

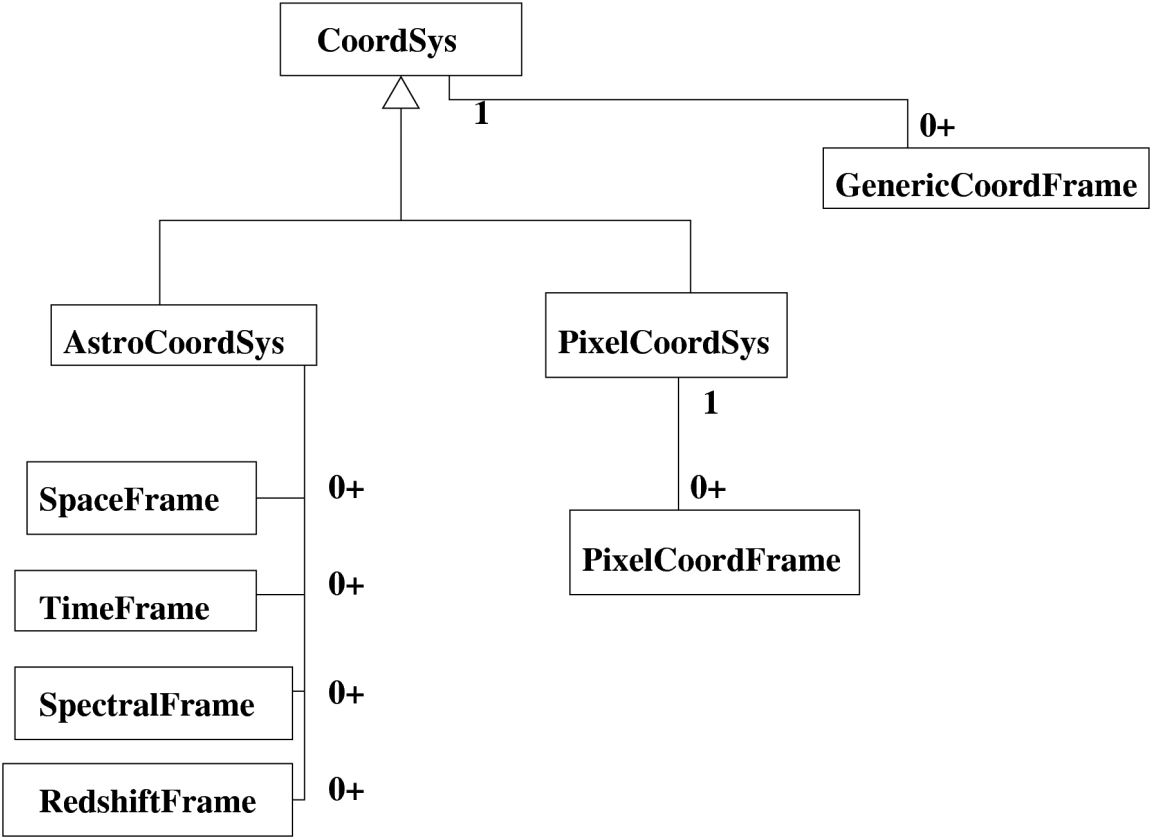
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Coordinates Data Model

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STC schema and data model

- Arnold Rots has pioneered the STC XML schema
- The schema is itself a model, but has lots of features that are only there to deal with limitations of XML and XSD.
- Here I present an abstract model which attempts to capture the theory of STC without the XML-specific tweaks
- I hope it's sufficiently simpler to aid understanding of STC (but still complicated!)
- Can serve as a starting point for non-XML serializations of STC



Field		Meaning	Req	Default
Coordinate system metadata fields				
CoordSys.ID		ID for this CoordSys	R	None
CoordFrame.Name		Name of CoordFrame	R	None
CoordFrame.ID		ID for this CoordFrame	R	None
CoordFrame.UCD		UCD for this CoordFrame	O	None
CoordFrame.ReferencePosition.Type		Origin of CoordFrame	R	None
CoordFrame.StdRefPos.Ephem		Planetary ephemeris used	O	N/A
CoordFrame.GenRefPos.GenCoordinate		Origin for custom frame	O	N/A
CoordFrame.CustomRefPos.Coordinate		Origin for custom frame	O	N/A
CoordFrame.CoordFlavor.Type		Cartesian, polar, etc.	R	
CoordFrame.CoordFlavor.Naxes		Number of axes	O	2
CoordFrame.CoordFlavor.healpix_H		HEALPIX H	O	4
CoordFrame.CoordFlavor.healpix_K		HEALPIX K	O	3
CoordFrame.CoordRefFrame.Type		RefFrame type	R	
CoordFrame.GeodRefFrame.radius		Geodetic radius	O	
CoordFrame.GeodRefFrame.inv_flat		Inverse flattening	O	
CoordFrame.GeodRefFrame.radius_unit	Unit for radius	O	m	
CoordFrame.FKRefFrame.equinox	B1950 or J2000, etc	O		
CoordFrame.SphericalRefFrame.ID	ID for reference frame	O		
CoordFrame.SphericalRefFrame.Frame	Same as CoordFrame.Name?	O		
CoordFrame.SphericalRefFrame.Pole_Zaxis	Pole coords in ref system	O		
CoordFrame.SphericalRefFrame.Xaxis		O		
CoordFrame.CartRefFrame.ID		Pole coords in ref system	O	
CoordFrame.CartRefFrame.ProjectionType		Projection type	O	
CoordFrame.CartRefFrame.Transform		(transform parameters)		
PixelFrame.ReferencePixel		(pixel coords)		
PixelFrame.AxisOrder		Axis number of this frame		

