



# OpenCDISC LIVE

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## OpenCDISC Live Forum

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biogen idec

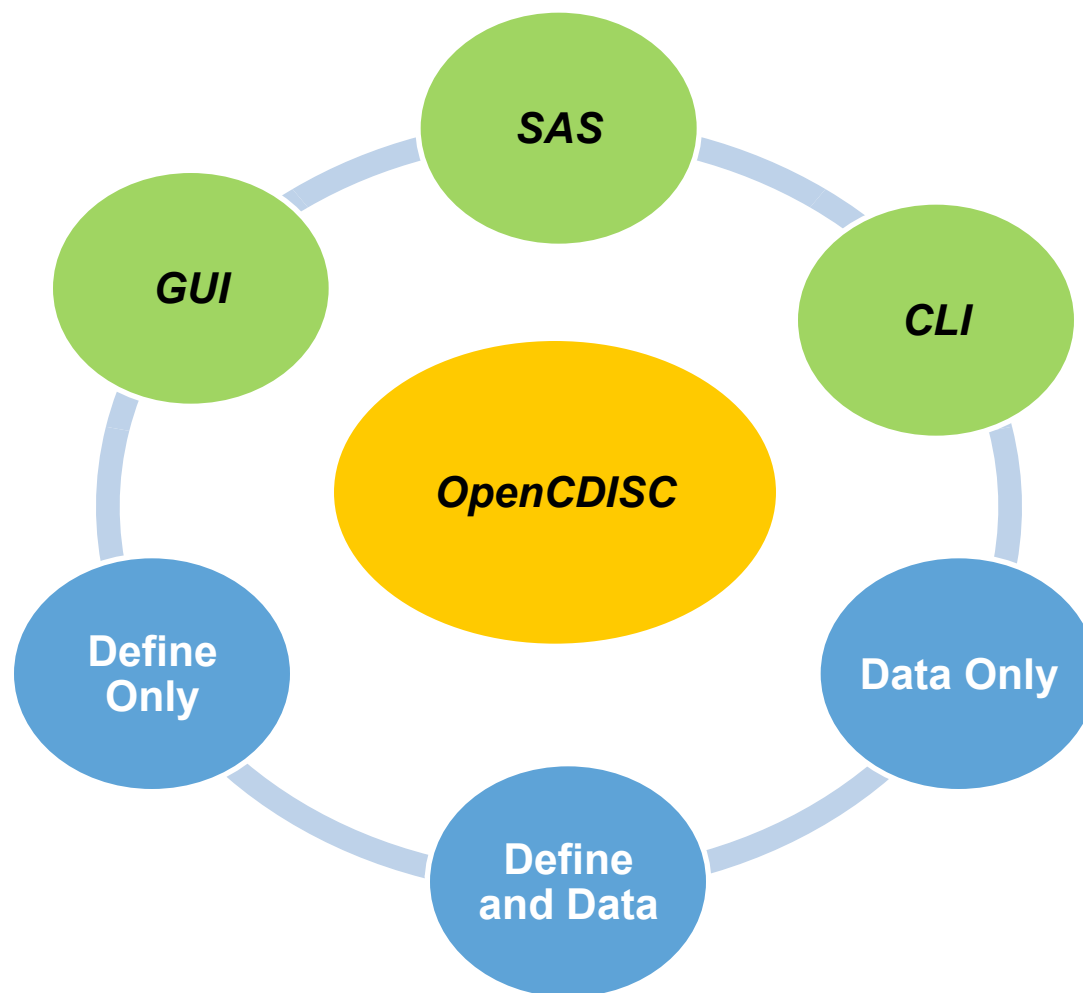
# Disclaimer

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# Topics

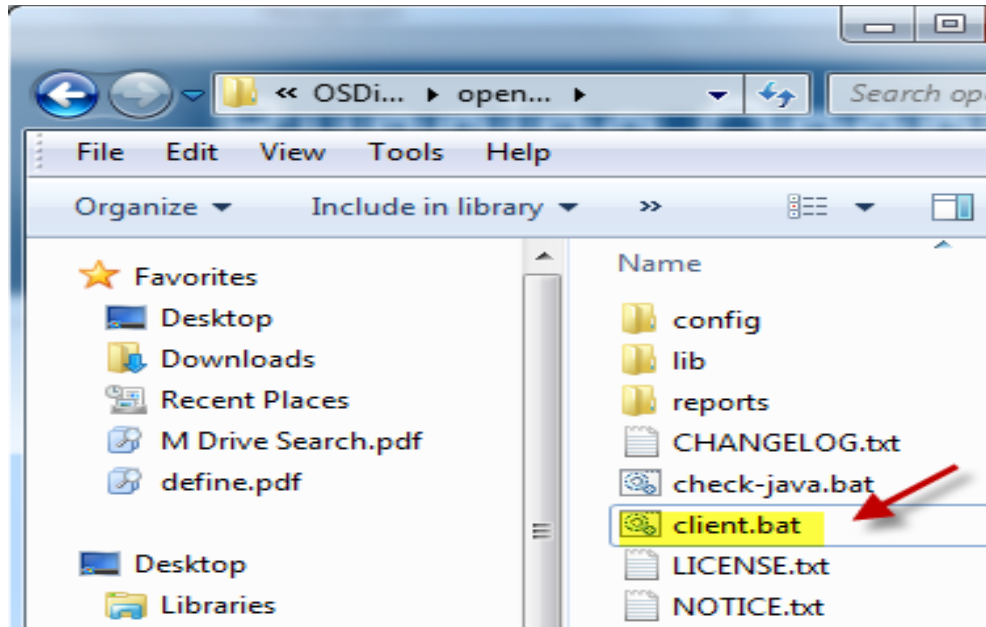
- Modes of Validation
- How to run from GUI
- How to automate execution from CLI or SAS
- How to analyze and interpret OpenCDISC reports

# Modes of Validation



# Running OpenCDISC Validator GUI

- Start in the main Validator directory where you unzipped the files
- Locate client.bat and click on it to start the program



# Running OpenCDISC Validator GUI

The screenshot shows the OpenCDISC Validator application window. The title bar reads "OpenCDISC Validator". The menu bar contains "File" and "Help". The main area has a question "What would you like to do?" with two radio buttons: "Validate Data" (selected) and "Generate Define.xml". Below this are three main sections: "Standard" with a dropdown menu set to "SDTM"; "Source Format" with a dropdown menu set to "SAS® Transport (XPORT)"; and "Source Data" with a text area containing two file