Demystifying Scopus APIs

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What You Will Learn Today about Scopus APIs

• Simplistically, how do Scopus APIs work & why do they matter?
• What is the procedure to start using Scopus and other Elsevier APIs?
• How are Scopus APIs most commonly used by Academic, Government and Corporate customers?
• What are some examples of current users of the Scopus APIs?
Why are Scopus APIs Important?

- **Scopus captures articles** being published in **virtually all scholarly journals of any significance in the world**; and its **profiling of authors and institutions** makes it easy to find new articles by those authors at those institutions.

- The **Scopus UI (user interface)** offers many features allowing **librarians, researchers, developers and & business intelligence groups** to manually find publications originating from their institution.

- Aside from that user interface, Scopus also **has Application Programming Interfaces (APIs)** that offer the same features, but with results in a **machine-readable format** that enables **software, rather than humans on the UI (User Interface)**, to find articles, authors and institutions in Scopus.

- This allows developers to write programs that **automatically extract data** from Scopus, and add that data to their systems & applications.

**What Elsevier products have APIs?**

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<th>Scopus</th>
<th>ScienceDirect</th>
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What is Scopus Data?

- 69 million Items
- 1.4 Billion cited references dating back to 1970
- 22,800+ Serial titles
- +150,000 Books
- ~70,000 Main institutional profiles
- 12 million Author profiles

Scopus

- Identify and analyze which journals to read/submit to
- Help researchers manage career – citation counts and h-index
- Decide what, where and with whom to collaborate
- Track impact of research; monitor global research trends
- Find out what already exists in the global world of research
- Determine how to differentiate research topics, find ideas
“Data Delivery” Methods: How can users get Scopus Data?

**Scopus.com**
*What?* World’s largest abstract and citation database of peer-reviewed literature
*How?* Users access content from 5000 publishers directly with discovery & analytical tools
*Why?* No other tool can tell you who is doing science and where better than Scopus

**Scopus & SciVal APIs**
*What?* Way for a client’s system to ask Scopus for data in real-time
*How?* API is like piping - without it, the customer could not connect to our data reservoir
*Why?* Customer chooses for integration with programs and applications

**Custom Data**
*What?* Bulk delivery of data in (relatively) static form
*How?* Customer defines how much data they need and then deliver it on a thumb drive
*Why?* Custom Data is a great fit if the customer has a specific data need and wants control over the way its analyzed
How do you generate an API call?

• Calling a REST API is just like going to a web address with your browser, except:
  - You don’t use a browser to go to the address manually – instead, you write a computer program that goes to the address automatically as part of a script
  - The address usually contains some variables that specify what exactly you want to get
  - What you get from the API is not an HTML document that is shown to a user in a browser, but XML (or another format) that is processed by the computer program
  - APIs usually don’t use un/pw for access, but an APIKey and/or access tokens

So, first: get an API key from http://dev.elsevier.com

• Once you’ve registered your website or application for access, you will be issues an APIKey that has access rights to a number of Elsevier APIs
• Read the documentation to understand the APIs’ capabilities
• Write your application/program to make API requests using the correct parameters and your APIKey, and to parse the response from the APIs into your web site or application
You API REQUEST DATA Scopus

You

API

DATA

Scopus®
It’s Plural! Scopus has many APIs

Scopus offers multiple APIs, which retrieve different data

- Scopus Search API
- Abstract Citation Count API
- Citation Overview API
- Abstract Retrieval API
- Affiliation Search API
- Affiliation Retrieval API
- Author Search API
- Author Retrieval API
- Subject Classifications API
- Serial Title API
- Author Feedback API
Get API Access by using Elsevier Developers site
http://dev.elsevier.com
How do you get access to Scopus APIs?

1. Look at use cases
2. Get API Key
3. Start coding

What are the most popular use cases?
1. Federated Search
2. Cited By in Scopus
3. IR/CRIS/VIVO

Each has a detailed policy

Academic Research
Elsevier allows access to the Scopus APIs in support of academic research for researchers affiliated with a Scopus subscribing institution.

Detailed policy: show/hide
Definition: The end product is a scholarly published work that utilizes publications in Scopus for a research effort. The researcher wants to publish a scholarly work regarding Scopus data relationships.

