Running Meeting 03/02/2022

Inform the WG
on what has been done
since Last ADASS/Interop

Agenda

- Ongoing work status
  - ADASS BoF: TAP and DMs
  - PhotDM
  - Meas/Coords
  - Mapping Syntax
  - Mapping library
- Model Validation

https://pad.unistra.fr/p/DM-Running-Meeting

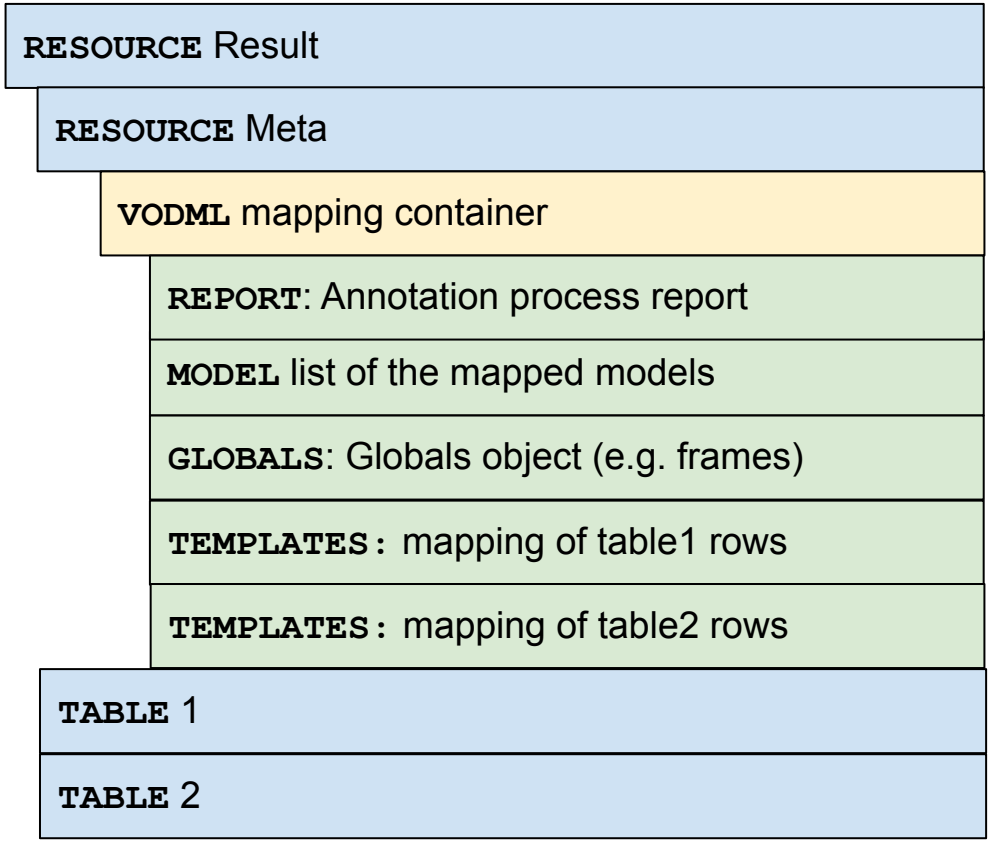
ADASS BoF: TAP and the DMs

- Exploring the way to implement data-modeling features in TAP services
  - Presentation of the problem (L. Michel)
  - On the fly annotation (M Louys - J. Silverman)
  - Browsing hierarchical data (L. Michel)
  - Storing complex objects in TAP services (F. Bonnarel)
  - Query language issues (L. Michel on behalf of D. Morris)

- Resources
  - Wiki page https://wiki.ivoa.net/twiki/bin/view/IVOA/TapandTheDMs
  - Proceedings https://arxiv.org/abs/2111.15262
  - Video https://www.youtube.com/watch?v=HSWTgv7blfM&t=1158s

