



R and the iDigBio API: Enabling Exploration and Discovery

A non-technical overview of the iDigBio Application Programming Interface (APIs) and example use cases













R and the iDigBio API: Enabling Exploration and Discovery

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This Session Today

- Some very brief slides about APIs in general
- Not focusing on code itself
- 3 technical terms (and 3 only)
- Demos / Examples
- Questions / Discussion





Briefly: What is an API?

Ron's tech term #1: *API*

Application Programming Interface

- An organization has a system...
- That they would like to allow others to interact with...
- And so they make it available on the web via an "endpoint"
- Some will require an account, others won't





Endpoint: Odd Name, Same Thing

Ron's tech term #2: *endpoint*

An *endpoint* is a web address for the API

For instance, iDigBio:

- https://search.idigbio.org/v2/search/
- https://search.idigbio.org/v2/mapping/

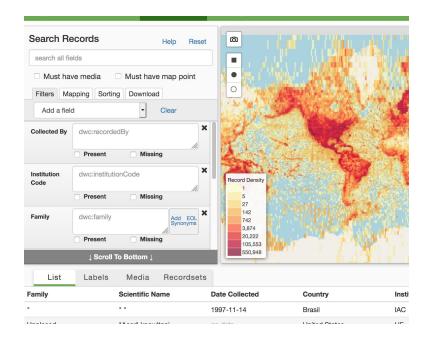
National Park Service:

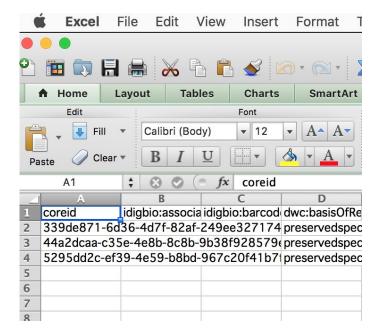
https://developer.nps.gov/api/v1/alerts





A point of comparison...









Talking With an API

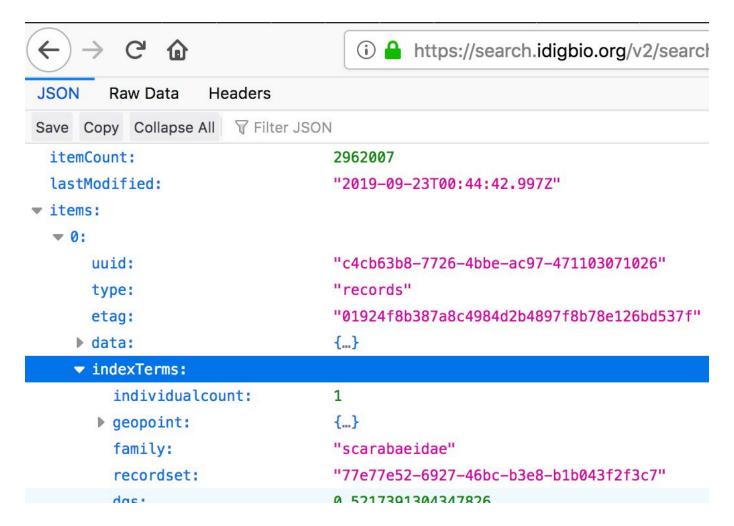
Ron's tech term #3: request

A human or a computer makes a request to the API

- Asking for an interaction
- "Please search for these terms and return the results..."
- "Please download this file..."
- "Please count how many results match my query..."





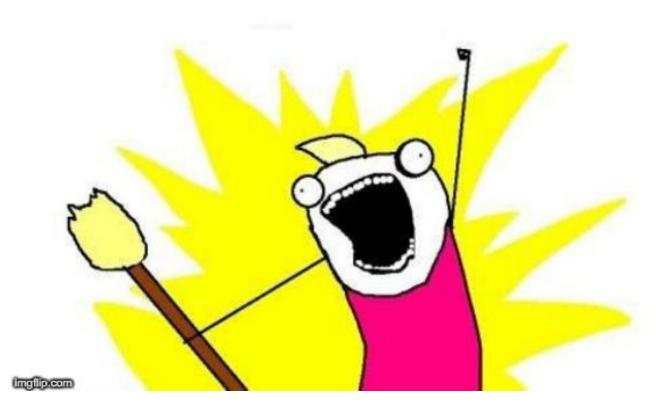


https://search.idigbio.org/v2/search/records?rq={%22stateprovince%22:%22Florida%22}&limit=1000



API and R: What Is It Good For?

AUTOMATE ALL THE THINGS!



Originally from: http://hyperboleandahalf.blogspot.com/2010/06/this-is-why-ill-never-be-adult.html





API and R: What Is It Good For?

Besides automation, there are other benefits:

- Self-documenting procedures
- Repeatable for yourself
- Reproducible for others!
- Bring your own programming language
- More coming up later...



(Example #1)



(Example #2)





API and R: What (Else) Is It Good For?

You don't have to wait for iDigBio to implement features you need

You can bring data from different sources together:

- Multiple APIs
- Downloaded data sets
- Your own data



A Few Other Thoughts

Don't re-invent the wheel:

- Check the API documentation
 - https://github.com/iDigBio/idigbio-search-api/wiki
- Email data@idigbio.org*





A Few Other Thoughts

How to learn more?

- Software and Data Carpentries
 - https://carpentries.org/
- Hadley Wickham's books online:
 - http://hadley.nz/
- Your community!



A Few Other Thoughts

Links to the projects shown today

- https://github.com/roncanepa/idigbio-results-in-nationa
 l-parks
- https://github.com/ekrimmel/idigbio-api-dq-geo
- You can find more links in the project READMEs





Thank you!





















