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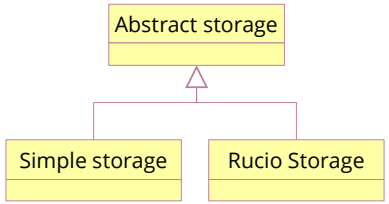
Using OpenAPI for IVOA standards

Lessons learned



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OPENAPI

spring®

Java

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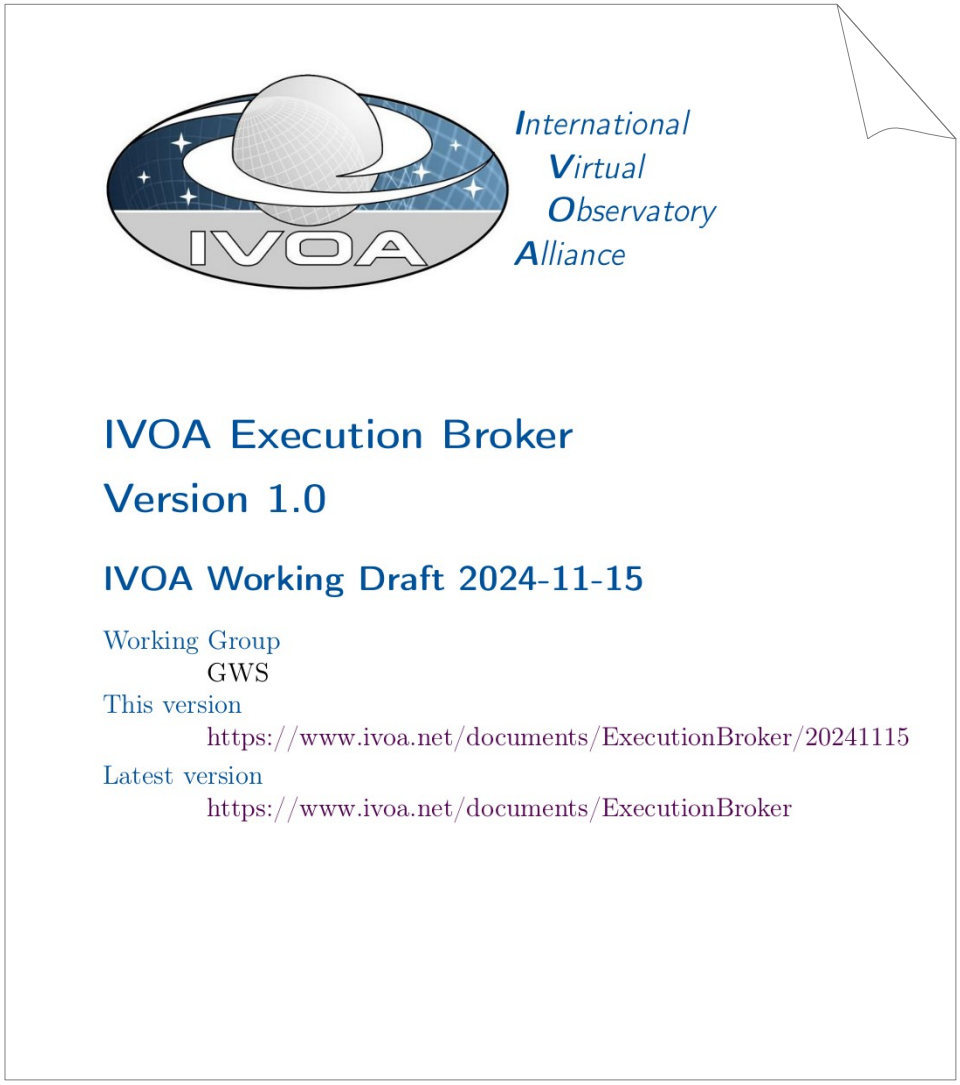
Developing a new IVOA standard for remote execution of analysis software.

Moving the code to the data.



