Introduction to the ArchivesSpace API

ArchivesSpace Member Forum
Portland State University
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Introduction

The Odd Couple

We are stronger and smarter together THOUGH YOU ONLY GET ME!

Lora

- Digital Archivist
- Never met a task she didn't want to solve with Python/Ruby
- Thinks hanging with the Bmore on Rails group sounds like a fun night out
- Helped migrate two institutions to ArchivesSpace and found it thrilling
- Enjoys craft beer, cross stitch, and the Pittsburgh Steelers
- Knows how to programmatically manipulate data

- CATS YAY!

Valerie

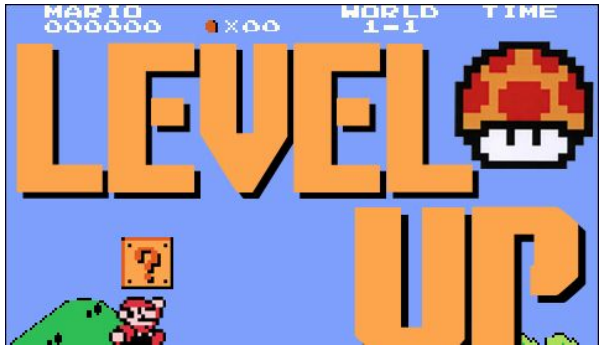
- (Former) Photo Archivist
- Never met a task she didn't want to solve with an MS Access database
- Knows rails are either "narrow gauge" or "standard" because ❤ steam trains
- Helped migrate to ASpace and felt like a fish climbing a tree
- Enjoys geocaching, hiking, and planning ambitious camping trips
- Knows data modeling and systematic analysis of the *really hard* problems

- CATS YAY!

The 1-up learning experience

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

Are you a 1?	Are you a 2?	Are you a 3?
We hope you'll leave a 2.	We hope you'll leave a 3.	We hope to give you new ideas, scripts, and momentum.



Workshop aims

1.

Practical, real-life application

...including the bad parts of real-life

Resource-packed GitHub

These voluminous slides

2.

Assurances:

You are not alone

I didn't become an archivist 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

What does API stand for?

Application

As in a computer application, like Word or Chrome

Programming

As in computer “programming,” or taking steps to make a computer do something you want it to do

Interface

As in the the place where two systems meet

What do APIs do?

As the prior slide suggests, APIs make it possible for **applications to interact (or interface) with one another**.

APIs are **not new**, and there are **many types** of APIs.

When you copy content from a Word document to your clipboard, then paste that content into an Outlook e-mail, it works because your computer operating system, which both your versions of Word and Outlook are programmed to run on, uses an API to **allow the interchange of information**.

APIs tell software developers the **rules of the road** that they must follow if they want their applications to play well with others.

For more: http://readwrite.com/2013/09/19/api-defined/

That’s not at all what I thought an API was!

Though anything that allows an interchange of information between two applications is *technically* a **form of an API**, what we typically mean today when we say “API” is a very specific thing.

That thing is a **web API**.

Ok, so what is a *web* 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 URL-like directions, and are limited to 3-4 simple commands or activities.

For more: http://searchcloudstorage.techtarget.com/definition/RESTful-API

Extra nerdy sidebar:

- Web APIs also come in several flavors, including **SOAP** and **REST**.
- We're going to be exclusively working with **RESTful APIs** today, as they're far more prevalent in archives/libraries technologies.
- REST stands for **"representational state transfer"** and was defined in 2000 in a doctoral dissertation by Roy Fielding.
- REST essentially dictates how an application should be able to **textually interact** with a web service.

Vocabulary pitstop: API Terms

- **GET**, **POST**, and **DELETE** are the three cornerstone commands for a RESTful API
- 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

I’m not an application, I’m an archivist! Why should I care?

As librarians and archivists with collection descriptions and/or collections themselves on the web, you probably **do** care about being able to **access** and **meaningfully manipulate** textual data on the web **at scale**.

In many of the exercises we will work through together today, **you** are, in fact, one of the “applications” interfacing with web-based data.

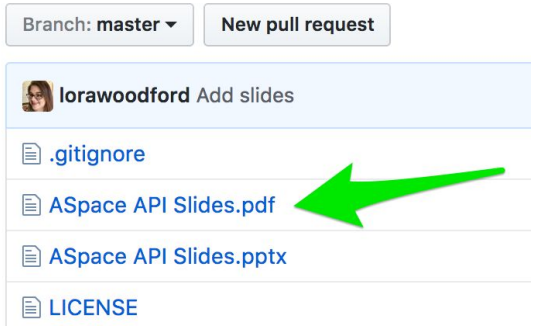
API possibilities

Get data out	Do something to it	Put it back in
JSON MARC21 Any standardized data	Access OpenRefine XSLT Custom script (your choice) Find and Replace Hand encoding, copy and pasting, glue and popsicle sticks, *whatever it takes!*	*needle coming off the record* This is the tough part.

Questions?

Resource Pitstop - Get these slides

1. Navigate to https://github.com/jhu-archives-and-manuscripts/ASpace_API_Workshop
2. Once in the repo, bookmark! You'll need this later.
3. Click "ASpace API Slides.pdf"



4. Download and open. Leave these open; you will be using the slides on your own throughout the day.

Setting up your tech:

A long-ish pitstop

(We promise you're in the right workshop)

Technical pitstop:
The (FREE) Applications

Atom

- A text editor that is handy for interacting with JSON, scripts, and all sorts of structured data
- Can utilize additional packages to customize to your needs (e.g. a JSON “linter”)

Postman

- A GUI application for interacting with APIs

Technical Pitstop: Scripting set-up

Technical Pitstop - Scripting set-up

We are about to:

- Show you a quick **shortcut** for opening the terminal/command prompt
- Get some important packages **installed** on your machines
- **Clone our GitHub** repository (download some scripts to your computer)

Caveats:

- This *is* new, **we will lose some of you**
- You *do* need to know this, but **we have other tofu to fry**
- Use these slides if you need to set up your own workstations **back at the office**

Housekeeping:

- With 15+ people in this workshop, we've got 15+ different environments to troubleshoot and 15+ different opportunities to fail - **please be patient**!
- If, at any point for the remainder of the workshop, you need **assistance**, please place a **hot pink post-it** on the back of your laptop screen

Please follow along starting from this slide

This terrible shade of yellow should be easy to find.

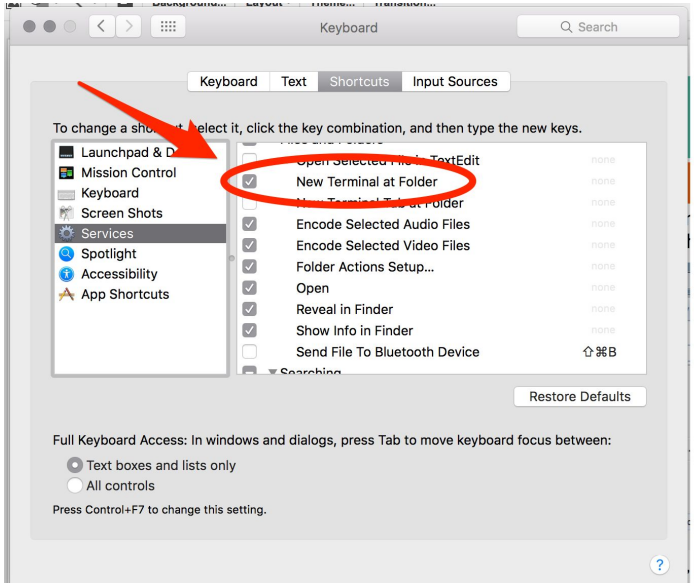
Everyone start with a Green post-it = good to go
Red/pink post-it = please assist!

Technical Pitstop - Scripting set-up

This is a handy shortcut that you'll need later

Mac

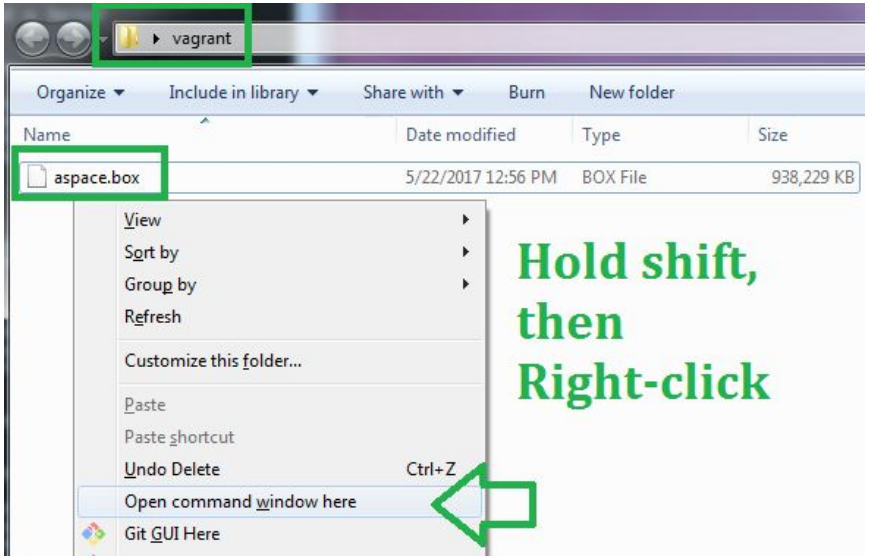
System Preferences > Keyboard > Shortcuts tab > Services



Note: Some (especially older) Mac OSes may not have this option! If so, no harm. Alert an instructor and we'll walk you through this manually.

PC

Practice: Open any folder, then hold shift + right click anywhere in the window

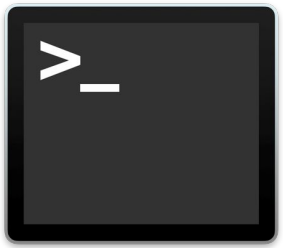


This is just practice, we don't actually need this window now.

Technical Pitstop - Scripting set-up

Mac

1. 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.



PC

2. Bring up the Cygwin installer you downloaded as part of your pre-workshop homework

Technical Pitstop - Scripting set-up

Mac

1. Type `gcc --version` and hit enter

If you are prompted to install, hit Install!
Once complete, type `gcc --version` again.

If you see the following, you're good to go.
Leave the terminal open.

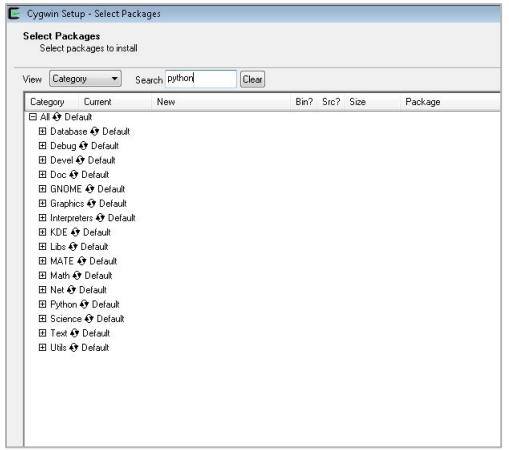
```
$ gcc --version

# After installing, check the gcc --version again.
# You should get the below message:

Configured with: --prefix=/Applications/Xcode.app/Contents/Developer/usr --with-gxx-include-dir=/usr/include/c++,
Apple LLVM version 8.0.0 (clang-800.0.38)
Target: x86_64-apple-darwin15.6.0
Thread model: posix
InstalledDir: /Applications/Xcode.app/Contents/Developer/Toolchains/XcodeDefault.xctoolchain/usr/bin
```

PC

1. Start downloading. Say yes to everything
2. Pick any site to install from and continue
3. Stop when you get to this screen:



Technical Pitstop - Scripting set-up

Mac

1. Open a browser and navigate to: **brew.sh**
   (yup that's a webpage)
2. Copy the long command and paste into terminal. Hit enter.

3. Enter your password if needed

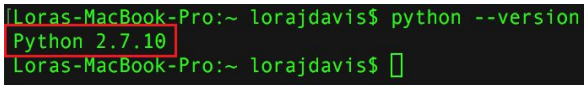
PC

1. Look for View: at the top of the screen and select Category
2. Search for "python2" (without quotes) but do not hit enter; the search happens as soon as you type

Technical Pitstop - Scripting set-up

Mac

1. Type `brew install python` and hit enter
2. Type `python --version` and hit enter to be sure Python appears:



3. Type `pip install requests`

(we will not remind you to hit enter after commands from now on)

PC

Go to next slide...

Windows users only: Install packages

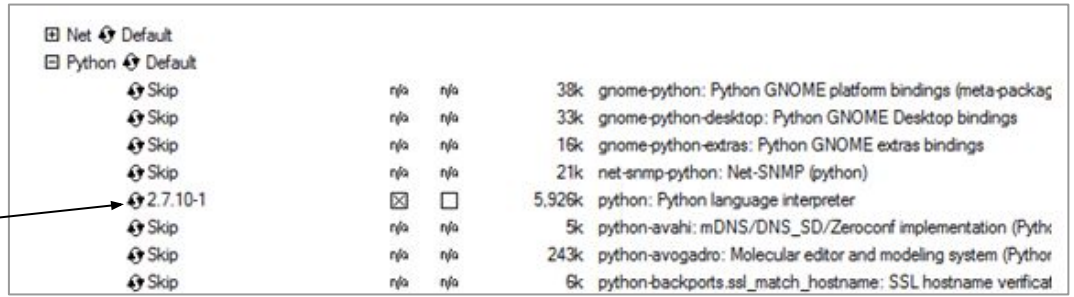
1. After you have searched for python2 locate and *unskip the following (the list is alphabetical and the kilobyte counts help)*:
   a. python2: Python 2 language interpreter **5,873k**
   b. python2-requests: Python HTTP/1.1 request module **84k**

2. Now search for git (but don't hit enter), expand the Devel heading, *unskip*:
   a. git: Distributed version control system **5,387k**

3. Finally, search for openssh (don't hit enter), expand the Net heading, *unskip*:
   a. openssh: The OpenSSH server and client programs **750k**

