Working with ADQL

Astronomy Data Query Language

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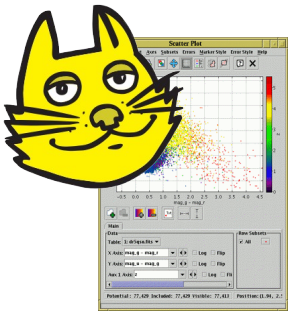
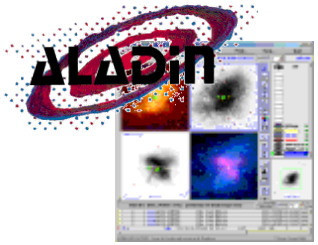
Edinburgh University
June 2016

Topcat



Aladin

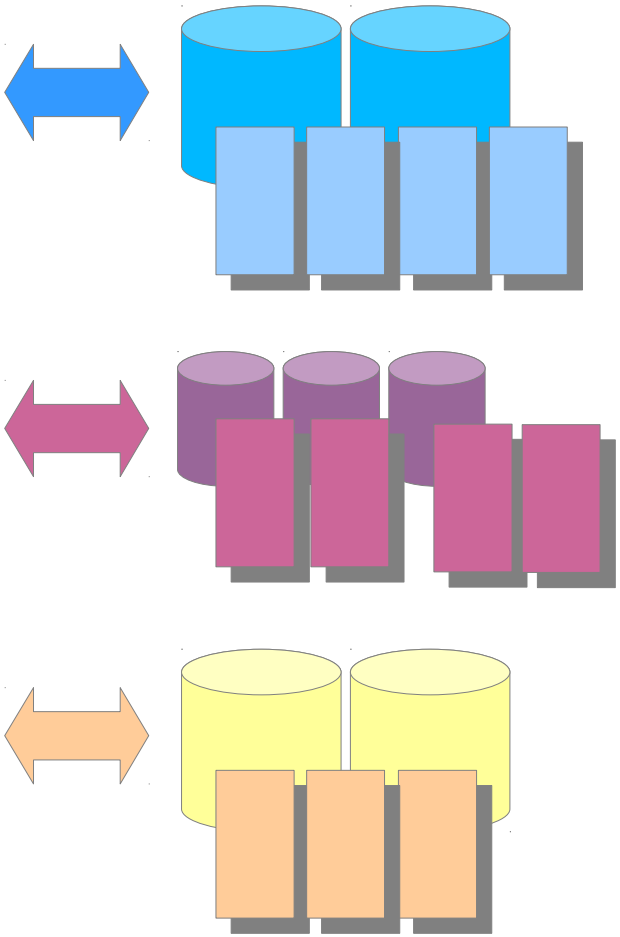


The problem

Different platforms

Different languages

Different formats



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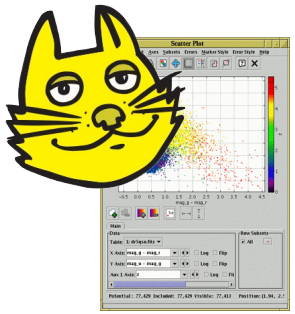

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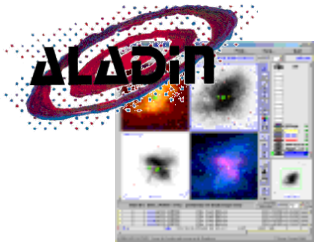

The abstraction

The data

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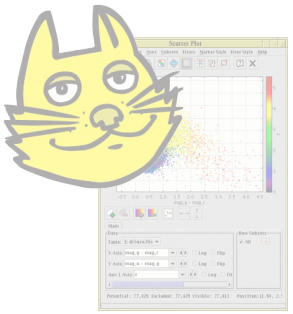

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Virtual Observatory

Registry

TAP

TAP

TAP

Database

Database

Database

Database

Data discovery
Registry

Data access
Table Access Protocol

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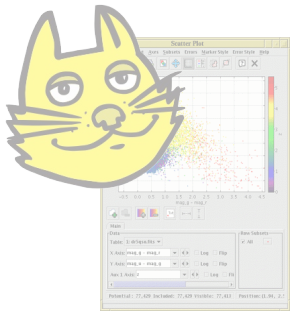