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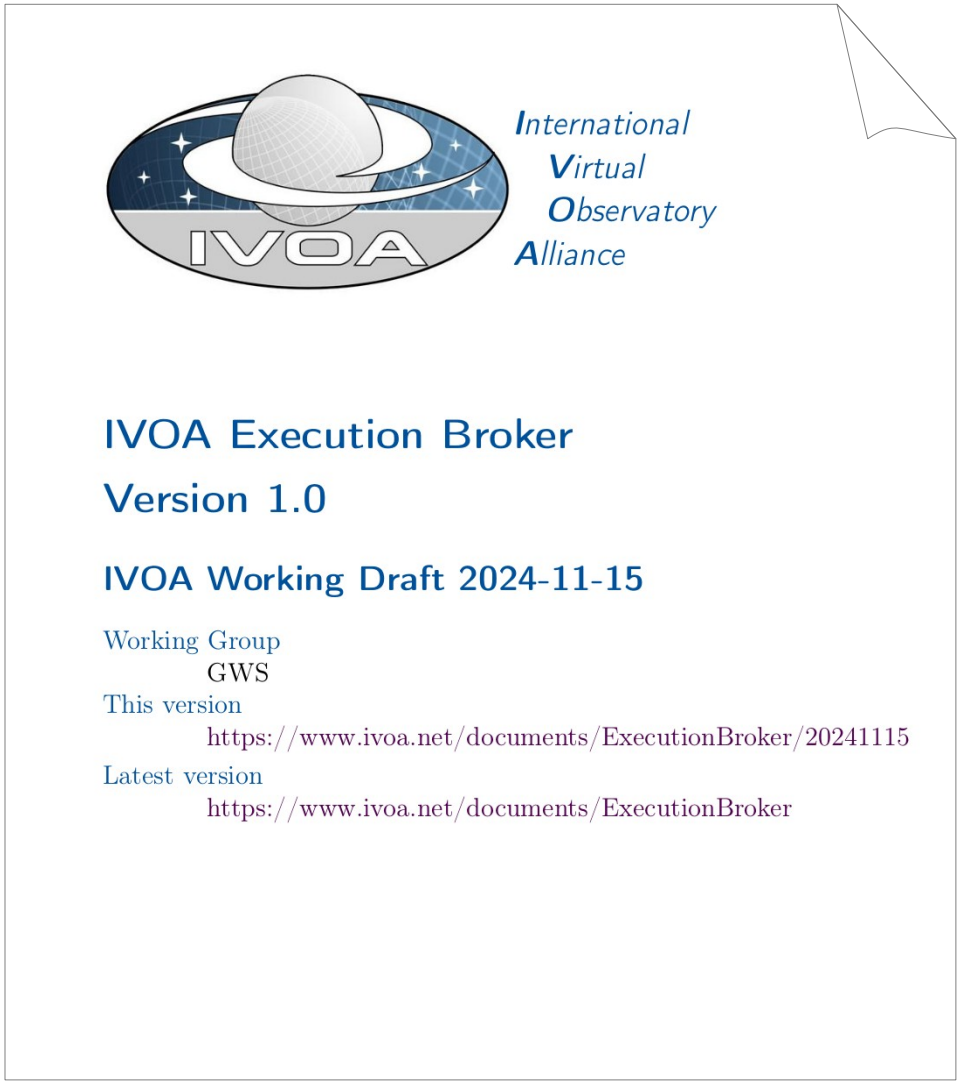
New standard, new document structure.

"The Execution Broker service is based on the following IVOA standards :"

- *The IVOA REST service framework*
- *The IVOA structured error messages*
- *The IVOA HTTP protocol profile*
- *The IVOA JSON encoding profile*
- *The IVOA YAML encoding profile*

"Unless otherwise stated, the Execution Broker service will follow the protocols as defined in these profiles."


International Virtual Observatory Alliance

IVOA Execution Broker

Version 1.0

IVOA Working Draft 2024-11-15

Working Group
GWS
This version
https://www.ivoa.net/documents/ExecutionBroker/20241115
Latest version
https://www.ivoa.net/documents/ExecutionBroker

