

Access to Biological Collection Data Schema

Editor's note

The International Working Group on Taxonomic Databases (TDWG, <http://www.tdwg.org/>) has discussed about the standardization of data items for biological collections for many years. The 2002 meeting of TDWG was held in Indaiatuba, Sao Paulo, Brazil from Friday 18th October to Sunday 20th October, hosted by CRIA (<http://www.cria.org.br/>) in conjunction with the GBIF (<http://www.gbif.org/>) initiative.

TDWG together with CODATA (<http://www.codata.org/>) and BioCase (<http://www.biocase.org/>) proposes the ABCD (Access to Biological Collection Data) Schema and requests for comments from the public (<http://www.bgbm.fuberlin.de/TDWG/CODATA/Schema/default.htm>). You can browse the scheme by use of a schema viewer at <http://www.bgbm.org/scripts/ASP/TDWG/Frame.asp?config=1> (Fig. 1) layer by layer in hierarchy and also the whole data items. However, I reproduce here the whole list for your convenience. Please note that the schema covers not only microorganisms but also plants and animals.

Fig. 1. Home Page of the ABCD schema

The screenshot shows the home page of the ABCD schema. At the top, there is a header for the CODATA/TDWG working group on Biological Collection Data Access. Below the header, there are controls for the number of levels shown (set to 5) and a checkbox for showing complex types. A list of schema elements is displayed, including DateCreated, Editor, DateLastEdited, RecordBasis, NamedCollections, Identifications, UnitDomain, and SpecimenUnit. On the right side, there is a 'Structured Element Annotation' for the CultureCollectionUnit, which includes fields for Documentation, FullName, Created, Edited, and Audience.

number of levels shown: 5
show complex types:

CODATA/TDWG working group on Biological Collection Data Access

REFRESH
SHOW SELECTED
ENTRANCE POINTS

DateCreated W3C-type [string]
Editor W3C-type [string]
DateLastEdited W3C-type [string]
RecordBasis W3C-type [string]
NamedCollections
NamedCollection W3C-type [string]

Identifications
Identification cml-type [IdentificationType]
PreferredIdentificationFlag [required]
SpecialTargetCategory
IdentificationHistory W3C-type [string]

UnitDomain
BotanicalSpecimenUnit
BotanicalGardenUnit
CultureCollectionUnit
MycologicalUnit
PalaeontologicalUnit
ZoologicalUnit

SpecimenUnit
Acquisition

Structured Element Annotation
- CultureCollectionUnit -

Documentation	Additional data specific to microbial and similar culture methods.
FullName	
Created	ABCD Workshop 1
Edited	Charles Copp Oct 2001
Audience	BioCASE

DataSets

DataSet

- StandardVersion [required]
- OriginalSource
 - SourceInstitutionCode
 - SourceName W3C-type [string]
 - SourceLastUpdatedDate W3C-type [date]
 - SourceVersion W3C-type [string]
 - SourceWebAddress W3C-type [anyURI]
 - SourceExpiryDate W3C-type [date]
 - SourceNumberOfRecords W3C-type [string]
- DatasetDerivations
 - DatasetDerivation
 - OriginalSource [optional]
 - DateSupplied W3C-type [date]
 - Supplier cml-type [ContactType]
 - Organisation cml-type [OrganisationType]
 - OrganisationName W3C-type [string]
 - OrganisationCodes
 - OrganisationCode xtnd-W3C [xs:string]
 - PreferredFlag
 - PersonName cml-type [PersonNameType]
 - PersonName W3C-type [string]
 - SortPersonName W3C-type [string]
 - Role W3C-type [string]
 - Addresses
 - Address xtnd-W3C [xs:string]
 - PreferredFlag
 - TelephoneNumbers
 - TelephoneNumber cml-type [TelephoneNumberType]
 - PreferredFlag
 - TelephoneType
 - Number W3C-type [string]
 - UsageNotes W3C-type [string]
 - EmailAddresses
 - EmailAddress xtnd-W3C [xs:token]
 - PreferredFlag
 - URLs
 - URL xtnd-W3C [xs:anyURI]
 - PreferredFlag
 - Rights cml-type [RightsType]
 - TermsOfUse W3C-type [string]
 - SpecificRestrictions W3C-type [string]
 - LegalOwner cml-type [ContactType]
 - Organisation cml-type [OrganisationType]
 - OrganisationName W3C-type [string]
 - OrganisationCodes
 - OrganisationCode xtnd-W3C [xs:string]
 - PreferredFlag
 - PersonName cml-type [PersonNameType]
 - PersonName W3C-type [string]
 - SortPersonName W3C-type [string]
 - Role W3C-type [string]
 - Addresses
 - Address xtnd-W3C [xs:string]
 - PreferredFlag
 - TelephoneNumbers
 - TelephoneNumber cml-type [TelephoneNumberType]
 - PreferredFlag
 - TelephoneType
 - Number W3C-type [string]
 - UsageNotes W3C-type [string]
 - EmailAddresses
 - EmailAddress xtnd-W3C [xs:token]
 - PreferredFlag
 - URLs
 - URL xtnd-W3C [xs:anyURI]
 - PreferredFlag
 - CopyrightDeclaration
 - IPRDeclaration
 - Statements cml-type [StatementsType]
 - Acknowledgement W3C-type [string]
 - Disclaimer W3C-type [string]
 - LogoURL W3C-type [anyURI]
 - Description W3C-type [string]
- Units
 - Unit cml-type [UnitDataType]

- UnitID smpl-type [OpenID]
- DateLastEdited
- UnitIDNumeric W3C-type [int]
- RecordRights cmpl-type [RightsType]
 - TermsOfUse W3C-type [string]
 - SpecificRestrictions W3C-type [string]
- LegalOwner cmpl-type [ContactType]
 - Organisation cmpl-type [OrganisationType]
 - OrganisationName W3C-type [string]
 - OrganisationCodes
 - OrganisationCode xtnd-W3C [xs:string]
 - PreferredFlag
 - PersonName cmpl-type [PersonNameType]
 - PersonName W3C-type [string]
 - SortPersonName W3C-type [string]
 - Role W3C-type [string]
- Addresses
 - Address xtnd-W3C [xs:string]
 - PreferredFlag
- TelephoneNumbers
 - TelephoneNumber cmpl-type [TelephoneNumberType]
 - PreferredFlag
 - TelephoneType
 - Number W3C-type [string]
 - UsageNotes W3C-type [string]
- EmailAddresses
 - EmailAddress xtnd-W3C [xs:token]
 - PreferredFlag
- URLs
 - URL xtnd-W3C [xs:anyURI]
 - PreferredFlag
- CopyrightDeclaration
- IPRDeclaration
- UnitStatements cmpl-type [StatementsType]
 - Acknowledgement W3C-type [string]
 - Disclaimer W3C-type [string]
 - LogoURL W3C-type [anyURI]
- SourceRecordStatus
 - Creator W3C-type [string]
 - DateCreated W3C-type [string]
 - Editor W3C-type [string]
 - DateLastEdited W3C-type [string]
- RecordBasis W3C-type [string]
- NamedCollections
 - NamedCollection W3C-type [string]
- Identifications
 - Identification cmpl-type [IdentificationType]
 - PreferredIdentificationFlag [required]
 - SpecialTargetCategory
 - ScientificName
 - NomenclaturalCode
 - HigherTaxa
 - HigherTaxon cmpl-type [HigherTaxonType]
 - TaxonRank
 - FullNameAuthorYear W3C-type [string]
 - TaxonNameString W3C-type [string]
 - ScientificNameString
 - AuthorYearString W3C-type [string]
 - ScientificNameAtomized
 - Bacteriological
 - Genus smpl-type [Genus]
 - FirstEpithet smpl-type [Epithet]
 - Strain W3C-type [string]
 - Botanical
 - Genus smpl-type [Genus]
 - FirstEpithet smpl-type [Epithet]
 - SecondEpithet smpl-type [Epithet]
 - Rank smpl-type [Rank]
 - HybridFlag W3C-type [string]
 - BasionymAuthorTeam W3C-type [string]
 - CombinationAuthorTeam W3C-type [string]
 - CultivatedPlantNameElements
 - CultivarGroupName W3C-type [string]
 - CultivarName W3C-type [string]
 - TradeDesignationName W3C-type [string]
 - Viral
 - Genus smpl-type [Genus]