4. Once all four have been unskipped, proceed with install: Next > Next

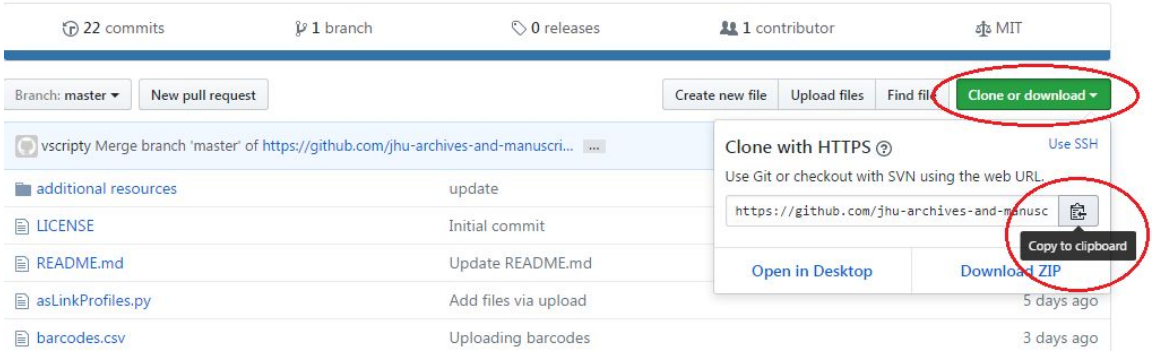
This screenshot shows what an "unskipped" line looks like



Technical Pitstop - Scripting set-up

Everyone

1. Go back to our GitHub repo, which you bookmarked earlier.
2. Then click the green button, click the little clipboard icon, and **Copy to clipboard**



Technical Pitstop - Scripting set-up

Mac

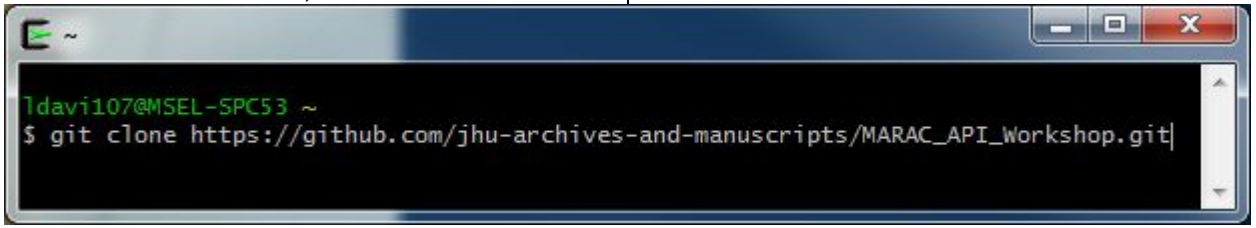
1. Open Terminal
2. Type `cd Desktop` and hit enter
3. Type `git clone [command+v to paste]`
4. Hit enter

(don't type this, we mean an action)

PC

1. Open Cygwin
2. Type `git clone [right-click then paste]`
3. Hit enter

(don't type this, we mean an action)



Now you have a folder (either on your Mac's Desktop, or in C:/Cygwin/home/[username]) that contains all the **materials you'll need** for the rest of today's workshop.

This folder, titled **"ASpace_API_Workshop,"** is a *direct clone* of what you see in your browser on github.com.

Command line bootcamp

- Some very simple Unix commands are necessary in this workshop
- But more important is being able to use them effectively
- Mac users, and PC users in Cygwin, will be using the same commands…
- …but will be working in different directories.
- So navigating your own way is super important.

Command line bootcamp: Navigation

Where are you, and where do you want to go?

Mac

1. In the Finder navigate to your ASpace_API_Workshop directory
2. Ctrl+click the ASpace_API_Workshop directory, and select “New Terminal at Folder”

PC

1. Open Cygwin

Command line bootcamp: Navigation

Where are you?

Everyone type `pwd` and then hit enter.

Mac

Mac users should see something like this:

```
Loras-MacBook-Pro:MARAC_API_Workshop lorajdavis$ pwd
/Users/lorajdavis/Desktop/MARAC_API_Workshop
Loras-MacBook-Pro:MARAC_API_Workshop lorajdavis$
```

Note: There will be more screenshots for Windows users than Macs for the next few slides as we help PC users determine where they are. If your work computer is Windows, this will eventually matter to you.

PC

PC users should see something like this:

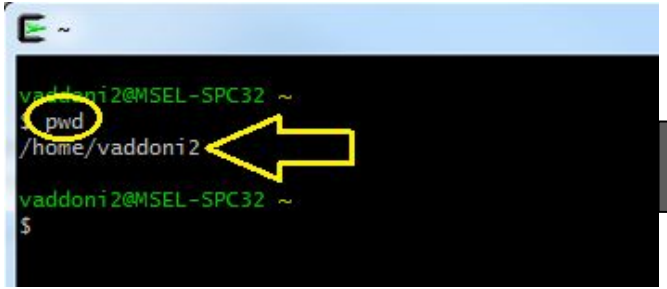
Command line bootcamp: Navigation

Where are you, and where do you want to go?

PC

Windows users will ask: but **where** is that? This is non-intuitive, but *you're already in* C:\cgywin because you're using the Cygwin window, so

This location:



Is this location:

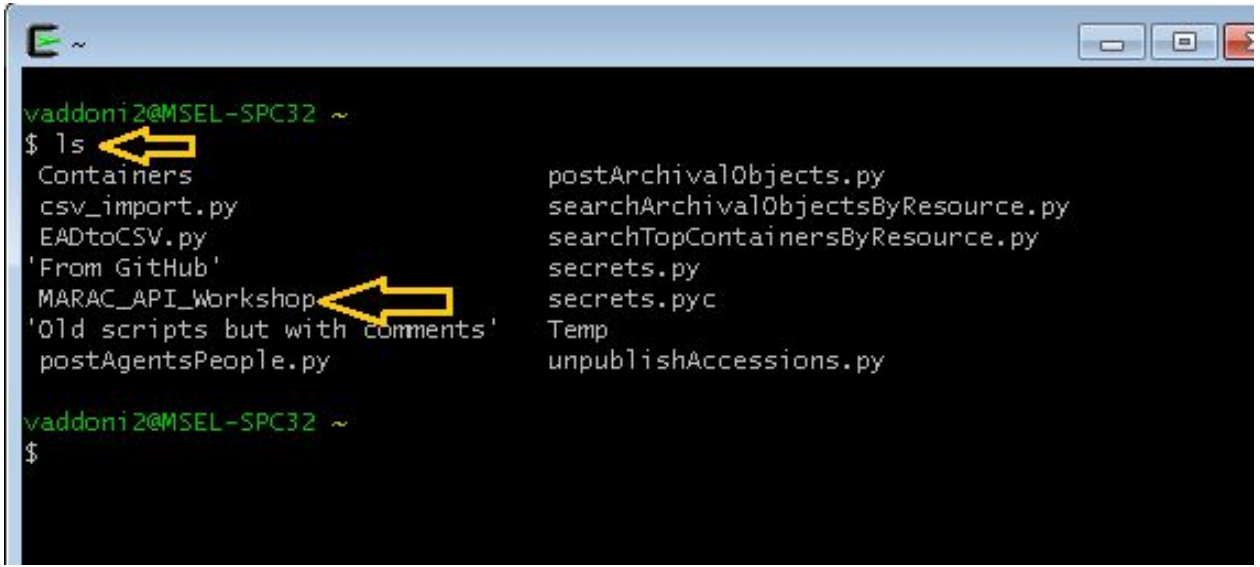
Unix commands for Mac and Cygwin

Where am I?	“print working directory”	`pwd`

Command line bootcamp: ls

What is here?

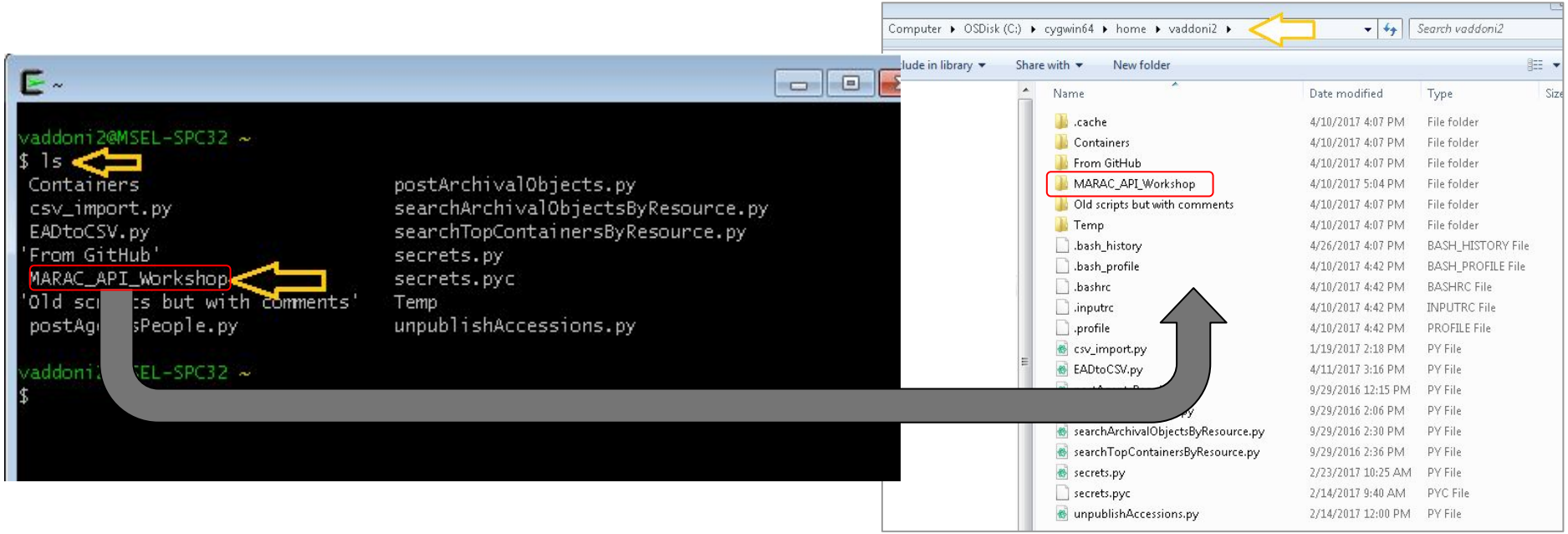
Everyone type `ls` and then hit enter (that is **L** as in **L**ist)



Command line bootcamp: ls

PC

`ls` shows the same list of contents that I see if I navigate to C:\cygwin64\home\[user name] in Windows (this is a screenshot from Valerie's PC, you won't have all these files):



Unix commands for Mac and Cygwin

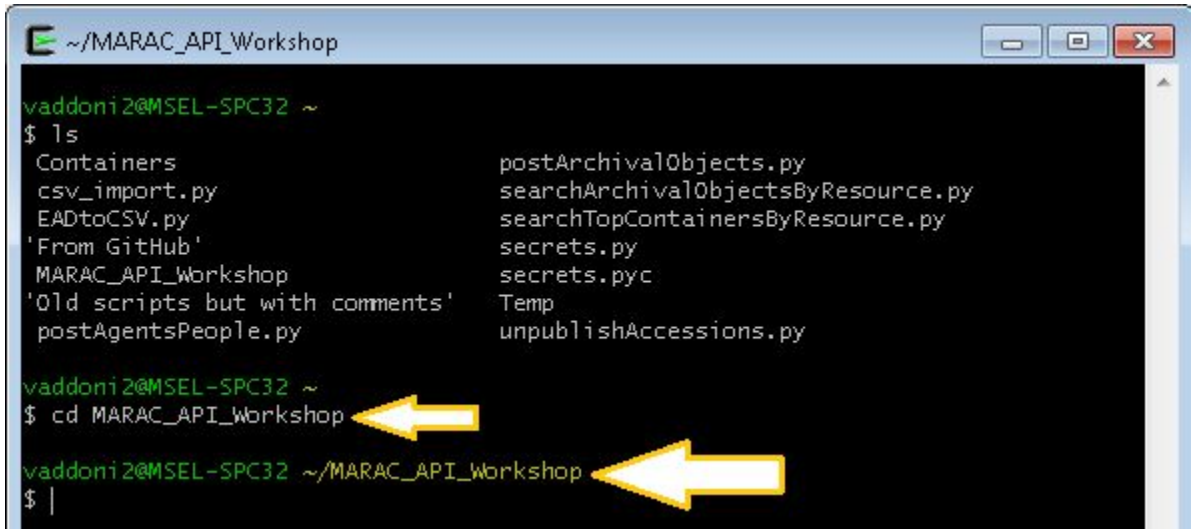
Where am I?	“print working directory”	`pwd`
What is here?	“list” (remember L as in List)	`ls`

Command line bootcamp: Navigation

Where are you, and where do you want to go?

Now you're going to move *from* where you are *into* the MARAC API Workshop clone folder:

To move into that folder type `cd` (change directory), leave a space, and then the name of the directory you want to go into: `cd ASpace_API_Workshop`



Command line bootcamp: Navigation

Where are you, and where do you want to go?

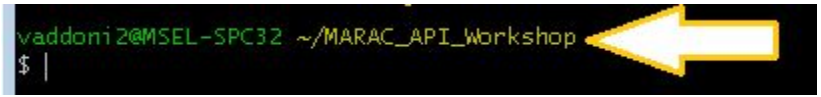
PC

Happily, the directory you're in now is more obvious with that handy yellow text.

So remember:

- The path in Windows is: C:\cygwin64\home\[user name]\ASpace_API_Workshop

  (but this varies by user)
- And the *same path* in Cgywin looks like the new prompt, below:



Unix commands for Mac and Cygwin

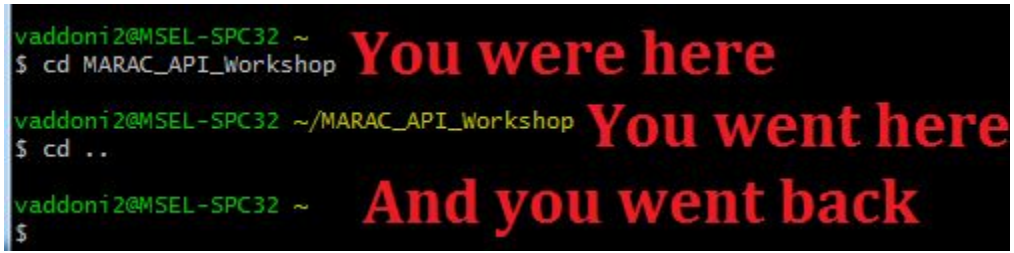
Where am I?	“print working directory”	`pwd`
What is here?	“list” (remember L as in List)	`ls`
How do I move from here to there?	“change directory”	`cd [type the name of the directory]` (don’t type this, we mean an action)

Command line bootcamp: Navigation

Now you're going to move *from* the MARAC API Workshop clone folder back to the Cgywin home directory/Mac desktop:

Why? To demonstrate a simple command that means "go up one"

`cd ..` = "go up one"



Unix commands for Mac and Cygwin

Where am I?	“print working directory”	`pwd`
What is here?	“list” (remember L as in List)	`ls`
How do I move from here to there?	“change directory”	`cd [type the name of the directory]` (don’t type this, we mean an action)
Move up one level		`cd ..`

Command line bootcamp: Navigation

Lastly, let's go back into the ASpace_API_Workshop directory, because that's where we need to be.

