PROPOSAL for specifying axisymmetry for 2D grids in SIDS -
Bob Bush

AxiSymmetry_t Data Structure

The AxiSymmetry_t data structure allows recording the axis of rotation and the angle of rotation around this axis. It is proposed that the AxiSymmetry_t data structure be recorded under a CGNSBase_t node. There may be zero or one AxiSymmetry_t node under a CGNSBase_t node.

SIDS definition of the AxiSymmetry_t data structure:

The AxiSymmetry_t under the CGNSBase_t data structure:

```
CGNSBase_t :=
  {
  AxiSymmetry_t AxiSymmetry ;                              (o)
  ...
  }
```

The elements of the AxiSymmetry_t data structure:

```
AxiSymmetry_t :=
  {
  List( Descriptor_t Descriptor1 ... DescriptorN ) ;       (o)
  DataArray_t<real,1,2> AxiSymmetryReferencePoint;         (r)
  DataArray_t<real,1,2> AxiSymmetryAxisVector              (r)
  DataArray_t<real,1,1> AxiSymmetryAngle                   (o)
  DataClass_t DataClass ;                                  (o)
  DimensionalUnits_t DimensionalUnits ;                    (o)
  }
```

Definitions:

- AxiSymmetryReferencePoint: reference (X,Y)-location of an origin for defining the axis of rotation.
- AxiSymmetryAxisVector: (X,Y) direction cosines of the axis of rotation, through the AxiSymmetryReferencePoint.
- AxiSymmetryAngle: amount of rotation about axis in this problem. If undefined, the angle is assumed to be 360^o or 2π.

Notes:

- Local DataClass_t and DimensionalUnits_t nodes may be specified under the AxiSymmetry_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 AxiSymmetry_t node.

ADF file mapping definition of the AxiSymmetry_t data structure: