ***bold italics***.

January, 1903						
S	M	T	W	T	F	S
					1	2
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

February, 1903						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

March, 1903						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

April, 1903						
S	M	T	W	T	F	S
					1	2
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

May, 1903						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

June, 1903						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

July, 1903						
S	M	T	W	T	F	S
				1	2	3
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

August, 1903						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

September, 1903						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

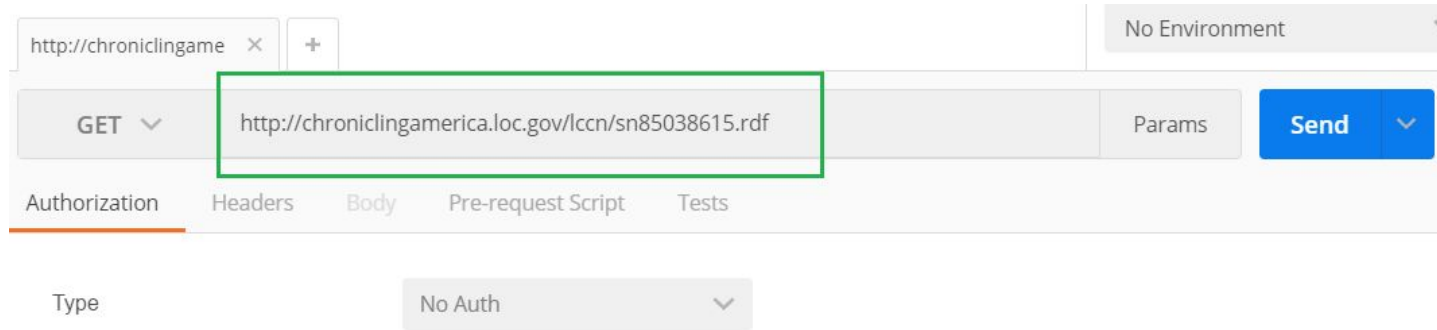
October, 1903						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

November, 1903						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

December, 1903						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Web search versus API

Scenario: You wish to link to every digitized edition of a certain newspaper in Chronicling America.



<http://chroniclingamerica.loc.gov/lccn/sn85038615.rdf>

Web search versus API

Look at the address bar for any search in AS:

<http://archivesspace.library.jhu.edu/search?utf8=✓&q=“Subseries”>

Break!

**Windows users must be back by
10:45**

10:45-11:30

Install cygwin

Web search versus API

Search for Nonprofit Data

Enter a nonprofit's name, a keyword, or city

animal

State: Any State

Major nonprofit categories: Any Category

Org. Type: Any Type

SEARCH

Examples: ProPublica, Research or Minneapolis

Advanced Search

2435 organization results for *animal*. Results are ordered by relevance.

Note: Our results **only** include organizations that filed a tax return — for any fiscal year — during the 2012-2014 calendar years.

1 2 3 4 ... 23 24 25 Next Last

Company Name	City	State	NTEE Classification	Org. Type
ANIMAL ALLIANCE	WOODLAND HLS	CA	Animal Protection and Welfare ↳ Animal-Related	501(c)(3)
ANIMAL ANGELS	JACKSBORO	TX		501(c)(3)
ANIMAL APPEAL	SHARPSVILLE	PA	Boys Clubs ↳ Youth Development	501(c)(3)

You don't get different *results*, you get the same results in a different format.

```
{
  "total_results": 2435,
  - "organizations": [Array[100]
    - 0: {
      "ein": 731663130,
      "strein": "73-1663130",
      "name": "ANIMAL ALLIANCE",
      "sub_name": "ANIMAL ALLIANCE",
      "city": "WOODLAND HLS",
      "state": "CA",
      "ntee_code": "D20",
      "raw_ntee_code": "D20",
      "subseccd": 3,
      "has_subseccd": true,
      "have_filings": true,
      "have_extracts": true,
      "have_pdfs": true,
      "score": 443.46564
    }
  ]
}
```



```

- "organizations": [Array[100]
  - 0: {
    "ein": 731663130,
    "strein": "73-1663130",
    "name": "ANIMAL ALLIANCE",
    "sub_name": "ANIMAL ALLIANCE",
    "city": "WOODLAND HLS",
    "state": "CA",
    "ntee_code": "D20",
    "raw_ntee_code": "D20",
    "subseccd": 3,
    "has_subseccd": true,
    "have_filings": true,
    "have_extracts": true,
    "have_pdfs": true,
    "score": 443.46564
  },
  - 1: {
    "ein": 752461428,
    "strein": "75-2461428",
    "name": "ANIMAL ANGELS",
    "sub_name": "ANIMAL ANGELS",
    "city": "JACKSBORO",
    "state": "TX",
    "ntee_code": null,
    "raw_ntee_code": null,
    "subseccd": 3,
    "has_subseccd": true,
    "have_filings": true,
    "have_extracts": true,
    "have_pdfs": true,
    "score": 443.46564
  },
  - 2: {
    "ein": 232896507,
    "strein": "23-2896507",
    "name": "ANIMAL APPEAL",
    "sub_name": "ANIMAL APPEAL",
    "city": "SHARPSVILLE",
    "state": "PA",
    "ntee_code": "O21",
    "raw_ntee_code": "O21",
    "subseccd": 3,
    "has_subseccd": true,
    "have_filings": true,
    "have_extracts": true,
    "have_pdfs": true,
    "score": 443.46564
  },

```

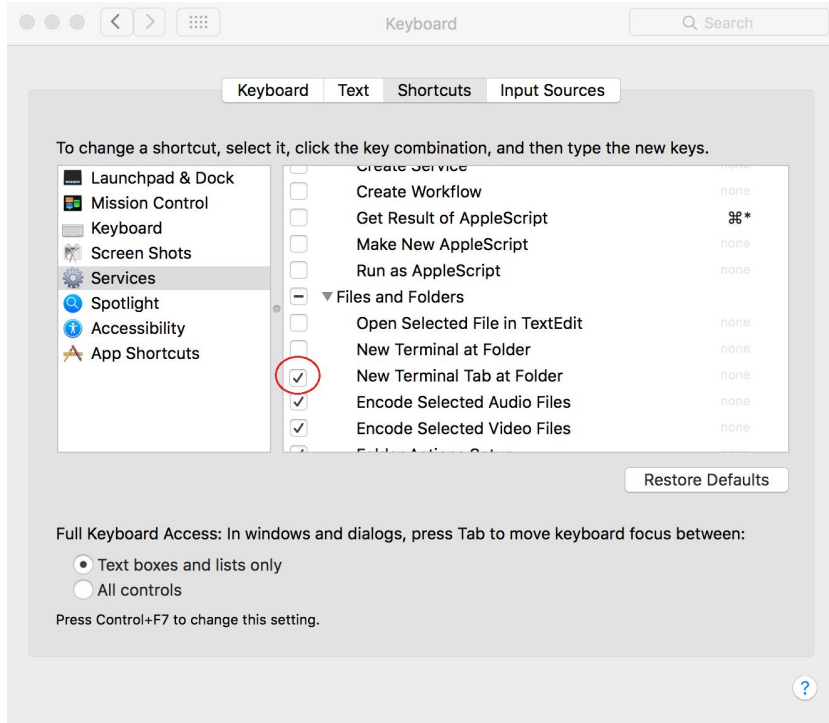
Converting these JSON search results to a CSV (spreadsheet) took less than 10 seconds.

