PROPOSAL for addition of Gravity in SIDS -
Bob Bush

Gravity_t Data Structure

The Gravity_t data structure defines the gravitational vector and reference point. It is proposed that the Gravity_t data structure be recorded under a CGNSBase_t node. There may be zero or one Gravity_t node under a CGNSBase_t node.

SIDS definition of the Gravity_t data structure:

The Gravity_t under the CGNSBase_t data structure:

```
CGNSBase_t :=
  {
  Gravity_t Gravity ;                                    (o)
  ...
  }
```

The elements of the Gravity_t data structure:

```
Gravity_t :=
  {
  List( Descriptor_t Descriptor1 ... DescriptorN ) ;     (o)
  DataArray_t<real,1,PhysicalDimension> GravityVector;   (r)
  DataArray_t<real,1,PhysicalDimension>
                                GravityReferencePoint ;  (o)
  DataClass_t DataClass ;                                (o)
  DimensionalUnits_t DimensionalUnits ;                  (o)
  }
```

Definitions:

- GravityVector: (X,Y,Z) components of the gravity vector, through the GravityReferencePoint.
- GravityReferencePoint: reference (X,Y,Z)-location of an origin for defining zero state for gravity.

Notes:

- Local DataClass_t and DimensionalUnits_t nodes may be specified under the Gravity_t node (in case the user does not want to use the default units).
- All data use the current dimensional units unless different dimensional units are defined under the Gravity_t node.
- If the GravityReferencePoint is not defined, its default value is the origin of the coordinate system.

ADF file mapping definition of the Gravity_t data structure: