

s1kd-tools

Documentation***

S1KDTOOLS-KHZAE-00000-00 Issue No. 031, 2020-09-01



List of effective data modules

The listed documents are included in issue 031, dated 2020-09-01, of this publication.

C = Changed data module

N = New data module

Document title	Data module code	Issue date	No. of pages	Applicable to
Title page	S1KDTOOLS- A-00-00-00-00A-001A-D	2020-09-0	1 1	Version: 3.3.0
List of effective data modules	<u>S1KDTOOLS-</u> <u>A-00-00-00-00A-00SA-D</u>	2020-09-0	1 3	Version: 3.3.0
Highlights	<u>S1KDTOOLS-</u> <u>A-00-00-00-00A-00UA-D</u>	2020-09-0	1 2	Version: 3.3.0
Table of contents	<u>S1KDTOOLS-</u> <u>A-00-00-00-00A-009A-D</u>	2020-09-0	1 3	Version: 3.3.0
List of abbreviations	<u>S1KDTOOLS-</u> <u>A-00-00-00-00A-005A-D</u>	2020-05-0	1 1	Version: 3.3.0
s1kd-tools - Description	<u>S1KDTOOLS-</u> <u>A-00-00-00-00A-040B-D</u>	2020-05-0	1 1	Version: 3.3.0
s1kd-tools - Introduction	<u>S1KDTOOLS-</u> <u>A-00-00-00-00A-018A-D</u>	2020-05-0	1 3	Version: 3.3.0
s1kd-tools - Building, installing and uninstalling	<u>S1KDTOOLS-</u> <u>A-00-00-00-00A-920A-D</u>	2020-09-0	1 3	Version: 3.3.0
s1kd-tools - Usage examples	<u>S1KDTOOLS-</u> <u>A-00-00-00-00A-130A-D</u>	2020-09-0	1 12	Version: 3.3.0
s1kd-toolsdefaults file identifiers	<u>S1KDTOOLS-</u> <u>A-00-00-00-00A-014A-D</u>	C 2020-09-0	1 6	Version: 3.3.0
s1kd-tools - Issue compatibility	<u>S1KDTOOLS-</u> <u>A-00-00-00-00A-C30A-D</u>	2020-05-0	1 3	Version: 3.3.0
s1kd-tools workflow - Standard procedure for processing S1000D documents	<u>S1KDTOOLS-</u> <u>A-36-00-00-00A-258A-D</u>	N 2024-12-3	0 4	Version: 3.3.0
s1kd-defaults - Description	<u>S1KDTOOLS-</u> <u>A-30-00-00-00A-040A-D</u>	C 2020-09-0	1 4	Version: 3.3.0



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s1kd-dmrl - Description	S1KDTOOLS- A-22-00-00-00A-040A-D	C 2020-09-0	1 2	Version: 3.3.0
s1kd-newcom - Description	<u>S1KDTOOLS-</u> <u>A-16-00-00-00A-040A-D</u>	C 2020-09-0	1 3	Version: 3.3.0
s1kd-newddn - Description	<u>S1KDTOOLS-</u> <u>A-17-00-00-00A-040A-D</u>	C 2020-09-0	1 3	Version: 3.3.0
s1kd-newdm - Description	<u>S1KDTOOLS-</u> <u>A-07-00-00-00A-040A-D</u>	C 2020-09-0	1 8	Version: 3.3.0
s1kd-newdml - Description	<u>S1KDTOOLS-</u> <u>A-21-00-00-00A-040A-D</u>	C 2020-09-0	1 3	Version: 3.3.0
s1kd-newimf - Description	<u>S1KDTOOLS-</u> <u>A-13-00-00-00A-040A-D</u>	C 2020-09-0	1 3	Version: 3.3.0
s1kd-newpm - Description	<u>S1KDTOOLS-</u> <u>A-12-00-00-00A-040A-D</u>	C 2020-09-0	1 3	Version: 3.3.0
s1kd-newsmc - Description	<u>S1KDTOOLS-</u> <u>A-35-00-00-00A-040A-D</u>	C 2020-09-0	1 3	Version: 3.3.0
s1kd-newupf - Description	<u>S1KDTOOLS-</u> <u>A-31-00-00-00A-040A-D</u>	C 2020-09-0	1 3	Version: 3.3.0
s1kd-addicn - Description	<u>S1KDTOOLS-</u> <u>A-27-00-00-00A-040A-D</u>	C 2020-09-0	1 2	Version: 3.3.0
s1kd-ls - Description	<u>S1KDTOOLS-</u> <u>A-06-00-00-00A-040A-D</u>	C 2020-09-0	1 3	Version: 3.3.0
s1kd-ref - Description	<u>S1KDTOOLS-</u> <u>A-08-00-00-00A-040A-D</u>	C 2020-09-0	1 7	Version: 3.3.0
s1kd-metadata - Description	<u>S1KDTOOLS-</u> <u>A-09-00-00-00A-040A-D</u>	C 2020-09-0	1 4	Version: 3.3.0
s1kd-mvref - Description	<u>S1KDTOOLS-</u> <u>A-19-00-00-00A-040A-D</u>	C 2020-09-0	1 2	Version: 3.3.0
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s1kd-upissue - Description	S1KDTOOLS- A-05-00-00-00A-040A-D	C 2020-09-0	1 5	Version: 3.3.0
s1kd-appcheck - Description	<u>S1KDTOOLS-</u> <u>A-11-00-00-00A-040A-D</u>	C 2020-09-0	1 9	Version: 3.3.0



Document title	Data module code	Issue date No. o	• •
s1kd-brexcheck - Description	S1KDTOOLS- A-04-00-00-00A-040A-D	C 2020-09-01 7	Version: 3.3.0
s1kd-refs - Description	<u>S1KDTOOLS-</u> <u>A-25-00-00-00A-040A-D</u>	C 2020-09-01 6	Version: 3.3.0
s1kd-repcheck - Description	<u>S1KDTOOLS-</u> <u>A-18-00-00-00A-040A-D</u>	C 2020-09-01 5	Version: 3.3.0
s1kd-validate - Description	<u>S1KDTOOLS-</u> <u>A-02-00-00-00A-040A-D</u>	C 2020-09-01 3	Version: 3.3.0
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s1kd-aspp - Description	<u>S1KDTOOLS-</u> <u>A-26-00-00-00A-040A-D</u>	C 2020-09-01 13	Version: 3.3.0
s1kd-flatten - Description	<u>S1KDTOOLS-</u> <u>A-23-00-00-00A-040A-D</u>	C 2020-09-01 3	Version: 3.3.0
s1kd-fmgen - Description	<u>S1KDTOOLS-</u> <u>A-33-00-00-00A-040A-D</u>	C 2020-09-01 6	Version: 3.3.0
s1kd-icncatalog - Description	<u>S1KDTOOLS-</u> <u>A-32-00-00-00A-040A-D</u>	C 2020-09-01 7	Version: 3.3.0
s1kd-index - Description	<u>S1KDTOOLS-</u> <u>A-28-00-00-00A-040A-D</u>	C 2020-09-01 3	Version: 3.3.0
s1kd-instance - Description	<u>S1KDTOOLS-</u> <u>A-03-00-00-00A-040A-D</u>	C 2020-09-01 20	Version: 3.3.0
s1kd-neutralize - Description	<u>S1KDTOOLS-</u> <u>A-14-00-00-00A-040A-D</u>	C 2020-09-01 3	Version: 3.3.0
s1kd-syncrefs - Description	<u>S1KDTOOLS-</u> <u>A-01-00-00-00A-040A-D</u>	C 2020-09-01 2	Version: 3.3.0
s1kd-uom - Description	S1KDTOOLS- A-10-00-00-00A-040A-D	C 2020-09-01 9	Version: 3.3.0



Highlights

The listed changes are introduced in issue 031, dated 2020-09-01, of this publication.

Data module code	Reason for update
S1KDTOOLS-A-00-00-00-00A-014A-D	Replace includePrevSnsTitle with snsLevels.
S1KDTOOLS-A-30-00-00-00A-040A-D	Addxml-catalog parser option.
S1KDTOOLS-A-22-00-00-00A-040A-D	Addxml-catalog parser option.
S1KDTOOLS-A-16-00-00-00A-040A-D	Addxml-catalog parser option.
S1KDTOOLS-A-17-00-00-00A-040A-D	Addxml-catalog parser option.
S1KDTOOLS-A-07-00-00-00A-040A-D	Addxml-catalog parser option.
	Replace -P (two-sns-levels) with -P (sns-levels).
S1KDTOOLS-A-21-00-00-00A-040A-D	Addxml-catalog parser option.
S1KDTOOLS-A-13-00-00-00A-040A-D	Addxml-catalog parser option.
S1KDTOOLS-A-12-00-00-00A-040A-D	Addxml-catalog parser option.
S1KDTOOLS-A-35-00-00-00A-040A-D	Addxml-catalog parser option.
S1KDTOOLS-A-31-00-00-00A-040A-D	Addxml-catalog parser option.
S1KDTOOLS-A-27-00-00-00A-040A-D	Addxml-catalog parser option.
S1KDTOOLS-A-06-00-00-00A-040A-D	Addxml-catalog parser option.
S1KDTOOLS-A-08-00-00-00A-040A-D	Addxml-catalog parser option.
S1KDTOOLS-A-09-00-00-00A-040A-D	Addxml-catalog parser option.
S1KDTOOLS-A-19-00-00-00A-040A-D	Addxml-catalog parser option.
S1KDTOOLS-A-34-00-00-00A-040A-D	Addxml-catalog parser option.
S1KDTOOLS-A-05-00-00-00A-040A-D	Addxml-catalog parser option.
	Add -5 (print) and -q (quiet) options.
	Rename -q to -Q.
	Change behaviour of -d and -v options.
S1KDTOOLS-A-11-00-00-00A-040A-D	Addxml-catalog parser option.
	Add -D (duplicate) option.
S1KDTOOLS-A-04-00-00-00A-040A-D	Addxml-catalog parser option.



Data module code	Reason for update
	Add experimental Saxon support.
	Add -N (omit-issue) option.
S1KDTOOLS-A-25-00-00-00A-040A-D	Addxml-catalog parser option.
S1KDTOOLS-A-18-00-00-00A-040A-D	Addxml-catalog parser option.
	Add -D (dump-xsl), -t (type) and -X (xsl) options.
S1KDTOOLS-A-02-00-00-00A-040A-D	Remove -d (schemas) option.
	Addxml-catalog parser option.
S1KDTOOLS-A-20-00-00-00A-040A-D	Addxml-catalog parser option.
S1KDTOOLS-A-26-00-00-00A-040A-D	Addxml-catalog parser option.
	Remove automatic inclusion of XSLT identity template.
S1KDTOOLS-A-23-00-00-00A-040A-D	Addxml-catalog parser option.
S1KDTOOLS-A-33-00-00-00A-040A-D	Addxml-catalog parser option.
S1KDTOOLS-A-32-00-00-00A-040A-D	Addxml-catalog parser option.
S1KDTOOLS-A-28-00-00-00A-040A-D	Addxml-catalog parser option.
S1KDTOOLS-A-03-00-00-00A-040A-D	Addxml-catalog parser option.
	Remove automatic inclusion of XSLT identity template.
	Do not add source ident if the instance ident is the same as the source.
	Change behaviour of -S (no-source-ident) option and add -3 (no-repository-ident) option.
	Change behaviour of -H (list-properties) option.
S1KDTOOLS-A-14-00-00-00A-040A-D	Addxml-catalog parser option.
S1KDTOOLS-A-01-00-00-00A-040A-D	Addxml-catalog parser option.
S1KDTOOLS-A-10-00-00-00A-040A-D	Addxml-catalog parser option.



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List of effective data modules	<u>S1KDTOOLS-</u> <u>A-00-00-00-00A-00SA-D</u>	2020-09-01	3	Version: 3.3.0
Highlights	<u>S1KDTOOLS-</u> <u>A-00-00-00-00A-00UA-D</u>	2020-09-01	2	Version: 3.3.0
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List of abbreviations	S1KDTOOLS- A-00-00-00-00A-005A-D	2020-05-01	1	Version: 3.3.0
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s1kd-tools - Description	<u>S1KDTOOLS-</u> A-00-00-00-00A-040B-D	2020-05-01	1	Version: 3.3.0
s1kd-tools - Introduction	S1KDTOOLS- A-00-00-00-00A-018A-D	2020-05-01	3	Version: 3.3.0
s1kd-tools - Building, installing and uninstalling	<u>S1KDTOOLS-</u> <u>A-00-00-00-00A-920A-D</u>	2020-09-01	3	Version: 3.3.0
s1kd-tools - Usage examples	S1KDTOOLS- A-00-00-00-00A-130A-D	2020-09-01	12	Version: 3.3.0
s1kd-toolsdefaults file identifiers	S1KDTOOLS- A-00-00-00-00A-014A-D	2020-09-01	6	Version: 3.3.0
s1kd-tools - Issue compatibility	S1KDTOOLS-A-00-00-00-00A- C30A-D	2020-05-01	3	Version: 3.3.0
s1kd-tools workflow - Standard procedure for processing S1000D documents	S1KDTOOLS- A-36-00-00-00A-258A-D	2024-12-30	4	Version: 3.3.0
Tools for generating data				
s1kd-defaults - Description	S1KDTOOLS- A-30-00-00-00A-040A-D	2020-09-01	4	Version: 3.3.0

Produced by: khzae.net

Applicable to: Version: 3.3.0 **\$1KDTOOLS-A-00-00-00A-009A-D**



Document title	Document identifier	Issue date	No. of pages	Applicable to
s1kd-dmrl - Description	S1KDTOOLS- A-22-00-00-00A-040A-D	2020-09-01	2	Version: 3.3.0
s1kd-newcom - Description	S1KDTOOLS- A-16-00-00-00A-040A-D	2020-09-01	3	Version: 3.3.0
s1kd-newddn - Description	S1KDTOOLS- A-17-00-00-00A-040A-D	2020-09-01	3	Version: 3.3.0
s1kd-newdm - Description	S1KDTOOLS- A-07-00-00-00A-040A-D	2020-09-01	8	Version: 3.3.0
s1kd-newdml - Description	S1KDTOOLS- A-21-00-00-00A-040A-D	2020-09-01	3	Version: 3.3.0
s1kd-newimf - Description	S1KDTOOLS- A-13-00-00-00A-040A-D	2020-09-01	3	Version: 3.3.0
s1kd-newpm - Description	S1KDTOOLS- A-12-00-00-00A-040A-D	2020-09-01	3	Version: 3.3.0
s1kd-newsmc - Description	S1KDTOOLS- A-35-00-00-00A-040A-D	2020-09-01	3	Version: 3.3.0
s1kd-newupf - Description	S1KDTOOLS- A-31-00-00-00A-040A-D	2020-09-01	3	Version: 3.3.0
Tools for authoring and man	aging data			
s1kd-addicn - Description	S1KDTOOLS- A-27-00-00-00A-040A-D	2020-09-01	2	Version: 3.3.0
s1kd-ls - Description	S1KDTOOLS- A-06-00-00-00A-040A-D	2020-09-01	3	Version: 3.3.0
s1kd-ref - Description	S1KDTOOLS- A-08-00-00-00A-040A-D	2020-09-01	7	Version: 3.3.0
s1kd-metadata - Description	S1KDTOOLS- A-09-00-00-00A-040A-D	2020-09-01	4	Version: 3.3.0
s1kd-mvref - Description	S1KDTOOLS- A-19-00-00-00A-040A-D	2020-09-01	2	Version: 3.3.0
s1kd-sns - Description	S1KDTOOLS- A-34-00-00-00A-040A-D	2020-09-01	3	Version: 3.3.0
s1kd-upissue - Description	S1KDTOOLS- A-05-00-00-00A-040A-D	2020-09-01	5	Version: 3.3.0
Tools for validating data				

Produced by: khzae.net

Applicable to: Version: 3.3.0 **S1KDTOOLS-A-00-00-00A-009A-D**



Document title	Document identifier	Issue date	No. of pages	Applicable to
s1kd-appcheck - Description	S1KDTOOLS- A-11-00-00-00A-040A-D	2020-09-01	9	Version: 3.3.0
s1kd-brexcheck - Description	S1KDTOOLS- A-04-00-00-00A-040A-D	2020-09-01	7	Version: 3.3.0
s1kd-refs - Description	S1KDTOOLS- A-25-00-00-00A-040A-D	2020-09-01	6	Version: 3.3.0
s1kd-repcheck - Description	S1KDTOOLS- A-18-00-00-00A-040A-D	2020-09-01	5	Version: 3.3.0
s1kd-validate - Description	S1KDTOOLS- A-02-00-00-00A-040A-D	2020-09-01	3	Version: 3.3.0
Tools for delivering data				
s1kd-acronyms - Description	S1KDTOOLS- A-20-00-00-00A-040A-D	2020-09-01	4	Version: 3.3.0
s1kd-aspp - Description	S1KDTOOLS- A-26-00-00-00A-040A-D	2020-09-01	13	Version: 3.3.0
s1kd-flatten - Description	S1KDTOOLS- A-23-00-00-00A-040A-D	2020-09-01	3	Version: 3.3.0
s1kd-fmgen - Description	S1KDTOOLS- A-33-00-00-00A-040A-D	2020-09-01	6	Version: 3.3.0
s1kd-icncatalog - Description	S1KDTOOLS- A-32-00-00-00A-040A-D	2020-09-01	7	Version: 3.3.0
s1kd-index - Description	S1KDTOOLS- A-28-00-00-00A-040A-D	2020-09-01	3	Version: 3.3.0
s1kd-instance - Description	S1KDTOOLS- A-03-00-00-00A-040A-D	2020-09-01	20	Version: 3.3.0
s1kd-neutralize - Description	S1KDTOOLS- A-14-00-00-00A-040A-D	2020-09-01	3	Version: 3.3.0
s1kd-syncrefs - Description	S1KDTOOLS- A-01-00-00-00A-040A-D	2020-09-01	2	Version: 3.3.0
s1kd-uom - Description	S1KDTOOLS- A-10-00-00-00A-040A-D	2020-09-01	9	Version: 3.3.0



List of abbreviations

ness Rules EXchange
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CIR Common Information Repository

CSDB Common Source Database
PCT Product Cross-reference Table
SNS Standard Numbering System

s1kd-tools Description

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https://githu	ıb.com/kib	ook/S1000D-XSL-Stylesheets	S1000D XSL stylesheets
https://githu	ıb.com/kib	ook/s1kd-tools	s1kd-tools

Description

1 General

s1kd-tools are a set of small tools for manipulating S1000D data. They are maintained at https://github.com/kibook/s1kd-tools.

This publication is meant to serve as an example of an S1000D data set produced using these tools. The stylesheets used to produce this PDF can be found at https://github.com/kibook/S1000D-XSL-Stylesheets

Table 2 test0718

Name	Place	Time
Cindy	Kaohsiung	0718
Melisa	Kaohsiung	0718
Owen	Taipei	0718



s1kd-tools

Introduction

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None			

Description

1 General

This document gives a basic overview of the relationship of the s1kd-tools to S1000D, and defines some common terms used throughout the s1kd-tools documentation.

2 S1000D

S1000D is "an international specification for the procurement and production of technical publications", part of the S-Series of ILS specifications. The main focus of S1000D is the breakdown and classification of documents in to individual components, called "data modules", which can be re-used in multiple publications. These data modules are typically authored using a set of provided XML schemas, allowing them to be automatically managed in a CSDB and validated against a defined set of project "business rules".

3 s1kd-tools

Applicable to: Version: 3.3.0

The **s1kd-tools** are a set of small tools for creating and manipulating S1000D data. They are designed to be used as a standalone method of maintaining a simple S1000D CSDB, in



conjunction with a more typical version control system such as Git or SVN, as a backend to implement a more complex S1000D CSDB, or to support an existing S1000D CSDB already in use by a project.

4 CSDB

Common Source Databases can be implemented in any number of ways. For the purposes of the s1kd-tools, the CSDB is simply a directory within a filesystem. Use of the "File-based transfer" file naming conventions in Chap 7 of the S1000D specification are recommended, and most of the tools will use these conventions when creating or listing CSDB objects represented by files. In order to use these tools in conjuction with other implementations of CSDBs, a project can make use of "transfer packages" also described in Chap 7 to facilitate interchange between the two kinds of CSDB.

5 Relationship to the S1000D process

The s1kd-tools can support multiple parts of the basic S1000D process:

Generation: The generation of new CSDB objects is supported by the s1kd-dmrl tool and the s1kd-new* set of tools. These provide two methods of creating objects, either using a data management requirements list (DMRL) or a more on-the-fly approach using the s1kdnew* tools directly.

The **s1kd-defaults** tool is used to manage the files which contain default metadata for new CSDB objects.

2 Authoring: These tools support the authoring process.

The **s1kd-addicn** tool creates the notation and entity elements to reference an ICN in a data module.

The **s1kd-Is** tool lists data modules within a directory.

The s1kd-metadata tool lists and edits S1000D metadata on CSDB objects.

The **s1kd-myref** tool changes references to one object into references to another.

The **s1kd-ref** tool can be used to quickly insert references to other CSDB objects.

The **s1kd-sns** tool can be used to organize the CSDB using a given SNS structure.

The **s1kd-upissue** tool moves CSDB objects through the standard S1000D workflow, between "inwork" (draft) and "official" states.

3 Validation: These tools all validate different aspects of CSDB objects.

The **s1kd-appcheck** tool validates the applicability of CSDB objects.

The **s1kd-brexcheck** tool validates CSDB objects against a business rules exchange (BREX) data module, which contains the project-defined computable business rules.

The **s1kd-refs** tool lists references in a CSDB object to generate a list of dependencies on other CSDB objects.



The **s1kd-repcheck** tool validates CIR references in CSDB objects.

The **s1kd-validate** tool validates CSDB objects according to their S1000D schema and general correctness as XML documents.

4 **Publication:** These tools support the production of publications from a CSDB.

The **s1kd-acronyms** tool can automatically mark up acronyms within data modules, and can also generate lists of acronyms marked up within data modules.

The **s1kd-aspp** tool preprocesses applicability statements in a data module, generating display text and "presentation" applicability statements.

The **s1kd-flatten** tool flattens a publication module and referenced data modules in to a single "deliverable" file for a publishing system.

The **s1kd-fmgen** tool generates front matter data module content from a publication module.

The **s1kd-icncatalog** tool resolves ICN references in objects.

The s1kd-index tool flags index keywords in a data module based on a user-defined list.

The **s1kd-instance** tool produces "instances" of CSDB objects using applicability filtering and/or common information repositories (CIRs).

The **s1kd-neutralize** tool generates IETP neutral metadata for CSDB objects.

The **s1kd-syncrefs** tool generates the References table within data modules.

The **s1kd-uom** tool converts units of measure used in data modules.



s1kd-tools Building, installing and uninstalling

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			pandoc		
			s1kd2db		

Description

1 General

Applicable to: Version: 3.3.0

There are multiple ways to install the s1kd-tools:

- using a package manager and the pre-compiled Debian (.deb) or Red Hat (.rpm) packages
- building from source



2 Using a package manager

Debian (.deb) and Red Hat (.rpm) packages are provided to easily install, upgrade or uninstall the s1kd-tools on Linux systems using a package manager. The examples below focus on the standard dpkg (for Debian-based distributions) and rpm (for Red Hat-based distributions).

2.1 Installing

You can download the latest release of the s1kd-tools from http://khzae.net/1/s1000d/s1kd-tools/releases/latest. Then use one of the following commands to install it:

Debian:

```
# dpkg -i s1kd-tools_[version]_[arch].deb
```

Red Hat:

```
# rpm -i s1kd-tools.[version].[arch].rpm
```

2.2 Uninstalling

To uninstall using the package manager, use one of the following commands:

Debian:

```
# dpkg -r s1kd-tools
```

Red Hat:

```
# rpm -e s1kd-tools
```

3 Building from source

3.1 Requirements

To build the executables:

- coreutils and binutils
- xxd
- pkg-config
- libxml2, libxslt, libexslt

To build the documentation from source:

- s1kd2db
- pandoc

Applicable to: Version: 3.3.0

3.2 Windows build environment

To build the executables on Windows, an environment such as MinGW or Cygwin is recommended. These provide POSIX-compatible tools, such as make, that allow the s1kd-tools to be built and installed on a Windows system in the same way as on a Linux system.



3.3 Building and installing

Run the following commands to build the executables, and install both the executables and documentation:

\$ make
make install

To change where these are installed, specify the PREFIX make variable. The default value of this variable is /usr/local.

For example:

make PREFIX=/usr install

3.4 Uninstalling

To uninstall the executables and documentation:

make uninstall

Remember to specify the PREFIX make variable if a different prefix was used during installation.



s1kd-tools *Usage examples*

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References

Table 1 References

Title

None

Description

1 General

This document provides examples of the usage of the s1kd-tools.

The sample commands have been written as they would be used on a Linux or other Unix-like system, but should work more-or-less the same on most operating systems. OS-specific commands used in examples (e.g., mkdir) may need to be adapted.



ICN-S1KDTOOLS-A-000000-A-KHZAE-00002-A-001-01

Fig 1 Example - Authoring with Vim + MuPDF

2 Initial setup

Applicable to: Version: 3.3.0

The first step is to create a folder for the new S1000D project. Example:

\$ mkdir myproject



```
$ cd myproject
```

After that, you should create two files: .defaults and .dmtypes. These files can be created automatically using the s1kd-defaults tool to initialize the new CSDB:

```
$ s1kd-defaults -i
```

Afterwards, these files can be edited to customize them for your project. More information on the contents of these files is provided below.

Note

If the tools are run in a directory that does not have these configuration files, they will search for them in the parent directories to find the top of the CSDB directory tree.

2.1 .defaults file

The .defaults file is used by all of the s1kd-new* tools. It provides default values for various S1000D metadata. The .defaults file can be written in either a simple text format or an XML format.

Example of simple text format:

brex MYPRJ-A-00-00-00A-022A-D

techName My project

Example of XML format:

```
<?xml version="1.0"?>
<defaults>
<default ident="languageIsoCode" value="en"/>
<default ident="countryIsoCode" value="CA"/>
<default ident="responsiblePartnerCompany" value="khzae.net"/>
<default ident="originator" value="khzae.net"/>
<default ident="brex" value="MYPRJ-A-00-00-00A-022A-D"/>
<default ident="techName" value="My project"/>
</defaults>
```

2.2 .dmtypes file

The .dmtypes file is used by the **s1kd-newdm** tool. It contains a list of information codes and associated info names and schemas to be used when creating new data modules. Like the .defaults file, it can be written using either the simple text format or XML format.

Example of simple text format:

```
009 frontmatter Table of contents
022 brex Business rules exchange
040 descript Description
```

Produced by: khzae.net



130 proced Normal operation

Example of XML format:

```
<?xml version="1.0"?>
<dmtypes>
<type infoCode="009" infoName="Table of contents"
schema="frontmatter"/>
<type infoCode="022" infoName="Business rules exchange"
schema="brex"/>
<type infoCode="040" infoName="Description"
schema="descript"/>
<type infoCode="130" infoName="Normal operation"
schema="proced"/>
</dmtypes>
```

The s1kd-newdm tool contains a default set of information code definitions. This can be used to create a default .dmtypes file by use of the -. (simple text format) or -, (XML) options:

```
$ s1kd-newdm -, > .dmtypes
```

The generated .dmtypes file can then be customized to fit your project.

3 Creating the DMRL and populating the CSDB

The next step is to prepare the Data Management Requirements List (DMRL) for the project. The DMRL will contain a list of all the CSDB objects initially required by your project, and can be used to automatically populate your CSDB.

If you do not already have a DMRL, the s1kd-newdml tool can be used to create a new one:

```
$ s1kd-newdml -# MYPRJ-NCAGE-C-2017-00001
```

This would create the file DML-MYPRJ-NCAGE-C-2017-00001_000-01.XML in your CSDB folder.

3.1 Adding DMRL entries

Each entry in the DMRL describes a data module that is planned to be created:

```
<dmlContent>
<dmlEntry>
<dmRef>
<dmRefIdent>
<dmCode modelIdentCode="MYPRJ" systemDiffCode="A" systemCode="00"
subSystemCode="0" subSubSystemCode="0" assyCode="00"
disassyCode="00" disassyCodeVariant="A" infoCode="040"
infoCodeVariant="A" itemLocationCode="D"/>
</dmRefIdent>
<dmRefAddressItems>
<dmTitle>
<techName>My project</techName>
```



```
<infoName>Description</infoName>
</dmTitle>
</dmRefAddressItems>
</dmRef>
<security securityClassification="01"/>
<responsiblePartnerCompany>
<enterpriseName>khzae.net</enterpriseName>
</responsiblePartnerCompany>
</dmlEntry>
...
</dmlContent>
```

The XML for the dmRef of each entry can be quickly generated using the s1kd-ref tool:

```
$ s1kd-ref DMC-MYPRJ-A-00-00-00A-040A-D
```

3.2 Populating the CSDB from the DMRL

Once the DMRL is prepared, the **s1kd-dmrl** tool can be used to automatically populate the CSDB based on the CSDB objects listed in the DMRL:

```
$ s1kd-dmrl DML-MYPRJ-NCAGE-C-2017-00001_000-01.XML
```

Information not included in the DMRL entry for a CSDB object is pulled from the .defaults file (and the .dmtypes file for data modules).

