# **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 ;
    ...
}
```

The elements of the Gravity\_t data structure:

#### 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:

Name: Gravity Label: Gravity\_t Data-Type: MT Cardinality: 0,1

Name: GravityVector Label: DataArray\_t Data-Type: R4 Dimensions: 1

**Dimension Values:** Physical Dimension

Data: GravityVector

Cardinality: 1

Name: GravityReferencePoint

Label: DataArray\_t Data-Type: R4 Dimensions: 1

**Dimension Values:** Physical Dimension

Data: GravityReferencePoint

Cardinality: 0,1

Name: DimensionalUnits Label: DimensionalUnits t

Data-Type: C1 Dimensions: 2

**Dimension Values:** (32,5) **Data:** DimensionalUnits Values

Cardinality: 0,1

Name: Descriptor# (or user defined)

Label: Descriptor\_t Data-Type: C1 Dimensions: 1

**Dimension Values:** length of string

Data: Description string

Cardinality: 0,N

Name: DataClass Label: DataClass\_t Data-Type: C1 Dimensions: 1

Dimension Values: length of string

Data: DataClass Value

Cardinality: 0,1