## Objectives and Roadmap

### Objectives

A new Data Abstraction Layer (DAL) for the Reaxys content shall be delivered that provides

(A) access to a new public facing Reaxys Data API which strengthens our dataset offerings by

- simplified customer onboarding
- enabling more use cases

(B) modern and modular design that allows for

- easier maintainability and extendibility of the Reaxys application

### Delivery Roadmap

The development of the new Reaxys Data API is staged into 3 phases

#### (A) MVP

Target Date: End of Q2 2024

Objectives: Demonstrate that OData framework can be integrated with existing Reaxys database search layer and provides improved user experience by reducing the number of requests required for common use cases and a human readable data schema

#### (B) Alpha Version

Target Date: End of Q4 2024

Objectives: Extend API functionality to cover most common use cases and provide access to selected existing API customer for evaluation and feedback gathering to inform API design improvements.

Deliverables:

- Support of core API functionalities
- TPR3
- API onboarded on NeoID to grant access to selected alpha evaluation customers

#### (C) Reach feature parity with exiting Reaxys Data API

Target Date: Q2 2025

Objectives: GTM with API that has feature parity with existing Data API and allows to onboard new customers.

#### Post Release Customer Migration

The migration of existing API customers requires involves (A) planning of migration in by gathering information on existing customer specific use cases and integration methods (B) staged preparation of customer specific migration plans and migration announcement and (C) actual migration of customers. The estimated timeframe to complete the migration is mid of 2026 due to the complexity of adopting the backwords incompatible new data API.

### Success Criteria

The following following key matrices shall be measured to demonstrate the intended benefits of the new Reaxys Data API in comparison to the existing API

- Reduced time required for client to access and test API ("time to first hello world")
- Reduced effort for DaaS team to onboard customer
- Reduced number of failed authentication calls

### Design and Capabilities

| | New Reaxys Data API | Existing Reaxys Data API | Benefits of new API for Client |
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| Technical design | REST principals as accepted standard for modern APIs are followed in design of new data API | Stateful API not compliant with REST principals | Reduced complexity of API workflows by removing need of session handling and the ability to use standard HTTP REST components for communicating with API. |
| API query language | Adopting OData as industry standard for defining Reaxys queries | Proprietary XML based query language developed internally | Simplifies self-onboarding for the client because OData is a well documented standard.<br><br>Simplifies retrieval of related records such as reactions and substances in one request by using OData functionality. |
| Human readable data schema | Provides meaningful and human readable property names | Utilizing Reaxys internal 3 letter codes as property names | Ease exploration of the Reaxys content to identify relevant information faster. |
| Modular architecture | Federate search layer allowing to connect various data stores | Tightly integrated with existing Reaxys database layer | Quicker access to API improvements with regards to functionality, stability, performance by allowing to integrate with new database search layer. |
| Access control | Define content access rules and request quotas | Coarse grained content access control and no request quota | Allow to tailor Reaxys Data Offerings to the needs of the client by granted access to only the Reaxys content and content volume  required for the clients use case. Reduces complexity for client to handle entire data set and allows for adjusting pricing.<br><br>The access control is also protecting Elsevier from data abuse by granted access only to required data. |
| Authentication | Utilizing OAuth2 authentication flows as recommended Elsevier standard | Direct integration with A&E via Reaxys backend | Standardized authentication method simplifies for client to gain access so that client can focus on utilizing API faster. |

**Reaxys Data API Use Cases**

The new Reaxys Data API will serve the DaaS use case scenarios Search, Discover, and Predict as outlined in the diagram below.

**Client benefits**

**Build applications faster**: The *simplified onboarding* allows the customer to achieve a quicker development cycle and the intended use case can be *delivered faster* to the client's target audience.

**Better maintainability**: Using industry standards for the API design allows the client to easier extend and maintain existing use cases because *knowledge transfer quicker* and the API developer base can be broadened.

**New Use Cases**: The API design allows for addressing new customer needs such as building *agents for* augmented *LLMs* where an LLM is used to orchestrate the integration of expert systems via APIs.