



Using Excel and VBA with APIs to Wow Your Colleagues and Patrons

Hao Zeng, Yeshiva University
Annamarie Klose Hrubes, William Paterson University



What are APIs?

In computer programming, an **application programming interface (API)** is a set of subroutine definitions, protocols, and tools for building application software. In general terms, it is a set of clearly defined methods of communication between various software components.

Web APIs are the defined interfaces through which interactions happen between an enterprise and applications that use its assets. An API approach is an architectural approach that revolves around providing programmable interfaces to a set of services to different applications serving different types of consumers. When used in the context of web development, an API is typically defined as a set of Hypertext Transfer Protocol (HTTP) request messages, along with a definition of the structure of response messages, which is usually in an Extensible Markup Language (XML) or JavaScript Object Notation (JSON) format.

- *Application programming interface*, https://en.wikipedia.org/wiki/Application_programming_interface

How can you use APIs?

Here's a sample of how using JSON and/or XML records via an API can help:

- Batch download records related to a resource that conform to a specific criteria, e.g. download records of faculty publications
- Download and match information related to records you have, e.g. VIAF entries
- Upload records to a system/platform, e.g. ArchivesSpace

You may already be using a resource that has an API. If they do, look for the documentation and dig in!

Scenario 1 - Need Bibliographic Information for Journal Holdings



The Periodical Department needs to know which electronic journals in our holdings to cut. The holding management system does not provide detailed information regarding individual titles, e.g. subject. However, Ulrich's Web can provide that information and we have a subscription.

Ulrich's Web API

The Ulrich's Web API allows you to export basic metadata, e.g. title, country, subject, about a journal as JSON or XML.

https://knowledge.exlibrisgroup.com/Ulrich's/Product_Documentation/Configuring/Ulrichsweb_API/Ulrichsweb%3A_Fields_Included_in_the_API_Output

However, you need an Ulrich's Web subscription to get an API key.

https://knowledge.exlibrisgroup.com/Ulrich%27s/Product_Documentation/Configuring/Ulrichsweb_API/Ulrichsweb%3A_Administration_Console_-_Ulrich%27s_API

Ulrich's Web API - Sample query & output

```
GET http://ulrichsweb.serialssolutions.com/api/[API KEY]/search?query=issn:15551296
```

```
GET http://ulrichsweb.serialssolutions.com/api/[API KEY]/search?query=title:International Journal of Business Research
```

```
{ "status": "Success", "totalRecords": 1, "results": [ { "title": "International Journal of Business Research (Turlock)", "toc": false, "historicTitle": false, "publisher": ["International Academy of Business and Economics"], "startYear": "2004", "coden": null, "otherFeatures": [], "deweyNumbers": [657.0, 658.0], "lcnnumber": null, "serialTypes": ["Journal"], "titleId": "597028", "refereed": true, "availableOnline": false, "openAccess": false, "reviewed": false, "price": "Contact Publisher", "contentTypes": ["Academic / Scholarly"], "frequency": "Semi-annually", "languages": ["English"], "issn": "1555-1296", "id": "519209", "country": "United States", "description": "Contains original research papers in business, international business, economics and related topics.", "subject": ["BUSINESS AND ECONOMICS - ACCOUNTING", "BUSINESS AND ECONOMICS - MARKETING AND PURCHASING", "BUSINESS AND ECONOMICS - MANAGEMENT"], "formats": ["Print"], "openAccessUrl": null, "status": "Active", "keyFeatures": ["AI", "RPR", "URL"], "rss": [], "availableOnlineImg": null, "openAccessImg": null, "refereedImg": null, "tocImg": null, "reviewedImg": null, "historicTitleImg": null, "serialTypesCSV": "Journal", "contentTypesCSV": "Academic / Scholarly", "formatsCSV": "Print", "languagesCSV": "English" } ], "numberOfRecords": 1, "requestQuery": "issn:15551296", "requestRows": null, "requestSortIndex": null, "requestSortOrder": null, "requestStart": null, "statusMessage": null }
```

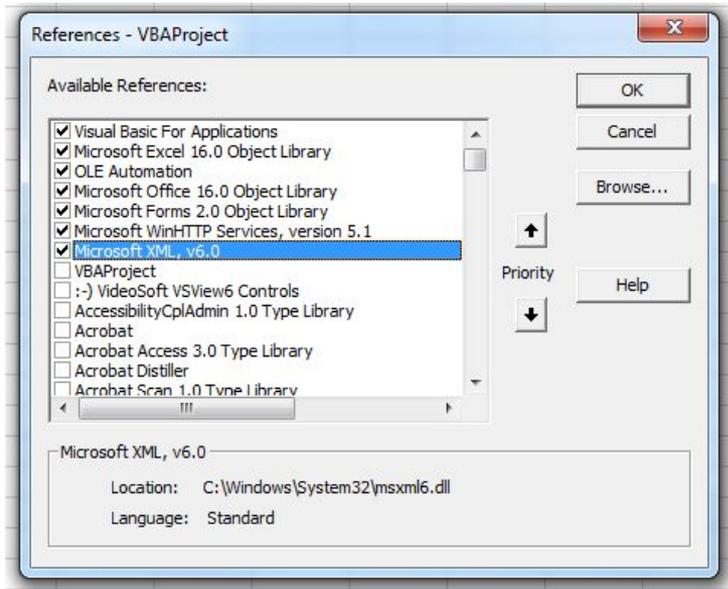
Excel with VBA and Macros

Macros are subroutines that help you automate tasks.

Excel allows you to create and use macros with a computer language called Visual Basic for Applications (VBA).

The macros can be something as simple as changing the font style in a spreadsheet or as complex as interfacing with an API through the internet. In the latter case, we can have the VBA code send a column of data (ISSN) to an API, pull records related to that data, and populate the other columns with the related metadata.

Define your references



If you don't have the Developer's tab in Excel, you need to use it so you can work with VBA.

When you open VBA, you need to set your references. On a PC, the references are:

- Visual Basic for Applications
- Microsoft Excel 16.01 Object Library
- OLE Automation
- Microsoft Office 16.0 Object Library
- Microsoft Forms 2.0 Object Library
- Microsoft WinHTTP Services, version 5.1
- Microsoft XML, v. 6.0 (or version 3.0)

Macros with VBA

While VBA is an event-driven programming language, anyone with experience in object-oriented programming will feel comfortable with it.

You'll just be using it with a GUI in Excel.

```
If last = 1 Then Exit Sub
```

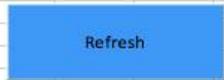
```
Dim ISSN As String
```

```
Dim i As Integer
```

```
For i = 2 To last
```

Populating the spreadsheet

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
|----|---|-------------|-----------|------------|-------------|------------------------|-----------------------|----------------------|---|---|----------|---------|---|---|---|
| 1 | Journal | Publisher | Platform | Print ISSN | Online ISSN | Reporting Period Total | Reporting Period HTML | Reporting Period PDF | | | LCNumber | Subject | | | |
| 2 | Visalia Times - Delta / Tulare Advance - Re | Gannett Co | ProQuest | | | 1 | 0 | 0 | | | | | | | |
| 3 | Vital Speeches International | McMurry | EBSCOhost | | | 3 | 0 | 0 | | | | | | | |
| 4 | Voices of Practitioners: Teacher Research i | National As | ProQuest | | | 3 | 0 | 0 | | | | | | | |
| 5 | The Wall Street Journal Americas | Dow Jones | ProQuest | | | 1 | 0 | 0 | | | | | | | |
| 6 | The Washington daybook | Federal Inf | ProQuest | | | 3 | 0 | 0 | | | | | | | |
| 7 | Washington Post Blogs | The Washir | ProQuest | | | 35 | 0 | 0 | | | | | | | |
| 8 | The Washington Post (Online) | WP Compa | ProQuest | | | 8 | 0 | 0 | | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | |



By providing access to the macro through a button, end users can use the macro-enabled spreadsheet more easily on their own.

| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |
|-----------------------------|-------------|------------|-----------|------------|------------|------------|-----------|-----------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|---------------------------------|--------------------------------|---------------------------------|
| | Publisher | Platform | Journal D | Proprietar | Print ISSN | Online ISS | Reporting | Reporting | Reporting | Jan-2015 | Feb-2015 | Mar-2015 | Apr-2015 | May-2015 | Jun-2015 | Jul-2015 | Aug-2015 | Sep-2015 | Oct-2015 | Nov-2015 | Dec-2015 | LCN | Number | Subject | |
| gs | La Leche L | ProQuest | | | 8756-9981 | | 5 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | RJ216 | CHILDREN AND YOUTH (ABOUT PH | |
| ement Journal | Project M | EBSCOhos | | | 8756-9728 | 1938-9507 | 11 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 2 | 3 | 3 | 0 | 0 | HD69.P75 | BUSINESS AND ECONOMICS - MAN | |
| ement Journal | Project M | Wiley Onl | | | 8756-9728 | 1938-9507 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | HD69.P75 | BUSINESS AND ECONOMICS - MAN |
| ss in Electrophysiology an | Wiley | Wiley Onl | | | 8756-9264 | 2374-8419 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| ducation Quarterly | SAGE Publ | EBSCOhos | | | 8756-8705 | 2168-8605 | 43 | 0 | 0 | 2 | 3 | 0 | 5 | 0 | 0 | 0 | 2 | 2 | 20 | 5 | 1 | 3 | | | EDUCATION - SPECIAL EDUCATION |
| ducation Quarterly | SAGE Publ | ProQuest | | | 8756-8705 | 2168-8605 | 31 | 0 | 0 | 1 | 3 | 0 | 6 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 17 | 0 | | | EDUCATION - SPECIAL EDUCATION |
| rtly : the official magazin | National F | EBSCOhos | | | 8756-8667 | | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | ML27.U5 | MUSIC | |
| ge Student Psychotherap | Taylor & F | EBSCOhos | | | 8756-8225 | 1540-4730 | 54 | 0 | 0 | 2 | 5 | 1 | 2 | 0 | 5 | 4 | 1 | 7 | 8 | 8 | 11 | RC451.4.S | EDUCATION - HIGHER EDUCATION (| | |
| ge Student Psychotherap | Taylor & F | Taylor & F | | | 8756-8225 | 1540-4730 | 4 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | RC451.4.S | EDUCATION - HIGHER EDUCATION I | |
| nd Medicine | Issues in L | EBSCOhos | | | 8756-8160 | | 25 | 0 | 0 | 0 | 6 | 3 | 3 | 0 | 0 | 1 | 0 | 8 | 1 | 0 | 0 | 3 | KF480.A15 | PUBLIC HEALTH AND SAFETY LAW A | |
| nd Medicine | Issues in L | GOLD | | | 8756-8160 | | 7 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | KF480.A15 | PUBLIC HEALTH AND SAFETY LAW A |
| nd Medicine | Issues in L | ProQuest | | | 8756-8160 | | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | KF480.A15 | PUBLIC HEALTH AND SAFETY LAW A |
| | Access Int | EBSCOhos | | | 8756-8047 | 1944-8198 | 187 | 0 | 0 | 3 | 1 | 0 | 83 | 2 | 7 | 1 | 3 | 4 | 7 | 70 | 6 | RD32.3 | HEALTH FACILITIES AND ADMINISTI | | |
| | Access Int | ProQuest | | | 8756-8047 | 1944-8198 | 11 | 0 | 0 | 1 | 0 | 0 | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | RD32.3 | HEALTH FACILITIES AND ADMINISTI |
| Journal | American | EBSCOhos | | | 8756-7962 | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | KF2023.A1 | BUSINESS AND ECONOMICS LAW | |
