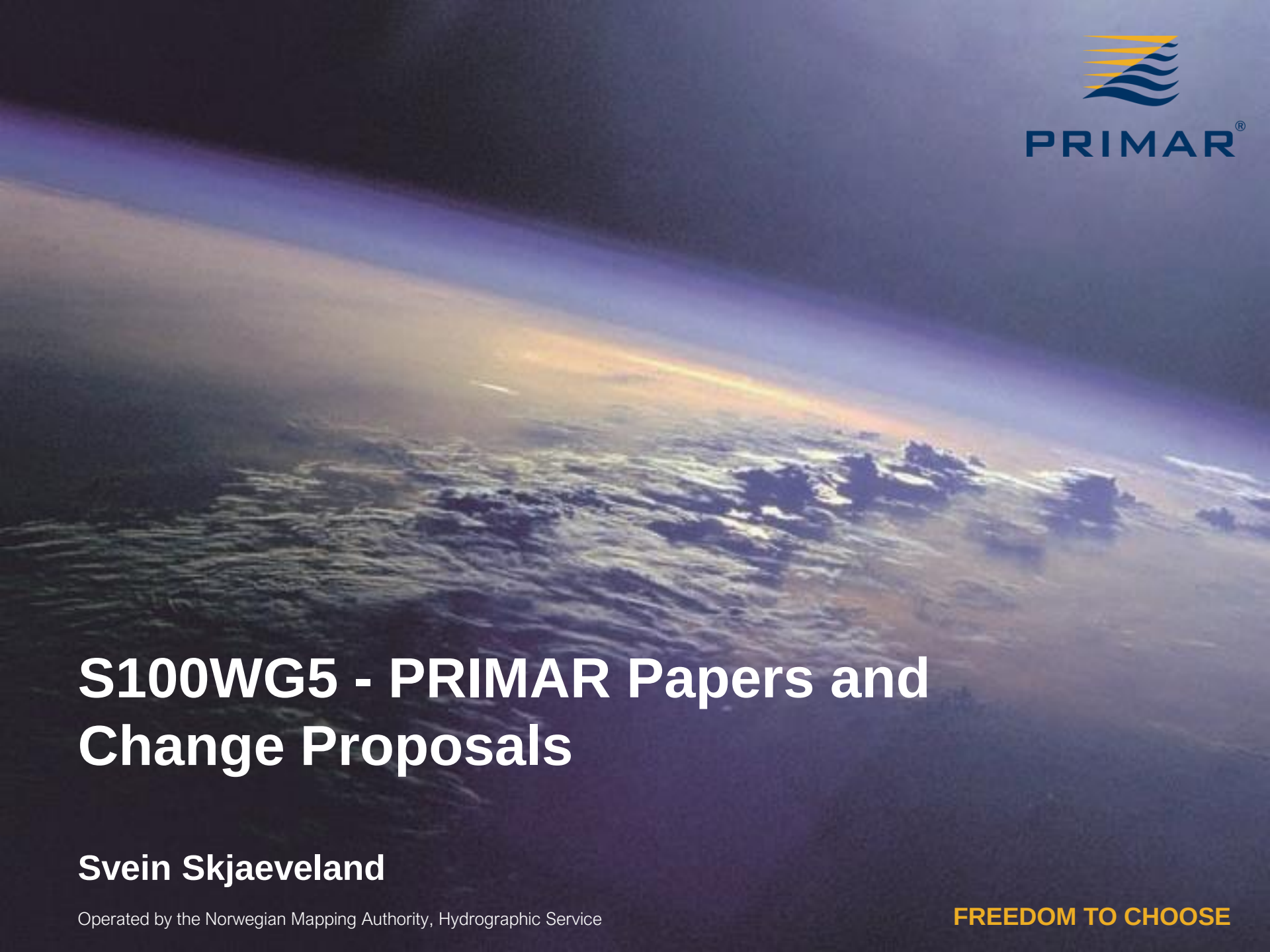

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S100WG5 - PRIMAR Papers and Change Proposals

Svein Skjaeveland

Operated by the Norwegian Mapping Authority, Hydrographic Service

FREEDOM TO CHOOSE

S-100WG5 – 04.7
Inclusion of Cancellation Guidance

Submitted by:	PRIMAR
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:	

Cancellation in this paper means the operation where a dataset is withdrawn and should no longer be used in an end user system.

