



Paper for Consideration by S-100TSM7

S-1xx and cancellation strategies

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Executive Summary:	Different approaches to cancellation of datasets have been developed in S-1xx standards. Currently several of the standards may have incomplete definitions when it comes to cancellations. This paper discusses whether the cancellation mechanisms should be aligned between product specifications or not. The difference between static and dynamic data may require different cancel mechanisms. The intention of the paper is to determine whether a broader study may be required.
Related Documents:	S-101 (1.0.0), S-102 (2.0.0), S-104 (0.0.7), S-111 (1.0.0), S-122 (1.0.0), S-123 (1.0.0), S-129 (1.0.0)
Related Projects:	

Introduction / Background

The development of several product specifications based on S-100 has been conducted by expertise available in different IHO working groups and their sub working groups/project teams. Official versions of the product specifications discussed in this paper (except from S/104) are now available and by comparing their content different approaches to cancellation mechanisms have been identified.

Analysis

Cancellation in this paper means the operation where a dataset is withdrawn and should no longer be used in an end user system.

Below is listed all information related to cancellations from the product specifications S-101, S-102, S-104, S-111, S-122, S-123 and S-129.

1. S-101 Dataset cancel information:

11.3.1 Datasets: Cancellation: The dataset is cancelled and is deleted from the system.

11.3.2 Dataset file naming: Cancellations use the next sequential number from the previous Update applied to the dataset.

11.3.3 New Editions, Re-issues, Updates and Cancellations: In order to cancel a dataset, an Update dataset file is created for which the Edition number must be set to 0. This message is only used to cancel a Base dataset file. Where a dataset is cancelled and its name is reused at a later date, the issue date must be greater than the issue date of the cancelled dataset. When the dataset is cancelled it must be removed from the system.

12.1.1 S100_ExchangeCatalogue:

replacedData	1		Boolean	If a data file is cancelled is it replaced by another data file
dataReplacement	0..1		CharacterString	Dataset name

12.1.2 S100_DatasetDiscoveryMetadata:

Name	Multiplicity	Value	Type	Remarks
purpose	1	{1} to {5}	CharacterString MD_Identifier>purpose (character string)	1. New Dataset 2. New Edition 3. Update 4. Re-issue 5. Cancellation 0..1 multiplicity in S-100 restricted to 1 in S-101

B7 Dataset cancellation structure:

Subfield name	Label	Value	Format	Comment
Record Name	RCNM	{10}	b11	{10} - Dataset Identification
Record Identification number	RCID	{1}	b14	Only one record
Encoding Specification	ENSP	'S-100 Part 10a'	A()	Encoding specification that defines the encoding
Encoding Specification Edition	ENED	"1.1"	A()	Edition of the encoding specification
Product identifier	PRSP	"INT.IHO.S-101.1.0"	A()	Unique identifier for the data product as specified in the product specification
Product Edition	PRED	"1.0"	A()	Edition of the product specification
Application Profile	PROF	"2"	A()	"2" – Update dataset profile
Dataset File Identifier	DSNM		A()	The file name including the extension but excluding any path information
Dataset Title	DSTL		A()	The title of the dataset
Dataset Reference Date	DSRD		A(8)	The reference date of the dataset Format: YYYYMMDD according to ISO 8601
Dataset Language	DSLGL	"EN"	A()	The (primary) language used in this dataset
Dataset Abstract	DSAB	omitted	A()	The abstract of the dataset
Dataset Edition	DSED	"0"	A()	0 - indicates the cancellation
Dataset Topic Category	*DSTC	{14}{18}	b11	A set of topic categories

2. S-102 Dataset cancel information:

11.2.1 *Dataset Management*: Cancellation: The dataset is cancelled and no longer available to be displayed or used.

3. S-104 Dataset cancel information:

12.2.1 *S100_ExchangeCatalogue*:

replacedData	If a data file is cancelled is it replaced by another data file	0..1		Boolean	
dataReplacement	Cell name	0..1		CharacterString	

4. S-111 Dataset cancel information:

12.2.2 *S100_ExchangeCatalogue*:

Attribute	replacedData	If a data file is cancelled is it replaced by another data file	0..1	Boolean	
Attribute	dataReplacement	Cell name	0..1	CharacterString	

5. S-122 Dataset cancel information:

10.1.2 *Types of Datasets*: Cancellation: Used to cancel datasets

12.3 *Dataset updates*: The purpose of issue of the dataset is indicated in the "purpose" field of the dataset discovery metadata. In order to terminate a dataset, an update dataset file is created for which the edition number must be set to 0. This convention is only used to cancel a base dataset file.

Where a dataset is cancelled and its name is reused at a later date, the issue date must be greater than the issue date of the cancelled dataset.

When the dataset is cancelled it must be removed from the system.

14.3: Update Dataset Metadata:

purpose	1	{3}, {4}	CharacterString	3. Update 4. Cancellation
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14.6 Catalogue File Metadata:

replacedData	0..1		Boolean	
dataReplacement	0..1		CharacterString	

6. S-123 Dataset cancel information:

10.1.2 Types of Datasets: Cancellation: Used to cancel datasets

12.3 Dataset updates: The purpose of issue of the dataset is indicated in the "purpose" field of the dataset discovery metadata. In order to terminate a dataset, an update dataset file is created for which the edition number must be set to 0. This convention is only used to cancel a base dataset file.

Where a dataset is cancelled and its name is reused at a later date, the issue date must be greater than the issue date of the cancelled dataset.

When the dataset is cancelled it must be removed from the system.