The DMRL should be updated throughout the lifecycle of a project. When new entries are added, simply use the **s1kd-dmrl** tool again to create the newly added data modules. Already existing data modules will not be overwritten, unless the -f option is specified. The -q option will suppress the messages indicating that a data module that already exists will not be overwritten:

```
$ s1kd-dmrl -q DML-MYPRJ-NCAGE-C-2017-00001_000-02.XML
```

3.3 Creating CSDB objects on-the-fly

Data modules and other CSDB objects can also be created in an "on-the-fly" manner, without the use of a DMRL, by invoking the s1kd-new* set of tools directly, as with s1kd-newdml above. For example, to create a new data module:

```
$ s1kd-newdm -# MYPRJ-A-00-00-00A-040A-D
```

This would create the file DMC-MYPRJ-A-00-00-00A-040A-D_000-01_EN-CA.XML in your CSDB folder.

Each of the s1kd-new* tools has various options for setting specific metadata, and information not included as arguments to these commands is pulled from the .defaults and .dmtypes files.

4 Data module workflow

Applicable to: Version: 3.3.0

Data modules are put through the general S1000D workflow with the **s1kd-upissue** tool. Whenever a data module will be changed, the s1kd-upissue tool should first be used to indicate the forthcoming change, creating the next inwork issue of the data module.



4.1 Inwork data modules

To increment the inwork issue of a data module, the s1kd-upissue tool is called without any additional options:

```
$ s1kd-upissue DMC-MYPRJ-A-00-00-00A-040A-D_000-01_EN-CA.XML
```

Assuming this data module was just created, it would be incremented from initial inwork issue 000-01 to initial inwork issue 000-02. After upissuing, make the changes. For example:

DMC-MYPRJ-A-00-00-00-00A-040A-D_000-01_EN-CA.XML:

```
<content>
<description>
<levelledPara>
<title>General</title>
<para>This is my project.</para>
</levelledPara>
</description>
</content>
```

DMC-MYPRJ-A-00-00-00-00A-040A-D_000-02_EN-CA.XML:

```
<content>
<description>
<levelledPara>
<title>General</title>
<para>This is my project.</para>
<para>My project is maintained using S1000D.</para>
</levelledPara>
</description>
</content>
```

4.2 Making data modules official

Before a data module can be made official, it must be validated. This means:

- It is a valid XML file
- It is valid according to the relevant S1000D schema
- It is valid according to the relevant business rules
- Any applicability filtering applied will not affect the above
- The actual narrative (content) is correct

4.2.1 Validating against the schema

Applicable to: Version: 3.3.0

The first two points can be verified with the **s1kd-validate** tool. This tool will indicate any problems with the data module in terms of XML syntax and its correctness regarding its S1000D schema:

```
$ s1kd-validate DMC-MYPRJ-A-00-00-00-00A-040A-D_000-03_EN-CA.XML
```

4.2.2 Validating against a BREX data module

The third point can be verified using the **s1kd-brexcheck** tool. This tool will indicate any places where a data module violates computable business rules as specified in a Business Rules Exchange (BREX) data module.

```
$ s1kd-brexcheck DMC-MYPRJ-A-00-00-00-00A-040A-D_000-03_EN-CA.XML
```

The BREX allows a project to customize S1000D, for example, by disallowing certain elements or attributes:

```
<structureObjectRule>
<objectPath allowedObjectFlag="0">//emphasis</objectPath>
<objectUse>The emphasis element is not allowed.</objectUse>
</structureObjectRule>
```

Or by tailoring the allowed values of certain elements or attributes:

```
<structureObjectRule>
<objectPath allowedObjectFlag="2">
//@securityClassification
</objectPath>
<objectUse>
The security classification must be 01 (Unclassified)
or 02 (Classified).
</objectUse>
<objectUse>
<objectValue valueAllowed="01">Unclassified</objectValue>
<objectValue valueAllowed="02">Classified</objectValue>
</structureObjectRule>
```

Each data module references the BREX it should be checked against, and BREX data modules can reference other BREX data modules to create a layered set of business rules, for example, Project-related rules and Organization-related rules.

Unless otherwise specified, data modules will reference the S1000D default BREX, which contains a base set of business rules.

To get started with your project's own business rules, you can create a simple BREX data module based on the current defaults of your CSDB using the -B option of the s1kd-newdm tool:

```
$ s1kd-newdm -B -# MYPRJ-A-00-00-00A-022A-D
```

This will use the customized .defaults and .dmtypes files to generate a basic set of business rules.

4.2.3 Checking applicability

The fourth point can be tested using the s1kd-appcheck tool:

```
$ s1kd-appcheck DMC-MYPRJ-A-00-00-00-00A-040A-D_000-03_EN-CA.XML
```

The S1000D applicability model allows for conditional processing to be applied both to whole data modules as well as parts of a data module. However, this latter functionality means that, if



elements are removed as part of applicability filtering, the validity of the data module in regards to the S1000D schema and business rules can change.

The s1kd-appcheck tool can report product attribute or condition assignments which would cause the data module to become invalid after filtering.

4.2.4 Quality assurance verification

In contrast to the first four points, which can be verified automatically, the last point is generally not an automatic process, and involves quality assurance testing by a human. That a data module has been first or second QA tested can be indicated with the s1kd-upissue tool:

```
$ s1kd-upissue -1 tabtop -2 ttandoo ...
```

Once the data module is validated, the s1kd-upissue tool is used to make it official with the -i option:

```
$ s1kd-upissue -i DMC-MYPRJ-A-00-00-00A-040A-D_000-03_EN-CA.XML
```

4.3 Changes to official data modules

When a change must be made to an official data module (for example, as a result of feedback), the s1kd-upissue tool is used again to bring the data module back to the inwork state:

```
$ s1kd-upissue DMC-MYPRJ-A-00-00-00-00A-040A-D_001-00_EN-CA.XML
```

Changes between official issues of a data module are indicated with reasons for update and change marking. For example:

```
DMC-MYPRJ-A-00-00-00-00A-040A-D_001-00_EN-CA.XML:
```

```
<content>
<description>
<levelledPara>
<title>General</title>
<para>This is my project.</para>
<para>My project is maintained using S1000D.</para>
</levelledPara>
</description>
</content>
```

DMC-MYPRJ-A-00-00-00-00A-040A-D_001-01_EN-CA.XML:

```
<dmStatus issueType="changed">
<!-- ..... -->
<reasonForUpdate id="rfu-0001">
<simplePara>Added reference to tools used.</simplePara>
</reasonForUpdate>
</dmStatus>
<!-- ..... -->
<content>
<description>
```

```
<levelledPara>
<title>General</title>
<para>This is my project.</para>
<para changeType="modify" changeMark="1"
reasonForUpdateRefIds="rfu-0001">My project is maintained using
$1000D and $1kd-tools.</para>
</levelledPara>
</description>
</content>
```

Reasons for update from the previous official issue are automatically removed when upissuing to the first inwork issue.

4.4 Deleting data modules

The basic cycle continues until a data module is deleted. "Deleting" a data module is a special case of upissuing:

```
$ s1kd-upissue -i -z deleted ...
```

The data module is upissued to the next official issue, and it's issue type is set to "deleted".

Deleted data modules may be reinstated later in a similar way:

```
$ s1kd-upissue -z rinstate-status ...
```

The data module is upissued to the next inwork issue, and the issue type is set to one of the "rinstate-x" types.

5 Building publications

S1000D publications are managed by use of publication modules. Like data modules, publication modules may be created as part of the project's DMRL:

```
<dmlEntry>
<pmRef>
<pmRefIdent>
<pmCode modelIdentCode="MYPRJ" pmIssuer="12345" pmNumber="00001"</pre>
pmVolume="00"/>
</pmRefIdent>
<pmRefAddressItems>
<pmTitle>My publication</pmTitle>
</pmRefAddressItems>
</pmRef>
<responsiblePartnerCompany>
<enterpriseName>khzae.net</enterpriseName>
</responsiblePartnerCompany>
</dmlEntry>
or "on-the-fly" with the s1kd-newpm tool:
$ s1kd-newpm -# MYPRJ-12345-00001-00
```



5.1 Publication module content

The publication module lays out the hierarchical structure of the data modules in a publication:

```
<content>
<pmEntry>
<pmEntryTitle>Front matter/pmEntryTitle>
<dmRef>
<dmRefIdent>
<dmCode modelIdentCode="MYPRJ" systemDiffCode="A" systemCode="00"</pre>
subSystemCode="0" subSubSystemCode="0" assyCode="00" disassyCode="00"
disassyCodeVariant="A" infoCode="001" infoCodeVariant="A"
itemLocationCode="D"/>
</dmRefIdent>
<dmRefAddressItems>
<dmTitle>
<techName>My project</techName>
<infoName>Title page</infoName>
</dmTitle>
</dmRefAddressItems>
</dmRef>
</pmEntry>
<pmEntry>
<pmEntryTitle>General info</pmEntryTitle>
<dmRef>
<dmRefIdent>
<dmCode modelIdentCode="MYPRJ" systemDiffCode="A" systemCode="00"</pre>
subSystemCode="0" subSubSystemCode="0" assyCode="00" disassyCode="00"
disassyCodeVariant="A" infoCode="040" infoCodeVariant="A"
itemLocationCode="D"/>
</dmRefIdent>
<dmRefAddressItems>
<dmTitle>
<techName>My project</techName>
<infoName>Description</infoName>
</dmTitle>
</dmRefAddressItems>
</dmRef>
</pmEntry>
</content>
```

5.2 Creating a customized publication

Applicable to: Version: 3.3.0

The S1000D applicability model and the **s1kd-instance** tool enable the creation of customized publications, which are filtered for a particular customer or product. For example, a data module may contain applicability for two versions of a product:

```
<para>
This is some common information about the product.
</para>
<para applicRefId="app-versionA">
```



```
This information only applies to version A. </para>
<para applicRefId="app-versionB">
This information only applies to version B. </para>
```

When you deliver this data module to a customer with Version B, you can exclude information which is not applicable to them by filtering it:

```
$ s1kd-instance -s version:prodattr=B <DM>
```

To filter a whole publication, use the -O option of the s1kd-instance tool to output multiple filtered objects into a directory:

```
$ slkd-instance -s version:prodattr=B -O customerB DMC-*.XML
```

The newly created customerB directory will contain the filtered versions of these data modules.

If your CSDB contains multiple, separate publications, the **s1kd-refs** tool can be used to select only those data modules which apply to a particular publication module:

```
$ slkd-refs -s <PM> |
> xargs slkd-instance -s version:prodattr=B -O customerB
```

The above command will filter the publication module and all included data modules, and output the resulting objects to the customerB directory.

5.3 Creating a script for publishing

The publishing process will often involve many different steps, and many different tools, so it's a good idea to create a script to automate it. Below is an example of a script which publishes a CSDB for a given product serial number:

Produced by: khzae.net



```
xargs slkd-syncrefs -f
# Create the ZIP package.
zip -jr "$zip" "$tmp"
# Clean up the temp directory.
rm -r "$tmp"
```

6 Use with other version control systems

The issue/inwork numbers and S1000D file naming conventions as seen above provide a basic form of version control. In this case, each file represents a single issue of a CSDB object, and multiple files together represent the whole logical object. For example, all of the following files represent different versions of the same object:

```
- DMC-MYPRJ-A-00-00-00-00A-040A-D_000-01_EN-CA.XML
```

- DMC-MYPRJ-A-00-00-00-00A-040A-D_000-02_EN-CA.XML
- DMC-MYPRJ-A-00-00-00-00A-040A-D_001-00_EN-CA.XML

However, if you prefer to use an existing version control system such as Git or SVN, it is often more useful for each file to represent a whole object.

The s1kd-tools support an alternate naming convention for this case. Specifying the -N option to certain tools will omit the issue and inwork numbers from filenames of CSDB objects. Taking the s1kd-newdm tool example from above, but adding the -N option as follows:

```
$ s1kd-newdm -N -# MYPRJ-A-00-00-00A-040A-D
```

would create the file DMC-MYPRJ-A-00-00-00A-040A-D_EN-CA.XML in your CSDB folder. The s1kd-upissue tool works similarly:

```
$ s1kd-upissue -N -i DMC-MYPRJ-A-00-00-00A-040A-D_EN-CA.XML
```

The issue and inwork numbers are updated in the XML metadata, but instead of creating a new file, the original is overwritten. The previous inwork issues are therefore stored as part of the external version control system's history, rather than as individual files.



s1kd-tools .defaults file identifiers

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Data module/Technica	l publication Title	
None		

Description

1 General

This document contains an alphabetic index of all valid .defaults file identifiers, and a description of the values they may be assigned. It also contains examples of a .defaults file using all identifiers in both the XML format and simple text format.

2 Alphabetic index

Table 2 .defaults file - Identifier value descriptions

Identifier	Value description
act	Data module code of ACT data module
assyCode	2 to 4 alphanumeric characters
authorization	string
brex	Data module code of BREX data module

Produced by: khzae.net

Identifier	Value description
city	string (Sender city)
commentPriorityCode	cp01-cp99
commentType	Q, I, or R
countryIsoCode	ISO 2-character country code
country	string (Sender country)
disassyCodeVariant	1 to 3 alphanumeric characters
disassyCode	2 alphanumeric characters
dmlType	C, P, or S
infoCodeVariant	1 alphanumeric character
infoCode	3 alphanumeric characters
infoName	string
infoNameVariant	string
inWork	2 digits
issueNumber	3 digits
issueType	S1000D issue type (new, changed,)
issue	S1000D issue number (5.0, 4.2, 4.1,)
itemLocationCode	A, B, C, D, or T
languageIsoCode	2 to 3 character ISO language code
learnCode	3 alphanumeric characters
learnEventCode	A, B, C, D, or E
maintainedSns	string
modelIdentCode	1 to 14 alphanumeric characters
originatorCode	5-character NCAGE code
originator	string
pmIssuer	5-character NCAGE code
pmNumber	5 alphanumeric characters
pmVolume	2 digits
receiver	string



Identifier	Value description
receiverCity	string
receiverCountry	string
receiverIdent	5-character NCAGE code
remarks	string
responsiblePartnerCompanyCode	5-character NCAGE code
responsiblePartnerCompany	string
schema	URI
scormContentPackageIssuer	5-character NCAGE code
scormContentPackageNumber	5 alphanumeric characters
scormContentPackageVolume	2 digits
securityClassification	2 digits
sender	string
senderIdent	5-character NCAGE code
seqNumber	00001-99999
skillLevelCode	sk01-sk99
sns	Data module code of BREX data module
snsLevels	1 thru 4
subSubSystemCode	1 alphanumeric character
subSystemCode	1 alphanumeric character
systemCode	2 to 3 alphanumeric characters
systemDiffCode	1 to 4 alphanumeric characters
techName	string
templates	Path to custom XML templates directory
yearOfDataIssue	4 digits

3 Example - XML format

Applicable to: Version: 3.3.0

```
<?xml version="1.0"?>
<defaults>
<default ident="act" value="MYPRJ-A-00-00-00A-00WA-D"/>
<default ident="assyCode" value="00"/>
```



```
<default ident="authorization" value="khzae.net"/>
<default ident="brex" value="MYPRJ-A-00-00-00-00A-022A-D"/>
<default ident="city" value="Toronto"/>
<default ident="commentPriorityCode" value="cp01"/>
<default ident="commentType" value="Q"/>
<default ident="countryIsoCode" value="CA"/>
<default ident="country" value="Canada"/>
<default ident="disassyCodeVariant" value="A"/>
<default ident="disassyCode" value="00"/>
<default ident="dmlType" value="C"/>
<default ident="infoCodeVariant" value="A"/>
<default ident="infoCode" value="258"/>
<default ident="infoName" value="Other procedure to clean"/>
<default ident="infoNameVariant" value="Clean with water"/>
<default ident="inWork" value="01"/>
<default ident="issueNumber" value="000"/>
<default ident="issueType" value="new"/>
<default ident="issue" value="5.0"/>
<default ident="itemLocationCode" value="D"/>
<default ident="languageIsoCode" value="en"/>
<default ident="learnCode" value="H10"/>
<default ident="learnEventCode" value="A"/>
<default ident="maintainedSns" value="General sea vehicles"/>
<default ident="modelIdentCode" value="MYPRJ"/>
<default ident="omitIssueInfo" value="true"/>
<default ident="originatorCode" value="12345"/>
<default ident="originator" value="khzae.net"/>
<default ident="pmIssuer" value="12345"/>
<default ident="pmNumber" value="00000"/>
<default ident="pmVolume" value="00"/>
<default ident="receiver" value="khzae.net"/>
<default ident="receiverCity" value="Toronto"/>
<default ident="receiverCountry" value="Canada"/>
<default ident="receiverIdent" value="12345"/>
<default ident="remarks" value="Comments on a data module"/>
<default ident="responsiblePartnerCompanyCode" value="12345"/>
<default ident="responsiblePartnerCompany" value="khzae.net"/>
<default ident="schema" value="descript.xsd"/>
<default ident="securityClassification" value="01"/>
<default ident="senderIdent" value="12345"/>
<default ident="seqNumber" value="00001"/>
<default ident="skillLevelCode" value="sk01"/>
<default ident="sns" value="MYPRJ-A-00-00-00A-022A-D"/>
<default ident="snsLevels" value="1"/>
<default ident="subSubSystem" value="0"/>
<default ident="subSystem" value="0"/>
<default ident="systemCode" value="00"/>
<default ident="techName" value="My project"/>
```



<default ident="templates" value="/usr/share/s1kd-tools/templ"/> <default ident="yearOfDataIssue" value="2017"/> </defaults>

Example - Simple text format 4

MYPRJ-A-00-00-00-00A-00WA-D

assyCode 00

authorization khzae.net

brex MYPRJ-A-00-00-00-00A-022A-D

Toronto

city commentPriorityCode cp01 commentType countryIsoCode CA Canada country disassyCodeVariant 00 disassyCode dmlType С infoCodeVariant Α infoCode

Other procedure to clean infoName

Clean with water infoNameVariant

inWork issueNumber 000 issueType new issue 5.0 itemLocationCode languageIsoCode en learnCode H10 learnEventCode

maintainedSns General sea vehicles

MYPRJ modelIdentCode omitIssueInfo true 12345 originatorCode originator khzae.net pmIssuer 12345 00000 pmNumber pmVolume 00

receiver khzae.net receiverCity Toronto Canada receiverCountry 12345 receiverIdent

remarks Comments on a data module

responsiblePartnerCompanyCode 12345 khzae.net responsiblePartnerCompany schema descript.xsd

securityClassification

sender khzae.net



senderIdent12345seqNumber00001skillLevelCodesk01

sns MYPRJ-A-00-00-00A-022A-D

snsLevels1subSubSystem0subSystem0systemCode00

techName My project

templates /usr/share/slkd-tools/templ

yearOfDataIssue 2017

s1kd-tools Issue compatibility

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			References	
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Data mod	ule/Ted	chnical publication	Title	
None				

Description

1 General

This document summarizes the compatibility between the s1kd-tools and each issue of the S1000D specification for which support is planned.

[empty] Support is planned but not yet implemented.

X Support is implemented.

Support is partially implemented.

Support is not planned. Usually this is because older issues of the specification did not cover the function of the tool.

Note

Applicable to: Version: 3.3.0

Although a tool may not directly support an issue of S1000D, it may still be possible to use with that issue.

For example, the s1kd-brexcheck tool is said not to support Issue 2.0 or Issue 2.1, because the BREX data module schema was not introduced until Issue 2.2. However, an Issue

2.2 or greater BREX data module can still be used to check Issue 2.0 or Issue 2.1 CSDB objects.

Table 2 Compatibility with supported issues of S1000D

Tool	5.0	4.2	4.1	4.0	3.0	2.3	2.2	2.1	2.0
s1kd-acronyms	Χ	Х	Х	Χ	Х	Χ	Х	Χ	X
s1kd-addicn	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	X
s1kd-appcheck	Χ	Χ	Χ	Χ	Χ	~	~	~	~
s1kd-aspp	Χ	Χ	Χ	Χ	Χ	~	~	~	~
s1kd-brexcheck	Χ	Χ	Χ	Χ	Χ	Χ	Χ	~	~
s1kd-defaults	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
s1kd-dmrl	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	X
s1kd-flatten	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
s1kd-fmgen	Χ	Χ	Χ	~	~	~	~	~	~
s1kd-icncatalog	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
s1kd-index	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	X
s1kd-instance	Χ	Χ	Χ	Χ	/	~	~	~	~
s1kd-ls	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	X
s1kd-metadata	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
s1kd-mvref	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	X
s1kd-neutralize	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
s1kd-newcom	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	X
s1kd-newddn	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
s1kd-newdm	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
s1kd-newdml	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
s1kd-newimf	Χ	Χ	~	~	~	~	~	~	~
s1kd-newpm	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
s1kd-newsmc	Χ	Χ	Χ	~	~	~	~	~	~
s1kd-newupf	Χ	Χ	Χ	~	~	~	~	~	~
s1kd-ref	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	X

Tool	5.0	4.2	4.1	4.0	3.0	2.3	2.2	2.1	2.0
s1kd-refs	Χ	Х	Χ	Χ	Х	Χ	Х	Х	Х
s1kd-repcheck	Χ	Χ	Χ	Χ	Χ	Χ	~	~	~
s1kd-sns	Χ	Χ	Χ	Χ	~	~	~	~	~
s1kd-syncrefs	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
s1kd-uom	Χ	Χ	Χ	Χ	Χ	Χ	~	~	~
s1kd-upissue	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
s1kd-validate	Χ	X	Χ	X	X	X	X	X	Χ

Data module/Technical publication

s1kd-tools workflow Standard procedure for processing S1000D documents

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<u>S1KDTOOLS-A-00-00-00-00A-040B-D</u> s1kd-tools - Description

Common information

Title

This procedure describes the standard workflow for processing S1000D documents using the s1kd-tools suite. The tools provide comprehensive functionality for creating, validating, and managing S1000D compliant technical documentation.



Preliminary requirements

Required conditions

Table 2 Required conditions

Action/Condition	Data module/Technical publication
s1kd-tools must be installed and configured	
S1000D schema files must be available	

Required persons

Table 3 Required persons

Person	Category	Skill Level	Trade/Trade code	Estimated time
Man A	Engine	sk99	Operator	1,0 h

Required technical information

Table 4 Required technical information

Document No.	Title	Category
S1KDTOOLS-A-00-00-00A-040B-D	s1kd-tools - Description	PM

Support equipment

Table 5 Support equipment

Name	Identification/Reference	Quantity	Remark
Computer workstation	Part No. GENERIC/ WORKSTATION-001	1	

Consumables, materials and expendables

Table 6 Consumables, materials and expendables

Name	Identification/Reference	Quantity	Remark
S1000D Schema files	Part No. S1000D/ SCHEMA-5.0	1 SET	



Spares

Table 7 Spares

Name	Identification/Reference	Quantity	Remark
None			

Safety conditions

WARNING

Always validate documents before publishing. Invalid S1000D documents may cause processing errors in downstream systems.

CAUTION

Backup original documents before processing. Some tools may modify files in place.

Procedure

- 1 Create a new data module using **s1kd-newdm**.
 - s1kd-newdm -# S1KDTOOLS-A-00-00-00-00A-040A-D
- 2 Edit the data module content using your preferred XML editor.

Note

Applicable to: Version: 3.3.0

Ensure proper S1000D markup and structure are maintained throughout the editing process.

- 3 Validate the data module using **s1kd-validate** as shown in <u>Step 3.1</u>.
 - s1kd-validate DMC-S1KDTOOLS-A-00-00-00-00A-040A-D_EN-CA.XML
- 3.1 Review validation results and fix any errors or warnings.
- 3.2 If validation fails, return to step 2 for corrections.
- 4 Synchronize references using **s1kd-syncrefs**.

slkd-syncrefs -f DMC-S1KDTOOLS-A-00-00-00-00A-040A-D_EN-CA.XML

- 5 Generate publication module if required using **s1kd-newpm**.
 - s1kd-newpm -# S1KDTOOLS-KHZAE-00001-00
- 6 Perform final validation of all documents in the publication set.



s1kd-validate *.XML

Requirements after job completion

Required conditions

Table 8 Required conditions

Action/Condition	Data module/Technical publication
All documents must pass validation without errors	
References must be synchronized and consistent	



s1kd-defaults

Description

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Data mod	ule/Tech	nnical publication Title	
None			

Description

1 General

The ${\tt s1kd\text{-}defaults}$ tool generates a basic .defaults file for a new CSDB, which is used by several of the other ${\tt s1kd\text{-}tools}$ to determine default values for S1000D metadata. It also provides a way to convert between the simple text and XML formats of the .defaults, .dmtypes and .fmtypes files.

2 Usage

Applicable to: Version: 3.3.0

slkd-defaults [-DdFfisth?] [-b <BREX>] [-j <map>]



[-n <name> -v <value> ...] [-o <dir>] [<file>...]

3 Options

-b, --brex <BREX> Use the specified BREX data module to build the .defaults

and .dmtypes files. This can be used both when initializing a new CSDB (-i) or either file can be generated from a BREX

data module separately.

-D, --dmtypes Convert a .dmtypes file.
-d, --defaults Convert a .defaults file.
-F, --fmtypes Convert a .fmtypes file.

-f, --overwrite Overwrite the existing file after conversion.

-h, -?, --help Show help/usage message.

-i, --init Initialize a new CSDB by generating the .defaults,

.dmtypes and .fmtypes files in the current directory.

-J, --dump-brexmap Dump the default .brexmap file to stdout.

-j, --brexmap <map> Use a custom .brexmap file to map a BREX DM to a

.defaults or .dmtypes file.

-n, --name <name> The name of a specific default key to set a value for. The

value must be specified after this option with -v. Multiple pairs of -n and -v can be specified to set multiple default values.

-o, --dir <dir> Initialize or manage configuration files in <dir> instead of the

current directory. If <dir> does not exist, it will be created.

-s, --sort Sort the entries alphabetically for either file/output format.

-t, --text Output using the simple text format. Otherwise, the XML

format is used by default.

-v, --value <value> The new value to set for the default key specified with -n. This

option must be specified after -n.

--version Show version information.

<file>... Names of files to convert. If none are specified, the default

names of .defaults (for the -d option), .dmtypes (for the -D option) or .fmtypes (for the -F option) in the current

directory are used.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.



--parser-warnings Emit warnings from parser.

--xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

3.1 .brexmap file

This file specifies a mapping between BREX structure object rules and .defaults and .dmtypes files. The path to an object can be written in many different ways in a BREX rule, so the .brexmap file allows any project's BREX to be used to generate these files without having to modify the BREX data module itself.

By default, the program will search for a file named .brexmap in the current directory and parent directories, but any file can be specified using the -j option. If there is no .brexmap file and the -j option is not specified, a default mapping will be used.

Example of .brexmap file:

```
<brexMap>
<dmtypes path="//@infoCode"/>
<default path="//@languageIsoCode" ident="languageIsoCode"/>
<default path="//@countryIsoCode" ident="countryIsoCode"/>
</brexMap>
```

More exact matches can be made by using the attribute id on the <dmtypes> or <default> elements. This overrides the path attribute, and will only match a BREX rule with the specified ID.

4 Examples

Applicable to: Version: 3.3.0

4.1 Initialize a new CSDB, using the XML format

```
$ mkdir mycsdb
$ cd mycsdb
$ s1kd-defaults -i
```

4.2 Initialize a new CSDB, using the simple text format

```
$ mkdir mycsdb
$ cd mycsdb
$ slkd-defaults -ti
```

4.3 Generate a custom-named .defaults file

```
$ s1kd-defaults > custom-defaults.xml
```

4.4 Convert a simple text formatted file to XML

```
$ s1kd-defaults -df
```



4.5 Sort entries and output in text format

\$ s1kd-defaults -dts custom-defaults.txt

4.6 Set a default value in the current .defaults file

\$ s1kd-defaults -df -n issue -v 5.0



s1kd-dmrl

Description

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Data mod	lule/Te	chnical publication	Title	
None				
			Description	

Description

1 General

The **s1kd-dmrl** tool reads S1000D data management lists and creates CSBD objects for the entries specified using the s1kd-new* tools.

2 Usage

s1kd-dmrl [options] <DML>...