This is a good time to try the up-arrow on your keyboards to get back to a command you already issued:

- Try hitting the up-arrow a few times
- Pick the command that you need in order to get back into the ASpace_API_Workshop directory
- Use a command that will confirm where you are
- You may need to do this again, you have your handy cards to help you!

Unix commands for Mac and Cygwin

Where am I?	“print working directory”	`pwd`
What is here?	“list” (remember L as in List)	`ls`
How do I move from here to there?	“change directory”	`cd [type the name of the directory]` (don’t type this, we mean an action)
Move up one level		`cd ..`
Repeat command		Up arrow on keyboard

These are called Unix commands, so Google “unix commands” for other commands that will work on Macs and in Cygwin.

To make your life harder, remember that these same commands do not work in the Windows command prompt; those are MS-DOS commands.


Just
breathe

GET

API possibilities

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

GET with GUI - Chronicling America

(and a bit about web searches versus APIs)

Vocabulary pitstop: GUI

- **GUI** (gooey) 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: Postman is a GUI

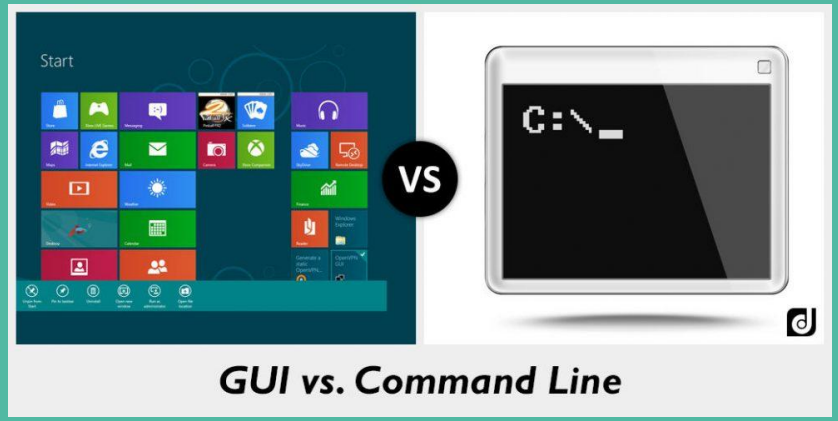
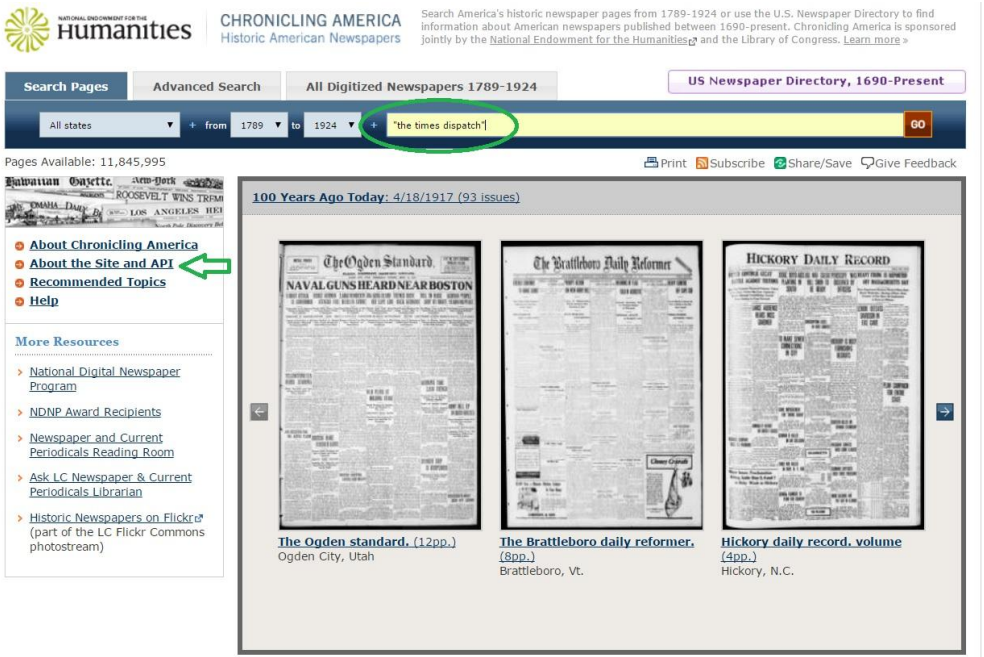


Image from http://www.differencebtw.com/difference-between-gui-and-command-line/

Web search versus API

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

1. Navigate to ChroniclingAmerica.loc.gov
2. Search for “the times dispatch” in quotes



Web search versus API

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

1. Click any record
2. Click All Issues

Web search versus API

This lists every issue, but not that helpful. I wonder if there's another way.

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	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**

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**	**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**		

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**	**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**	

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

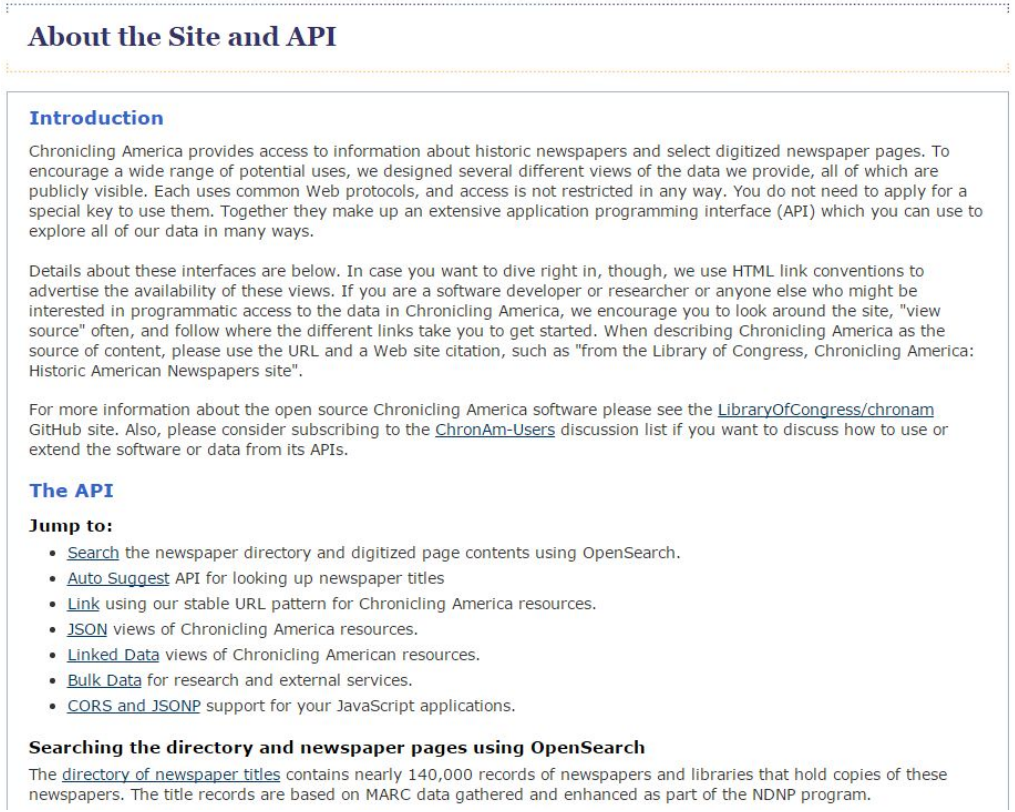
S	M	T	W	T	F	S
		1	**2**	**3**	**4**	**5**
6	7	**8**	**9**	**10**	**11**	**12**
13	14	**15**	**16**	**17**	**18**	**19**
20	21	**22**	**23**	**24**	**25**	26
27	28	**29**	**30**	**31**		

GET with GUI - Chronicling America

Does **Chronicling America** have an **API** we can use to access this information we're seeing in our browsers?

YES!

To Postman!



About the Site and API

Introduction

Chronicling America provides access to information about historic newspapers and select digitized newspaper pages. To encourage a wide range of potential uses, we designed several different views of the data we provide, all of which are publicly visible. Each uses common Web protocols, and access is not restricted in any way. You do not need to apply for a special key to use them. Together they make up an extensive application programming interface (API) which you can use to explore all of our data in many ways.

Details about these interfaces are below. In case you want to dive right in, though, we use HTML link conventions to advertise the availability of these views. If you are a software developer or researcher or anyone else who might be interested in programmatic access to the data in Chronicling America, we encourage you to look around the site, "view source" often, and follow where the different links take you to get started. When describing Chronicling America as the source of content, please use the URL and a Web site citation, such as "from the Library of Congress, Chronicling America: Historic American Newspapers site".

For more information about the open source Chronicling America software please see the LibraryOfCongress/chronam GitHub site. Also, please consider subscribing to the ChronAm-Users discussion list if you want to discuss how to use or extend the software or data from its APIs.

The API

Jump to:

- Search the newspaper directory and digitized page contents using OpenSearch.
- Auto Suggest API for looking up newspaper titles
- Link using our stable URL pattern for Chronicling America resources.
- JSON views of Chronicling America resources.
- Linked Data views of Chronicling American resources.
- Bulk Data for research and external services.
- CORS and JSONP support for your JavaScript applications.

Searching the directory and newspaper pages using OpenSearch

The directory of newspaper titles contains nearly 140,000 records of newspapers and libraries that hold copies of these newspapers. The title records are based on MARC data gathered and enhanced as part of the NDNP program.

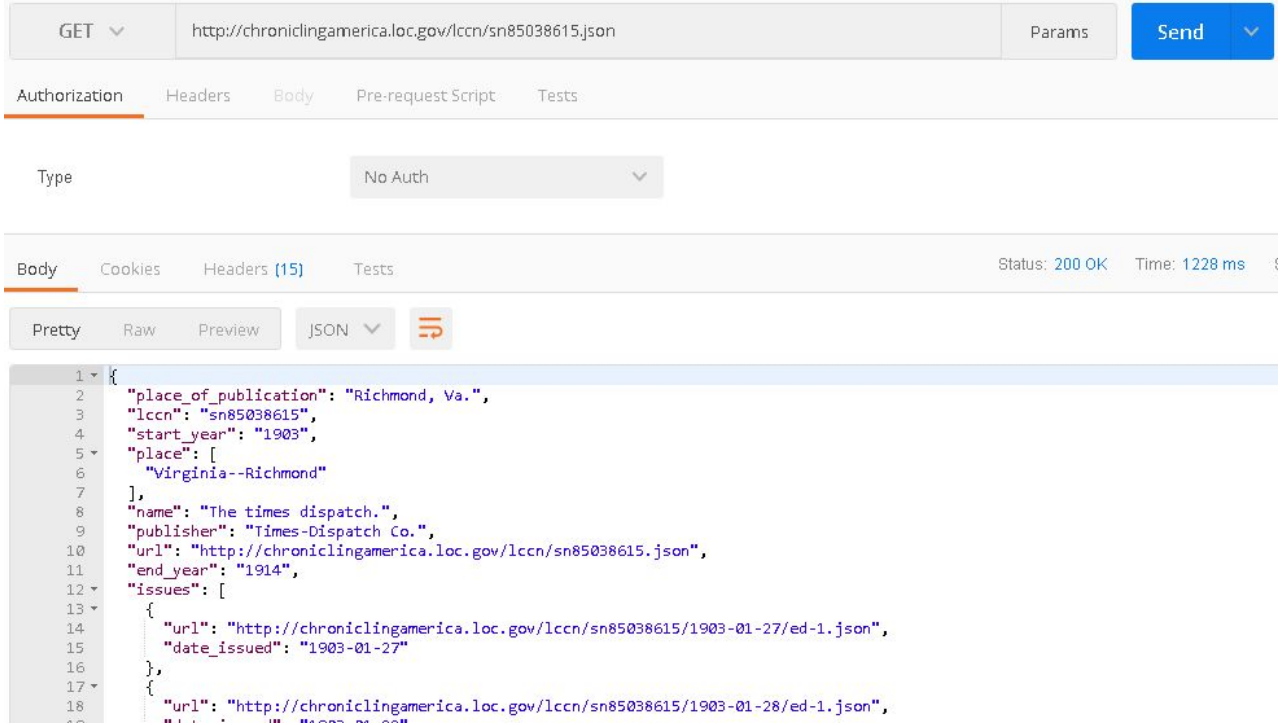
GET with GUI - Chronicling America

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

http://chroniclingamerica.loc.gov/lccn/sn85038615.json

GET with GUI - Chronicling America

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



Re-purposing API data

	A	B
1	**url**	**date_issued**
2	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-01-27/ed-1.json	1903-01-27
3	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-01-28/ed-1.json	1903-01-28
4	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-01-29/ed-1.json	1903-01-29
5	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-01-30/ed-1.json	1903-01-30
6	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-01-31/ed-1.json	1903-01-31
7	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-02-01/ed-1.json	1903-02-01
8	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-02-03/ed-1.json	1903-02-03
9	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-02-04/ed-1.json	1903-02-04
10	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-02-05/ed-1.json	1903-02-05
11	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-02-06/ed-1.json	1903-02-06
12	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-02-07/ed-1.json	1903-02-07
13	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-02-08/ed-1.json	1903-02-08
14	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-02-10/ed-1.json	1903-02-10
15	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-02-11/ed-1.json	1903-02-11
16	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-02-12/ed-1.json	1903-02-12
17	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-02-13/ed-1.json	1903-02-13
18	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-02-14/ed-1.json	1903-02-14
19	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-02-15/ed-1.json	1903-02-15
20	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-02-17/ed-1.json	1903-02-17
21	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-02-18/ed-1.json	1903-02-18
22	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-02-19/ed-1.json	1903-02-19
23	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-02-20/ed-1.json	1903-02-20
24	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-02-21/ed-1.json	1903-02-21
25	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-02-22/ed-1.json	1903-02-22
26	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-02-24/ed-1.json	1903-02-24
27	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-02-25/ed-1.json	1903-02-25
28	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-02-26/ed-1.json	1903-02-26
29	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-02-27/ed-1.json	1903-02-27
30	http://chroniclingamerica.loc.gov/lccn/sn85038615/1903-02-28/ed-1.json	1903-02-28

Converting these JSON search results to a CSV (spreadsheet) took less than 10 seconds using an online converter (we just googled “JSON to CSV converter” and picked one)

Vocabulary pitstop: JSON

- JSON (jason) is the most typical data transmission standard in APIs
- It is lightweight and easy to read and NOT scary
- Consists of key-value pairs, “key”: “value”

```
<unittitle>Johns Hopkins University library records</unittitle>

“Title”: “Johns Hopkins University library records”
```

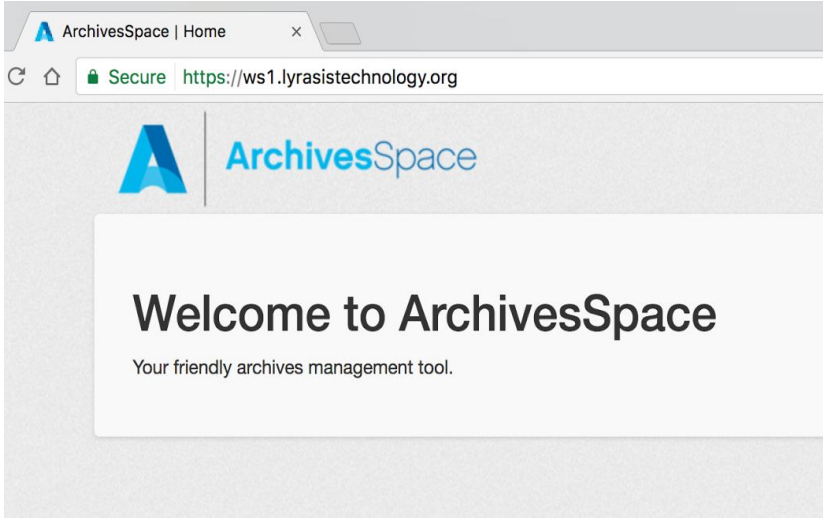
Questions???