	total_results	organizations_ein	organizations_strein	organizations_name	organizations_sub_name	organizations_city	organizations_state	organizations_ntee_code	organizations_raw_ntee_code	organizations_score
001	2435	731663130	73-1663130	ANIMAL ALLIANCE	ANIMAL ALLIANCE	WOODLAND HLS	CA	D20	D20	3
002		752461428	75-2461428	ANIMAL ANGELS	ANIMAL ANGELS	JACKSBORO	TX	null	null	3
003		232896507	23-2896507	ANIMAL APPEAL	ANIMAL APPEAL	SHARPSVILLE	PA	O21	O21	3
004		43654364	04-3654364	ANIMAL ASSISTANCE	ANIMAL ASSISTANCE	E BRUNSWICK	NJ	D20	D20	3
005		80099106	00-099106	ANIMAL FAIR	ANIMAL FAIR	SEDALIA	MO	D20	D20	3
006		752391827	75-2391827	ANIMAL HAVEN	ANIMAL HAVEN	DALLAS	TX	null	null	3
007		95793130	95-793130	ANIMAL HELPER	ANIMAL HELPER	HOROWO VLY	CA	D200	D200	3
008		570921521	57-0921521	ANIMAL MISSION	ANIMAL MISSION	COLUMBIA	SC	D200	D200	3
009		462455876	46-2455876	ANIMAL NETWORK	ANIMAL NETWORK	LAS VEGAS	NV	D20	D20	3
010		18462882	01-0462882	ANIMAL ORPHANAGE	ANIMAL ORPHANAGE	ORONO	ME	D200	D200	3
011		454902841	45-4902841	ANIMAL PAD	ANIMAL PAD	SAN DIEGO	CA	D20	D20	3
012		810679304	81-0679304	ANIMAL ADVOCATES	ANIMAL ADVOCATES	BARNWELL	SC	D11	D11	3
013		20469900	02-0469900	ANIMAL ALLIES	ANIMAL ALLIES	MANCHESTER	NH	D20	D20	3
014		680630714	68-0630714	ANIMAL BALANCE	ANIMAL BALANCE	EL CERRITO	CA	Z99	Z99	3
015		953967883	95-3967883	ANIMAL COMPANIONS	ANIMAL COMPANIONS	PIPE CREEK	TX	null	null	3
016		237237862	23-7237862	ANIMAL FUND	ANIMAL FUND	GREENBRAE	CA	D013	D013	3
017		204444813	20-4444813	ANIMAL LIFELINE	ANIMAL LIFELINE	WARRINGTON	PA	D20	D20	3
018		680200668	68-0200668	ANIMAL PLACE	ANIMAL PLACE	GRASS VALLEY	CA	D200	D200	3
019		800610723	00-0610723	ANIMAL UNION	ANIMAL UNION	DAILY CITY	CA	P00	P00	3
020		260796104	26-0796104	ANIMAL ADVOCATES	ANIMAL ADVOCATES	WESTCLIFFE	CO	D20	D20	3
021		223451569	22-3451569	ANIMAL ALLIES	ANIMAL ALLIES	EVING	NJ	D200	D200	3
022		571008021	57-1008021	ANIMAL ALLIES	ANIMAL ALLIES	SPARTANBURG	SC	D200	D200	3
023		208502915	20-8502915	ANIMAL ANGELS	ANIMAL ANGELS	MEDIAPOLIS	IA	D20	D20	3
024		262933425	26-2933425	ANIMAL DIPLOMACY	ANIMAL DIPLOMACY	CAMBRIDGE	MA	D20	D20	3
025		10714781	01-0714781	ANIMAL TRACKS	ANIMAL TRACKS	ACTON	CA	D34	D34	3
026		454027119	45-4027119	ANIMAL AID	ANIMAL AID	ATHENS	TN	D40	D40	3
027		272034873	27-2034873	ANIMAL WATCH	ANIMAL WATCH	BOULDER	CO	D30	D30	3
028		481287089	48-1287089	ANIMAL ADVOCATES	ANIMAL ADVOCATES	LOS ANGELES	CA	D20	D20	3
029		800530102	00-0530102	ANIMAL FOLKS	ANIMAL FOLKS	SAINT PAUL	MN	D20	D20	3
030		371768388	37-1768388	ANIMAL FOUNDATION	ANIMAL FOUNDATION	HERMANN	MO	P29	P29	3
031		203596003	20-3596003	ANIMAL MAGIC	ANIMAL MAGIC	BELLEVILLE	MI	D20	D20	3
032		953171867	95-3171867	ANIMAL SAVARITANS	ANIMAL SAVARITANS	THOUSAND PLMS	CA	D200	D200	3

1. Confirm vagrant version

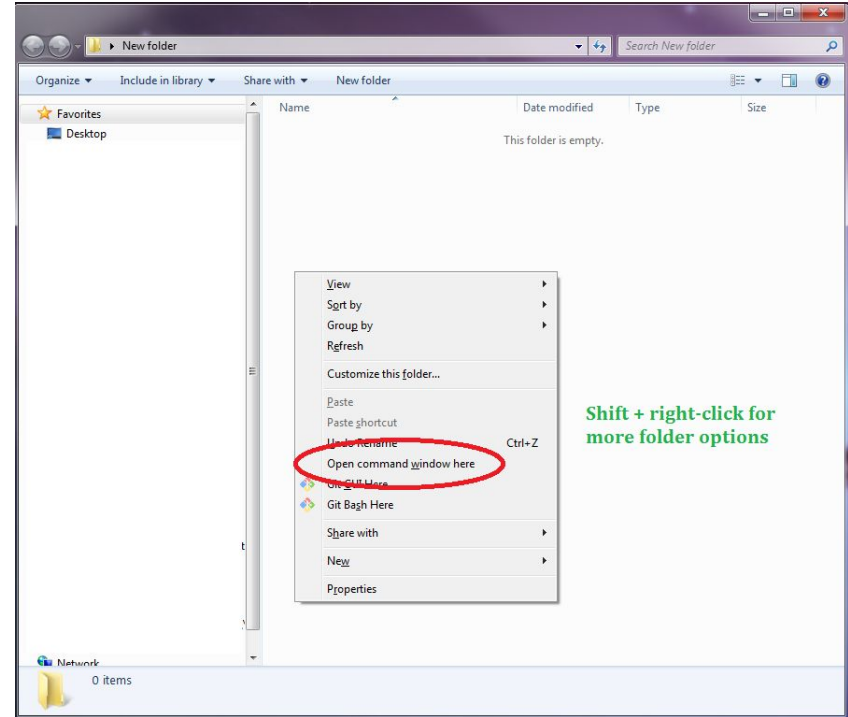
Command line = `vagrant -- version`

Mac

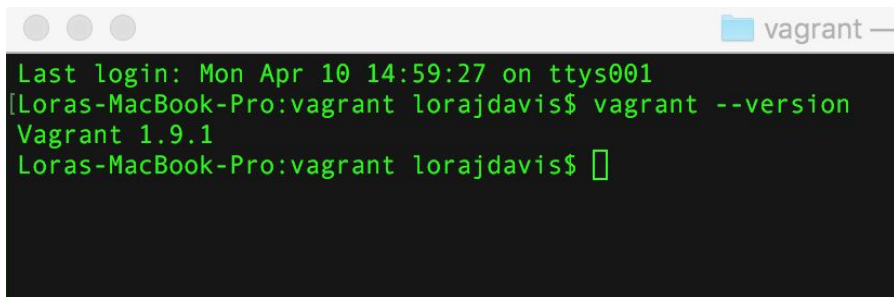


PC

Shift + right click

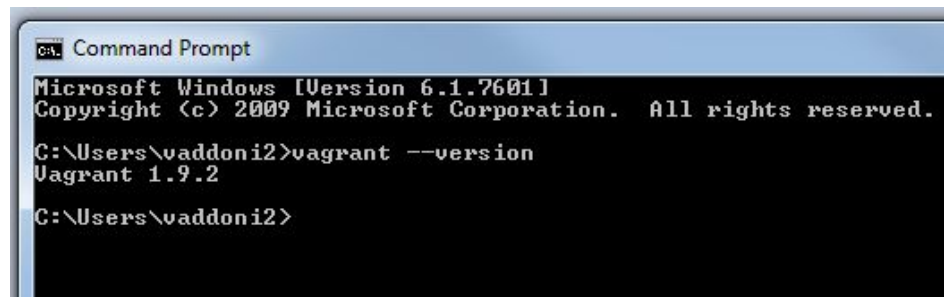


Mac

A screenshot of a macOS terminal window. The title bar shows three window control buttons (red, yellow, green) and a folder icon labeled 'vagrant'. The terminal text is as follows:

```
Last login: Mon Apr 10 14:59:27 on ttys001
[Loras-MacBook-Pro:vagrant lorajdavis$ vagrant --version
Vagrant 1.9.1
Loras-MacBook-Pro:vagrant lorajdavis$
```

