



*International
Virtual
Observatory
Alliance*

A component based model for source data

Version 1.0

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Working group

DM

This version

<http://www.ivoa.net/documents/cab-msd/20200422>

Latest version

<http://www.ivoa.net/documents/cab-msd>

Previous versions

This is the first public release

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Abstract

??? Abstract ???

Status of this document

This is an IVOA Note expressing suggestions from and opinions of the authors. It is intended to share best practices, possible approaches, or other perspectives on interoperability with the Virtual Observatory. It should not be referenced or otherwise interpreted as a standard specification.

A list of current IVOA Recommendations and other technical documents can be found at <http://www.ivoa.net/documents/>.

Contents

PDF fallback.

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Figure 1: Architecture diagram for this document

Acknowledgments

???? Or remove the section header ????

Conformance-related definitions

The words “MUST”, “SHALL”, “SHOULD”, “MAY”, “RECOMMENDED”, and “OPTIONAL” (in upper or lower case) used in this document are to be interpreted as described in IETF standard RFC2119 (?).

The *Virtual Observatory (VO)* is a general term for a collection of federated resources that can be used to conduct astronomical research, education, and outreach. The [International Virtual Observatory Alliance \(IVOA\)](#) is a global collaboration of separately funded projects to develop standards and infrastructure that enable VO applications.

1 Introduction

???? Write something ????

1.1 Role within the VO Architecture

Fig. ?? shows the role this document plays within the IVOA architecture (?).

2 Use Cases and Requirements

3 Model: cabmsd

Data model based on components and data association for source data

3.1 AssociatedData (Abstract)

Abstract reference to a particular dataset associated to the Source. This class is used to specify the type of the dataset as well as its role.

3.1.1 AssociatedData.semantic

vodml-id: AssociatedData.semantic

type: cabmsd:LinkSemantic

multiplicity: 1

Reference to a semantic concept giving the nature of the associated data. As long as the vocabulary is not set, the possible values of this attribute are given by the LinkSemantic enumeration.

3.1.2 AssociatedData.dataType

vodml-id: AssociatedData.dataType

type: ivoa:string

multiplicity: 1

Type of the associated data (not defined yet)

3.2 CabmsdInstance

Reference to another CAB-MSD instance that is part of the associated data.

3.2.1 CabmsdInstance.cadmsdInstance

vodml-id: CabmsdInstance.cadmsdInstance

type: cabmsd:Source

multiplicity: 1

Composition link pointing on one cab_msd instance associated with the source.

3.3 ModellInstance

Placeholder for the mapping of the model instance

3.4 Parameter

Reference to a particular measure of the Source. This class is used to specify the type of the measure as well as its role.

constraint

detail: **Parameter.One** association at the time

3.4.1 Parameter.semantic

vodml-id: **Parameter.semantic**

type: cabmsd:ParamSemantic

multiplicity: 1

Reference to a semantic concept giving the nature of the parameter. As long as the vocabulary is not set, the possible values of this attribute are given by the ParamSemantic enumeration.

3.4.2 Parameter.ucd

vodml-id: **Parameter.ucd**

type: ivoa:string

multiplicity: 1

UCD1+ giving the type of the physical measure

3.4.3 Parameter.measure

vodml-id: **Parameter.measure**

type: meas:Measure

multiplicity: 1

Composition link pointing to the meas:Measure instance

3.5 Source

Root class of the model. CAB_MSIF instance are meant to be Source instances. A source has an identifier and two sets of hooks: one for the parameters and one for the associated data.

3.5.1 Source.identifier

vodml-id: **Source.identifier**

type: ivoa:string

multiplicity: 1

Unique identifier for a Source. The uniqueness of that identifier is not managed by the model. The format is free.

3.5.2 Source.associatedData

vodml-id: Source.associatedData

type: cabmsd:AssociatedData

multiplicity: 0..*

Composition link pointing on all data associated with the source.

3.5.3 Source.parameters

vodml-id: Source.parameters

type: cabmsd:Parameter

multiplicity: 0..*

Composition link pointing on all parameters attached to the source.

3.6 VOModelInstance

Reference to a VO model instance that is part of the associated data.

3.6.1 VOModelInstance.ivoid

vodml-id: VOModelInstance.ivoid

type: ivoa:string

multiplicity: 1

VO-DML id of the referenced model

3.6.2 VOModelInstance.modelUrl

vodml-id: VOModelInstance.modelUrl

type: ivoa:anyURI

multiplicity: 1

URL on the VO-DML model

3.6.3 VOModelInstance.modelName

vodml-id: VOModelInstance.modelName

type: ivoa:string

multiplicity: 1

Name of the referenced model

3.6.4 VOModelInstance.modelDoc

vodml-id: VOModelInstance.modelDoc

type: ivoa:anyURI

multiplicity: 1

Documentation URL of the model

3.6.5 VOModelInstance.modelInstance

vodml-id: VOModelInstance.modelInstance

type: cabmsd:ModelInstance

multiplicity: 1

Composition link pointing on one VO instance instance associated with the source.