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Inclusion of Cancellation Guidance

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

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

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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.

S-100WG5 – 04.7
Inclusion of Cancellation Guidance

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Action from TSM7:

Action: develop general guidance on managing dataset cancellation and dataset withdrawal for inclusion in S-100.

Suggested approach:

The work on developing a guidance on managing dataset cancellation and dataset withdrawal for inclusion in S-100 should be part of the work expected done by the exchange set gap correspondence group.

S-100WG5 – 04.8
S-100 and Product Specifications Availability

- When the Product Specifications reach stability and products are created, there will be official products based on different versions of a product specification available at the same time.
- It is not expected that the release of a new version of a Product Specification will lead to immediately updated products from producers.
- An update of S-100 does not automatically trigger an update on derived Product Specifications.
- It is essential that the maritime community and users of IHOs standards has access to the different versions of S-100 and the different versions of derived product specifications

Suggested Approach:

IHO should create a structure on their publication web site where all official versions of S-100 and derived product specifications are made available.

S-100WG5 – 04.9A
S-100 Part 4 Metadata Review

- S-100 has been developed for a decade, and parts of the metadata section was written several years ago.
- Recent implementation uncovers shortcomings and issues related to Metadata, especially Appendix 4a-D.
- Discussions at TSM7 seemed to be in favor of doing a metadata revision.

> At TSM7 an action was given based on a presented gap analysis for the S-100 Exchange set model (TSM_5.19): "Report the exchange set gaps to the full S-100WG with a view to forming a correspondence group to work on creating a new S-100 part that will include proposals in paper TSM_5.19 (for Edition 6)".

Suggested Approach:

> Consider if Appendix 4a-D should undergo a full review by the proposed correspondence group and report progress back to TSM8, aiming for suggested improvements to be presented at S-100WG6.

S-100WG5 – 04.9B
Metadata Review Proposals 1-13

S-100WG5 – 04.9B (1)
0-1 Scope Comprising parts

Location (*Identify all change proposal locations)*

S-100 Version No.	Part No.	Section No.	Proposal Summary
4.0.0	0	0-1 Scope	Refer to comprise fifteen parts instead of twelve.

The first sentence should be rewritten.

Existing:
S-100 – IHO *Universal Hydrographic Data Model* comprises of twelve related parts that give the user the appropriate tools and framework to develop and maintain hydrographic related data, products and registers.

Suggested changed to:
S-100 – IHO *Universal Hydrographic Data Model* comprises of fifteen related parts that give the user the appropriate tools and framework to develop and maintain hydrographic related data, products and registers.

S-100WG5 – 04.9B (2)
1-1 Scope Remove Annex 1 reference or insert it

Location (*Identify all change proposal locations)*

S-100 Version No.	Part No.	Section No.	Proposal Summary
4.0.0	1	1-1 Scope	Missing Annex 1. Remove Annex 1 reference or insert annex.

The last sentence in the second paragraph refers to Annex 1:

Since it deals with UML, a section with specific UML terms and definitions is provided, in addition to those terms being included in Annex 1 (Terms and Definitions).

Either Annex 1 should be provided, or the reference should be removed.

S-100WG5 – 04.9B (3)

Appendix 2a-A-update complex attributes example

Location (*Identify all change proposal locations)*

S-100 Version No.	Part No.	Section No.	Proposal Summary
4.0.0	2a	Appendix 2a-A Example of a complex attribute	The example no longer equals the definitions in S-101 1.0.0 DCEG. Consider aligning example with existing definition.

Existing complex attribute example different from official S-101 version. Following issues are identified:

- the definitions of **light sector** and **sector limit** attributes.
- the definition of **rhythm of light** attribute.

Propose to amend to comply with S-101 1.0.0.

Proposed amended example in proposal:

- The example is remodelled focusing on how complex attributes can be used to build extended hierarchies.
- **Rhythm of light** is not an attribute defined used for the feature **Sector lights,** and therefore not part of proposed solution.

S-100WG5 – 04.9B (8)

Appendix 4a-D change S100_ExchangeCatalogue productSpecification multiplicity

"No. 1 Item 4.2: Investigate how best to structure exchange catalogues for distributing different Product Specification datasets, (as part of an exchange set) for TSM7".

