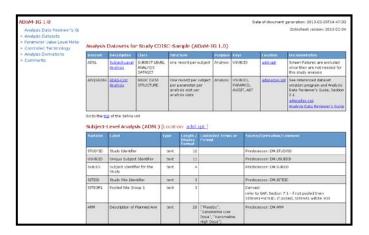# Moving
to
Define-XML 2.0

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Current Situation

✔ Both, Define-XML v1.0 and v2.0 are accepted by FDA

✔ Define-XML v2.0

- First version officially applicable for ADaM

- Modernized Sample Stylesheet

- SDS-XML specifications refer to Define-XML v2.0

There Are Various Options…

✔ XSLT transformation of define.xml 1.0 via stylesheet

✔ Wait for commercial tools

- e.g., new Version of SAS Clinical Standards Toolkit

✔ Write a SAS macro

- Which creates a define.xml file acc. to Define-XML 2.0 based on specifications in Excel
  (☺ yes, Excel with the well-known pros and cons)

✔ …

One Possible Approach - SAS Macro

✔ Familiarize with the Define-XML 2.0 Specifications

- Including smallprint (business rules)

✔ Adapt Excel Specifications

- Dataset templates

- Input for define.xml

✔ Program and Validate the Macro

- Incl. checks for

  → Complete & correct contents in Excel specs

  → Consistency with the data

```
ODM
  Study
  GlobalVariables
    StudyName
    StudyDescription
    ProtocolName
  MetaDataVersion
    def:AnnotatedCRF
      def:DocumentRef
    def:SupplementalDoc
      def:DocumentRef
    def:ValueListdef
      ItemRef
        def:WhereClauseRef
    def:WhereClauseDef
      RangeCheck
        CheckValue
    ItemGroupDef
      Description
        TranslatedText
      ItemRef
      def:leaf
        def:title
    ItemDef
      Description
        TranslatedText
      CodeListRef
      def:Origin
        def:DocumentRef
          def:PDFPageRef
      def:ValueListRef
    CodeList
      EnumeratedItem
        Alias
      CodeListItem
        Decode
          TranslatedText
        Alias
      ExternalCodeListItem
      Alias
    MethodDef
      Description
        TranslatedText
      def:DocumentRef
        def:PDFPageRef
    def:CommentDef
      Description
        TranslatedText
      def:DocumentRef
        def:PDFPageRef
    def:leaf
      def:title
```

Specifications Design Considerations

✔ Options

- Very granular - near the define.xml structure
  - → Sheets per Define-XML element
- Less granular - nearer to the stylesheet rendition
  - → Less technical and easier to read as "dataset specifications"

✔ Personal Preference:

- Bother users only with details they absolutely need to know
- Let the macro/program/tool do the rest

✔ In any case, provide instructions and help texts

From 1.0 to 2.0

✔ Add Comment field for datasets [1]

✔ Add fields for External Document References [2]

✔ Don't forget CT "General Observation Class" [3]

Analysis Datasets for Study CDISC-Sample (ADaM-IG 1.0)

Dataset	Description	Class [3]	Structure	Purpose	Keys	Location	Documentation [1]
ADSL	Subject-Level Analysis	SUBJECT LEVEL ANALYSIS DATASET	one record per subject	Analysis	USUBJID	adsl.xpt	Screen Failures are excluded since they are not needed for this study analysis
ADQSADAS	ADAS-Cog Analysis	BASIC DATA STRUCTURE	One record per subject per parameter per analysis visit per analysis date	Analysis	USUBJID, PARAMCD, AVISIT, ADT	adqsadas.xpt	See referenced dataset creation program and Analysis Data Reviewer's Guide, Section 2.1 adqsadas.sas Analysis Data Reviewer's Guide [2]

Derived from KeySequence Attribute in Variable Metadata

From 1.0 to 2.0

✓ **Distinguish betw. enumerated items and codelists, use CDISC Controlled Terminology Names**

✓ **Provide NCI C-Codes of terminology and values (programatically vs. user entry)**

Vital Signs Test Name [CL.VSTEST, C67153]

Permitted Value (Code)
Body Frame Size [C49680]
Diastolic Blood Pressure [C25299]
Height [C25347]
Pulse Rate [C49676]
Systolic Blood Pressure [C25298]
Weight [C25208]

Vital Signs Test Code [CL.VSTESTCD, C66741]

Permitted Value (Code)	Display Value (Decode)
DIABP [C25299]	Diastolic Blood Pressure
FRMSIZE [C49680]	Body Frame Size
HEIGHT [C25347]	Height
PULSE [C49676]	Pulse Rate
SYSBP [C25298]	Systolic Blood Pressure
WEIGHT [C25208]	Weight

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From 1.0 to 2.0

✔ Consider Integration of Value Level Metadata into Variable Metadata Sheet

ADAS-Cog Analysis (ADQSADAS) [Location: adqsadas.xpt]

Variable	Label	Type	Length / Display Format	Controlled Terms or Format	Source/Derivation/Comment
PARAM	Parameter	text	100	PARAM_ADQSADAS	Assigned:
PARAMCD	Parameter Code	text	8	PARAMCD_ADQSADAS	Assigned:
AVAL	Analysis Value	integer	8		Derivations are described per parameter in the parameter value level metadata

Parameter Value List - ADQSADAS [AVAL]

Variable	Where	Type	Length / Display Format	Controlled Terms or Format	Origin	Derivation/Comment
AVAL	PARAMCD NOTIN ("ACTOT" (Adas-Cog(11) Subscore))	integer	8		Derived	QS.QSSTRESN where QSTESTCD=PARAMCD
AVAL	PARAMCD EQ ACTOT (Adas-Cog(11) Subscore)	integer	8		Derived	Sum of ADAS scores for items 1, 2, 4, 5, 6, 7, 8, 11, 12, 13, and 14, see Analysis Data Reviewers Guide (Page 3) for details on adjusting for missing values. Analysis Data Reviewer's Guide (analysis-data-reviewers-guide.pdf)

✔ **"Where"** - Describing a Variable's Metadata after Subsetting the Dataset as Specified

From 1.0 to 2.0

Integration of Value Level Metadata into Variable Metadata Sheet

	C	D	E	F	G	H	I	J
1	Where Condition	Variable Name	Variable Label	Key Sequence	Origin	Source/Derivation/ Comment	External Document Reference Ids	Reference page numbers
7		PARAM	Parameter		Assigned			
8		PARAMCD	Parameter Code	3	Assigned			
9		AVAL	Analysis Value			Derivations are described per parameter in the parameter value level metadata		
10	PARAMCD NOTIN("ACTOT")	AVAL	Analysis Value		Derived	QS.QSSTRESN where QS.QSTESTCD = PARAMCD		
11	PARAMCD EQ "ACTOT"	AVAL	Analysis Value		Derived	Sum of ADAS scores for items 1, 2, 4, 5, 6, 7, 8, 11, 12, 13 and 14 see Analysis Data Reviewer's Guide (page 3) for details	SAPREF3	3

Variable metadata (rows 9)

Parameter value level metadata (rows 10–11)

Break up into Variable Reference, Operator and Values

Correct element for the contents of this column will be derived based on Origin

Group Interaction

✔ Who has implemented/is implementing Define-XML 2.0?

✔ Plans to move to Define-XML 2.0?

✔ Mind to share your implementation ideas?

✔ Specific preferences?

✔ Specific implementation questions?