

# STC 2 Status

## October 2017

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SAO

# Work since last IVOA Interop

- We improved the architecture of the models
- We carefully checked them for typos and inconsistencies
- The models were further corrected so they now pass the VO-DML scripts – i.e., they are correct VO-DML
- The documentation was completed
- Currently we are working on designing shortcuts for common cases; that's the hard part

# STC2 Models

- 1. Coordinate systems, frames, and values
- 2. Coordinate measures  
Dependency on (1)
- 3. Transformations  
Dependency on (1)
- <https://volute.g-vo.org/svn/trunk/projects/dm/STC/>

# Color Coding

- **Orange boxes** are classes
- **Yellow boxes** are data types
- **Red lines** are generalizations
- **Green lines** are associations
- **Blue lines** are compositions
- **Red boxes** are elements from a different model that serve as parent elements in the present model
- **Green boxes** are elements from a different model that are associated with elements in the current model

# Coordinate Systems, Frames, Values

- A **coordinate value** is associated with:
  - A **coordinate axis**, one or more of which make up:
  - A **coordinate space**, which is part of:
  - A **coordinate frame**
- 
- Coordinate value, and associated axis, space, and frame, all belong to a specific coordinate domain
- Related coordinate frames are associated with each other in:
- A **coordinate system**
  - Reference position and solar system ephemeris are reluctantly moved to the coordinate frames

# Coordinate Domains

- All of the above are realized in the following domains:
  - Time
  - Space
  - Spectral
  - Redshift
  - Polarization
  - Pixel
  - Generic

# Coordinate Measures

- In real life coordinate values are seldom the impersonal exact numbers, but need to be qualified
- To provide proper meaning, add:
  - Errors/uncertainties of various ilk
  - Resolution

# Transforms

- Are assembled from sequences of atomic transforms:
  - Translation
  - Scaling
  - Rotation
  - Projection
  - Polynomial
  - Enumeration
- They operate between a native and a target coordinate frame