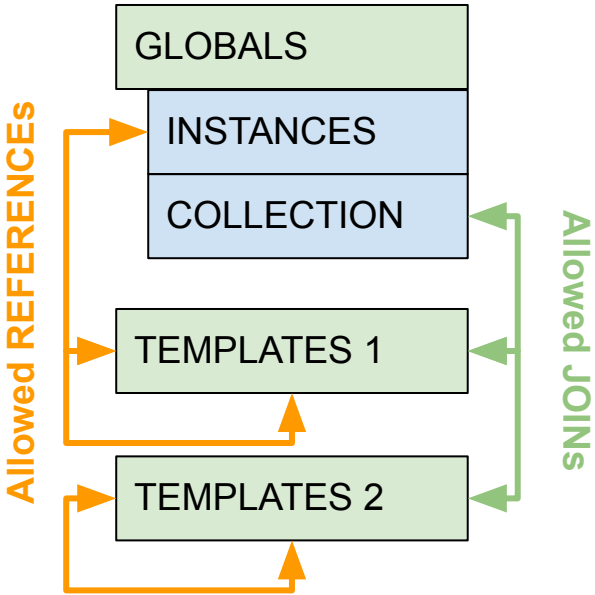
Mapping Syntax

https://github.com/ivoa-std/ModelInstanceInVot



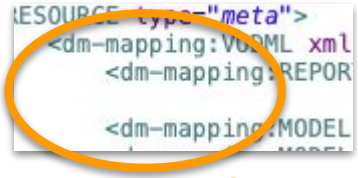
Mapping Syntax

- **Data Mapping**
  - INSTANCE: `{...}`
  - ATTRIBUTE: `key:value`
  - COLLECTION: `[...]`
- **Data Referencing**
  - REFERENCE
  - JOIN
- **Data Filtering**
  - FOREIGN_KEY
  - PRIMARY_KEY
  - WHERE



Mapping Specification

- Long discussions during this summer (see GitHub issues)
  - Good consensus reached: takes the best of the 2 proposals
  - Schema written in XSD 1.1 (complex assertion)
    - For now the XSD validation covers all allowed patterns
  - Agreement on a shy integration in VOTables
    - Validator running against both schemas already working
    - Still an issue with the name spaces (expert welcome)



