CDISC Library for Dummies: Use of the API

CDISC DACH User Network Meeting / Sulzbach
March 14 2023
What is an API?

• API = Application Programming Interface

• A contract between different applications
  – often, one of the applications is a "server"
  – and the other applications are "clients"
    (server - client architecture)

• The "contract" is machine-readable as well as human-readable and often machine-executable

• When used over the internet: RESTful Web Services
The CDISC Library API Documentation

- https://www.cdisc.org/cdisc-library/api-documentation
Some typical calls to the Library

- base: https://library.cdisc.org/api

- /mdr/sdtmig/3-3/datasets/AE/variables/AESER
  provides all the information about the AESER variable from SDTMIG-3.3

- /mdr/sdtm/1-7/classes/Findings
  provides all the information (or better: links to)
  all information about the Findings variables in SDTM (model) 1.7
Try it out!

https://library.cdisc.org/api/mdr/sdtmig/3-3/datasets/AE/variables/AESER
Try it out!
https://library.cdisc.org/api/mdr/sdtm/1-7/classes/Findings

Link to details about --TESTCD variable in SDTM 1.7
Linking things together

https://library.cdisc.org/api/mdr/sdtmig/3-3/datasets/LB/variables/LBTESTCD

The API uses the HATEOAS principle

Hypermedia as the Engine of Application State (HATEOAS) zu Deutsch: Hypermedia als Motor des Anwendungs-Zustands, ist eine Einschränkung der REST-Anwendungsarchitektur. Mit HATEOAS interagiert ein Client mit einer Netzwerkanwendung, deren Anwendungsserver Informationen dynamisch über Hypermedien bereitstellen.
Forget everything I showed you about using the CDISC Library in the browser.

APIs are there for application-application communication, not for use in the browser.
Implementing the CDISC Library API in software applications

- Every modern software language has libraries for use with APIs and RESTful Web Services
- Manuals and examples at: https://wiki.cdisc.org/display/LIBSUPRT/Getting%3A+Programmatically+connect+to+CDISC+Library+API
Tools for exploring the API and testing API requests

• Your browser

• Postman
  SoapUI
  Insomnia

• Your own application or favorite test tool ...

• Keep into account that you will need to request an "API key" (over the API Portal, accessible from the Library Browser)
What can I do with it?

Real-life examples

- Automated generation of eCRFs (e.g. in ODM format) for CDASH
- Generation of template define.xml files for different versions of SDTMIG, SENDIG and ADaMIG (SDTM-ETL)
- Automated update of CDISC-CT in own applications and repositories
- "Diffs" between standards versions (for impact analysis)
- Validation of metadata of (SDTM) submissions
  Example: Smart Submission Dataset Viewer
- and much much more ...
Implementation of the CDISC Library API in the "Smart Submission Dataset Viewer"
Conclusions

• The CDISC Library is the "CDISC truth"
• With the Library Browser and the API, one almost does not need to inspect the PDF documents anymore

• The API can be implemented in every modern software language, and in statistical software (R, SAS, ...)

• The CDISC Library allows to automate a large number of tasks that are otherwise cumbersome (manual lookup, writing custom software, ...)