paths: "C:\Work\QC\Study1\SDTM\xpdata\AE.xpt" and "C:\Work\QC\Study1\SDTM\xpdata\DM.xpt". To the right of the text area are three buttons: "Browse", "Remove", and "Clear". Below the text area is the text "You can select multiple files or folders as sources". The "Configuration" section has a dropdown menu set to "config-sdtm-3.1.2.xml". The "Define.xml" section has an empty text field and a "Browse" button. Below this is the text "Optional". The "Report Format" section has a dropdown menu set to "Excel" and a link "Report Settings". The "CDISC CT" section has a dropdown menu set to "2014-03-28". The "MedDRA" section has a dropdown menu set to "15.1". At the bottom, there is a "Progress:" section with an empty progress bar and the text "Waiting to begin.". At the very bottom are two buttons: "Start" and "Stop".

## Standard

- SDTM, ADaM,
- Define.xml, Send
- Custom (Tabular)

## Source Format

- SAS Transport (XPORT)
- Delimited
- Dataset-XML (R 1.5)

## Configuration

- config-adam-1.0.xml,
- config-define-1.0.xml,
- config-define-2.0.xml (R 1.5)
- config-sdtm-3.1.1.xml,
- config-sdtm-3.1.2.xml
- config-sdtm-3.1.3.xml
- config-sdtm-3.2.xml
- config-send-3.0.xml