SpaceFrame.Name		Name of SpaceFrame	R	None
SpaceFrame.ID		ID for this SpaceFrame	R	None
SpaceFrame.UCD		UCD for this SpaceFrame	O	None
SpaceFrame.ReferencePosition.Type		Origin of SpaceFrame	R	None
SpaceFrame.StdRefPos.Ephem		Planetary ephemeris used	O	N/A
SpaceFrame.GenRefPos.GenCoordinate		Origin for custom frame	O	N/A
SpaceFrame.CustomRefPos.Coordinate		Origin for custom frame	O	N/A
SpaceFrame.OffsetCenter		Offset center	O	
SpaceFrame.CoordFlavor.Type		Cartesian, polar, etc.	R	
SpaceFrame.CoordFlavor.Naxes		Number of axes	O	2
SpaceFrame.CoordFlavor.healpix_H		HEALPIX H	O	4
SpaceFrame.CoordFlavor.healpix_K		HEALPIX K	O	3
SpaceFrame.GeodRefFrame.radius		Geodetic radius	O	
SpaceFrame.GeodRefFrame.inv_flat		Inverse flattening	O	
SpaceFrame.GeodRefFrame.radius_unit	Unit for radius	O		m
SpaceFrame.FKRefFrame.equinox	B1950 or J2000, etc	O		
SpaceFrame.SphericalRefFrame.ID	ID for reference frame	O		
SpaceFrame.SphericalRefFrame.Frame	Same as SpaceFrame.Name?	O		
SpaceFrame.SphericalRefFrame.Pole_Zaxis	Pole coords in ref system	O		
SpaceFrame.SphericalRefFrame.Xaxis		O		
SpaceFrame.CartRefFrame.ID		Pole coords in ref system	O	
SpaceFrame.CartRefFrame.ProjectionType		Projection type	O	
SpaceFrame.CartRefFrame.Transform		(transform parameters)		

TimeFrame.Name	Name of TimeFrame	R	None
TimeFrame.ID	ID for this TimeFrame	R	None
TimeFrame.UCD	UCD for this TimeFrame	O	None
TimeFrame.ReferencePosition.Type	Origin of TimeFrame	R	None
TimeFrame.StdRefPos.Ephem	Planetary ephemeris used	O	N/A
TimeFrame.GenRefPos.GenCoordinate	Origin for custom frame	O	N/A
TimeFrame.CustomRefPos.Coordinate	Origin for custom frame	O	N/A
TimeFrame.Timescale	Timescale	O	TT
TimeFrame.TimeRefDirection	Reference direction	O	
SpectralFrame.Name	Name of SpectralFrame	R	None
SpectralFrame.ID	ID for this SpectralFrame	R	None
SpectralFrame.UCD	UCD for this SpectralFrame	O	None
SpectralFrame.ReferencePosition.Type	Origin of SpectralFrame	R	None
SpectralFrame.StdRefPos.Ephem	Planetary ephemeris used	O	N/A
SpectralFrame.GenRefPos.GenCoordinate	Origin for custom frame	O	N/A
SpectralFrame.CustomRefPos.Coordinate	Origin for custom frame	O	N/A
RedshiftFrame.Name	Name of RedshiftFrame	R	None
RedshiftFrame.ID	ID for this RedshiftFrame	R	None
RedshiftFrame.UCD	UCD for this RedshiftFrame	O	None
RedshiftFrame.ReferencePosition.Type	Origin of RedshiftFrame	R	None
RedshiftFrame.StdRefPos.Ephem	Planetary ephemeris used	O	N/A
RedshiftFrame.GenRefPos.GenCoordinate	Origin for custom frame	O	N/A
RedshiftFrame.CustomRefPos.Coordinate	Origin for custom frame	O	N/A
RedshiftFrame.DopplerValueType	Velocity or redshift	O	VELOCITY
RedshiftFrame.DopplerDefinition	Optical, radio, rel.	O	

