

IHO S-100 Working Group

# Progress report on S-100 DCEG builder

KHOA

Presented by Yong BAEK



# Background

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- **Inconsistency between DCEG and FC**
  - DCEG and S-101 FC comparison (TSMAD29, 2015)
- **Related documents**
  - Report “a method of improving consistency..” (TSMAD29, 2015)
  - Concept of DCEG editor and Prototype Development (S-100WG1, 2016)
  - Progress on S-100 DCEG Builder Development (HSSC9, 2017)



# Background

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- **Request for a DCEG builder**

- NIPWG request (S-100WG2, 2016) ;

“ The development of the S-123 DCEG... The current way to prepare the feature dictionary part has been considered as critical. The NIPWG noted with interest the KHOA initiative to develop a tool which automatically produces the DCEG feature catalogue based on the Feature Catalogue Builder ...”



# What is S-100 DCEG builder ?

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- **Data Classification and Encoding Guide (DCEG)**

- The data product specification shall provide information on how the data is to be captured. This should be as detailed and specific as necessary. The product specification shall include this information for each identified scope.
- The product specification includes the collection criteria for mapping real world objects to the conceptual objects of the dataset... (S-100 3.0.0, 11-9)

- **Feature Catalogue**

- A catalogue containing definitions and descriptions of the feature types, feature attributes, and feature associations occurring in one or more sets of geographic data



# What is S-100 DCEG builder ?

- DCEG

8.18 Dock area				
<b>IHO Definition:</b> DOCK AREA. An artificially enclosed area within which ships may moor and which may have gates to regulate water level. (S-57 Edition 3.1, Appendix A – Chapter 1, Page 1.56, November 2000).				
<b>S-101 Geo Feature:</b> Dock area (DOCARE)				
<b>Primitives:</b> Surface				
<b>Real World</b>	<b>Paper Chart Symbol</b>	<b>ECDIS Symbol</b>		
S-101 Attribute	S-57 Acronym	Allowable Encoding Value	Type	Multiplicity
Category of dock	(CATDOC)	1: tidal 2: non-tidal (wet dock)	EN	0,1
Condition	(CONDN)	1: under construction 2: ruined 3: under reclamation 5: planned construction	EN	0,1
Feature name			C	0,*
Display name			(S) BO	0,1
Language		ISO 639-3	(S) TE	0,1
Name	(OSNAM)/ (NOSNAM)		(S) TE	1,1
Fixed date range			C	0,1
Date end	(DATEND)	ISO 8601: 2004	(S) TD	0,1
Date start	(DATSTA)	ISO 8601: 2004	(S) TD	0,1
Horizontal clearance fixed			C	0,1
Horizontal clearance value	(HORCLR)		(S) RE	1,1
Horizontal distance uncertainty	(HORACC)		(S) RE	0,1
Horizontal clearance length			RE	0,1
Horizontal clearance width			RE	0,1
Maximum permitted draught			RE	0,1
Reported date	(SORDAT)	ISO 8601: 2004	TD	0,1
Status	(STATUS)	1: permanent 4: not in use 6: reserved 8: private 14: public	EN	0,*

8.18.1 Tidal and non-tidal basins (see S-4 – B-326.3-4)				
If it is required to encode a non-navigable dock area, it must be done using the feature <b>Dock Area</b> .				
<b>Remarks:</b>				
• If the dock is navigable at the maximum display scale of the ENC data, it must be encoded using the features <b>Depth Area</b> , <b>Dredged Area</b> or <b>Unsurveyed Area</b> (see clause X.X), and the geo features making up the dock limits must be encoded using appropriate features such as <b>Coastline</b> , <b>Shoreline Construction</b> or <b>Gate</b> . The dock must not be encoded as <b>Dock Area</b> . If it is required to encode the name of the dock, it				