- ViralSpeciesDesignation W3C-type [string]
- FirstEpithet smpl-type [Epithet]
- Rank smpl-type [Rank]
- Zoological
 - Genus smpl-type [Genus]
 - AuthorTeam W3C-type [string]
 - FirstEpithet smpl-type [Epithet]
 - SecondEpithet smpl-type [Epithet]
 - AuthorTeamParentheses W3C-type [string]
 - CombinationAuthorTeam
 - ZoologicalNameYear W3C-type [string]
 - Breed W3C-type [string]
 - NamedIndividual W3C-type [string]
 - Rank smpl-type [Rank]
 - NameAddendum W3C-type [string]
 - NameComments W3C-type [string]
 - IdentificationQualifier xtnd-W3C [xs:string]
 - Rank
 - InformalName xtnd-W3C [xs:string]
 - Language
- IdentificationHistory W3C-type [string]
- UnitDomain
 - BotanicalSpecimenUnit
 - Exsiccatum
 - BotanicalGardenUnit
 - Hardiness W3C-type [string]
 - CultureCollectionUnit
 - CultureNames
 - CultureName W3C-type [string]
 - GrowthConditions W3C-type [string]
 - CultureMedium W3C-type [string]
 - Aerobicity W3C-type [string]
 - Temperature xtnd-W3C [xs:string]
 - TemperatureType
 - Applications W3C-type [string]
 - Hazard W3C-type [string]
 - References
 - Reference cmpl-type [ReferenceType]
 - ReferenceCitation W3C-type [string]
 - ReferenceDetail W3C-type [string]
 - URL W3C-type [anyURI]
 - MycologicalUnit
 - LichenMorphotype W3C-type [string]
 - MycologicalSexualStage W3C-type [string]
 - MycologicalLiveStages
 - MycologicalLiveStage W3C-type [string]
 - PalaeontologicalUnit
 - PalUnitPreservation
 - PalUnitPreservationCompleteness W3C-type [string]
 - PalUnitPreservationForm W3C-type [string]
 - PalUnitPreservationMatrix W3C-type [string]
 - PalUnitPreservationMineralisation W3C-type [string]
 - PalUnitPreservationTaphonomy W3C-type [string]
 - PalUnitTimeRange W3C-type [string]
 - ZoologicalUnit
 - ZoologyAge W3C-type [string]
 - ZoologySex W3C-type [string]
 - ZoologyPhase W3C-type [string]
- SpecimenUnit
 - Acquisition
 - AcquisitionDate W3C-type [string]
 - AcquisitionSourceText smpl-type [AltText]
 - AcquisitionType W3C-type [string]
 - Accessions
 - AccessionDate W3C-type [string]
 - AccessionCatalogue smpl-type [OpenID]
 - AccessionNumber W3C-type [string]
 - CollectorsFieldNumber W3C-type [string]
 - UnitPreparation
 - PreparationType W3C-type [string]
 - PreparationProcess W3C-type [string]
 - PreparationMaterials W3C-type [string]
 - SpecimenUnitPart W3C-type [string]
 - SpecimenUnitMarks
 - SpecimenUnitMark
 - MarkType W3C-type [string]
 - MarkText W3C-type [string]