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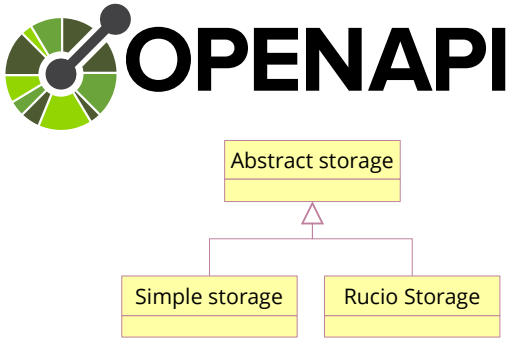
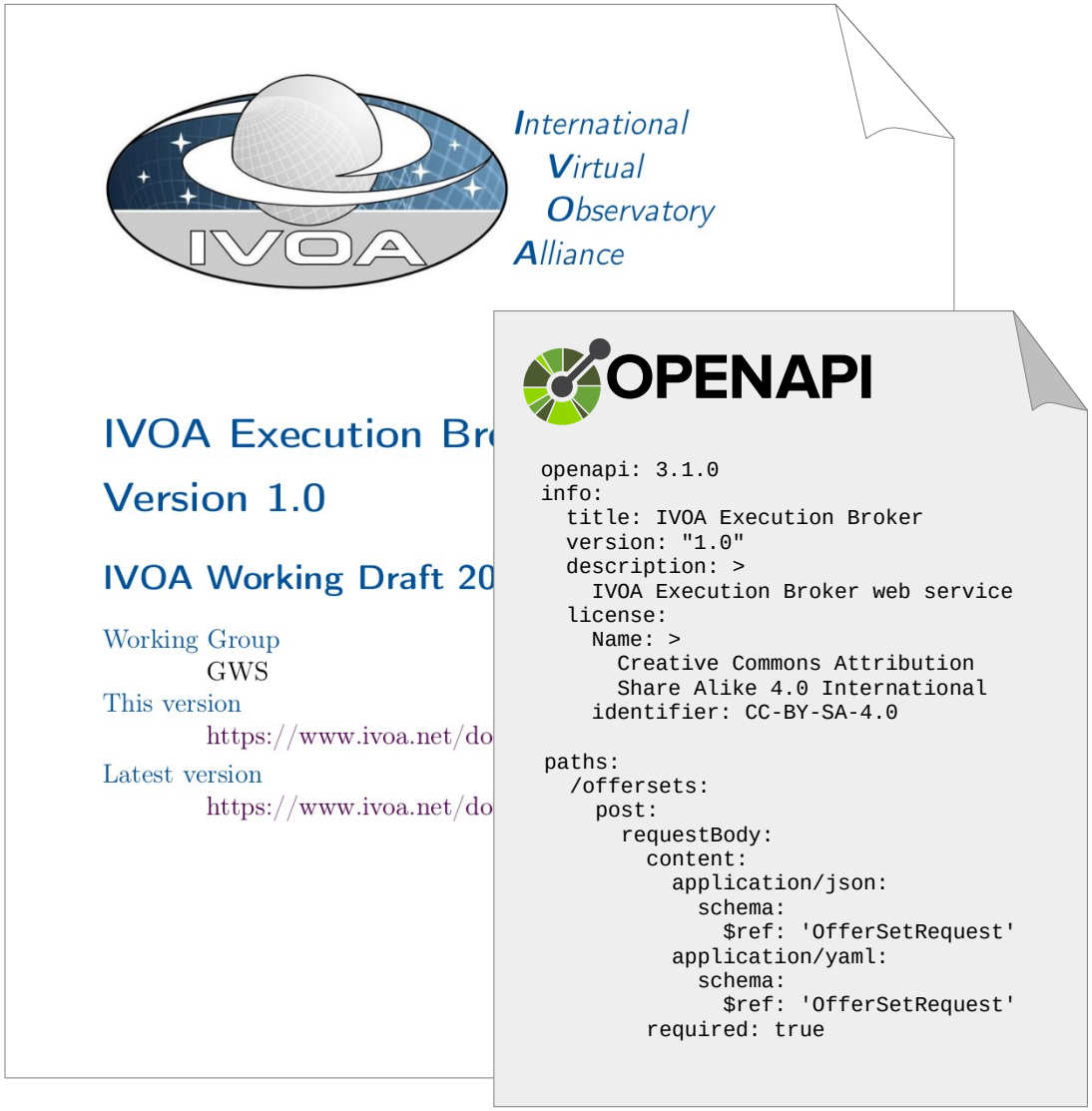
New standard, new document structure.

“This document explains the reasoning behind the design and uses examples to describe the service behavior.”

“The technical details of the data model and web-service API are defined in the OpenAPI specification published alongside this document.”





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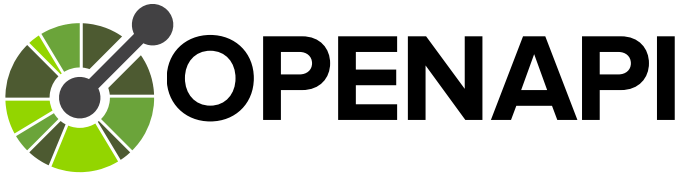
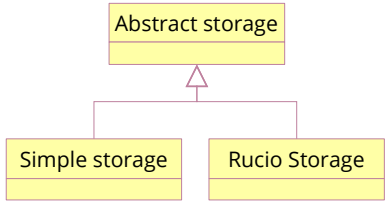
Using OpenAPI to specify the data model and web service API.