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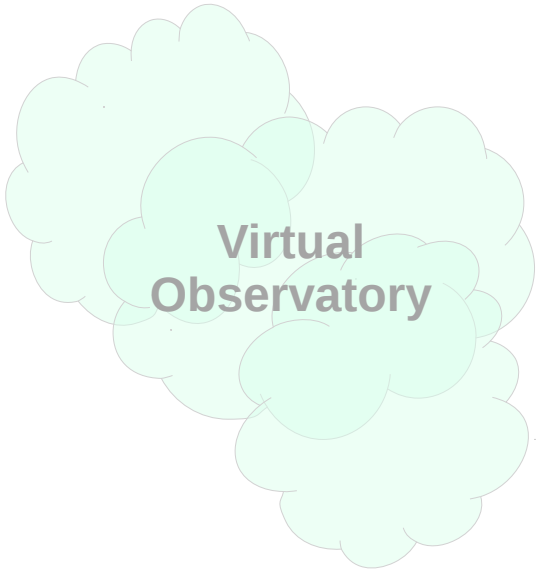

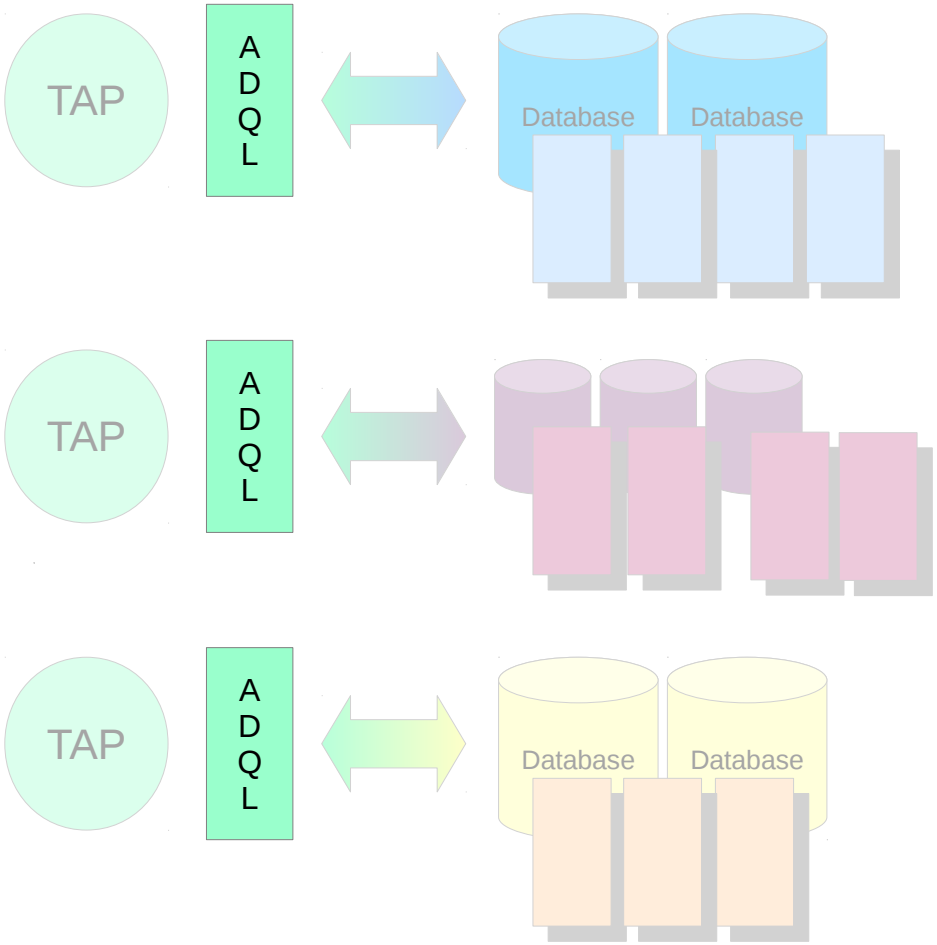

Data query
Astronomy Data Query Language

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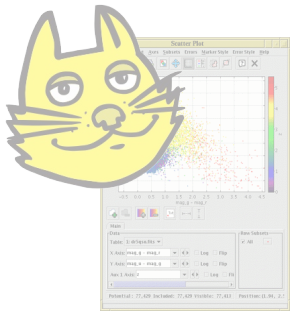

