

# The ADQL Parser:

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# Function and Purpose.

It parses a string version of ADQL and emits XML.

# From this

```
select * from cat ;
```

# To this

```
<adql:Select xmlns:adql="http://www.ivoa.net/xml/v2.0/adql"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <adql:SelectionList>
    <adql:Item xsi:type="adql:allSelectionItemType"/>
  </adql:SelectionList>
  <adql:From>
    <adql:Table xsi:type="adql:tableType" Name="cat"/>
  </adql:From>
</adql:Select>
```

# • ADQL Standard

- Has changed from XML schema to BNF
- BNF used to specify the string syntax
  - Show active BNF
- Tracking and validating the standard has been a major issue.

# JavaCC Framework

- Is a compiler of compilers
- Open source project started by Sun
- Accepts BNF-like commands
- Generates a parser
- Additionally will generate a syntax tree
- The generated parser normally emits only one error message per run.

# Basic Development

- Parser to check syntax
- Syntax tree to emit XML
- Tracing for development diagnostics
- Unit tests for regression testing
- Interactive command line tester
- BNF Extractor
- Conversion program

# Enhancements for Client

- Error recovery and multiple errors
- Position tracking
- Friendly error messages
- Use of meta data
- Fragmental processing

# Enhancements for Server

Parser is not and never will be thread safe...

But it is serially reusable!

- The server version wraps a pool of parsers in a thread safe manner.
- Pool size can be from 1 to 16 parsers
  - Default size is 2, which should be adequate most of the time.
- Contention between threads (if it occurs) is handled by waiting.