| Progress | American | ACS Publi | | | 8756-7938 | 1520-6033 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | TP248.13 | BIOLOGY - BIOTECHNOLOGY |
| progress | John Wile | Wiley Onl | | | 8756-7938 | 1520-6033 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | TP248.13 | BIOLOGY - BIOTECHNOLOGY |
| ork business | Crain Com | EBSCOhos | | | 8756-789X | | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | HC107.N7 | BUSINESS AND ECONOMICS | |
| ork business | Crain Com | ProQuest | | | 8756-789X | | 7 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | HC107.N7 | BUSINESS AND ECONOMICS |
| ture of Engineering Mater | Wiley-Bla | Wiley Onl | | | 8756-758X | 1460-2695 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | TA418.38 | ENGINEERING |
| ing | Taylor & F | EBSCOhos | | | 8756-7555 | 1930-8299 | 62 | 0 | 0 | 2 | 2 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | 5 | 40 | 6 | L11 | EDUCATION - HIGHER EDUCATION | | |
| ing | Taylor & F | Ithaka | | | 8756-7555 | 1930-8299 | 11 | 0 | 0 | 2 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 2 | 3 | 0 | L11 | EDUCATION - HIGHER EDUCATION | | |
| ing | Taylor & F | ProQuest | | | 8756-7555 | 1930-8299 | 7 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | L11 | EDUCATION - HIGHER EDUCATION | | |
| ing | Taylor & F | Taylor & F | | | 8756-7555 | 1930-8299 | 28 | 0 | 0 | 0 | 1 | 4 | 5 | 1 | 2 | 1 | 0 | 5 | 2 | 7 | 0 | L11 | EDUCATION - HIGHER EDUCATION | | |
| l, and General Psychology | Heldref Pi | EBSCOhos | | | 8756-7547 | 1940-5286 | 24 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 7 | 7 | LB1101 | | | |
| l, and General Psychology | Heldref Pi | ProQuest | | | 8756-7547 | 1940-5286 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | LB1101 | | | |
| l, and General Psychology | Heldref Pi | Taylor & F | | | 8756-7547 | 1940-5286 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | LB1101 | | |
| view | Touro Coll | EBSCOhos | | | 8756-7326 | 1942-9843 | 33 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 1 | 16 | 4 | 9 | K24 | LAW | | |
| | CFO Publi | EBSCOhos | | | 8756-7113 | | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | HG4026 | BUSINESS AND ECONOMICS | | |
| cs, Instrumentation and D | Allerton P | SpringerLi | | | 8756-6990 | 1934-7944 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | TK7878 | INSTRUMENTS COMPUTERS ELECTR |
| Communications in Japan. | John Wile | Wiley Onl | | | 8756-663X | 1520-6432 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | TK7800 | |
| Communications in Japan. | John Wile | Wiley Onl | | | 8756-6621 | 1520-6424 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | TK5101.A1 | |
| Genocide Studies | Oxford Un | Oxford Jo | | | 8756-6583 | 1476-7937 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | D810.J4 | HISTORY - HISTORY OF EUROPE | | |
| Genocide Studies | Oxford Un | Project M | | | 8756-6583 | 1476-7937 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | D810.J4 | HISTORY - HISTORY OF EUROPE |
| genocide studies | | Print | | | 8756-6583 | | 8 | | | | | | | | | | | | | | | | | D810.J4 | HISTORY - HISTORY OF EUROPE |