What worked

What didn’t work

Would I use it again

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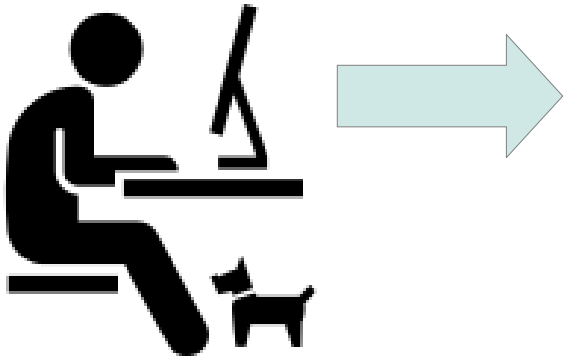
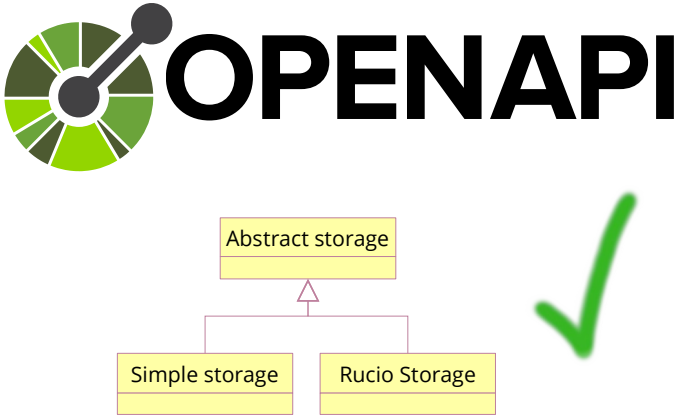
What worked

Using OpenAPI to describe the data model and service API





- Shallow learning curve
- Good documentation

- Clear and easy syntax
- Good feature coverage

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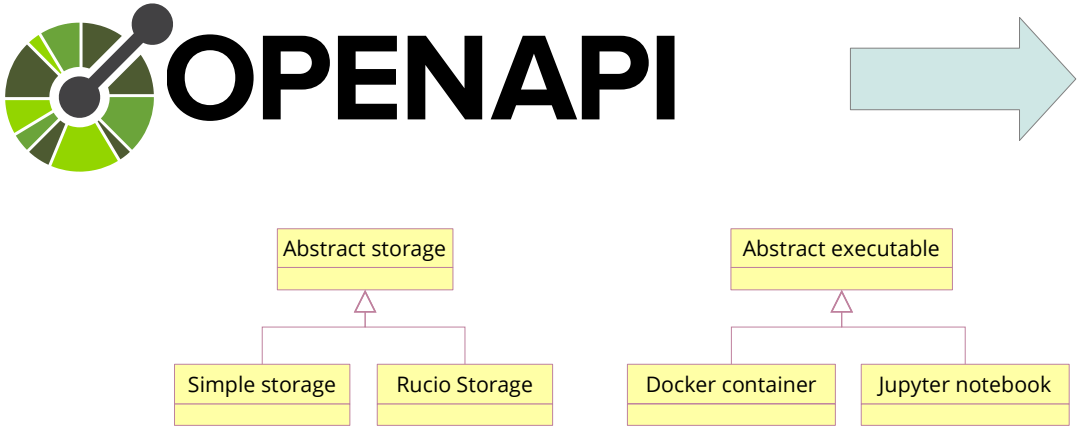
What worked

Generating Java service code from the OpenAPI specification

Including support for polymorphic types in the message content.



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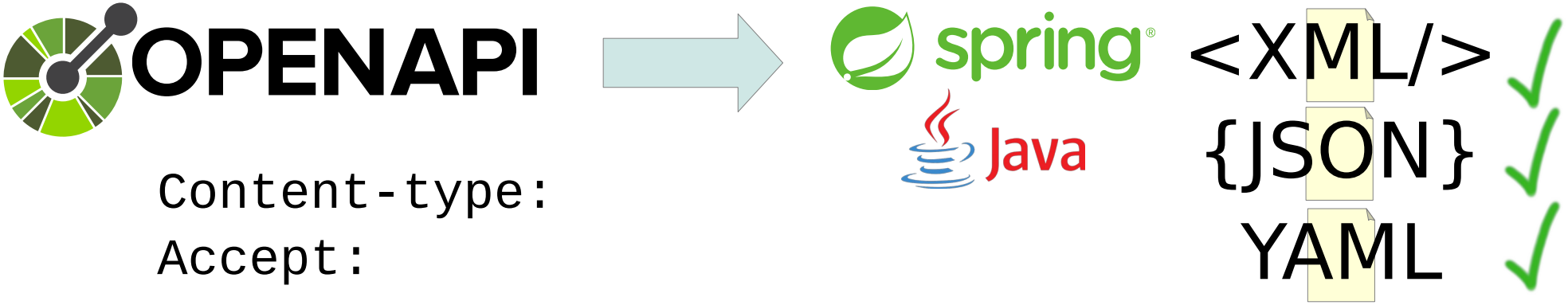
What worked