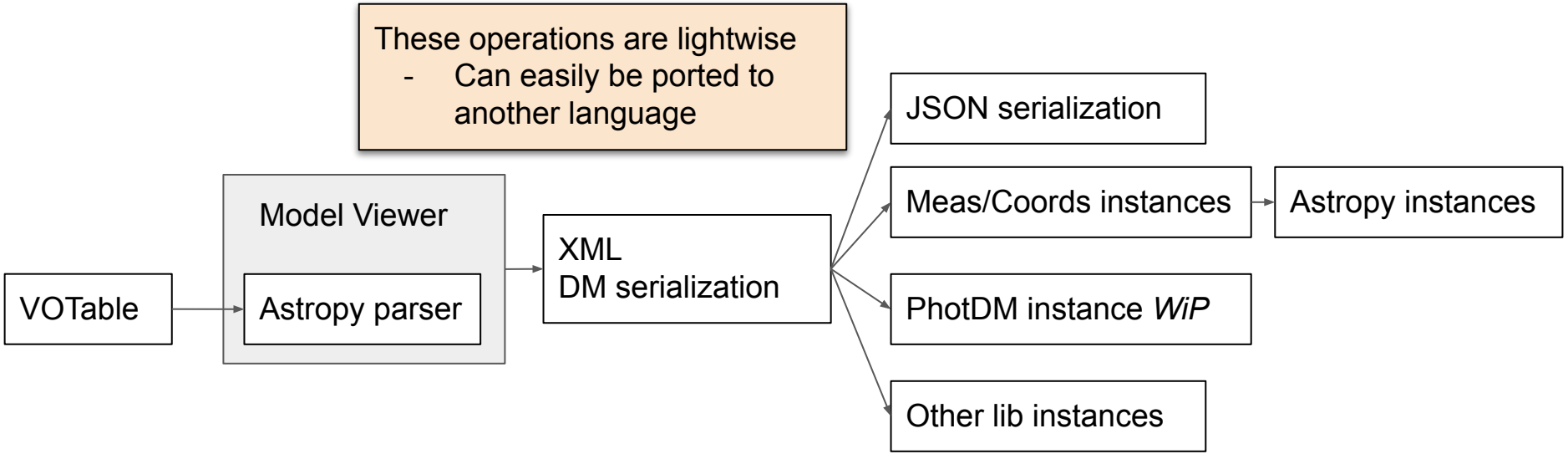
Cannot get rid of this thing

- Specification elaboration
  - Work on many snippets (+ real datasets) tested by unit test tools (Python)
    - Test allowed patterns
    - Test forbidden patterns

- This huge test suit may be used to validate the standard or to write validators

https://github.com/ivoa-std/ModelInstanceInVot/

Python Client Code

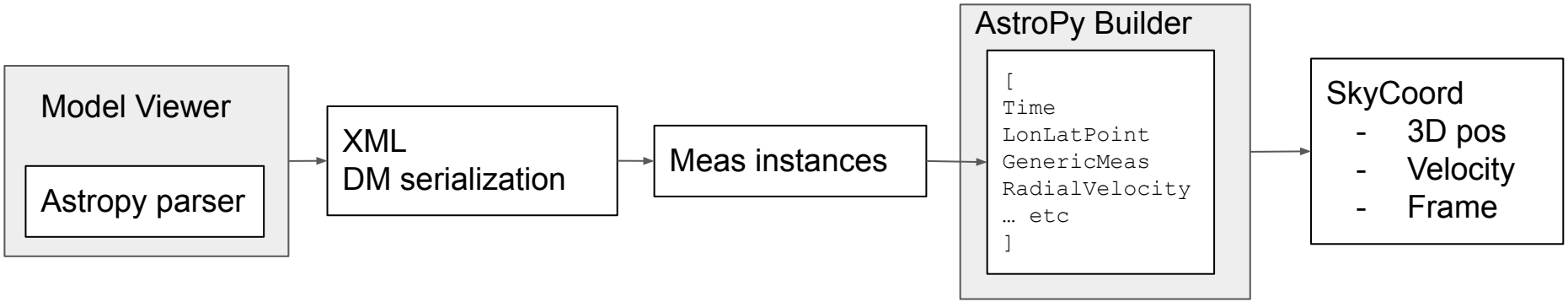


https://github.com/ivoa/modelinstanceinvot-code
Notebooks availables

Most of the mapping patterns implemented yet
- Many real use-cases

Python Client Code: Astropy Builder

To be extended to others classes



Notebook: https://github.com/ivoa/modelinstanceinvot-code/blob/merge-syntax/gaia_3D_astropy.ipynb

Reading and Writing Annotations with Astropy

- Class `MappingBlock` added to the VoTable parser
  - Annotation blocks handled as XML string serialisations
  - Support both write and read operations
  - Examples available
- **Need some help to properly work with the Astropy dev. workflow**

```
vpath = os.path.join(data_path, "test.7.out.xml")

# Create am empty VOTable
votable = VOTableFile()
# Create the resource that will host both data table and mapping resource.
resource = Resource()
resource.type = "results"
# Create the resource that will host the mapping.
meta_resource = Resource()
meta_resource.type = "meta"
# A dummy mapping block for the test.
resource.resources.append(meta_resource)
model_mapping = ModelMapping("""
<dm-mapping:VODML xmlns:dm-mapping="http://www.ivoa.net/xml/merged-syntax" >
  <dm-mapping:REPORT/>
  <dm-mapping:GLOBALS/>
</dm-mapping:VODML>
"""
)
# Add the mapping resource
meta_resource.model_mapping = model_mapping
votable.resources.append(resource)
# Save the VOTable
votable.to_xml(vpath)
# and read it again to retrieve the mapping
with open(vpath) as result:
    print(result.read())
```