3 Options

-\$,issue <issue></issue>	Specify which issue of \$1000D to use when creating objects.
-@,out <dir></dir>	Create new objects in <dir>.</dir>
-%,templates <dir></dir>	Use XML templates in the specified directory instead of the built-in templates of each of the s1kd-new* tools.
-D,dmtypes <path></path>	Specify the .dmtypes file name.



-d, --defaults <path> Specify the .defaults file name.

-F, --fail Fail on the first error generated by any of the s1kd-new*

commands. Normally, errors with individual DMRL entries will

be reported but the other entries will still be processed.

-f, --overwrite Overwrite existing CSDB objects.

-h, -?, --help Show help/usage message.

-m, --use-remarks Use the remarks for an entry as the remarks for the new

CSDB object.

-N, --omit-issue Omit issue/in-work numbers from the filenames of created

CSDB objects.

-q, --quiet Do not report errors when any of the CSDB objects already

exist.

-s, --commands Do not create CSDB objects, only output the s1kd-new*

commands to create them.

-v, --verbose Print the filenames of newly created CSDB objects.

--version Show version information.

<DML>... One or more S1000D data management lists.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.--parser-warnings Emit warnings from parser.--xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

4 Example

\$ s1kd-dmrl DML-EX-12345-C-2018-00001_001-00.XML



s1kd-newcom

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Data r	nodule/Tecl	nnical publication	Title
S1KD	TOOLS-A-07	7-00-00-00A-040A-D	s1kd-newdm - Description
			Description
1	Gene The s1		es a new S1000D comment with the code and metadata specified.
2	Usag	ge	
	s1kd-	newcom [options]	
3	Opti	ons	
	-#,cc	ode <code></code>	The code of the comment, in the form of MODELIDENTCODE-SENDERIDENT-YEAR-SEQ-TYPE.
	-\$,is	sue <issue></issue>	Specify which issue of S1000D to use. Currently supported issues are:
			- 5.0 (default)

Applicable to: Version: 3.3.0

- 4.2

- 4.1

- 4.0

- 3.0

- 2.3

- 2.2

- 2.1

- 2.0

-@, --out <path> Save the new comment to <path>. If <path> is an existing

directory, the comment will be created in it instead of the current directory. Otherwise, the comment will be saved as the filename <path> instead of being automatically named.

of the built-in template. The template must be named ${\tt comment.xml}$ inside <dir> and must conform to the default

S1000D issue (5.0).

-b, --brex <BREX> BREX data module code.

-C, --country <country> The country ISO code of the new comment.

-c, --security <sec> The security classification of the new comment.

-d, --defaults <file> Specify the .defaults file name.

-f, --overwrite Overwrite existing file.

-h, -?, --help Show help/usage message.

-I, --date <date> The issue date of the new comment in the form of YYYY-MM-

DD.

-L, --language <lang> The language ISO code of the new comment.

-m, --remarks <remarks> Set the remarks for the new comment.

-o, --origname <orig> The enterprise name of the originator of the comment.

-P, --priority <code> The priority code of the new comment.

-p, --prompt Prompt the user for values left unspecified.

-q, -quiet Do not report an error when the file already exists.

-r, --response <type> The response type of the new comment.

-t, --title <title> The title of the new comment.

-v, --verbose Print the file name of the newly created comment.

-z, --issue-type <type> The issue type of the new comment.

--version Show version information.



In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.
 --parser-warnings Emit warnings from parser.
 --xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

3.1 .defaults file

Refer to $\underline{\text{S1KDTOOLS-A-07-00-00A-040A-D}}$ for information on the .defaults file which is used by all the s1kd-new* commands.

4 Example

\$ s1kd-newcom -# EX-12345-2018-00001-Q



s1kd-newddn

Description

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Data m	nodule/Technical publication	Title
S1KDT	OOLS-A-07-00-00-00A-040A-D	s1kd-newdm - Description
		Description
1	General The s1kd-newddn tool create list of files specified.	s a new S1000D data dispatch note with the code, metadata, and
2	Usage	
	s1kd-newddn [options]	<files></files>
3	Options	
	-#,code <code></code>	The code of the new data dispatch note, in the form of MODELIDENTCODE-SENDER-RECEIVER-YEAR-SEQUENCE.
	-\$,issue <issue></issue>	Specifiy which issue of S1000D to use. Currently supported issues are:

Applicable to: Version: 3.3.0

5.0 (default)

- 4.2

- 4.1

- 4.0

- 3.0

- 2.3

- 2.2

- 2.1

- 2.0

-@, --out <path> Save the new DDN to <path>. If <path> is an existing

directory, the DDN will be created in it instead of the current directory. Otherwise, the DDN will be saved as the filename

<path> instead of being automatically named.

-%, --templates <dir>
 Use the XML template in the specified directory instead of

the built-in template. The template must be named ddn.xml inside <dir> and must conform to the default \$1000D issue

(5.0).

-~, --dump-templates <dir>
 Dump the built-in XML template to the specified directory.

-a, --authorization <auth> Specify the authorization.-b, --brex <BREX> BREX data module code.

-d, --defaults <file> Specify the .defaults file name.

-f, --overwrite Overwrite existing file.

-h, -?, --help Show help/usage message.

-I, --date <date> The issue date of the new DDN in the form of YYYY-MM-DD.

-m, --remarks <remarks> Set the remarks for the new data dispatch note.

-N, --receiver-country <country>-n, --sender-country <country>The receiver's country.

-o, --sender <name> The enterprise name of the sender.

-p, --prompt Prompt the user for values left unspecified.

-q, --quiet Do not report an error when the file already exists.

-r, --receiver <name> The enterprise name of the receiver.

-T, --receiver-city <city> The receiver's city.
-t, --sender-city <city> The sender's city.

-v, --verbose Print the file name of the newly created DDN.

--version Show version information.

In addition, the following options allow configuration of the XML parser:



--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.
 --parser-warnings Emit warnings from parser.
 --xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

3.1 .defaults file

Refer to $\underline{\text{S1KDTOOLS-A-07-00-00A-040A-D}}$ for information on the <code>.defaults</code> file which is used by all the <code>s1kd-new*</code> commands.

4 Example

\$ s1kd-newddn -# EX-12345-54321-2018-00001



s1kd-newdm

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Data module/Ted	chnical publication	Title	
S1KDTOOLS-A-3	0-00-00-00A-040A-D	s1kd-defaults - Description	
_	L	Description	

1 General

The **s1kd-newdm** tool creates a new S1000D data module with the data module code and other metadata specified.

2 Usage

s1kd-newdm [options]

3 Options

-#, --code <DMC>

The data module code of the new data module. The prefix "DMC-" is optional.

-\$, --issue <issue>

If - is given for the code, a random data module code will be generated. If only a model identification code is given instead (e.g., -# TEST), or the .defaults file specifies a default model identification code, this will be used as part of the random code. The information type of the random code will be 000A-D.

Specify which issue of S1000D to use. Currently supported issues are:

- 5.0 (default)
- 4.2
- 4.1
- 4.0
- -3.0
- 2.3
- 2.2
- 2.1
- 2.0

-@, --out <path> Save the new data module to <path>. If <path> is an existing directory, the data module will be created in it instead of the current directory. Otherwise, the data module will be saved as

the filename <path> instead of being automatically named.

built-in templates.

-,, --dump-dmtypes-xml

Dumps the built-in default .dmtypes XML. This can be used to quickly set up a starting point for a project's custom info codes, from which info names can be modified and unused

codes can be removed to fit the project.

-., --dump-dmtypes Dumps the simple text form of the built-in default .dmtypes.

-!, --no-infoname Do not include an info name for the new data module.

-a, --act <ACT> ACT data module code.

-B, --generate-brex-rules When creating a new BREX data module, use the

.defaults and .dmtypes files to add a basic set of context

rules.

-b, --brex <BREX> BREX data module code.

-C, --country <country> The country ISO code of the new data module.

-c, --security <sec> The security classification of the new data module.

-D, --dmtypes <dmtypes> Specify the .dmtypes file name.



-d, --defaults <defaults> Specify the .defaults file name.

-f, --overwrite Overwrite existing file.

-h, -?, --help Show help/usage message.

-I, --date <date> Issue date of the new data module in the form of YYYY-MM-

DD.

-i, --infoname <info> The info name of the new data module.

-j, --brexmap <map> Use a custom .brexmap file when using the -B option.

-k, --skill <skill> The skill level code of the new data module.

-L, --language <language> The language ISO code of the new data module.

-M, --maintained-sns <SNS> Determine the tech name from on one of the built-in S1000D maintained SNS. Supported SNS:

- Generic

Support and training equipment

Ordnance

General communications

Air vehicle, engines and equipment

Tactical missiles

General surface vehicles

- General sea vehicles

When creating a BREX data module, this SNS will be included as the SNS rules of the new data module. The "maintainedSns" .defaults file key can be used to set

one of the above SNS as the default.

-m, --remarks <remarks> Set remarks for the new data module.

-N, --omit-issue Omit issue/inwork numbers from filename.

-n, --issno <issue> The issue number of the new data module.

-O, --origcode <CAGE> The CAGE code of the originator.

-o, --origname <orig>

The originator enterprise name of the new data module.

-P, --sns-levels <levels> When determining tech name from an SNS (-S or -M), include the specified number of levels of SNS in the tech name, from

1 (default) to 4. Each level is separated by " - ".

For example, if <levels> is 2, then:

 tech names derived from a subsystem will be formatted as "System - Subsystem"

 tech names derived from a subsubsystem will be formatted as "Subsystem - Subsubsystem" and tech names derived from an assembly will be formatted as "Subsubsystem - Assembly".

If two levels have the same title, then only one will be used. The "snsLevels" .defaults file key can also be set to control this option.

-p, --prompt Prompts the user for any values left unspecified.

-q, --quiet Do not report an error when the file already exists.

-R, --rpccode <CAGE> The CAGE code of the responsible partner company.

-r, --rpcname <RPC> The responsible partner company enterprise name of the new

data module.

-S, --sns <BREX> Determine the tech name from the SNS rules of a specified BREX data module. This can also be specified in the .defaults file with the key "sns", or the key "brex" if "sns"

is not specified.

-s, --schema <schema> The schema URL.

-T, --type <schema> The type (schema) of the new data module. Supported schemas:

appliccrossreftable - Applicability cross-reference table

brdoc - Business rule document

brex - Business rule exchange

checklist - Maintenance checklist

comrep - Common information repository

condcrossreftable - Conditions cross-reference table

container - Container

crew - Crew/Operator information

descript - Descriptive

fault - Fault information

frontmatter - Front matter

ipd - Illustrated parts data

learning - Technical training information

prdcrossreftable - Product cross-reference table

proced - Procedural

process - Process

sb - Service bulletin

schedul - Maintenance planning information

scocontent - SCO content information



techrep - Technical repository (replaced by comrep in

issue 4.1)

wrngdata - Wiring datawrngflds - Wiring fields

-t, --techname <tech> The tech name of the new data module.

-V, --infoname-variant <variant> The info name variant of the new data module.

-v, --verbose Print the file name of the newly created data module.

-w, --inwork <inwork> The inwork number of the new data module.

-z, --issue-type <type> The issue type of the new data module.

--version Show version information.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.--parser-warnings Emit warnings from parser.--xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

3.1 Prompt (-p) option

If this option is specified, the program will prompt the user to enter values for metadata which was not specified when calling the program. If a piece of metadata has a default value (from the .defaults and .dmtypes files), it will be displayed in square brackets [] in the prompt, and pressing Enter without typing any value will select this default value.

3.2 .defaults file

This file sets default values for each piece of metadata. By default, the program will search the current directory and parent directories for a file named <code>.defaults</code>, but any file can be specified by using the -d option.

All of the s1kd-new* commands use the same .defaults file format, so this file can contain default values for multiple types of metadata.

Each line consists of the identifier of a piece of metadata and its default value, separated by whitespace. Lines which do not match a piece of metadata are ignored, and may be used as comments. Example:

General



countryIsoCode CA
languageIsoCode en
originator khzae.net
responsiblePartnerCompany khzae.net

securityClassification 01

Alternatively, the .defaults file can be written using an XML format, containing a root element defaults with child elements default which each have an attribute ident and an attribute value.

```
<?xml version="1.0"?>
<defaults>
<!-- General -->
<default ident="countryIsoCode" value="CA"/>
<default ident="languageIsoCode" value="en"/>
<default ident="originator" value="khzae.net"/>
<default ident="responsiblePartnerCompany" value="khzae.net"/>
<default ident="securityClassification" value="01"/>
</defaults>
```

3.3 .dmtypes file

This file sets the default schema and info name for data modules based on their info code. By default, the program will search the current directory and parent directories for a file named .dmtypes, but any file can be specified by using the -D option.

Each line consists of an info code, a schema identifier, and optionally a default info name. Example:

```
000 descript
022 brex Business rules
040 descript Description
520 proced Remove procedure
```

Like the .defaults file, the .dmtypes file may also be written in an XML format, where each child has an attribute infoCode, an attribute schema, and optionally an attribute infoName.

```
<?xml version="1.0">
<dmtypes>
<type infoCode="000" schema="descript"/>
<type infoCode="022" schema="brex" infoName="Business rules"/>
<type infoCode="040" schema="descript" infoName="Description"/>
<type infoCode="520" schema="proced" infoName="Remove procedure"/>
</dmtypes>
```

The info code field can also include an info code variant, item location code, learn code, and learn event code, which allows for more specific default schemas and info names.

Example of info code variants:

Applicable to: Version: 3.3.0

```
258A proced Other procedure to clean
```



```
258B proced Other procedure to clean, Clean with air 258C proced Other procedure to clean, Clean with water
```

Example of item location codes:

```
200A-A proced Servicing, while installed
200A-C proced Servicing, on the bench
200A-T proced Servicing, training
```

Example of learn codes:

```
100A-A-H10A learning Operation: Performance analysis 100A-A-T5CC learning Operation: Simulation 100A-A-T80E learning Operation: Assessment
```

The XML format additionally supports the use of the attribute infoNameVariant, for use with S1000D Issue 5.0 and up, allowing extensions of the info name to be encoded separately:

```
<dmtypes>
<type
infoCode="258A"
schema="proced"
infoName="Other procedure to clean"/>
<type
infoCode="258B"
schema="proced"
infoName="Other procedure to clean"
infoNameVariant="Clean with air"/>
<type
infoCode="258C"
schema="proced"
infoName="Other procedure to clean"
infoNameVariant="Clean with water"/>
</dmtypes>
```

Defaults are chosen in the order they are listed in the .dmtypes file. An info code which does not specify a variant, item location code, learn code or learn event code, or uses asterisks in their place, matches all possible variants, item location codes, learn codes and learn event codes.

3.4 .brexmap file

Refer to S1KDTOOLS-A-30-00-00A-040A-D for a description of the .brexmap file.

3.5 Custom XML templates (-%)

A minimal set of S1000D templates are built-in to this tool, but customized templates may be used with the -% option. This option takes a path to a directory where the custom templates are located. Each template should be named <schema>.xml, where <schema> is the name of the schema, matching one of the schema names in the .dmtypes file or the schema specified with the -T option.



The templates must be written to conform to the default S1000D issue of this tool (currently 5.0). They will be automatically transformed when another issue is specified with the -\$ option.

The templates default can also be specified in the <code>.defaults</code> file to use these custom templates by default.

4 Example

\$ s1kd-newdm -# S1KDTOOLS-A-00-07-00-00A-040A-D



s1kd-newdml

Description

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Data module	Technical publication	Title
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		Description

1 General

The **s1kd-newdml** tool creates a new S1000D data management list with the code and other metadata specified.

2 Usage

s1kd-newdml [options] [<object>...]

3 Options

Applicable to: Version: 3.3.0

-#, --code <code> The data management list code of the new DML.
-\$, --issue <issue> Specify which issue of S1000D to use. Currently supported issues are:

5.0 (default)

- 4.2

- 4.1

-4.0

- 3.0

- 2.3

- 2.2

- 2.1

- 2.0

-@, --out <path> Save the new DML to <path>. If <path> is an existing

directory, the DML will be created in it instead of the current directory. Otherwise, the DML will be saved as the filename

<path> instead of being automatically named.

the built-in template. The template must be named dml.xml inside <dir> and must conform to the default S1000D issue

(5.0).

-~, --dump-templates <dir>

Dump the built-in XML template to the specified directory.

-b, --brex <BREX>

BREX data module code.

-c, --security <sec>

The security classification of the new DML.

-d, --defaults <file>

Specify the .defaults file name.

-f, --overwrite

-h, -?, --help

Overwrite existing file. Show usage message.

-I, --date <date>

The issue date of the new DML in the form of YYYY-MM-DD.

-i, --info-code <info code>

When creating a DMRL from SNS rules (-S), use the specified info code for each entry. Specify this option multiple times to create multiple data modules for each part of the

SNS. <info code> can specify:

the base info code (e.g., 520)

the info code variant (e.g., 520B)

the item location code (e.g., 520B-C)

-I, --list Treat input (stdin or arguments) as lists of CSDB objects to

add to the new list.

-m, --remarks <remarks>

Set the remarks for the new data management list.

-N, --omit-issue

Omit the issue/inwork numbers from filename.

-n, --issno <issue>

The issue number of the new DML.

-p, --prompt

Prompts the user for any values left unspecified.

-q, --quiet

Do not report an error when the file already exists.



-R, --rpccode <NCAGE> Specifies a default responsible partner company enterprise

code for entries which do not carry this in their ID STATUS

section (ICN, COM, DML).

-r, --rpcname <name> Specifies a default responsible partner company enterprise

name for entries which do not carry this in their IDSTATUS

section (ICN, COM, DML).

-S, --sns <SNS> Create a DMRL using the specified SNS rules.
-v, --verbose Print the file name of the newly created DML.

-w, --inwork <inwork>-z, --issue-type <type>The inwork number of the new DML.

--version Show version information.

<object>...
Any number of CSDB object file names to automatically add

to the list.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.
 --parser-warnings Emit warnings from parser.
 --xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

3.1 .defaults file

Refer to <u>S1KDTOOLS-A-07-00-00A-040A-D</u> for information on the .defaults file which is used by all the s1kd-new* commands.

4 Example

Applicable to: Version: 3.3.0

\$ s1kd-newdml -# EX-12345-C-2018-00001



s1kd-newimf

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			Description
1	Gene The s1k		a new S1000D ICN metadata file for specified ICN files.
2	Usag	е	
	s1kd-n	newimf [options] <i< th=""><th>ICNs></th></i<>	ICNs>
3	Optio	ons	
	-\$,iss	ue <issue></issue>	Specify which issue of S1000D to use. Currently supported issues are:

5.0 (default)

4.2

Applicable to: Version: 3.3.0



-@, --out <path> Save the new IMF to <path>. If <path> is an existing

directory, the IMF will be created in it instead of the current directory. Otherwise, the IMF will be saved as the filename

<path> instead of being automatically named.

-%, --templates <dir>
Use the XML template in <dir> instead of the built-in

template. The template must be named icnmetadata.xml inside <dir> and must conform to the default \$1000D issue

(5.0).

--, --dump-templates <dir>
 Dump the built-in XML template to the specified directory.

-b, --brex <BREX> BREX data module code.

-c, --security <sec> The security classification of the new ICN metadata file.

-d, --defaults <file> Specify the .defaults file name.

-f, --overwrite Overwrite existing file.

-h, -?, --help Show help/usage message.

-I, --date <date> The issue date of the new ICN metadata file in the form of

YYYY-MM-DD.

-m, --remarks <remarks> Set the remarks for the new ICN metadata file.
-n, --issno <issue> The issue number of the new ICN metadata file.

-O, --origcode <CAGE> The CAGE code of the originator.

-o, -origname <orig>
The originator enterprise name of the new ICN metadata file.

-p, --prompt
 -q, --quiet
 -R, --rpccode < CAGE>
 Prompts the user for any values left unspecified.
 Do not report an error when the file already exists.
 The CAGE code of the responsible partner company.

-r, --rpcname <RPC> The responsible partner company enterprise name of the new

ICN metadata file.

-t, --title <title> The ICN title (if creating multiple ICNs, they will all use this

title).

-v, --verbose-w, --inwork <inwork>Print the file name of the newly created IMF.The inwork issue of the new ICN metadata file.

--version Show version information.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.
--parser-warnings Emit warnings from parser.



--xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

3.1 .defaults file

Refer to $\underline{\text{S1KDTOOLS-A-07-00-00A-040A-D}}$ for information on the .defaults file which is used by all the s1kd-new* commands.

4 Example

\$ s1kd-newimf ICN-EX-00001-001-01.PNG



s1kd-newpm

Description

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			Description	

1 General

The **s1kd-newpm** tool creates a new S1000D publication module with the publication module code and other metadata specified.

2 **Usage**

s1kd-newpm [options] [<DM>...]

3 **Options**

Applicable to: Version: 3.3.0

-#, --code <PMC> The publication module code of the new publication module. Specify which issue of S1000D to use. Currently supported -\$, --issue <issue> issues are:

5.0 (default)

- 4.2

- 4.1

- 4.0

- 3.0

- 2.3

- 2.2

- 2.1

- 2.0

-@, --out <path>

Save the new publication module to <path>. If <path> is an existing directory, the publication module will be created in it instead of the current directory. Otherwise, the publication module will be saved as the filename <path> instead of being automatically named.

-%, --templates <dir>

Use the XML template in <dir> instead of the built-in template. The template must be named pm.xml in <dir> and must conform to the default S1000D issue (5.0).

-~, --dump-templates <dir>

Dump the built-in XML template to the specified directory.

-a, --act <ACT>

ACT data module code.

-b, --brex <BREX>

BREX data module code.

-C, --country <country>

The country ISO code of the new publication module.

-c, --security <sec>

The security classification of the new publication module.

-D, --include-date

Include issue date in referenced data modules.

Specify the .defaults file name.

-d, --defaults <file>

Overwrite existing file.

-f, --overwrite -h, -?, --help

Show help/usage message.

-I, --date <date>

The issue date of the new publication module in the form of

YYYY-MM-DD.

-i, --include-issue

Include issue information in referenced data modules.

-L, --language <language>

The language ISO code of the new publication module.

-I, --include-lang

Include language information in referenced data modules.

-m, --remarks <remarks>

Set remarks for the new publication module.

-n, --issno <issue>

The issue number of the new publication module.

-p, --prompt

Prompt the user for any values left unspecified.

-q, --quiet

Do not report an error when the file already exists.

-R, --rpccode <CAGE>

The CAGE code of the responsible partner company.

-r, --rpcname <RPC>

The CAGE code of the responsible partner company.

The responsible partner company enterprise name of the new

publication module.



-s, --short-title <title> The short title of the new publication module.-T, --include-title Include titles in referenced data modules.

-t, --title <title> The title of the new publication module.

-v, --verbose Print the file name of the newly created publication module.

-w, --inwork <inwork>-z, --issue-type <type>The inwork number of the new publication module.

--version Show version information.

<DM>... Any number of data modules to automatically reference in the

new publication module's content.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.
 --parser-warnings Emit warnings from parser.
 --xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

3.1 .defaults file

Refer to $\underline{\text{S1KDTOOLS-A-07-00-00A-040A-D}}$ for information on the .defaults file which is used by all the s1kd-new* commands.

4 Example

\$ s1kd-newpm -# EX-12345-00001-00



s1kd-newsmc

Description

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	E	escription

1 General

The **s1kd-newsmc** tool creates a new S1000D SCORM content package with the SCORM content package code and other metadata specified.

2 Usage

s1kd-newsmc [options] [<DM>...]

3 Options

Produced by: khzae.net

-#,code <smc></smc>	The SCORM content package code of the new SCORM content package.
-\$,issue <issue></issue>	Specify which issue of S1000D to use. Currently supported issues are:

Applicable to: Version: 3.3.0

5.0 (default)

- 4.2

- 4.1

-@, --out <path> Save the new SCORM content package to <path>. If <path>

is an existing directory, the SCORM content package will be created in it instead of the current directory. Otherwise, the SCORM content package will be saved as the filename

<path> instead of being automatically named.

-%, --templates <dir>
Use the XML template in <dir> instead of the

built-in template. The template must be named

scormcontentpackage.xml in <dir> and must conform to

the default S1000D issue (5.0).

-a, --act <ACT> ACT data module code.-b, --brex <BREX> BREX data module code.

-C, --country <country> The country ISO code of the new SCORM content package.

-c, --security <sec> The security classification of the new SCORM content

package.

-D. --include-date Include issue date in referenced data modules.

-d, --defaults <file> Specify the .defaults file name.

-f, --overwrite Overwrite existing file.

-h, -?, --help Show help/usage message.

-I, --date <date> The issue date of the new SCORM content package in the

form of YYYY-MM-DD.

-i, --include-issue Include issue information in referenced data modules.

-k, --skill <skill> The skill level code of the new SCORM content package.

-L, --language <language> The language ISO code of the new SCORM content

package.

-I, --include-lang Include language information in referenced data modules.

-m, --remarks <remarks> Set remarks for the new SCORM content package.

-n, --issno <issue> The issue number of the new SCORM content package.

-p, --prompt Prompt the user for any values left unspecified.

-q, --quiet Do not report an error when the file already exists.

-R, --rpccode <CAGE> The CAGE code of the responsible partner company.

-r, --rpcname <RPC> The responsible partner company enterprise name of the new

SCORM content package.

-T, --include-title Include titles in referenced data modules.



-t, --title <title> The title of the new SCORM content package.

-v, --verbose Print the file name of the newly created SCORM content

package.

-w, --inwork <inwork>-z, --issue-type < type>The inwork number of the new SCORM content package.

--version Show version information.

<DM>... Any number of data modules to automatically reference in the

new SCORM content package's content.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.
 --parser-warnings Emit warnings from parser.
 --xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

3.1 .defaults file

Refer to $\underline{\text{S1KDTOOLS-A-07-00-00A-040A-D}}$ for information on the .defaults file which is used by all the s1kd-new* commands.

4 Example

\$ s1kd-newsmc -# EX-12345-00001-00



s1kd-newupf

Description

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Description

1 General

The **s1kd-newupf** tool creates a new S1000D data update file for two specified issues of a CIR data module. Changes to items between the source and target issues of the CIR are recorded in the resulting UPF, along with update instructions.

2 Usage

s1kd-newupf [options] <SOURCE> <TARGET>

3 Options

Applicable to: Version: 3.3.0

-\$, --issue <issue> Specify which issue of S1000D to use. Currently supported issues are:

5.0 (default)

- 4.2

- 4.1

-@, --out <path> Save the new update file to <path>. If <path> is an existing

directory, the update file will be created in it instead of the current directory. Otherwise, the update file will be saved as the filename <path> instead of being automatically named.

built-in template. The template must be named update.xml in the directory <dir>, and must conform to the default

S1000D issue of this tool (5.0).

-~, --dump-templates <dir>
 Dump the built-in XML template to the specified directory.

-d, --defaults <file> Specify the .defaults file name.

-f, --overwrite Overwrite existing file.

-h, -?, --help Show help/usage message.

-q, --quiet Do not report an error when the file already exists.

-v, --verbose Print the file name of the newly created data update file.

--version Show version information.

<SOURCE> The source (original) issue of the CIR data module.
<TARGET> The target (updated) issue of the CIR data module.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.--parser-warnings Emit warnings from parser.--xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

3.1 .defaults file

Refer to $\underline{\text{S1KDTOOLS-A-07-00-00A-040A-D}}$ for information on the .defaults file which is used by all the s1kd-new* commands.

4 Example

Applicable to: Version: 3.3.0

```
$ s1kd-newupf \
    DMC-EX-A-00-00-00-00A-00GA-D_001-00_EN-CA.XML \
```



DMC-EX-A-00-00-00-00A-00GA-D_002-00_EN-CA.XML



s1kd-addicn

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		Description
1	General The s1kd-addicn tool adds th module in order to reference a	e required DTD entity and notation declarations to an S1000D n ICN file.
2	Usage	

s1kd-addicn [-o <file>] [-s <src>] [-fh?] <ICN>...

3 Options

Applicable to: Version: 3.3.0

-F, --full-path
 -f, --overwrite
 -h, -?, --help
 -o, --out <out>
 Use the whole path given for the ICN file as the SYSTEM ID.
 Overwrite source file instead of writing to stdout.
 Show help/usage message.
 The filename to output to. Default is to write to stdout.



-s, --source <src> The source module to add the ICN(s) to. Default is to read

from stdin

--version Show version information.

<ICN>.. Any number of ICN files to add.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.
 --parser-warnings Emit warnings from parser.
 --xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

4 Example

\$ s1kd-addicn -fs <DM> ICN-EX-12345-001-01.JPG



s1kd-ls

Description

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Data modu	le/Technical publication	Title	
None			

Description

1 General

The **s1kd-Is** tool searches the current directory or specified directory trees and lists the file names of CSDB objects matching certain criteria.

The files representing the CSDB objects must use either the standard S1000D file naming conventions, or the alternate naming convention supported by these tools using the -N option.

2 Usage

3 Options

Applicable to: Version: 3.3.0

-0, --null
Output a null-delimited list of CSDB object paths.

-C, -D, -G, -L, -M, -P, -S, -U, -X
List comments, data modules, ICNs, data management lists, ICN metadata files, publication modules, SCORM

content packages, data update files, and data dispatch notes respectively. If none are specified, -CDGLMPSUX is

assumed.

The following long options can also be used for each: --com,

--dm, --icn, --dml, --imf, --pm, --smc, --upf, --ddn.

-e, --exec <cmd> Execute a command for each CSDB object instead of listing

them. The string "{}" is replaced by the current CSDB object file name everywhere it occurs in the arguments to the

command.

-h, -?, --help Show the usage message.

-I, --inwork
 -i, --official
 -j, --latest
 Show only inwork issues of objects (inwork = 00).
 Show only official issues of objects (inwork = 00).
 Show only the latest official/inwork issue of objects.

-N, --omit-issue Assume that the files being listed do not include the issue info

in their filenames, i.e. they were created using the -N option

of the s1kd-new* tools.

-n, --other List non-S1000D files.

-o, -old Show only old official/inwork issues of objects.

-R, --read-only-r, --recursiveShow only non-writable object files.-r, --recursiveRecursively descend in to directories.

-w, --writable Show only writable object files.

-7, --list Treat input as a list of CSDB objects to process.

--version Show version information.

<object>|<dir> ... An optional list of CSDB objects to list or directories to search

for CSDB objects in. If none are specified, CSDB objects in

the current directory are listed by default.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.
 --parser-warnings Emit warnings from parser.
 --xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.



4 Example

```
$ s1kd-ls
DMC-EX-A-00-00-00-00A-040A-D_000-01_EN-CA.XML
DMC-EX-A-00-00-00-00A-040A-D_000-02_EN-CA.XML
DMC-EX-B-00-00-00-00A-040A-D_000-01_EN-CA.XML
ICN-12345-00001-001-01.JPG
ICN-12345-00001-002-01.JPG
PMC-EX-12345-00001-00_000-01_EN-CA.XML
$ s1kd-ls -l
DMC-EX-A-00-00-00-00A-040A-D_000-02_EN-CA.XML
DMC-EX-B-00-00-00-00A-040A-D_000-01_EN-CA.XML
ICN-12345-00001-002-01.JPG
PMC-EX-12345-00001-00_000-01_EN-CA.XML
$ s1kd-ls -o
DMC-EX-A-00-00-00-00A-040A-D_000-01_EN-CA.XML
ICN-12345-00001-001-01.JPG
$ slkd-ls -D | slkd-metadata -lt -ntechName -ninfoName -nissueDate
Example A Description
                           2018-03-20
Example A
            Description
                            2018-03-29
Example B
          Description
                            2018-03-29
$ s1kd-ls -Dl -e 'stat --printf="%n %Y\n" {}'
DMC-EX-A-00-00-00-00A-040A-D_000-02_EN-CA.XML 1553738720
DMC-EX-B-00-00-00-00A-040A-D_000-01_EN-CA.XML 1553738751
```



s1kd-ref

Description

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Data mo	odule/Ted	hnical publication Title	
None			

Description

1 General

The **s1kd-ref** tool generates the XML for S1000D reference elements using the specified code or filename. When using a filename, it can parse the CSDB object to include the issue, language, and/or title information in the reference.

2 Usage

3 Options

-\$, --issue <issue> Output XML for the specified issue of S1000D.

-c, --content When using the -T option, only transform textual references found in the content section of CSDB objects.

-d,include-date	Include the issue date in the reference (target must be a file)
-f,overwrite	Overwrite source data module instead of writing to stdout.
-g,guess-prefix	Accept references which do not include a standard prefix

(e.g., "DMC-", "PMC-") and guess what they are based on their format and, when using the -T option, the XML context in which they occur.

-h, -?, --help Show the usage message.

-i, --include-issue Include the issue information in the reference (target must be

a file)

-L, --list Treat input as a list of CSDB objects.

-I, --include-lang Include the language information in the reference (target

must be a file)

-o, --out <dst> Output to <dst> instead of stdout.
-q, --quiet Quiet mode. Do not print errors.

-R, --repository-id Generate a <repositorySourceDmIdent> for a data

module.

-r, --add Add the generated reference to the source data module's

refs table and output the modified data module to stdout.

-S, --source-id Generate a <sourceDmIdent> (for data modules) or

<sourcePmIdent> (for publication modules).

-s, --source <src> Specify a source data module <src> to add references to

when using the -r option.

within text nodes in the XML document(s) specified. The textual references must include the standard prefixes (e.g., "DMC-", "PMC-'), unless the -p option is specified. <opts> is a sequence of characters from "CDEGLPSY", for comment, data module, external publication, ICN, DML, publication module, SCORM content package and CSN references respectively. If "all" is given, then all types of references will

be transformed.

-t, --include-title Include the title in the reference (target must be a file).

-u, --include-url Include the full URL/filename of the reference with the

xlink:href attribute.

-v, --verbose Verbose output.

-x, --xpath <xpath> When using the -T option, this specifies which nodes to

transform textual references in. By default, only the elements

which can contain each type of reference are considered.

-3, --externalpubs <file> Use a custom .externalpubs file.

--version Show version information.



<code>|<file> Either a code, including the prefix (DMC, PMC, etc.), or the

filename of a CSDB object.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.
 --parser-warnings Emit warnings from parser.
 --xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

3.1 .external pubs file

The .externalpubs file contains definitions of external publication references. This can be used to generate the XML for an external publication reference by specifying the external publication code.

Example of a .external pubs file:

```
<externalPubs>
<externalPubRef>
<externalPubRefIdent>
<externalPubCode>ABC</externalPubCode>
<externalPubTitle>ABC Manual</externalPubTitle>
</externalPubRefIdent>
</externalPubRef>
</externalPubRef></externalPubs>
```

4 Examples

Applicable to: Version: 3.3.0

Reference to data module with data module code:

```
$ s1kd-ref DMC-EX-A-00-00-00-00A-040A-D
<dmRef>
<dmRefIdent>
<dmCode modelIdentCode="EX" systemDiffCode="A" systemCode="00"
subSystemCode="0" subSubSystemCode="0" assyCode="00" disassyCode="00"
disassyCodeVariant="A" infoCode="040" infoCodeVariant="A"
itemLocationCode="D"/>
</dmRefIdent>
</dmRef>
```

Reference to data module with data module code and issue/language:

```
$ s1kd-ref -il DMC-EX-A-00-00-00-00A-040A-D 001-03 EN-CA
<dmRef>
<dmRefIdent>
<dmCode modelIdentCode="EX" systemDiffCode="A" systemCode="00"</pre>
subSystemCode="0" subSubSystemCode="0" assyCode="00" disassyCode="00"
disassyCodeVariant="A" infoCode="040" infoCodeVariant="A"
itemLocationCode="D"/>
<issueInfo issueNumber="001" inWork="03"/>
<language languageIsoCode="en" countryIsoCode="CA"/>
</dmRefIdent>
</dmRef>
Reference to data module with all information, from a file:
$ slkd-ref -dilt DMC-EX-A-00-00-00-00A-040A-D_001-03_EN-CA.XML
<dmRef>
<dmRefIdent>
<dmCode modelIdentCode="EX" systemDiffCode="A" systemCode="00"</pre>
subSystemCode="0" subSubSystemCode="0" assyCode="00" disassyCode="00"
disassyCodeVariant="A" infoCode="040" infoCodeVariant="A"
itemLocationCode="D"/>
<issueInfo issueNumber="001" inWork="03"/>
<language languageIsoCode="en" countryIsoCode="CA"/>
</dmRefIdent>
<dmRefAddressItems>
<dmTitle>
<techName>Example</techName>
<infoName>Description</infoName>
</dmTitle>
<issueDate year="2018" month="06" day="25"/>
</dmRefAddressItems>
</dmRef>
Reference to a catalog sequence number:
$ s1kd-ref CSN-EX-A-00-00-01A-004A-D
<catalogSeqNumberRef modelIdentCode="EX" systemDiffCode="A"</pre>
systemCode="00" subSystemCode="0" subSubSystemCode="00" assyCode="00"
figureNumber="01" figureNumberVariant="A" item="004" itemVariant="A"
itemLocationCode="D"/>
Reference to a comment:
$ s1kd-ref COM-EX-12345-2018-00001-Q
<commentRef>
<commentRefIdent>
<commentCode modelIdentCode="EX" senderIdent="12345"</pre>
yearOfDataIssue="2018" seqNumber="00001" commentType="q"/>
</commentRefIdent>
</commentRef>
```



Reference to a data management list:

```
$ slkd-ref DML-EX-12345-C-2018-00001
<dmlRef>
<dmlRefIdent>
<dmlCode modelIdentCode="EX" senderIdent="12345" dmlType="c"
yearOfDataIssue="2018" seqNumber="00001"/>
</dmlRefIdent>
</dmlRef</pre>
```

Reference to an information control number:

```
$ s1kd-ref ICN-EX-A-000000-A-00001-A-001-01
<infoEntityRef infoEntityRefIdent="ICN-EX-A-000000-A-00001-A-001-01"/>
```

Reference to a publication module:

```
$ s1kd-ref PMC-EX-12345-00001-00
<pmRef>
<pmRefIdent>
<pmCode modelIdentCode="EX" pmIssuer="12345" pmNumber="00001"
pmVolume="00"/>
</pmRefIdent>
</pmRef>
```

Reference to a SCORM content package:

```
$ slkd-ref SMC-EX-12345-00001-00
<scormContentPackageRef>
<scormContentPackageCode
modelIdentCode="EX"
scormContentPackageIssuer="12345"
scormContentPackageNumber="00001"
scormContentPackageVolume="00"/>
</scormContentPackageRefIdent>
</scormContentPackageRef</pre>
```

Source identification for a data module:

```
$ s1kd-ref -S DMC-EX-A-00-00-00-00A-040A-D_001-00_EN-CA.XML
<sourceDmIdent>
<dmCode modelIdentCode="EX" systemDiffCode="A" systemCode="00"
subSystemCode="0" subSubSystemCode="0" assyCode="00" disassyCode="00"
disassyCodeVariant="A" infoCode="040" infoCodeVariant="A"
itemLocationCode="D"/>
<language languageIsoCode="en" countryIsoCode="CA"/>
<issueInfo issueNumber="001" inWork="00"/>
</sourceDmIdent>
```

Source identification for a publication module:

```
$ s1kd-ref -S PMC-EX-12345-00001-00 001-00 EN-CA.XML
<sourcePmIdent>
<pmCode modelIdentCode="EX" pmIssuer="12345" pmNumber="00001"</pre>
pmVolume="00"/>
<lanquage languageIsoCode="en" countryIsoCode="CA"/>
<issueInfo issueNumber="001" inWork="00"/>
</sourcePmIdent>
```

Source identification for a SCORM content package:

```
$ s1kd-ref -S SMC-EX-12345-00001-00 001-00 EN-CA.XML
<sourceScormContentPackageIdent>
<scormContentPackageCode</pre>
modelIdentCode="EX"
scormContentPackageIssuer="12345"
scormContentPackageNumber="00001"
scormContentPackageVolume="00"/>
<language languageIsoCode="en" countryIsoCode="CA"/>
<issueInfo issueNumber="000" inWork="01"/>
</sourceScormContentPackageIdent>
```

Repository source identification for a CIR data module:

```
$ s1kd-ref -R DMC-EX-A-00-00-00-00A-00GA-D_001-00_EN-CA.XML
<repositorySourceDmIdent>
<dmCode modelIdentCode="EX" systemDiffCode="A" systemCode="00"</pre>
subSystemCode="0" subSubSystemCode="0" assyCode="00" disassyCode="00"
disassyCodeVariant="A" infoCode="00G" infoCodeVariant="A"
itemLocationCode="D"/>
<language languageIsoCode="en" countryIsoCode="CA"/>
<issueInfo issueNumber="001" inWork="00"/>
</repositorySourceDmIdent>
```

Reference to an external publication:

```
$ slkd-ref ABC
<externalPubRef>
<externalPubRefIdent>
<externalPubCode>ABC</externalPubCode>
</externalPubRefIdent>
</externalPubRef>
```

Reference to an external publication (from the .external pubs file):

```
$ slkd-ref ABC
<externalPubRef>
<externalPubRefIdent>
<externalPubCode>ABC</externalPubCode>
<externalPubTitle>ABC Manual</externalPubTitle>
</externalPubRefIdent>
```

Applicable to: Version: 3.3.0



</externalPubRef>



s1kd-metadata

Description

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		Table 1 References
Data r	module/Technical publication	Title
None		
		Description
1	General The s1kd-metadata tool prov CSDB objects.	ides a simple way to fetch and change metadata on S1000D
2	Usage	
	s1kd-metadata [options] [<object>]</object>
3 Options		
	-0,null	Print a null-delimited list of values of the pieces of metadata specified with -n, or all available metadata if -n is not specified.
	-c,set <file></file>	Use <file> to edit metadata files. <file> consists of lines starting with a metadata name, followed by whitespace, followed by the new value for the metadata (the program</file></file>

Applicable to: Version: 3.3.0

uses this same	format wher	າ outputting ຄ	all metadata	ι if no
<name> is spec</name>	ified).			

-d, --date-format <fmt> The format to use when printing dates, such as the

"issueDate" or "modified" metadata. <fmt> should conform to the format used by strftime. The default is "%Y-%m-%d".

-E, --editable When showing all metadata, only list editable items. This is

useful when creating a file for use with the -c option.

-e, --exec <cmd> Execute a command for each CSDB object. The string "{}" is

replaced by the current CSDB object file name everywhere it

occurs in the arguments to the command.

-F, --format <fmt> Print a formatted line for each CSDB object. Metadata names

surrounded with % (e.g. %issueDate%) will be substituted by

the value read from the object.

-f, --overwrite When editing metadata, overwrite the object. The default is to

output the modified object to stdout.

-H, --info Lists all available metadata with a short description of each.

Specify specific metadata to describe with the -n option.

-h, -?, --help Show help/usage message.

-I, --list Treat input as a list of object filenames to read or edit

metadata on, rather than an object itself.

-m, --matches <regex> Used after a -w or -W option, this specifies a regular

expression to match the value of the given metadata against,

instead of a literal value (-v).

-n, --name <name> The name of the piece of metadata to fetch. This option

can be specified multiple times to fetch multiple pieces of metadata. If -n is not specified, all available metadata names are printed with their values. This output can be sent to a text file, edited, and then specified with the -c option as a means

of editing metadata in any text editor.

-q, --quiet Quiet mode. Non-fatal errors such as a missing piece of

optional metadata in an object will not be printed to stderr.

-T, --raw Do not format columns in output.

-t, --tab Print a tab-delimited list of values of the pieces of metadata

specified with -n, or all available metadata if -n is not

specified.

-v, --value <value> When following a -n option, this specifies the new value for

that piece of metadata.

When following a -w or -W option, this specifies the value to

compare that piece of metadata to.

Each -n, -w, or -W can be followed by -v to edit or define

conditions on multiple pieces of metadata.



-W, --where-not <name> Show or edit metadata only on objects where the value of

<name> is not equal to the value specified in the following -v option. If no -v option follows, this will show objects which do

not have metadata <name> of any value.

-w, --where <name> Show or edit metadata only on objects where the value of

<name> is equal to the value specified in the following -v option. If no -v option follows, this will show objects which

have metadata <name> with any value.

--version Show version information.

<object>... The object(s) to show/edit metadata on. The default is to read

from stdin.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.
 --parser-warnings Emit warnings from parser.
 --xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

4 Example

\$ ls

DMC-S1KDTOOLS-A-09-00-00-00A-040A-D_EN-CA.XML DMC-S1KDTOOLS-A-0Q-00-00-00A-040A-D_EN-CA.XML

\$ DMOD=DMC-S1KDTOOLS-A-09-00-00-00A-040A-D_EN-CA.XML

\$ s1kd-metadata \$DMOD

issueDate 2017-08-14

techName s1kd-metadata(1) | s1kd-tools

responsiblePartnerCompany khzae.net originator khzae.net

securityClassification 01

schema descript

schemaUrl http://www.s1000d.org/S1000D_5-0/xml_

schema_flat/descript.xsd

type dmodule applic All

brex S1000D-F-04-10-0301-00A-022A-D

issueType new



```
languageIsoCode
                               en
countryIsoCode
                               CA
issueNumber
                               001
inWork
                               00
dmCode
                               S1KDTOOLS-A-09-00-00-00A-040A-D
$ s1kd-metadata -n techName -v "New title" $DMOD
$ s1kd-metadata -n techName $DMOD
New title
$ s1kd-metadata -n techName DMC-*.XML
New title
s1kd-aspp(1) | s1kd-tools
$ s1kd-metadata -F "%techName% (%issueDate%) %issueType%" DMC-*.XML
New title (2017-08-14) new
s1kd-aspp(1) | s1kd-tools (2018-03-28) changed
\ s1kd-metadata -F "%techName%" -w subSubSystemCode -v Q DMC-*.XML
s1kd-aspp(1) | s1kd-tools
$ s1kd-metadata -n path -w subSystemCode -v Q
DMC-S1KDTOOLS-A-0Q-00-00-00A-040A-D_EN-CA.XML
$ s1kd-metadata -n path -W subSystemCode -v Q
DMC-S1KDTOOLS-A-09-00-00-00A-040A-D_EN-CA.XML
$ s1kd-metadata -n path -w subSystemCode -m [0-9]
DMC-S1KDTOOLS-A-09-00-00-00A-040A-D EN-CA.XML
```



s1kd-mvref

Description

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Data modu	ule/Techi	nical publication	7	Title	
None					

Description

1 General

The **s1kd-mvref** tool changes all references to one object (the source object) into references to another object (the target object) in a specified set of objects.

2 Usage

3 Options

-c,content	Only move references within the content section of objects.
-d,dir <dir></dir>	Move references in all objects in the specified directory.
-f,overwrite	Overwrite updated input objects.
-h, -?,help	Show help/usage message

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-I, --list Treat input as a list of data module filenames, rather than a

data module itself.

-q, --quiet Quiet mode. Errors are not printed.

-s, --source <source> The source object.

-t, --target <target> Change all references to the source object specified with -s

into references that point to <target>.

-v, --verbose Verbose output.

--version Show version information.
<object>... Objects to move references in.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.
 --parser-warnings Emit warnings from parser.
 --xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

4 Example

\$ slkd-mvref -f -s <old DM> -t <new DM> DMC-*.XML



s1kd-sns

Description

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Data mod	dule/Ted	chnical publication	Title	
None				

Description

1 General

The **s1kd-sns** tool can be used to automatically organize data modules in a CSDB in to a directory hierarchy based on a specified SNS structure. It may also be used to simply print an indented text version of an SNS structure.

2 Usage

```
s1kd-sns [-D <dir>] [-d <dir>] [-cmnpsh?] [<BREX> ...]
```

3 Options

Applicable to: Version: 3.3.0

-c,copy	Copy files in to the SNS subfolders instead of linking them.
-D,srcdir <dir></dir>	The flat directory containing the data modules to organize. By default, the current directory is used.
-d,outdir <dir></dir>	The root directory of the new SNS structure. By default, the tool will use the name "SNS" in the current directory.



-h, -?, --help Show usage message.

-m, --move Move files in to the SNS subfolders instead of linking them.
-n, --only-code Use only the SNS codes when naming directories. By default,

each directory will be named in the form of "snsCode -

snsTitle".

-p, --print Print the SNS structure only.

-s, --symlink Use symbolic links to organize the SNS instead of the default

hard links.

--version Show version information.

<BREX> Read the SNS structure from the specified BREX data

module. If none is specified, the tool will read from stdin.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.
 --parser-warnings Emit warnings from parser.
 --xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

4 Example



 \mid _ 18 - Vibration and noise analysis and attenuation



s1kd-upissue

Description

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Data mod	lule/Tec	chnical publication Title		
None				

Description

1 General

The s1kd-upissue tool increases the in-work or issue number of an S1000D CSDB object.

Any files using an S1000D-esque naming convention, placing the issue and in-work numbers after the first underscore (_) character, can also be "upissued". Files which do not contain the appropriate S1000D metadata are simply copied.

2 Usage

Applicable to: Version: 3.3.0

Produced by: khzae.net



3 Options

-0,unverified	Set the quality assurance to unverified.
---------------	--

-1,first-ver <type></type>	Set fir	rst verifica	ation	type	(tabtop,	onobject	ttandoo). If the	

object is second verified and this option is specified without -2

(--second-ver), the second verification will be unset.

-2, --second-ver <type> Set second verification type (tabtop, onobject, ttandoo). If the

object is unverified and this option is specified without -1 (-first-ver), the first verification will be set as the same type as

the second verification.

-4, --remove-marks Remove change markup on elements, but not RFUs, in the

upissued object. This is automatically applied if the issue type

(-z) is not "changed" or "rinstate-changed".

-5, --print Print the file names of upissued objects.

-c, --reason <reason> Add a reason for update to the upissued objects. Multiple

RFUs can be added by specifying this option multiple times.

-d, --dry-run Do not actually create or modify any files.

-e, --erase Remove old issue file after upissuing.

-f, --overwrite Overwrite existing upissued CSDB objects.

-H, --highlight Mark the last specified reason for update (-c) as a highlight.

-h, -?, --help Show help/usage message.

-I, --date <date> Specify the issue date to use for the upissued object(s).

Otherwise, the current date will be used.

-i, --official Increase the issue number of the CSDB object. By default,

the in-work issue is increased.

-I, --list Treat input (stdin or arguments) as lists of CSDB objects to

upissue, rather than CSDB objects themselves.

-m, --modify Modify issue-related metadata on objects without

incrementing the issue or inwork numbers. The -I and -r options have the opposite effect in this mode. The modified objects are written to stdout by default, and the -f option can

be used to change them in-place.

-N, --omit-issue Omit issue/inwork numbers from filename.

-Q, --keep-qa Keep quality assurance information from old issue. Normally,

when upissuing an official CSDB object to the first in-work issue, the quality assurance is set back to "unverified". Specify this option to indicate the upissue will not affect the contents of the CSDB object, and so does not require it to be

re-verified.

-q, --quiet Quiet mode. Errors are not printed.

-R,keep-unassoc-marks	-R,	kee	o-un	asso	c-m	arks
-----------------------	-----	-----	------	------	-----	------

Delete only change markup on elements associated with an RFU (by use of the attribute reasonForUpdateRefIds). Change markup on other elements is ignored.

-r, --(keep|remove)-changes

Keep old RFUs and change marks. Normally, when upissuing an offical CSDB object to the first in-work issue, any reasons for update are deleted automatically, along with any change markup attributes on elements (when change type is "add" or "modify") or the elements themselves (when change type is "delete"). This option prevents their deletion.

In -m mode, this option has the opposite effect, causing the current RFUs and change marks to be removed. The two alternative long option names, --keep-changes and --remove-changes, allow for the intended meaning of this option to be expressed clearly in each mode.

-s, --(keep|change)-date

Do not change issue date. Normally, when upissuing to the next inwork or official issue, the issue date is changed to the current date, or the date specified with the -z option. This option will keep the date of the previous inwork or official issue.

In -m mode, this option has the opposite effect, causing the date to be changed. The two alternative long option names, --keep-date and --change-date, allow for the intended meaning of this option to be expressed clearly in each mode.

-t, --type <urt>

Set the updateReasonType of the last specified reason for update (-c).

-u, --clean-rfus

Remove RFUs which are not associated with any change markup (by use of the attribute reasonForUpdateRefIds).

-v, --verbose

Verbose output.

-w, --lock

Make the old issue file read-only after upissuing. Official issues (-i) will also be made read-only when they are created.

-z, --issue-type <type>

Set the issue type of the new issue.

If this option is not specified, then the issue type of the new issue will be set as follows:

- if the previous issue is not an official issue (in-work 00), the issue type of the new issue will be the same as the previous issue.
- if the previous issue is an official issue, the issue type of the new issue will default to "status".

-^, --remove-deleted

Applicable to: Version: 3.3.0

Remove elements with change type of "delete". These elements are automatically removed along with all change marks and RFUs when an object is upissued from official to the next inwork issue. This option will remove them when

upissuing between inwork issues, or when making the object

official.

--version Show version information.

<file>... Any number of CSDB objects or other files to upissue. If

none are specified, the object will be read from stdin and the

upissued object will be written to stdout.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.--parser-warnings Emit warnings from parser.--xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

4 Examples

Applicable to: Version: 3.3.0

4.1 Data module with issue/inwork in filename

```
$ 1s
DMC-S1KDTOOLS-A-00-00-00-00A-040A-D_000-01_EN-CA.XML

$ s1kd-upissue DMC-S1KDTOOLS-A-00-00-00A-040A-D_000-01_EN-CA.XML
$ 1s
DMC-S1KDTOOLS-A-00-00-00A-040A-D_000-01_EN-CA.XML
DMC-S1KDTOOLS-A-00-00-00A-040A-D_000-02_EN-CA.XML

$ s1kd-upissue \
    -i DMC-S1KDTOOLS-A-00-00-00A-040A-D_000-02_EN-CA.XML
$ 1s
DMC-S1KDTOOLS-A-00-00-00A-040A-D_000-01_EN-CA.XML
DMC-S1KDTOOLS-A-00-00-00A-040A-D_000-01_EN-CA.XML
DMC-S1KDTOOLS-A-00-00-00A-040A-D_000-02_EN-CA.XML
DMC-S1KDTOOLS-A-00-00-00A-040A-D_000-02_EN-CA.XML
DMC-S1KDTOOLS-A-00-00-00A-040A-D_000-02_EN-CA.XML
DMC-S1KDTOOLS-A-00-00-00A-040A-D_000-02_EN-CA.XML
```

4.2 Data module without issue/inwork in filename

```
$ ls
DMC-S1KDTOOLS-A-00-00-00A-040A-D_EN-US.XML
$ s1kd-metadata DMC-S1KDTOOLS-A-00-00-00A-040A-D_EN-CA.XML \
-n issueInfo
```



000-01
\$ slkd-upissue -N DMC-SlKDTOOLS-A-00-00-00A-040A-D_EN-CA.XML
\$ slkd-metadata DMC-SlKDTOOLS-A-00-00-00A-040A-D_EN-CA.XML \
 -n issueInfo
000-02

4.3 Non-XML file with issue/inwork in filename

```
$ 1s
TXT-S1KDTOOLS-KHZAE-FOOBAR_000-01_EN-CA.TXT
$ s1kd-upissue TXT-S1KDTOOLS-KHZAE-00001_000-01_EN-CA.TXT
$ 1s
TXT-S1KDTOOLS-KHZAE-FOOBAR_000-01_EN-CA.TXT
TXT-S1KDTOOLS-KHZAE-FOOBAR_000-02_EN-CA.TXT
```

s1kd-appcheck Description

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Description

1 General

Applicable to: Version: 3.3.0

The **s1kd-appcheck** tool validates the applicability of S1000D CSDB objects, detecting potential errors that could occur when the object is filtered.

By default, the tool validates an object against only the product attribute and condition values which are explicitly used within the object. The products check (-t) and full check (-a) modes allow objects to be checked for issues with implicit applicability, that is, product attribute or condition values which are not explicitly used within an object, but may still affect it.

The s1kd-instance and s1kd-validate tools are used by default to perform the actual validation.



2 Usage

slkd-appcheck [options] [<object>...]

3 Options

-A, --act <file> Specify the ACT to read product attributes from, and to use

to find the CCT or PCT. This will override the ACT reference

within the individual objects being validated.

-a, --all Validate objects against all possible combinations of relevant

product attribute and condition values as defined in the ACT and CCT. Relevant product attributes and conditions are

those that are used by an object with any value.

-b, --brexcheck Validate objects with a BREX check (using the s1kd-

brexcheck tool) in addition to the schema check.

-C, --cct <file> Specify the CCT to read conditions from. This will override

the CCT reference within the ACT.

-c, --custom Perform a customized check. The default standalone

applicability check is disabled. This can then be combined with the -s option, to only check that all product attributes and conditions are defined in the ACT and CCT respectively, and/or the -n option, to only check nested applicability annotations. If neither of these options are specified, no

checks will be performed.

-D, --duplicate Check for duplicate annotations.

-d, --dir <dir>
The directory to start searching for ACT/CCT/PCT data

modules in. By default, the current directory is used.

-e, --exec <cmd> The commands used to validate objects. Multiple commands

can be used by specifying this option multiple times. The objects will be passed to each command on stdin, and the exit status of the command will be used to determine if the object is valid (with a non-zero exit status indicating it is invalid). This overrides the default commands (s1kd-validate,

and s1kd-brexcheck if -b is specified).

-F, --valid-filenames-f, --filenamesPrint the filenames of valid objects.

-h, -?, --help Show help/usage message.

