The smartAPI pilot: Making it easier to author and find FAIR Web APIs

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Abstract

Biomedical data analysis is increasingly undertaken using cloud-based, web-friendly application programming interfaces (APIs). However, sifting through API repositories to find the right tools presents a number of formidable challenges: users must not only supply the right combination of search terms to find relevant APIs, but must also closely examine the API outputs to determine how they can be connected together. This task is made more difficult because the APIs generally lack the rich metadata needed to precisely describe the service and the data that it operates on. However, authoring good metadata is seen as tedious and unwarranted, unless they can be demonstrated as useful to users.

The aim of the smartAPI interoperability pilot was to explore the use of semantic technologies such as ontologies and Linked Data for the annotation, discovery, linking, and reuse of smart web APIs. Smart web APIs are easier to discover by enabling more search using their rich semantic metadata, and eliminate data silos by providing Linked Data. We developed the smartAPI metadata specification through a community-based effort that involved surveying and comparing API metadata from multiple repositories as well as multiple API metadata specifications. We extended the Swagger Editor to suggest fields from the smartAPI specification and values from the smartAPI repository and a novel tool to profile the output of an API. The smartAPI repository offers a faceted search user interface coupled with an API for storage, retrieval, field-specific suggestion, and global search over smartAPI descriptions. We are currently working in the context of the CFWG for API interoperability to annotate APIs and evaluate our tools in the context of utility and usability.

Availability

Website: http://smart-api.org

Webinar for Editor: https://goo.gl/YcvtK

Faceted Search Interface. We implemented a lightweight web-based tool to perform faceted search and filtering over the elasticSearch repository of smartAPIs descriptions.

Programmatic access with a REST API.

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