Scenario 2 - Need statistics and bibliographic information for journals

Digital Measures

In 2017, WPU began using Activity Insight, a database by Digital Measures, to track faculty activities. As part of this work, the university wanted to track statistics related to journals that our faculty publish in. Bibliographic information and statistics related to those journals was to be stored in the Journal Instrument.

Elsevier Developer Portal

Elsevier has multiple APIs and provides detailed specifications in its developer portal (<https://dev.elsevier.com/index.html>). They have APIs for:

- Scopus
- ScienceDirect
- SciV
- Engineering Village
- Embase

You can register for a free API key with some limitations. (Subscription members get full access.)

Testing the Elsevier APIs with Swagger

There are 11 APIs for Scopus, alone. We used the Serial Title API.

<https://api.elsevier.com/documentation/SerialTitleAPI.wadl>

Elsevier provides interactive documentation to help you try out queries with its APIs. It's a great way to “get your feet wet” with APIs. They even include an API key for testing purposes.

https://dev.elsevier.com/scopus.html#!/Serial_Title/SerialTitleSearch

Scopus' Serial Title API

Some bibliographic information + Metrics

- CiteScore
- SCImago Journal Rank (SJR)
- Source-Normalized Impact per Paper (SNIP)

<http://api.elsevier.com/documentation/metadata/SerialTitleViews.htm>

<https://journalmetrics.scopus.com/>

Serial Title API - Sample query & output

GET [https://api.elsevier.com/content/serial/title/issn/1555-1296?apiKey=\[API Key\]](https://api.elsevier.com/content/serial/title/issn/1555-1296?apiKey=[API Key])

```
{
  "serial-metadata-response": {
    "link": [
      {
        "@_fa": "true",
        "@ref": "self",
        "@href": "https://api.elsevier.com/content/serial/title/issn/1555-1296",
        "@type": "application/json"
      }
    ],
    "entry": [
      {
        "@_fa": "true",
        "dc:title": "International Journal of Business Research",
        "dc:publisher": "International Academy of Business and Economics",
        "prism:aggregationType": "journal",
        "source-id": "21100322426",
        "prism:issn": "1555-1296",
        "openaccess": null,
        "openaccessArticle": null,
        "openArchiveArticle": null,
        "openaccessType": null,
        "openaccessStartDate": null,
        "oaAllowsAuthorPaid": null,
        "subject-area": [
          {
            "@_fa": "true",
            "@code": "1400",
            "@abbrev": "BUSI",
            "$": "Business, Management and Accounting (all)"
          },
          {
            "@_fa": "true",
            "@code": "2000",
            "@abbrev": "ECON",
            "$": "Economics, Econometrics and Finance (all)"
          }
        ],
        "SNIPList": {
          "SNIP": [
            {
              "@_fa": "true",
              "@year": "2016",
              "$": "0.06"
            }
          ],
          "SJRList": {
            "SJR": [
              {
                "@_fa": "true",
                "@year": "2016",
                "$": "0.159"
              }
            ]
          },
          "citeScoreYearInfoList": {
            "citeScoreCurrentMetric": "0.07",
            "citeScoreCurrentMetricYear": "2015",
            "citeScoreTracker": null,
            "citeScoreTrackerYear": null
          },
          "link": [
            {
              "@_fa": "true",
              "@ref": "scopus-source",
              "@href": "https://www.scopus.com/source/sourceInfo.url?sourceId=21100322426"
            },
            {
              "@_fa": "true",
              "@ref": "homepage",
              "@href": "http://www.iabe.org/domains/iabeX/journal.aspx?Journalid=12"
            },
            {
              "@_fa": "true",
              "@ref": "coverimage",
              "@href": "https://api.elsevier.com/content/serial/title/issn/1555-1296?view=coverimage"
            }
          ],
          "prism:url": "https://api.elsevier.com/content/serial/title/issn/1555-1296"
        }
      }
    ]
  }
}
```

Hacking Hao's Code - Part 1

Change URL

```
Dim URL As String: URL =  
"https://api.elsevier.com/content/serial/title/issn/"  
+ ISSN + "?apiKey=[API Key]&httpAccept=text%2Fxml"
```