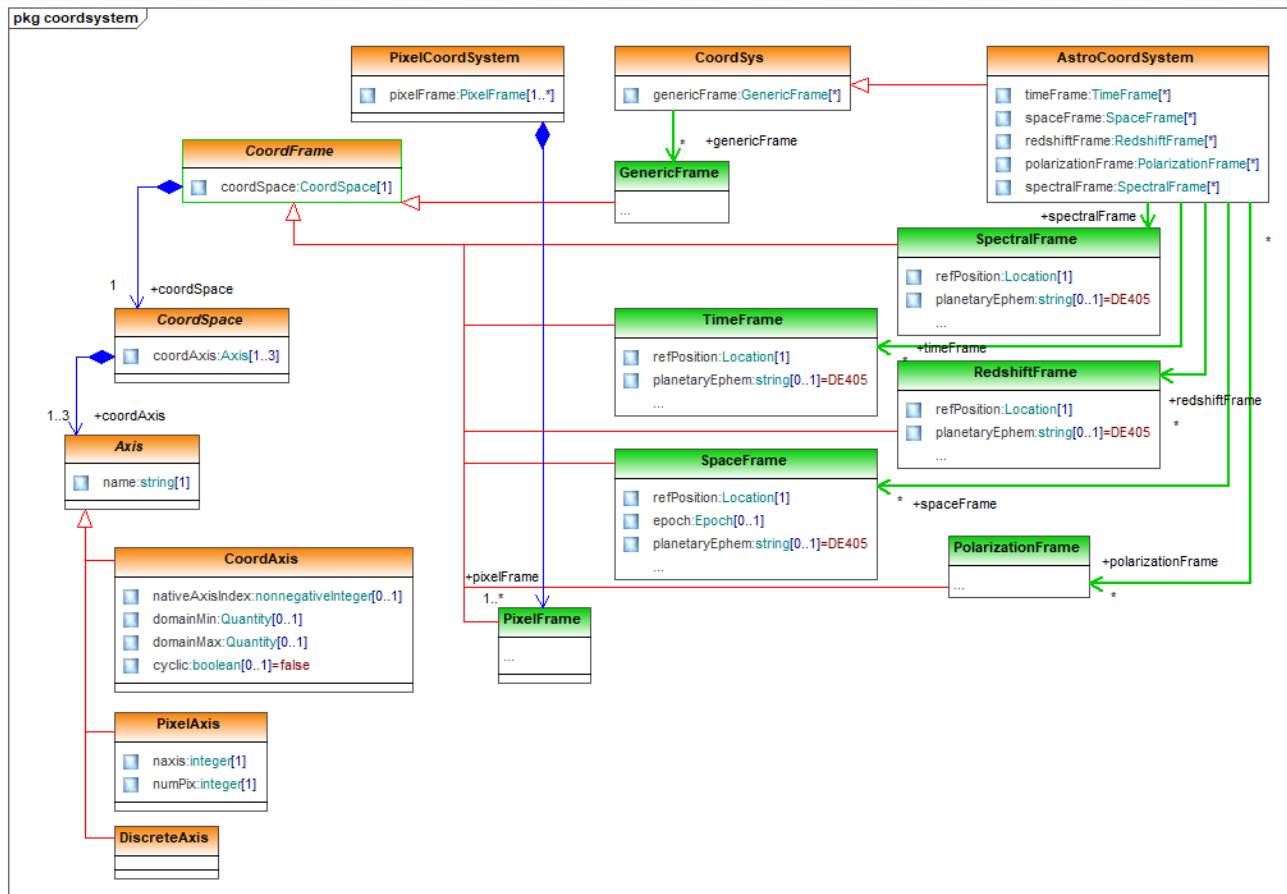
# Current Status

- Coordinates
  - Model completed, VO-DML syntax validated
  - Draft of WD is on Volute
- Measures
  - Model completed, VO-DML syntax validated
  - Draft of WD is on Volute
- Transforms
  - Model finalized, VO-DML syntax validated
  - First draft of WD on Volute
- Working on the shortcuts

