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# X. Standard API Requirements

**Goal statement for a standard API for SysML v2:** The client side code that implements the standard API should not require changes to the server side SysML repository implementations.

**X.1 Standard Platform Independent API Model.** The SysML v2 specification shall provide an API model in a standard modeling language to enable clients to access and operate on SysML data, that support the following services:

1. export and import structured data (e.g., models, images, lists, spreadsheets)
2. create, read, update, and delete model elements
3. apply model patterns, model libraries, and reference models
4. setup, validate, and execute models *(e.g., system models, analysis models, validation rules)*
5. create, read, update, delete, and execute model queries
6. create, read, update, delete, and execute viewpoints
7. create, read, update, and delete model metadata (e.g., owner, comments, versions, status)
8. manage changes to model down to the element level
9. mange changes to views
10. create, read, update, delete data protection controls (e.g., access permissions, roles, data rights, markings)
11. create, read, update, delete, and execute workflows & notifications
12. create, read, modify, delete, and execute links between SysML models and other data
13. create, read, update, delete, and execute transformations to/from SysML models

Additional services (not discussed)

1. create, read, update, and delete metamodel elements
2. create, read, update, delete, and execute services
3. transform the previous version of SysML to the next version of SysML.

**Note 1:** The goal of requirements 14 and 15 is to provide the capability to extend and adapt the language to satisfy new requirements, including the metamodel, services, and user interface

**Note 2:** The above functional requirements will be stated more precisely that includes defining each of the above service requirements as a set of discrete functions, and defining the key terms/concepts associated with each function. These terms would preferably be incorporated into a concept model.

**X.2 Standard Platform Bindings.** The SysML specification shall provide platform bindings for the following technologies to implement the API that conforms to the API model

* Web API
* Programming language binding (TBD)

**X.3 API Conformance to API Model.** The SysML specification shall specify how an API implementation conforms to the platform independent model, and how to demonstrate this conformance.

**X.4 API Design constraints**. The API shall meet the following design constraints:

* publish data conforming to a common data model ()
* publish metadata conforming to a common metadata definition language ()
* support queries using a common query definition language ()
* document in a machine-readable form ()
* publish the machine-readable form of its documentation in order to enable clients to automatically discover services made available by the API ()