

simdal state

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lots of designs, lots of prototypes

- different solutions decided last 4 interops
- one prototype developed each time
- time to summarize
 - what has been done
 - what works, what doesn't
 - reach a working design

Standard UML-to-relational derivation

Good : exactly fits the SimDM semantic

Bad :

- Entity-attribute-value pattern
 - 3 heavy joins per constraint. Use case states > 10 constraints
- highly de-normalized : hard to fill
- Protocol.xml & experiment.xml can be huge, prohibiting interactive apps

same + flatten tables, SimTAP

Good :

- EAV pattern replaced by flat, easy to query tables
- output format can be votable for flat tables

Bad :

- doesn't support use case of > 150000 columns
➡ remove rdbms/SQL implementation coupling
- column's utype problem ; SimDM semantic lost

functional api

Good :

- abstracts implementation details ; number of columns not a problem any more
- simple, meaningful, can fit OO of SimDM

Bad :

- interface ?! output format : votable ? simdm serialization ?
- would need to re-define a whole exchange format
- possibly not interoperable with existing vo (TAP/Votable based)

Proposal

- functional API, use SimDM serialization
 - abstracts implementation details
 - allows 150000+ columns use case
 - keeps whole SimDM semantic
 - not TAP compliant
- specific votable for statistics/parameters
 - returns annotated votable

api overview

	output format	
api function	SimDM serialization	Votable
	get_protocol	get_parameters
	get_project	
	get_experiment	get_statistics get_properties

api detail

function	field	value
get_protocol	uri	ivoid ex: ivo://pdr.obspm/pdr_20121224#lher_p1e6r1e6a1e2_30
	full	Y/N, default Y
get_experiment	uri	ex: ivo://pdr.obspm/pdr_20121224#pdr1_4_3_r592
	full	Y/N, default Y
get_project	n/a	always full file

api detail

	field	default	mandatory
get_parameters	ivoid		y
	from	0	n
	to	0 (-> end)	n
	cutout		n
	out	votable / json	n

votable

```
<VOTABLE xmlns="http://www.ivoa.net/xml/VOTable/v1.2">
  <RESOURCE name="">
    <TABLE name="flatten_parameters">
      <GROUP ID="group_densh" utype="simdm:resource/experiment/parameter_setting">
        <PARAM name=""
          utype="simdm:/resource/experiment/parameter_setting.input_parameter"
          value="ivo://pdr.obspm/pdr_20121224/densh"/>
        <FIELDRef ref="densh_numeric_value"/>
      </GROUP>
      <FIELD name="" ID="densh_numeric_value" ucd=""
        ref="group_densh"
        utype="simdm:/resource/experiment/parameter_setting.numeric_value.value"
        datatype="float" unit="cm-3"/>
      <FIELD name="parameter_setting_container"
        ID="parameter_setting_container"
        ucd=""
        utype="simdm:/resource/experiment/parameter_setting.container"
        datatype="string"/>
      <DATA>
        <TR>
          <TD>10</TD><TD>ivo://pdr.obspm/pdr_20121224/lher_p1e6r1e6a1e2_30</TD>
        </TR>
        <TR>
          <TD>100</TD><TD>ivo://pdr.obspm/pdr_20121224/lher_p1e6r1e6a1e2_30</TD>
        </TR>
      </DATA>
    </TABLE>
  </RESOURCE>
</VOTABLE>
```

api detail

	field	default	mandatory
get_statistics	ivoid		y
	from	0	n
	to	0 (-> end)	n
	cutout		n
	out	votable / json	n

votable

```
<VOTABLE xmlns="http://www.ivoa.net/xml/VOTable/v1.2">
  <RESOURCE name="">
    <TABLE name="flatten_stats">
      <GROUP ID="group_radius_grain_r03"
        utype="simdm:/resource/experiment/statistical_summary">
        <PARAM name=""
          utype="simdm:/resource/experiment/statistical_summary.axis"
          value="ivo://pdr.obspm/pdr_20121224/radius_grain_r03"/>
        <PARAM name=""
          utype="simdm:/resource/experiment/statistical_summary.statistic"
          value="max"/>
        <PARAM name=""
          utype="simdm:/resource/experiment/statistical_summary.a_priori"
          value="false"/>
        <FIELDRef ref="radius_grain_r03_numeric_value"/>
      </GROUP>
      <FIELD name="" ID="radius_grain_r03_numeric_value" ucd=""
        ref="group_radius_grain_r03"
        utype="simdm:/resource/experiment/statistical_summary.numeric_value.value"
        datatype="float" unit="cm"/>
      <FIELD name="statistical_summary_container"
        ID="statistical_summary.container"
        ucd=""
        utype="simdm:/resource/experiment/statistical_summary.container"
        datatype="string"/>
      <DATA>
        <TR>
          <TD>2.558719e-05</TD><TD>ivo://pdr.obspm/pdr_20121224/lher_p1e6r1e6a1e2_30_hdf5_grain</TD>
        </TR>
        <TR>
          <TD>3.65e-05</TD><TD>ivo://pdr.obspm/pdr_20121224/lher_p1e6r1e6a1e2_30_hdf5_grain</TD>
        </TR>
      </DATA>
    </TABLE>
  </RESOURCE>
</VOTABLE>
```

summary

- all the serious simdal designs have been prototyped
- thorough feedback on good/bad parts
- final design discussed today