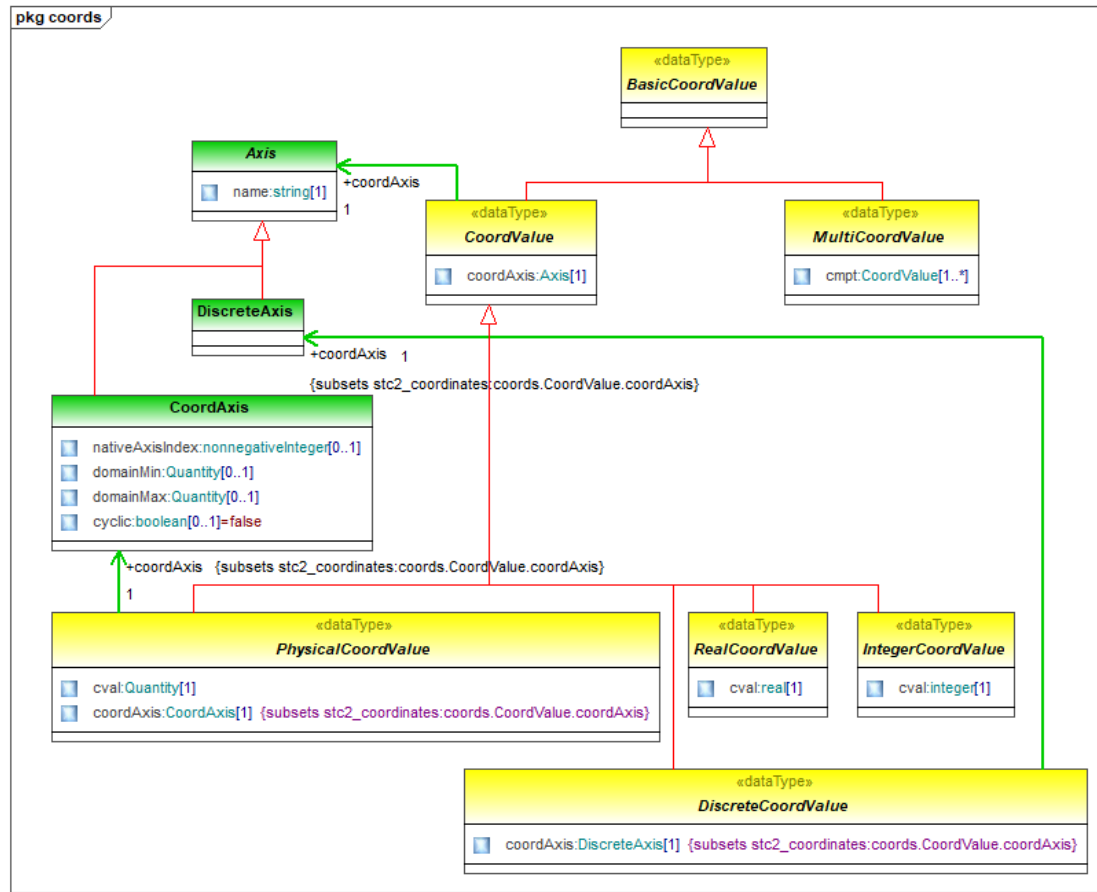


# Appendix: Diagrams

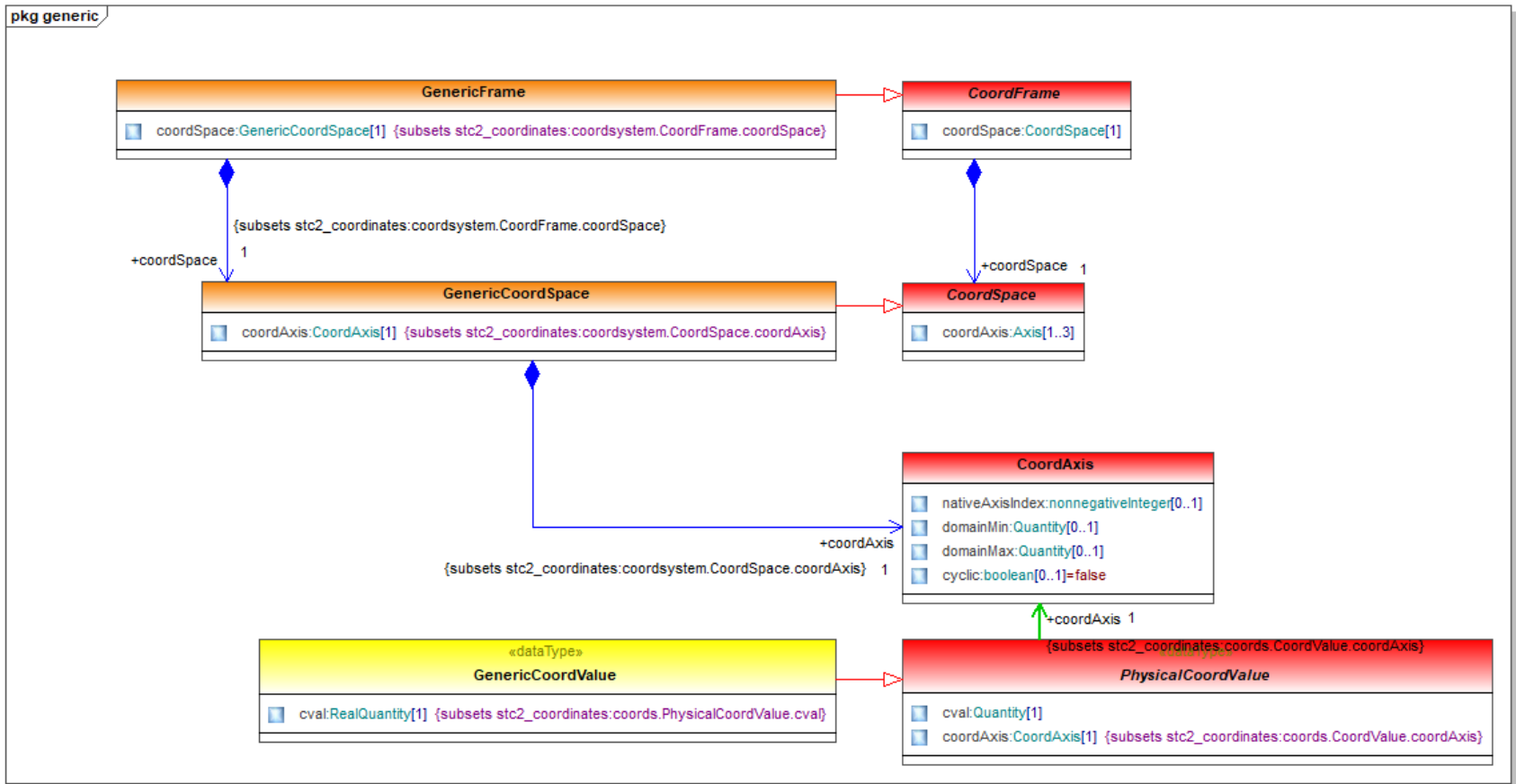
# Coordinate Systems



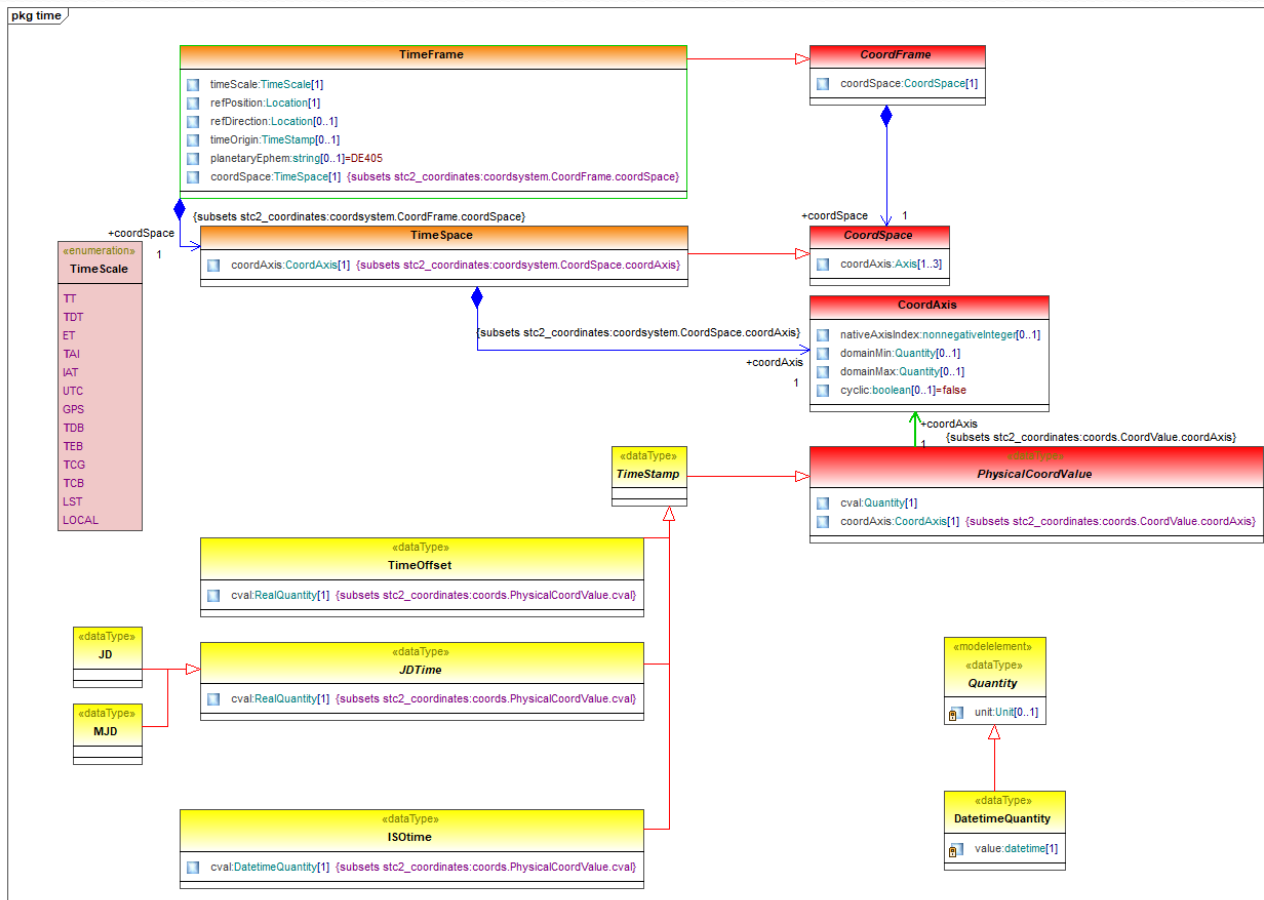
# Coordinates



# Generic Domain

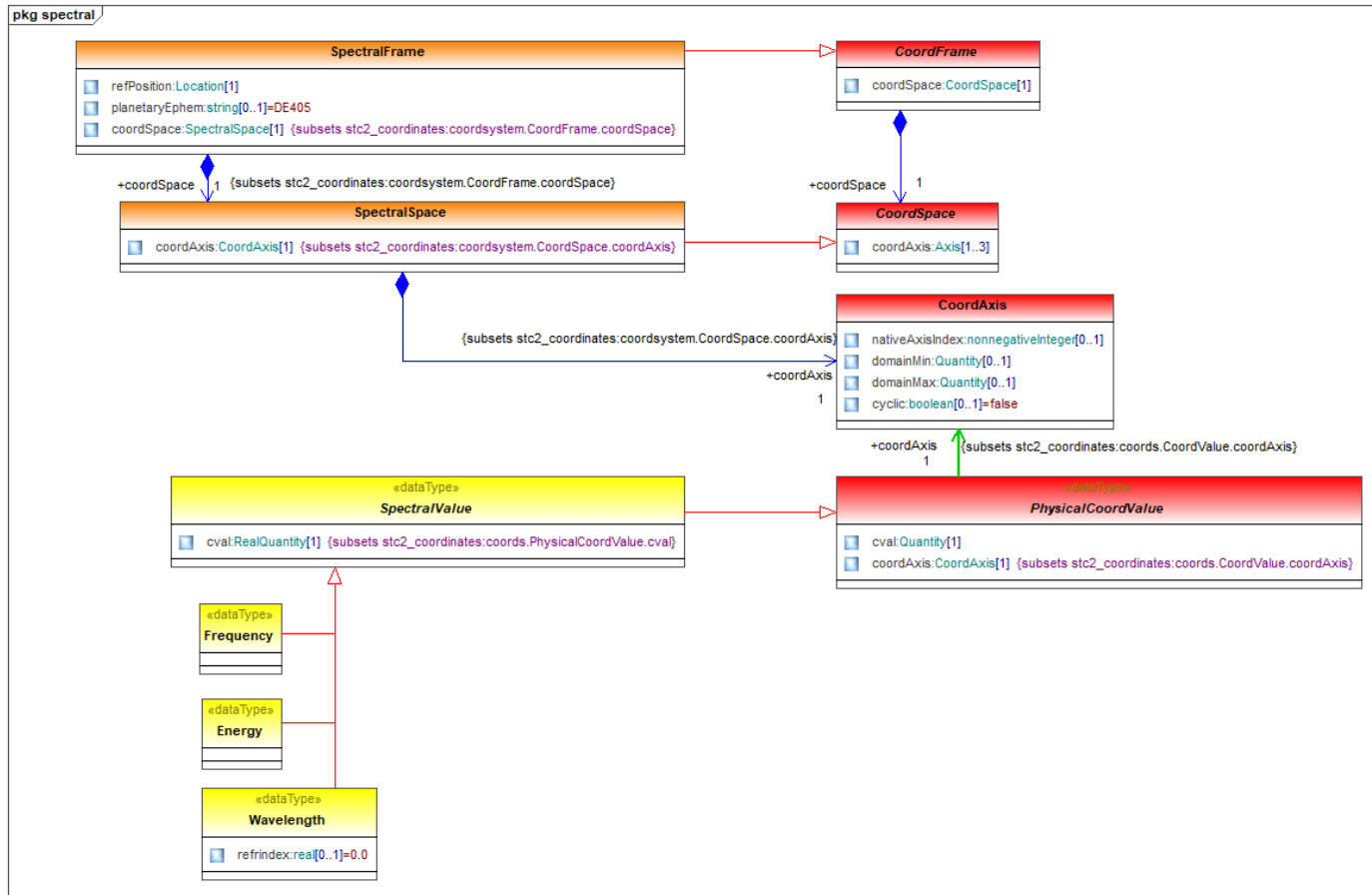


# Temporal Domain



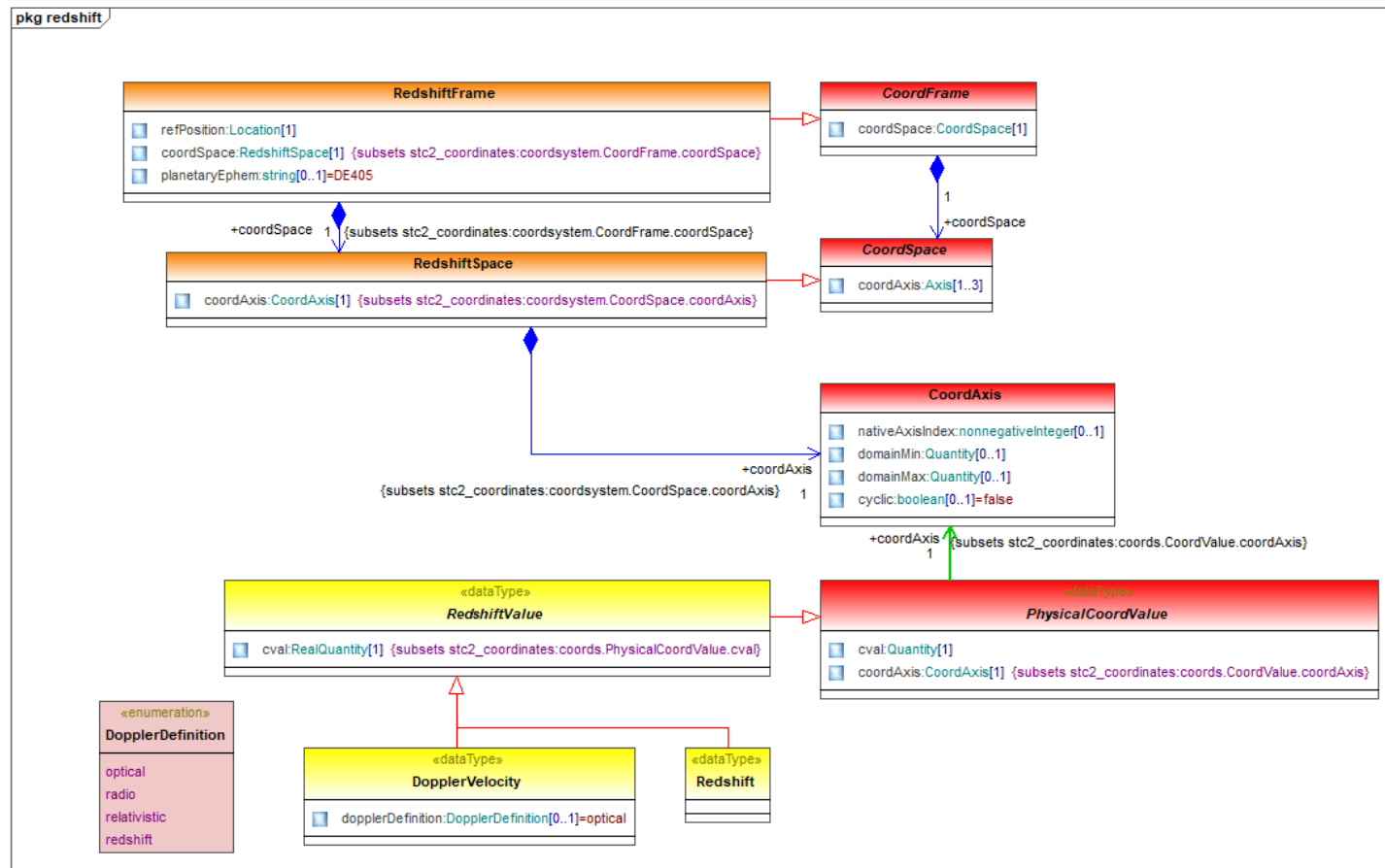


# Spectral Domain