-K, --filter <cmd> The command used to filter objects prior to validation.

The objects will be passed to the command on stdin, and the filters will be supplied as arguments in the form of "-s <ident>:<type>=<value>". This overrides the default

command (s1kd-instance).

-k, --args <args> The arguments to the filter command when filtering objects

prior to validation.



-l, --list Treat input as a list of CSDB objects to validate.

-N, --omit-issue Assume that the issue/inwork numbers are omitted from

object filenames (they were created with the -N option).

Check that all product attribute and condition values used -n, --nested

in nested applicability annotations are subsets of the values

used in their parents.

Output valid CSDB objects to stdout. -o, --output-valid

Specify the PCT to read product instances from. This will -P, --pct <file>

override the PCT reference in the ACT.

-p, --progress Display a progress bar.

-q, --quiet Quiet mode. Error messages will not be printed.

-R, --redundant Check for redundant annotations.

Search for the ACT/CCT/PCT recursively. -r, --recursive

Check whether product attributes and conditions used by an -s, --strict

object are declared in the ACT and CCT respectively.

-T, --summary Print a summary of the check after it completes, including

statistics on the number of objects that passed/failed the

check.

Validate objects against the defined product instances within -t, --products

the PCT.

-v, --verbose Verbose output. Specify multiple times to increase the

verbosity.

-x, --xml Print an XML report of the check.

-~, --dependencies Check with CCT dependency tests added to assertions which

use the dependant values.

-^. --remove-deleted Validate objects with elements that have a change type of

"delete" removed.

--version Show version information.

<object>... Object(s) to validate.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

Remove any internal arbitrary parser limits. --huge

Allow network access to load external DTD and entities. --net

Resolve entities. --noent

Emit errors from parser. --parser-errors --parser-warnings Emit warnings from parser. --xinclude Do XInclude processing.



--xml-catalog <file>
Use an XML catalog when resolving entities. Multiple catalogs may be loaded by specifying this option multiple

times.

4 Exit status

The check completed successfully, and all CSDB objects

were valid.

1 The check completed successfully, but some CSDB objects

were invalid.

2 One or more CSDB objects could not be read.

3 The number of CSDB objects specified exceeded the

available memory.

5 Examples

5.1 Standalone validation

Consider the following data module snippet:

```
<dmodule>
<applic>
<displayText>
<simplePara>Version: A or Version: B</simplePara>
</displayText>
<evaluate andOr="or">
<assert
applicPropertyIdent="version"
applicPropertyType="prodattr"
applicPropertyValues="A"/>
<assert
applicPropertyIdent="version"
applicPropertyType="prodattr"
applicPropertyValues="B"/>
</evaluate>
</applic>
<referencedApplicGroup>
<applic id="app-VersionB">
<assert applicPropertyIdent="version" applicPropertyType="prodattr"</pre>
applicPropertyValues="B"/>
</applic>
</referencedApplicGroup>
<levelledPara id="par-0001" applicRefId="app-VersionB">
<title>Features of version B</title>
<para>...</para>
</levelledPara>
```



```
...
<levelledPara>
<title>More information</title>
<para>...</para>
<para>Refer to <internalRef internalRefId="par-0001"/>.</para>
</levelledPara>
...
</dmodule>
```

There are two versions of the product, A and B, and the data module is meant to apply to both.

By itself, the data module is valid:

```
$ slkd-validate -v <DM>
slkd-validate: SUCCESS: <DM> validates against schema <url>
```

Checking it with this tool, however, reveals an issue:

```
$ s1kd-appcheck <DM>
s1kd-appcheck: ERROR: <DM> is invalid when:
s1kd-appcheck: ERROR: prodattr version = A
```

When the data module is filtered for version A, the first levelled paragraph will be removed, which causes the reference to it in the second levelled paragraph to become broken.

5.2 Full validation

Consider the following data module snippet:

```
<dmodule>
<applic>
<displayText>
<simplePara>All</simplePara>
</displayText>
</applic>
<referencedApplicGroup>
<applic id="app-IcyOrHot">
<evaluate andOr="or">
<assert
applicPropertyIdent="weather"
applicPropertyType="condition"
applicPropertyValues="Icy"/>
<assert
applicPropertyIdent="weather"
applicPropertyType="condition"
applicPropertyValues="Hot"/>
</applic>
</referencedApplicGroup>
```

```
ceduralStep>
<para>Locate the handle.</para>
ceduralStep>
ceduralStep id="stp-0001" applicRefId="app-IcyOrHot">
<para>Put on gloves prior to touching the handle.
ceduralStep>
<para>Grab the handle and turn it clockwise.</para>
ceduralStep>
<para>Remove the gloves you put on in <internalRef internalRefId="stp-0001"/>.
ceduralStep>
. . .
</dmodule>
Once again, this data module is valid by itself:
$ s1kd-validate -v <DM>
s1kd-validate: SUCCESS: <DM> validates against schema <url>
This time, however, it also initially appears valid when this tool is used:
$ s1kd-appcheck -v <DM>
s1kd-appcheck: SUCCESS: <DM> passed the applicability check.
However, now consider this snippet from the CCT:
<condCrossRefTable>
<condType id="weatherType">
<name>Weather type</name>
<descr>Possible types of weather conditions.</descr>
<enumeration applicPropertyValues="Normal"/>
<enumeration applicPropertyValues="Icy"/>
<enumeration applicPropertyValues="Hot"/>
</condType>
<cond id="weather" condTypeRefId="weatherType">
<name>Weather</name>
<descr>The current weather conditions.</descr>
</cond>
</condCrossRefTable>
```

There is a third value for the weather condition which is not explicitly used within the data module, and therefore will not be validated against in the default standalone check. When weather has a value of Normal, the cross-reference in the last step in the example above becomes broken.

Applicable to: Version: 3.3.0



To catch errors with implicit applicability, the full check (-a) can be used instead, which reads the values to check not from the data module itself, but from the ACT and CCT referenced by the data module:

```
$ s1kd-appcheck -a <DM>
s1kd-appcheck: ERROR: <DM> is invalid when:
s1kd-appcheck: ERROR: condition weather = Normal
```

This can also be fixed by making the applicability of the data module explicit:

```
<applic>
<displayText>
<simplePara>Weather: Normal or Weather: Icy or
Weather: Hot</simplePara>
</displayText>
<evaluate andOr="or">
<assert
applicPropertyIdent="weather"
applicPropertyType="condition"
applicPropertyValues="Normal"/>
<assert
applicPropertyIdent="weather"
applicPropertyType="condition"
applicPropertyValues="Icy"/>
<assert
applicPropertyIdent="weather"
applicPropertyType="condition"
applicPropertyValues="Hot"/>
</evaluate>
</applic>
```

In which case, the standalone check will now also detect the error:

```
$ s1kd-appcheck <DM>
s1kd-appcheck: ERROR: <DM> is invalid when:
s1kd-appcheck: ERROR: condition weather = Normal
```

5.3 Nested applicability annotations

Applicable to: Version: 3.3.0

Consider the following data module snippet:

```
<dmodule>
...
<applic>
<displayText>
<simplePara>Version: A, B</simplePara>
</displayText>
<assert
applicPropertyIdent="version"
applicPropertyType="prodattr"
applicPropertyValues="A"/>
```

```
<assert
applicPropertyIdent="version"
applicPropertyType="prodattr"
applicPropertyValues="B"/>
</applic>
<referencedApplicGroup>
<applic id="app-C">
<displayText>
<simplePara>Version: C</simplePara>
</displayText>
<assert
applicPropertyIdent="version"
applicPropertyType="prodattr"
applicPropertyValues="C"/>
</applic>
</referencedApplicGroup>
ceduralStep>
<para>Step A</para>
ceduralStep>
ceduralStep applicRefId="app-C">
<para>Step B</para>
ceduralStep>
<para>Step C</para>
</dmodule>
```

Here, the whole data module is applicable to versions A and B, but an individual step has been made applicable to version C. Normally, this is not reported as an error, since the removal of this step would not cause the data module to become invalid:

```
$ s1kd-appcheck -v <DM>
s1kd-appcheck: SUCCESS: <DM> passed the applicability check
```

However, the content is essentially useless, since it will never appear. The -n option will report when the applicability of an element is incompatible with the applicability of any parent elements or the whole object:

```
$ slkd-appcheck -n <DM>
slkd-appcheck: ERROR: <DM>: proceduralStep on line 62 is applicable
when prodattr version = C, which is not a subset of the applicability
of the whole object.
```

5.4 Redundant applicability annotations

Applicable to: Version: 3.3.0

Consider the following data module snippet:

```
cproceduralStep applicRefId="app-A">
```



```
<para>Step A</para>
<figure applicRefId="app-A">
...
</figure>
</proceduralStep>
```

This is technically correct, but the annotation on the figure can be considered redundant, since it has the same applicability as its ancestor, and the applicability of an element is already inherited by all its descendants automatically.

The -R (--redundant) option will report when the applicability of a nested element is redundant:

```
$ slkd-appcheck -R <DM>
slkd-appcheck: ERROR: <DM>: figure on line 85 has the same
applicability as its parent proceduralStep on line 83 (app-A)
```

Note

Currently, this check only detects when the exact same annotation (with the same ID) is nested within itself. In the future, this should also detect redundant logic between different nested annotations.

5.5 Duplicate applicability annotations

Consider the following data module snippet:

```
<referencedApplicGroup>
<applic id="app-0001">
<assert applicPropertyIdent="version" applicPropertyType="prodattr" applicProp
</applic>
<applic id="app-0002">
<assert applicPropertyIdent="version" applicPropertyType="prodattr" applicProp
</referencedApplicGroup>
```

These annotations have duplicate logic, meaning only one is necessary. The -D (--duplicate) option will report when an applicability annotation is a duplicate of another annotation:

```
$ s1kd-appcheck -D <DM>
s1kd-appcheck: ERROR: <DM>: Annotation on line 47 is a duplicate of annotation
```



s1kd-brexcheck Description

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Description

1 General

The **s1kd-brexcheck** tool validates S1000D CSDB objects using the context, SNS, and/ or notation rules of one or multiple BREX data modules. All errors are displayed with the <objectUse> message, the line number, and a representation of the invalid XML tree.

2 Usage

Applicable to: Version: 3.3.0



3 Options

-B,default-brex	Check each input object against the appropriate built-in

S1000D default BREX only. The actual BREX reference of

each object is ignored.

-b, --brex
brex> Check the CSDB objects against this BREX. Multiple BREX

data modules can be specified by adding this option multiple times. When no BREX data modules are specified, the BREX data module referenced in

brexDmRef> in the CSDB object

is attempted to be used instead.

-c, --values When a context rule defines values for an object

(objectValue), check if the value of each object is within the

allowed set of values.

-d, --dir <dir>
 Directory to start searching for BREX data modules in. By

default, the current directory is used.

-e, --ignore-empty Ignore check for empty or non-XML documents.

-F, --valid-filenames Print the filenames of CSDB objects with no BREX/SNS

errors.

-f, --filenames Print the filenames of CSDB objects with BREX/SNS errors.

-h, -?, --help Show the help/usage message.

-I, --include <path> Add a search path for BREX data modules. By default, only

the current directory is searched.

-L, --list Treat input as a list of object filenames to check, rather than

an object itself.

-I, --layered Use the layered BREX concept. BREX data modules

referenced by other BREX data modules (either specified with -b or referenced by the specified CSDB objects) will also be

checked against.

-N, --omit-issue Assume that the issue/inwork numbers are omitted from

object filenames (they were created with the -N option).

-n, --notations Check notation rules. Any notation names listed in any of the

BREX data modules with attribute allowedNotationFlag

set to "1" or omitted are considered valid notations. If a notation in a CSDB object is not present or has

allowedNotationFlag set to "0", an error will be returned.

For notations not included but not explicitly excluded, the objectUse of the first inclusion rule will be returned with the error. For explicitly excluded notations, the objectUse of the

explicit exclusion rule is returned.

-o, --output-valid Output valid CSDB objects to stdout.

-p, --progress Display a progress bar.



-q, --quiet
 Quiet mode. No errors are printed, they are only indicated via

the exit status.

-r, --recursive Search for BREX data modules recursively.

-S[tu], --sns [--strict|--unstrict] Check SNS rules. The SNS of each specified data module

is checked against the combination of all SNS rules of all

specified BREX data modules.

-s, --short Use shortened, single-line messages to report BREX errors

instead of multiline indented messages.

-T, --summary Print a summary of the check after it completes, including

statistics on the number of documents that passed/failed the

check.

-v, --verbose Verbose mode. The success or failure of each test is printed

explicitly.

-w, --severity-levels <file> Specify a list of severity levels for business rules.

-x, --xml Output an XML report.

-^, --remove-deleted Check the CSDB objects with elements that have a change

type of "delete" removed.

--version Show version information.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.
 --parser-warnings Emit warnings from parser.
 --xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

3.1 Business rule severity levels (.brseveritylevels)

The attribute <code>brSeverityLevel</code> on a BREX rule allows for distinguishing different kinds of errors. The <code>.brseveritylevels</code> file contains a list of severity levels, their user-defined type, and optionally if they should not be counted as true errors (causing the tool to return a "failure" status) but merely warnings.

By default, the program will search the current directory and parent directories for a file named .brseveritylevels, but any file can be specified by using the -w option.

An example of the format of this file is given below:



```
<?xml version="1.0"?>
<brSeverityLevels>
<brSeverityLevel value="brs101" fail="yes">Error</brSeverityLevel>
<brSeverityLevel value="brs102" fail="no">Warning</brSeverityLevel>
</brSeverityLevels>
```

When the attribute fail has a value of "Yes" (or is not included), BREX errors pertaining to rules with the given severity level value will be counted as errors. When it is "no", the errors are still displayed but are not counted as errors in the exit status code of the tool.

3.2 Normal, strict and unstrict SNS check (-S, -St, -Su)

There are three modes for SNS checking: normal, strict, and unstrict. The main difference between them is how they handle the optional levels of an SNS description in the BREX.

-St enables **strict** SNS checking. By default, the normal SNS check (-S) will assume optional elements snsSubSystem, snsSubSystem, and snsAssy exist with an snsCode of "0" ("00" or "0000" for snsAssy) when their parent element does not contain any of each. This provides a shorthand, such that

```
<snsSystem>
<snsCode>00</snsCode>
<snsTitle>General</snsTitle>
</snsSystem>
```

is equivalent to

```
<snsSystem>
<snsCode>00</snsCode>
<snsTitle>General</snsTitle>
<snsSubSystem>
<snsCode>0</snsCode>
<snsTitle>General</snsTitle>
<snsSubSubSvstem>
<snsCode>0</snsCode>
<snsTitle>General</snsTitle>
<snsAssy>
<snsCode>00</snsCode>
<snsTitle>General</snsTitle>
</snsAssy>
</snsSubSubSystem>
</snsSubSystem>
</snsSystem>
```

Using strict checking will disable this shorthand, and missing optional elements will result in an error.

-Su enables **unstrict** SNS checking. The normal SNS check (-S) shorthand mentioned above only allows SNS codes of "0" to be omitted from the SNS rules. Using unstrict checking, **any** code used will not produce an error when the relevant optional elements are omitted. This means that given the following...



```
<snsSystem>
<snsCode>00</snsCode>
<snsTitle>General</snsTitle>
</snsSystem>
```

...SNS codes of 00-00-0000 through 00-ZZ-ZZZZ are considered valid.

3.3 Object value checking (-c)

There are two ways to restrict the allowable values of an object in a BREX rule. One is to use the XPath expression itself. For example, this expression will match any securityClassification attribute whose value is neither "01" nor "02", and because the allowedObjectFlag is "0", will generate a BREX error if any match is found:

```
<objectPath allowedObjectFlag="0">
//@securityClassification[
    != '01' and
    != '02'
]
</objectPath>
```

However, this method can lead to fairly complex expressions and requires a reversal of logic. The BREX schema provides an alternative method using the element objectValue:

```
<structureObjectRule>
<objectPath allowedObjectFlag="2">
//@securityClassification
</objectPath>
<objectValue valueAllowed="01">Unclassified</objectValue>
<objectValue valueAllowed="02">Classified</objectValue>
</structureObjectRule>
```

Specifying the -c option will enable checking of these types of rules, and if the value is not within the allowed set a BREX error will be reported. The valueForm attribute can be used to specify what kind of notation the valueAllowed attribute will contain:

```
"single" - A single, exact value.
```

- "range" Values given in the S1000D range/set notation, e.g. "a~c" or "a|b|c".
- "pattern" A regular expression.

The s1kd-brexcheck tool supports all three types. If the valueForm attribute is omitted, it will assume the value is in the "single" notation.

3.4 XPath support

Applicable to: Version: 3.3.0

Supported XPath syntax depends on what XPath engine was selected at compile-time:

```
libxml2 (default) – XPath 1.0
```

Partial support for EXSLT functions

Saxon (experimental) – XPath 1.0

- XPath 2.0
- XPath 3.0

Information on which XPath engine is in use can be obtained from the --version option.

If the XPath given for the <objectPath> of a rule is invalid, the rule will be ignored when validating objects. A warning will be printed to stderr, and the XML report will contain an <xpathError> element for each error.

4 Exit status

0	Check completed successfully, and no CSDB objects had BREX errors.
1	Check completed successfully, but some CSDB objects had BREX errors.
2	One or more CSDB objects specified could not be read.
3	A referenced BREX data module could not be found.
5	The number of paths or CSDB objects specified exceeded the available memory.

5 Example

```
$ DMOD=DMC-EX-A-00-00-00-00A-040A-D_000-01_EN-CA.XML
$ BREX=DMC-S1000D-G-04-10-0301-00A-022A-D_001-00_EN-US.XML
$ cat $DMOD
[\ldots]
<listItem id="stp-0001">
<para>List items shouldn't be used as steps...
</listItem>
<para>Refer to <internalRef internalRefId="stp-0001"</pre>
internalRefTargetType="irtt08"/>.</para>
$ s1kd-brexcheck -b $BREX $DMOD
BREX ERROR: DMC-EX-A-00-00-00-00A-040A-D_000-01_EN-CA.XML
 BREX: DMC-S1000D-G-04-10-0301-00A-022A-D 001-00 EN-US.XML
 BREX-S1-00052
  Only when the reference target is a step can the value of attribute
internalRefTargetType be irtt08 (Chap 3.9.5.2.1.2, Para 2.1).
  line 52 (/dmodule[1]/content[1]/description[1]/para[2]/
internalRef[1]):
    ELEMENT internalRef
     ATTRIBUTE internalRefTargetType
          content=irtt08
```



ATTRIBUTE internalRefId
TEXT
content=stp-0001

Example of XML report format for the above:

```
<?xml version="1.0"?>
<brexCheck>
<document path="DMC-EX-A-00-00-00-00A-040A-D_000-01_EN-CA.XML">
<brew path="DMC-S1000D-G-04-10-0301-00A-022A-D_001-00_EN-US.XML">
<error fail="yes">
<brDecisionRef brDecisionIdentNumber="BREX-S1-00052"/>
<objectPath allowedObjectFlag="0">...</objectPath>
<objectUse>Only when the reference target is a step can the value of
attribute internalRefTargetType be irtt08
(Chap 3.9.5.2.1.2, Para 2.1).</objectUse>
<object line="52"</pre>
xpath="/dmodule[1]/content[1]/description[1]/para[2]/internalRef[1]">
<internalRef internalRefId="stp-0001"</pre>
internalRefTargetType="irtt08"/>
</object>
</error>
</brex>
</document>
</brexCheck>
```

s1kd-refs

Description

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None		

Description

1 General

Applicable to: Version: 3.3.0

The **s1kd-refs** tool lists external references in CSDB objects, optionally matching them to a filename in the CSDB directory hierarchy.

This allows you to:

- obtain a list of dependencies for CSDB objects, such as ICNs, to ensure they are delivered together
- check for references to objects which do not exist in the current CSDB
- update reference metadata, such as titles, from the matched objects



2 Usage

3 Options

-B, -C, -D, -E, -G, -H, -K, -L, -P, List references to IPDs, comments, data modules, external publications, ICNs, hotspots, CSNs, data management lists,

publication modules, SCORM content packages, referred fragments, repository source DMs and source objects respectively. If none are specified, -BCDEGHKLPSTYZ is

assumed.

The following long options can also be used for each: --ipd, --com, --dm, --epr, --icn, --hotspot, --csn, --dml, --pm, --smc, --

fragment, --repository, --source.

-b, --ipd-sns <SNS> Specify the SNS for non-chapterized IPD data modules, in

the form of SYSTEM-SUBSYSTEM-ASSY (for example, "ZD-00-35"). This code is used to resolve non-chapterized

CSN references.

If "-" is given for <SNS>, then the SNS will be derived from

current data module.

-c, -content List references in the content section of a CSDB object

only.

-d, --dir <dir>
 Directory to search for matches to references in. By default,

the current directory is used.

-e, --exec <cmd> Execute a command for each referenced CSDB object

matched. The string "{}" is replaced by the current CSDB object file name everywhere it occurs in the arguments to the

command.

-F, --overwrite When using the -U or -X options, overwrite the input objects

that have been updated or tagged.

-f, --filename Include the filename of the source object where each

reference was found in the output.

-h, -?, --help Show help/usage message.

-I, --update-issue Update the issue number, issue date, language, and title of

references to that of the latest matched object. This option

implies the -U and -i options.

-i, --ignore-issue Ignore issue info when matching. This will always match

the latest issue of an object found, regardless of the issue

specified in the reference.

-J <ns=URL>

Registers an XML namespace prefix, which can then be used in the hotspot XPath expression (-j). Multiple namespaces can be registered by specifying this option multiple times.

-j <xpath>

Specify a custom XPath expression to use when matching

hotspots (-H) in XML-based ICN formats.

-k, --ipd-dcv <pattern>

Specify a pattern used to determine the disassembly code variant for IPD data modules when resolving CSN references.

Within the pattern, the following characters have special meaning:

% - The figure number variant code.

? - A wildcard that matches any single character.

The default pattern is "%", which means the disassembly code variant is exactly the same as the figure number variant. Projects that use a 2- or 3-character disassembly code variant must specify a pattern of the appropriate length in order for their IPD DMs to be matched (for example, "%?" or "%??").

-I, --list

Treat input (stdin or arguments) as lists of filenames of CSDB objects to list references in, rather than CSDB objects themselves.

-m, --strict-match

Be more strict when matching codes of CSDB objects to filenames. By default, the name of a file (minus the extension) only needs to start with the code to be matched. When this option is specified, the name must match the code exactly.

For example, the code "ABC" will normally match either of the files "ABC.PDF" or "ABC_1.PDF", but when strict matching is enabled, it will only match the former.

-N, --omit-issue

Assume filenames of referenced CSDB objects omit the issue info, i.e. they were created with the -N option to the s1kdnew* tools.

-n, --lineno

Include the filename of the source object where each reference was found, and display the line number where the reference occurs in the source file after its filename.

-o, --output-valid Output valid CSDB objects to stdout. -q, --quiet Quiet mode. Errors are not printed.

-R, --recursively

List references in matched objects recursively.

-r, --recursive

Search for matches to references in directories recursively.

-s, --include-src

Include the source object as a reference. This is helpful when the output of this tool is used to apply some operation to a

source object and all its dependencies together.



-t	format	<fmt></fmt>

Specify a custom format for printed references. <fmt> is a format string, where the following variables can be given:

- %file% The filename of the referenced object (nothing is printed if no file is matched).
- %line% The line number where the reference occurs in the source.
- %ref% The reference. May be a code (if no file is matched), a file name (for objects where a file is matched) or a file name + fragment name.
- %src% The source of the reference.
- %xpath% The XPath denoting where the reference occurs in the source.

For example, -t '%src% (%line%): %ref%' is equivalent to the -n option.

-U, --update Update the title of matched references from the

corresponding object.

-u, --unmatched Show only unmatched reference errors, or unmatched codes

if combined with the -a option.

-v, --verbose Verbose output. Specify multiple times to increase the

verbosity.

-w, --where-used Instead of listing references contained within specified

objects, list places within other objects where the specified

objects are referenced.

In this case, <object> may also be a code (with the appropriate prefix) instead of an actual file. For example: s1kd-refs-w DMC-TEST-A-00-00-00-00A-040A-D

-X, --tag-unmatched Tag unmatched references with the processing instruction <?

unmatched?>.

-x, --xml Output a detailed XML report instead of plain text messages.

-3, --externalpubs <file> Use a custom .externalpubs file.

-^, --remove-deleted List references with elements that have a change type of

"delete" removed.

--version Show version information.

<object>... CSDB object(s) to list references in. If none are specified, the

tool will read from stdin.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.



--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.

--parser-warnings Emit warnings from parser.

--xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

3.1 .external pubs file

The .externalpubs file contains definitions of external publication references. This can be used to update external publication references in CSDB objects with -U.

By default, the tool will search the current directory and parent directories for a file named .externalpubs, but any file can be specified by using the -e option.

Example of a .external pubs file:

<externalPubs>

<externalPubRef>

<externalPubRefIdent>

<externalPubCode>ABC</externalPubCode>

<externalPubTitle>ABC Manual</externalPubTitle>

</externalPubRefIdent>

</externalPubRef>

</externalPubs>

External publication references will be updated whether they are matched to a file or not.

3.2 Hotspot matching (-H)

Hotspots can be matched in XML-based ICN formats, such as SVG or X3D. By default, matching is based on the APS ID of the hotspot and the following attributes:

SVG @id X3D @DEF

If hotspots are identified in a different way in a project's ICNs, a custom XPath expression can be specified with the -j option. In this XPath expression, the variable \$id represents the hotspot APS ID:

\$ s1kd-refs -H -j "//*[@attr = \$id]" <DM>

4 Exit status

Applicable to: Version: 3.3.0

0 No errors, all references were matched.

1 Some references were unmatched.



The number of objects found in a recursive check (-R) exceeded the available memory.

Stdin did not contain valid XML and not in list mode (-I).

The non-chapterized SNS specified (-b) is not valid.

5 Examples

5.1 General

```
$ s1kd-refs DMC-EX-A-00-00-00-00A-040A-D_000-01_EN-CA.XML DMC-EX-A-00-00-00A-022A-D_001-00_EN-CA.XML DMC-EX-A-01-00-00A-040A-D_000-01_EN-CA.XML ICN-12345-00001-001-01.JPG
```

5.2 CSN references

These examples are based on the following CSN reference:

```
<catalogSeqNumberRef figureNumber="01" item="004"/>
```

in the following data module:

```
DM=DMC-EX-A-00-00-00-00AA-100A-D_001-00_EN-CA.XML
```

Because the CSN reference is not chapterized, it cannot be matched to an IPD DM without more information:

```
$ slkd-refs -K $DM
Unmatched reference: Fig 01 Item 004
```

The SNS for non-chapterized IPDs can be specified with -b. In this case, the project uses the SNS "ZD-00-35" for their IPDs:

```
\ s1kd-refs -K -b ZD-00-35 \ DM Unmatched reference: DMC-EX-A-ZD-00-35-010-941A-D Item 004
```

This project uses a 2-character disassembly code variant, so the figure number variant is not sufficient to resolve the DMC of the referenced IPD data module. The -k option can be used in this case to specify the pattern for the disassembly code variant of IPDs. Since the second character of the disassembly code variant of all IPD DMs in this project is A, the pattern "%A" can be used:

```
$ s1kd-refs -K -b ZD-00-35 -k %A $DM DMC-EX-A-ZD-00-35-010A-941A-D_001-00_EN-CA.XML Item 004
```

Applicable to: Version: 3.3.0



s1kd-repcheck Description

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None				
			Description	

1 General

The s1kd-repcheck tool validates references to CIR items within S1000D CSDB objects. Any CIR references which cannot be resolved to a specification within a CIR data module will cause the tool to report an error.

2 **Usage**

slkd-repcheck [options] [<objects>...]

3 **Options**

Applicable to: Version: 3.3.0

-A, --all-refs

Validate indirect tool/supply/part CIR references using the element <identNumber>. Normally, only the direct reference elements <toolRef>, <supplyRef> and <partRef> are validated.

-a,all	In addition to CIR data modules specified with -R or explicitly
	linked in CIR references, allow CIR references to be resolved

against any CIR data modules that were specified as objects

to check.

-D, --dump-xsl Dump the built-in XSLT used to extract CIR references.

-d, --dir <dir>
The directory to start searching for CIR data modules in. By

default, the current directory is used.

-F, --valid-filenames-f, --filenamesPrint the filenames of valid objects.

-h, -?, --help Show help/usage message.

-L, --list-refs List CIR references found in objects instead of validating

them.

-I, --list Treat input as a list of CSDB objects to check.

-N, --omit-issue Assume that the issue/inwork numbers are omitted from

object filenames (they were created with the -N option).

-o, --output-valid Output valid CSDB objects to stdout.

-p, --progress Display a progress bar.