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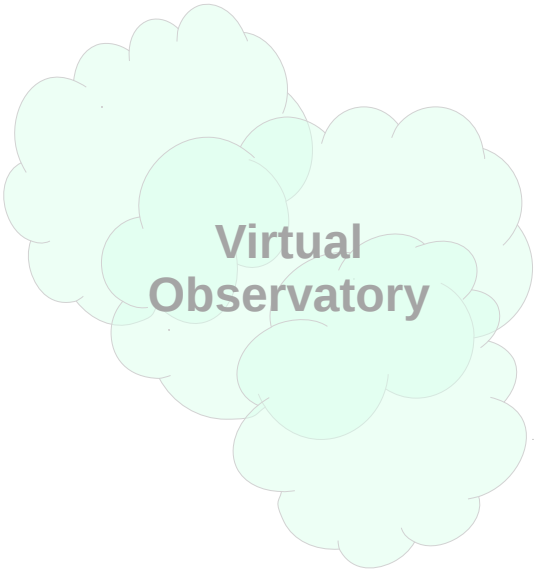

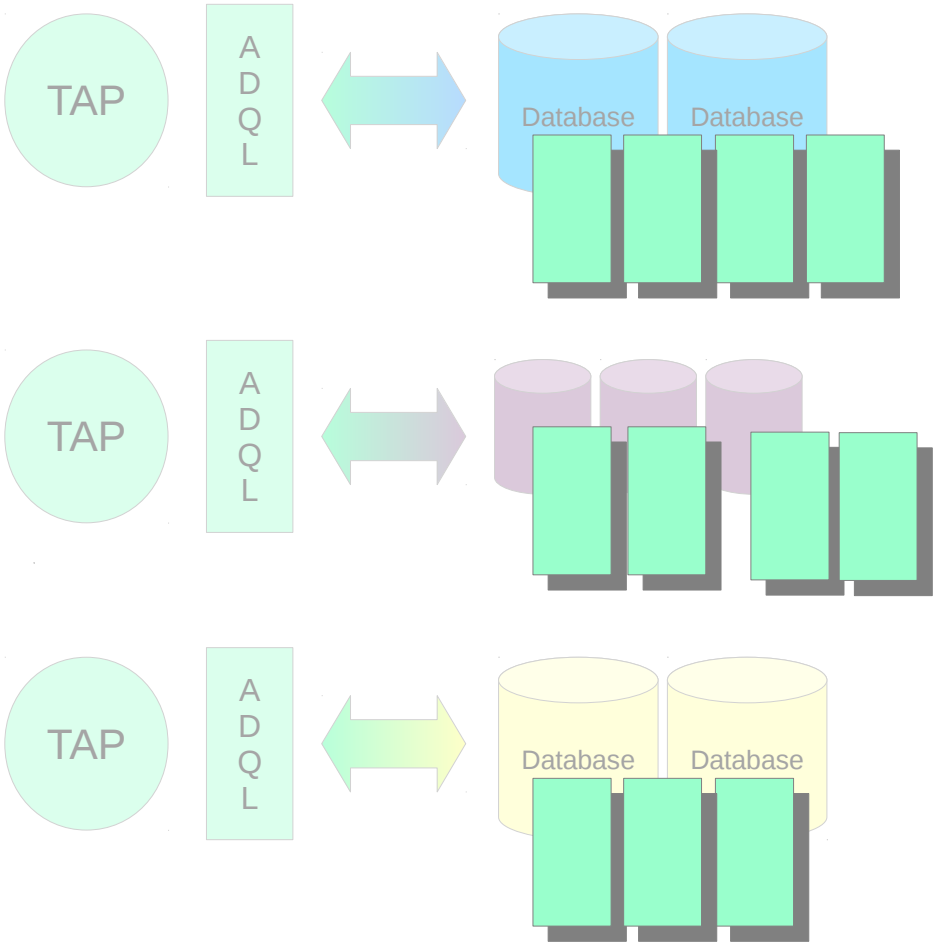

Data model
Observation Data Model

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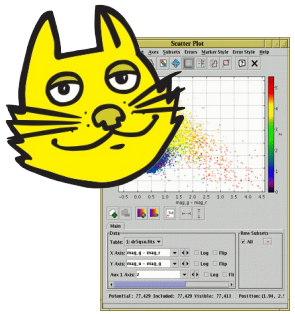