Generating Java service code from the OpenAPI specification

Including support for HTTP content type negotiation.




```
Content-type:
Accept:
```

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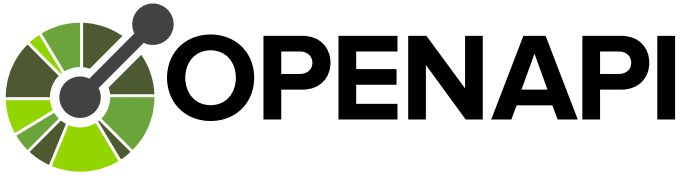
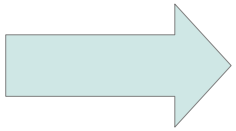
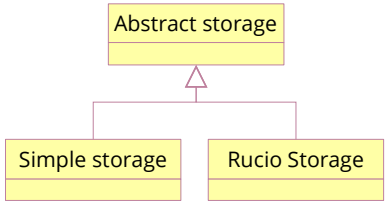
What didn’t work

Generating Python service code from the OpenAPI specification

Issues with both polymorphic types and content negotiation.








```
Content-type:
Accept:
```

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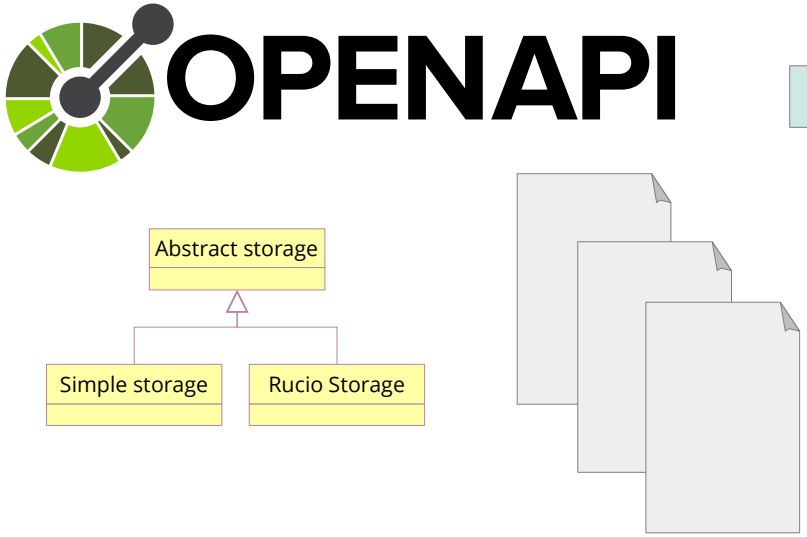
What didn’t work

Splitting the OpenAPI specification into separate files.

Java code generator looses the polymorphic inheritance links.



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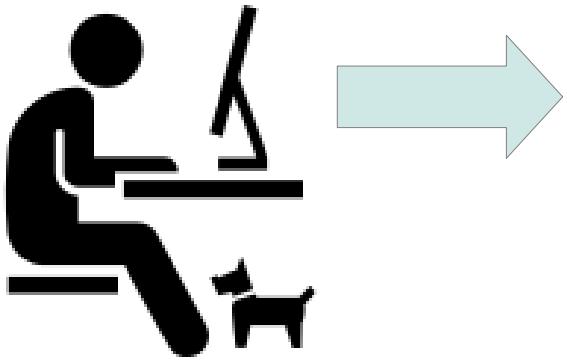
Would I use it again ? YES

Using a structured schema to define the service API is a huge benefit.

Writing clear and precise technical specifications in text is hard.



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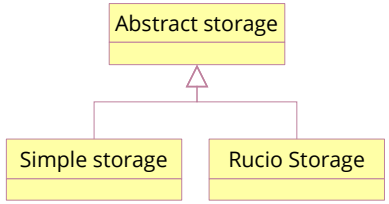

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