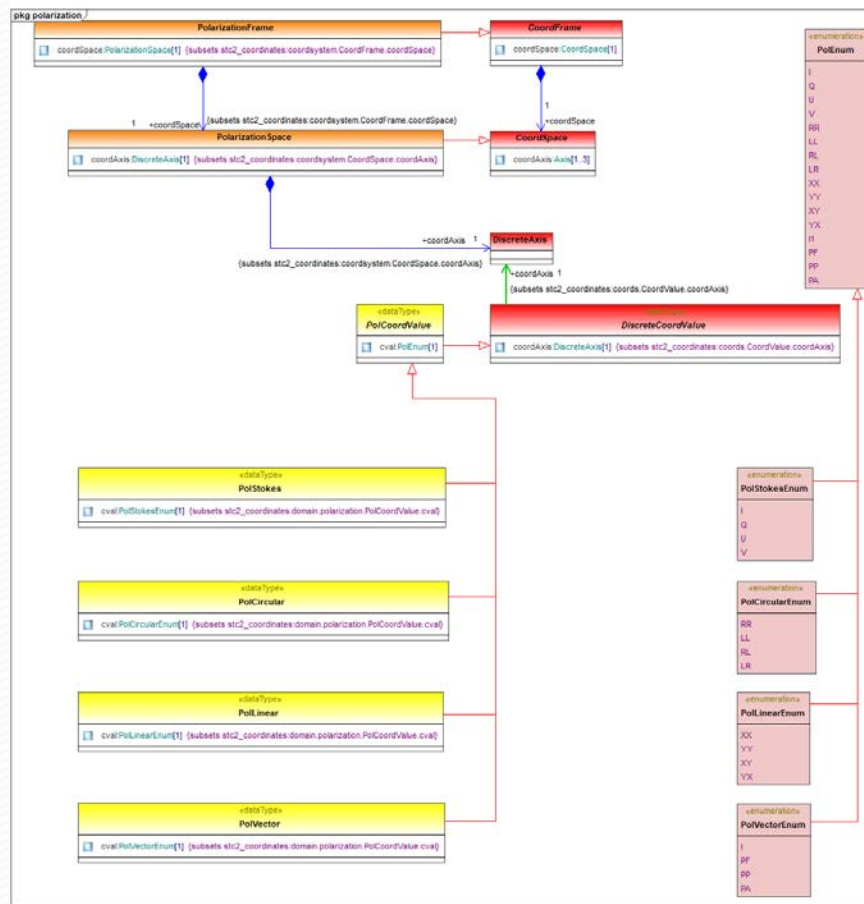




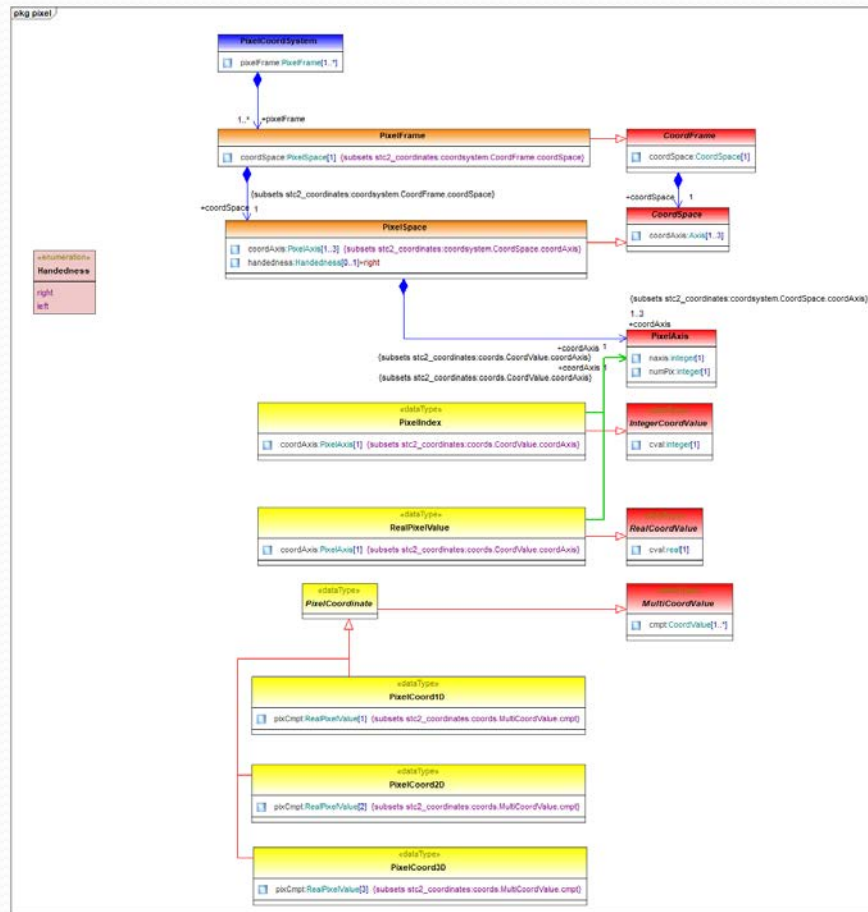
# Redshift Domain