-q, --quiet Quiet mode. Error messages will not be printed.

-R, --cir <CIR> A CIR to resolve references in CSDB objects against. Multiple

CIRs can be specified by using this option multiple times.

If "*" is given for <CIR>, the tool will search for CIR data

modules automatically.

-r, --recursive Search for CIR data modules recursively.

-T, --summary Print a summary of the check after it completes, including

statistics on the number of objects that passed/failed the

check.

-t, --type <type> Validate or list only CIR references of the specified type. The

built-in types are:

acp (Access point)

app (Applicability annotation)

caut (Caution)

cbr (Circuit breaker)

cin (Control/Indicator)

ent (Enterprise)

fin (Functional item)

part

supply

tool

warn (Warning)

zone

-v, --verbose Verbose output. Specify multiple times to increase the

verbosity.

-X, --xsl <file> Use custom XSLT to extract CIR references.

-x, --xml Print an XML report of the check.

-^, --remove-deleted Validate with elements that have a change type of "delete"

removed. CIR data modules with an issue type of "deleted" will also be ignored in the automatic search when this option

is specified.

--version Show version information.

<object<... Object(s) to check CIR references in.</p>

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.
 --parser-warnings Emit warnings from parser.
 --xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

3.1 Custom XSLT (-X)

Applicable to: Version: 3.3.0

What elements are extracted as CIR references for validating, and how they are validated, can be configured through a custom XSLT script specified with the -X (--xsl) option.

The custom XSLT script should add the following attributes to elements which will be validated as CIR references:

type A name for the type of CIR reference.

name A descriptive name for the CIR reference that can be used in

reports.

test An XPath expression used to match the corresponding CIR

identification element.

The namespace for these attributes must be: urn:s1kd-tools:s1kd-repcheck

Example XSLT template to extract functional item references:

<xsl:template match="functionalItemRef">



```
<xsl:variable name="fin" select="@functionalItemNumber"/>
<xsl:copv>
<xsl:apply-templates select="@*"/>
<xsl:attribute name="slkd-repcheck:type">fin</xsl:attribute>
<xsl:attribute name="slkd-repcheck:name">
<xsl:text>Functional item </xsl:text>
<xsl:value-of select="$fin"/>
</xsl:attribute>
<xsl:attribute name="s1kd-repcheck:test">
<xsl:text>//functionalItemIdent[@functionalItemNumber='</xsl:text>
<xsl:value-of select="$fin"/>
<xsl:text>']</xsl:text>
</xsl:attribute>
<xsl:apply-templates select="node()"/>
</xsl:copy>
</xsl:template>
```

A custom script also allows validating non-standard types of "CIR" references. For example, if a project wants to validate acronyms used in data modules against a central repository of acronyms, this could be done like so:

```
<xsl:template match="acronym">
<xsl:variable name="term" select="acronymTerm"/>
<xsl:copy>
<xsl:apply-templates select="@*"/>
<xsl:attribute name="s1kd-repcheck:type">acr</xsl:attribute>
<xsl:attribute name="s1kd-repcheck:name">
<xsl:text>Acronym </xsl:text>
<xsl:value-of select="$term"/>
</xsl:attribute>
<xsl:attribute name="slkd-repcheck:test">
<xsl:text>//acronym[acronymTerm = '</xsl:text>
<xsl:value-of select="$term"/>
<xsl:text>']</xsl:text>
</xsl:attribute>
<xsl:apply-templates select="node()"/>
</xsl:copy>
</xsl:template>
```

As there is no standard "acronym" CIR type, the object containing the repository would need to be specified explicitly with -R.

The built-in XSLT for extracting CIR references can be dumped as a starting point for a custom script by specifying the -D (--dump-xsl) option.

4 Exit status

0

Applicable to: Version: 3.3.0

The check completed successfully, and all CIR references were resolved.



1 The check completed successfully, but some CIR references

could not be resolved.

2 The number of CSDB objects specified exceeded the

available memory.

5 Example

Part repository:

```
<partRepository>
<partSpec>
<partIdent manufacturerCodeValue="12345" partNumberValue="ABC"/>
<itemIdentData>
<descrForPart>ABC part</descrForPart>
</itemIdentData>
</partSpec>
</partRepository>
```

Part references in a procedure:

```
<spareDescrGroup>
<spareDescr>
<partRef manufacturerCodeValue="12345" partNumberValue="ABC"/>
<reqQuantity>1</reqQuantity>
</spareDescr>
<spareDescr>
<partRef manufacturerCodeValue="12345" partNumberValue="DEF"/>
<reqQuantity>1</reqQuantity>
</spareDescr>
</spareDescr>
</spareDescr>
</spareDescrCroup>
```

Command and results:

```
$ s1kd-repcheck -R <CIR> ... <DM>
s1kd-repcheck: ERROR: <DM> (<line>): Part 12345/DEF not found.
```



s1kd-validate

Description

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Data module/Technical publication Title	
None	
Description	
1 General The s1kd-validate tool validates S1000D CSDB objects, checking whether they ar files and if they are valid against their own S1000D schemas.	e valid XML
2 Usage	
slkd-validate [-s <path>] [-x <uri>] [-F -f] [-eloqv^h?] [<object>]</object></uri></path>	
3 Options	

List valid files.

-e, --ignore-empty

Applicable to: Version: 3.3.0

-F, --valid-filenames

Ignore validation for empty or non-XML documents.



-f, --filenames List invalid files.

-h, -?, --help Show help/usage message.

-I, --list Treat input as a list of object names to validate, rather than

an object itself.

-o, --output-valid Output valid CSDB objects to stdout.

-q, --quiet Quiet mode. The tool will not output anything to stdout or

stderr. Success/failure will only be indicated through the exit

status.

-s, --schema <path> Validate the objects against the specified schema, rather than

the one that they reference.

-v, --verbose Verbose mode. Success/failure will be explicitly reported on

top of any errors.

-x, --exclude <URI> Exclude an XML namespace from the validation. Elements in

the namespace specified by <URI> are ignored.

-^, --remove-deleted Validate with elements that have a change type of "delete"

removed.

--version Show version information.

<object>... Any number of CSDB objects to validate. If none are

specified, input is read from stdin.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.--parser-warnings Emit warnings from parser.--xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

3.1 XML catalogs

Applicable to: Version: 3.3.0

XML catalogs allow redirecting the canonical URIs of XML schemas and other external resources to local files, so as to avoid the unnecessary overhead of downloading those static resources over the Internet.

Below is an example of a catalog file which maps the S1000D schemas to a local directory:

<catalog xmlns="urn:oasis:names:tc:entity:xmlns:xml:catalog">



```
<rewriteURI
uriStartString="http://www.s1000d.org"
rewritePrefix="/usr/share/s1kd/schemas"/>
</catalog>
```

This can be placed in a catalog file automatically loaded by libxml2 (e.g., /etc/xml/catalog) or saved to a file which is then specified in an environment variable used by libxml2 (e.g., $xml_CATALOG_FILES$):

\$ XML_CATALOG_FILES=catalog.xml s1kd-validate <DMs...>

Alternatively, the --xml-catalog option may be used:

\$ s1kd-validate --xml-catalog=catalog.xml <DMs>...

4 Exit status

0	No errors.
1	Some CSDB objects are not well-formed or valid.
2	The number of schemas cached exceeded the available
	memory.

3 A specified schema could not be read.

5 Example

\$ s1kd-validate DMC-EX-A-00-00-00-00A-040A-D_000-01_EN-CA.XML



s1kd-acronyms Description

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Data modu	ıle/Techn	ical publication	Title	
None				

Description

1 General

The **s1kd-acronyms** tool is used to manage acronyms in S1000D data modules in one of three ways:

- Generate a list of unique acronyms used in all specified data modules.
- Mark up acronyms automatically based on a specified list.
- Remove acronym markup.

2 Usage

Applicable to: Version: 3.3.0

[<dmodule>...]
slkd-acronyms [-D|-P] [-flqv] [-o <file>] [<dmodule>...]

3 Options

-D, --delete Remove acronym markup, flattening it to the acronym term.

-d, --deflist Format XML output as an S1000D <definitionList>.

-f, --overwrite When marking up acronyms with the -m option, overwrite the

input data modules instead of writing to stdout.

-h, -?, --help Show help/usage message.

-I, --always-ask In interactive mode, show a prompt for all acronyms, not just

those with multiple definitions. This can be useful if some

occurrences of acronym terms should be ignored.

-i, --interactive Markup acronyms in interactive mode. If the specified

acronyms list contains multiple definitions for a given

acronym term, the tool will prompt the user with the context in which the acronym is used and present a list of the definitions

for them to choose from.

When not in interactive mode, the first definition found will be

used.

-I, --list Treat input (stdin or arguments) as lists of filenames of data

modules to find or markup acronyms in, rather than data

modules themselves.

-M, --acronym-list Like the -m option, but use a custom list of acronyms instead

of the default .acronyms file.

-m, --markup Instead of listing acronyms in the specified data modules,

automatically markup acronyms in the data module using the

.acronyms file.

-n, --width <#> Minimum number of spaces after the term in pretty-printed

text output.

-o, --out <file> Output to <file> instead of stdout.

-P, --preformat Remove acronym markup by preformatting it. The element

<acronym> is flattened to the definition, followed by the term in brackets [()]. The element <acronymTerm> is flattened to

the term.

-p, --pretty Pretty print text/XML acronym list output.

-q, --quiet Quiet mode. Errors are not printed.

-T, --types <types> Only search for acronyms with an attribute acronymType

whose value is contained within the string <types>.

-t, --table Format XML output as an S1000D .

-v, --verbose Verbose output.



-X, --select <xpath> When marking up acronyms with -m/-M, use a custom

XPath expression to specify which text nodes to search for acronyms in. By default, this is all text nodes in any element where acronyms are allowed. This must be the path to the text() nodes, not the elements, e.g. //para/text() and not

simply //para.

-x, --xml Use XML output instead of plain text.

-!, --defer-choice Mark where acronyms are found using a <chooseAcronym>

element, whose child elements are all possible acronyms matching the term. Another program can then use this as

input to actually prompt the user.

-^, --remove-deleted List acronyms with elements that have a change type of

"delete" removed.

--version Show version information.

<dmodule>... Data modules to find acronyms in. If none are specified, input

is taken from stdin.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.
 --parser-warnings Emit warnings from parser.
 --xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

3.1 .acronyms file

This file specifies a list of acronyms for a project. By default, the program will search for a file named .acronyms in the current directory and parent directories, but any file can be specified using the -M option.

Example of .acronyms file format:

<acronyms>

<acronym acronymType="at01">

<acronymTerm>BREX</acronymTerm>

<acronymDefinition>Business Rules Exchange</acronymDefinition>

</acronym>

Applicable to: Version: 3.3.0

<acronym acronymType="at01">

<acronymTerm>SNS</acronymTerm>



<acronymDefinition>Standard Numbering System</acronymDefinition>
</acronym>

</acronyms>

4 Examples

List all acronyms used in all data modules:

\$ s1kd-acronyms DMC-*.XML

Markup predefined acronyms in a data module:

\$ s1kd-acronyms -mf DMC-EX-A-00-00-00A-040A-D_EN-CA.XML

Unmarkup acronyms in a data module:

\$ s1kd-acronyms -Df DMC-EX-A-00-00-00A-040A-D_EN-CA.XML



s1kd-aspp

Description

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Description

1 General

Applicable to: Version: 3.3.0

The **s1kd-aspp** tool has two main functions:



- Generates display text for applicability statements. The text is derived from the logic described by the assert and evaluate elements.
- Preprocesses "semantic" applicability statements in a data module to produce
 "presentation" applicability statements which are simpler to parse in an XSLT stylesheet.

"Semantic" applicability statements are those entered by the author to encode the applicability of elements within a data module. "Presentation" applicability statements are those that are actually displayed in page-oriented output, also referred to as the "human-readable" statements.

The applicability in the resulting XML is longer semantically correct, but an XSLT stylesheet can simply place a statement on any element with attribute applicRefId without needing to consider inherited applicability statements on elements without the attribute.

2 Usage

s1kd-aspp [options] [<object> ...]

3 Options

dump-disptext	Dump the built-in .disptext file.

-,,dump-xsl	Dump the built-in XSLT used to generate display text for
,, durip Asi	During the built in AGET used to generate display text for

representing the whole data module's applicability. Default is

"app-0000".

-C, --cct <CCT> Add a CCT to use when generating display text for

conditions. Multiple CCT data modules can be used by

specifying this option multiple times.

-c, --search Search for the ACT and CCT referenced by each data

module, and add them to the list of ACTs/CCTs to use when

generating display text for that data module.

-D, --delete Remove the display text from all applicability annotations,

except those that consist of only display text (and no

computer processing part).

-d, --dir <dir>
 Directory to start searching for ACT/CCT data modules in. By

default, the current directory is used.

-F, --format <fmt> Use a custom format string to generate display text.

-f, --overwrite Overwrite input data module(s) rather than outputting to

stdout.

-G, --disptext <disptext> Specify a custom .disptext file.

-g, --generate Generate display text for applicability statements.



-h, -?, --help Show help/usage message.

-k, --keep When generating display text, do not overwrite existing

display text on statements, only generate display text for

statements which have none.

-I, --list Treat input (stdin or arguments) as lists of filenames of

objects, rather than objects themselves.

-N, --omit-issue Assume that the filenames for the ACT and CCT do not

include issue info, i.e. they were created using the -N option

of the s1kd-newdm tool.

-p, --presentation Preprocess applicability statements to produce "presentation"

applicability statements which are simpler to parse in an XSLT stylesheet. The applicability in the resulting XML is no

longer semantically correct.

-r, --recursive Search for ACT/CCT data modules recursively.

-t, --tags <mode> Add tags before elements containing the display text of the

applicability annotation they reference, simulating the typical presentation of applicability annotations within the XML.

If <mode> is "pi", the tags are inserted as processing instructions, named "s1kd-aspp". This allows existing tags to

be removed automatically before adding new ones.

If <mode> is "comment", the tags are inserted as XML comments. Existing comments will not be removed

automatically.

If <mode> is "remove", tags will be removed without adding new ones. This only applies to the processing instruction

tags.

-v, --verbose Verbose output.

-x, --xsl <XSLT> Use custom XSLT to generate display text for applicability

statements.

--version Show version information.

<object> ... The object(s) to preprocess. This can include both individual

objects and combined files such as those produced by s1kd-

flatten(1).

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.



--parser-warnings Emit warnings from parser.--xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

3.1 .disptext file

This file specifies rules for generating display text. It consists of:

operator rules

property rules

The coperators> element specifies the format of operators used in display text:

and Text to use for the and operator between assertions. Default

is " and ".

or Text to use for the or operator between assertions. Default is

" or ".

openGroup Text to use to open a group of assertions. Default is "(". closeGroup Text to use to close a group of assertions. Default is ")".

set Text to use between items in a set (a|b|c).

range Text to use between the start and end of a range (a~c).

The format is specified using a combination of the following elements:

<name> Replaced by the name of the property.

<text> Text that is included as-is.

<values> Replaced by the values specified for the property in the

applicability assertion.

Optionally, <values> may contain a list of custom labels for individual values. Any values not included in this list will use their normal label.

By default, the program will search for a file named .disptext in the current directory and parent directories, but any file can be specified using the -G (--disptext) option.

Example of a .disptext file:

<disptext>
<operators>
<and> + </and>

Applicable to: Version: 3.3.0

```
<or>, </or>
<openGroup>[</openGroup>
<closeGroup>]</closeGroup>
<set> or </set>
<range> thru </range>
</operators>
<default>
<name/>
<text>: </text>
<values/>
</default>
cproperty ident="model" type="prodattr">
<values>
<value match="BRKTRKR">Brook trekker</value>
<value match="MNTSTRM">Mountain storm
</values>
<text> </text>
<name/>
</property>
</disptext>
```

Given the above example, the following display would be generated for each annotation:

Assert annotation:

```
<assert
applicPropertyIdent="model"
applicPropertyType="prodattr"
applicPropertyValues="BRKTRKR"/>
```

Human-readable format:

```
"Brook trekker Model"
```

Evaluate annotation:

Applicable to: Version: 3.3.0

```
<evaluate andOr="or">
<evaluate andOr="and">
<assert
applicPropertyIdent="model"
applicPropertyType="prodattr"
applicPropertyValues="BRKTRKR"/>
<assert
applicPropertyIdent="version"
applicPropertyType="prodattr"
applicPropertyValues="Mk1"/>
</evaluate>
<evaluate andOr="and">
<assert
applicPropertyIdent="model"</pre>
```

```
applicPropertyType="prodattr"
applicPropertyValues="MNTSTRM"/>
<assert
applicPropertyIdent="version"
applicPropertyType="prodattr"
applicPropertyValues="Mk9"/>
</evaluate>
</evaluate>
Human-readable format:
"[Brook trekker Model + Version: Mk9],
[Mountain storm Model + Version: Mk1]"
Evaluate annotation:
<evaluate andOr="and">
<assert
applicPropertyIdent="model"
applicPropertyType="prodattr"
applicPropertyValues="BRKTRKR|MNTSTRM"/>
applicPropertyIdent="version"
applicPropertyType="prodattr"
applicPropertyValues="Mk1~Mk9"/>
</evaluate>
Human-readable format:
```

4

Examples 4.1 Generating display text

The built-in XSLT for generating display text follows the guidance in Chap 7.8 of the S1000D 5.0 specification. For example, given the following:

"Brook trekker or Mountain storm Model + Version: Mk1 thru Mk9"

```
<applic>
<assert applicPropertyIdent="prodversion"</pre>
applicPropertyType="prodattr" applicPropertyValues="A"/>
</applic>
```

The resulting XML would contain:

```
<applic>
<displayText>
<simplePara>prodversion: A</simplePara>
</displayText>
<assert applicPropertyIdent="prodversion"</pre>
applicPropertyType="prodattr" applicPropertyValues="A"/>
</applic>
```



If ACTs or CCTs are supplied which define display names for a property, this will be used instead of the ident. For example, the ACT defines the display name for the "prodversion" product attribute:

When supplied with the -A option:

```
$ s1kd-aspp -g -A <ACT> <DM>
```

The resulting XML would instead contain:

```
<applic>
<displayText>
<simplePara>Version: A</simplePara>
<assert applicPropertyIdent="prodversion"
applicPropertyType="prodattr" applicPropertyValues="A"/>
</displayText>
</applic>
```

The methods for generating display text can be changed either via the .disptext file, or by supplying a custom XSLT script with the -x option. The -, option can be used to dump the built-in XSLT as a starting point for a custom script.

4.2 Display text format string (-F)

The -F option allows for very simple customizations to generated display text without needing to create a custom .disptext file or XSLT script (-x). The string determines the format of the display text of each <assert> element in the annotation.

The following variables can be used within the format string:

%name% The name of the property.

%values% The applicable value(s) of the property.

For example:

```
$ slkd-aspp -g <DM>
...
<applic>
<displayText>
<simplePara>Version: A</simplePara>
</displayText>
<assert applicPropertyIdent="version" applicPropertyType="prodattr"
applicPropertyValues="A"/>
</applic>
```



```
$ slkd-aspp -F '%name% = %values%' -g <DM>
...
<applic>
<displayText>
<simplePara>Version = A</simplePara>
</displayText>
<assert applicPropertyIdent="version" applicPropertyType="prodattr"
applicPropertyValues="A"/>
</applic>
...
```

4.3 Creating presentation applicability statements

Given the following:

```
<dmodule>
<identAndStatusSection>
<dmAddress>...</dmAddress>
<dmStatus>
. . .
<applic>
<displayText>
<simplePara>A or B</simplePara>
</displayText>
</applic>
. . .
</dmStatus>
</identAndStatusSection>
<content>
<referencedApplicGroup>
<applic id="app-B">
<displayText>
<simplePara>B</simplePara>
</displayText>
</applic>
</referencedApplicGroup>
cedure>
<preliminaryRqmts>...</preliminaryRqmts>
<mainProcedure>
ceduralStep>
<para>This step is applicable to A or B.</para>
ceduralStep>
ceduralStep applicRefId="app-B">
<para>This step is applicable to B only.
ceduralStep applicRefId="app-B">
<para>This step is also applicable to B only.</para>
ceduralStep>
```



Applicability statements should be displayed whenever applicability changes:

- 1 This step is applicable to A or B.
- 2 Applicable to: B

This step is applicable to B only.

- 3 This step is also applicable to B only.
- 4 Applicable to: A or B

This step is also applicable to A or B.

There are two parts which are difficult to do in an XSLT stylesheet:

- No statement is shown on Step 3 despite having attribute applicRefId because the applicability has not changed since the last statement on Step 2.
- A statement is shown on Step 4 despite not having attribute applicRefId because the applicability has changed back to that of the whole data module.

Using the s1kd-aspp tool, the above XML would produce the following output:

```
<dmodule>
<identAndStatusSection>
<dmAddress>...</dmAddress>
<dmStatus>
. . .
<applic>
<displayText>
<simplePara>A or B</simplePara>
</displayText>
</applic>
. . .
</dmStatus>
</identAndStatusSection>
<content>
<referencedApplicGroup>
<applic id="app-B">
<displayText>
<simplePara>B</simplePara>
</displayText>
```



```
</applic>
<applic id="app-0000">
<displayText>
<simplePara>A or B</simplePara>
</displayText>
</applic>
</referencedApplicGroup>
<preliminaryRqmts>...</preliminaryRqmts>
<mainProcedure>
ceduralStep>
<para>This step is applicable to A or B.</para>
ceduralStep>
ceduralStep applicRefId="app-B">
<para>This step is applicable to B only.</para>
ceduralStep>
<para>This step is also applicable to B only.</para>
ceduralStep>
ceduralStep applicRefId="app-0000">
<para>This step is also applicable to A or B.</para>
</mainProcedure>
</procedure>
</content>
</dmodule>
```

With attribute applicRefId only on those elements where a statement should be shown, and an additional inline applicability to represent the whole data module's applicability. This XML is semantically incorrect but easier for a stylesheet to transform for page-oriented output.

5 Display text rules schema

5.1 Display text rules

The element <disptext> contains all the rules for the formatting of generated display text in applicability annotations.

Markup element: <disptext>

Attributes:

None

Applicable to: Version: 3.3.0

Child elements:

- <operators>
- <default>
- oductAttributes>
- <conditions>



- <conditionType>
- cproperty>

5.2 Operator rules

The element coperators> defines the format of operators used in applicability display text.

Attributes:

None

Child elements:

- <and>, text used for the and operator between assertions in an evaluation.
- <or>, text used for the or operator between assertions in an evaluation.
- <openGroup>, text used to open a group of assertions.
- <closeGroup>, text used to close a group of assertions.
- <set>, text used between items in a set.
- <range>, text used between the start and end of a range.

5.3 Default property format

The element <default> defines the default format for all properties which are not matched by a more specific rule.

Markup element: <default>

Attributes:

None

Child elements:

- <name>, replaced by the name of the property.
- <text>, text that is included as-is.
- <values>, replaced by the values specified for the property in the applicability assertion.

5.4 Product attributes format

The element cproductAttributes> defines the default format for all product attributes which are not matched by a more specific rule.

Attributes:

None

Applicable to: Version: 3.3.0

Child elements:



- <name>, replaced by the name of the product attribute.
- <text>, text that is included as-is.
- <values>, replaced by the values specified for the product attribute in the applicability assertion.

5.5 Conditions format

The element <conditions> defines the default format for all conditions which are not matched by a more specific rule.

Markup element: <conditions>

Attributes:

None

Child elements:

- <name>, replaced by the name of the condition.
- <text>, text that is included as-is.
- <values>, replaced by the values specified for the condition in the applicability assertion.

5.6 Condition type format

The element <conditionType> defines the format for all conditions of a given type which are not matched by a more specific rule.

Markup element: <conditionType>

Attributes:

ident (M), the ID of the condition type in the CCT.

Child elements:

- <name>, replaced by the name of the condition.
- <text>, text that is included as-is.
- <values>, replaced by the values specified for the condition in the applicability assertion.

5.7 Property format

The element property> defines the format for a specific property.

Attributes:

- ident (M), the ID of the property in the ACT or CCT.
- type (M), the type of the property, either "condition" or "prodattr".

Child elements:



- <name>, replaced by the name of the property.
- <text>, text that is included as-is.
- <values>, replaced by the values specified for the property in the applicability assertion.

5.8 Values

The element <values> is replaced by the values specified for a property in an applicability assertion, and may specify custom labels for certain values.

Markup element: <values>

Attributes:

None

Child elements:

- <value>

5.9 Custom value label

The element <value> specifies a custom label for an individual value of a property.

Markup element: <value>

Attributes:

- match (M), the value to apply the custom label for.

Child elements:

None



s1kd-flatten

Description

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None						

Description

1 General

The **s1kd-flatten** tool combines a publication module and the data modules it references in to a single file for use with a publishing system.

Data modules are by default searched for in the current directory using the data module code, language and/or issue info provided in each reference.

2 Usage

s1kd-flatten [-d <dir>] [-I <path>] [-cDfimNPpqRruvx] <PM> [<DM>...]

3 Options

Applicable to: Version: 3.3.0

-c, --containers

Flatten referenced container data modules by copying the references inside the container directly in to the publication

module. The copied references will also be flattened, unless	module.	The cop	ied reference:	s will also	be flattened,	unless
--	---------	---------	----------------	-------------	---------------	--------

the -m option is specified.

-D, --remove Remove unresolved references.

-d, --dir <dir>
 Directory to start search in. By default, the current directory is

used.

-f, --overwrite Overwrite input publication module instead of writing to

stdout.

-h, -?, --help Show help/usage message.

-I, --include <path> Add <path> to the list of directories that the tool will search

when resolving references.

-i, --ignore-issue Always match the latest issue of an object found, regardless

of the issue specified in the reference.

-m, --modify Modify the references in the publication module without

flattening them.

-N, --omit-issue Assume that the files representing the referenced data

modules do not include the issue info in their filenames, i.e. they were created using the -N option of the s1kd-new* tools.

-P, --only-pm-refs Only flatten PM references, leaving DM references alone.

-p, --simple Instead of the hierarchical PM-based format, use a simpler

"flat" format.

-q, --quiet Quiet mode. Errors are not printed.

-R, --recursively Recursively flatten referenced publication modules, copying

their content in to the "master" publication module.

-r, --recursive Search directories recursively.

-u, --unique Remove duplicate references within the PM content.-v, --verbose Verbose output. Specify multiple times to increase the

verbosity.

contents directly inside the publication module. DTD entities in data modules will only be carried over to the final publication when using this option, otherwise they do not

carry over when copying the data module.

--version Show version information.

<DM>... When using the -p option, the filenames to include can

be specified manually as additional arguments instead of searching for them in the current directory. When not using

the -p option, additional arguments are ignored.

<PM> The publication module to flatten.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.



--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.
 --parser-warnings Emit warnings from parser.
 --xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

4 Exit status

0 No errors.

The publication module specified is malformed.

2 An encoding error occurred.

5 Example

 $slkd-flatten -x PMC-EX-12345-00001-00_001-00_EN-CA.XML > Book.xml$



s1kd-fmgen

Description

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Data modu	ule/Techr	nical publication Title	
None			

Description

1 General

The **s1kd-fmgen** tool generates the content section for front matter data modules from either a standard publication module, or the combined format of the s1kd-flatten(1) tool. Some front matter types require the use of the combined format, particularly those that list information not directly found in the publication module, such as the highlights (HIGH) type.

2 Usage



3 Options

-., --dump-fmtypes Dump the built-in .fmtypes simple text format.

-D, --dump-xsl <TYPE> Dump the built-in XSLT used to generate the specified type of

front matter.

-F, --fmtypes <FMTYPES> Specify a custom .fmtypes file.

-f, --overwrite Overwrite the specified front matter data module files after

generating their content.

-h, -?, --help Show usage message.

-I, --date <date> Set the issue date of the generated front matter data

modules. This can be a specific date in the form of "YYYY-MM-DD", "-" for the current date, or "pm" to use the issue

date of the publication module.

-I, --list Treat input (stdin or arguments) as lists of front matter data modules to generate content for, rather than data modules

themselves. If reading list from stdin, the -P option must be

used to specify the publication module.

-P, --pm <PM> Publication module or s1kd-flatten(1) PM format file to

generate contents from. If none is specified, the tool will read

from stdin.

-p, --param <name>=<value> Pass a parameter to the XSLT stylesheets used to generate

the front matter content. Multiple parameters can be specified

by using this option multiple times.

The following parameters are automatically supplied to any stylesheet, and therefore their names should be considered

reserved:

 "type" - The front matter type name (e.g., HIGH) that was matched in the .fmtypes file or specified by the

user with the -t option.

-q, --quiet Quiet mode. Do not print errors.