- PositionOnObject W3C-type [string]
- MarkAuthor W3C-type [string]
- MarkComment W3C-type [string]
- SpecimenUnitHistories
 - SpecimenUnitHistory
 - PreviousUnitID smpl-type [OpenID]
 - PreviousCollectionName W3C-type [string]
 - Date cmpl-type [DateTimeType]
 - ISODate W3C-type [string]
 - DateText W3C-type [string]
 - DayNumber W3C-type [integer]
 - TimeOfDay W3C-type [time]
 - Calendar W3C-type [string]
 - Comment W3C-type [string]
- NomenclaturalTypeDesignations
 - NomenclaturalTypeDesignation
 - TypifiedName W3C-type [string]
 - NomenclaturalReference cmpl-type [ReferenceType]
 - ReferenceCitation W3C-type [string]
 - ReferenceDetail W3C-type [string]
 - URL W3C-type [anyURI]
 - TypeStatus W3C-type [string]
 - CodeAssessment W3C-type [string]
 - DoubtfulFlag W3C-type [string]
 - Verifier cmpl-type [PersonNameType]
 - PersonName W3C-type [string]
 - SortPersonName W3C-type [string]
 - VerificationDate W3C-type [date]
 - VerificationNotes W3C-type [string]
- ObservationUnit
 - ObservationMethod cmpl-type [LookupType]
 - Domain W3C-type [string]
 - Term W3C-type [string]
 - SourceName W3C-type [string]
 - SourceNameVersion W3C-type [string]
 - Comment W3C-type [string]
 - ObservationUnitIdentifiers
 - ObservationUnitIdentifier xtnd-W3C [xs:string]
 - PreferredFlag [optional]
 - Type [optional]
- UnitReferences
 - UnitReference cmpl-type [ReferenceType]
 - ReferenceCitation W3C-type [string]
 - ReferenceDetail W3C-type [string]
 - URL W3C-type [anyURI]
- UnitDigitalImages
 - UnitDigitalImage cmpl-type [ImageType]
 - Original
 - ImageID W3C-type [string]
 - ImageURI W3C-type [anyURI]
 - ImageContext W3C-type [string]
 - ImageFormat W3C-type [string]
 - ImageSize W3C-type [string]
 - ImageIPR W3C-type [string]
 - Comment W3C-type [string]
- UnitAssociations
 - UnitAssociation cmpl-type [UnitAssociationType]
 - AssociatedUnitSourceInstitutionCode
 - AssociatedUnitSourceName W3C-type [string]
 - AssociatedUnitID smpl-type [OpenID]
 - AssociationType W3C-type [string]
 - Comment W3C-type [string]
- UnitAssemblages
 - UnitAssemblage cmpl-type [UnitAssemblageType]
 - AssemblageID W3C-type [string]
 - AssemblageName W3C-type [string]
- Gathering xtnd-cmpl [GatheringType]
 - GatheringCode W3C-type [string]
 - GatheringDateTime
 - Calendar W3C-type [string]
 - DateTime cmpl-type [DateTimeType]
 - ISODate W3C-type [string]
 - DateText W3C-type [string]
 - DayNumber W3C-type [integer]
 - TimeOfDay W3C-type [time]
 - Calendar W3C-type [string]
 - DayNumber W3C-type [integer]

