# VODML Mapping Lite Syntax

# Version 1.0

## IVOA Note 2020-04-22

## Abstract

???? Abstract ????

## Status of this document

This is an IVOA Note expressing suggestions from and opinions of the authors. It is intended to share best practices, possible approaches, or other perspectives on interoperability with the Virtual Observatory. It should not be referenced or otherwise interpreted as a standard specification.

A list of current IVOA Recommendations and other technical documents can be found at http://www.ivoa.net/documents/.

# Contents

# Acknowledgments

???? Or remove the section header ????

# Conformance-related definitions

The words "MUST", "SHALL", "SHOULD", "MAY", "RECOMMENDED", and "OPTIONAL" (in upper or lower case) used in this document are to be interpreted as described in IETF standard RFC2119 (**?**).

The *Virtual Observatory (VO)* is a general term for a collection of federated resources that can be used to conduct astronomical research, education, and outreach. The International Virtual Observatory Alliance (IVOA) is a global collaboration of separately funded projects to develop standards and infrastructure that enable VO applications.

# 1 Introduction

???? Write something ????

## 1.1 Role within the VO Architecture

Fig. 1 shows the role this document plays within the IVOA architecture (**?**). ???? and so on, LaTeX as you know and love it. ????

# 2 Use Cases and Requirement

This alternative mapping syntax keeps the same basics as the original proposal:

PDF fallback.
Sorry - your ImageMagick (convert) does not support SVG import. If on Linux, installing librsvg2-bin should remedy this. Otherwise, please commit your SVG and ask the ivoatex creators to do the the conversion.

*Figure 1:* Architecture diagram for this document

## 3 Syntax

- This mapping syntax support directive for the clients which are not part of the model (e.g. aggregation request or data filters).

- The mapping as an explicit entry point, telling to the client what is the VOTable content.

- Processing this alternate syntax require for the client to apply rules not states in the VOTable itself.

- The mapping is located in a `<VODML>` block, child of `<VOTABLE>`.

- The mapping elements reflect the model structure.

- The `<VODML>` block starts with a list of implemented models.

- There is one `<TEMPLATES>` per mapped `<TABLE>`.

- There is one `<GLOBALS>` block containing data shared by the whole mapping.

### 3.1 GLOBALS

Contains `INSTANCE`s with fixed values that can be used everywhere in the `VODML`.

```
<GLOBALS>
  <INSTANCE ID="SpaceCoordFrame" dmrole="">
    <INSTANCE dmrole="coords:SpaceFrame.refPosition" dmtype="coords:StdRefLocation">
```

```
        <VALUE dmrole="coords:StdRefLocation.position" dmtype="ivoa:string" value="NoS
      </INSTANCE>
      <VALUE dmrole="coords:SpaceFrame.spaceRefFrame" dmtype="ivoa:string" value="ICRS
      <VALUE dmrole="coords:SpaceFrame.equinox" dmtype="coords:Epoch" value="NoSet"/>
    </INSTANCE>
    <INSTANCE >
      ...
    </INSTANCE>
    ...
  </GLOBALS>
```

*Listing 1:* INSTANCE bloc example

| Child | Role |
|-------|------|
| INSTANCE | GLOBALS children must be INSTANCE . |

*Table 1:* Supported `GLOBALS` children

`GLOBALS` has no attributes.

## 3.2  INSTANCE

Mapping for either object type or a datatype instances.

```
<INSTANCE dmrole="ds:dataset.Dataset.dataID" dmtype="ds:dataset.DataID" ID="_ds_">
    <VALUE dmrole="ds:dataset.DataID.title" value="Gaia TS Mapping Test" />
    <VALUE dmrole="ds:dataset.DataID.datasetID" value="ivoa://gaia/ts/12345" />
    <VALUE dmrole="ds:dataset.DataID.creatorDID" value="ivoa://esa/gaia/" />
    <VALUE dmrole="ds:dataset.DataID.version" value="0.0" />
    <VALUE dmrole="ds:dataset.DataID.date" value="2018:11:11" />
    <VALUE dmrole="ds:dataset.DataID.creationType" value="LiteMappingTest" />
    <INSTANCE dmrole="ds:dataset.DataID.creator" dmtype="ds:dataset.Creator">
        <INSTANCE dmrole="ds:party.Role.party" dmtype="ds:party.Individual">
            <VALUE dmrole="ds:party.Party.name" value="VODML-Team" />
        </INSTANCE>
    </INSTANCE>
</INSTANCE>
```

*Listing 2:* INSTANCE bloc example

## 3.3  VALUE

Mapping for primitive attributes. `VALUE` are the model leaves that point onto
real data.

| Child | Role |
|---|---|
| INSTANCE | Another embedded instance . |
| VALUE | Primitive attribute . |
| COMPOSITION | Composition with a limited set of INSTANCE e.g. author list |
| ARRAY | Composition with a set of INSTANCE corresponding each to one row of the data table. |
| FILTER | TbC |

*Table 2:* Supported INSTANCE children

| Attribute | Requ. level | Role |
|---|---|---|
| @dmrole | Mandatory | VODML role of the instance. May be empty for instances child of GLOBALS |
| @dmtype | Mandatory except for reference | VODML type of the instance. |
| @dmref | Mandatory for reference | reference to another instance in the mapping bloc. |
| @ID | Mandatory if the instance is referenced by other instances | Unique identifier of the instance. |

*Table 3:* Supported attributes for INSTANCE

| @dmrole | @dmref | @dmtype | use case |
|---|---|---|---|
| yes | yes | | Reference to another instance. The element must have no child |
| yes | | yes | Instance serialization The element must enclose the instance content |

*Table 4:* Supported attribute patterns for INSTANCE

```
<INSTANCE dmrole="model:value.example" dmtype="model:value.Example">
    <VALUE dmrole="model:preset.value" value="Preset Value" />
    <VALUE dmrole="model:ref.value" ref="fieldID" />
    <VALUE dmrole="model:reforpreset.value" value="Preset Value" ref="fieldID" />
</INSTANCE>
```

*Listing 3:* VALUE examples

VALUEs have no children.

| Attribute | Requ. level | Role |
|---|---|---|
| @dmrole | MUST | VODML role of the instance attribute. |
| @dmtype | MUST | VODML type of the instance attribute. |
| @value | MUST if no `@ref` element attribute. MAY if `@ref` element attribute | Value of the instance attribute. If `VALUE` has also a `@ref`, `@ref` MUST be resolved first. `VALUE` MUST be taken when `@ref` cannot be resolved |
| @ref | MUST if no `@value` element attribute. MAY if `@value` element attribute | Reference of the data element (`FIELD` or `PARAM`). MUST refer to an element of the `TABLE` referenced by the current `TEMPLATE` The client MUST first look for a `FIELD` matching `@ref`. In case of failure, it MUST look for a `PARAM` |

*Table 5:* Supported attributes for `VALUE`

| @dmrole | @dmtype | @ref | @value | Role |
|---|---|---|---|---|
| yes | yes | yes | | The instance attribute must take the value pointed by `@ref` |
| yes | yes | | yes | The instance attribute must take the value set in `@value` |
| yes | yes | yes | yes | The instance attribute must take the value pointed by `@ref` and the this set in `@value` if `@ref` cannot be resolved |

*Table 6:* Supported attribute patterns for `VALUE`

# A    Changes from Previous Versions

No previous versions yet.