## Report Format

- Excel and CSV

## CDISC CT

- 2013-04-12
- 2013-06-28
- 2013-10-04
- 2013-12-20
- 2014-03-28

## MedDRA

- MedDRA versions installed in the MedDRA config folder

# Running OpenCDISC Validator CLI

```
C:\opencdisc-validator_1_5\lib>java -jar validator-cli-1.5.jar -help

-----
OpenCDISC Validator Command Line Client
-----

The following parameters may be passed to the Validator. Note that
certain parameters may be required.

For additional help, or to submit suggestions, please visit our community
at http://www.opencdisc.org/

General Parameters
  -task                Validate!Generate <Validate>
  -type                SDTM!ADaM!SEND!Define!Custom <SDTM>

Source Data Parameters
  -source              <path>
  -source:type        SAS!Delimited <SAS>
  -source:delimiter   <delimiter> <,>
  -source:qualifier   <qualifier> <">

Configuration Parameters
  -config              <path>
  -config:define       <path>
  -config:codelists    <path>
  -config:cdisc        <version>
  -config:meddra       <version>

Report Parameters
  -report              <path>
  -report:type        Excel!CSV!XML <Excel>
  -report:cutoff       <#> <1000>
  -report:overwrite   yes|no

Generation Parameters
  -output              <path>
  -output:overwrite   yes|no

C:\opencdisc-validator_1_5\lib>
```

Tasks specific to generating  
Define.xml are highlighted in  
yellow. They cannot be  
combined with validation tasks.

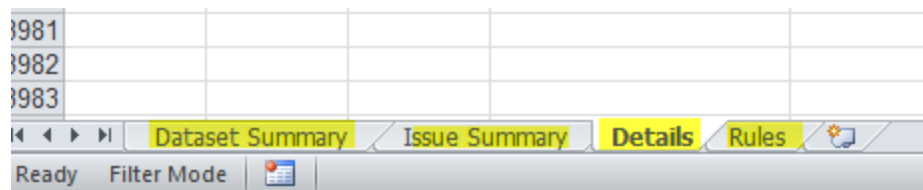
# Running OpenCDISC Validator SAS

```
x java -jar "C:\opencdisc-validator_1_5\lib\validator-cli-1.5.jar"  
-task="validate"  
-type="sdm"  
-source="C:\Work\QC\study1\SDTM\xpdata\*.xpt"  
-source:type="sas"  
-config="C:\opencdisc-validator_1_5\config\config-sdm-3.1.2.xml"  
-config:define="C:\Work\QC\study1\SDTM\xpdata\define.xml"  
-config:cdisc="2014-03-28"  
-config:meddra="15.1"  
-report="C:\Work\submission\openCDISC_v1.5_data_&_Define.xls"  
-report:type="excel"  
-report:cutoff="1000"  
-report:overwrite="yes";
```



# OpenCDISC Validator Report (1)

- Validator Reports are based on predefined checks
- Different versions have a different set of checks/rules
- Four types of validation checks
  - CT            Controlled Terminology
  - SD            Study Data
  - DD            Data Definition
  - OD            Operation Data Model
- Each rule has an unique Rule ID, Message, Description, Category and Severity
- The Report contains four tabs or worksheets



# OpenCDISC Validator Report (2)

## Dataset Summary

- The Dataset summary tab provides information about each dataset in a quick, snapshot view