PC

A screenshot of a Windows Command Prompt window. The title bar is blue and says 'cmd. Command Prompt'. The text inside the window is as follows:

```
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

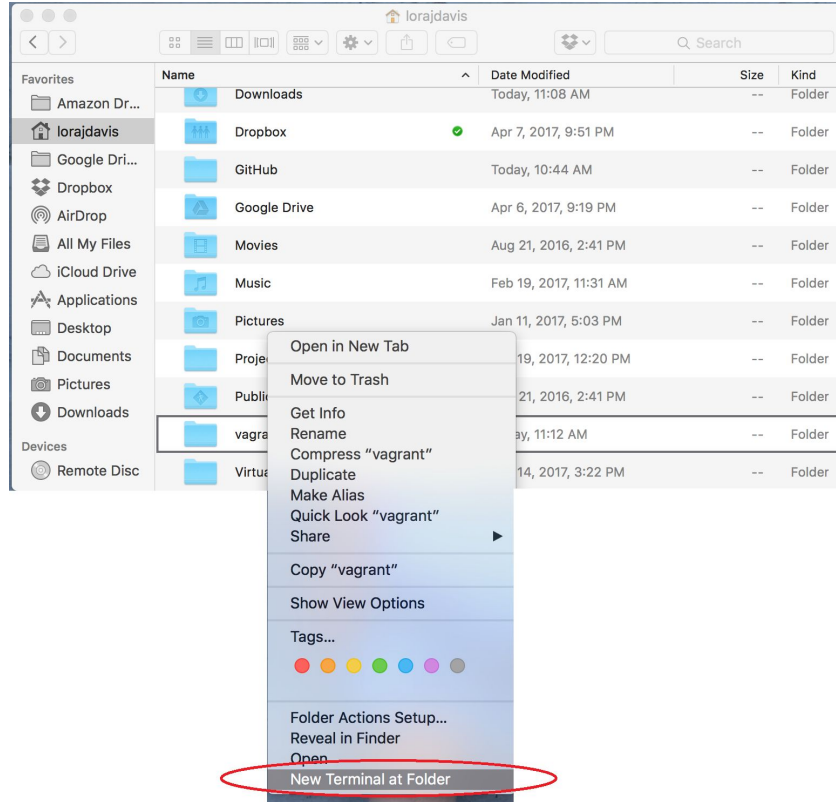
C:\Users\vaddoni2>vagrant --version
Vagrant 1.9.2

C:\Users\vaddoni2>
```

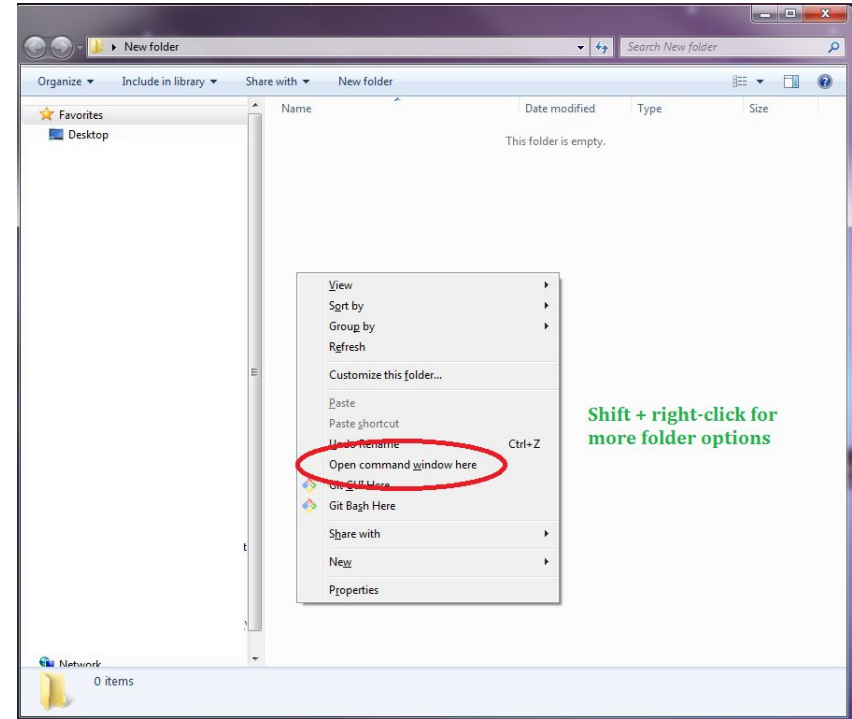
Note to self: do this in morning, check in before lunch that everyone has done it

1. Create new folder on desktop called "vagrant"
2. Upload file from thumb drive to vagrant folder

Mac



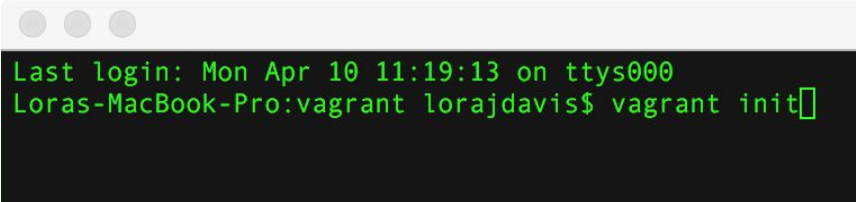
PC



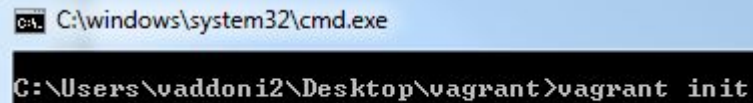
Mac

PC

vagrant init



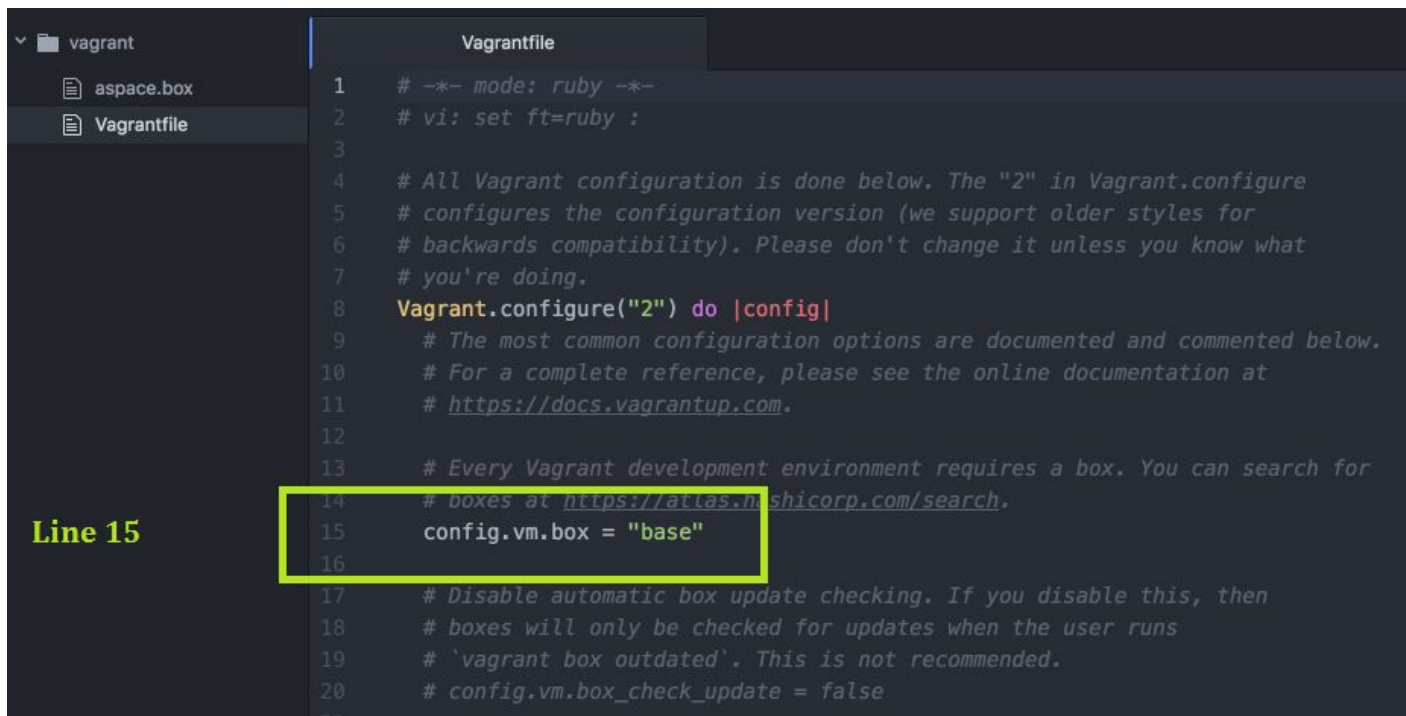
```
Last login: Mon Apr 10 11:19:13 on ttys000
Loras-MacBook-Pro:vagrant lorajdavis$ vagrant init
```



```
C:\windows\system32\cmd.exe
C:\Users\vaddoni2\Desktop\vagrant>vagrant init
```