Part 1  
Feature Catalogue

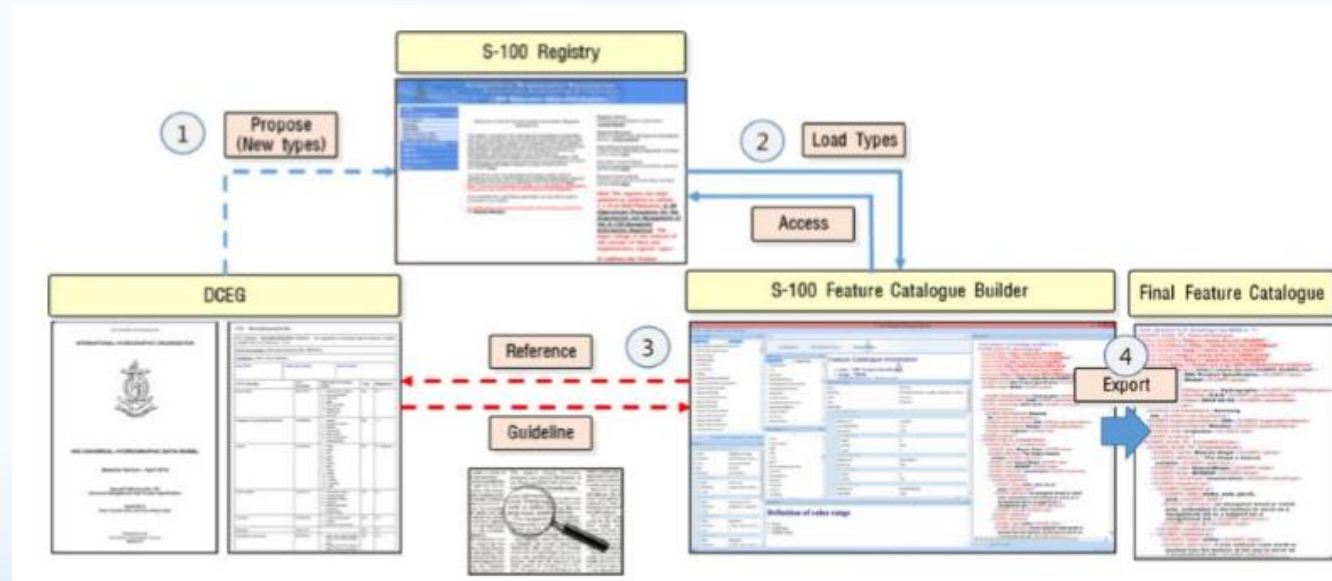
Part 2  
Encoding guide



# What is S-100 DCEG builder ?

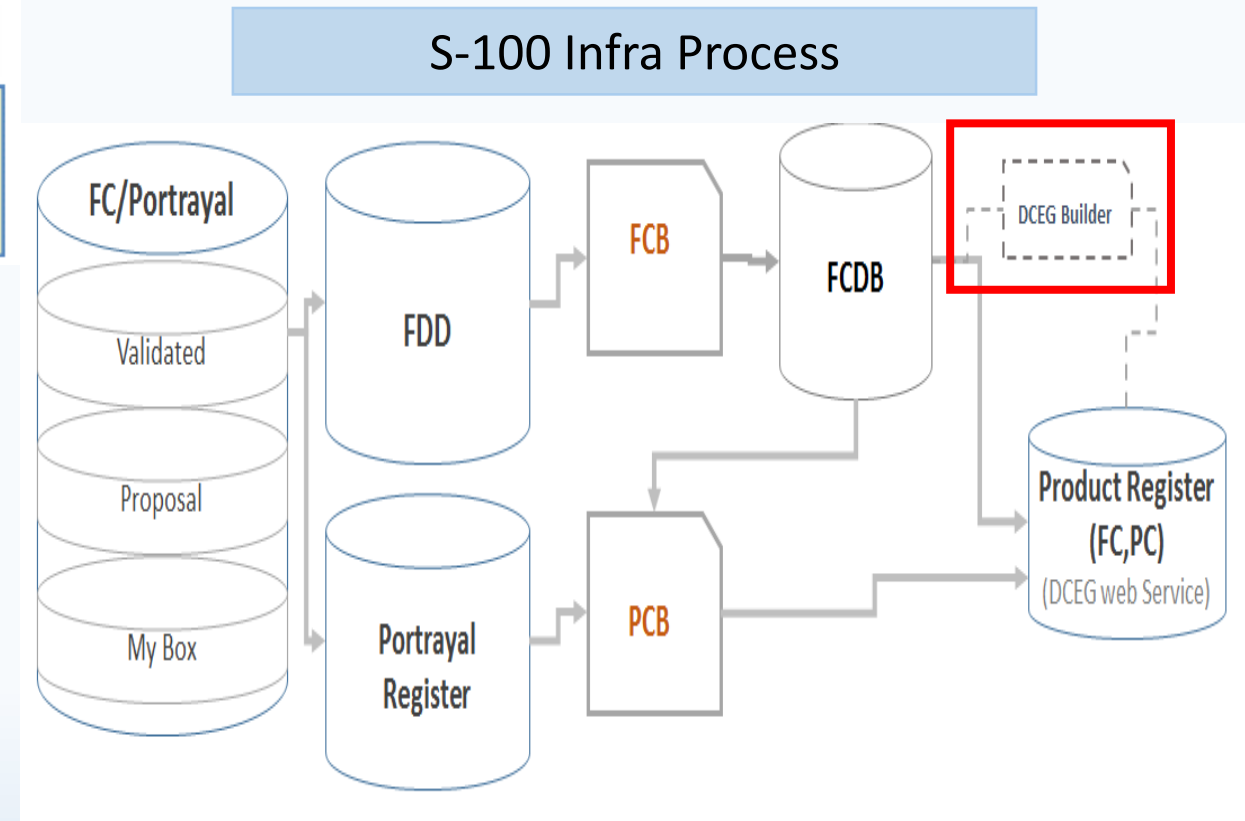
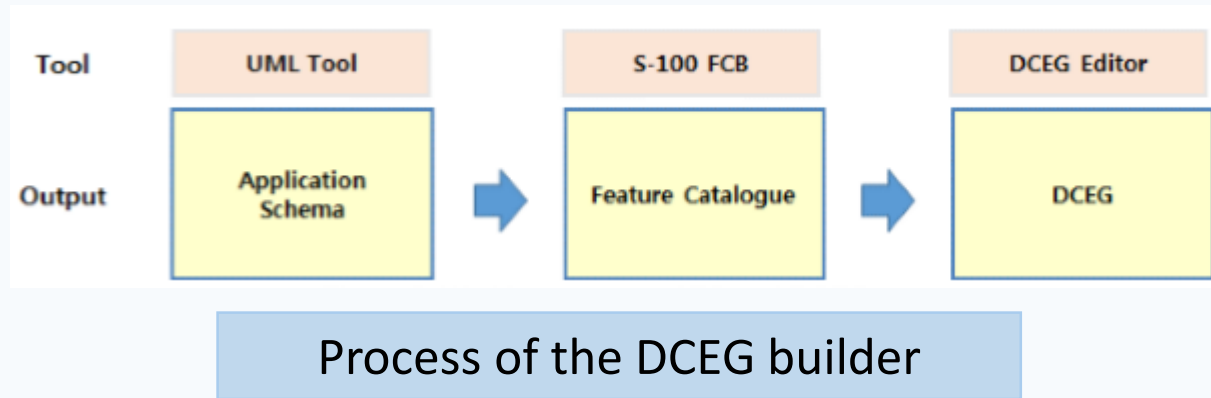
- **Harmonization Issue between DCEG and FC**

- As DCEG and Feature Catalogue were made from different sources, it is natural that there may be a few inconsistencies between the two items. As the current FC creation process is to input and bind data by hand using S-101 FCB after cognitive processes of DCEG, the output could include human errors