OpenCDISC Validator Report							
Configuration: C:\opencdisc-validator_1_5\config\config-sdtm-3.1.2.xml							
Define.xml: C:\work\updated_pilot_submission_package\Updated Pilot Submission Package\900172\m5\datasets\cdiscipilot01\tabulations\sdtm\define.xml							
Generated: 2014-04-28T17:37:48							
Engine Version: 1.5							
MedDRA Version: 15.1							
CDISC Controlled Terminology Version: 2014-03-28							
Processed Sources							
Domain	Label	Class	Source	Records	Errors	Warnings	Notices
GLOBAL	Global Metadata	--	--	--	0	0	0
AE	Adverse Events	Events	ae.xpt	1191	14	233	5
CM	Concomitant Medications	Interventions	cm.xpt	7510	81	3	212
DM	Demographics	Special Purpose	dm.xpt	306	9	1	5
DS	Disposition	Events	ds.xpt	596	1	60	8
EX	Exposure	Interventions	ex.xpt	591	0	2	3
LB	Laboratory Tests Results	Findings	lb.xpt	59580	1790	18287	19361
MH	Medical History	Events	mh.xpt	1818	3	10	8
QS	Questionnaires	Findings	qs.xpt	121749	0	9	0
RELREC	Related Records	Relationship	relrec.xpt	234	237	234	0
SC	Subject Characteristics	Findings	sc.xpt	254	254	0	254
SE	Subject Elements	Special Purpose	se.xpt	752	3	2	1
SUPPAE	Supplemental Qualifiers for AE	Relationship	suppae.xpt	1191	4	1	0
SUPPDM	Supplemental Qualifiers for DM	Relationship	suppdm.xpt	1197	4	1	0
SUPPDS	Supplemental Qualifiers for DS	Relationship	suppds.xpt	3	4	1	0
SUPPLB	Supplemental Qualifiers for LB	Relationship	supplb.xpt	64403	6440	64404	0
SV	Subject Visits	Special Purpose	sv.xpt	3559	0	3	0
TA	Trial Arms	Trial Design	ta.xpt	8	5	0	0
TE	Trial Elements	Trial Design	te.xpt	7	5	0	0
TI	Trial Inclusion/ Exclusion Criteria	Trial Design	ti.xpt	31	1	1	1
TS	Trial Summary	Trial Design	ts.xpt	33	9	14	8
TV	Trial Visits	Trial Design	tv.xpt	21	3	2	1
VS	Vital Signs	Findings	vs.xpt	29643	3	1	0
Total				294677	66837	83269	19867
Unprocessed Sources							
Domain	Label	Class	Reason	Errors	Warnings	Notices	
Total				0	0		0
Grand Total				294677	66837	83269	19867

# OpenCDISC Validator Report (3)

## Issue Summary

- The **Issues Summary** tab provides a break down of the type of rules that have issues and how many have been reported.

OpenCDISC Validator Report				
Configuration: C:\opencdisc-validator_1_5\config\config-sdtm-3.1.2.xml				
Define.xml: C:\work\updated_pilot_submission_package\Updated Pilot Submission Package\900172\m5\datasets\cdiscpilot01\tabulations\sdtm\define.xml				
Generated: 2014-04-28T17:37:48				
Engine Version: 1.5				
MedDRA Version: 15.1				
CDISC Controlled Terminology Version: 2014-03-28				
Issue Summary				
Source	Rule ID	Message	Severity	Found
AE				
	SD0058	Variable appears in dataset, but is not in SDTM standard	Error	10
	SD1082	AEACN variable length is too long for actual data	Error	1
	SD1082	AEDECOD variable length is too long for actual data	Error	1
	SD1082	AEOUT variable length is too long for actual data	Error	1
	SD1082	AETERM variable length is too long for actual data	Error	1
	SD1077	FDA Expected variable not found	Warning	1
	SD1083	Missing AEDY variable, when AEDTC variable is present	Warning	1
	SD1090	Incorrect value for AESTDY variable	Warning	1
	SD1201	Duplicate records	Warning	230
	SD1076	Model permissible variable added into standard domain	Notice	1
	SKIP_SD0008	C:\opencdisc-validator_1_5\config\data\MedDRA\8.0\pt.asc is missing or lacks necessary variables and cannot be used for this cross-dataset validation	Notice	1
	SKIP_SD0008	C:\opencdisc-validator_1_5\config\data\MedDRA\8.0\pt.asc is missing or lacks necessary variables and cannot be used for this cross-dataset validation	Notice	1
	SKIP_SD1114	C:\opencdisc-validator_1_5\config\data\MedDRA\8.0\soc.asc is missing or lacks necessary variables and cannot be used for this cross-dataset validation	Notice	1
	SKIP_SD1114	C:\opencdisc-validator_1_5\config\data\MedDRA\8.0\soc.asc is missing or lacks necessary variables and cannot be used for this cross-dataset validation	Notice	1
CM				
	SD0035	Missing value for CMDOSU, when CMDOSE, CMDOSTXT or CMDOSTOT is provided	Error	80
	SD1082	CMROUTE variable length is too long for actual data	Error	1
	SD1077	FDA Expected variable not found	Warning	1
	SD1081	CMDOSU variable length is too long for actual data	Warning	1
	SD1083	Missing CMDY variable, when CMDTC variable is present	Warning	1
	CT0018	Value for CMDOSFRQ not found in (FREQ) CT codelist	Notice	192
	CT0049	Value for CMDOSU not found in (UNIT) CT codelist	Notice	16
	SD1076	Model permissible variable added into standard domain	Notice	4