Everyone

Open vagrantfile with Atom text editor and find line 15
PC users right-click; MAC users ctrl + click

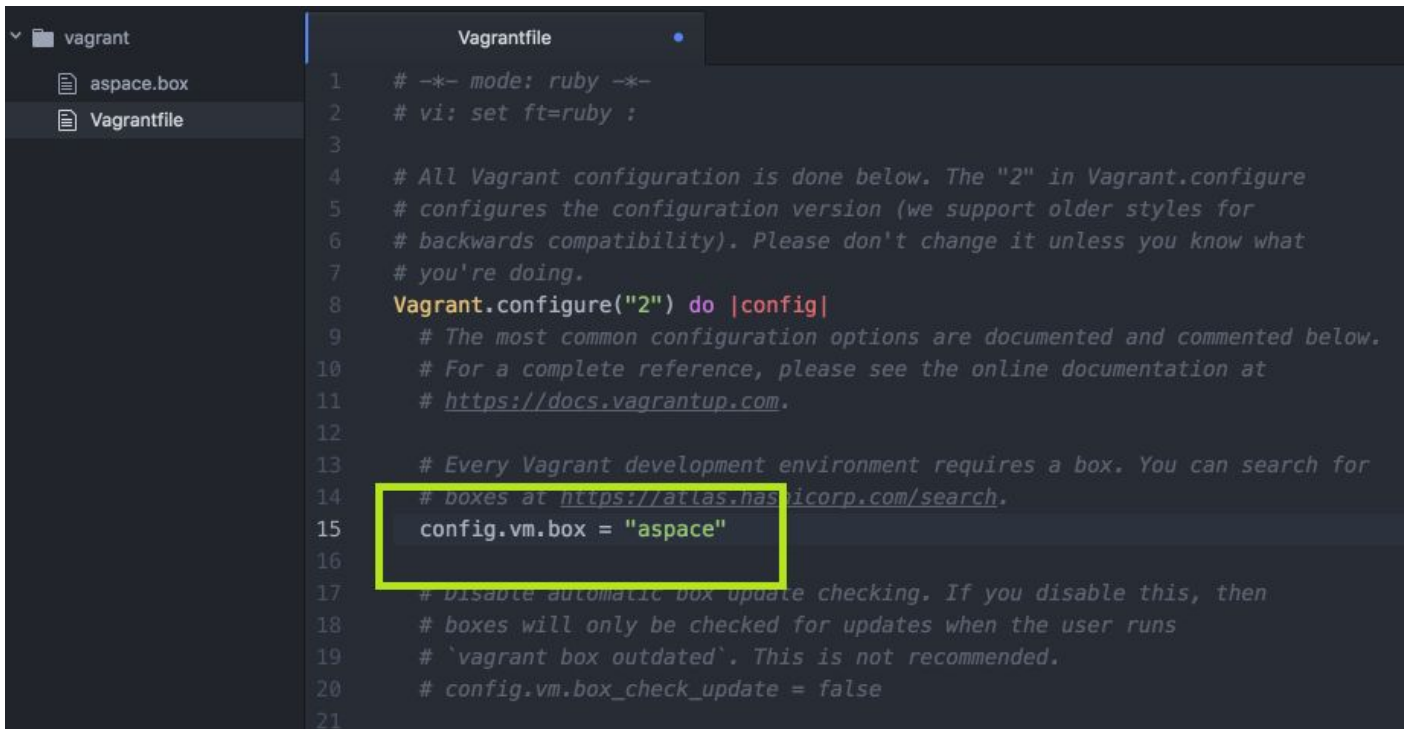


```
1  # -*- mode: ruby -*-
2  # vi: set ft=ruby :
3
4  # All Vagrant configuration is done below. The "2" in Vagrant.configure
5  # configures the configuration version (we support older styles for
6  # backwards compatibility). Please don't change it unless you know what
7  # you're doing.
8  Vagrant.configure("2") do |config|
9    # The most common configuration options are documented and commented below.
10   # For a complete reference, please see the online documentation at
11   # https://docs.vagrantup.com.
12
13   # Every Vagrant development environment requires a box. You can search for
14   # boxes at https://atlas.hashicorp.com/search.
15   config.vm.box = "base"
16
17   # Disable automatic box update checking. If you disable this, then
18   # boxes will only be checked for updates when the user runs
19   # 'vagrant box outdated'. This is not recommended.
20   # config.vm.box_check_update = false
```