ArchivesSpace

(I know, finally right?)

ArchivesSpace!

- You've each been provided a test instance of ArchivesSpace by our gracious hosts at Lyrasis
- The address of the **staff interface** of your instance is: https://ws[your#].lyrasistechnology.org/
- The address of the **API** of your instance is: https://ws[your#].lyrasistechnology.org/api
- Go check out the **staff interface** now!
  username: admin
  password: admin
- Your number can be found on a post-it at your seat!



ArchivesSpace! - The Scenario

Scenario: You have successfully migrated into -- or have begun to use -- an instance of ASpace at your institution, but…

- There's all this new functionality, what do I do with it?
  - I don't have barcodes for my containers, or I have faux codes
  - I do have barcodes, but they're not in ArchivesSpace. How do I get them in without ruining a student worker's semester?
- There are new fields where there were no fields before
  - I'd love to use URIs for Agents, but that's a lot of work
  - BARCODES, again with the barcodes
- We didn't use Archivists' Toolkit for accessions, how do I get them in now?
- Suppressing and unsuppressing, publishing and unpublishing, and how do I publish everything but not *those* things?

As some of you know, it's a huge undertaking and you might have dozens/hundreds/thousands of old and new problems.

ArchivesSpace! - The Scenario

Scenario: You have successfully migrated into -- or have begun to use -- an instance of ASpace at your institution, but this is a short workshop, so here are our problems for today:

1. We don't have **container profiles** in ArchivesSpace and would like to, so we need to create some
2. In following the migration instructions for 1.5, we had to add **faux codes**; we'd like to use our *actual* barcodes
3. Now that we have container profiles, we need to link them to *actual* **top containers**

Extra archivisty sidebar

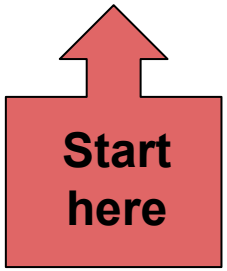
- These are, in fact, all problems we've addressed (or are addressing) at Johns Hopkins. And this is exactly how we did (or will be) solving these issues.
- If you switch out "**container profiles**" for "**agent records**" or "**subject headings**" or **"digital objects,"** the steps are similar and will likely transfer. Namely:
  - Create new records
  - Modify existing records
  - Link records

API possibilities

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

API possibilities

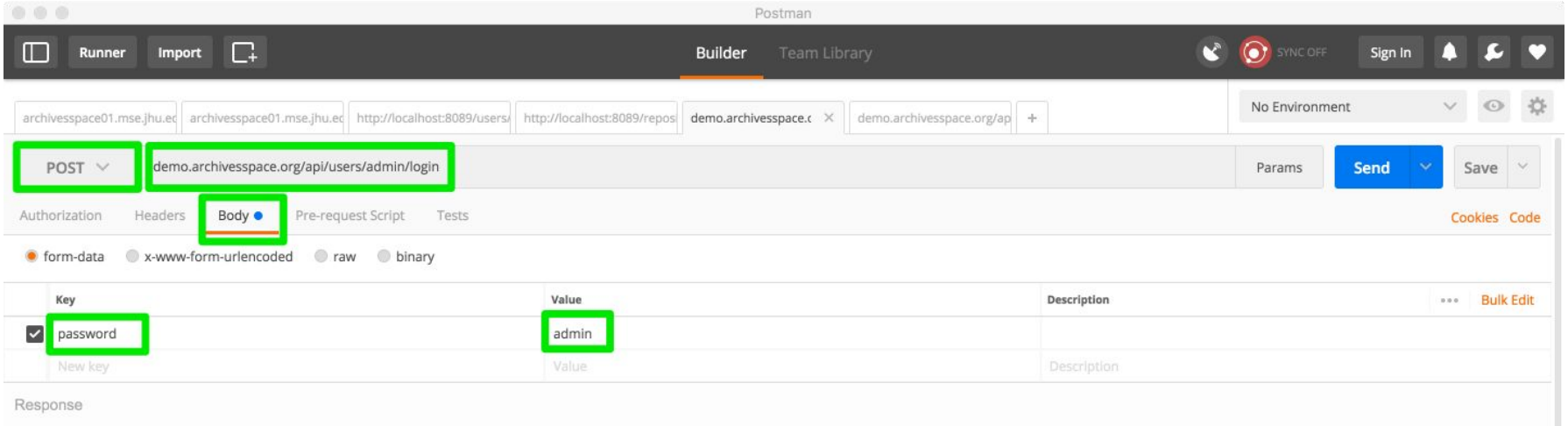
Get data out → Do something to it → Put it back in



Authenticate and GET - AS with GUI

Authenticate to AS with GUI

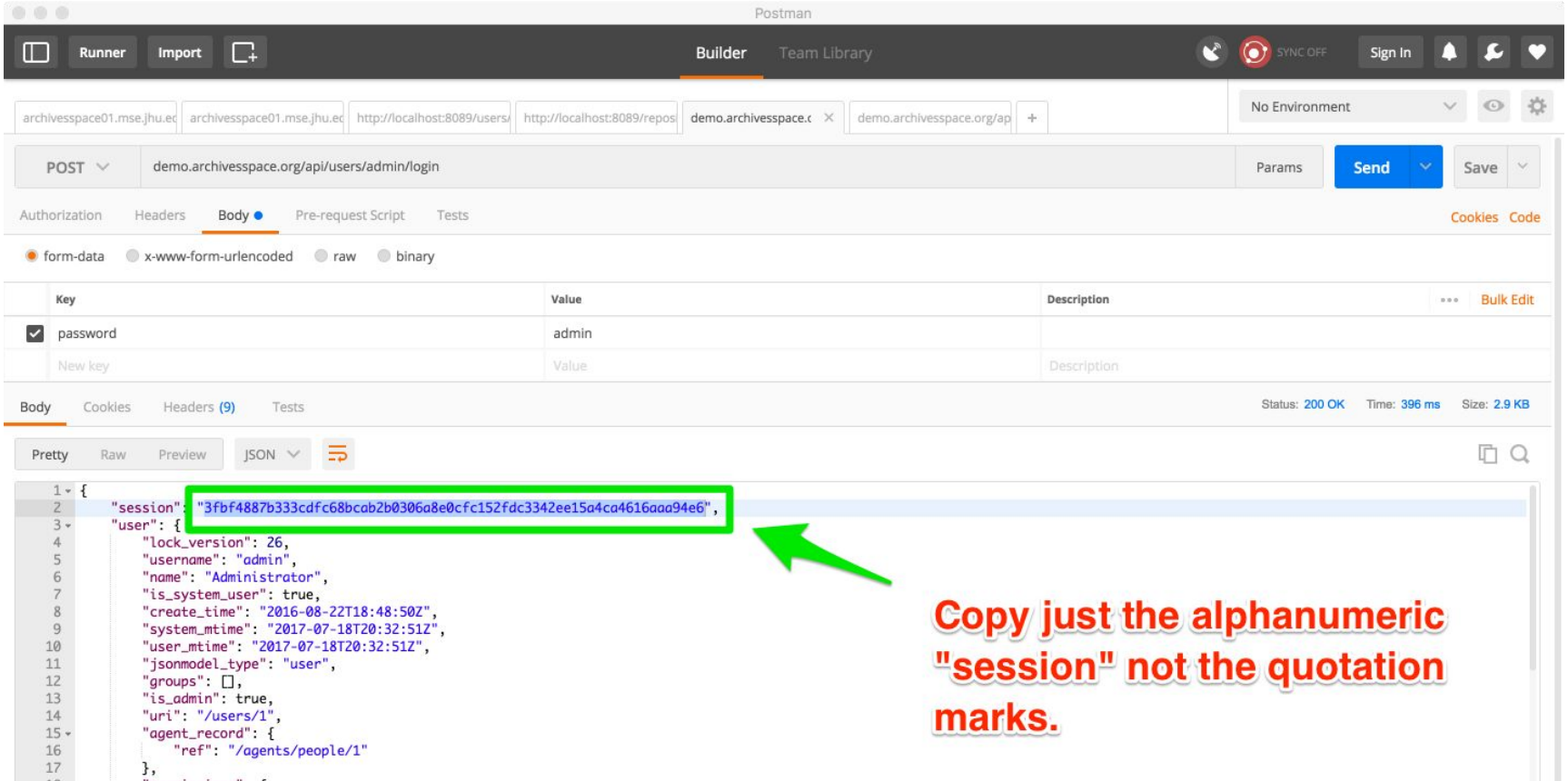
Before we start posting to AS, we need to authenticate, so let's do that and try a GET first:



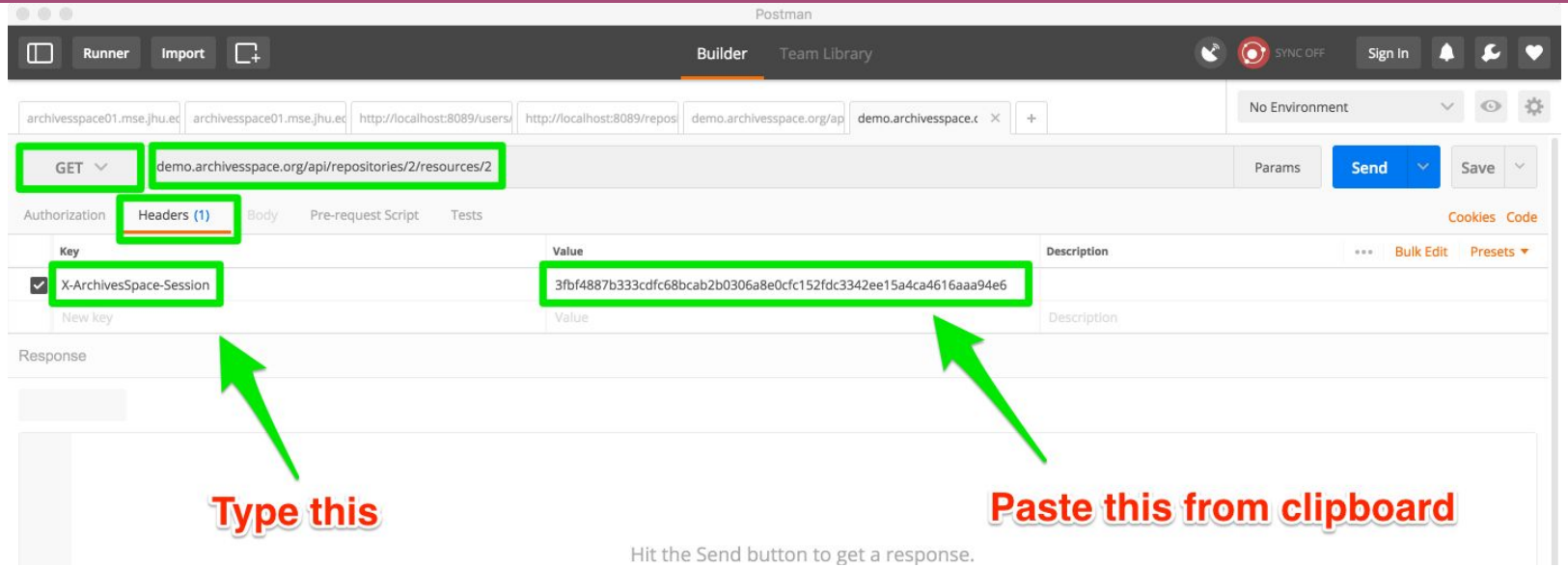
Endpoint: https://ws[your#].lyrasistechnology.org/api/users/admin/login