Examples:
- Analysis of abstract cited-by counts across a specific, singular academic discipline.
- Relationship between authors' geographic locations and their academic affiliations.
Register for an API Key

1. Look at use cases  
2. Get API Key  
3. Start coding

Tip:
- If you are a registered user of most Elsevier products, like Scopus, ScienceDirect, Engineering Village, Embase or more, use that UN/PW
- Otherwise, register once and use this username

Elsevier Developers

My API key  API Specification  Interactive APIs  How to Guides

Rebecca Brown  Logout
Run a test API call using our interactive documentation

1. Look at use cases
2. Get API Key
3. Start coding

Elsevier Scopus APIs - interactive documentation

Affiliation_Search : Affiliation Search API
Author_Search : Author Search API
Scopus_Search : Scopus Search API
Abstract_Retrieval : Abstract Retrieval API
Affiliation_Retrieval : Affiliation Retrieval API
Author_Retrieval : Author Retrieval API
Abstract_Citation_Count : Abstract Citation count API
Citations_Overview : Citations Overview API
Serial_Title : Serial Title API

By product:

Scopus Interactive APIs ➔
ScienceDirect Interactive APIs ➔
Engineering Village Interactive APIs ➔

https://dev.elsevier.com/scopus.html
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<th>Scopus Use cases</th>
<th>API</th>
<th>More information</th>
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<td>Scopus Search API</td>
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<td>Implementation guide</td>
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<tr>
<td>Showing Scopus cited-by counts on your website</td>
<td>Scopus Search API / Abstract Citation</td>
<td>Detailed policy</td>
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<td>Populating IRs with basic document metadata from Scopus</td>
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<td>Implementation guide</td>
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<tr>
<td>Scopus</td>
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<tr>
<td>Populating publication histories of VIVO profiles</td>
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<td>Showing SNIP/SJR/IPP on journal homepage</td>
<td>Serial Title API</td>
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<tr>
<td>Limited Use for Commercial Applications</td>
<td>Scopus Search API</td>
<td>Please contact us</td>
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## Overview of (Access) levels

<table>
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<tr>
<th>Use-cases</th>
<th>Non Subscriber</th>
<th>Scopus.com Subscriber</th>
<th>Case by Case Subscriber</th>
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</thead>
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<tr>
<td>Types</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RESTful APIs</td>
<td>Cited-by and Scopus Query API</td>
<td>All APIs</td>
<td>Some text-mining and deeper integration with partner tools</td>
</tr>
<tr>
<td>API Rate Limits</td>
<td>20 records per call</td>
<td>200 records per call</td>
<td></td>
</tr>
<tr>
<td>Display Scopus Citation</td>
<td>Yes, Citation and Query API</td>
<td>Yes, more results returned</td>
<td></td>
</tr>
<tr>
<td>Counts or Records</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IR and CRIS Systems</td>
<td>No</td>
<td>Yes, Full integration with IR and CRIS systems</td>
<td></td>
</tr>
<tr>
<td>Federated Search</td>
<td>No</td>
<td>Yes, Federated Search via Query API and Citation Count</td>
<td>Deeper Integration with preferred Partners</td>
</tr>
<tr>
<td>Integration</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Data Rights for Research</td>
<td>No</td>
<td>Access for Academic Research Commercial use on case by case basis</td>
<td></td>
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<tr>
<td>(Text-mining, etc)</td>
<td></td>
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Example of an API Request

• I am looking to retrieve records from Scopus authored by anyone with the last name Brown written in Chemistry journals.

• I sign up for my developer key at http://dev.elsevier.com/myapikey.html

• I register a new project and read the documentation to learn how to structure the request