Line 15

Everyone

Change “base” to “aspace” on Line 15

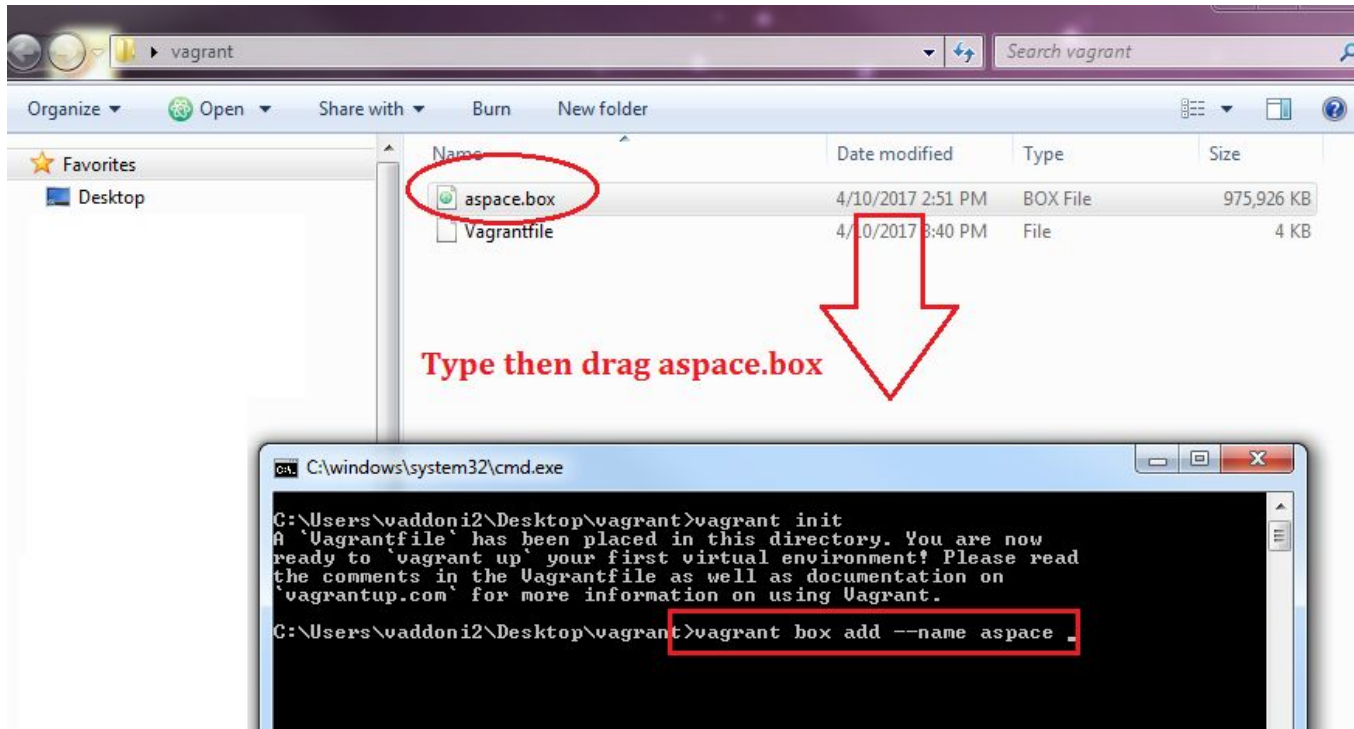


The image shows a code editor window with a dark theme. On the left, a sidebar shows a file tree with a folder named 'vagrant' containing two files: 'aspace.box' and 'Vagrantfile'. The 'Vagrantfile' file is selected and open in the main editor. The editor shows line numbers from 1 to 21. Line 15, which contains the code 'config.vm.box = "aspace"', is highlighted with a yellow rectangular box. The code is written in a light-colored monospaced font against the dark background. The text of the Vagrantfile includes comments about configuration and a link to the Vagrant documentation.

```
1  # -*- mode: ruby -*-
2  # vi: set ft=ruby :
3
4  # All Vagrant configuration is done below. The "2" in Vagrant.configure
5  # configures the configuration version (we support older styles for
6  # backwards compatibility). Please don't change it unless you know what
7  # you're doing.
8  Vagrant.configure("2") do |config|
9    # The most common configuration options are documented and commented below.
10   # For a complete reference, please see the online documentation at
11   # https://docs.vagrantup.com.
12
13   # Every Vagrant development environment requires a box. You can search for
14   # boxes at https://atlas.hashicorp.com/search.
15   config.vm.box = "aspace"
16
17   # Disable automatic box update checking. If you disable this, then
18   # boxes will only be checked for updates when the user runs
19   # `vagrant box outdated`. This is not recommended.
20   # config.vm.box_check_update = false
21
```

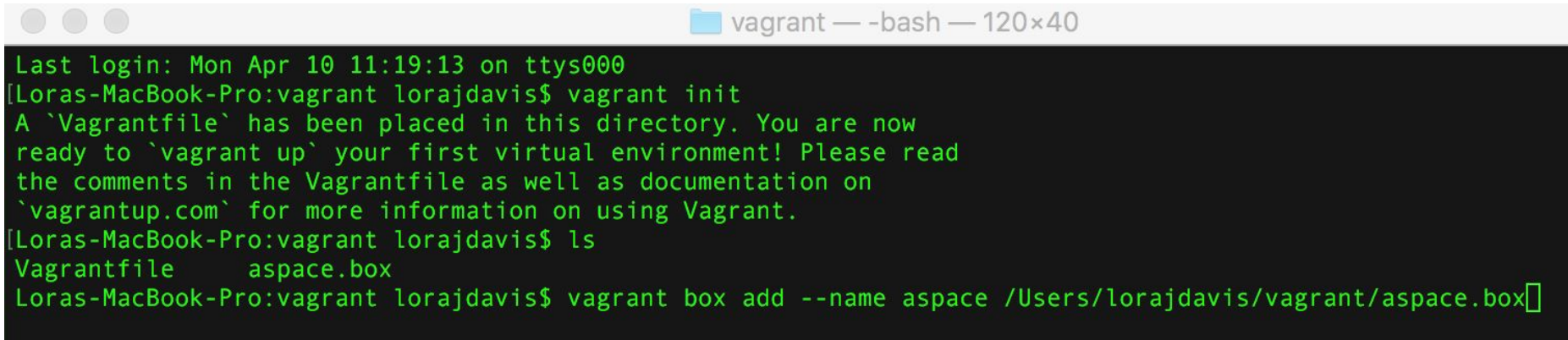
Everyone

vagrant box add --name aspace



Everyone

```
vagrant box add --name aspace
```



A terminal window titled "vagrant — -bash — 120x40" with three window control buttons (red, yellow, green) on the left. The terminal displays the following text:

```
Last login: Mon Apr 10 11:19:13 on ttys000
[Loras-MacBook-Pro:vagrant lorajdavis$ vagrant init
A `Vagrantfile` has been placed in this directory. You are now
ready to `vagrant up` your first virtual environment! Please read
the comments in the Vagrantfile as well as documentation on
`vagrantup.com` for more information on using Vagrant.
[Loras-MacBook-Pro:vagrant lorajdavis$ ls
Vagrantfile      aspace.box
[Loras-MacBook-Pro:vagrant lorajdavis$ vagrant box add --name aspace /Users/lorajdavis/vagrant/aspace.box
```

Mac

PC

vagrant up

```
vagrant -- -bash -- 120x40
Last login: Mon Apr 10 11:19:13 on ttys000
Loras-MacBook-Pro:vagrant lorajdavis$ vagrant init
A 'Vagrantfile' has been placed in this directory. You are now
ready to 'vagrant up' your first virtual environment! Please read
the comments in the Vagrantfile as well as documentation on
'vagrantup.com' for more information on using Vagrant.
Loras-MacBook-Pro:vagrant lorajdavis$ ls
Vagrantfile  aspace.box
Loras-MacBook-Pro:vagrant lorajdavis$ vagrant box add --name aspace /Users/lorajdavis/vagrant/aspace.box
==> box: Box file was not detected as metadata. Adding it directly...
==> box: Adding box 'aspace' (v0) for provider:
      box: Unpacking necessary files from: file:///Users/lorajdavis/vagrant/aspace.box
==> box: Successfully added box 'aspace' (v0) for 'virtualbox'!
Loras-MacBook-Pro:vagrant lorajdavis$ vagrant up
```

```
C:\windows\system32\cmd.exe
C:\Users\vaddon12\Desktop\vagrant>vagrant init
A 'Vagrantfile' has been placed in this directory. You are now
ready to 'vagrant up' your first virtual environment! Please read
the comments in the Vagrantfile as well as documentation on
'vagrantup.com' for more information on using Vagrant.
C:\Users\vaddon12\Desktop\vagrant>vagrant box add --name aspace C:\Users\vaddon12\Desktop\vagrant\aspace.box
==> box: Box file was not detected as metadata. Adding it directly...
==> box: Adding box 'aspace' (v0) for provider:
      box: Unpacking necessary files from: file:///C:/Users/vaddon12/Desktop/vagrant/aspace.box
      box: Progress: 100% (Rate: 21.0M/s, Estimated time remaining: --:--:-- )
==> box: Successfully added box 'aspace' (v0) for 'virtualbox'!
C:\Users\vaddon12\Desktop\vagrant>vagrant up
```

Open browser, navigate to:
<http://localhost:8089>

← → ⓘ localhost:8089

```
{ "databaseProductName": "MySQL", "databaseProductVersion": "5.5.54-0ubuntu0.14.04.1", "ruby_version": "1.9", "host_os": "linux", "host_cpu": "i386", "build": "java1.6", "archivesSpaceVersion": "v1.5.4" }
```

<http://localhost:8080>

← → ↻ ⓘ localhost:8080



ArchivesSpace

Sign In



Welcome to ArchivesSpace

Your friendly archives management tool.

[Visit ArchivesSpace.org](https://ArchivesSpace.org) | v1.5.4 | [Send Feedback](#) or [Report a Problem](#)

Lunch!

http://localhost:8089

← → ⓘ localhost:8089

```
{ "databaseProductName": "MySQL", "databaseProductVersion": "5.5.54-0ubuntu0.14.04.1", "ruby_version": "1.9", "host_os": "linux", "host_cpu": "i386", "build": "java1.6", "archivesSpaceVersion": "v1.5.4" }
```

1:15-2:30

ASpace

Everyone:

1. Navigate to https://github.com/jhu-archives-and-manuscripts/MARAC_API_Workshop
2. Clone or download > Copy to clipboard

Mac

1. Ctrl+click on Desktop > New Terminal at Folder
2. Type `git clone` [ctrl-click > paste]

PC

1. Open cygwin
2. Type `git clone` [right-click > paste]

The screenshot shows a REST client interface with the following elements:

- Method:** POST (highlighted with a green box)
- URL:** http://localhost:8089/users/admin/login (highlighted with a green box)
- Params:** A button labeled "Params" is visible.
- Send Button:** A blue button labeled "Send" with a dropdown arrow.
- Body Tab:** The "Body" tab is selected and highlighted with a green box. It has a blue dot indicator.
- Body Type:** The "raw" radio button is selected and highlighted with a green box. Other options include "form-data", "x-www-form-urlencoded", and "binary".
- Text Format:** The "Text" format is selected, indicated by an orange label and a dropdown arrow.
- Body Content:** A table with one row containing the text "password=admin". The row is highlighted with a green box.

