

# *Changes proposed in VOTable*

- STC connection expresses the time/space coordinates via utype attribute in a group (*can easily be extended to other data models*). 2 components:
    - the coordinate system(s) (frames) defined in group(s)
    - the coordinate element(s) : in which frame are these coordinates expressed ?
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# Changes proposed in VOTable

- Coordinate system definition in a  
`<GROUP utype="stc:AstroCoordSystem" ID="mySys">`
    - standard coordinate system: make a reference to the relevant STClib component via a `<PARAM>`
    - custom coordinate system: include all the details in this group in terms of `<PARAM>`s and `utype`.
  - Coordinate components in a  
`<GROUP utype="stc:AstroCoords" ref="mySys" ID="myCoos">`
  - Actual columns refer the `stc:AstroCoords` group
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```
<GROUP utype="stc:AstroCoordSystem" ID="mySys">
  <PARAM name="STC_ID"
    xlink:href="ivo://STClib/CoordSys#TT_ICRS_TOPO"
    xlink:type="locator"
    datatype="char" arraysize="*"
    utype="stc:AstroCoordSystem.id"
    value="TT_ICRS_TOPO"/>
</GROUP>
```

```
<GROUP ID="Coo1" utype="stc:AstroCoords" ref="mySys">
  <PARAM name="cooframe" datatype="char" arraysize="*"
    utype="stc:AstroCoords.coord_sys_id"
    value="TT_ICRS_TOPO"/>
  <FIELDref ref="OT" /> <!-- optional -->
  <FIELDref ref="RA" /> <!-- optional -->
  <FIELDref ref="Dec"/> <!-- optional -->
  <FIELDref ref="Err1" /> <FIELDref ref="Err2" />
</GROUP>
```

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```
<FIELD ID="OT" name="ObservingTime" datatype="char"  
  arraysize="19"  
  utype="stc:AstroCoords.Time.TimeInstant.ISOTime"  
  ucd="time.start;obs.exposure" ref="Coo1" />
```

```
<FIELD ID="RA" name="Right Ascension" datatype="double"  
  unit="deg"  
  utype="stc:AstroCoords.Position2D.Value2.C1"  
  ucd="pos.eq.ra" ref="Coo1" />
```

```
<FIELD ID="Dec" name="DECLination" unit="deg"  
  datatype="double"  
  utype="stc:AstroCoords.Coord.Value2.C2"  
  ucd="pos.eq.dec" ref="Coo1" />
```

```
<FIELD ID="Err1" name="RA_Error" datatype="float"  
  unit="arcsec"  
  utype="stc:AstroCoords.Coord.Error.Value.C1"  
  ucd="error;pos.eq.ra" ref="Coo1" />
```

```
<FIELD ID="Err2" name="DEC_Error" datatype="float"  
  unit="arcsec"  
  utype="stc:AstroCoords.Coord.Error.Value.C2"  
  ucd="error;pos.eq.dec" ref="Coo1" />
```

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```
<GROUP utype="stc:AstroCoordSystem" ID="mySys">
  <PARAM name="STC_ID" datatype="char" arraysize="*"
    utype="stc:AstroCoordSystem.id" value="mySystem"/>
  <GROUP utype="stc:AstroCoordSystem.TimeFrame" >
    <PARAM name="TimeScale" datatype="char" arraysize="*"
      utype="stc:AstroCoordSystem.TimeFrame.TimeScale" value="TT" />
    <PARAM name="TimePos" datatype="char" arraysize="*"
      utype="stc:AstroCoordSystem.TimeFrame.ReferencePosition.Type"
      value="TOPOCENTER" />
  </GROUP>
  <GROUP utype="stc:AstroCoordSystem.SpaceFrame" >
    <PARAM name="CooFrame" datatype="char" arraysize="*"
      utype="stc:AstroCoordSystem.SpaceFrame.CoordRefFrame.Type"
      value="ICRS" />
    <PARAM name="CooFrameOrigin" datatype="char" arraysize="*"
      utype="stc:AstroCoordSystem.SpaceFrame.ReferencePosition.Type"
      value="TOPOCENTER" />
    <PARAM name="CooType" datatype="char" arraysize="*"
      utype="stc:AstroCoordSystem.SpaceFrame.CoordFlavor.Type"
      value="SPHERICAL" />
  </GROUP>
</GROUP>
<GROUP ID="Coo1" utype="stc:AstroCoords" ref="mySys">
  <PARAM name="AstroCoo" datatype="char" arraysize="*"
    utype="stc:AstroCoords.coord_sys_id" value="mySystem"/>
</GROUP>
```

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## <INFO> changes

- defined as a restriction of <PARAM> with datatype="char" arraysize="\*" (*String*) i.e.
    - additional (*optional*) attributes: utype ucd ID ref unit
    - accept <DESCRIPTION> <VALUES> <LINK> sub-elements as in <PARAM>
  - may occur *after* a </DATA> </TABLE> </RESOURCE> in order to give *post-operational diagnostics* which are necessary in case of a problem in a stream VOTable generation
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# Additional conventions

- primary/foreign key relations between tables which are part of a **VOTable** document described with a convention on GROUP name e.g.

```
<GROUP name="primaryKey">
```

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

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

```
</GROUP>
```

...

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

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

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