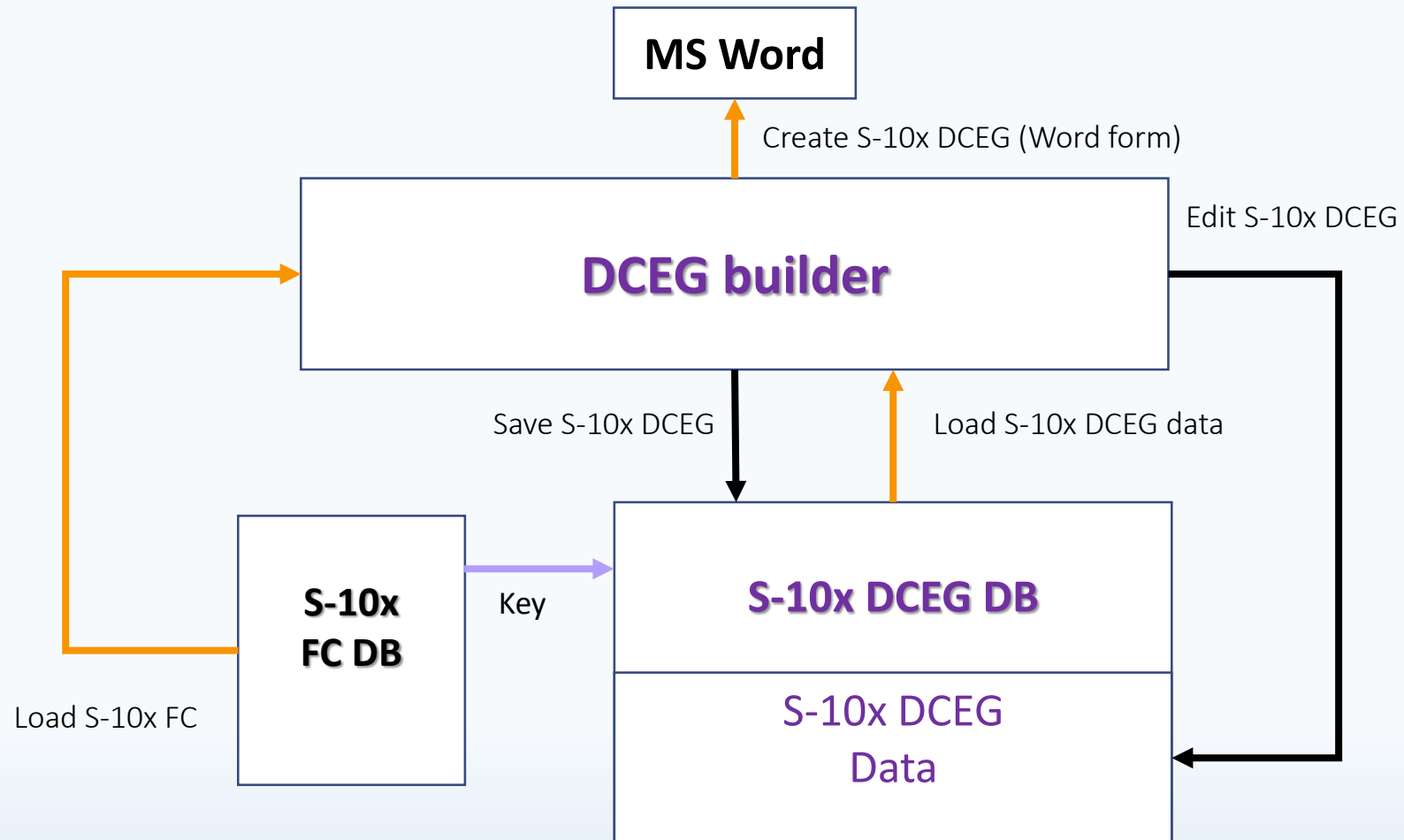
# What is S-100 DCEG builder ?

- **DCEG**



# What is S-100 DCEG builder ?

- **DCEG**





# What is S-100 DCEG builder ?

- **DCEG functions**

- Load Feature Catalogue (FC) from FC DB
- Save/Open DCEG DB
- Edit / Delete DCEG in DCEG DB
- Comparison between FC and DCEG
- Comments
- Export as MS word format
- etc ...

## DCEG DB

- class
  - dceg
    - DCEG.h
- s100
  - AttributeBinding.h
  - CatalogueInformation.h
  - ComplexAttribute.h
  - FeatureBinding.h
  - FeatureType.h
  - InformationBinding.h
  - InformationType.h
  - ListedValue.h
  - SimpleAttribute.h

Creation

## DCEG MS Word

**ISO Definition: QUALITY OF NON-BATHYMETRIC DATA** An area within which a uniform assessment of the quality of the non-bathymetric data exists. (Adapted from S-57 Edition 3.1, Appendix A – Chapter 1, Page 1.208, November 2000).