Endpoint: <http://localhost:8089/users/admin/login>

password=admin

POST

http://localhost:8089/users/admin/login

Params

Send

Save

Authorization

Headers

Body

Pre-request Script

Tests

Cookies

Code

form-data

x-www-form-urlencoded

raw

binary

Text

1

password=admin

Body

Cookies

Headers (6)

Tests

Status: 200 OK

Time: 1863 ms

Size: 3.52 KB

Pretty

Raw

Preview

JSON

Save Response

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

{

"session": "1e92c467b386a491629ad8ad749ddaad3aca64a6ba31827e0c5fc9e5b18984c9",

"user": {

"lock_version": 816,

"username": "admin",

"name": "Administrator",

"is_system_user": true,

"create_time": "2016-05-10T17:09:06Z",

"system_mtime": "2017-04-10T15:35:33Z",

"user_mtime": "2017-04-10T15:35:33Z",

"jsonmodel_type": "user",

"groups": [],

"is_admin": true,

"uri": "/users/1",

"agent_record": {

"ref": "/agents/people/1"

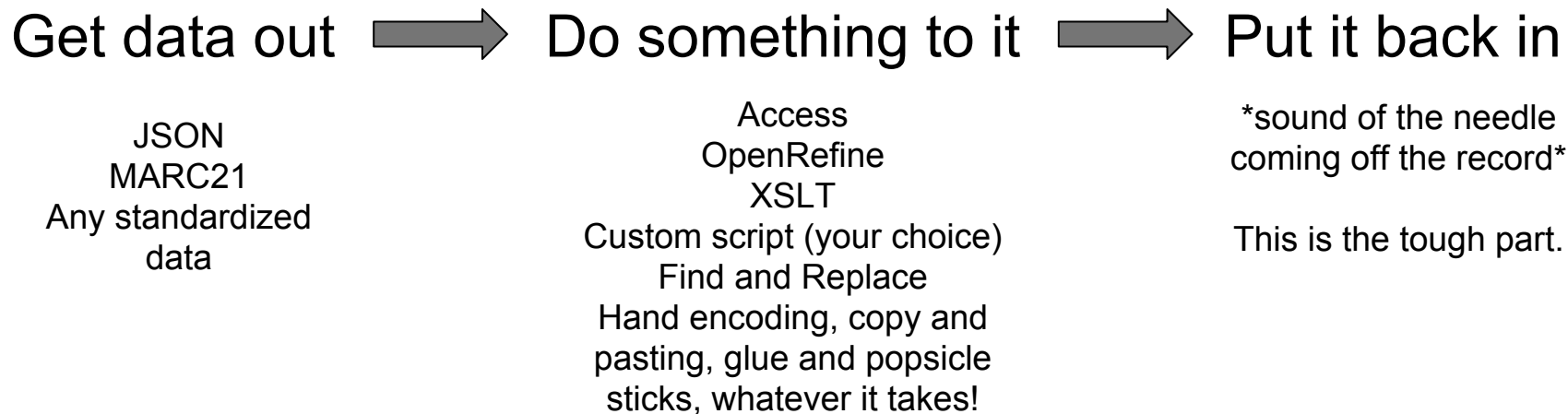
},

"password": "admin"

}

Copy the value only, then
switch to POST above

Transforming data



Link container profiles

Navigate to: `localhost:8089/container_profiles`

Determine the URI for the container profile you wish to link to

Interpreting API endpoints

<http://archivesspace.github.io/archivesspace/api>

GET /repositories/:repo_id/resources/:id

Description

Get a Resource

Parameters

Integer id – The ID of the record

Integer repo_id – The Repository ID – The Repository must exist

[String] resolve – A list of references to resolve and embed in the response

Returns

200 – (:resource)

```
curl -H "X-ArchivesSpace-Session: $SESSION" "http://localhost:8089/repositories/:repo_id/resources/1"
```


Interpreting API endpoints

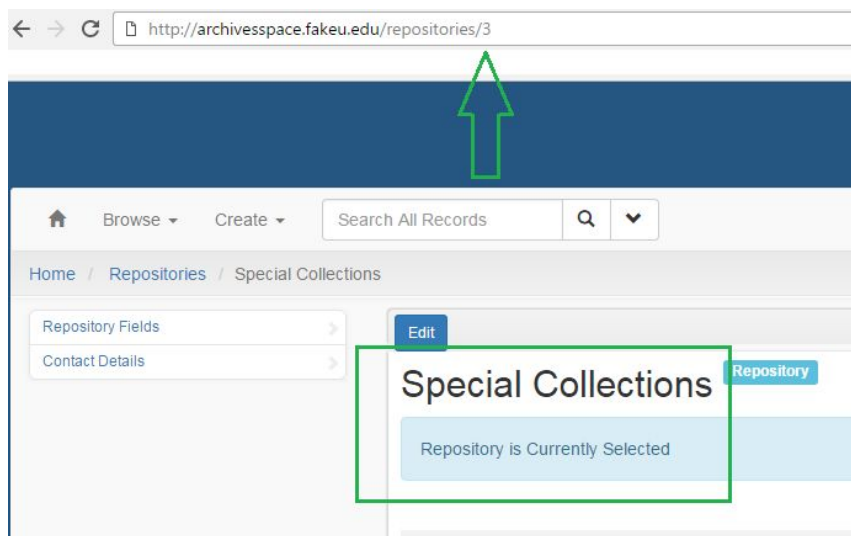
<http://archivesspace.github.io/archivesspace/api>

```
curl -H "X-ArchivesSpace-Session: $SESSION" "http://localhost:8089/repositories/:repo_id/resources/1"
```

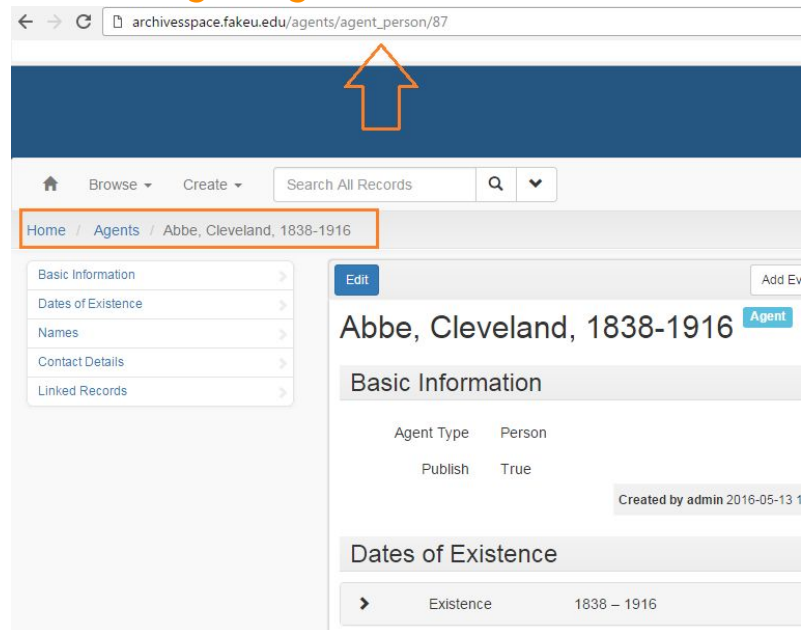
Interpreting API endpoints

The interface – just another lens on the same data – is helpful for constructing API requests.

Determining the repository number:



Determining an agent number:



Default endpoint: http://localhost:8089/repositories/:repo_id/resources/1

Example endpoint: <http://archivesspace.fakeu.edu:8089/repositories/3/resources/1>

http://localhost:8089	The address of your instance of ASpace. You will ONLY replace “local host,” the colon and port number remain. EX. http://archivesspace.fakeu.edu:8089
/repositories	The presence of “repositories” here means that this endpoint is repository-specific. Some non-repo specific requests in AS are for Agents and Access Points, which span all of AS. EX. http://archivesspace.fakeu.edu:8089/agents
/:repo_id	The presence of this colon means this value will be unique to your institution. How can you determine the repository number? You can use the repo endpoint, or, from within AS navigate Systems > Manage Repositories > select repository > and look at the address bar. EX. http://archivesspace.fakeu.edu:8089/repositories/3
/resources	Other examples are /accessions or /top_containers. EX. http://archivesspace.fakeu.edu:8089/repositories/3/accessions
/1	The first resource. How can you determine resource numbers? Navigate to the resource in the interface and its number will be in the address bar. EX. http://archivesspace.fakeu.edu:8089/repositories/3/resources/1

User stories

Can the API create reports?