3.7 VOService

Class for associated data referenced by an URL that is a VO service

3.7.1 VOService.void

vodml-id: VOService.void

type: ivoa:string

multiplicity: 1

IVOA id attached to the URI

3.8 WebEndpoint

Class for associated data referenced by an URL

3.8.1 WebEndpoint.ContentType

vodml-id: WebEndpoint.ContentType

type: ivoa:string

multiplicity: 1

Mime type of the URL

3.8.2 WebEndpoint.url

vodml-id: WebEndpoint.url

type: ivoa:anyURI

multiplicity: 1

Web endpoint

3.9 LinkSemantic

Literal enumeration of the possible values for the associated data semantic.
This stands for an example before we have defined a vocabulary.

Enumeration Literals

VOService : **vodml-id:** LinkSemantic.VOService

description: Data returned by a VO service

VOInstance : **vodml-id:** LinkSemantic.VOInstance
description: Data Serialized in a VO model

Preview : **vodml-id:** LinkSemantic.Preview
description: data preview

DownloadLink : **vodml-id:** LinkSemantic.DownloadLink
description: Data download link

Detection : **vodml-id:** LinkSemantic.Detection
description: Particular detection

Compagnon : **vodml-id:** LinkSemantic.Compagnon
description: Compagnon source

Counterpart : **vodml-id:** LinkSemantic.Counterpart
description: Counter part source

3.10 ParamSemantic

Literal enumeration of the possible values for the parameter semantic. This stands for an example before we have defined a vocabulary.

Enumeration Literals

Main : **vodml-id:** ParamSemantic.Main
description: Main measurement

Computed : **vodml-id:** ParamSemantic.Computed
description: Computed measurement

Native : **vodml-id:** ParamSemantic.Native
description: Native measurement

Raw : **vodml-id:** ParamSemantic.Raw
description: raw measure

Corrected : **vodml-id:** ParamSemantic.Corrected
description: Corrected measure

4 Package: stcextend

This package contains all object and type classes that has been extended from the Measure and Coordinates models. This extension mechanism is used to add new types of measures while staying within the Mes/Coords pattern.

4.1 HRFrame

Hardness ratio frame. Defined by 2 energy bands Ehigh ELow. $HR = (E_{high} - E_{low}) / (E_{high} + E_{low})$ Energy bands are deemed to special photometric filters

4.1.1 HRFrame.low

vodml-id: stcextend.HRFrame.low

type: cabmsd:stcextend.STCFilter

multiplicity: 1

Low energy band

4.1.2 HRFrame.high

vodml-id: stcextend.HRFrame.high

type: cabmsd:stcextend.STCFilter

multiplicity: 1

High energy band

4.2 STCFilter

Photometric filter description, compliant with photDM

4.2.1 STCFilter.name

vodml-id: stcextend.STCFilter.name

type: ivoa:string

multiplicity: 1

Filter name

4.2.2 STCFilter.zeroPointFlux

vodml-id: stcextend.STCFilter.zeroPointFlux

type: ivoa:real

multiplicity: 1

Zero point flux of the filter

4.2.3 STCFilter.magnitudeSystem

vodml-id: stcextend.STCFilter.magnitudeSystem

type: ivoa:string

multiplicity: 1

Magnitude system used by the filter

4.2.4 STCFilter.effectiveWavelength

vodml-id: stcextend.STCFilter.effectiveWavelength

type: ivoa:real

multiplicity: 1

Effective wavelength of the filter

4.2.5 STCFilter.unit

vodml-id: stcextend.STCFilter.unit

type: ivoa:Unit

multiplicity: 1

Wavelength unit used for that filter

4.2.6 STCFilter.bandWidth

vodml-id: stcextend.STCFilter.bandWidth

type: ivoa:real

multiplicity: 1

Band width of the filter

4.3 STCShape

Measure giving the shape of a source

4.3.1 STCShape.shape

vodml-id: stcextend.STCShape.shape

type: ivoa:string

multiplicity: 1

String serialization of the source shape

4.4 STCShapeSys

Coordinate system to be used for shape measure

4.4.1 STCShapeSys.shapeFrame

vodml-id: stcextend.STCShapeSys.shapeFrame

type: cabmsd:stcextend.ShapeFrame

multiplicity: 1

Frame of the shape measure. Gives a enumeration of the supported serializations.