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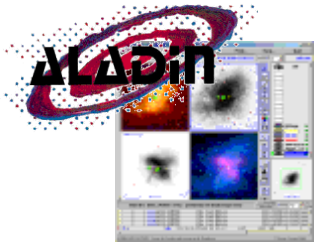

Virtual Observatory

The data

Registry
Table Access Protocol
Astronomy Data Query Language
Observation Data Model

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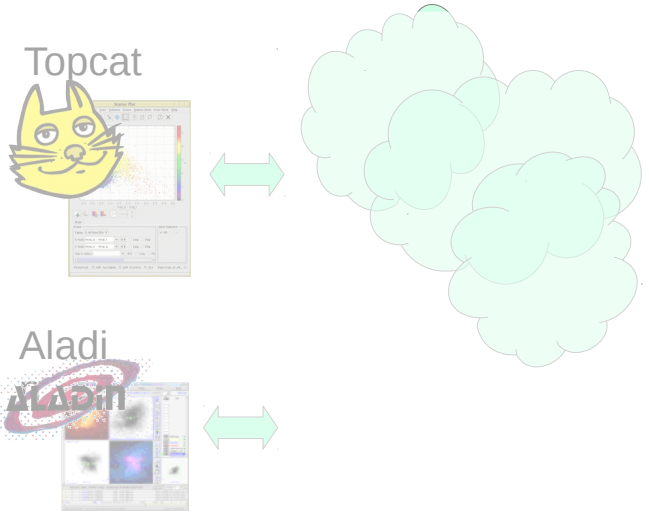
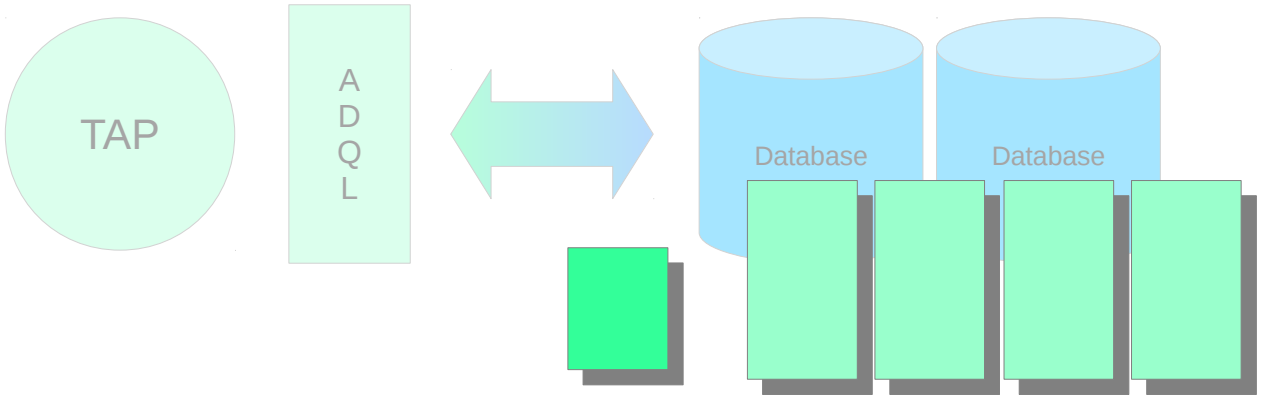
Data provider role





TAP_SCHEMA

- tables
  - columns
    - name
    - type
    - units

Observation Data Model

```
CREATE VIEW
() ;
```

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Software developer

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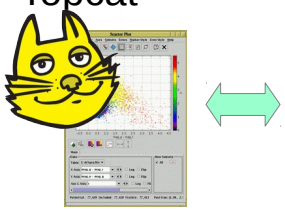

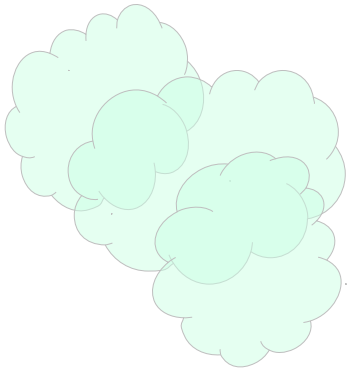

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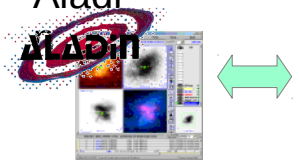

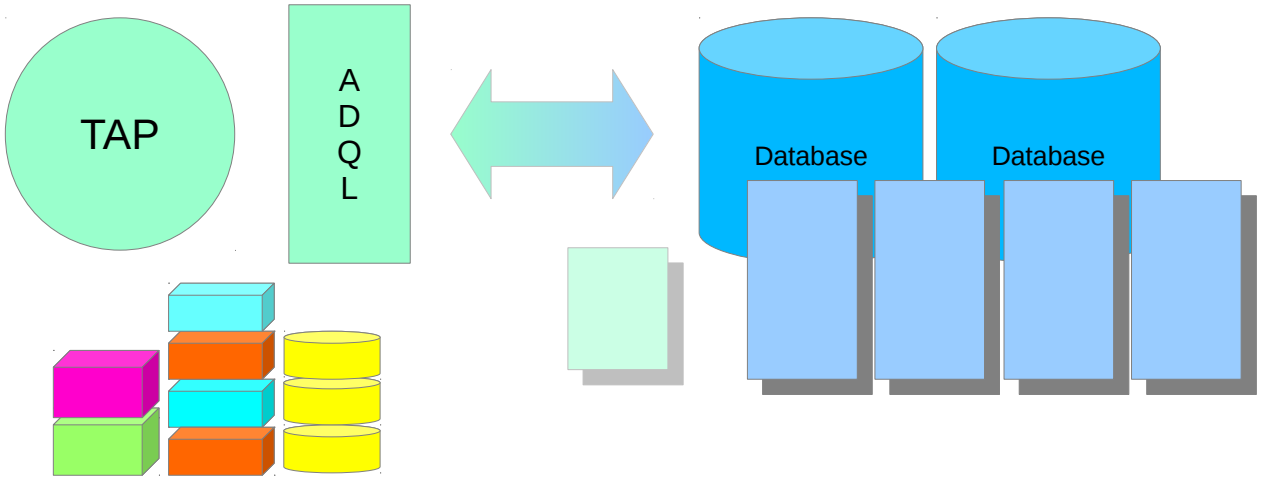

TCP/IP
HTTP
REST
...

Java
Spring
Hibernate
JDBC
…

Python
Django
Flask
WebPy
...

PostgreSQL
MySQL
SQLServer
Oracle
...

