

Migrating Between SAS® Clinical Standards Toolkit Versions 1.5 and 1.6. Is that an African or a European Swallow?

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Backup all SAS® Clinical Standards Toolkit Files before proceeding

Refer to SAS Clinical Standards Toolkit 1.6 Migration Guide for more detailed information provided by this poster. Located at: <http://support.sas.com/documentation/cdl/en/clinstdtkmig/67424/PDF/default/clinstdtkmig.pdf>

Non-Customized SAS® Clinical Standards Toolkit 1.5

If SAS® Clinical Standards Toolkit 1.5 has NOT been customized then the 1.6 installation will handle the migration and the processes described below are not necessary, however, do consider the 1.6 Migration Guide as a preview to issues if you plan to customize SAS® Clinical Standards Toolkit in the future.

Customized SAS® Clinical Standards Toolkit 1.5

If SAS® Clinical Standards Toolkit 1.5 has been customized consider the following migration order

The Global Standards Library (C:\cstGlobalLibrary)

- Install 1.6 in another location (default installation)
- OR
- Rename 1.5 and place 1.6 in the default location

- Register any new customized standard in 1.5 to 1.6
- Check value of StudyLibraryRootpath

The SAS® Clinical Standards Toolkit Autocall Library

- Migrate any macros customized by the user to the 1.6 autocall library IF recommended best practices (RBP) are NOT followed (RBP - Develop customized macros in a separate folder and assign additional autocall library).

The Sample Library (C:\cstSampleLibrary)

- Migrate changes to the 1.6 Sample Library

The SAS® Clinical Standards Toolkit Migration Tools

For 1.6 a group of tools have been developed and provided to SAS® Clinical Standards Toolkit to facilitate the migration process. These tools are available at <http://support.sas.com/rnd/base/cdisc/cst/> under Version 1.6 -> Migration to 1.6 as Migration Tools (.zip). Key to the migration process is a set of checksum files provided in the zip file that represent an “as shipped” version of the SAS® Clinical Standards Toolkit for versions 1.5, 1.5.1, and 1.6.

Version	Checksum File From the Root Path
1.5	checksums_cst15_catframework.xml
	checksums_cst15_catglblatdlib.xml
	checksums_cst15_catgblatdlib.xml
1.5.1	checksums_cst151_catframework.xml
	checksums_cst151_catglblatdlib.xml
	checksums_cst151_catgblatdlib.xml
1.6	checksums_cst16_catframework.xml
	checksums_cst16_catglblatdlib.xml
	checksums_cst16_catgblatdlib.xml

Generate Checksums

The macro %cstutilgenerateschecksums is used to generate a checksum file for a given directory.

```
libname custom "user location for generated checksum XML file";
libname chksums "c:\cstMigration\checksums\productionchecksums";
%cstutilgenerateschecksums (
  _cstFolder=C:\myCustomGlobalLibrary,
  _cstXMLFile=mysysfunc(pathname(custom))/checksums_cst15_myCustomGlobalLibrary.xml,
  _cstProdCode=catgblatdlib,
  _cstLabel=CST 1.5 Custom Global Library
);
```

Compare Checksums

The macro %cstutilcomparechecksums is used to compare checksum files generated from the %cstutilgenerateschecksums macro. It is also used to compare the SAS supplied checksum files.

```
%cstutilcomparechecksums (
  _cstBaseXMLFile=mysysfunc(pathname(chksums))/checksums_cst16_catglblatdlib.xml,
  _cstCompXMLFile=mysysfunc(pathname(custom))/checksums_cst15_myCustomGlobalLibrary.xml,
  _cstCompResults=work.ctchanges,
  _cstOutReportPath=mysysfunc(pathname(chksums)),
  _cstOutReportFile=cstlib_myCustomGlobalLibrary_16.html
);
```

File	Checksum (CST 1.5)	Checksum (CST 1.5 Custom Global Library)	Result
hsf\hsf\hsf.xml	87634620846680581870f8e		File not found in COMP
hsf\hsf\hsf.xml	636365449986993a72711124c		File not found in COMP
hsf\hsf\hsf.xml	6f86816d0274e18445118f8a3		File not found in COMP

Compare Registered Controlled Terminology

The macro %cstutilcompareregisterect is used to compare changes or differences in the standardsubtypes data set for registered SAS® Clinical Standards Toolkit controlled terminology releases.

```
libname newct "C:\cstGlobalLibrary\standards\cdisc-terminology-1.6\control";
libname oldct "C:\cstGlobalLibrary\standards\cdisc-terminology-1.5\control";
%cstutilcompareregisterect (
  _cstBaseCT=oldct.ctchanges,
  _cstNewCT=newct.ctchanges,
  _cstCompType=DATASET,
  _cstRptType=DATASET,
  _cstRptDS=work.ctchanges,
  _cstOverwrite=Y
);
```

1	CDISC-TERMINOLOGY	CDISC-CDASH	NCL_THESAURUS	201310	New CT package found in newct standardsubtypes but not found in oldct standardsubtypes	CDISC-TERMINOLOGY, CDISC-CDASH, NCL_THESAURUS, 201310
2 <th>CDISC-TERMINOLOGY</th> <th>CDISC-SDTM</th> <th>NCL_THESAURUS</th> <th>201310</th> <th>New CT package found in newct standardsubtypes but not found in oldct standardsubtypes</th> <th>CDISC-TERMINOLOGY, CDISC-SDTM, NCL_THESAURUS, 201310</th>	CDISC-TERMINOLOGY	CDISC-SDTM	NCL_THESAURUS	201310	New CT package found in newct standardsubtypes but not found in oldct standardsubtypes	CDISC-TERMINOLOGY, CDISC-SDTM, NCL_THESAURUS, 201310
3 <th>CDISC-TERMINOLOGY</th> <th>CDISC-SEND</th> <th>NCL_THESAURUS</th> <th>201310</th> <th>New CT package found in newct standardsubtypes but not found in oldct standardsubtypes</th> <th>CDISC-TERMINOLOGY, CDISC-SEND, NCL_THESAURUS, 201310</th>	CDISC-TERMINOLOGY	CDISC-SEND	NCL_THESAURUS	201310	New CT package found in newct standardsubtypes but not found in oldct standardsubtypes	CDISC-TERMINOLOGY, CDISC-SEND, NCL_THESAURUS, 201310

Compare Code Lists

The macro %cstutilcomparecodelist is used to compare changes or differences between SAS code lists.

```
libname newcl "C:\cstGlobalLibrary\standards\cdisc-terminology-1.6\cdisc-sdtm\current\formats";
libname oldcl "C:\cstGlobalLibrary\standards\cdisc-terminology-1.5\cdisc-sdtm\current\formats";
%cstutilcomparecodelist (
  _cstFileType=DATASET,
  _cstBaseCT=oldct.ctchanges,
  _cstNewCT=newct.ctchanges,
  _cstCompareCL=Y,
  _cstCLVar=codelist,
  _cstCompareCL=Y,
  _cstCLValueVar=cdisc_submission_value,
  _cstRptType=CDISCRESULTS
);
```

Result identifier	Sequence number	Source data	Resolved message text from message file	Result severity (e.g., warning, error, info)	Problem detected? (Element observed/yes)	Actual value observed	
2	CST0000	1	CSTUTILCOMPARECODELISTS	Codelist found in oldct cterms but not found in newct cterms	Info	1	Codelist=AGESPAN
3	CST0000	2	CSTUTILCOMPARECODELISTS	Codelist value found in oldct cterms but not found in newct cterms	Info	1	Codelist=AGESPAN.Value=ADOLESCENT (12-17 YEARS)
4	CST0000	3	CSTUTILCOMPARECODELISTS	Codelist value found in oldct cterms but not found in newct cterms	Info	1	Codelist=AGESPAN.Value=ADULT (18-65)
5	CST0000	4	CSTUTILCOMPARECODELISTS	Codelist value found in oldct cterms but not found in newct cterms	Info	1	Codelist=AGESPAN.Value=CHILDREN (2-11 YEARS)
6	CST0000	5	CSTUTILCOMPARECODELISTS	Codelist value found in oldct cterms but not found in newct cterms	Info	1	Codelist=AGESPAN.Value=ELDERLY (> 65)

Compare Autocall Macros

The macro %cstutilcompareautocallmacros creates a list of the contents of each of the two macro libraries and compares the two for any differences or changes.

```
%cstutilcompareautocallmacros (
  _cstBasePath=C:\Program Files\SASHome\SASFoundation\9.4\cstframework_1.5customized\saamacro,
  _cstNewPath=C:\Program Files\SASHome\SASFoundation\9.4\cstframework\saamacro,
  _cstRptType=CDISCRESULTS,
  _cstOverwrite=N
);
```

message	result severity	keypoints
21 New macro [sourcepath] not found in C:\Program Files\SASHome\SASFoundation\9.4\cstframework\saamacro	Info	Macro name=sourcepath
22 Old macro [sourcepath] not found in C:\Program Files\SASHome\SASFoundation\9.4\cstframework\saamacro	Info	Macro name=sourcepath
23 New macro parameter(s) detected for [sourcepath] - see work macrolib	Info	Macro name=sourcepath
24 New macro parameter(s) detected for [sourcepath] - see work macrolib	Info	Macro name=sourcepath

name	parameter	header	header	header
ct_createbordereddataset	_cdiscData	ct_createbordereddataset	ct_createbordereddataset	ct_createbordereddataset

Compare Property Files

The macro %cstutilcompareproperties translates property files into SAS data sets for comparison to identify any changes or differences.

```
%cstutilcompareproperties (
  _cstBasePath=C:\cstGlobalLibrary\standards\cdisc-sdtm-3.1.3-1.6\programs\initialize.properties,
  _cstNewPath=C:\cstGlobalLibrary\standards\cdisc-sdtm-3.2-1.6\programs\initialize.properties
);
```

old	new
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11

Compare Folder Hierarchy

The macro %cstutilcomparefolderhierarchy can compare folders, files or data sets to determine any changes or differences.

```
%cstutilcomparefolderhierarchy (
  _cstBaseFolder=C:\cstGlobalLibrary,
  _cstBaseVersion=1.6,
  _cstCompFolder=C:\cstGlobalLibrary\custom,
  _cstCompVersion=1.5,
  _cstRptType=work.foldercomp,
  _cstRptDiffType=FOLDER,
  _cstOverwrite=Y,
  _cstOutReportPath=C:\,
  _cstOutReportFile=globallibrarydiff15.htm
);
```

File Path	File Name	File Size
C:\cstGlobalLibrary\...

Copy a folder

The macro %cstutilcopyfolderhierarchy is used to copy a folder, subfolders, and all content to another area and provides useful options such as itemization of the folders and contents, summarization of the actions performed, and creating a new folder structure but without the content.

```
%cstutilcopyfolderhierarchy (
  _cstSourceFolder=C:\cstGlobalLibrary,
  _cstNewFolder=C:\cstGlobalLibrary15,
  _cstFolderDiffType=work.folderdiff,
  _cstFileDiffType=work.files,
  _cstBuildFoldersOnly=N
);
```

NOTE: [CSTLOGMESSAGE] 191 folders were created.
NOTE: [CSTLOGMESSAGE] 1049 files were copied.

Path	Item Name	Item Type	Item Size
C:\cstGlobalLibrary\...

Tools to Migrate Source Metadata from CRT-DDS 1.0.0 to Define-XML 2.0.0

To provide an example of migrating CRT-DDS 1.0.0 source metadata to Define-XML 2.0.0 source metadata, SAS supplies the migrate_crtdds_to_definexml_adam.sas and migrate_crtdds_to_definexml_sdtm.sas driver programs.

Note: Be aware that the study source metadata files created should not be considered ideal Define-XML 2.0.0 implementations for production use. Although the SAS tools provide a good starting point and a way to explore Define-XML 2.0.0 metadata, the files have limitations. In particular, the set of ValueList definitions and WHERE clauses are converted from value-level metadata definitions in CRT-DDS 1.0 that have limitations.

Driver Programs:

User changes to the following driver programs will probably be required:

```
migrate_crtdds_to_definexml_adam.sas
```

```
migrate_crtdds_to_definexml_sdtm.sas
```

Outputs are the following SAS data sets: source_study, source_columns, source_values, source_documents, and source_codelists