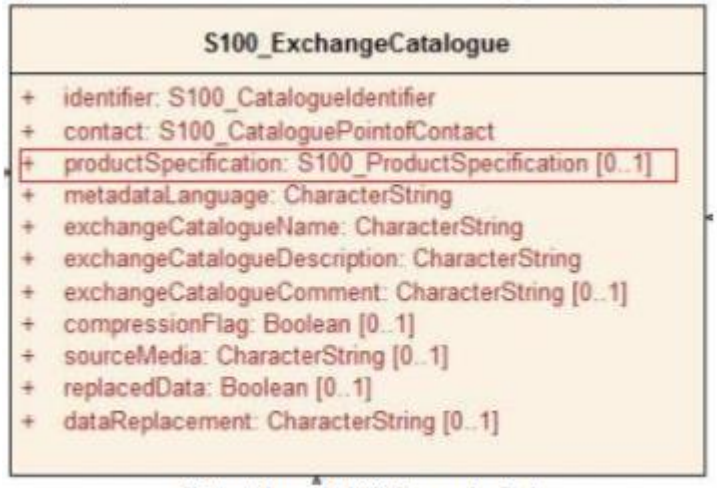
This paper discusses solutions for how to:

1. register multiple products carried in the exchange set.
2. incorporate necessary S-1xx information in one (1) catalogue (CATALOG.XML) file.
3. organize the exchange set directory structure.

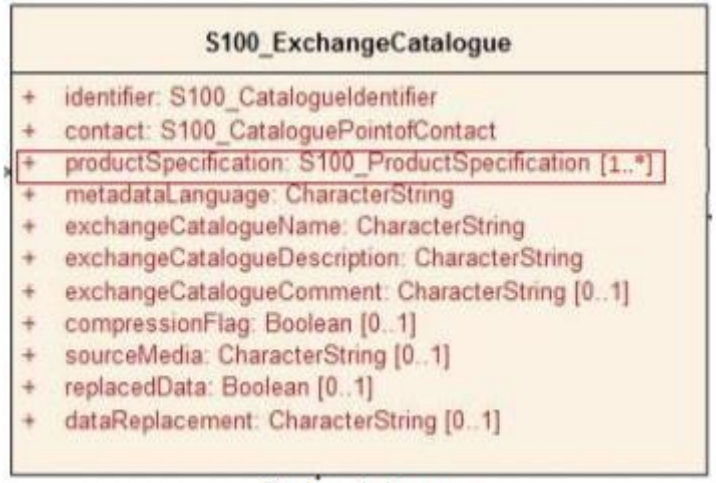
S-100WG5 – 04.9B (8)

Appendix 4a-D change S100_ExchangeCatalogue productSpecification multiplicity

1. register multiple products carried in the exchange set.



Extract from S-100 Figure 4a-D-4



Proposed change

- When encoded: one product only.
- When not encoded: one or more products.
- Mechanism defined identifying the products within the catalogue without parsing through CATALOG.XML file content.
  - Immediate rejection becomes possible if content is not supported.

S-100WG5 – 04.9B (7)

Appendix 4a-D change S100_ExchangeCatalogue filename

2. incorporate necessary S-1xx information in one (1) catalogue (CATALOG.XML) file.

- For multiple product exchange sets all relevant information within the exchange catalogue should be accessible through only one CATALOG.XML file.
- All product specifications use the naming convention CATALOG.XML
- No need to encode metainformation in the CATALOG.XML filename
- Reduce number of catalog files necessary in end user system installation process.
- Only one CATALOG.XML need digital signature.

S-100WG5 – 04.9B (7)

Appendix 4a-D change S100_ExchangeCatalogue filename

A change must be done in S-100:

Part 4a Metadata S100_ExchangeCatalogue current situation:

Attribute	exchangeCatalogueName	Catalogue filename	1	CharacterString	In S-101 it would be CATLOG.101

Part 4a Metadata S100_ExchangeCatalogue proposed solution:

Attribute	exchangeCatalogueName	Catalogue filename	1	CharacterString	Must be named CATALOG.XML

Part 4a Metadata Overview third paragraph (page 26) – Added textual statement (Highlighted):
"The S100_ExchangeCatalogue is an XML instance, which provides the information needed to exploit all the components of an exchange set. It consists of sections for the catalogues and datasets with subsections for support file metadata and a reference to classic ISO 19115-1 dataset metadata. The Exchange Catalogue must be named CATALOG.XML".

S-100WG5 – 04.9B (4)

Appendix 4a-D add example of multiple product exchange set directory structure

3. organize the exchange set directory structure.