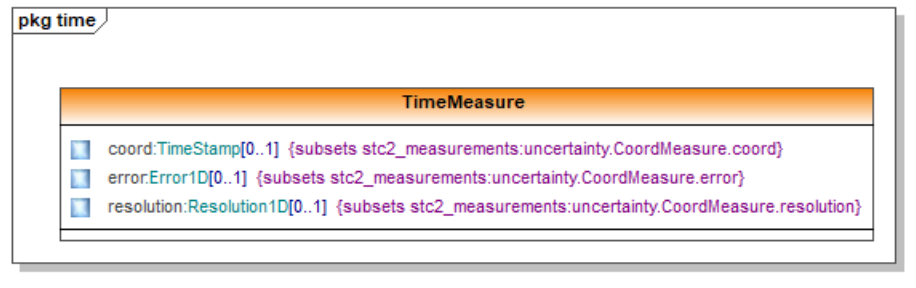
# Polarization Domain



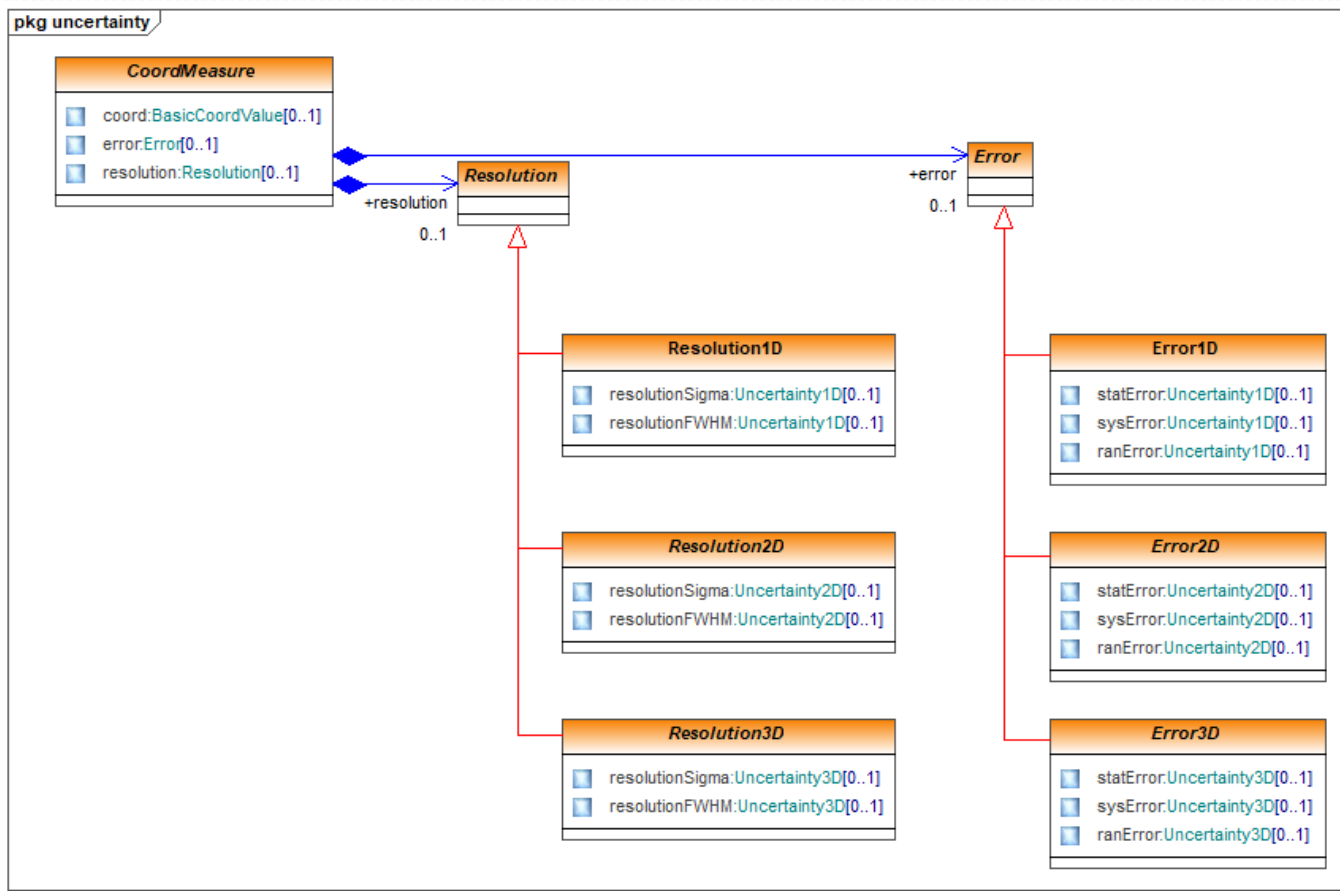
# Pixel Domain