password: admin

Authenticate to AS with GUI



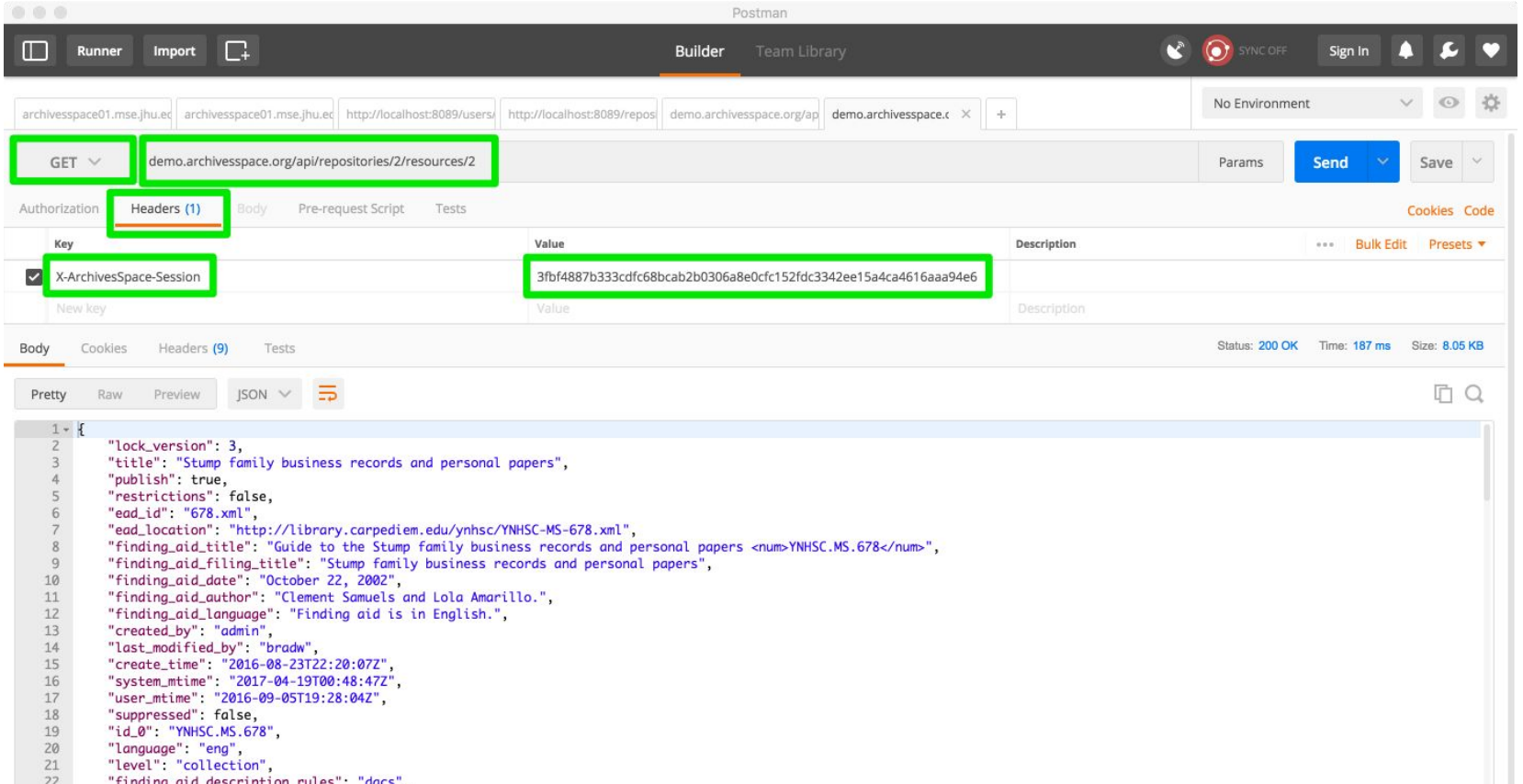
GET from AS with GUI



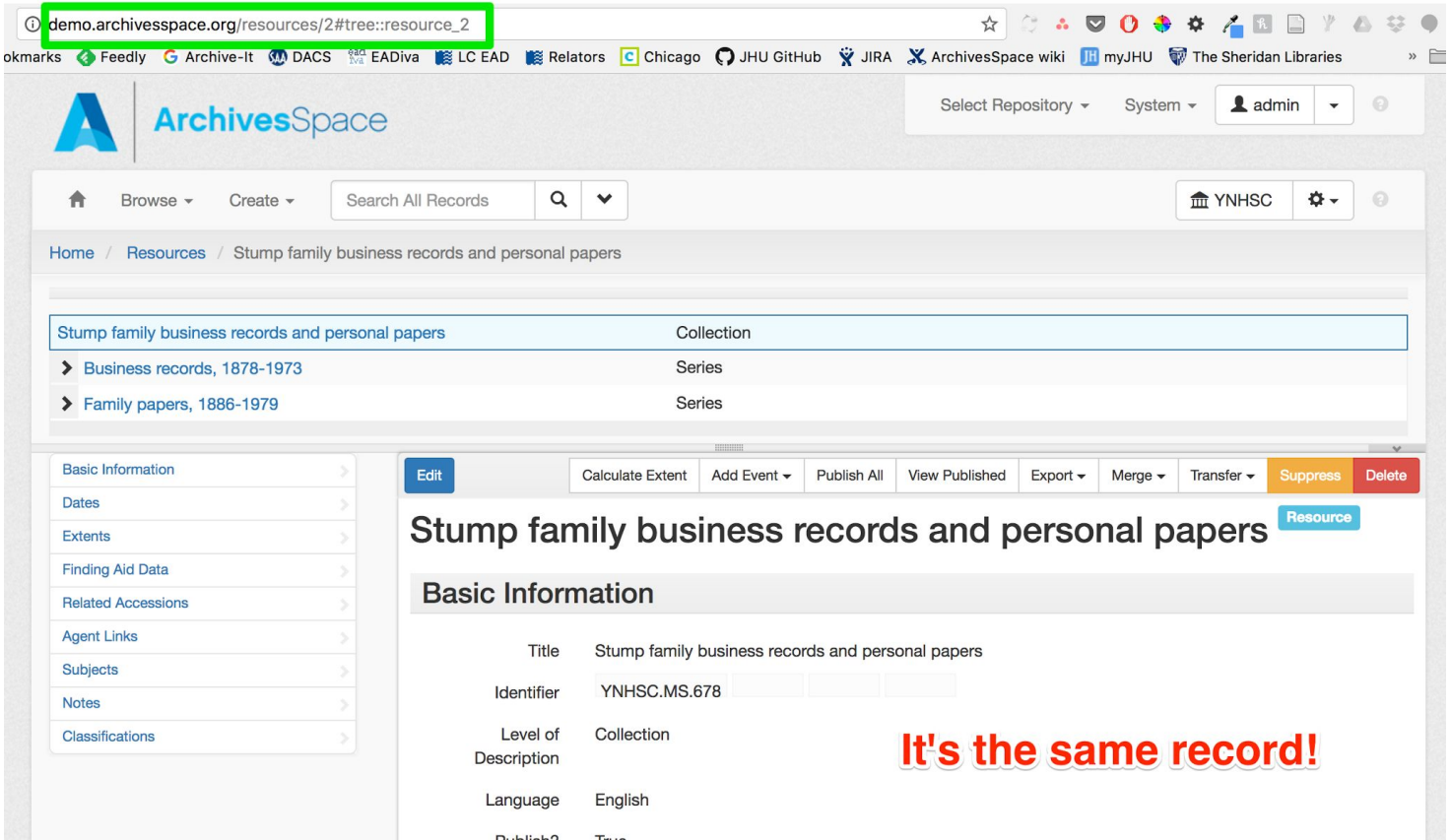
Key: X-ArchivesSpace-Session

Endpoint:
https://ws[your#].lyrasistechnology.org/api/repositories/2/resources/2

GET from AS with GUI



GET from AS with GUI



POST to AS with GUI-Container profiles

Container profiles

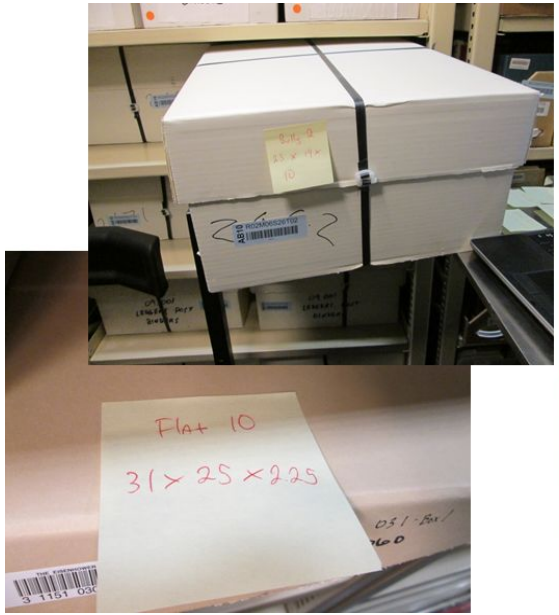
What's a container profile?

ASpace offers "container modeling" for the first time in the archives world.

Every type of box (ex. record carton) in your library gets its own record (a profile), which records its height, width, and depth. This helps calculate space on a huge scale, and is a game-changer for some repositories.

So, we have boxes o'plenty ---------->

But to use this feature, we need to get their profiles into AS.



API possibilities

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

POST to AS with GUI - Container profiles

1. Navigate to the directory with our cloned GitHub repo

   Mac users: Desktop

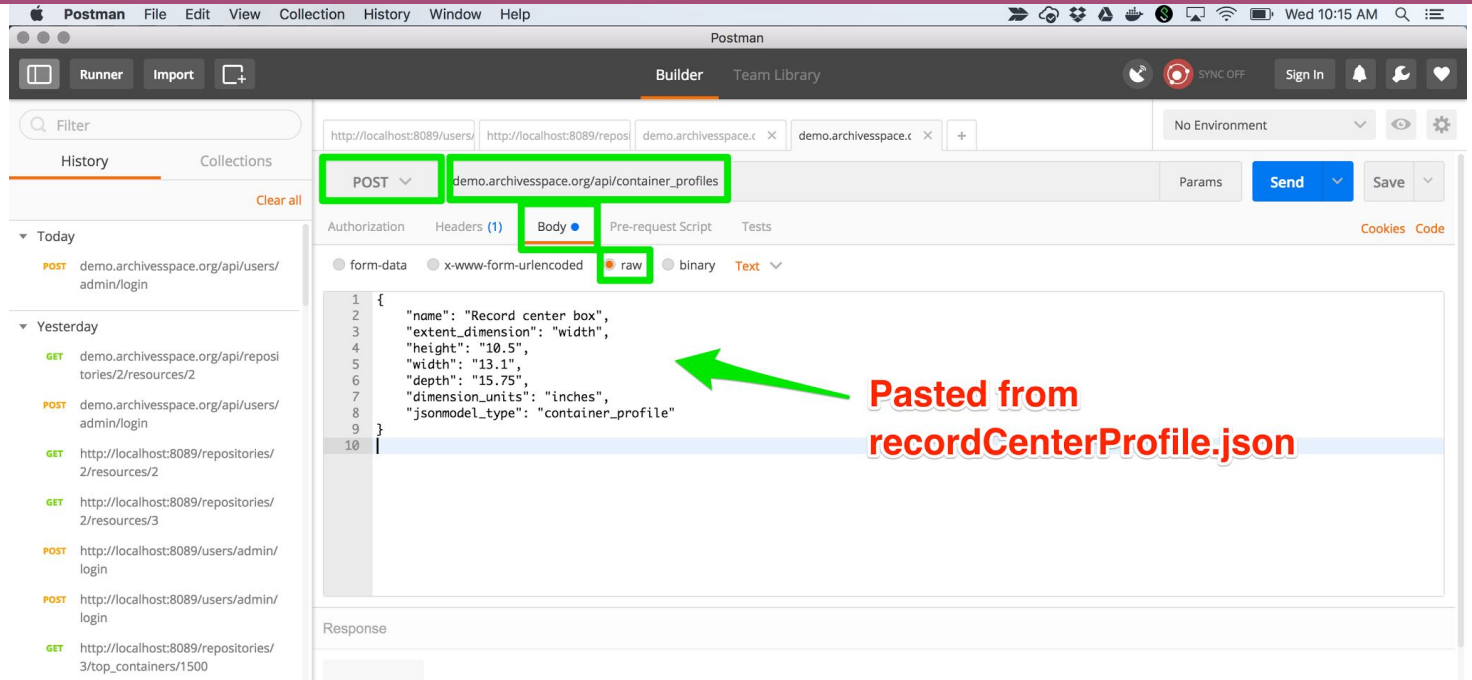
   Windows users:

   C:\cygwin64\home\[username]\ASpace_API_Workshop
2. Open “recordCenterProfile.json” with Atom
3. Packages > Atom Beautify > Beautify
4. Here is the container profile for a record center carton in JSON, ready to go
5. Copy, and go back to Postman

recordCenterProfile.json

```
{
    "name": "Record center box",
    "extent_dimension": "width",
    "height": "10.5",
    "width": "13.1",
    "depth": "15.75",
    "dimension_units": "inches",
    "jsonmodel_type": "container_profile"
}
```

POST to AS with GUI - Container profiles



Endpoint:

https://ws[your#].lyrasistechnology.org/api/container_profiles

POST to AS with GUI - Container profiles

1. Navigate to the directory with our cloned GitHub repo

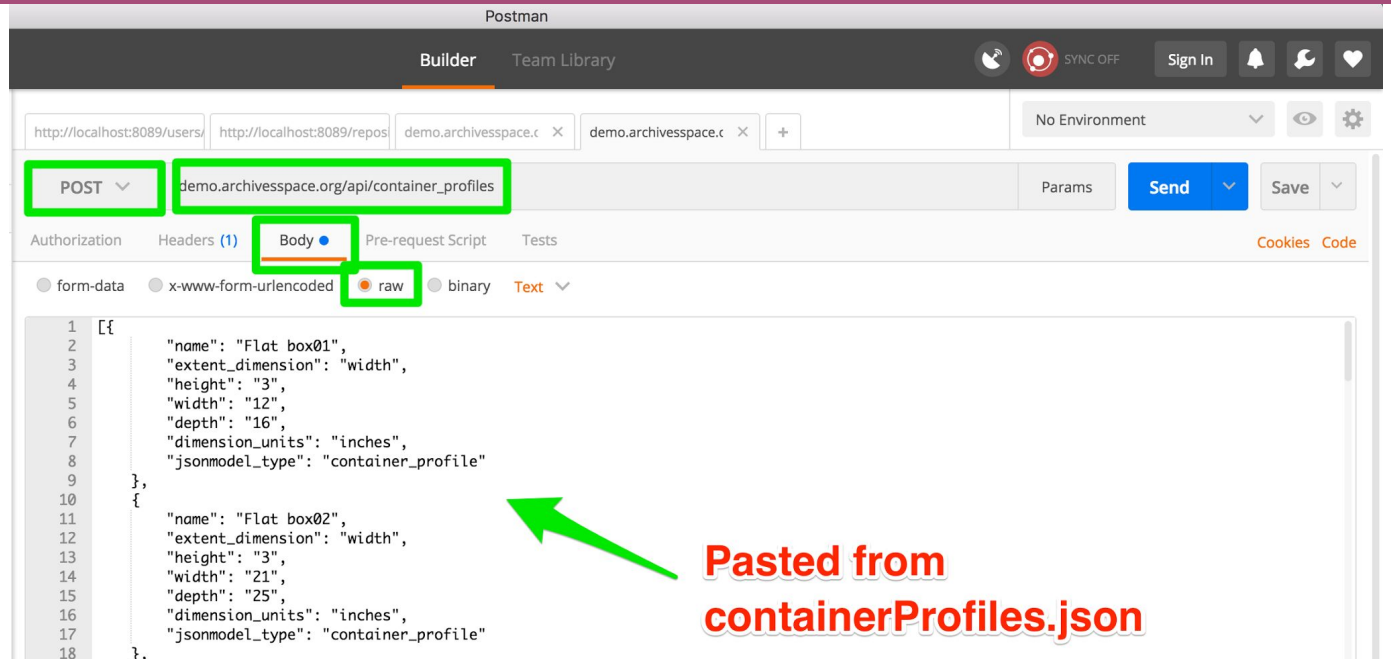
   Mac users: Desktop

   Windows users:

   C:\cygwin64\home\[username]\ASpace_API_Workshop
2. Open “containerProfiles.json” with Atom
3. Packages > Atom Beautify > Beautify
4. Here are ALL the profiles, ready to go
5. Copy, and go back to Postman


```
[{
        "name": "Flat box01",
        "extent_dimension": "width",
        "height": "3",
        "width": "12",
        "depth": "16",
        "dimension_units": "inches",
        "jsonmodel_type": "container_profile"
    },
    {
        "name": "Flat box02",
        "extent_dimension": "width",
        "height": "3",
        "width": "21",
        "depth": "25",
        "dimension_units": "inches",
        "jsonmodel_type": "container_profile"
    },
    {
        "name": "Flat box03",
        "extent_dimension": "width",
        "height": "3",
        "width": "9",
        "depth": "11",
        "dimension_units": "inches",
        "jsonmodel_type": "container_profile"
    },
```

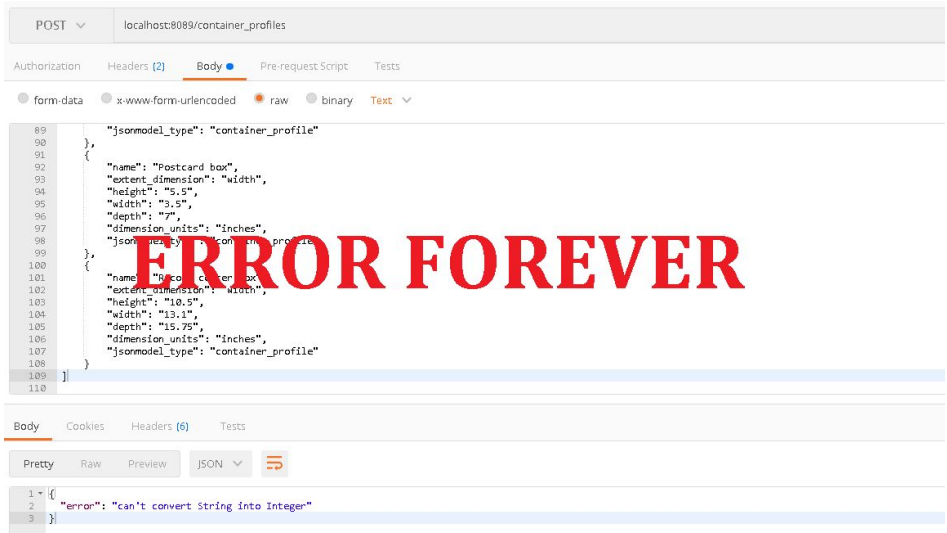
POST to AS with GUI - Container profiles



Endpoint:

https://ws[your#].lyrasistechnology.org/api/container_profiles

POST to AS with GUI - Container profiles



Don't hate us: you <u>cannot</u> post multiple records through the GUI

This frustrating exercise will save you a month

(use your month wisely: take a vacation from computers)


Just
breathe

Scripting

Scripting - Why?

Using a GUI application like **Postman** to interact with APIs can be a great way to *learn*, *explore*, and *troubleshoot*, but ultimately you'll hit a brick wall, because:

- It takes an **awful lot of clicks** to get out a small amount of data (relatively speaking)
- If you want to get multiple full records OUT you've got to run a GET as **many times** as there are records you want to retrieve
- While you can POST many one-off changes using a GUI like Postman, you can rarely get a GUI to make **intelligent, iterative POSTs at scale**
- **Manually authenticating** is a pain
- Though we told you that you will be sometimes playing the role of "application" in this API world, you don't *always* want to **be the application**!

Scripting - How?

Yes, this is a huge barrier to entry for most users, but it can be mitigated:

- We (defined here as both **archivists** and **developers**) are a **community** that likes sharing!
  - Frankly, if you're sitting down to write scripts from scratch, you're **doing it wrong**
- There is no **"one right language"** to make this work
  - If you have *any* prior knowledge of a particular scripting language, **start there**
  - All the scripts you will use in this workshop are **Python** because: 1) Python (and, to a lesser degree, Ruby) is Lora's preferred hammer, and 2) unscientifically speaking, it seems that Python is the preferred language of archivists (which means there's more to ~~steal~~ borrow)
  - But, if you want, you can use a **Ruby** or **Perl** or **PHP** or **JavaScript** shaped hammer!
- The Internet is full of **helpful advice**!
  - Just don't feed the trolls

Scripting - No, really, *how*?

Remember all the legwork you did both at home and during the early part of this workshop? You've:

- Installed applications, including the **text editor** *Atom*
- Installed (or located) a **shell**, namely *Terminal* (Mac) or *Cygwin* (Windows)
- Installed (or confirmed installation of) **python**

Guess what? You've set up a **python development environment** already! Good work!

With that work complete, for the remainder of this workshop you should only need to type `python [name of script here].py` into Terminal/Cygwin, and you'll be **executing Python scripts!** Just remember:

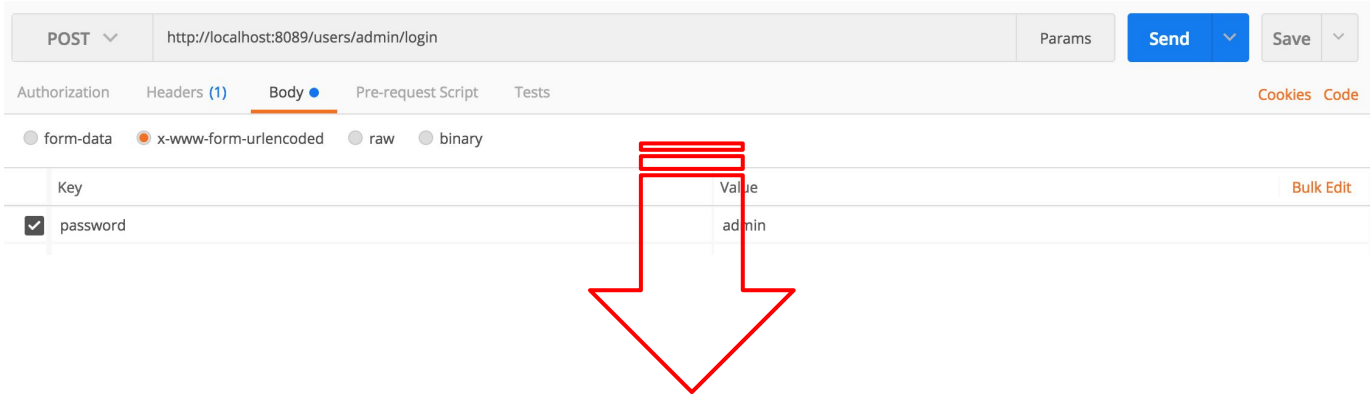
- You should be located in the same directory as the script (and any files it is reliant on) before you type your command (you can always `ls` to confirm the script is there!)

For more, see: http://www.shubhro.com/2014/05/29/development-environment/ and/or http://python-guide-pt-br.readthedocs.io/en/latest/starting/install/osx/ (Mac specific)

POST to AS with script-Container profiles

POST to AS with script

Before we start posting to AS, we need to authenticate, so how do we do that with scripts?



secrets.py

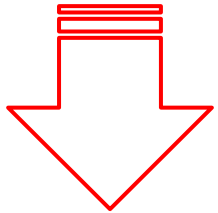
```
1  baseURL='http://localhost:8089'
2  user='admin'
3  password='admin'
```

POST to AS with script

“Keep it secret, keep it safe.” - Gandalf

secrets.py

```
1  baseURL='http://localhost:8089'
2  user='admin'
3  password='admin'
```



This means no manual authenticating!
Learn to script just for that and call it a win!

```
auth = requests.post(baseURL + '/users/'+user+'/login?password='+password).json()
session = auth["session"]
headers = {'X-ArchivesSpace-Session':session}
```

POST to AS with script

- We're all connecting to different instances of ArchivesSpace (so we don't overwrite and/or clash with each others' work!), so we need to tell `secrets.py` where each of our individual instances live.
- Navigate to the ASpace_API_Workshop directory we cloned from GitHub earlier:
  - Mac users: This should be your Desktop
  - Windows users: This should be "C:\cygwin64\home\[username]\ASpace_API_Workshop"
- Open `secrets.py` in Atom
- Change the line:
  `baseURL='http://localhost:8089'`
  to
  `baseURL='https://ws[your#]lyrasistechnology.org/api/'`

POST to AS with script- Container Profiles

Mac

1. In the Finder navigate to your ASpace_API_Workshop directory
2. Ctrl+click the ASpace_API_Workshop directory, and select “New Terminal at Folder”
3. Type `ls` and examine the contents of that folder
4. Type `python postContainerProfiles.py` (case sensitive!)
5. Navigate back to AS in your browser (https://ws[your#].lyrasistechnology.org)

PC

1. Open Cygwin
2. Type `cd ASpace_API_Workshop` to enter the ASpace_API_Workshop directory
3. Type `ls` and examine the contents of that folder
4. Type `python postContainerProfiles.py` (case sensitive!)
5. Navigate back to AS in your browser (https://ws[your#].lyrasistechnology.org)

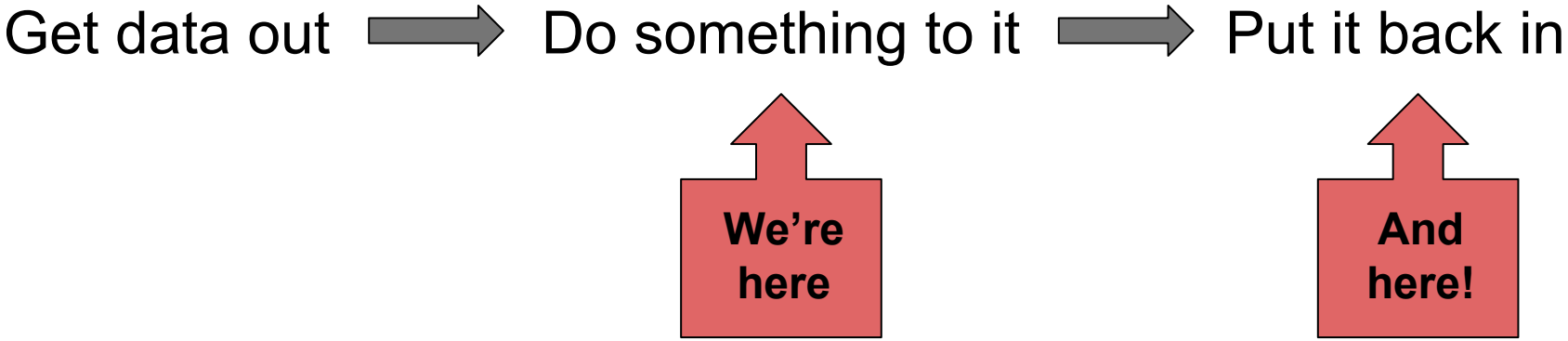
ArchivesSpace!

Scenario: You have successfully migrated into -- or have begun to use -- an instance of ASpace at your institution, but this is a short workshop, so here are our problems for today:

1. ~~We don't have **container profiles** in ArchivesSpace and would like to, so we need to create some~~
2. In following the migration instructions for 1.5, we had to add **faux codes**; we'd like to use our *actual* barcodes
3. Now that we have container profiles, we need to link them to *actual* **top containers**

POST to AS with script- Edit barcodes

API possibilities



Barcodes/top_containers

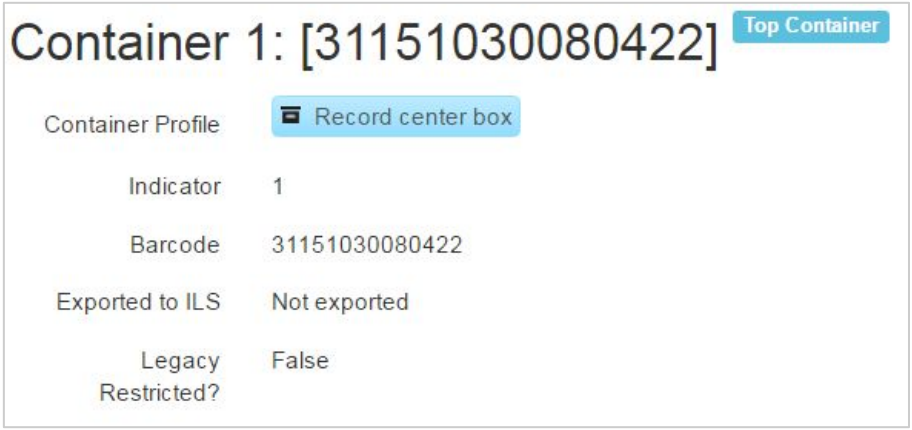
Répète: ASpace offers “container modeling” for the first time in the archives world.

Every type of box (ex. record carton) in your library gets its own record (a profile), which records its height, width, and depth.

Every actual box in your collections *also* gets a record, and this is called a top container. Simply put, this is the thing you put a number on: Box 1.

So, your archives might have hundreds or thousands of boxes called “Box 1”

Barcodes make that sane for AS. Hence, AS 1.5 requires some sort of unique code in every top container record.



Barcodes/top_containers

Every marathon runner and every top_container must have a unique ID to participate.

Barcodes/top_containers

1. Navigate back to ASpace in your browser (https://ws[your#].lyrasistechnology.org)
2. Browse > Resources > Gérard Defaux papers > View > expand Research Materials > click on any file > scroll down to Instances > see fake barcode
3. These are the barcodes generated by the barcoder plugin. Hopkins has thousands of them.
4. Navigate to our GitHub and look at *barcodes.csv*

Barcodes/top_containers

If you're in ASpace, you will have some version of this problem, which is why we're featuring it.

Your top containers might:

- Have barcodes already! Well, this is still a lesson in editing records
- Have "faux codes," like the ones in the AS vagrant
- Have nothing, and you have no idea where to start. We'll have to refer you to the AS 1.5 instructions and this plugin by Chris Fitzpatrick

So let's fix our problem and imagine it working at scale.