Role Name	Name	Description	Mult	Type	Remarks
Attribute	filePath	Full path from the exchange set root directory	1	CharacterString	Path relative to the root directory of the exchange set. The location of the file after the exchange set is unpacked into directory <EXCH_ROOT> will be <EXCH_ROOT>/<filePath>/<filename>
Attribute	fileLocation	Full location from the exchange set root directory	1	CharacterString	Path relative to the root directory of the exchange set. The location of the file after the exchange set is unpacked into directory <EXCH_ROOT> will be <EXCH_ROOT>/<filePath>/<filename>

EXCH_ROOT defined in the discovery metadata attribute filePath/fileLocation comments fields

- It is anticipated that S-57 and S-101 will coexist.
- Ability to deliver both S-57 and S-10x datasets in the same exchange set may be necessary.
- Existing systems using S-57 supports existing structure:
  - ENC_ROOT and INFO directories are found in the top directory structure of the exchange set
- Changing the top directory from ENC_ROOT to EXCH_ROOT could cause trouble for existing end user systems..
- The solution could be to add a new directory to existing top structure for S-1xx data.

Appendix 4a-D add example of multiple product exchange set directory structure

A proposed example of the files structured in directories:

```
ENC_ROOT
INFO
S100_ROOT
    |----S101
    |       |----DATASET_FILES
    |       |       |----AR00
    |       |       |       |----101AR001234567890
    |       |       |       |       |----1
    |       |       |       |       |       |----0
    |       |       |       |       |       |       |----101AR001234567890.000
    |       |       |       |       |       |----1
    |       |       |       |       |       |       |----101AR001234567890.001
    |       |       |       |       |       |----2
    |       |       |       |       |               |----101AR001234567890.002
    |       |       |       |       |----101AR00ABCDEFGHIJ
    |       |       |       |       |       |----1
    |       |       |       |       |       |       |----0
    |       |       |       |       |       |               |----101AR00ABCDEFGHIJ.000
    |       |       |       |----CL00
    |       |       |       |----NO00
    |       |       |----SUPPORT_FILES
    |       |       |       |----AR00
    |       |       |       |       |----101AR00QWERTYUIOP.TXT
    |       |       |       |       |----101AR00ASDFGHJKLO.TIF
    |       |       |       |       |----101AR00ZXCVBNMJKL.HTM
    |       |       |       |----CL00
    |       |       |       |----NO00
    |       |       |----CATALOGUES
    |       |       |       |----101_1_0_0_FC.XML
    |       |       |       |----101_1_5_0_FC.XML
    |       |       |       |----101_1_0_0_PC.XML
    |       |       |       |----101_1_5_0_PC.XML
    |       |----S102
    |       |       |----DATASET_FILES
    |       |       |       |----AR00
    |       |       |       |       |----102AR001234567890
    |       |       |       |       |       |----1
    |       |       |       |       |       |       |----0
    |       |       |       |       |       |       |       |----102AR001234567890.000
    |       |       |       |       |----102AR00ABCDEFGHIJ
    |       |       |       |----CL00
    |       |       |       |----NO00
    |       |       |----CATALOGUES
    |       |       |       |----102_2_0_0_FC.XML
    |       |       |       |----102_2_0_0_PC.XML
    |       |----S104
    |       |----CATALOG.XML
    |       |----CATALOG.SIGN
```

- ENC_ROOT and INFO remain top level directories.
- S100_ROOT is added to top level directory.
- S100_ROOT serves as the directory for all S-100 product dataset files, support files and catalogues.
- Example demonstrates the structuring of support files in a separate directory opposed to today's S-57 solution.
- Example demonstrates carrying catalogues from different versions of the same product specification.
- CATALOG.XML proposed placed in the S100_ROOT directory, together with its signature (CATALOG.SIGN).
- All other signatures are included in the CATALOG.XML.