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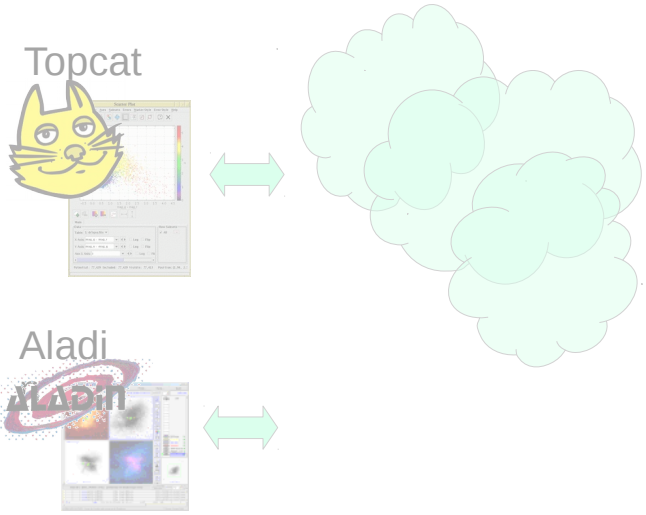
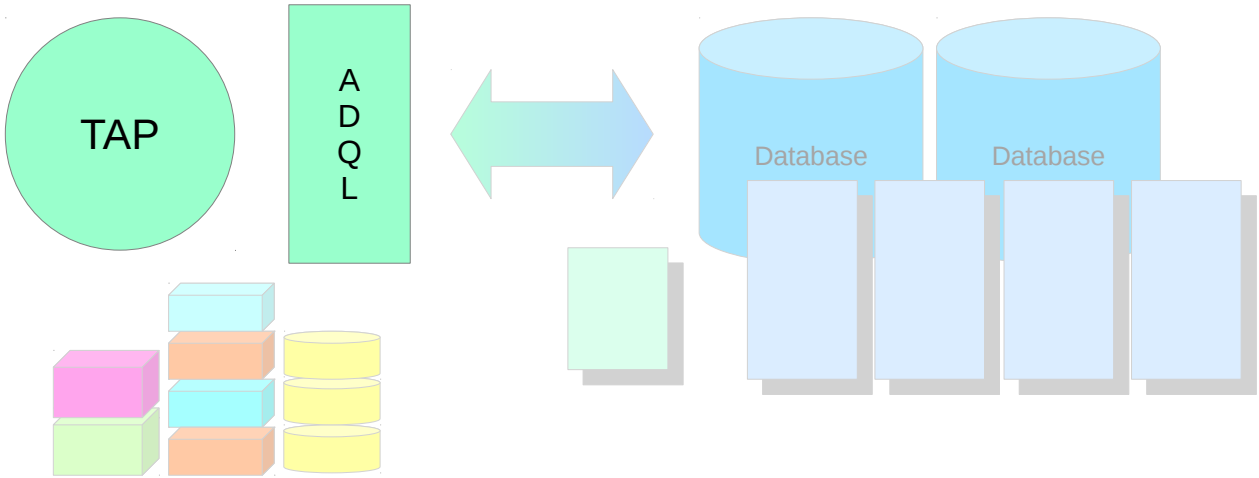
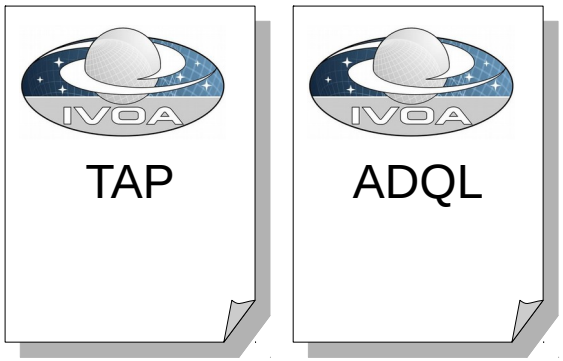
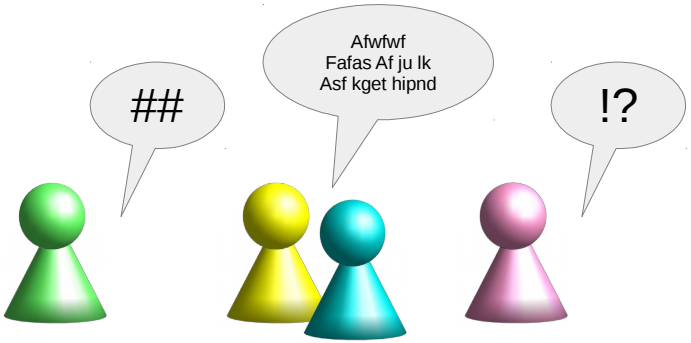
IVOA member









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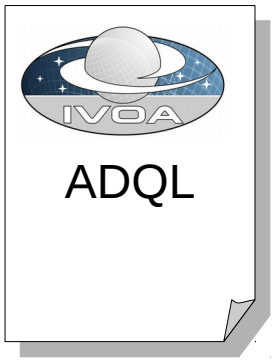
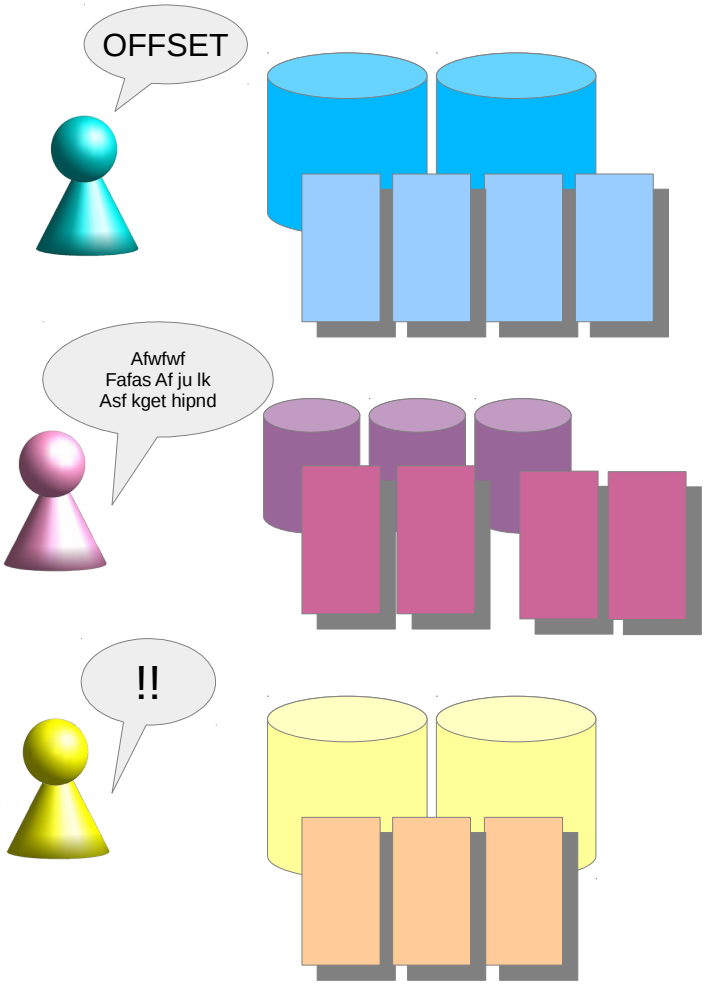
Initial proposal and
group discussion






```
SELECT
      ….
FROM
      ….
WHERE
      ….
OFFSET n
```