Barcodes/top_containers

- Let’s investigate the Gérard Defaux papers in your instance of ArchivesSpace
- Look at the instances attached to the archival objects under the “Research Materials” series
- These are “fauxcodes”
- We want our REAL barcodes!
- Luckily, we were able to map the fauxcode to the “real” barcode and generate a csv with this information
- Let’s take a look at “barcodes.csv”

POST to AS with script- Edit barcodes

Mac

1. In the Finder navigate to your ASpace_API_Workshop directory
2. Ctrl+click the ASpace_API_Workshop directory, and select “New Terminal at Folder”
3. Type `ls` and examine the contents of that folder
4. Type `python postBarcodes.py` (case sensitive!)
5. Navigate back to AS in your browser (https://ws[your#].lyrasistechnology.org)

PC

1. Open Cygwin
2. Type `cd ASpace_API_Workshop` to enter the ASpace_API_Workshop directory
3. Type `ls` and examine the contents of that folder
4. Type `python postBarcodes.py` (case sensitive!)
5. Navigate back to AS in your browser (https://ws[your#].lyrasistechnology.org)

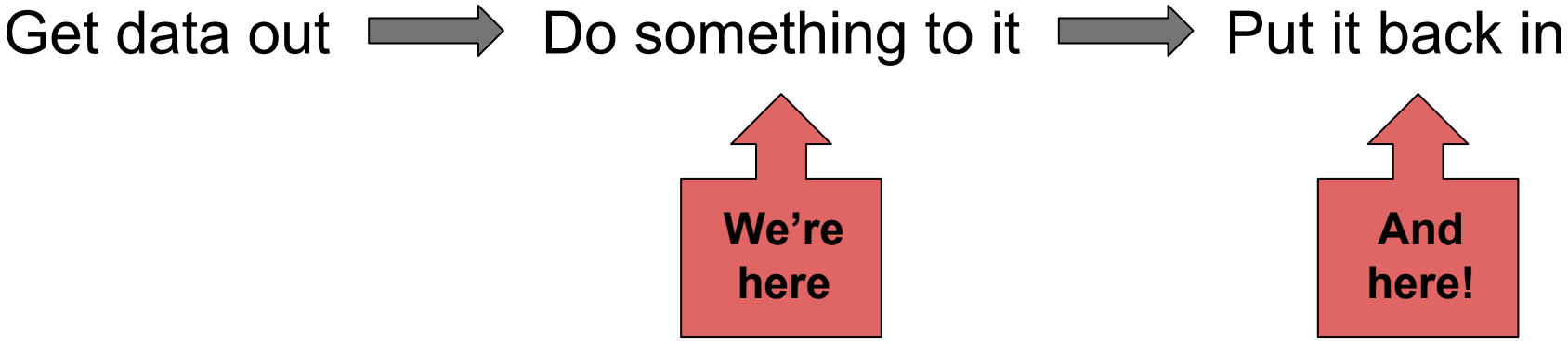
ArchivesSpace!

Scenario: You have successfully migrated into -- or have begun to use -- an instance of ASpace at your institution, but this is a short workshop, so here are our problems for today:

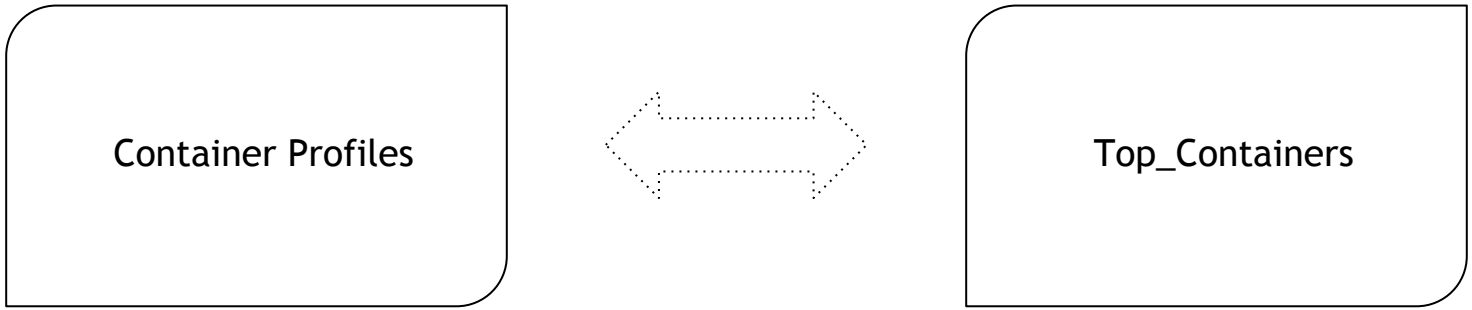
1. ~~We don't have **container profiles** in ArchivesSpace and would like to, so we need to create some~~
2. ~~In following the migration instructions for 1.5, we had to add **faux codes**; we'd like to use our *actual* barcodes~~
3. Now that we have container profiles, we need to link them to *actual* **top containers**

POST to AS with script-Link profiles

API possibilities



Linking profiles to containers



POST to AS with script - Linking profiles

1. Type `ls` and examine the contents of that folder

2. Type `python asLinkProfiles.py` (case sensitive!)

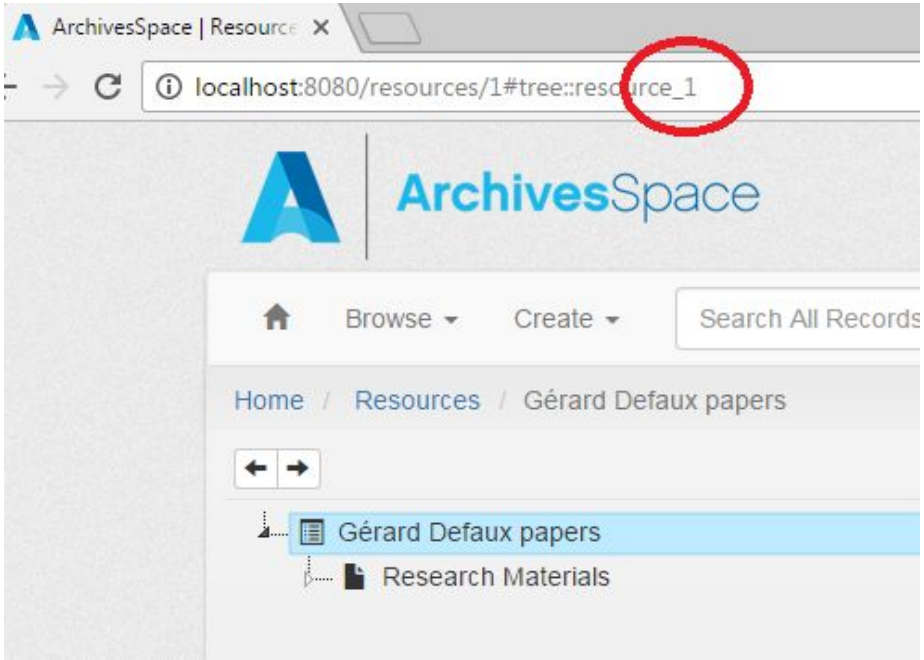
3. You will be prompted for a resource id and a container id… how do you determine what you need to know?

4. Let’s return to ASpace real quick

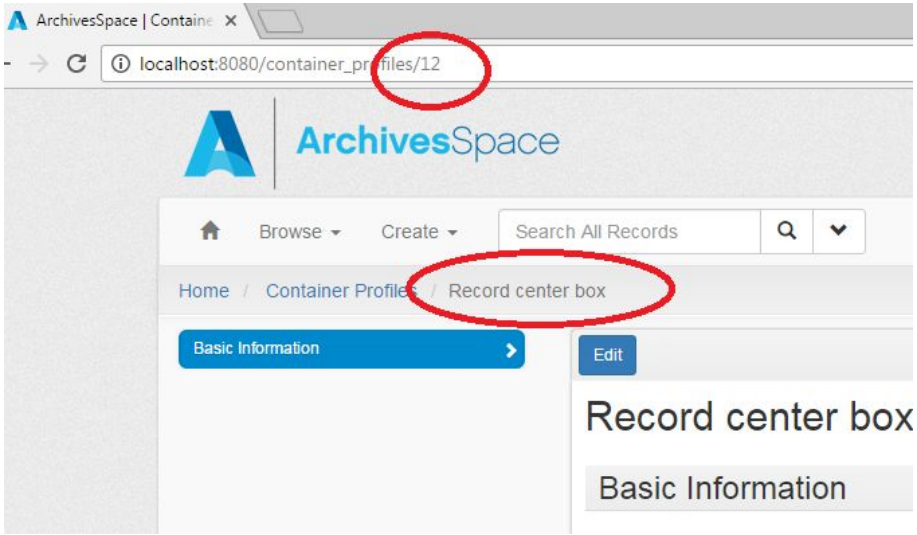
POST to AS with script - Linking profiles

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

View a resource record for its resource number:



View a container profile for its profile number:



~~ArchivesSpace! You did it!~~

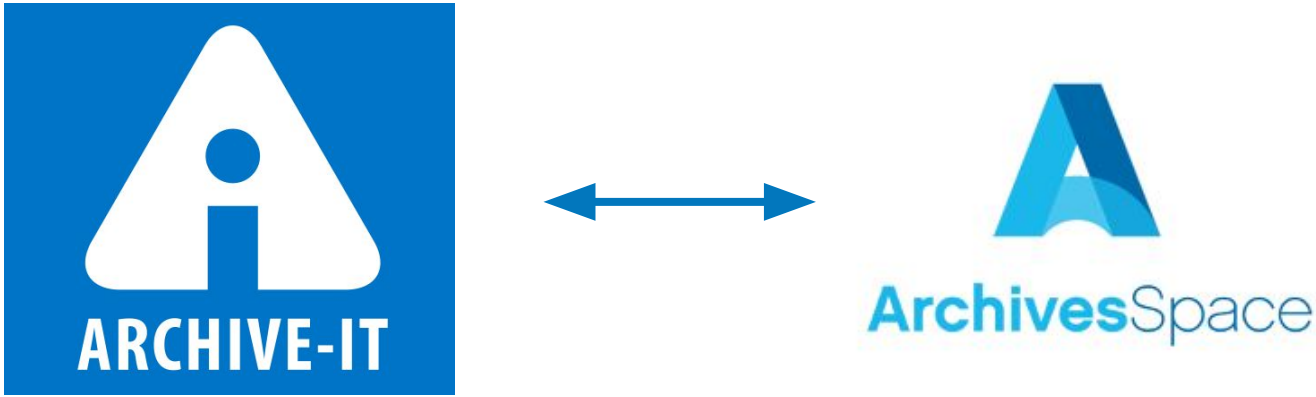
Scenario: You have successfully migrated into -- or have begun to use -- an instance of ASpace at your institution, but this is a short workshop, so here are our problems for today:

1. ~~We don't have **container profiles** in ArchivesSpace and would like to, so we need to create some~~
2. ~~In following the migration instructions for 1.5, we had to add **faux codes**; we'd like to use our *actual* barcodes~~
3. ~~Now that we have container profiles, we need to link them to *actual* **top containers**~~

GET and POST across two applications with Python

App-to-app Communication

Scenario: As your university's web archivist, you wish to make your Archive-It web crawls accessible to users who access your collections via ArchivesSpace without having to individually create digital objects every time you run a new Archive-It crawl.



App-to-app Communication

1. In ArchivesSpace, navigate to the “Records of the Johns Hopkins University Library” resource

2. Expand Subgroup 12: Library Website

3. Click on library.jhu.edu

4. Note that archival object’s level

App-to-app Communication

We now know that we can access ArchivesSpace's archival object records via the **ArchivesSpace API**, right?

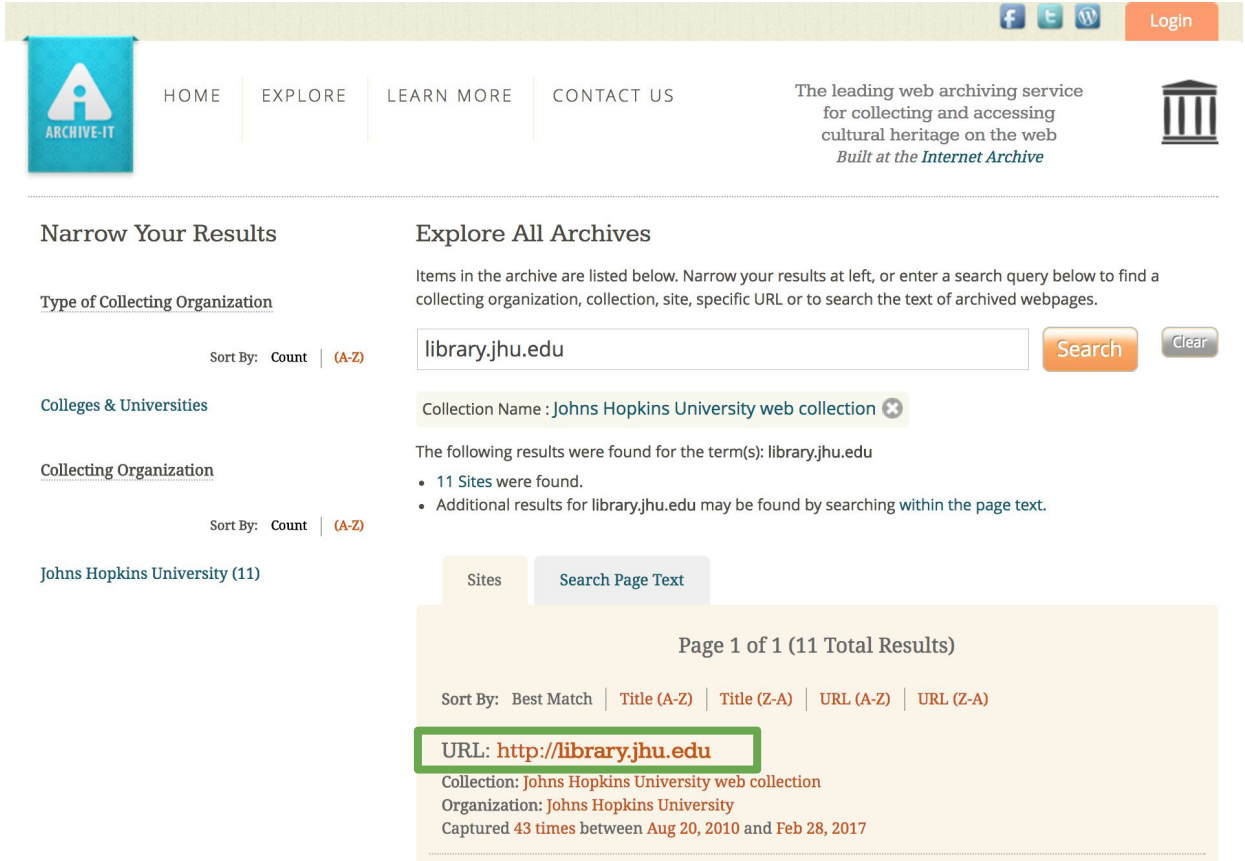
In fact, with a decent enough search we could probably even have a script return JUST those archival objects with the level **"Web archive."**

Since we're going to want to keep programmatically working with/altering this data after we find it, we'll use a **Python script**, instead of Postman to run this search.

```
39    # search AS for archival_object's with level "Web archive"
40    query =
      '/search?page=1&filter_term[]={"primary_type":"archival_object"}&filter_term[]={"level":"Web
      archive"}'
41    ASoutput = requests.get(baseURL + query, headers=headers).json()
42    print 'Found ' + str(len(ASoutput['results'])) + ' archival objects with the instance type "Web
      archive."'
```

Code snippet from archiveIt.py

App-to-app Communication



App-to-app Communication

Does **Archive-It** have an **API** we can use to access this information we're seeing in our browsers?