Appendix 4a-D add example of multiple product exchange set directory structure

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```
ENC_ROOT
INFO
S100_ROOT
    |----S101
    |       |----DATASET_FILES
    |       |       |----AR00
    |       |       |       |----101AR001234567890
    |       |       |       |       |----1
    |       |       |       |       |       |----0
    |       |       |       |       |       |   |----101AR001234567890.000
    |       |       |       |       |       |----1
    |       |       |       |       |       |   |----101AR001234567890.001
    |       |       |       |       |       |----2
    |       |       |       |       |       |       |----101AR001234567890.002
    |       |       |       |       |----101AR00ABCDEFGHIJ
    |       |       |       |       |       |----1
    |       |       |       |       |       |       |----0
    |       |       |       |       |       |       |----101AR00ABCDEFGHIJ.000
    |       |       |       |----CL00
    |       |       |       |----NO00
    |       |       |----SUPPORT_FILES
    |       |       |       |----AR00
    |       |       |       |       |----101AR00QWERTYUIOP.TXT
    |       |       |       |       |----101AR00ASDFGHJKLO.TIF
    |       |       |       |       |----101AR00ZXCVBNMJKL.HTM
    |       |       |       |----CL00
    |       |       |       |----NO00
    |       |       |----CATALOGUES
    |       |       |       |----101_1_0_0_FC.XML
    |       |       |       |----101_1_5_0_FC.XML
    |       |       |       |----101_1_0_0_PC.XML
    |       |       |       |----101_1_5_0_PC.XML
    |----S102
    |       |----DATASET_FILES
    |       |       |----AR00
    |       |       |       |----102AR001234567890
    |       |       |       |       |----1
    |       |       |       |       |       |----0
    |       |       |       |       |       |   |----102AR001234567890.000
    |       |       |       |       |----102AR00ABCDEFGHIJ
    |       |       |       |----CL00
    |       |       |       |----NO00
    |       |----CATALOGUES
    |       |       |       |----102_2_0_0_FC.XML
    |       |       |       |----102_2_0_0_PC.XML
    |----S104
    |----CATALOG.XML
    |----CATALOG.SIGN
```

Figure 4a-D-5 Multiple product exchange set directory structure

The following text and figure are proposed added after existing Figure 4a-D-4 (page 27):

There are two types of exchange sets, simple product exchange sets and multiple product exchange sets. If only one product type (e.g. S-101) is included, the exchange set is simple type. If more than one product type (e.g. S-101 and S-102) is included, the exchange set is multiple type.

An exchange set can contain S-100 conformant dataset files, support files and catalogue files. It can also contain S57 dataset files.

In any type of S-100 conformant exchange set all S-100 products will be available from a top root directory named S100_ROOT. This will be the only top root directory in exchange sets containing only S-100 products. Together with the ENC_ROOT and INFO directories (used for S57 ENCs) the S100_ROOT directory is one of three top directories in a multiple product exchange set containing both S-57 and S-100 products.