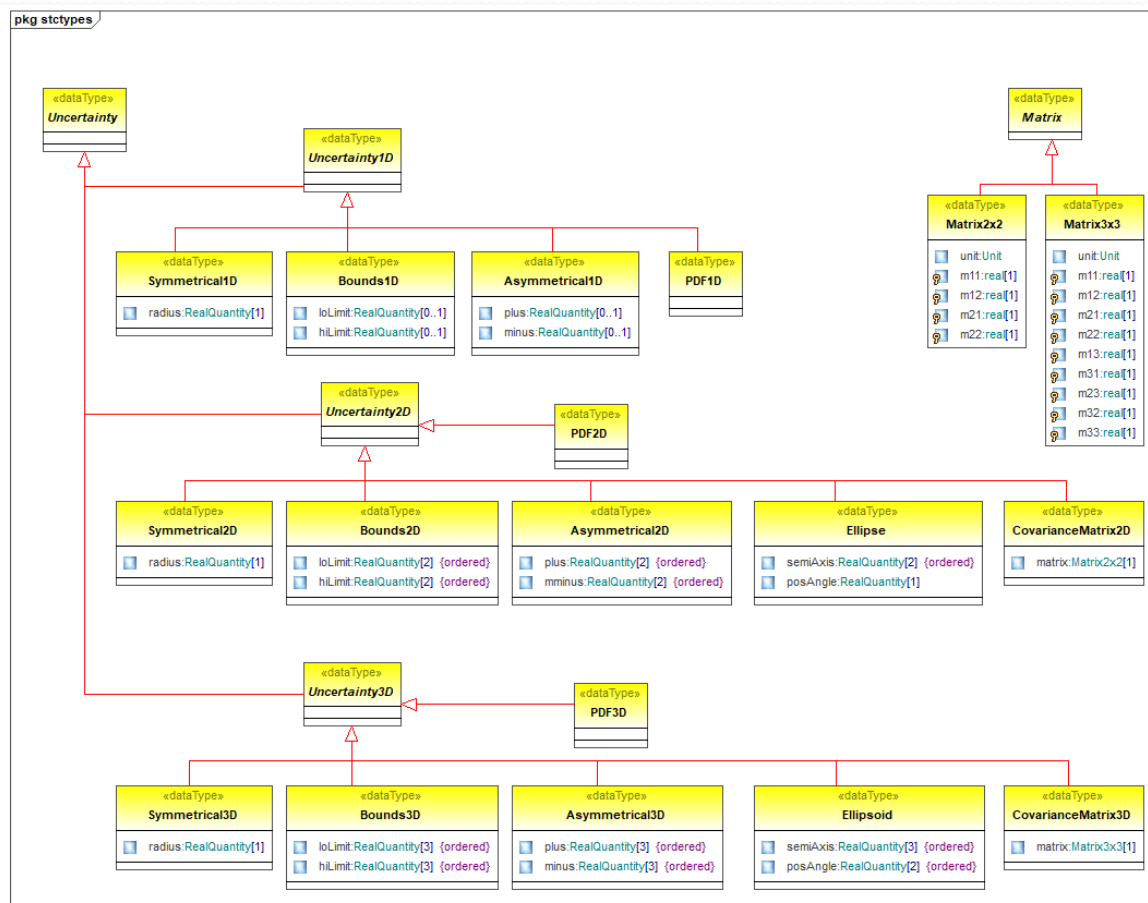
# Time Coordinate Measure



# Uncertainty



# Uncertainty Types



# Transforms