14.3: Update Dataset Metadata:

purpose	1	{3}, {4}	CharacterString	3. Update 4. Cancellation
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14.6 Catalogue File Metadata:

replacedData	0..1		Boolean	
dataReplacement	0..1		CharacterString	

7. S-129 Dataset cancel information:

18.2.1 Datasets: Cancellation: A dataset shall be considered cancelled when a newer edition has been received or the validTimeEnd of the UnderKeelClearancePlan is exceeded.

19.1 Introduction NOTE 2: When a dataset is terminated, the 'purpose' metadata field is set to 3 (terminated), and the 'editionNumber' metadata field is set to 0. All other metadata fields must be blank

19.4 Dataset metadata NOTE 2: When a dataset is terminated, the purpose metadata field is set to 3 (terminated), and the editionNumber metadata field is set to 0. All inapplicable but mandatory metadata fields must be nulled.

The notes mentioned above refer to a purpose metadata value that is not defined within the document. The following 2 purpose fields are defined:

19.6 S100_DatasetDiscoveryMetadata

Attribute	purpose	The purpose for which the dataset has been issued	1	MD_Identification>purpose CharacterString	Pre plan, actual plan, or actual update.
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Defines: Pre plan/Actual plan/Actual update

19.7 S100_SupportFileDiscoveryMetadata

Attribute	purpose	The purpose for which the dataset has been issued	1	S100_SupportFilePurpose	For example new, re-issue, new edition, update etc.
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Defines: New/Re-issue/New edition/Update/etc

19.5.3 S100_ExchangeCatalogue

Attribute	replacedData	If a dataset is cancelled is it replaced by another dataset	0..1	Boolean	Yes or No
Attribute	dataReplacement	Description of dataset to be replaced (e.g. cell name)	0..1	CharacterString	

E.1.5 Check application: Checks do not apply to dataset terminations or cancellations, except where the check description explicitly states it applies in case of a termination or cancellation.

E.1.6 Checks relating to UKCM Product Specification:

19	For each cancellation (termination) of a dataset that does not exist on the system or has already been cancelled.	Terminated dataset is not present.	Ignore the update.	Logical consistency	B, U
20	For each cancellation (termination) of a dataset where the update exchange set contains a corresponding dataset file.	Cancellations cannot contain data objects.	Remove the dataset file from the exchange set or correct the metadata.	Logical consistency	B, U

Discussion

Product specifications have different approaches to dataset cancel strategy.

From a service provider view, mechanisms providing the ability to convey information to the end user system that a dataset is cancelled, are essential.

There may be a need to explore the differences between static and dynamic data, assuming that in a dynamic dataflow, datasets are being replaced at regular intervals. E.g. dynamic data could be described being data that carries an expiration date/time, like forecasted data products. Forecasted data will reach an expiration date/time limited to the period for which the forecast is intended to cover. Static data would then be data not carrying such information. A proposed definition could be:

Static data: Data that do not carry an expiration date/time.

Dynamic data: Data that carries an expiration date/time

Based on this approach the products discussed in this paper are defined as:

Static: S -101, S -102, S-122, S-123

Dynamic: S-104, S-111, S-129

Dynamic data

For dynamic data the encoding of the attributes replacedData and dataReplacement in S100_ExchangeCatalogue may be a sufficient approach.

replacedData and dataReplacement explanation:

replacedData: Boolean value indicating whether a cancelled dataset file is replaced by another dataset file or not.

dataReplacement: If a cancelled dataset is replaced by another, the name of this other dataset is encoded here.

If the Boolean attribute replacedData is not encoded that implicitly means that the dataset is not replaced by another. The end user system should then remove/delete the dataset preventing further use, preferably after the period for intended use has expired.

Static data

For static data there is no period for intended use defined. This means there must be an option for the dataset producer to convey information instructing end user system to remove/delete a dataset not deemed fit for further use, for whatever kind of reason. In S -101 the solution is to create a cancel cell update, not encoding the replacedData attribute unless a new dataset is introduced.

A status of discussed product specifications is presented in the following tables:

Static:

S-101	Cancel mechanism defined.
S-102	Cancel mechanism seems to be missing despite the definition of dataset type cancellation
S-122	Cancel mechanism defined.
S-123	Cancel mechanism defined.

Dynamic

S-104	replacedData and dataReplacement defined in metadata.
S-111	replacedData and dataReplacement defined in metadata.
S-129	replacedData and dataReplacement defined in metadata. Metadata purpose field with value=3 (terminated) does not exist

Summary

S-102 has no mechanism defined.

S -101, S-122 and S-123 have basically equal mechanisms defined, although there is a difference in description between S-101 and S-122/S-123 (which are similar).

S-104 and S-111 uses the replacedData and dataReplacement attributes. No encoding of the replacedData attribute indicates that the dataset is not replaced, hence the end user system must remove the dataset after expiration date/time.

S-129 has a more extended approach described. It is specified that a dataset is considered cancelled when the expiration date/time (validTimeEnd) is exceeded. The specification also describes that the metadata purpose field must be encoded with the value "3" to terminate a dataset. However, this is not reflected in the discovery metadata.

Conclusions

Cancel dataset mechanisms vary between product specifications.

There may be a need to create a definition for static and dynamic data and consider if each group should have common mechanisms defined.

S-100 may need to provide more specific information on cancel data mechanisms.

A broader study of this topic may be necessary.

Action Required of S-100TSM7

The S-100WG is invited to:

Discuss this paper and decide if a more thorough study including a broader range of S-100 derived product specifications is recommended.