4.5 STCSphericalSkyPosition

Measure to used for sky points expressed with a spherical coordinate system

4.5.1 STCSphericalSkyPosition.coord

vodml-id: stcextend.STCSphericalSkyPosition.coord

type: cabmsd:stcextend.STCSphericalPoint

multiplicity: 1

Coordinate of spherical sky position

4.6 STCStatus

Measure to be used for status parameters

4.6.1 STCStatus.coord

vodml-id: stcextend.STCStatus.coord

type: cabmsd:stcextend.STCStatusState

multiplicity: 1

Coordinate holding the status value

4.7 STCStatusSys

Coordinate system to be used for status measures.

4.7.1 STCStatusSys.statusLabel

vodml-id: stcextend.STCStatusSys.statusLabel

type: cabmsd:stcextend.StatusLabel

multiplicity: 0..*

Composition link to all possible status values for this system

4.8 StatusLabel

Possible value of a status

4.8.1 StatusLabel.value

vodml-id: stcextend.StatusLabel.value

type: ivoa:integer

multiplicity: 1

Status value

4.8.2 StatusLabel.label

vodml-id: stcextend.StatusLabel.label

type: ivoa:string

multiplicity: 1

Label attached to that status value

4.9 STCSphericalPoint

Coordinate of a point on the sky sphere expressed in spherical coordinates.

4.10 STCStatusState

Coordinate of a status Measure

4.11 ShapeFrame

Enumeration of the possible options to encode a shape in a string.

Enumeration Literals

MOC : **vodml-id:** stcextend.ShapeFrame.MOC

description: MOC serialization

STCs : **vodml-id:** stcextend.ShapeFrame.STCs

description: STCs serialization

5 Model

5.1 Overview

5.2 STC Extensions

A Changes from Previous Versions

No previous versions yet.

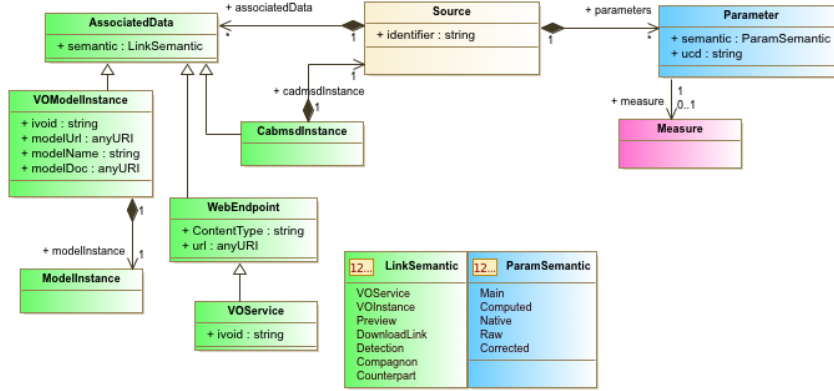


Figure 2: Architecture diagram for this document

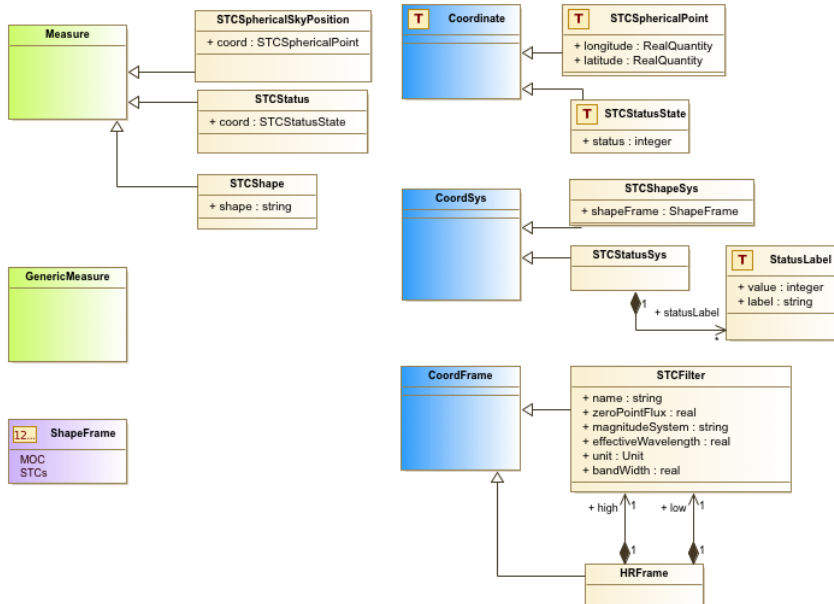


Figure 3: Architecture diagram for this document