# OpenCDISC Validator Report (4)

## Details

- The Details tab provides detailed information about errors and warnings

Domain	Record	Count	Variables	Values	Rule ID	Message	Category	Severity
GLOBAL			DOMAIN	SE	<a href="#">SD1111</a>	Missing SE dataset	Presence	Warning
GLOBAL			DOMAIN	TA	<a href="#">SD1112</a>	Missing TA dataset	Presence	Warning
GLOBAL			DOMAIN	TE	<a href="#">SD1113</a>	Missing TE dataset	Presence	Warning
AE			VARIABLE, DATASET	EPOCH, AE	<a href="#">SD1077</a>	FDA Expected variable not found	Metadata	Warning
AE		15	AEOU	NOT RESOLVED	<a href="#">CT0027</a>	Value for AEOU not found in (OUT) CT codelist	Terminology	Error
AE			Variable, Excess	AESEV, 12	<a href="#">SD1081</a>	AESEV variable length is too long for actual data	Metadata	Warning
AE			Variable, Excess	AEREFID, 8	<a href="#">SD1081</a>	AEREFID variable length is too long for actual data	Metadata	Warning
AE			Variable, Excess	AEENDTC, 10	<a href="#">SD1081</a>	AEENDTC variable length is too long for actual data	Metadata	Warning
AE			Variable, Excess	AEACN, 9	<a href="#">SD1081</a>	AEACN variable length is too long for actual data	Metadata	Warning
AE			Variable, Excess	AESPID, 18	<a href="#">SD1081</a>	AESPID variable length is too long for actual data	Metadata	Warning
AE			Variable, Excess	AESTDTC, 10	<a href="#">SD1081</a>	AESTDTC variable length is too long for actual data	Metadata	Warning
AE			Variable, Excess	DOMAIN, 6	<a href="#">SD1081</a>	DOMAIN variable length is too long for actual data	Metadata	Warning
AE			Variable, Excess	AEENTPT, 31	<a href="#">SD1082</a>	AEENTPT variable length is too long for actual data	Metadata	Error
AE			Variable, Excess	AETERM, 46	<a href="#">SD1082</a>	AETERM variable length is too long for actual data	Metadata	Error
AE			Variable, Excess	AEOU, 38	<a href="#">SD1082</a>	AEOU variable length is too long for actual data	Metadata	Error
AE			Variable, Excess	AEBODSYS, 148	<a href="#">SD1082</a>	AEBODSYS variable length is too long for actual data	Metadata	Error
AE			Variable, Excess	AEDECOD, 161	<a href="#">SD1082</a>	AEDECOD variable length is too long for actual data	Metadata	Error
AE			Variable, Excess	AEENRTPT, 33	<a href="#">SD1082</a>	AEENRTPT variable length is too long for actual data	Metadata	Error
AE	8		AESER	Y	<a href="#">SD0009</a>	No qualifiers set to 'Y', when AE is Serious	Consistency	Warning
AE	18		AESER	Y	<a href="#">SD0009</a>	No qualifiers set to 'Y', when AE is Serious	Consistency	Warning
AE	30		AESER	Y	<a href="#">SD0009</a>	No qualifiers set to 'Y', when AE is Serious	Consistency	Warning
AE	41		AESER	Y	<a href="#">SD0009</a>	No qualifiers set to 'Y', when AE is Serious	Consistency	Warning
AE	68		AESER	Y	<a href="#">SD0009</a>	No qualifiers set to 'Y', when AE is Serious	Consistency	Warning
AE	69		AESER	Y	<a href="#">SD0009</a>	No qualifiers set to 'Y', when AE is Serious	Consistency	Warning
AE	84		AETERM	ACCIDENTAL FALL RESULTING IN SUPERFICIAL LAYERS OF HEAD INJURY	<a href="#">SD1021</a>	Unexpected character value in AETERM variable	Format	Warning
				ACCIDENTAL FALL RESULTING IN SUPERFICIAL LAYERS OF HEAD INJURY				

# OpenCDISC Validator Report (5)

## Rules

- Contains a list of Rule IDs and their descriptions
- The links to each rule ID in the Issues Summary and Details worksheets take you to this worksheet

CT

Rule ID	Message	Description	Category	Severity
CT0001	Value for --ACN not found in (ACN) CT codelist	Action Taken with Study Treatment (--ACN) variable values must be populated with terms found in 'Action Taken with Study Treatment' (C66767) CDISC controlled terminology codelist. New values cannot be added into the CDISC CT non-extensible codelist.	Terminology	Error
CT0002	Value for AESEV not found in (AESEV) CT codelist	Severity/Intensity (AESEV) variable values must be populated with terms found in 'Severity/Intensity Scale for Adverse Events' (C66769) CDISC controlled terminology codelist. New values cannot be added into the CDISC CT non-extensible codelist.	Terminology	Error
CT0003	Value for TSVAL not found in (AGESPAN) CT codelist	TS dataset Parameter Value (TSVAL) values should be populated with terms found in 'Age Span' (C66780) CDISC controlled terminology codelist, when Trial Summary Parameter Short Name (TSPARMCD) value is 'AGESPAN'. New terms can be added as long as they are not duplicates, synonyms or subsets of existing standard terms.	Terminology	Information
CT0004	Value for AGEU not found in (AGEU) CT codelist	Age Units (AGEU) variable values must be populated with terms found in 'Age Unit' (C66781) CDISC controlled terminology codelist. New values cannot be added into the CDISC CT non-extensible codelist.	Terminology	Error
CT0005	Value for TSVAL not found in (AGEU) CT codelist	TS dataset Parameter Value (TSVAL) values must be populated with terms found in 'Age Unit' (C66781) CDISC controlled terminology codelist, when Trial Summary Parameter Short Name (TSPARMCD) value is 'AGEU'. New values cannot be added into the CDISC CT non-extensible codelist.	Terminology	Error
CT0006	Value for COUNTRY not found in (COUNTRY) CT codelist	Country (COUNTRY) variable values must be populated with terms found in 'Country' (C66786) CDISC controlled terminology codelist. New values cannot be added into the CDISC CT non-extensible codelist.	Terminology	Error

SD

A	B	C	D	E
Rule ID	Message	Description	Category	Severity
SD0001	No records in data source	Domain table should have at least one record	Presence	Warning
SD0002	NULL value in -- variable marked as Required	Required variables (where Core attribute is 'Req') cannot be NULL for any records	Presence	Error
SD0003	Invalid ISO 8601 value for -- variable	Value of Dates/Time variables (*DTC) must conform to the ISO 8601 international standard	Format	Error
SD0004	Inconsistent value for DOMAIN	Domain Abbreviation (DOMAIN) variable should be consistent with the name of the dataset	Consistency	Warning
SD0005	Duplicate value for --SEQ variable	The value of Sequence Number (--SEQ) variable must be unique for each record within a domain and within of Unique Subject Identifier (USUBJID) or Pool Identifier (POOLID) variables value when they are present in the domain.	Consistency	Error
SD0006	No baseline result in -- for subject	All subjects should have at least one baseline observation (--BLFL = 'Y') in EG, LB, MB, MS, PC and VS domains, except for subjects who failed screening (ARMCD = 'SCRNFAIL') or were not fully assigned to an Arm (ARMCD = 'NOTASSGN') or were not treated (ACTARMCD = 'NOTTRT') Standard Units (--STRFSU) must be consistent for all records with same Short Name of	Presence	Warning