- TimeOfDay W3C-type [time]
- GatheringAgents
 - GatheringAgent xtnd-cmpl [AgentType]
 - PrimaryCollectorFlag
 - AgentText W3C-type [string]
 - Organization cmpl-type [OrganisationType]
 - OrganisationName W3C-type [string]
 - OrganisationCodes
 - OrganisationCode xtnd-W3C [xs:string]
 - PreferredFlag
 - Person cmpl-type [PersonNameType]
 - PersonName W3C-type [string]
 - SortPersonName W3C-type [string]
- Project
 - ProjectTitle W3C-type [string]
 - Contact cmpl-type [ContactType]
 - Organisation cmpl-type [OrganisationType]
 - OrganisationName W3C-type [string]
 - OrganisationCodes
 - OrganisationCode xtnd-W3C [xs:string]
 - PreferredFlag
 - PersonName cmpl-type [PersonNameType]
 - PersonName W3C-type [string]
 - SortPersonName W3C-type [string]
 - Role W3C-type [string]
 - Addresses
 - Address xtnd-W3C [xs:string]
 - PreferredFlag
 - TelephoneNumbers
 - TelephoneNumber cmpl-type [TelephoneNumberType]
 - PreferredFlag
 - TelephoneType
 - Number W3C-type [string]
 - UsageNotes W3C-type [string]
 - EmailAddresses
 - EmailAddress xtnd-W3C [xs:token]
 - PreferredFlag
 - URLs
 - URL xtnd-W3C [xs:anyURI]
 - PreferredFlag
 - PlatformName W3C-type [string]
- GatheringSite
 - ContinentOrOcean W3C-type [string]
 - Country xtnd-cmpl [CountryType]
 - Derived
 - CountryName xtnd-W3C [xs:string]
 - CountryNameDerived W3C-type [string]
 - ISO2Letter W3C-type [string]
 - ISO3Letter W3C-type [string]
 - NamedAreas
 - NamedArea cmpl-type [NamedAreaType]
 - NamedAreaClass W3C-type [string]
 - NamedAreaName W3C-type [string]
 - AreaCode W3C-type [string]
 - DataSource W3C-type [string]
 - AreaDetail W3C-type [string]
 - NearNamedPlaces
 - NamedPlaceRelation
 - DerivedFlag
 - NearNamedPlace W3C-type [string]
 - NearNamedPlaceRelationTo W3C-type [string]
 - LocalityText W3C-type [string]
- GML
 - Shape
 - ShapeCoordinateSystem W3C-type [string]
 - ShapeCoordinates W3C-type [string]
 - FootprintURL W3C-type [anyURI]
 - SiteCoordinateSets
 - SiteCoordinates
 - AppliesTo [required]
 - OriginalCoordinateSystem W3C-type [string]
 - OriginalCoordinateMethod W3C-type [string]
 - CoordinatesLatLong
 - LatLongDecimal
 - LatitudeDecimal W3C-type [string]
 - LongitudeDecimal W3C-type [string]
 - LatLongDegreeMinutesSeconds

- LatDegrees W3C-type [string]
- LatMinutes W3C-type [string]
- LatSeconds W3C-type [string]
- LatNorthSouth W3C-type [string]
- LongDegrees W3C-type [string]
- LongMinutes W3C-type [string]
- LongSeconds W3C-type [string]
- LongEastWest W3C-type [string]
- SpatialDatum W3C-type [string]
- ISOAccuracy W3C-type [string]
- AccuracyStatement W3C-type [string]
- CoordinatesGrid
 - GridCellSystem W3C-type [string]
 - GridCellCode W3C-type [string]
 - GridQualifier W3C-type [string]
- CoordinatesUTM
 - UTMZone W3C-type [string]
 - UTMEastWest W3C-type [string]
 - UTMNorthSouth W3C-type [string]
 - UTMMethod W3C-type [string]
- CoordinateErrorDistanceInMeters W3C-type [decimal]
- CoordinateErrorMethod W3C-type [string]
- Geomorphology cml-type [LookupType]
 - Domain W3C-type [string]
 - Term W3C-type [string]
 - SourceName W3C-type [string]
 - SourceNameVersion W3C-type [string]
 - Comment W3C-type [string]
- Stratigraphy cml-type [StratigraphyType]
 - ChronostratigraphicTerm cml-type [LookupType]
 - Domain W3C-type [string]
 - Term W3C-type [string]
 - SourceName W3C-type [string]
 - SourceNameVersion W3C-type [string]
 - Comment W3C-type [string]
 - BiostratigraphicTerm cml-type [LookupType]
 - Domain W3C-type [string]
 - Term W3C-type [string]
 - SourceName W3C-type [string]
 - SourceNameVersion W3C-type [string]
 - Comment W3C-type [string]
 - LithostratigraphicTerm cml-type [LookupType]
 - Domain W3C-type [string]
 - Term W3C-type [string]
 - SourceName W3C-type [string]
 - SourceNameVersion W3C-type [string]
 - Comment W3C-type [string]
 - StratigraphyText smpl-type [AltText]
 - Comment W3C-type [string]
- Topography cml-type [LookupType]
 - Domain W3C-type [string]
 - Term W3C-type [string]
 - SourceName W3C-type [string]
 - SourceNameVersion W3C-type [string]
 - Comment W3C-type [string]
- Hydrology cml-type [LookupType]
 - Domain W3C-type [string]
 - Term W3C-type [string]
 - SourceName W3C-type [string]
 - SourceNameVersion W3C-type [string]
 - Comment W3C-type [string]
- BiotopeRecord
 - Biotope
 - BiotopeClassification xtnd-W3C [xs:string]
 - ClassificationUsed
 - BiotopeName xtnd-W3C [xs:string]
 - Type
 - AltText smpl-type [AltText]
 - BiotopeData cml-type [MeasurementType]
 - MeasurementAtomized
 - MeasurementAppliesTo W3C-type [string]
 - MeasurementMethod W3C-type [string]
 - MeasurementDuration W3C-type [string]
 - MeasurementAccuracy W3C-type [string]
 - ParameterMeasured W3C-type [string]
 - MeasurementScale W3C-type [string]
 - MeasurementLowerValue xtnd-W3C [xs:decimal]

