APIs 101

HANK SWAY, PRODUCT ANALYST

#OCLCRSC18
Hank Sway
Product Analyst
Goals for today

1. What’s an API?
2. Talking “API talk”
3. Go “under the hood”
4. Resource sharing APIs
What’s an API?
What does it stand for?

• Application Programming Interface
• (really, just API)
Ok, so what is it?

• Let’s watch a quick video
  – Credit: MuleSoft
Waiter analogy

• Takes your order
• Conveys it to the kitchen
• Returns with your food
Waiter analogy

- Takes your order request
- Conveys it to the kitchen external system
- Returns with your food response
API = messenger
API = web service
Talking “API talk”
HTTP – makes the web go ‘round

• HyperText Transfer Protocol
• Dialog between client and server
  – Client sends request
  – Server sends response
HTTP – makes the web go ‘round

- HyperText Transfer Protocol
- Dialog between client and server
  - Client sends request order
  - Server sends response food
HTTP in a web browser

• Web browser = client
• Makes request to server via URL
Web server response

- Web server response = HTML
  - Also CSS, JavaScript
- HTML = machine-readable structured data
- Browser makes it human-readable
Advancing our shared mission

OCLC, a global library cooperative, supports thousands of libraries in making information more accessible and more useful to people around the world. We provide shared technology services, original research and community programs that help libraries meet the ever-evolving needs of their users, institutions and communities.

Because what is known must be shared.
Demo:
Firefox Developer Tools
HTTP – makes APIs go ‘round

• Request to an API is also an HTTP request!
• Some important differences
  – URL patterns
  – Response types
API URLs

- Example from WMS Acquisitions API

https://institution.share.worldcat.org/acquisitions/invoice/search?q={query}
API URLs

• Example from WMS Acquisitions API

https://institution.share.worldcat.org/acquisitions/invoice/search?q={query}
API URLs

• Example from WMS Acquisitions API

https://institution.share.worldcat.org/acquisitions/invoice/search?q={query}

Domain
API URLs

- Example from WMS Acquisitions API

https://institution.share.worldcat.org/acquisitions/invoice/search?q={query}
API URLs

- Example from WMS Acquisitions API

https://institution.share.worldcat.org/acquisitions/invoice/search?q={query}

Parameter(s)
key/value pair
API response types

• Web server gives you HTML (structured data)
• API gives you XML or JSON (also structured data!)
  – eXtensible Markup Language
  – JavaScript Object Notation
XML and JSON

• Data exchange formats
• Lightweight
• Flexible
• Easy to parse
• Allow communication between disparate systems
  – i.e. your code and someone else’s
{
  "myBlog": {
    "pageViews": "4720",
    "subscribers": "1711",
    "numberOfPosts": "37",
    "mostRecentPost": "2013-01-04"
  }
}
<acq:id>
https://acq.sd00.worldcat.org/acquisitions/invoice/data/INV-2012-3
</acq:id>

<acq:taxCalculationMethod>
  <acq:TaxCalculationMethod>EXCLUDE_ADDITIONAL_COSTS</acq:TaxCalculationMethod>
</acq:taxCalculationMethod>

<acq:itemCount>3</acq:itemCount>

<acq:grandTotal>
  <schema:PriceSpecification>
    <schema:price>49.07</schema:price>
    <schema:priceCurrency>USD</schema:priceCurrency>
  </schema:PriceSpecification>
</acq:grandTotal>

<acq:totalDiscount>
  <schema:PriceSpecification>
    <schema:price>0.00</schema:price>
    <schema:priceCurrency>USD</schema:priceCurrency>
  </schema:PriceSpecification>
</acq:totalDiscount>
Advancing our shared mission

OCLC, a global library cooperative, supports thousands of libraries in making information more accessible and more useful to people around the world. We provide shared technology services, original research and community programs that help libraries meet the ever-evolving needs of their users, institutions and communities.

Because what is known must be shared.
“Life has no limitations, except the ones you make.”

- Les Brown
Go “under the hood”
Making an API request

• **VIAF** example
  – Virtual International Authority File
  – URL: http://www.viaf.org/viaf/102333412/rdf.xml

• Web browser
• HTTP Client (Postman)
• **OCLC API Explorer**
API authentication

- **OCLC Web Service Key Management**
  
  - Often shortened to WSKey (“whiskey”)

- Access via **OCLC Developer Network**

- Some APIs require subscriptions to corresponding OCLC product
<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>TEST</td>
</tr>
<tr>
<td>Key</td>
<td>ts0q49fkgoaqviWelcqFfdNhEk76nLcX7qzt8HpqKmm</td>
</tr>
<tr>
<td>Secret</td>
<td>A3dyAmfkOq6vx</td>
</tr>
<tr>
<td>Status</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>Environment</td>
<td>Sandbox</td>
</tr>
<tr>
<td>Expiration Date</td>
<td>10/25/2018</td>
</tr>
<tr>
<td>Registry ID</td>
<td>128807</td>
</tr>
<tr>
<td>Override Institutions</td>
<td></td>
</tr>
<tr>
<td>Redirect URI</td>
<td></td>
</tr>
<tr>
<td>Services</td>
<td>Article Exchange (articleExchange)</td>
</tr>
</tbody>
</table>

[View API Documentation]
API authentication

• WSKen = key + secret
  – Like a username + password
  – Identify the application making the request
  – Example: WorldCat Search API

• User-level credentials
  – Identify the user performing the action in the application
  – Example: WorldCat Metadata API
Non-library examples

- National Public Radio API
  - Python tutorial via Codecademy
- Google Maps API
  - JavaScript example
Resource sharing APIs
NCIP & ISO ILL

• NISO Circulation Interchange Protocol
• International Organization for Standardization
• API standards for communication between circulation and ILL systems
• Widely supported in the industry
• Often implemented “buffet-style”
Article Exchange API

• Developer-level access to Article Exchange document-sharing site
• Upload files on behalf of ILL software and systems
• Mediate download of files on behalf of patrons
• Used by Tipasa, WorldShare ILL, ILLiad, Scannx
ILL Policies Directory API

• Programmatic access to Policies Directory information:
  – Fees
  – Hours
  – Closures
  – Contact Information
  – Supplier Status

• Useful in automating borrowing decisions
Tipasa API (forthcoming!)

• Read / write access to Tipasa data:
  – Requests
  – Queues
  – Request Events

• Patron-facing tools

• Staff workflow efficiencies

• Systems interoperability
Resources

- **OCLC Developer Network**
  - API Documentation
  - Blog
  - Request a WSKey

- **OCLC Developer Network GitHub**
  - Code libraries, examples, starter projects
  - WorldCat Metadata API tutorial

- **Codecademy**
  - Learn to code (with APIs!) for free
Hank Sway
PRODUCT ANALYST
swayh@oclc.org