# How to Interpret the Errors/Warnings (1)

## Issue Summary Tab

Issue Summary				
Source	Rule ID	Message	Severity	Found
AE	<a href="#">CT0027</a>	Value for AEOUT not found in (OUT) CT codelist	Error	274
	<a href="#">SD1082</a>	AEBODSYS variable length is too long for actual data	Error	1
	<a href="#">SD1082</a>	AEDECOD variable length is too long for actual data	Error	1
	<a href="#">SD1082</a>	AEENRPT variable length is too long for actual data	Error	1
	<a href="#">SD1082</a>	AEENTPT variable length is too long for actual data	Error	1
	<a href="#">SD1082</a>	AEOUT variable length is too long for actual data	Error	1

## Details Tab

Domain	Record	Count	Variables	Values	Rule ID	Message	Category	Severity
AE		15	AEOUT	NOT RESOLVED	<a href="#">CT0027</a>	Value for AEOUT not found in (OUT) CT codelist	Terminology	Error
AE		259	AEOUT	STOPPED	<a href="#">CT0027</a>	Value for AEOUT not found in (OUT) CT codelist	Terminology	Error

## Rules Tab

<a href="#">CT0027</a>	Value for --OUT not found in (OUT) CT codelist	Outcome (--OUT) variables values must be populated with terms found in 'Outcome of Event' (C66768) CDISC controlled terminology codelist. New values cannot be added into the CDISC CT non-extensible codelist.	Terminology	Error
------------------------	--	---	-------------	-------

## Terminology

C66768	<a href="#">OUT</a>	Outcome of Event	A condition or event that is attributed to the adverse event and is the result or conclusion of the adverse event. (NCI)	No
--------	---------------------	------------------	--	----

## The allowed values for AEOUT are:

- FATAL, NOT RECOVERED/NOT RESOLVED, RECOVERED/RESOLVED, RECOVERED/RESOLVED WITH SEQUELAE, RECOVERING/RESOLVING and UNKNOWN

# How to Interpret the Errors/Warnings (2)

- Issue Summary Tab

Source	Rule ID	Message	Severity	Found
AE	<a href="#">CT0027</a>	Value for AEOU not found in (OUT) CT codelist	Error	274
	<a href="#">SD1082</a>	AEBODSYS variable length is too long for actual data	Error	1
	<a href="#">SD1082</a>	AEDECOD variable length is too long for actual data	Error	1
	<a href="#">SD1082</a>	AEENRTPT variable length is too long for actual data	Error	1
	<a href="#">SD1082</a>	AEENTPT variable length is too long for actual data	Error	1
	<a href="#">SD1082</a>	AEOU variable length is too long for actual data	Error	1
	<a href="#">SD1082</a>	AETERM variable length is too long for actual data	Error	1
	<a href="#">SD0009</a>	No qualifiers set to "Y", when AE is Serious	Warning	10

- Details Tab

Domain	Record	Count	Variables	Values	Rule ID	Message	Category	Severity
AE			Variable, Excess	AEBODSYS, 148	<a href="#">SD1082</a>	AEBODSYS variable length is too long for actual data	Metadata	Error
AE			Variable, Excess	AETERM, 46	<a href="#">SD1082</a>	AETERM variable length is too long for actual data	Metadata	Error
AE	170		USUBJID, AESTDTC	8HA02PED-587-603, 2012-12-17	<a href="#">SD0080</a>	AE start date is after the latest Disposition date	Consistency	Warning

- AE Dataset

The screenshot shows the SAS Universal Viewer interface for the 'ae.xpt' dataset. The 'Properties' tab is active, displaying a table of dataset variables. The 'AE' dataset has 274 observations and 21 variables. The variable 'AETERM' is highlighted in yellow, showing a length of 200. Other variables include STUDYID, DOMAIN, USUBJID, AESEQ, AREFID, AESPID, and AEDECOD.