Generate content for this type of front matter. Supported

types are:

HIGH - Highlights

LOA - List of abbreviations

LOASD - List of applicable specifications and

documentation

LOEDM - List of effective data modules

LOI - List of illustrations

LOS - List of symbols

-t, --type <TYPE>

LOT - List of terms

LOTBL - List of tables

TOC - Table of contents

- TP - Title page

-v, --verbose Verbose output. Specify multiple times to increase the

verbosity.

-x, --xsl <XSL> Use the specified XSLT script to generate the front matter

contents instead of the built-in XSLT or the user-configured

XSLT from the .fmtypes file.

--version Show version information.

<DM>... Front matter data modules to generate content for. If no front

matter type can be determined for a data module, it will be

ignored.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.
 --parser-warnings Emit warnings from parser.
 --xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

3.1 .fmtypes file

This file specifies a list of info codes to associate with a particular type of front matter.

Optionally, a path to an XSLT script can be given for each info code, which will be used to generate the front matter instead of the built-in XSLT. The path to an XSLT script will be interpreted relative to the location of the .fmtypes file (typically, the top directory of the CSDB). The -D option can be used to dump the built-in XSLT for a type of front matter as a starting point for a custom script.

Optionally, in the XML format, the attribute <code>ignoreDel</code> may be specified to control whether deleted data modules and elements are ignored when generating front matter contents. These are data modules with an issue type of "deleted" and elements with a change type of "delete". A value of "yes" means deleted content will not be included, while "no" means it will. If this attribute is not specified, then a default value will be used based on the type of front matter. The following types will ignore deleted content by default:

LOA



- LOASD
- LOI
- LOS
- LOTBL
- TOC
- TP

By default, the program will search for a file named .fmtypes in the current directory and parent directories, but any file can be specified using the -F option.

Example of simple text format:

```
001
       ΤP
005
       LOA
006
       LOT
007
       LOS
009
       TOC
00A
      LOA
00S
      LOEDM
U00
       HIGH
               fm/high.xsl
V00
       LOASD
00Z
       LOTBL
```

Example of XML format:

```
<fmtypes>
<fm infoCode="001" type="TP"/>
<fm infoCode="005" type="LOA"/>
<fm infoCode="006" type="LOT"/>
<fm infoCode="007" type="LOS"/>
<fm infoCode="009" type="TOC"/>
<fm infoCode="00A" type="LOI"/>
<fm infoCode="00A" type="LOEDM"/>
<fm infoCode="00U" type="LOEDM"/>
<fm infoCode="00U" type="HIGH" xsl="fm/high.xsl"/>
<fm infoCode="00V" type="LOASD"/>
<fm infoCode="00Z" type="LOTBL"/>
</fmtypes>
```

The info code of each entry in the .fmtypes file may also include an info code variant. This allows different transformations to be used based on the variant:

```
<fmtypes>
<fm infoCode="00UA" type="HIGH" xsl="fm/high.xsl"/>
<fm infoCode="00UB" type="HIGH" xsl="fm/high-updates.xsl"/>
<fm infoCode="00U" type="HIGH"/>
</fmtypes>
```

In the example above, a highlights data module (00U) with info code variant A will use an XSL transformation that creates a simple highlights, while a highlights data module with info code



variant B will use an XSL transformation that creates a highlights with update instructions. All other variants will use the built-in XSLT.

Entries are chosen in the order they are listed in the .fmtypes file. An info code which does not specify a variant matches all possible variants.

3.2 Optional title page elements

When re-generating the front matter content for a title page data module, optional elements which cannot be derived from the publication module (such as the product illustration or bar code) will be copied from the source data module when updating it.

3.3 Multi-pass transforms

Rather than a literal XSLT file, the path specified for the xsl attribute in the .fmtypes file or the -x (--xsl) option may be an XProc file which contains a pipeline with multiple stylesheets. This allows for multi-pass transformations.

Note

Only a small subset of XProc is supported at this time.

Example:

```
<p:pipeline
xmlns:p="http://www.w3.org/ns/xproc"
xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
version="1.0">
<p:xslt name="Pass 1">
<p:input port="stylesheet">
<p:document href="pass1.xsl"/>
</p:input>
<p:with-param name="update-instr" select="true()"/>
</p:xslt>
<p:xslt name="Pass 2">
<p:input port="stylesheet">
<p:inline>
<xsl:transform version="1.0">
</xsl:transform>
</p:inline>
</p:input>
</p:xslt>
</p:pipeline>
```

4 Exit status

0	No errors.
1	The date specified with -I is invalid.
2	No front matter types were specified.
3	An unknown front matter type was specified.



The resulting front matter content could not be merged in to a data module.

The stylesheet specified for a type of front matter was invalid.

5 Example

5

Generate the content for a title page front matter data module and overwrite the file:

```
$ s1kd-flatten PMC-EX-12345-00001-00_001-00_EN-CA.XML |
> s1kd-fmgen -f DMC-EX-A-00-00-00A-001A-D_001-00_EN-CA.XML
```



s1kd-icncatalog Description

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Description

1 General

Applicable to: Version: 3.3.0

The **s1kd-icncatalog** tool is used to manage a catalog of ICNs for a project, and to resolve ICNs using this catalog. Resolving an ICN means placing the actual filename of the ICN in to the SYSTEM ID of the ENTITY declaration within CSDB objects.



2 Usage

slkd-icncatalog [options] [<object>...]

3 Options

-a, --add <ICN> Add an ICN to the catalog. Follow with the -u and -n options

to specify the URI and notation to use for this ICN. The -m

option specifies a media group to add the ICN to.

-C, --create Create a new empty catalog.

-c, -catalog <catalog> Specify the catalog file to manage or resolve against. By

default, the file .icncatalog in the current directory is used. If the current directory does not contain this file, the parent

directories will be searched.

-d, --del <ICN> Delete an ICN from the catalog. The -m option specifies a

media group to delete the ICN from.

-f, --overwrite Overwrite the input CSDB objects when resolving ICNs, or

overwrite the catalog file when modifying it. Otherwise, output

is written to stdout.

-h, -?, --help Show help/usage message.

-I, --list Treat input (stdin or arguments) as lists of filenames of CSDB

objects, rather than CSDB objects themselves.

-m, --media <media> Resolve ICNs for this intended output media. The catalog

may contain alternative formats for the same ICN to be used

for different output media.

-n, --ndata <notation> Specify the notation to reference when adding an ICN with

the -a option.

-q, --quiet Quiet mode. Errors are not printed.

-t, --type <type> Specify the type of catalog entry when adding an ICN with the

-a option.

-u, --uri <URI> Specify the URI when adding an ICN with the -a option.

-v, --verbose Verbose output.

--version Show version information.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.



--parser-warnings Emit warnings from parser.

--xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

4 Examples

4.1 Resolving ICNs to filenames

A CSDB object may reference an ICN as follows:

```
<!NOTATION png SYSTEM "png">
<!ENTITY ICN-12345-00001-001-01 SYSTEM "ICN-12345-00001-001-01.PNG"
NDATA png>
```

The SYSTEM ID of this ENTITY indicates that the ICN file will be in the same directory relative to the CSDB object. However, the ICN files in this example are located in a separate folder called 'graphics'. Rather than manually updating every ENTITY declaration in every CSDB object, a catalog file can be used to map ICNs to actual filenames:

```
<icnCatalog>
<icn infoEntityIdent="ICN-12345-00001-001-01"
uri="graphics/ICN-12345-00001-001-01.PNG"/>
</icnCatalog>
```

Then, using this tool, the ICN can be resolved against the catalog:

```
$ s1kd-icncatalog -c <catalog> <object>
```

Producing the following output:

```
<!NOTATION png SYSTEM "png">
<!ENTITY ICN-12345-00001-001-01 SYSTEM
"graphics/ICN-12345-00001-001-01.PNG" NDATA png>
```

4.2 Alternative ICN formats

Applicable to: Version: 3.3.0

A catalog can also be used to provide alternative file formats for an ICN depending on the intended output media. For example:

```
<icnCatalog>
<notation name="jpg" systemId="jpg"/>
<notation name="svg" systemId="svg"/>
<media name="pdf">
<icn infoEntityIdent="ICN-12345-00001-001-01"
uri="ICN-12345-00001-001-01.JPG" notation="jpg"/>
</media>
<media name="web">
<icn infoEntityIdent="ICN-12345-00001-001-01"
uri="ICN-12345-00001-001-01.SVG" notation="svg"/>
</media>
```



</icnCatalog>

The -m option allows for specifying which type of media to resolve for:

```
<!NOTATION png SYSTEM "png">
<!ENTITY ICN-12345-00001-001-01 SYSTEM "ICN-12345-00001-001-01.PNG"
NDATA png>

$ s1kd-icncatalog -c <catalog> -m pdf <object>

<!NOTATION png SYSTEM "png">
<!NOTATION jpg SYSTEM "jpg">
<!ENTITY ICN-12345-00001-001-01 SYSTEM "ICN-12345-00001-001-01.JPG"
NDATA jpg>

$ s1kd-icncatalog -c <catalog> -m web <object>

<!NOTATION png SYSTEM "png">
<!NOTATION png SYSTEM "png">
<!NOTATION syg SYSTEM "syg">
<!ENTITY ICN-12345-00001-001-01 SYSTEM "ICN-12345-00001-001-01.SVG"
NDATA syg>
```

4.3 Reconstructing ICN entity declarations

Some processing, such as XSL transformations, may remove the DTD and external entity declarations as part of parsing an XML CSDB object. A catalog can be used to restore the necessary external entity declarations afterwards. For example:

```
$ xsltproc ex.xsl <object>
```

The resulting XML will not include a DTD or the external entity declarations for the ICNs referenced in the object, so it will not be valid according to the S1000D schema:

```
$ xsltproc ex.xsl <object> | s1kd-validate
-:49:element graphic: Schemas validity error: Element 'graphic',
attribute 'infoEntityIdent': 'ICN-12345-00001-001-01' is not a valid
value of the atomic type 'xs:ENTITY'.
```

Passing the result to this tool, with a catalog containing all the ICNs used by the project:

```
$ xsltproc ex.xsl <object> | slkd-icncatalog -c <catalog>
```

will reconstruct the required external entity declarations in the DTD.

Note

The s1kd-tools will copy the DTD and external entity declarations automatically when performing transformations, so this is only necessary when using more generic XML tools.

4.4 ICN pattern rules

By default, each catalog entry matches a single ICN, but multiple ICNs can be resolved with a single entry by using a pattern rule. An entry with attribute type="pattern" specifies a regular expression to use to match ICNs and a template used to construct the resolved URI:



```
<icn
type="pattern"
infoEntityIdent="ICN-(.{5})-(.*)"
uri="graphics/\1/ICN-\1-\2.PNG"
notation="PNG"/>
```

The above entry would match a series of CAGE-based ICNs, resolving them to a subfolder of 'graphics' based on their CAGE code. Using this entry, the following input:

```
<!DOCTYPE dmodule [
<!NOTATION PNG SYSTEM PNG>
<!ENTITY ICN-12345-00001-001-01
SYSTEM "ICN-12345-00001-001-01"
NDATA PNG>
<!ENTITY ICN-54321-00001-001-01
SYSTEM "ICN-54321-00001-001-01"
NDATA PNG>
]>
```

would be resolved as follows:

The regular expressions must conform to the extended POSIX regular expression syntax. Backreferences \1 through \9 can be used in the URI template to substitute captured groups.

5 Catalog schema

The following describes the schema of an ICN catalog file.

5.1 Catalog

Markup element: <icnCatalog>

Attributes:

None

Child elements:

- <notation>
- <media>
- <icn>



5.2 Notation

The element <notation> represents a NOTATION declaration.

Markup element: <notation>

Attributes:

- name, the NDATA name.
- publicId, the optional PUBLIC ID of the notation.
- systemId, the optional SYSTEM ID of the notation.

Child elements:

None

5.3 Media

The element <media> groups a set of alternative ICN formats for a particular output media type.

Markup element: <media>

Attributes:

name, the identifier of the output media.

Child elements:

- <icn>

5.4 ICN

The element <icn> maps an ICN to a filename and optionally a notation. When this element occurs as a child of a <media> element, it will be used when that output media is specified with the -m option. When it occurs as a child of <icnCatalog>, it will be used if no media is specified.

Markup element: <icn>

Attributes:

- type, the type of ICN entry, with one of the following values:
 - "single" (D) Specifies a single ICN to resolve.
 - "pattern" Specifies a pattern to resolve one or more ICNs.
- infoEntityIdent, the ICN, or pattern used to match ICNs.
- uri, the filename the ICN will resolve to.
- notation, a reference to a previously declared <notation> element.

Child elements:

None



5.5 Example ICN catalog

```
<icnCatalog>
<notation name="jpg" systemId="jpg"/>
<notation name="png" systemId="png"/>
<notation name="svg" systemId="svg"/>
<media name="pdf">
<icn infoEntityIdent="ICN-12345-00001-001-01"
uri="ICN-12345-00001-001-01.JPG" notation="jpg"/>
</media>
<media name="web">
<icn infoEntityIdent="ICN-12345-00001-001-01"
uri="ICN-12345-00001-001-01.SVG" notation="svg"/>
</media>
<icn infoEntityIdent="ICN-12345-00001-001-01"
uri="ICN-12345-00001-001-01.PNG" notation="png"/>
</icnCatalog>
```



s1kd-index

Description

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None				
			Description	
1			ex flags to a data module based on a user-defined set of	
2	Usa	ge		
	s1kd	-index -h? -index [-I <index>] -index -D [-filqv]</index>] [-filqv] [<module>] [<module>]</module></module>	
3	Opt	ions		
	-D,	delete	Remove the current index flags from a data module.	

Overwrite input module(s).

-f, --overwrite



-h, -?, --help Show help/usage message.

the default .indexflags file.

-i, --ignore-case Ignore case when flagging terms.

-I, --list Treat input (stdin or arguments) as lists of filenames of data

modules to add index flags to, rather than data modules

themselves.

-q, --quiet Quiet mode. Errors are not printed.

-v, --verbose Verbose output.

--version Show version information.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.--parser-warnings Emit warnings from parser.--xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

3.1 .indexflags file

This file specifies the list of indexable keywords for the project and their level. By default, the program will search for a file named .indexflags in the current directory or parent directories, but any file can be specified using the -I option.

Exmaple of .indexflags file format:

```
<indexFlags>
<indexFlag indexLevelOne="bicycle"/>
<indexFlag indexLevelOne="bicycle" indexLevelTwo="brake system"/>
</indexFlags>
```

4 Example

Given the following in a data module:

```
<levelledPara>
<title>General</title>
<para>
```

The slkd-tools are a set of small tools for manipulating S1000D XML data.



```
</para>
</levelledPara>
And the following .indexflags file:
<indexFlags>
<indexFlag indexLevelOne="S1000D"/>
<indexFlag indexLevelTwo="S10000D" indexLevelTwo="s1kd-tools"/>
<indexFlag indexLevelOne="data"/>
<indexFlag indexLevelOne="data" indexLevelTwo="XML"/>
</indexFlags>
Then the s1kd-index command:
$ s1kd-index <DM>.XML
Would result in the following:
<levelledPara>
<title>General</title>
The s1kd-tools<indexFlag indexLevelOne="S1000D"
indexLevelTwo="s1kd-tools"/> are a set of small tools for
manipulating S1000D<indexFlag indexLevelOne="S1000D"/>
XML<indexFlag indexLevelOne="data" indexLevelTwo="XML"/>
data<indexFlag indexLevelOne="data"/>.
</para>
</levelledPara>
```

s1kd-instance Description

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Data mod	ule/Tec	chnical publication Title	
None			

Description

1 General

Applicable to: Version: 3.3.0

The **s1kd-instance** tool produces "instances" of S1000D CSDB objects, derived from "master" (or "source") objects. The tool supports multiple methods of instantiating objects:

- Filtering on user-supplied applicability definitions, so that non-applicable elements and (optionally) unused applicability annotations are removed in the instance. The definitions can be supplied directly or read from a PCT.
- Filtering on skill levels and security classifications to remove sensitive data.



Using a CIR to produce a standalone instance from a CIR-dependent master.

Any combination of these methods can be used when producing an instance.

The applications for this tool include:

- Delivering customized data modules or publications to different customers.
- Creating customized instances of CSDB objects which are maintained within the CSDB.
- As a backend to filter content or resolve CIR dependencies at runtime in an electronic viewer application.

2 Usage

slkd-instance [options] [<object>...]

3 Options

-A,simplify	Simplify inline applicability annota	ations, and	d remove
	4 41 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		

annotations which are unambiguously valid or invalid.

-a, --reduce Remove applicability annotations which are unambiguously

valid or invalid.

-C, --comment <comment> Add an XML comment to an instance. Useful as another

way of identifying an object as an instance aside from the source address or extended code, or giving additional information about a particular instance. By default, the comment is inserted at the top of the document, but this can

be customized with the -X option.

-c, --code <code> Specify a new data module code (DMC) or publication

module code (PMC) for the instance.

-D, --dump <CIR> Dumps the built-in XSLT used to resolve dependencies for

<CIR> CIR type to stdout. This can be used as a starting point for a custom XSLT script to be specified with the -x

option.

The following types currently have built-in XSLT and can

therefore be used as values for <CIR>:

accessPointRepository

applicRepository

cautionRepository

circuitBreakerRepository

controlIndicatorRepository

enterpriseRepository

functionalItemRepository

_	illustratedPartsCatalog
---	-------------------------

- partRepository
- supplyRepository
- toolRepository
- warningRepository
- zoneRepository

-d, --dir <dir>
 Directory to start searching for referenced objects in. By

default, the current directory will be searched. This applies for the ACT and PCT data modules when a product is specified (-p) without specifying the PCT explicitly (-P), or when

searching for source objects (-@).

-E, --no-extension Remove the extension from an instance produced from an

already extended object.

-e, --extension <ext> Specify an extension on the data module code (DME) or

publication module code (PME) for the instance.

-F, --flatten-alts After filtering, "alts" elements containing only one child

element will be "flattened" by replacing them with the applicable child element. Alts elements with multiple child

elements are left untouched.

-f, --overwrite Force overwriting of files.

By itself, this will cause the source object(s) to be overwritten

instead of being printed to stdout.

When used with the -o or -O options, if a file exists with the same name as the one specified (-o) or automatically generated by the tool (-O), this will force it to be overwritten. Otherwise, a warning will be printed and the existing file will

not be overwritten.

-G, --custom-orig <CODE>/

<NAME>

Similar to the -g option, but instead of the default enterprise code and name, use the values <CODE> and <NAME>,

which are separated by a slash (/). To only include a code, specify <CODE> with no slash. To only include a name,

specify <NAME> prefixed by a slash.

-g, --set-orig Set the originator of the instance. When this option is

specified, the code "S1KDI" and the name "s1kd-instance tool" are used by default to identify that the instance was produced by this tool. A different code and name can be

specified with the -G option.

-H, --list-properties <method> Create an XML report of all the applicability properties used

in, and product instances relevant to, the specified CSDB objects. <method> determines how to include values and

products in the report:

_	"standalone" - Only include the values that are explicitly
	used in the object.

- "all" Include all values and products as defined in the ACT, CCT and PCT.
- "applic" Only include the values and products, as defined in the ACT, CCT and PCT, that are within the applicability of the object.

Show help/usage message.

Set the issue date of the instance. By default, the issue date is taken from the source. If - is given for <date>, the current date will be used.

Give the data module instance a different infoName.

Remove display text from annotations which are simplified in -A or -9 mode.

> After filtering, remove external entities (such as ICNs) which are no longer used from the resulting instances.

> > Filter the object on the specified skill levels. Elements which are marked with skill levels not contained in the string levels> are removed in the resulting instance.

Set the skill level of the instance.

Source is a list of object filenames to create instances of, rather than an object itself.

Set the language and country of the instance. For example, to create an instance for US English, lang would be "en-US".

Set the remarks for the instance.

Omit issue/inwork numbers from automatically generated filenames.

Set the issue and inwork numbers of the instance. By default, the issue and inwork number are taken from the source.

When updating an instance (-@), if + is given for <iss>, the updated instance will have the same issue number with an inwork number incremented by one.

Setting the issue of the instance will also set a default issue type:

- If the issue is 000-01 thru 001-00, the default issue type will be "new".
- If the issue is 001-01 and up and the master is not "new", the default issue type will be that of the master.
- If the issue is 001-01 and up but the master is "new", the default issue type will be "status".

-I. --date <date>

-i, --infoname <infoName>

-J, --clean-display-text

-j, --clean-ents

-K, --skill-levels <levels>

-k, --skill <level>

-L, --list

-I, --language <lang>

-m, --remarks <remarks>

-N, --omit-issue

-n, --issue <iss>

A different issue type than the default can be set with the -z (--issue-type) option.

Output instance(s) in <dir>, automatically naming them based on:

- the extension specified with -e
- the code specified with -c
- The issue info specified with -n
- the language and country specified with -L

If any of the above are not specified, the information is copied from the source object.

If <dir> does not exist, it will be created.

If a file exists with the same name in the specified directory, a warning will be display and the file will not be overwritten, unless the -f option is specified.

When using this option, non-XML files, such as external publications, may be specified as objects. They will be copied to <dir>.

-o, --out <file> Output instance to file instead of stdout.

PCT file to read product definitions from (-p). If a product is specified but no PCT is given, the tool will attempt to use the ACT reference of each source data module to find the ACT and PCT data modules in the current directory.

The ID or primary key of a product in the specified PCT data module (-P), the PCT referenced by the ACT data module specified with -1, or the PCT data module referenced by the source data module itself. A primary key is given in the same form as the -s option and should match a unique assign of a product instance, e.g., "serialno:prodattr=12345". If the key matches multiple products within the PCT, then the objects will be filtered on the combination of all matching

products.

Resolve references to container data modules, selecting the appropriate reference for the specified applicability. If zero or more than one references are applicable, the reference to the container will be left untouched.

Additionally, if the object being filtered is itself a container data module, the applicability of the referenced data modules will be copied in to it as inline annotations prior to filtering.

Quiet mode. Errors are not printed.

-O, --outdir <dir>

-P, --pct <PCT>

-p, --product product>

-Q, --resolve-containers

-q, --quiet

-R, --cir <CIR> ...

Use a CIR to resolve external dependencies in the master object, making the instance object standalone. Additional CIRs can be used by specifying the -R option multiple times.

The following CIRs have some built-in support:

- Access points
- Applicability
- Cautions
- Circuit breakers
- Controls/indicators
- Enterprises
- Functional items
- Illustrated parts data
- Parts
- Supplies
- Tools
- Warnings
- Zones

The methods of resolving the dependencies for a CIR can be changed by specifying a custom XSLT script with the -x option. The built-in XSLT used for the above CIR data modules can be dumped with the -D option.

If "*" is given for <CIR>, the tool will search for CIR data modules automatically.

-r, --recursive Search for referenced objects recursively. This applies for the

ACT and PCT data modules when a product is specified (-p) without specifying the PCT explicitly (-P), when searching for source objects (-@), or when searching for CIR data modules

(-R).

-S, --no-source-ident Do not include <sourceDmldent>/<sourcePmldent> in the

instance.

-s, --assign <applic> An applicability definition in the form of

"<ident>:<type>=<value>". Any number of values can

be defined by specifying this option multiple times.

-T, --tag Tag non-applicable elements with the processing instruction

<?notApplicable?> instead of removing them.

-t, --techname <techName> Give the instance a different techName/pmTitle.

-U,security-classes <classes></classes>	Filter the object on the specified security classes. Elements marked with security classes not contained in the string <classes> are removed in the resulting instance.</classes>
-u,security <sec></sec>	Set the security classification of the instance. An instance may have a lower security classification than the source if classified information is removed for a particular customer.
-V,infoname-variant <variant></variant>	Give the instance a different info name variant.
-v,verbose	Verbose output.
-W,set-applic	Set the applicability for the whole object, overwriting the current applicability with the user-defined applicability values.
-w,whole-objects	Check the applicability, skill level, and security classification of the whole object against the user-defined applicability, skill levels, and security classifications. If the whole object is not applicable, then no instance is created.
-X,comment-xpath <path></path>	The XPath expression indicating where the comment specified with -C will be inserted. This should be the path to an element where the comment will be inserted as the first child node. By default, this is the top of the document.
-x,xsl <xsl></xsl>	Use a custom XSLT script to resolve CIR dependencies. If this option follows -R, the specified XSLT script will only be used for the last specified CIR. If it precedes any -R, the specified XSLT script will be used for all CIRs that do not override it with a following -x.
-Y,applic <text></text>	Update the applicability for the whole object using the user- defined applicability values, and using <text> as the new display text.</text>
-y,update-applic	Update the applicability for the whole object using the user- defined applicability values.
-Z,add-required	Fix certain elements automatically after filtering. For example, if all support equipment is removed due to filtering, a <nosupportequips> element will be inserted automatically.</nosupportequips>
-z,issue-type <type></type>	Set the issue type of the instance.
-1,act	Specify the ACT to use to find the CCT and/or PCT.
-2,cct	Specify the CCT to read dependency tests from (-~).
-3,no-repository-ident	Do not include a <repositorysourcedmldent> in the instance for each CIR.</repositorysourcedmldent>
-4,flatten-alts-refs	Same as the -F option, but in addition to flattening alts elements, the internalRefTargetType of cross-references to them will be changed to the appropriate type

(e.g., "irtt01" for a <figure> in a <figureAlts>).

This is specifically useful for S1000D Issue 4.1, where the Default BREX does not allow the standard

internalRefTargetType values to be used with the alts

elements.

-5, --print When -O is used, print the automatically generated file name

of the instance.

-6, --clean-annotations Remove unused applicability annotations.

-7, --dry-run Do not actually create or update any instances. This can be

combined with options like -5 (--print) or -0 (--print-non-applic) to print information about what objects would/would not be created or updated, but nothing will actually be written out.

-8, --reapply Automatically reapply the applicability of the source object

when filtering.

-9, --prune Remove only invalid parts of applicability annotations.

-0, --print-non-applic Print the file names of objects which are not applicable, and

therefore no instance for them will be created. Since this would only have an effect in the -w (--whole-objects) mode,

that option is implied.

-@, --update-instances Rather than source objects, the objects specified are existing

instances that will be updated.

-%, --read-only Make instance objects read-only.

-!, --no-infoname Do not include an infoName in the instance.

-~, --dependencies Add dependency tests from the CCT to assertions that use

the dependant values.

-^, --remove-deleted Remove elements with change type of "delete" in the

resulting instance. If -w (--whole-objects) is specified, then no instance will be created for objects with an issue type of

"deleted".

--version Show version information.

<object>... Source CSDB objects to instantiate.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.
 --parser-warnings Emit warnings from parser.
 --xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

3.1 Identifying the source of an instance

If the identification information (extension, code, issue or language) of an instance differs from that of the source, the resulting data module instance will contain the element <sourceDmIdent>, which will contain the identification elements of the source data module used to instantiate it. Publication module instances will contain the element <sourcePmIdent> instead.

Additionally, the data module instance will contain an element <repositorySourceDmIdent>
for each CIR specified with the -R option.

If the -S (--no-source-ident) option is used, neither the <sourceDmIdent> or <sourcePmIdent> elements are added. If the -3 (--no-repository-ident) option is used, no <repositorySourceDmIdent> elements will be added. These options can be useful when this tool is not used to make an "instance" per se, but more generally to make a module based on an existing module.

3.2 Removing/simplifying/pruning applicability annotations

By default, filtering on applicability will remove invalid elements from the resulting instance. In some cases, though, it may be desirable to remove redundant applicability annotations on valid elements. The -a (--reduce), -A (--simplify) and -9 (--prune) options provide different methods of doing this.

The -a (--reduce) option will remove applicability annotations (applicRefId) from elements which are deemed to be unambiguously valid or invalid (their validity does not rely on applicability values left undefined by the user). The unused occurrences of the corresponding <applic> elements are removed as well.

The -A (--simplify) option will do the same as the -a option, but will also attempt to simplify unused parts of applicability annotations. It simplifies an annotation by removing <assert> elements determined to be either unambiguously valid or invalid given the user-defined values, and removing unneeded <evaluate> elements when they contain only one remaining <assert>.

The -9 (--prune) option works similarly to the -A option, except that only invalid parts of applicability annotations are removed.

