DRS API Development Plan
IDG DCC

We will develop Data Repository Service (DRS) APIs to provide access to Illuminating the Druggable Genome (IDG) resources, including DrugCentral, TIN-X, TIGA, and Target APIs. Our initial development efforts will focus on DrugCentral, with plans to later extend the codebase to support other IDG resources. The APIs will comply with the DRS specifications of the Galaxy platform, ensuring standardized data access and seamless interoperability with the Galaxy project and Cloud Workspace Implementation Center (CWIC) efforts. This integration will facilitate smooth access to IDG resources through the Galaxy platform. By making IDG resources available via APIs, we enable the integration of IDG's publicly accessible data into Galaxy workflows, supporting advanced data analysis using IDG-specific datasets.

Technical specifications for the API

- **Programming Languages**
  Python is a widely used programming language for API development, particularly with frameworks like Flask and Django. We will use Python as our primary development language. However, if we later identify limitations in terms of feature support, performance, or scalability, we may incorporate Node.js or Java to enhance the robustness and scalability of the APIs.

- **Hosting**
  DrugCentral will continue to be hosted on its current server. Initially, all APIs will be hosted locally or on the same server as DrugCentral. However, if performance requirements necessitate a move, we will consider hosting them on the Galaxy server or a cloud-based solution.

- **API Functionality**
  For RESTful API development, our primary focus will be on the HTTP 'GET' method, allowing users to retrieve data from IDG resources.
  The API outputs will be formatted to ensure compatibility with the Galaxy system, enabling seamless data access and integration.

- **Security**
  To protect against attacks such as denial-of-service (DoS) attacks, we will initially implement API key-based authentication, with plans for future OAuth2.0 integration to enable more advanced access control.

Additionally, we may enforce rate limiting for GET requests based on the number of requests made by authenticated users. This will help prevent unnecessary load on the hosting server while maintaining optimal performance.

- **Documentation**
  We will create user guide documentation for Galaxy users to facilitate seamless access to IDG data via DRS APIs. This documentation will include API usage instructions, endpoint specifications, authentication guidelines, and example queries to ensure smooth integration.

Timeline

Task	Due Date
IDG DRS API for DrugCentral - beta release	3/31/2025
IDG DRS API for DrugCentral - v1.0	6/30/2025
IDG DRS API for other IDG resources	7/31/2025
IDG DRS API for all IDG resources - final version	9/22/2025

Delivery Method

All codes and related documentation will be available on the GitHub page: https://github.com/unmtransinfo/CFDE_IDG_DRS