Figure 4a-D-5 demonstrates a multiple product exchange set. When an exchange set contains both S-100 and S-57 data, there are three top level directories, ENC_ROOT, INFO and S100_ROOT. In the S100_ROOT directory there are subdirectories for each specific product type. Further on, each product type has subdirectories for dataset files, support files and catalogues.
If needed, the exchange set can carry catalogues from different versions of the same product specification. The structuring of support files in a separate directory is also demonstrated. The CATALOG.XML file is placed at the top root level with the S100_ROOT directory, together with its signature (CATALOG.SIGN). All other signatures are included in the CATALOG.XML.

S-100WG5 – 04.9B (5)

Appendix 4a-D change name of exchange set root directory

Part 4a Metadata S100_DatasetDiscoveryMetadata:

Attribute	filePath	Full path from the exchange set root directory	1	CharacterString	Path relative to the root directory of the exchange set. The location of the file after the exchange set is unpacked into directory <EXCH_ROOT> will be <EXCH_ROOT>/<filePath>/<filename>

Part 4a Metadata S100_SupportFileDiscoveryMetadata:

Attribute	fileLocation	Full location from the exchange set root directory	1	CharacterString	Path relative to the root directory of the exchange set. The location of the file after the exchange set is unpacked into directory <EXCH_ROOT> will be <EXCH_ROOT>/<filePath>/<filename>

Part 4a Metadata S100_CatalogueMetadata:

Attribute	fileLocation	Full location from the exchange set root director	1..*	CharacterString	Path relative to the root directory of the exchange set. The location of the file after the exchange set is unpacked into directory <EXCH_ROOT> will be <EXCH_ROOT>/<filePath>/<filename>

The proposal would be to replace each instance of ENC_ROOT with S100_ROOT.

S-100WG5 – 04.9B (6)

Appendix 4a-D change S100_CatalogueIdentifier attribute date to dateTime

Location (*Identify all change proposal locations)*

S-100 Version No.	Part No.	Section No.	Proposal Summary
4.0.0	4a	Appendix 4a-D S100_Dataset DiscoveryMeta data – S100_Catalogu eIdentifier	Change attribute date to date time to include date-time variable

Existing situation:
S100_CatalogueIdentifier

Role Name	Name	Description	Mult	Type	Remarks
Attribute	date	Creation date of the exchange catalogue	1	Date	

Suggested changes (highlighted in yellow):
S100_CatalogueIdentifier

Role Name	Name	Description	Mult	Type	Remarks
Attribute	dateTime	Creation date and time of the exchange catalogue, including time zone	1	Date	Format: yyyymmddThhmmssZ

S-100WG5 – 04.9B (9)

Appendix 4a-D filename and fileName inconsistency

Existing situation:
The attribute filename is spelled fileName (capital N) in S100_DatasetDiscoveryMetadata and S100_SupportFileDiscoveryMetadata:

S100_DatasetDiscoveryMetadata

Attribute	fileName	Dataset file name	1	CharacterString	

S100_SupportFileDiscoveryMetadata

Attribute	fileName	Name of the support file	1	CharacterString	

fileName

Currently, this is different in S100_CatalogueMetadata where it is spelled without capital N:

S100_CatalogueMetadata