For example, given the following input:

```
<referencedApplicGroup>
<applic id="app-0001">
<assert
applicPropertyIdent="version"
applicPropertyType="prodattr"
applicPropertyValues="A"/>
</applic>
<applic id="app-0002">
<assert
applicPropertyIdent="version"
applicPropertyType="prodattr"
applicPropertyType="prodattr"
applicPropertyValues="B"/>
```

```
</applic>
<applic id="app-0003">
<evaluate andOr="or">
<evaluate andOr="and">
<assert
applicPropertyIdent="version"
applicPropertyType="prodattr"
applicPropertyValues="A"/>
applicPropertyIdent="weather"
applicPropertyType="condition"
applicPropertyValues="normal"/>
</evaluate>
<evaluate andOr="and">
<assert.
applicPropertyIdent="version"
applicPropertyType="prodattr"
applicPropertyValues="B"/>
<assert
applicPropertyIdent="weather"
applicPropertyType="condition"
applicPropertyValues="icy"/>
</evaluate>
</evaluate>
</applic>
</referencedApplicGroup>
<!-- snip -->
<para applicRefId="app-0001">This applies to version A.</para>
<para applicRefId="app-0002">This applies to version B.</para>
<para applicRefId="app-0003">
This applies to version A if the weather is normal, or version B if
the weather is icy.
</para>
```

If this data is filtered for version A, without specifying a value for the weather, and the -a, -A or -9 options are not used, the following will be the result:

```
<referencedApplicGroup>
<applic id="app-0001">
<assert
applicPropertyIdent="version"
applicPropertyType="prodattr"
applicPropertyValues="A"/>
</applic>
<applic id="app-0002">
<assert
applicPropertyIdent="version"
applicPropertyType="prodattr"
applicPropertyType="prodattr"
applicPropertyValues="B"/>
```

```
</applic>
<applic id="app-0003">
<evaluate andOr="or">
<evaluate andOr="and">
<assert
applicPropertyIdent="version"
applicPropertyType="prodattr"
applicPropertyValues="A"/>
applicPropertyIdent="weather"
applicPropertyType="condition"
applicPropertyValues="normal"/>
</evaluate>
<evaluate andOr="and">
<assert.
applicPropertyIdent="version"
applicPropertyType="prodattr"
applicPropertyValues="B"/>
<assert
applicPropertyIdent="weather"
applicPropertyType="condition"
applicPropertyValues="icy"/>
</evaluate>
</evaluate>
</applic>
</referencedApplicGroup>
<!-- snip -->
<para applicRefId="app-0001">This applies to version A.</para>
<para applicRefId="app-0003">
This applies to version A if the weather is normal, or version B if
the weather is icy.
</para>
```

The second paragraph is removed, because it only applies to version B.

If the -a option is used, the following would be the result:

```
<referencedApplicGroup>
<applic id="app-0003">
<evaluate andOr="or">
<evaluate andOr="and">
<assert
applicPropertyIdent="version"
applicPropertyType="prodattr"
applicPropertyValues="A"/>
<assert
applicPropertyIdent="weather"
applicPropertyType="condition"
applicPropertyValues="normal"/>
```



```
</evaluate>
<evaluate andOr="and">
<assert
applicPropertyIdent="version"
applicPropertyType="prodattr"
applicPropertyValues="B"/>
<assert
applicPropertyIdent="weather"
applicPropertyType="condition"
applicPropertyValues="icy"/>
</evaluate>
</evaluate>
</applic>
</referencedApplicGroup>
<!-- snip -->
<para>This applies to version A.</para>
<para applicRefId="app-0003">
This applies to version A if the weather is normal, or version B if
the weather is icy.
</para>
```

The applicability annotation reference for the first paragraph is removed because, given that the version is A, it must be true. The corresponding applicability annotations, which are no longer referenced, are also removed. The applicability on the third paragraph remains, however, because it is only true if the version is A **and** the weather is normal, and no value has been given for the weather.

If the -A option is used, the following would be the result:

```
<referencedApplicGroup>
<applic id="app-0003">
<assert
applicPropertyIdent="weather"
applicPropertyType="condition"
applicPropertyValues="normal"/>
</applic>
</referencedApplicGroup>
<!-- snip -->
<para>This applies to version A.</para>
<para applicRefId="app-0003">
This applies to version A if the weather is normal, or version B if the weather is icy.
</para>
```

The annotation is now simplified to remove resolved assertions. Because the version must be A, any assertions restating this can be removed as redundant, and any portions of the annotation in which the version is **not** A can be removed as invalid. This leaves only the assertion about the weather.

If the -9 option is used, the following would be the result:

```
<referencedApplicGroup>
<applic id="app-0001">
<assert
applicPropertyIdent="version"
applicPropertyType="prodattr"
applicPropertyValues="A"/>
</applic>
<applic id="app-0003">
<evaluate andOr="and">
<assert.
applicPropertyIdent="version"
applicPropertyType="prodattr"
applicPropertyValues="A"/>
<assert
applicPropertyIdent="weather"
applicPropertyType="condition"
applicPropertyValues="normal"/>
</evaluate>
</applic>
</referencedApplicGroup>
<!-- snip -->
<para applicRefId="app-0001">This applies to version A./para>
<para applicRefId="app-0003">
This applies to version A if the weather is normal, or version B if
the weather is icy.
</para>
```

The first annotation is kept because it is entirely valid. The third annotation is simplified by removing the invalid assertions, but the valid assertions are preserved.

Note

The -A and -9 options may change the **meaning** of certain applicability annotations without changing the **display text**. Display text is always left untouched, so using this option may cause display text to be technically incorrect.

These options are best used when display text will be automatically generated after filtering, such as with the s1kd-aspp tool. The -J option of this tool can be combined with the -k option of the s1kd-aspp tool to only generate display text for annotations which are modified.

3.3 Applicability of an instance (-W, -Y, -y)

The applicability of an instance may change as a result of filtering. For example, a source data module which is applicable to two versions of a product may produce two instances which are each only applicable to one version. There are three options which control how the applicability of the whole instance object is updated.

The -W option will create an applicability annotation for the instance using only the user-defined applicability values. This means, for example, that given the following command:



```
$ slkd-instance -s version:prodattr=A -W ...
```

The instance would contain the following annotation:

```
<dmStatus>
<!-- snip -->
<applic>
<assert applicPropertyIdent="version"
applicPropertyType="prodattr" applicPropertyValues="A"/>
</applic>
<!-- snip -->
</dmStatus>
```

regardless of what the applicability of the source object was.

The -y option will create an applicability annotation for the instance by combining the userdefined applicability with the applicability of the source object. For example, given the following annotation in the source object:

```
<dmStatus>
<!-- snip -->
<applic>
<assert applicPropertyIdent="version"
applicPropertyType="prodattr" applicPropertyValues="A"/>
</applic>
<!-- snip -->
</dmStatus>
```

and the following command:

```
$ slkd-instance -s weather:condition=icy -y ...
```

The annotation for the instance would be as follows:

```
<dmStatus>
<!-- snip -->
<applic>
<evaluate andOr="and">
<assert applicPropertyIdent="version"
applicPropertyType="prodattr" applicPropertyValues="A"/>
<assert applicPropertyIdent="weather"
applicPropertyType="condition" applicPropertyValues="icy"/>
</evaluate>
</applic>
<!-- snip -->
</dmStatus>
```

The -Y option by itself works the same as the -y option, but allows custom display text to be set for the annotation. It can also be combined with the -W option to add custom display text to the overwriting annotation:

```
$ slkd-instance -s version:prodattr=A -WY "Version A" ...
```



```
<dmStatus>
<!-- snip -->
<applic>
<displayText>
<simplePara>Version A</simplePara>
</displayText>
<assert applicPropertyIdent="version"
applicPropertyType="prodattr" applicPropertyValues="A"/>
</applic>
<!-- snip -->
</dmStatus>
```

3.4 Filtering for multiple values of a single property

Though not usually the case, it is possible to create an instance which is filtered on multiple values of the same applicabilty property. Given the following:

```
<referencedApplicGroup>
<applic id="apA">
<assert applicPropertyIdent="attr"</pre>
applicPropertyType="prodattr"
applicPropertyValues="A"/>
</applic>
<applic id="apB">
<assert applicPropertyIdent="attr"</pre>
applicPropertyType="prodattr"
applicPropertyValues="B"/>
</applic>
<applic id="apC">
<assert applicPropertyIdent="attr"</pre>
applicPropertyType="prodattr"
applicPropertyValues="C"/>
</applic>
</referencedApplicGroup>
<!-- ... -->
<para applicRefId="apA">Applies to A</para>
<para applicRefId="apB">Applies to B</para>
<para applicRefId="apC">Applies to C</para>
```

filtering can be applied such that the instance will be applicable to both A and C, but not B. This is done by specifying a property multiple times in the applicability definition arguments. For example:

```
$ s1kd-instance -A -Y "A or C" -s attr:prodattr=A -s attr:prodattr=C ...
```

This would produce the following in the instance:

```
<dmStatus>
<!-- ... -->
<applic>
<displayText>
```

Applicable to: Version: 3.3.0

```
<simplePara>A or C</simplePara>
</displayText>
<evaluate andOr="or">
<assert applicPropertyIdent="attr"</pre>
applicPropertyType="prodattr"
applicPropertyValues="A"/>
<assert applicPropertyIdent="attr"</pre>
applicPropertyType="prodattr"
applicPropertyValues="C"/>
</evaluate>
</applic>
<!-- ... ->
</dmStatus>
<!-- ... -->
<referencedApplicGroup>
<applic id="apA">
<assert applicPropertyIdent="attr"</pre>
applicPropertyType="prodattr"
applicPropertyValues="A"/>
</applic>
<applic id="apC">
<assert applicPropertyIdent="attr"</pre>
applicPropertyType="prodattr"
applicPropertyValues="C"/>
</applic>
</referencedApplicGroup>
<!-- ... -->
<para applicRefId="apA">Applies to A</para>
<para applicRefId="apC">Applies to C</para>
```

3.5 Resolving CIR dependencies with a custom XSLT script (-x)

A CIR contains more information about an item than can be captured in a data module's reference to it. If this additional information is required, there are two methods to include it:

- Distribute the CIR with the data module so the extra information can be linked to
- "Flatten" the information to fit in the data module's schema.

A custom XSLT script can be supplied with the -x option, which is then used to resolve the CIR dependencies of the last CIR specified with -R. For example:



```
</xsl:stylesheet>
```

This script would resolve a functionalItemRef by "flattening" it to the value of the name element obtained from the CIR.

The example CIR would contain a specification like:

```
<functionalItemSpec>
<functionalItemIdent functionalItemNumber="ABC"
functionalItemType="fit01"/>
<name>Hydraulic pump</name>
<functionalItemAlts>
<functionalItem/>
</functionalItemAlts>
</functionalItemAlts>
</functionalItemSpec>
```

The source data module would contain a reference:

```
<para>
The
<functionalItemRef functionalItemNumber="ABC"/>
is an item in the system.
</para>
```

The command would resemble:

```
$ s1kd-instance -R <CIR> -x <custom XSLT> <src>
```

And the resulting XML would be:

```
<para>The Hydraulic pump is an item in the system.
```

The source data module and CIR are combined in to a single XML document which is used as the input to the XSLT script. The root element mux contains two dmodule elements. The first is the source data module, and the second is the CIR data module specified with the corresponding -R option. The CIR data module is first filtered on the defined applicability.

The set of built-in XSLT scripts used to resolve dependencies can be dumped using the -D option.

3.6 Updating instances (-@)

Applicable to: Version: 3.3.0

The -@ option is used to automatically update instance objects from their source objects.

The tool will use the <sourceDmIdent>/<sourcePmIdent> in each instance to find the source object they were derived from, and filter it based on the instance's metadata in order to produce an updated version of the instance. CIRs identified by <repositorySourceDmIdent> elements in the instance will also be used to update it.

Only objects which identify a source object will be processed in this mode. All other non-instance objects specified are ignored. The elements sourceDmIdent>, sourceDmIdent> and srepositorySourceDmIdent> identify a specific issue of an object that the instance was last updated from, but this is ignored and the latest issue found of a source object will be used instead.

This feature is primarily useful when instances of objects are stored in the CSDB, rather than only being generated during publication or dynamically in a viewer. For example, imagine you have a descriptive data module:

```
DMC-EX-A-00-00-00-00A-040A-D_001-00_EN-CA.XML
```

and you deliver to two customers, C1 and C2. The data module contains information for both:

```
<description>
<para>This text applies to all customers.</para>
<para applicRefId="app-C1">This only applies to Customer 1.</para>
<para applicRefId="app-C2">This only applies to Customer 2.</para>
</description>
```

Neither customer wants to see information that applies only to the other, so you can create two customized instances of this data module, identified with the extended code:

```
DMC-EX-A-00-00-00A-040A-D_001-00_EN-CA.XML
DME-12345-C1-EX-A-00-00-00-00A-040A-D_001-00_EN-CA.XML
DME-12345-C2-EX-A-00-00-00-00A-040A-D_001-00_EN-CA.XML
```

Each instance data module identifies the original data module as its source:

```
<sourceDmIdent>
<dmCode modelIdentCode="EX" systemDiffCode="A" systemCode="00"
subSystemCode="0" subSubSystemCode="0" assyCode="00" disassyCode="00"
disassyCodeVariant="A" infoCode="040" infoCodeVariant="A"
itemLocationCode="D"/>
<language languageIsoCode="en" countryIsoCode="CA"/>
<issueInfo issueNumber="001" inWork="00"/>
</sourceDmIdent>
```

and is set to apply only to the correct customer:

```
<dmStatus>
...
<applic>
<assert applicPropertyIdent="customer" applicPropertyType="prodattr"
applicPropertyValues="1"/>
</applic>
...
</dmStatus>
```

Note

Applicable to: Version: 3.3.0

The assertions in the applicability of an instance must use single values in order to work in this mode. Ranges (~) and sets (|) are not supported.

Now, when a change is made to the master data module, this tool can be used to update these instances automatically:

```
$ s1kd-instance -@ -f DME-*.XML
```



3.7 Reapplying source applicability (-8)

Normally, filtering is based only on the assertions specified by the user with the -s or -p options. However, in some cases it may be desirable to take the applicability of the source object itself in to account, particularly when inline applicability annotations contain redundant assertions. For example:

```
. . .
<dmStatus ...>
<applic>
<displayText>
<simplePara>Version: A</simplePara>
</displayText>
<assert
applicPropertyIdent="version"
applicPropertyType="prodattr"
applicPropertyValues="A"/>
</applic>
</dmStatus>
<referencedApplicGroup>
<applic id="app-0001">
<displayText>
<simplePara>Version: A and Weather: Icy</simplePara>
</displayText>
<evaluate andOr="and">
<assert
applicPropertyIdent="version"
applicPropertyType="prodattr"
applicPropertyValues="A"/>
<assert
applicPropertyIdent="weather"
applicPropertyType="condition"
applicPropertyValues="Icy"/>
</evaluate>
</applic>
. . .
<para applicRefId="app-0001">
Applies to version A when the weather is icy.
</para>
```

If this data module is filtered with -a -s weather:condition=Icy, the annotation shown will not be removed, because the tool cannot fully resolve it, as it is only has a value for the weather condition.

The -8 (--reapply) option will reapply the applicability of each individual object when filtering it. In the example above, the whole data module is applicable to version A, and therefore, when the -8 option is specified, this is added to the user-defined assertions automatically for the given



data module. Now the annotation is fully resolved, and can be removed in accordance with the - a option.

4 Exit status

0	No errors.
1	Missing or incomplete argument.
2	Specified file does not exist.
3	Source object for an instance could not be found.
4	Malformed applicability definition.
6	XML was invalid or does not conform to S1000D.
7	Value given for an argument was malformed.
8	Issue date specified with -I is invalid.
9	The number of CIR data modules found when searching exceeded the available memory.

5 Examples

Filtering a data module on specified applicability and writing to stdout:

```
$ s1kd-instance -s version:prodattr=A <DM>
```

Filtering a data module on a specified product instance and writing to stdout:

```
$ s1kd-instance -P <PCT> -p versionA <DM>
```

Filtering a data module on specified skill levels and writing to stdout:

```
$ s1kd-instance -k sk01/sk02 <DMs>
```

Filtering data modules for a particular customer and outputting with extended identification:

```
$ s1kd-instance -s version:prodattr=A -e 12345-54321 -O . <DMs>
```

Writing out a data module from stdin to a directory with automatic naming:

```
$ xml-transform -s <xsl> <DM> | s1kd-instance -S0 <dir>
```



s1kd-neutralize Description

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Description

1 General

Generates neutral metadata for the specified CSDB objects. This includes:

- XLink attributes for references, using the S1000D URN scheme.
- RDF and Dublin Core metadata.

2 **Usage**

s1kd-neutralize [-o <file>] [-Dflnqvh?] [<object>...]

Options 3

Produced by: khzae.net

Remove neutral metadata from the CSDB object. -D, --delete -f, --overwrite Overwrite specified CSDB object(s) automatically. -h, -?, --help Show usage message.



-I, --list Treat input (stdin or arguments) as lists of CSDB objects to

neutralize, rather than CSDB objects themselves.

-n, --namespace Include the IETP namespaces for data module and

publication module elements.

-o, -out <file> Output neutralized CSDB object XML to <file> instead of

stdout.

-q, --quiet Quiet mode. Errors are not printed.

-v, --verbose Verbose output.

--version Show version information.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.
 --parser-warnings Emit warnings from parser.
 --xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

4 Example

```
$ DMOD=DMC-XLINKTEST-A-00-00-00-00A-040A-D_000-01_EN-CA.XML
$ xmllint --xpath "//description/dmRef" $DMOD
<dmRef>
<dmRefIdent>
<dmCode modelIdentCode="XLINKTEST" systemDiffCode="A"</pre>
systemCode="00" subSystemCode="0" subSubSystemCode="0" assyCode="01"
disassyCode="00" disassyCodeVariant="A" infoCode="040"
infoCodeVariant="A" itemLocationCode="D"/>
</dmRefIdent>
<dmRefAddressItems>
<dmTitle>
<techName>XLink test</techName>
<infoName>Referenced data module</infoName>
</dmTitle>
</dmRefAddressItems>
</dmRef>
$ slkd-neutralize $DMOD | xmllint --xpath "//description/dmRef" -
<dmRef xlink:type="simple"</pre>
```



xlink:href="URN:S1000D:DMC-XLINKTEST-A-00-01-00A-040A-D"
xlink:title="XLink test - Referenced data module">
[...]
</dmRef>



s1kd-syncrefs Description

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Data mo	odule/Ted	chnical publication	Title	
None				
			Description	
1	The state of the correference	ontent of a data module and	Il external references (dmRef, pm uses them to generate the <refs> placed in to the <refs> element. If</refs></refs>	element. Each unique

2 Usage

s1kd-syncrefs [-dflqvh?] [-o <out>] [<data module>...]

3 Options

Applicable to: Version: 3.3.0

-d, --delete Delete the <refs> element.

-f, --overwrite Overwrite the data modules automatically.



-h, -?, --help Show help/usage message.

-I, --list Treat input (stdin or arguments) as lists of data modules

to synchronize references in, rather than data modules

themselves.

-o, --out <out> The resulting XML is written to <out> instead of stdout.

-q, --quiet Quiet mode. Errors are not printed.

-v, --verbose Verbose output.

--version Show version information.

<data module>... The data module(s) to synchronize references in. Default is to

read from stdin.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.--parser-warnings Emit warnings from parser.--xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

4 Exit status

0 No errors.

1 Invalid data module.

2 Number of references in a data module exceeded the

available memory.

5 Example

\$ s1kd-syncrefs -f DMC-EX-A-00-00-00-00A-040A-D_000-01_EN-CA.XML



s1kd-uom

Description

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Applicable to: Version: 3.3.0



Description

1 General

The **s1kd-uom** tool converts between specified units of measure in quantity data, for example, to automatically localize units of measure in data modules.

2 Usage

3 Options

-D, --duplicate-format <fmt> Specify a custom format for duplicating quantities (-d). The '%' character acts as a placeholder for the duplicate quantity

value. The default format for -d is equivalent to -D ' (%)'.

-d, --duplicate When converting, instead of overwriting the original

quantity, include the converted quantity after the original in parenthesis. For example, "200 mm" when converting mm to

in would become "200 mm (7.87 in)".

-e, --formula <expr> Specify the formula for a conversion, given as an XPath

expression.

-F, --format <fmt> Specify the format for quantity values. When used before

-u, this specifies the default format for all conversions. Otherwise, this specifies the format for each individual conversion. Formats specified for individual conversions

override the default format set for all conversions.

-f, --overwrite Overwrite input CSDB objects.

-h, -?, --help Show help/usage message.

-I, --list Treat input (stdin or arguments) as lists of filenames of

CSDB objects to list references in, rather than CSDB objects

themselves.

-P, --uomdisplay <path> Use a custom .uomdisplay file.

-p, --preformat <fmt> Preformat quantity data to the specified decimal format. The

built-in formats are:

SI - comma for decimal separator, space for grouping

euro - comma for decimal separator, full-stop for

grouping

imperial - full-stop for decimal separator, comma for

grouping

-q, --quiet Quiet mode. Errors are not printed.



-S, --set <path> Apply a set of conversions defined in an XML file.

-s, --preset <name> Apply a set of predefined conversions. The available presets

are:

SI - convert imperial/US customary units to SI units.

imperial - convert SI units to British imperial units.

US - convert SI units to US customary units.

-t, --to <uom> Unit of measure to convert to.

-U, --uom <path> Use a custom .uom file.

-u, --from <uom> Unit of measure to convert from.

-v, --verbose Verbose output.

-,, --dump-uom Dump the default .uom file.

-., --dump-uomdisplay Dump the default .uomdisplay file.

--version Show version information.

<object> CSDB objects to convert quantities in.

In addition, the following options allow configuration of the XML parser:

--dtdload Load the external DTD.

--huge Remove any internal arbitrary parser limits.

--net Allow network access to load external DTD and entities.

--noent Resolve entities.

--parser-errors Emit errors from parser.
 --parser-warnings Emit warnings from parser.
 --xinclude Do XInclude processing.

--xml-catalog <file> Use an XML catalog when resolving entities. Multiple

catalogs may be loaded by specifying this option multiple

times.

3.1 .uom file

Applicable to: Version: 3.3.0

This file contains the rules for converting units of measure. If no specific conversions are given with the -u and -t options, this file also acts as a list of all conversions to perform.

By default, the program will search the current directory and parent directories for a file named .uom, but any file can be specified by using the -U option.

Example of a .uom file:

```
<uom>
<convert from="degF" to="degC" formula="($value - 32) * (5 div 9)"/>
<convert from="in" to="cm" formula="$value * 2.54"/>
```



```
<convert from="lbm" to="kg" formula="$value div 2.205"/>
</uom>
```

The tool contains a default set of rules for common units of measure. This can be used to create a default .uom file by use of the -, option:

```
$ s1kd-uom -, > .uom
```

To select only certain common rules when generating a .uom file, the -u and -t options can be used:

```
$ s1kd-uom -, -u in -t cm -u degF -t degC > .uom
```

This will generate a .uom file containing rules to convert inches to centimetres, and degrees Fahrenheit to degrees Celsius.

The same file format is used with the -S option to specify a set of conversions to perform. In this case, the attribute formula is optional, as the default formula or the formula in the .uom file will be used if it is not specified.

3.2 Conversion formula variables (-e)

When specifying a formula for conversion, the following variables can be used:

\$pi The constant #

\$value The original quantity value

For example, the formula to convert degrees to radians can be given as follows:

```
$value * ($pi div 180)
```

3.3 Preformatting UOMs (-p) and the .uomdisplay file

The tool can also convert semantic quantity data to presentation quantity data. The -p option specifies which conventions to use for formatting quantity values. For example:

```
<para>Tighten the
<quantity>
<quantityGroup>
<quantityGroup>
</quantityGroup>
</quantityFoup>
</quantity>
bolt.</para>

$ slkd-uom -p SI <DM>
<para>Tighten the 6,35 cm bolt.</para>
```

This can also be combined with UOM conversions:

```
$ s1kd-uom -u cm -t in -p imperial <DM>
```

Applicable to: Version: 3.3.0

```
<para>Tighten the 2.5 in bolt.
```

Custom formats for values or UOMs can be defined in the .uomdisplay file. By default, the tool will search the current directory and parent directories for a file named .uomdisplay, but any file can be specified by using the -P option.

Example of a .uomdisplay file:

```
<uomDisplay>
<format name="custom" decimalSeparator="," groupingSeparator="."/>
<uoms>
<uom name="cm"> cm</uom>
<uom name="cm2"> cm<superScript>2</superScript></uom>
</uoms>
<currencies>
<currency name="CAD">
<prefix>$</prefix>
<postfix> CAD</postfix>
</currency>
<currency name="GBP">
<prefix>£</prefix>
<postfix> GBP</postfix>
</currency>
</currencies>
</uomDisplay>
```

Units of measure and currencies that are not defined will be presented as their name (e.g., "cm2") separated from the value by a space.

More complex UOM display, such as pluralization of units of measure, can be accomplished with embedded XSLT in the .uomdisplay file:

```
<uoms
xmlns:xsl="http://www.w3.org/1999/XSL/Transform">
<xsl:variable name="value" select="parent::*/>
<uom name="in">
<xsl:text> </xsl:text>
<xsl:choose>
<xsl:when test="$value = 1">inch</xsl:when>
<xsl:otherwise>inches</xsl:otherwise>
</xsl:choose>
</uom>
<uom name="ft">
<xsl:text> </xsl:text>
<xsl:choose>
<xsl:when test="$value = 1">foot</xsl:when>
<xsl:otherwise>feet</xsl:otherwise>
</xsl:choose>
</110m>
</uoms>
```



The context for the embedded XSLT is the unit of measure attribute on the value, tolerance or group. XSLT elements in the <uoms> element will be processed for all units of measure, while XSLT elements in <uom> elements will only apply to an individual unit of measure.

The tool contains a default set of formats and displays. These can be used to create a default .uomdisplay file by use of the -. option:

```
$ s1kd-uom -. > .uomdisplay
```

4 Examples

4.1 Common units of measure

```
Input:
```

```
<quantity>
<quantityGroup>
<quantityUnitOfMeasure="cm">15</quantityValue>
</quantityGroup>
</quantity>
```

Command:

```
$ s1kd-uom -u cm -t in <DM>
```

Output:

```
<quantity>
<quantityGroup>
<quantityValue quantityUnitOfMeasure="in">5.91</quantityValue>
</quantityGroup>
</quantity>
```

4.2 Using a custom formula and format

Input:

```
<quantity
quantityType="qty02"
quantityTypeSpecifics="CAD">10.00</quantity>
```

Command:

```
$ s1kd-uom -u CAD -t USD -e '$value div 1.31' -F '0.00'
```

Output:

```
<quantity
quantityType="qty02"
quantityTypeSpecifics="USD">7.36</quantity>
```

5 UOM file schema

5.1 UOM

Applicable to: Version: 3.3.0

Markup element: <uom>



Attributes:

format (O), the number format for all rules.

Child elements:

- <convert>

5.2 Conversion rule

The element <convert> defines a rule to convert one unit of measure to another.

Markup element: <convert>

Attributes:

- format (O), the number format for this specific rule.
- formula (M), the expression used to convert the quantity value.
- from (M), unit of measure to convert from.
- to (M), unit of measure to convert to.

Child elements:

None

6 UOM display file schema

6.1 UOM display

Markup element: <uomDisplay>

Attributes:

None

Child elements:

- <format>
- <groupTypePrefixes>
- <wrapInto>
- <uoms>
- <currencies>

6.2 Quantity value format

Markup element: <format>

Attributes:

Applicable to: Version: 3.3.0

- name (M), the name of the format
- decimalSeparator (M), the decimal separator
- groupingSeparator (M), the grouping separator



Child elements:

None

6.3 Group type prefixes

The element <groupTypePrefixes> specifies prefixes which are added for specific group types.

Markup element: <groupTypePrefixes>

Attributes:

None

Child elements:

- <nominal>, text placed before a nominal group.
- <minimum>, text placed before a minimum group.
- <minimumRange>, text placed before a minimum group that is followed by a maximum group to specify a range.
- <maximum>, text placed before a maximum group.
- <maximumRange>, text placed before a maximum group that is preceded by a minimum group to specify a range.

6.4 Wrap into element

Markup element: <wrapInto>

Attributes:

None

Child elements:

The element <wrapInto> contains one child element of any type, which quantities will be wrapped in to after formatting.

6.5 Units of measure

Markup element: <uoms>

Attributes:

None

Child elements:

<uom>

Applicable to: Version: 3.3.0

The element <uoms> may also contain arbitrary XSLT elements which will be processed for all units of measure.



6.6 Display of a unit of measure

Markup element: <uom>

Attributes:

name (M), the name of the UOM.

Child elements:

The element <uom> may contain mixed content, which will be used for the display of the unit of measure. This can include XSLT elements, which allows for handling complex cases of UOM display, such as pluralization.

6.7 Currencies

Markup element: <currencies>

Attributes:

None

Child elements:

- <currency>

The element <currencies> may also contain arbitrary XSLT elements which will be processed for all currencies.

6.8 Display of a currency

Markup element: <currency>

Attributes:

name (M), the name of the currency.

Child elements:

- refix>, text placed before the currency value.
- <postfix>, text placed after the currency value.

The child elements of <currency> may contain mixed content, which will be used for the display of the unit of measure. This can include XSLT elements, which allows for handling complex cases of currency display.