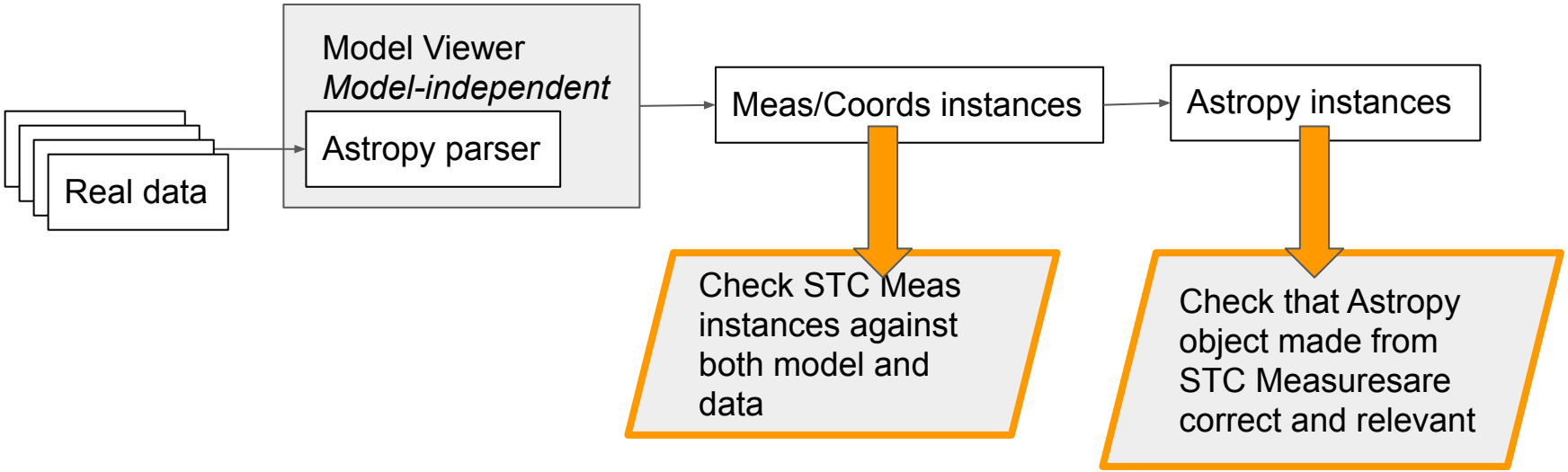
My fork: https://github.com/lmichel/astropy/

Example: https://github.com/lmichel/astropy/tree/VODML_readout/examples/modelmapping

Ref Implementation for DMs: a Persistent Question

- Which criteria for stating that a DM is a valid VO standard?
  - It is VODML compliant
    - Automated process
  - All modelled quantities make sense in our field
    - Paper review
  - It can improve the interoperability
    - Legacy data can be mapped on it -> Needs a mapping framework
    - Can feed up existing tools -> Needs working APIs
- Can a reference implementation not based on any VO REC be valid?

Reference Implementation for Meas/Coords



https://github.com/ivoa/modelinstanceinvot-code
Notebooks availables

Model Status

- Measure Coords
  - Some changes suggested in the workshop
    - Almost ready to go back in RFC
- Cube
  - Waiting on Meas/Coords
- Mango
  - Some changes suggested in the workshop

WG Roadmap

- Mapping (LM MCD)
  - Mapping client (LM)
    - MANGO (LM)
    - STC (MCD)
    - Cube (MCD)
- Community management (D Morris, M Louys F Bonnarel)
  - ADASS BoF: TAP and the DMs
  - Contributions more than welcome
- Very tough
  - Far beyond our VO time
  - Help welcome