Hacking Hao's code - Part 2

```
Dim LC As IXMLDOMNode  
Dim Subject As IXMLDOMNode
```

```
For Each LC In Resp.SelectNodes("//UlrichTitle/LCNumber")  
    W.Range("K" & i).Value = LC.Text  
    On Error Resume Next  
Next LC
```

```
For Each Subject In Resp.SelectNodes("//UlrichTitle/subject")  
    W.Range("L" & i).Value = Subject.Text  
    On Error Resume Next  
Debug.Print "test"
```

```
Next Subject
```

Change:

Variables

Nodes

Columns

Changing the code for Attributes

```
For Each snipYear In Resp.SelectNodes("//SNIPList/SNIP").NextNode.Attributes  
  
    W.Range("I" & i).Value = snipYear.NodeValue  
  
    On Error Resume Next  
  
Next snipYear
```

Change:

Variables

Attributes

Columns

Troubleshooting Scopus - Timeout Error

Scopus is slow and can get bogged down.

```
For Each EISSN In Resp.SelectNodes("//prism:eIssn")
    W.Range("R" & i).Value = EISSN.Text
    On Error Resume Next
Next EISSN
```

```
Application.Wait (Now + TimeValue("0:00:02"))
```

```
Next i
```

```
End Sub
```

Clean-up after populating data

- Sample data to verify that it outputted correctly. Depending on the error, I had to adjust the code (User Error) or fix things manually (API Error).
- Clean-up the data as befits its use. Since WPU faculty would be interacting with this data, I did the following:
 - Changed “TRUE” values to “Yes” and “FALSE” values to “No.”
 - Sorted journal titles in alphabetical order.
 - Used Excel formulas to pull relevant data, ABDC Ratings, from another spreadsheet, match it to the ISSNs, and populate another column.

Tips

- Test API and coding with small examples first.
- Sample API data in spreadsheet and output to ensure the results are correct.
- If necessary, normalize data in your spreadsheet, e.g. hyphens in ISSN and leading zeros as start of ISSN.
- Save macros to your personal workbook so you can use them with other Excel spreadsheets.
- Pulling data from an API with Excel can be very slow. Be patient.

Live Demo

Limitations of Ulrich's Web API

- API data is pulled from brief records which are sometimes incorrect.
- FALSE results, in particular, were unreliable. In the brief records, image icons indicate whether a journal is refereed, open access, etc. If the icon is present, you'll get a TRUE value. If the icon is not, you'll get a FALSE value. However, many journals only show that information correctly in the full record. This means you often get a FALSE result. In error. This required manual correction to fix.
- Some journals only have brief records.

Limitations of Scopus' Serial Title API

- If Scopus discontinues a journal, there will be data gaps. Including the metric's year in data set can help identify older scores.
- The journal metrics, e.g. CiteScore, are controversial.
- Journal-level metrics do not reflect the weight of a specific article.
- In some cases, we found that our faculty had journal articles that were indexed but the journal itself was not.
- In a rare case, the wrong ISSN was assigned to a journal article.
- Query structure is problematic for searching by title.

Alternatives to Excel with VBA

You can use a wide variety of coding standards with APIs, e.g. Python, PHP, Perl. Use what you are most comfortable work.

Look in GitHub! You may find existing code in your preferred scripting language that works with the API.

For example, GitHub has a wide variety of coding options that work with the Scopus API. Don't reinvent the wheel! Hack it.

<https://github.com/search?utf8=%E2%9C%93&q=scopus&type=>

Resources

- Hao's Code on GitHub, <https://github.com/haozeng0/VBAinExcel>
- MARAC API Workshop on GitHub, https://github.com/jhu-archives-and-manuscripts/MARAC_API_Workshop
- Postman, <https://www.getpostman.com/> - It's a free application to use with APIs

Thank you!

Hao Zeng, hao.zeng@yu.edu

Annamarie Klose Hrubes, klosehrubesa@wpunj.edu