Name	Obs	Vars	#	Variable	Type	Length	Format	Informat	Label
AE	274	21	1	STUDYID	Character	8			Study Identifier
			2	DOMAIN	Character	8			Domain Abbrevi...
			3	USUBJID	Character	20			Unique Subject ...
			4	AESEQ	Numeric	8			Sequence Num...
			5	AREFID	Character	20			Reference ID
			6	AESPID	Character	20			Sponsor-Define...
			7	AETERM	Character	200			Reported Tem f...
			8	AEDECOD	Character	200			Dictionary-Deriv...

# How to Interpret the Errors/Warnings (3)

## Issue Summary Tab

CE				
<a href="#">SD0037</a>	Value for CECAT not found in (CECAT) user-defined codelist	Error	9	
<a href="#">SD1082</a>	CECAT variable length is too long for actual data	Error	1	
<a href="#">SD1082</a>	CECAT variable length is too long for actual data	Error	1	
<a href="#">SD1082</a>	CETERM variable length is too long for actual data	Error	1	
<a href="#">SD1077</a>	FDA Expected variable not found	Warning	1	

## Details Tab

A	B	C	D	E	F	G	H	I
Domain	Record	Count	Variables	Values	Rule ID	Message	Category	Severity
CE			VARIABLE, DATASET	EPOCH, CE	<a href="#">SD1077</a>	FDA Expected variable not found	Metadata	Warning
CE			VARIABLE	CESTDY	<a href="#">SD1087</a>	Missing CESTDY variable, when CESTDTC variable is present	Presence	Warning
CE		5	CECAT	INTERNAL	<a href="#">SD0037</a>	Value for CECAT not found in (CECAT) user-defined codelist	Terminology	Error
CE		4	CECAT	JOINT	<a href="#">SD0037</a>	Value for CECAT not found in (CECAT) user-defined codelist	Terminology	Error
CE			Variable, Excess	DOMAIN, 6	<a href="#">SD1081</a>	DOMAIN variable length is too long for actual data	Metadata	Warning
CE			Variable, Excess	CECAT, 89	<a href="#">SD1082</a>	CECAT variable length is too long for actual data	Metadata	Error

## Dataset Values

CECAT
INTERNAL
JOINT
MUSCLE
SKIN/MUCOSA

## Define Values

Code Value
INTERNAL_TEST
JOINT_TEST
MUSCLE
SKIN/MUCOSA



# How to Interpret the Errors/Warnings (4)

## Issue Summary Tab

Source	Rule ID	Message	Severity	Found
DEFINE				
	<a href="#">DD0024</a>	Invalid Codelist for 'AECONTRT' variable	Error	1
	<a href="#">DD0024</a>	Invalid Codelist for 'AESER' variable	Error	1
	<a href="#">DD0024</a>	Invalid Codelist for 'AESEV' variable	Error	1
	<a href="#">DD0024</a>	Invalid Codelist for 'XRBLFL' variable	Error	1
	<a href="#">OD0048</a>	Referenced 'CodeList' not found	Error	2

## Details Tab

xpath	Variables	Values	Rule ID	Message	Category	Severity
//ItemDef[@OID='DM.SEX']/CodeListRef[@CodeListOID='SEX']	@CodeListOID	SEX	<a href="#">OD0048</a>	Referenced 'CodeList' not found	Cross-reference	Error
//ItemDef[@OID='IE.IETESTCD']/CodeListRef[@CodeListOID='IETESTCD']	@CodeListOID	IETESTCD	<a href="#">OD0048</a>	Referenced 'CodeList' not found	Cross-reference	Error

## Define

SEX	Sex	text	SEX 	CRF Page <a href="#">8</a>	<a href="#">Record Qualifier</a>	
-----	-----	------	---	----------------------------	----------------------------------	--

# Thank you!

Majdoub Haloui

Biogen Idec

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