• https://api.elsevier.com/content/search/scopus?query=AUTHLASTNAME%28brown%29%20AND%20SUBJAREA%28CHEM%29&apikey=6ab3c2a01c29f0e36b00c8fa1d013f83
What does the output of an API Call look like?

```xml
<search-results>
  <opensearch:totalResults>14446</opensearch:totalResults>
  <opensearch:startIndex>0</opensearch:startIndex>
  <opensearch:itemsPerPage>25</opensearch:itemsPerPage>
  <opensearch:Query role="request" searchTerms="AUTHLASTNAME%28brown%29+AND+SUBJAREA%28CHEM%29" startPage="0"/>
  <link ref="self" href="http://api.elsevier.com:80/content/search/scopus?start=0&count=25&query=AUTHLASTNAME%28brown%29+AND+SUBJAREA%28CHEM%29&apikey=feada8950b5eb3c481f48762bdde05c6" type="application/xml"/>
  <link ref="first" href="http://api.elsevier.com:80/content/search/scopus?start=0&count=25&query=AUTHLASTNAME%28brown%29+AND+SUBJAREA%28CHEM%29&apikey=feada8950b5eb3c481f48762bdde05c6" type="application/xml"/>
  <link ref="next" href="http://api.elsevier.com:80/content/search/scopus?start=25&count=25&query=AUTHLASTNAME%28brown%29+AND+SUBJAREA%28CHEM%29&apikey=feada8950b5eb3c481f48762bdde05c6" type="application/xml"/>
  <link ref="last" href="http://api.elsevier.com:80/content/search/scopus?start=4975&count=25&query=AUTHLASTNAME%28brown%29+AND+SUBJAREA%28CHEM%29&apikey=feada8950b5eb3c481f48762bdde05c6" type="application/xml"/>
  <entry>
    <link ref="self" href="http://api.elsevier.com/content/abstract/scopus_id:84943279757"/>
    <link ref="author-affiliation" href="http://api.elsevier.com/content/abstract/scopus_id:84943279757?field=author_affiliation"/>
    <link rel="scopus" href="http://www.scopus.com/inward/record.url?partnerID=HzOxMe3b&scp=84943279757&origin=inward"/>
    <link rel="scopus-citedby" href="http://www.scopus.com/inward/citedby.url?partnerID=HzOxMe3b&scp=84943279757&origin=inward"/>
  </entry>
</search-results>
```
Summarize: Scopus APIs power advanced integration & visibility

**Scopus** provides a variety of **APIs** (Application Programming Interfaces) to power integration of Scopus into outside sites. They make excellent tools to help you *showcase your publications*, *build search widgets for library pages*, or *mash up Scopus citation data with data from other APIs*.

- They are free to use for non-commercial purposes, as long as you honor our *policies for content use through our APIs*.
- You don’t need to have a full subscription to Scopus to use our APIs, but if you have one, you’ll be able to get more data from the APIs.
- If you work for, or on behalf of, an institution with a Scopus subscription you can request direct access to our APIs. For that, please register API key first and then *contact us*.

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**What are some common uses of Scopus APIs?**

**Cited-by retrieval**
Retrieve the cited-by count for documents to incorporate into your website.

**Federated Search**
Integrate search results from Scopus and ScienceDirect into your Federated Search application.

See Examples:
- Scopus Citation Counts: [http://eprints.hud.ac.uk/6352/](http://eprints.hud.ac.uk/6352/)
- Federated Search: Company Intranet, Sharepoint, & more.
A few quick Cited-By API Integration Examples

Links
- PLOS One: http://www.plosone.org/
- HKU Scholars Portal: http://hub.hku.hk/
Example of the Scopus API being used on a web page

https://library2.lincoln.ac.nz/dashboard/
Example of the Scopus API being used on a web page

http://www.nature.com/nature/journal/v518/n7539/nature14248/metrics
Scopus APIs used in an Institutional Repository

https://www.authenticus.pt/
Scopus API for Academic Research

Definition: The end product is a scholarly published work that utilizes publications in Scopus for a research effort.

Examples:
- Analysis of abstract cited-by counts across a specific, singular academic discipline.
- Relationship between authors' geographic locations and their academic affiliations.
- Analysis of the relationship of citing works from a limited set of publications.
Scopus API for Academic Research
Full details: dev.elsevier.com/academic_research_scopus.html

We ask researchers to abide by the following conditions:

• Research is for academic purposes only & limited in scope to a specific discipline
• Retention of original research dataset is limited to archival purposes and reproduction of the research results.
• Scopus is identified as the data source.

IF YOU WANT TO USE SCOPUS DATA VIA API FOR ACADEMIC RESEARCH, PLEASE
1. VISIT DEV.ELSEVIER.COM
2. REVIEW ACADEMIC USE CASE DOCUMENTATION
3. REGISTER FOR AN API KEY AND
4. CONTACT US WITH ANY ACCESS OR USE QUESTIONS
Don’t forget, APIs are just a way for computer applications and programs to talk to each other.
Thank you!