Sometimes
the complicated ones are easy,
and sometimes
the simple ones are hard.

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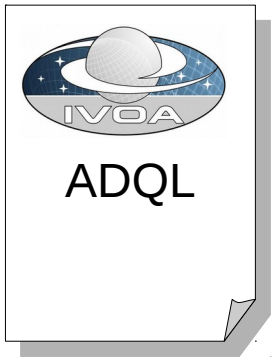
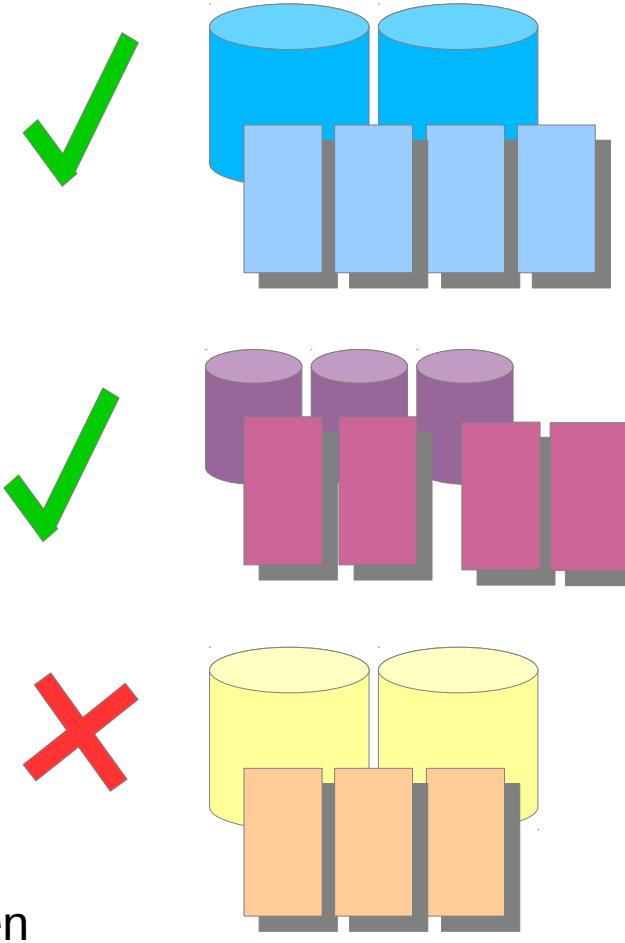
Consensus and updated specification





```
SELECT
      ….
FROM
      ….
WHERE
      ….
OFFSET n
```

Balance between
complexity of optional features
vs
excluding implementations

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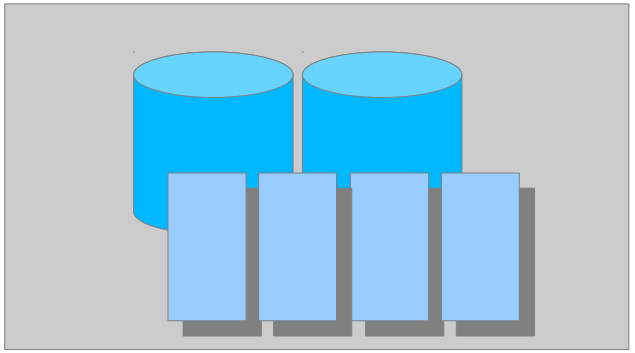
Cosmopterix