- ValueDataType [optional]
- MeasurementUpperValue W3C-type [decimal]
- MeasurementText smpl-type [AltText]
- Synecology
 - Syntaxonomy W3C-type [string]
 - TaxonIdentified cmpl-type [TaxonIdentifiedType]
 - ScientificName
 - HigherTaxon cmpl-type [HigherTaxonType]
 - TaxonRank
 - ScientificNameString
 - NameAuthorYear W3C-type [string]
 - Name W3C-type [string]
 - AuthorString W3C-type [string]
 - ScientificNameAtomized
 - IdentificationQualifier xtnd-W3C [xs:string]
 - Rank
 - NameAddendum W3C-type [string]
 - NameComments W3C-type [string]
 - Bacteriological cmpl-type [NameBacteriaType]
 - Genus smpl-type [Genus]
 - Subgenus W3C-type [string]
 - SubgenusAuthorAndYear W3C-type [string]
 - SpeciesEpithet W3C-type [string]
 - SubspeciesEpithet W3C-type [string]
 - ParentheticalAuthorTeamAndYear W3C-type [string]
 - AuthorTeamAndYear W3C-type [string]
 - Strain W3C-type [string]
 - Botanical cmpl-type [NameBotanicalType]
 - Genus smpl-type [Genus]
 - FirstEpithet smpl-type [Epithet]
 - SecondEpithet smpl-type [Epithet]
 - Rank smpl-type [Rank]
 - HybridFlag smpl-type [HybridFlag]
 - AuthorTeamParenthesis W3C-type [string]
 - AuthorTeam W3C-type [string]
 - CultivatedPlantNameElements
 - CultivarGroupName W3C-type [string]
 - CultivarName W3C-type [string]
 - TradeDesignationName W3C-type [string]
 - Zoological cmpl-type [NameZoologicalType]
 - Genus smpl-type [Genus]
 - Subgenus W3C-type [string]
 - SpeciesEpithet W3C-type [string]
 - SubspeciesEpithet W3C-type [string]
 - AuthorTeamOriginalAndYear W3C-type [string]
 - AuthorTeamParenthesisAndYear W3C-type [string]
 - CombinationAuthorTeamAndYear W3C-type [string]
 - Breed W3C-type [string]
 - NamedIndividual W3C-type [string]
 - Viral cmpl-type [NameViralType]
 - Genus smpl-type [Genus]
 - ViralSpeciesDesignation W3C-type [string]
 - InformalName
 - InformalNameString W3C-type [string]
 - Language W3C-type [string]
 - Comment W3C-type [string]
- Depth cmpl-type [MeasurementType]
- MeasurementAtomized
 - MeasurementAppliesTo W3C-type [string]
 - MeasurementMethod W3C-type [string]
 - MeasurementDuration W3C-type [string]
 - MeasurementAccuracy W3C-type [string]
 - ParameterMeasured W3C-type [string]
 - MeasurementScale W3C-type [string]
 - MeasurementLowerValue xtnd-W3C [xs:decimal]
 - ValueDataType [optional]
 - MeasurementUpperValue W3C-type [decimal]
 - MeasurementText smpl-type [AltText]
- Altitude cmpl-type [MeasurementType]
- MeasurementAtomized
 - MeasurementAppliesTo W3C-type [string]
 - MeasurementMethod W3C-type [string]
 - MeasurementDuration W3C-type [string]
 - MeasurementAccuracy W3C-type [string]
 - ParameterMeasured W3C-type [string]
 - MeasurementScale W3C-type [string]
 - MeasurementLowerValue xtnd-W3C [xs:decimal]