Attribute	filename	The name for the catalogue	1..*	CharacterString	

filename

Proposed solution:
Harmonize the spelling using capital N:

S100_CatalogueMetadata

Attribute	fileName	The name for the catalogue	1..*	CharacterString	

fileName

S-100WG5 – 04.9B (10)
Appendix 4a-D filePath_fileLocation Inconsistency

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Existing situation:

S100_DatasetDiscoveryMetadata

Role Name	Name	Description	Mult	Type	Remarks
Attribute	filePath	Full path from the exchange set root directory	1	CharacterString	Path relative to the root directory of the exchange set. The location of the file after the exchange set is unpacked into directory <EXCH_ROOT> will be <EXCH_ROOT>/<filePath>/<filename>

S100_SupportFileDiscoveryMetadata

Attribute	fileLocation	Full location from the exchange set root directory	1	CharacterString	Path relative to the root directory of the exchange set. The location of the file after the exchange set is unpacked into directory <EXCH_ROOT> will be <EXCH_ROOT>/<filePath>/<filename>

S100_CatalogueMetadata

Attribute	fileLocation	Full location from the exchange set root director	1..*	CharacterString	Path relative to the root directory of the exchange set. The location of the file after the exchange set is unpacked into directory <EXCH_ROOT> will be <EXCH_ROOT>/<filePath>/<filename>

Suggested changes:

- **Name** column: use fileLocation
- **Description** column: Full location from the exchange set root directory
- **Remarks** column: use fileLocation

S-100WG5 – 04.9B (11)

Appendix 4a-D producingAgency and metadataPointOfContact duplicated information

DatasetDiscoveryMetadata:

Attribute	producingAgency	Agency responsible for producing the data	1	CI_Responsibility>CI_Organisation or CI_Responsibility>CI_Individual	See Tables 4a-2 and 4a-3

Attribute	metadataPointOfContact	Point of contact for metadata	1	CI_Responsibility>CI_Individual or CI_Responsibility>CI_Organisation	

- Producing Agency also responsible for metadata – duplicated information

Suggested approach:

A: Remove metadataPointOfContact or
B: Make metadataPointOfContact optional by changing multiplicity from [1] to [0..1]

S-100WG5 – 04.9B (12)
Appendix 4a-D S100_ProtectionScheme Update

Location (*Identify all change proposal locations)*

S-100 Version No.	Part No.	Section No.	Proposal Summary
4.0.0	4a	Appendix 4a-D S100_ProtectionScheme	S100_ProtectionScheme Value (Name and Description) Update.

Existing:

S100_ProtectionScheme

Role Name	Name	Description
Enumeration	S100_ProtectionScheme	Data protection schemes
Value	S63e2.0.0	IHO S-63

Suggested changed to:

S100_ProtectionScheme

Role Name	Name	Description
Enumeration	S100_ProtectionScheme	Data protection schemes
Value	S100p15	IHO S-100 Part 15

S-100WG5 – 04.9B (13)

Appendix 11-D Link does not exist

Change request withdrawn

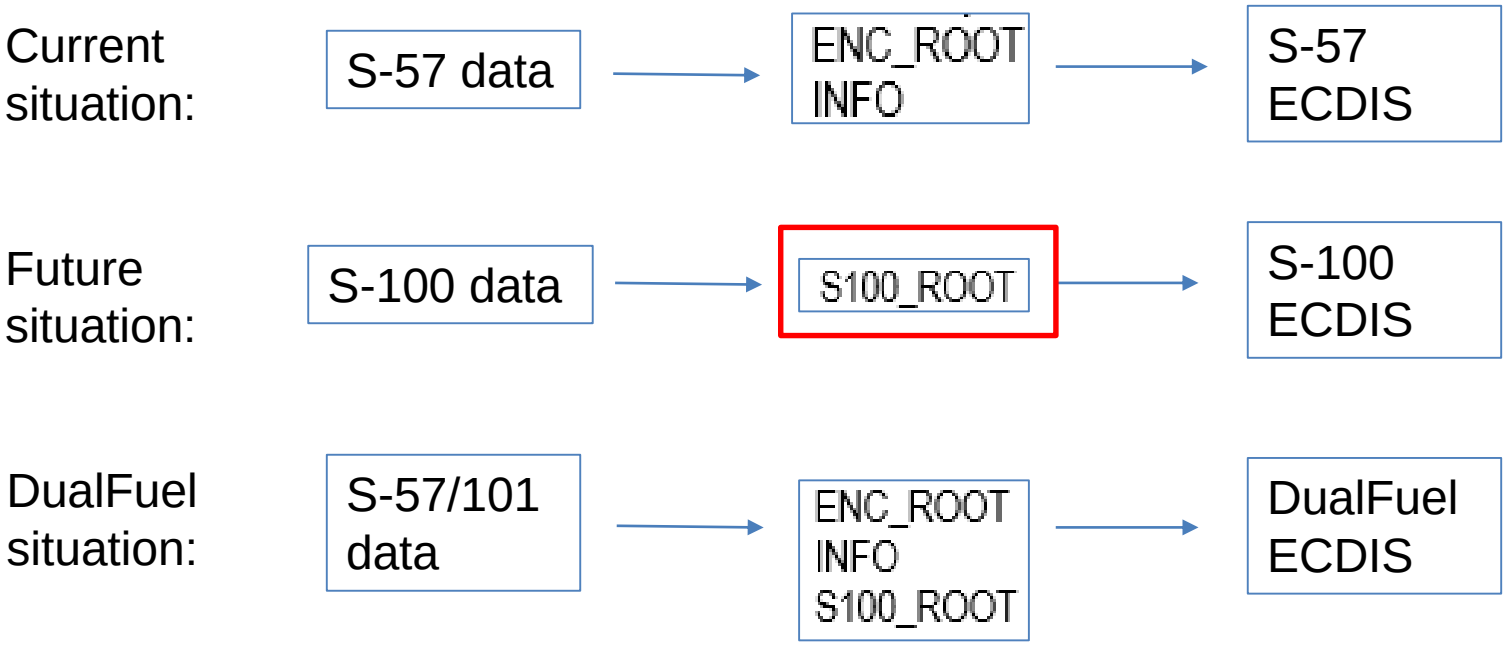
Multiple product exchange set directory structure

- 111 example – exchange catalogue schema challenge
- Metadata revision
- Multiple exchange set accepted [1..*]
- Directory structure necessary?
- Combined S-57/S-1xx?

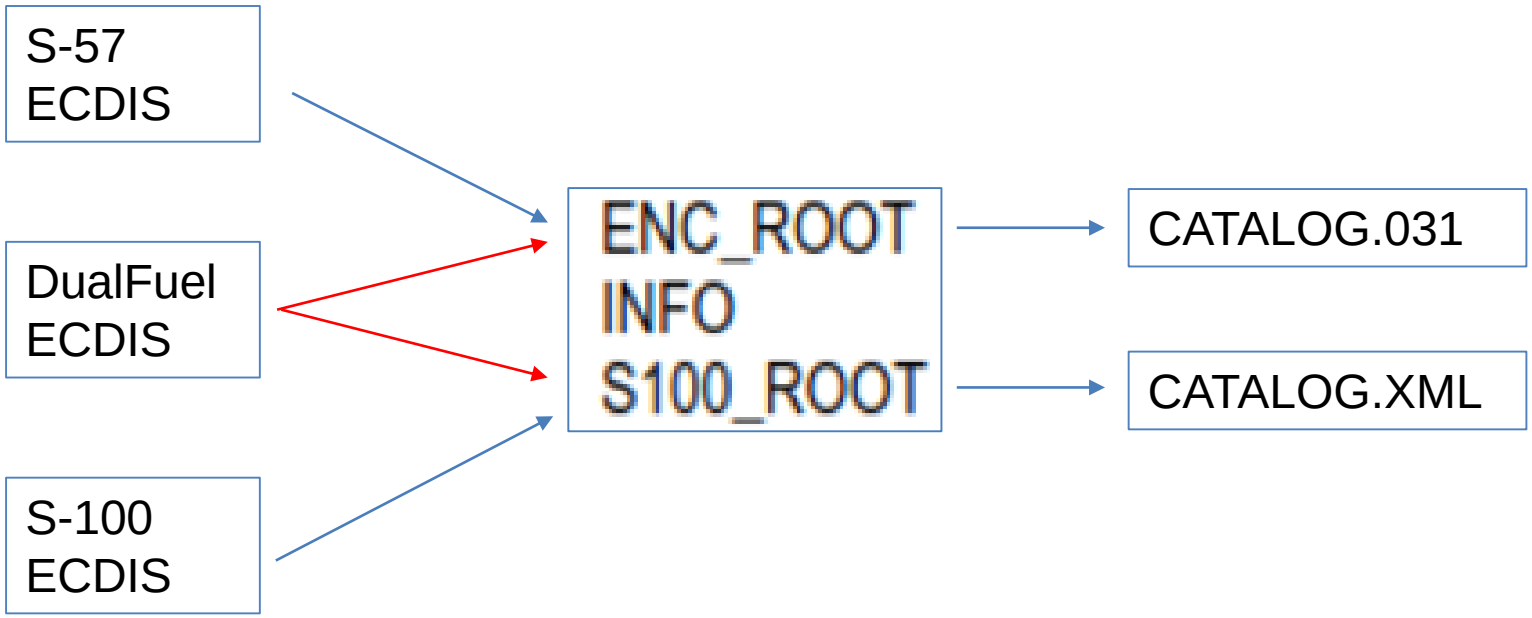
A proposed example of the files structured in directories:

```
ENC_ROOT
INFO
S100_ROOT
    |----S101
    |       |----DATASET_FILES
    |       |       |----AR00
    |       |       |       |----101AR001234567890
    |       |       |       |       |----1
    |       |       |       |       |----0
    |       |       |       |       |   |----101AR001234567890.000
    |       |       |       |       |----1
    |       |       |       |       |   |----101AR001234567890.001
    |       |       |       |       |----2
    |       |       |       |       |----101AR001234567890.002
    |       |       |       |----101AR00ABCDEFGHIJ
    |       |       |       |       |----1
    |       |       |       |       |----0
    |       |       |       |       |----101AR00ABCDEFGHIJ.000
    |       |       |----CL00
    |       |       |----NO00
    |       |----SUPPORT_FILES
    |       |       |----AR00
    |       |       |       |----101AR00QWERTYUIOP.TXT
    |       |       |       |----101AR00ASDFGHJKLO.TIF
    |       |       |       |----101AR00ZXCVBNMJKL.HTM
    |       |       |----CL00
    |       |       |----NO00
    |       |----CATALOGUES
    |       |       |----101_1_0_0_FC.XML
    |       |       |----101_1_5_0_FC.XML
    |       |       |----101_1_0_0_PC.XML
    |       |       |----101_1_5_0_PC.XML
    |----S102
    |       |----DATASET_FILES
    |       |       |----AR00
    |       |       |       |----102AR001234567890
    |       |       |       |       |----1
    |       |       |       |       |----0
    |       |       |       |       |   |----102AR001234567890.000
    |       |       |       |----102AR00ABCDEFGHIJ
    |       |       |----CL00
    |       |       |----NO00
    |       |----CATALOGUES
    |       |       |----102_2_0_0_FC.XML
    |       |       |----102_2_0_0_PC.XML
    |----S104
    |----CATALOG.XML
    |----CATALOG.SIGN
```

Multiple product exchange set directory structure



Multiple product exchange set directory structure



Consensus to bundle all S-100 data in S100_ROOT directory?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