

VOTable agenda

2 parts in the session:

- Discussion of VOTable-STC connection:
 - a preliminary version (0.5) of a note was published on the IVOA VOTable pages
 - VOTable1.2 XSD (*beta version published*)
 - finalization of the VOTable1.2 document
 - Future of VOTable WG
- The question of **units** (shared with DM)



Referencing Models in VOTable

- The tabular material may contain in its fields (columns) any kind of data
- it is impossible to add into a VOTable document all the various XML codes related to all data models developed by the VO

⇒ VOTable document therefore *refers* to data models without *including* them

Utypes: definition

- in VOTable schema: **utype** is a non-mandatory attribute of any **RESOURCE TABLE FIELD PARAM GROUP**
 - originally created for DAL needs
 - is an acceptable attribute wherever the **ucd** accepted
 - contrary to the **ucd**, gives a fully detailed meaning of the field, parameter or group
 - **ucd** = broad semantics, typically used for data mining
 - **utype** = detailed semantics, refers to a data model
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Utype: its usage in VOTable

- can supply an exact description of the column contents
 - immediate application for referencing quantities (*parameters* and/or *fields*) which exact meaning is crucial
 - systems of coordinates: celestial, terrestrial, solar, ... (connection with **STC**)
 - time definitions (connection with **STC**)
 - photometric systems & filters
 - more generally any parameter part of a model, simulation...
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Utypes: syntax

prefix:element.element.element...

- namespace-type prefix
- dot-separated list of the elements in the hierarchy of the data model
- to be agreed across IVOA Wgs
(document in preparation by JMD)



STC Connection

- STC is an essential component to precise the conventions of dates, locations, coordinate systems – now an IVOA Recommendation
- is of interest in most VO components
- in VOTable: replaces (and deprecates) the **COOSYS** convention



Conclusions of Beijing meeting

- Among the different scenarios proposed, the preference makes use of **GROUPS** of parameters
- it was decided to write a note dedicated to the VOTable-STC connection

⇒ preliminary version proposed

- Will be included in VOTable1.2
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Coordinate components

2 definitions are required (**STC** nomenclature):

- the coordinate system = **AstroCoordSystem**
- the actual coordinates = **AstroCoord**

More generic **CooSys** and **Coords** may be used for non-astronomical coordinate frame.

Detailed Coordinate Definition

Done in 2 groups:

- *coordinate system* group with attributes
 - utype="stc: AstroCoordSystem"
 - ID="mySysID" for referencing
- *coordinate* group
 - utype="stc: AstroCoords"
 - ref="mySysID" refers the *coordinate system* group
 - ID="myCoords" for referencing

Actual coordinates are in FIELDS

Coordinate components

Defined in FIELD with attributes:

- `ref="myCoords"`
- `utype="stc: AstroCoords.type.rep.comp"`
 - `type` = Position2D | Position3D | Time
 - `rep` = Value2 | Value3 | TimeInstant
 - `comp` = C1 | C2 | C3 | ISOTime | MJDTime



```
<GROUP
  utype="AstroCoordSystem"
  ID="myFrame" >
  <PARAM name="STC_ID"
    utype="stc:AstroCoordSystem.ID"
    value="UTC_ICRS_TOPO" ... />
...</GROUP>
```

ID/ref

STC

CoordSystem
includes
sub-groups
for time,
space,
redshift...

```
<GROUP
  utype="AstroCoords"
  ref="myFrame"
  ID="myCoords" >
  <PARAM name="STC_ID"
    utype="stc:AstroCoords.coord_sys_id"
    value="UTC_ICRS_TOPO" ... />
... </GROUP>
```

<GROUP

 utype="AstroCoords"

 ref="myFrame"

 ID="myCoords" >

<PARAM name="STC_ID"

 utype="stc:AstroCoords.coord_sys_id"

 value="UTC_ICRS_TOPO" ... />

... **</GROUP>**

ID/ref



<FIELD name="RA"

 utype="AstroCoords.Position2D.Value2.C1"

 ref="myCoords" ... />

Examples

- Example 1: List of observations expressed in **UTC_ICRS_TOPO**
- Example 2: excerpt of the Hipparcos Catalog
- Example 3: Ephemerid of a comet

(see the [note_stc.html](#) document)

Relations between tables (1)

- One VOTable document may contain several tables, meaning *tables logically grouped*.
 - In the relational model, relations between tables are specified via the concept of *keys*
 - basic key definitions: *primary key* (non-null, unique) and *foreign key* (must exist as primary in the related table)
 - A simple solution: GROUPs
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Relations between tables (2)

```
<GROUP name="primaryKey">  
  <FIELDref ref="ClusterName">  
  <FIELDref ref="GalaxyName">  
</GROUP>
```

...

```
<FIELD ID="ClusterName" .../>  
<FIELD ID="GalaxyName" .../>
```

Relations between tables (3)

```
<GROUP name="foreignKey"  
  ref="mainTable">  
  <FIELDref ref="ClusterName">  
  <FIELDref ref="GalaxyName">  
</GROUP>
```

...

```
<FIELD ID="ClusterName" .../>  
<FIELD ID="GalaxyName" .../>
```

Relations between tables (4)

Other possible interesting details:

- order of the data, e.g. with

```
<GROUP name="order" >
```

```
  <PARAM name="sequence" value="increasing">
```

```
  <FIELDref ref="ClusterName">
```

```
  <FIELDref ref="GalaxyName">
```

```
</GROUP>
```

Relations between tables (5)

- not yet decided: what is better:
 - just a <GROUP> with a specific name ?
 - prefer the definition of some “relational” data model and refer to these groups with utypes ?
- to be included in VOTable1.2 ?



Future of VOTable

After VOTable 1.2

- To keep as a Working Group ?
- Need maintenance ? Volunteers ?