- ValueDataType [optional]
- MeasurementUpperValue W3C-type [decimal]
- MeasurementText smpl-type [AltText]
- Aspect xtnd-cmpl [AspectType]
- Ordination
- CompassBearing W3C-type [decimal]
- Accuracy W3C-type [string]
- AspectText W3C-type [string]
- Substrate cmpl-type [LookupType]
- Domain W3C-type [string]
- Term W3C-type [string]
- SourceName W3C-type [string]
- SourceNameVersion W3C-type [string]
- Comment W3C-type [string]
- Exposure cmpl-type [MeasurementType]
- MeasurementAtomized
 - MeasurementAppliesTo W3C-type [string]
 - MeasurementMethod W3C-type [string]
 - MeasurementDuration W3C-type [string]
 - MeasurementAccuracy W3C-type [string]
 - ParameterMeasured W3C-type [string]
 - MeasurementScale W3C-type [string]
 - MeasurementLowerValue xtnd-W3C [xs:decimal]
 - ValueDataType [optional]
 - MeasurementUpperValue W3C-type [decimal]
 - MeasurementText smpl-type [AltText]
- Slope cmpl-type [MeasurementType]
- MeasurementAtomized
 - MeasurementAppliesTo W3C-type [string]
 - MeasurementMethod W3C-type [string]
 - MeasurementDuration W3C-type [string]
 - MeasurementAccuracy W3C-type [string]
 - ParameterMeasured W3C-type [string]
 - MeasurementScale W3C-type [string]
 - MeasurementLowerValue xtnd-W3C [xs:decimal]
 - ValueDataType [optional]
 - MeasurementUpperValue W3C-type [decimal]
 - MeasurementText smpl-type [AltText]
- Notes W3C-type [string]
- UnitMeasurements
 - UnitMeasurement cmpl-type [MeasurementType]
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 - MeasurementAppliesTo W3C-type [string]
 - MeasurementMethod W3C-type [string]
 - MeasurementDuration W3C-type [string]
 - MeasurementAccuracy W3C-type [string]
 - ParameterMeasured W3C-type [string]
 - MeasurementScale W3C-type [string]
 - MeasurementLowerValue xtnd-W3C [xs:decimal]
 - ValueDataType [optional]
 - MeasurementUpperValue W3C-type [decimal]
 - MeasurementText smpl-type [AltText]
- UnitFacts
 - UnitFact
 - FactType W3C-type [string]
 - FactText W3C-type [string]
 - DateEntered W3C-type [date]
 - AddedBy W3C-type [string]
 - Reference cmpl-type [ReferenceType]
 - ReferenceCitation W3C-type [string]
 - ReferenceDetail W3C-type [string]
 - URL W3C-type [anyURI]
- UnitDescription W3C-type [string]