- Yes... but an API is the wrong tool for reporting
- Like using a jack-hammer indoors: yes it will work, but it will be more effort with the wrong tool
- For AS users in particular:
 - Wait for reporting to improve, because it will
 - But in the meantime (or for more customizing reporting) we suggest connecting AS to MS Access.
 - Credit to Nancy Enneking, Head of Institutional Records at the Getty and Celia Caust-Ellenbogen, Friends Historical Library of Swarthmore College for the method
 - You can find Celia's slides in the workshop GitHub > additional resources
 - If you don't know Access, it's easier to learn that than learning to script just for reports

Transforming data

```
- "organizations": [Array[100]]
- 0: {
  "ein": 731663130,
  "strein": "73-1663130",
  "name": "ANIMAL ALLIANCE",
  "sub_name": "ANIMAL ALLIANCE",
  "city": "WOODLAND HLS",
  "state": "CA",
  "ntee_code": "D20",
  "raw_ntee_code": "D20",
  "subseccd": 3,
  "has_subseccd": true,
  "have_fillings": true,
  "have_extracts": true,
  "have_pdfs": true,
  "score": 443.46564
},
- 1: {
  "ein": 752461428,
  "strein": "75-2461428",
  "name": "ANIMAL ANGELS",
  "sub_name": "ANIMAL ANGELS",
  "city": "JACKSBORO",
  "state": "TX",
  "ntee_code": null,
  "raw_ntee_code": null,
  "subseccd": 3,
  "has_subseccd": true,
  "have_fillings": true,
  "have_extracts": true,
  "have_pdfs": true,
  "score": 443.46564
},
- 2: {
  "ein": 232896507,
  "strein": "23-2896507",
  "name": "ANIMAL APPEAL",
  "sub_name": "ANIMAL APPEAL",
  "city": "SHARPSVILLE",
  "state": "PA",
  "ntee_code": "O21",
  "raw_ntee_code": "O21",
  "subseccd": 3,
  "has_subseccd": true,
  "have_fillings": true,
  "have_extracts": true,
  "have_pdfs": true,
  "score": 443.46564
},
}
```

result.csv										
	total_results	organizations_ein	organizations_strein	organizations_name	organizations_sub_name	organizations_city	organizations_state	organizations_ntee_code	organizations_raw_ntee_code	organizations_score
001	2435	731663130	73-1663130	ANIMAL ALLIANCE	ANIMAL ALLIANCE	WOODLAND HLS	CA	D20	D20	3
002		752461428	75-2461428	ANIMAL ANGELS	ANIMAL ANGELS	JACKSBORO	TX	null	null	3
003		232896507	23-2896507	ANIMAL APPEAL	ANIMAL APPEAL	SHARPSVILLE	PA	O21	O21	3
004		43654364	04-3654364	ANIMAL ASSISTANCE	ANIMAL ASSISTANCE	E BRUNSWICK	NJ	D20	D20	3
005		800099106	80-0099106	ANIMAL FAIR	ANIMAL FAIR	SEDALIA	MO	D20	D20	3
006		752391827	75-2391827	ANIMAL HAVEN	ANIMAL HAVEN	DALLAS	TX	null	null	3
007		957993130	95-7993130	ANIMAL HELPER	ANIMAL HELPER	WOMOD VLY	CA	D200	D200	3
008		570921521	57-0921521	ANIMAL MISSION	ANIMAL MISSION	COLUMBIA	SC	D200	D200	3
009		462455876	46-2455876	ANIMAL NETWORK	ANIMAL NETWORK	LAS VEGAS	NV	D20	D20	3
010		18462882	81-0462882	ANIMAL ORPHANAGE	ANIMAL ORPHANAGE	ORONO	ME	D200	D200	3
011		454902841	45-4902841	ANIMAL PAD	ANIMAL PAD	SAN DIEGO	CA	D20	D20	3
012		810679304	81-0679304	ANIMAL ADVOCATES	ANIMAL ADVOCATES	BARNWELL	SC	O11	O11	3
013		204699900	02-0469900	ANIMAL ALLIES	ANIMAL ALLIES	MANCHESTER	NH	D20	D20	3
014		680638714	68-0638714	ANIMAL BALANCE	ANIMAL BALANCE	EL CERRITO	CA	Z99	Z99	3
015		953967883	95-3967883	ANIMAL COMPANIONS	ANIMAL COMPANIONS	PIPE CREEK	TX	null	null	3
016		237237862	23-7237862	ANIMAL FUND	ANIMAL FUND	GREENBRAE	CA	D013	D013	3
017		204444813	20-4444813	ANIMAL LIFELINE	ANIMAL LIFELINE	WARRINGTON	PA	D20	D20	3
018		680208668	68-0208668	ANIMAL PLACE	ANIMAL PLACE	GRASS VALLEY	CA	D200	D200	3
019		800618723	80-0618723	ANIMAL UNION	ANIMAL UNION	DAILY CITY	CA	P00	P00	3
020		260787044	26-0787044	ANIMAL ADVOCATES	ANIMAL ADVOCATES	WESTCLIFFE	CO	D20	D20	3
021		223451569	22-3451569	ANIMAL ALLIES	ANIMAL ALLIES	EVING	NJ	D200	D200	3
022		571090821	57-1090821	ANIMAL ALLIES	ANIMAL ALLIES	SPARTANBURG	SC	D200	D200	3
023		208502915	20-8502915	ANIMAL ANGELS	ANIMAL ANGELS	MEDIAPOLIS	IA	D20	D20	3
024		262933425	26-2933425	ANIMAL DIPLOMACY	ANIMAL DIPLOMACY	CAMBRIDGE	MA	D20	D20	3
025		10714781	01-0714781	ANIMAL TRACKS	ANIMAL TRACKS	ACTON	CA	O34	O34	3
026		454027119	45-4027119	ANIMAL AID	ANIMAL AID	ATHENS	TN	O40	O40	3
027		272034873	27-2034873	ANIMAL WATCH	ANIMAL WATCH	BOULDER	CO	O30	O30	3
028		481287089	48-1287089	ANIMAL ADVOCATES	ANIMAL ADVOCATES	LOS ANGELES	CA	D20	D20	3
029		800530102	80-0530102	ANIMAL FOLKS	ANIMAL FOLKS	SAINT PAUL	MN	D20	D20	3
030		371768388	37-1768388	ANIMAL FOUNDATION	ANIMAL FOUNDATION	HERMANN	MO	P29	P29	3
031		203596003	20-3596003	ANIMAL MAGIC	ANIMAL MAGIC	BELLEVILLE	MI	D20	D20	3
032		953171867	95-3171867	ANIMAL SAVARITANS	ANIMAL SAVARITANS	THOUSAND PLMS	CA	D200	D200	3

Converting these JSON search results to a CSV (spreadsheet) took less than 10 seconds.