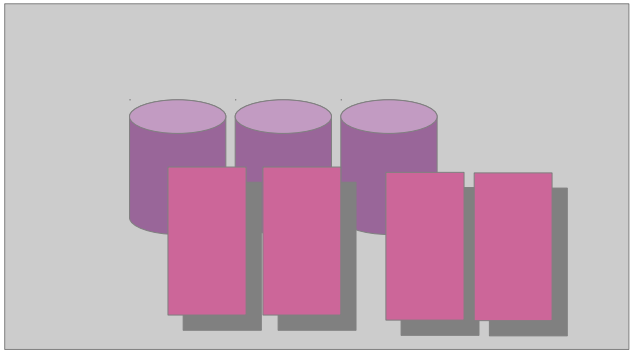
Docker containers, providing basic install of each database platform.

A simple platform for experimenting with ADQL syntax.



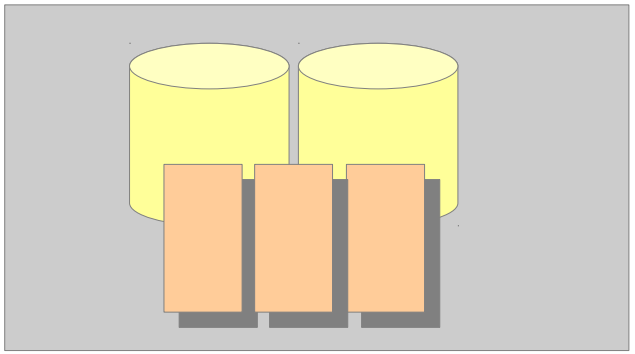
Working

- PostgreSQL
- MySQL
- MariaDB
- HSQLDB
- Apache Derby
- Oracle (*)



Future

- H2
- SQLite
- SQLServer
- Qserv
- SpiderEngine
- Hadoop



GitHub project
- contributions welcome

https://github.com/ivoa/cosmopterix

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Lyonetia

Initially, somewhere for us to collect example ADQL queries.

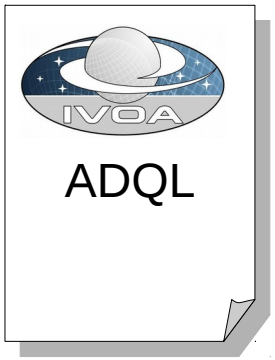
Initial goals
- Provide source material for ADQL parser tests
- Provide source material for ADQL query tests

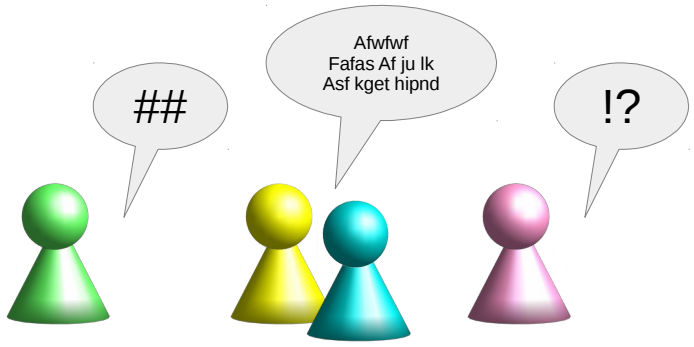
Medium term goals
- Provide reference material for science use cases

Long term goal
- Future work on validating the BNF grammar

GitHub project
- contributions welcome

https://github.com/ivoa/lyonetia





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Open to collaboration

Public GitHub projects.
Make a clone, add your changes and send me a pull request.

Lyonetia – ADQL queries

https://github.com/ivoa/lyonetia

Cosmopterix- Docker containers

https://github.com/ivoa/cosmopterix

ADQL-2.1 working draft

http://www.ivoa.net/documents/ADQL/20160502/index.html

ADQL document - LaTex source

https://volute.g-vo.org/viewvc/volute/trunk/projects/dal/ADQL/

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