YES!

INTERNET ARCHIVE
WayBackMachine

Wayback Machine APIs

The Internet Archive Wayback Machine supports a number of different APIs to make it easier for developers to retrieve information about Wayback capture data.

The following is a listing of currently supported APIs. This page is subject to change frequently, please check back for the latest info.

Updated on September, 24, 2013

Wayback Availability JSON API

This simple API for Wayback is a test to see if a given url is archived and currenlty accessible in the Wayback Machine. This API is useful for providing a 404 or other error handler which checks Wayback to see if it has an archived copy ready to display. The API can be used as follows:

`http://archive.org/wayback/available?url=example.com`
which might return:

```
{
    "archived_snapshots": {
        "closest": {
            "available": true,
            "url": "http://web.archive.org/web/20130919044612/http://example.com/",
            "timestamp": "20130919044612",
            "status": "200"
        }
    }
}
```

App-to-app Communication

With the right amount of trial and error, we can also get information about our Archive-It holdings out of the Archive-It API with a **Python script** as well!

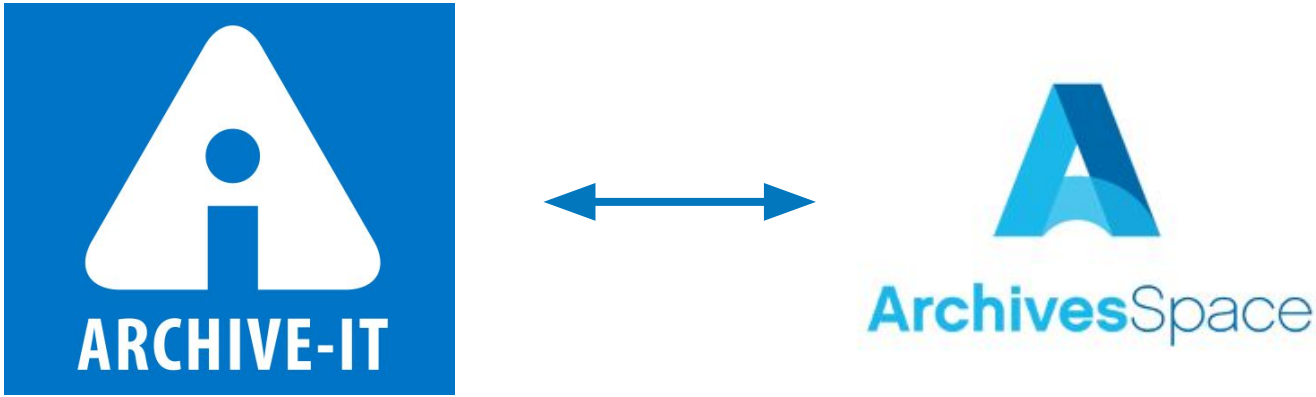
```
67        for crawl in crawlList:
68            doid = 'https://wayback.archive-it.org' + '/' + archiveit_coll + '/' +
          •     crawl['timestamp'] + '/' + crawl['original']
69            query = '/search?page=1&filter_term[]={"primary_type":"digital_object"}&q=' + doid
70            existingdoID = requests.get(baseURL + query, headers=headers).json()
```

Code snippet from archiveIt.py

App-to-app Communication

1. In Terminal/Cygwin run `python archiveIt.py` and let's see what happens!

2. Go check out that "Records of the Johns Hopkins University Library" resource record once again.



Questions???

Icing and Advice

Icing: Interpreting (ASpace) API endpoints

Official: http://archivesspace.github.io/archivesspace/api

Non-Official: https://gist.github.com/jgpawletko/18a1982ec91b290039a968fe4eb924e8

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

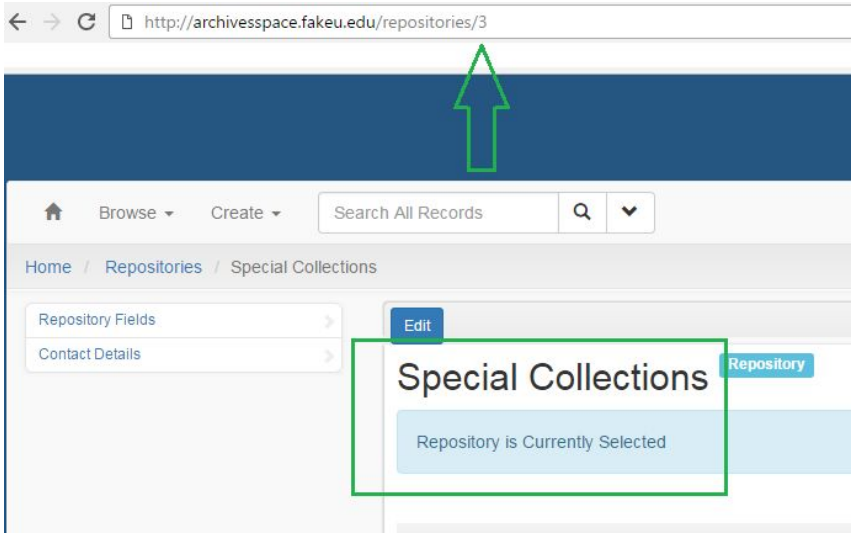
200 – (:resource)

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

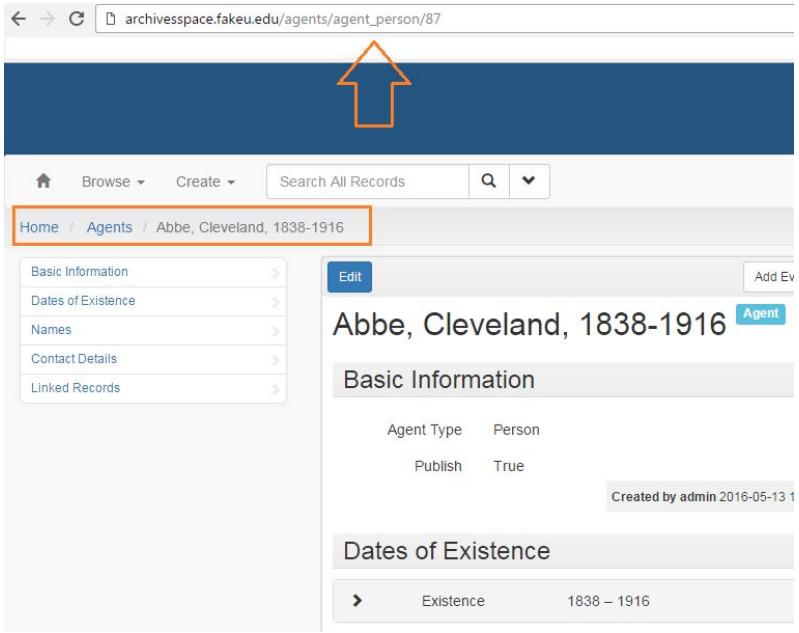
Icing: Interpreting (ASpace) API endpoints

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

Determining the repository number:



Determining an agent number:



Sample endpoint from documentation: http://localhost:8089/repositories/:repo_id/resources/1

Example "fake" endpoint that mimics real life: 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

Icing: What IS GitHub anyway?

The least most helpful thing you'll hear is, "It's in our GitHub!"

If you're serious about learning to script, you should watch the 10 million GitHub intro videos on YouTube

Even casual users will benefit from using other people's scripts (that's how devs work!)

Let's go look at our repo together, we made it for **you**!

https://github.com/jhu-archives-and-manuscripts/ASpace_API_Workshop

Icing: There will ALWAYS be “gotchas”

We purposely made you “fail” a few times today. Get used to it!

- You WILL not succeed on the first try.
- You WILL hit unanticipated snafus, oftentimes due to data models and/or poorly written documentation (aka, due to no fault of your own!).
- You WILL be fitter, happier, and more productive if you start building a community now and asking questions.

Icing: A frequent ASpace “gotcha”

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

Icing: A frequent ASpace frustration

Session time and page limits

- Ever been timed out of your bank account? Frustrating but vital
- The amount of time you have after authenticating is called “session time”
- ASpace default is very short
- Ask your ASpace tech person to up the session time in the AS config; we’ve provided instructions in the take home document (which really will happen, we promise)

Icing: What about XYZ application?

Many other applications provide robust APIs for your use:

- **ILSes** like Voyager;
- **Digital exhibition** applications like Omeka;
- **Digital collections/repository** applications like ContentDM or Islandora; and,
- **Cloud-based sharing applications** like Dropbox/Drive/Box.

While we didn't work through exercises with these applications today, hopefully you now know the **steps to take** to do future API work of your own, namely:

- **Research the API**, including authentication requirements and endpoint documentation;
- Play around in **Postman** (or another GUI API application);
- Determine whether your desired tasks can be accomplished through the **GUI**, or if you need a **scripting language**;
    - If the latter, determine if **someone else has already tackled** your task (for example, on GitHub)
- **Iteratively test** (in a *non-Production environment*!)
- **Profit!**

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 customized reporting) we suggest connecting AS to MS Access. If you don't know Access, it's easier to learn that than learning to script just for reports.
    - You can find explanatory slides in the workshop GitHub > additional resources
    - Credit to Nancy Enneking, Head of Institutional Records at the Getty and Celia Caust-Ellenbogen, Friends Historical Library of Swarthmore College for the method

Can APIs change the staff/user interface?

- No: the API is only a way of manipulating data
- Look at the API endpoints and see if one relates to the change you want to make
- We did write something that changed enumerations

Can APIs improve my agent records?

- Yes!
- Hopkins made changes to **almost all** of our Agent and Subject records through the API
- We added VIAF **ids** to Agents and converted LCSH to FAST
- You already have improved Corporate Names from earlier
- Let’s put those to work!

Load, GET, and compare - VIAF

API possibilities

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

Load, GET, and compare - VIAF

Scenario: You have an existing spreadsheet containing a number of organizational names that are either subjects or creators of some of your collections. Now, you want to take this manually-made spreadsheet and actually do some authority control work!

Load, GET, and compare - VIAF

1. Take a look at “organizations.csv” in GitHub: https://github.com/jhu-archives-and-manuscripts/ASpace_API_Workshop/blob/master/organizations.csv
2. From Terminal/Cygwin type

```
python viafReconciliationCorporate.py
```

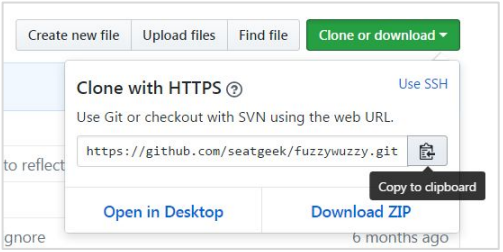
In theory, we could make changes to this .csv file (add/change lines, etc.), but we’re not going to have you do this today. Feel free to try it at home, though, with the caveat that some spreadsheet editors (particularly Excel on Macs) output messy .csv’s that cause errors when the script is run.

Load, GET, and compare - VIAF

Uh oh…

Technical Pitstop - Installing extra packages

Downloading the fuzzy wuzzy python package:



1. Google “fuzzy wuzzy github” and it should be the first result
2. Click the green “Clone or Download” button, click the little clipboard icon, and copy the path to the clipboard
3. Confirm that terminal/cygwin is still in the ASpace_API_Workshop folder
4. Type `git clone` then paste the path, which should look like:

   ```
   git clone https://github.com/seatgeek/fuzzywuzzy.git
   ```
5. Hit enter

Technical Pitstop - Installing extra packages

Installing the fuzzy wuzzy python package:

1. Type `cd fuzzywuzzy` to enter the newly created fuzzywuzzy directory
2. Type `ls` to see what's in the directory and note the script "setup.py"
3. To execute that setup script, type `python setup.py install`
4. The package is **installed**!
5. Type `cd ..` to return you to the ASpace_API_Workshop directory

Load, GET, and compare - VIAF

Let's try this again!

1. Type or up-arrow `python viafReconciliationCorporate.py`
2. Success!
3. Go back to your spreadsheet program and open the newly created "viafCorporateResults.csv" file from the ASpace_API_Workshop directory

   Mac users: Desktop/ASpace_API_Workshop

   Windows users: C:\cygwin64\home\[username]\ASpace_API_Workshop
4. The script created this new file for you. Let's inspect it!

POST with script - VIAF

Post from a CSV - VIAF

Before posting these VIAF corporate entities into ArchivesSpace, we must first add VIAF as a valid **“name source”** in ArchivesSpace

1. Go to the ArchivesSpace staff interface at: https://ws[your#].lyrasistechnology.org
2. In the top right select “System > Manage Controlled Value Lists”
3. In the drop-down you’re provided, select “Name Source (name_source)”
4. In the middle right click “Create Value”
5. Name this value “viaf”
    a. Note: The punctuation here is important since it must match what is in our Python script. All lowercase, no spaces.
6. Click “Create Value”

Post from a CSV - VIAF

With the VIAF **name source added** to ArchivesSpace, next:

1. Confirm you still have a file called “viafCorporateResults.csv” in your ASpace_API_Workshop directory
2. From within the ASpace_API_Workshop directory in Terminal/Cygwin execute `python postVIAFOrganizations.py`
3. Go back to the ArchivesSpace staff interface at: https://ws[your#].lyrasistechnology.org
4. In the top left click “Browse > Agents”
5. Voila!

Wrap up!

Thanks!

This workshop is a heavily abbreviated/modified version of the series of API workshops co-taught for MARAC by Lora Woodford and **Valerie Addonizio.** For more on these workshops, see: https://github.com/jhu-archives-and-manuscripts/MARAC_API_Workshop

Thanks to **Eric Hanson**, Metadata Librarian at JHU, for his troubleshooting and all-around good spirits (YAY ERIC!)

Several of these concepts and/or exercises were tested on JHU Sheridan Libraries' staff, including NDSR Resident **Elizabeth England**.

Anyone who has ever shared help/advice/support on blogs/listservs/bar stools who are too numerous to fully name (but we'll try in person if you ask us to!).