Transforming data

result.csv									
	total_results	organizations_ein	organizations_strein	organizations_name	organizations_sub_name	organizations_city	organizations_state	organizations_ntee_code	organizations_raw_ntee_code
001	2435	731663130	73-1663130	ANIMAL ALLIANCE	ANIMAL ALLIANCE	WOODLAND HLS	CA	D20	D20
002		752461428	75-2461428	ANIMAL ANGELS	ANIMAL ANGELS	JACKSBORO	TX	null	null
003		232896507	23-2896507	ANIMAL APPEAL	ANIMAL APPEAL	SHARPSVILLE	PA	021	021
004		43654364	04-3654364	ANIMAL ASSISTANCE	ANIMAL ASSISTANCE	E BRUNSWICK	NJ	D20	D20
005		800099106	80-0099106	ANIMAL FAIR	ANIMAL FAIR	SEDALIA	MO	D20	D20
006		752391827	75-2391827	ANIMAL HAVEN	ANIMAL HAVEN	DALLAS	TX	null	null
007		953793138	95-3793138	ANIMAL HELPLINE	ANIMAL HELPLINE	MORONGO VLY	CA	D200	D200
008		570921521	57-0921521	ANIMAL MISSION	ANIMAL MISSION	COLUMBIA	SC	D200	D200
009		462455876	46-2455876	ANIMAL NETWORK	ANIMAL NETWORK	LAS VEGAS	NV	D20	D20
010		10462082	01-0462082	ANIMAL ORPHANAGE	ANIMAL ORPHANAGE	ORONO	ME	D200	D200
011		454902041	45-4902041	ANIMAL PWD	ANIMAL PWD	SAN DIEGO	CA	D20	D20
012		810679304	81-0679304	ANIMAL ADVOCATES	ANIMAL ADVOCATES	BIRMINGHAM	SC	D11	D11
013		204659900	02-04659900	ANIMAL ALLIES	ANIMAL ALLIES	MANCHESTER	NH	D20	D20
014		680630714	68-0630714	ANIMAL BALANCE	ANIMAL BALANCE	EL CERRITO	CA	Z99	Z99
015		953967883	95-3967883	ANIMAL COMPANIONS	ANIMAL COMPANIONS	PIPE CREEK	TX	null	null
016		237237862	23-7237862	ANIMAL FUND	ANIMAL FUND	GREENBRAE	CA	D013	D013
017		204444813	20-4444813	ANIMAL LTFELINE	ANIMAL LTFELINE	WARRINGTON	PA	D20	D20
018		68020668	68-020668	ANIMAL PLACE	ANIMAL PLACE	GRASS VALLEY	CA	D200	D200
019		800610723	80-0610723	ANIMAL UNION	ANIMAL UNION	DALY CITY	CA	P80	P80
020		260796104	26-0796104	ANIMAL ADVOCATES	ANIMAL ADVOCATES	WESTCLIFFE	CO	D20	D20
021		223451569	22-3451569	ANIMAL ALLIES	ANIMAL ALLIES	ENING	NJ	D200	D200
022		571098021	57-1098021	ANIMAL ALLIES	ANIMAL ALLIES	SPARTANBURG	SC	D200	D200
023		205502015	20-5502015	ANIMAL ANGELS	ANIMAL ANGELS	MEDAPOLIS	IA	D20	D20
024		262933045	26-2933045	ANIMAL DIPLOMACY	ANIMAL DIPLOMACY	CAMBRIDGE	PA	D20	D20
025		10714781	01-0714781	ANIMAL TRACKS	ANIMAL TRACKS	ACTON	CA	D34	D34
026		454027119	45-4027119	ANIMAL AID	ANIMAL AID	ATHENS	TN	D40	D40
027		272034873	27-2034873	ANIMAL WATCH	ANIMAL WATCH	BOULDER	CO	D30	D30
028		481287089	48-1287089	ANIMAL ADVOCATES	ANIMAL ADVOCATES	LOS ANGELES	CA	D20	D20
029		800530102	80-0530102	ANIMAL FOLKS	ANIMAL FOLKS	SAINT PAUL	MN	D20	D20
030		371768388	37-1768388	ANIMAL FOUNDATION	ANIMAL FOUNDATION	HERMANN	MO	P29	P29
031		203596003	20-3596003	ANIMAL MAGIC	ANIMAL MAGIC	BELLEVILLE	MI	D20	D20
032		953171867	95-3171867	ANIMAL SAVARITANS	ANIMAL SAVARITANS	THOUSAND PLUS	CA	D200	D200

...but you may be more interested on converting it the other way, i.e. how to get stuff back into JSON.

```
~"organizations": [Array[100]]
-0: {
  "ein": 731663130,
  "strein": "73-1663130",
  "name": "ANIMAL ALLIANCE",
  "sub_name": "ANIMAL ALLIANCE",
  "city": "WOODLAND HLS",
  "state": "CA",
  "ntee_code": "D20",
  "raw_ntee_code": "D20",
  "subseccd": 3,
  "has_subseccd": true,
  "have_filings": true,
  "have_extracts": true,
  "have_pdfs": true,
  "score": 443.46564
}
-1: {
  "ein": 752461428,
  "strein": "75-2461428",
  "name": "ANIMAL ANGELS",
  "sub_name": "ANIMAL ANGELS",
  "city": "JACKSBORO",
  "state": "TX",
  "ntee_code": null,
  "raw_ntee_code": null,
  "subseccd": 3,
  "has_subseccd": true,
  "have_filings": true,
  "have_extracts": true,
  "have_pdfs": true,
  "score": 443.46564
}
-2: {
  "ein": 232896507,
  "strein": "23-2896507",
  "name": "ANIMAL APPEAL",
  "sub_name": "ANIMAL APPEAL",
  "city": "SHARPSVILLE",
  "state": "PA",
  "ntee_code": "021",
  "raw_ntee_code": "021",
  "subseccd": 3,
  "has_subseccd": true,
  "have_filings": true,
  "have_extracts": true,
  "have_pdfs": true,
  "score": 443.46564
}
```

Transforming data

Get data out → Do something to it → Put it back in

Break

Thanks

The vagrant developed for this workshop was adapted by Lora Davis from Dallas Pillen's *Archivagrant*. See his blog post for more information about Archivagrant:

<http://archival-integration.blogspot.com/2016/01/archivesspace-vagrant-archivagrant.html>

End

Transforming data

Get data out → Do something to it → Put it back in

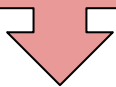


Transforming data

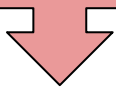
Get data out → Do something to it → Put it back in



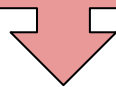
Manual



Manual



Manual



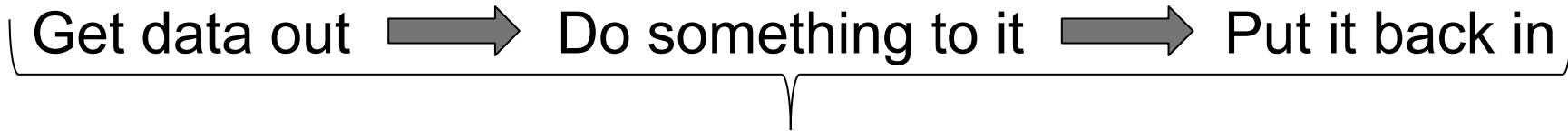
Get data out



Do something to it



Put it back in



Putting it back in

it·er·a·tion

ˌidəˈrāSH(ə)n/

noun

1. the repetition of a process or utterance.
 - repetition of a mathematical or computational procedure applied to the result of a previous application, typically as a means of obtaining successively closer approximations to the solution of a problem.

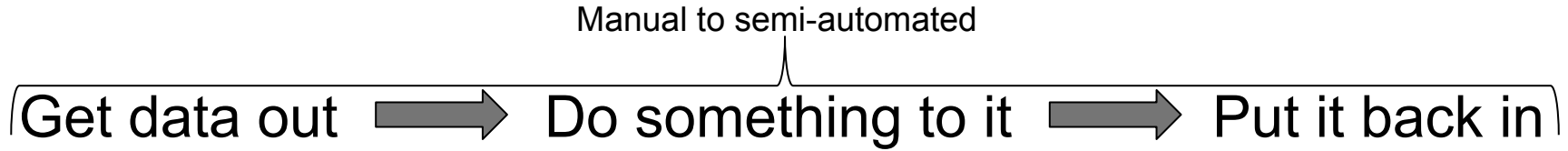
Lock version - a value that incrementally increases every time an AS record is altered. In practice, this means work cannot and should not continue on the data in question, i.e. your team has to stop work

```
"lock_version": 5,  
"title": "University history scrapbook collection",  
"publish": true,
```

Putting it back *in*

- Requires scripting
- Huge barrier to entry for most users
- Most devs will say, “Just Google it,” Valerie says, “Google *what*? I don’t know the question for the answer.”
- “All our scripts are up on GitHub!” - the least-most helpful statement you’ll hear
 - This is extremely helpful
 - But do you know why? I didn’t.

Transforming data



Communication between systems