**S-101 Metadata Feature:** Quality of non-bathymetric data (M\_ACCY)

**Priority:** Surface

Real World	Paper Chart Symbol	ECDS Symbol

S-101 Attribute	S-67 Acronym	Allowable Encoding Value	Type	Multiplicity
Category of temporal variation		1: extreme event 2: likely to change 3: likely to change but significant shoaling not expected 4: unlikely to change 5: unassessed	EN	1,1
Orientation uncertainty	(HORACC)		RE	0,1
	(FORACC)		RE	1,1
Survey date range			C	0,1
Date end	(SUREND)	ISO 8601:2004	(S)TD	1,1
Date start	(SURESTA)	ISO 8601:2004	(S)TD	0,1
Vertical uncertainty	(VERACC)		C	0,1
Uncertainty fixed			(S)RE	1,1
Uncertainty variable			(S)RE	0,1

**BNT 1 Reference:**

**3.3.1 Quality of non-bathymetric data**

The meta feature **Quality of Non-bathymetric Data** may be used to provide an indication of the overall uncertainty of position for all non-bathymetric features. It must not be used to provide the uncertainty of bathymetric information.

Horizontal position uncertainty on the **Quality of Non-bathymetric Data** applies to non-bathymetric data situated within the area, while quality of horizontal measurement or horizontal position uncertainty on the associated spatial types qualifies the location of the **Quality of Non-bathymetric Data** feature itself.

Meta features **Quality of Non-bathymetric Data** and **Quality of Bathymetric Data** may overlap.

**Remarks:**

- No remarks.

**Distinction:** Quality of bathymetric data; quality of survey.

**ISO Definition: COVERAGE** A geographical area that describes the coverage and extent of spatial types. (Adapted from S-57 Edition 3.1, Appendix A – Chapter 1, Page 1.210, November 2000).

**S-101 Metadata Feature:** Data Coverage (M\_COVR)

**Priority:** Surface

Real World	Paper Chart Symbol	ECDS Symbol

S-101 Attribute	S-67 Acronym	Allowable Encoding Value	Type	Multiplicity
Maximum display scale		maximum display scale + minimum display scale	IN	1,1
Minimum display scale		minimum display scale + maximum display scale	IN	1,1

**BNT 1 Reference:**

**3.4.1 Coverage**

The meta feature **Data Coverage** encodes the area covered by data within the dataset. This feature is also used to provide the ECDS with the scale information necessary for the determination of dataset loading and unloading in relation to the user selected viewing scale in the ECDS. There must be a minimum of one **Data Coverage** feature in the dataset. **Data Coverage** features must cover the equivalent area to the extent of the spatial types in the dataset, and must not overlap (see clause 3.3).

The mandatory attribute **maximum display scale** is used to indicate the largest intended viewing scale for the data. The value populated for **maximum display scale**, therefore, provides a reference for the user selected viewing scale in the ECDS at which the overscale warning will be displayed if there is no larger maximum display scale ENC dataset available, as well as the ECDS viewing scale when the set is loaded. The value also determines the dataset loading strategy as the user defined viewing scale becomes smaller through a series of ENC cells covering a geographic area.

The mandatory attribute **minimum display scale** is used to indicate the smallest intended viewing scale for the data. Where an empty (null) value is populated for **minimum display scale**, the ECDS will continue to display the data regardless of how small the user selected viewing scale becomes. The value populated for **minimum display scale**, therefore, is intended to be used in a series of ENC cells covering a geographic area to determine the dataset loading strategy as the user selected viewing scale becomes larger.

For ENC, in order to provide a consistent relationship between the encoded data and the way the data is displayed, the values for **maximum display scale** and **minimum display scale** must be taken from the following table:

Maximum display scale	Minimum display scale
10,000,000	empty (null)
5,000,000	10,000,000
1,500,000	5,000,000
700,000	1,500,000
200,000	700,000
100,000	200,000
50,000	100,000
40,000	50,000



# Demo

- S-100 DCEG Builder

# S-100 DCEG

## Builder1.0.0

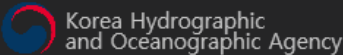
☐ to save a name

Sign in

Join

or

Template create



Korea Hydrographic and Oceanographic Agency

Name : S-101 ENCsdraft Version : 0.9.1.1 DCEG version : 1.0.0 dceg\_admin

File(F)

Search

Feature Name

Quality of non-bathymetric data

Data Coverage

Navigational system of marks

Local direction of buoyage

Quality of Bathymetric Data

Sounding datum

Vertical datum of data

Update information

Magnetic variation

Local magnetic anomaly

Coastline

Land area

Island Group

Land elevation

River

Rapids

Waterfall

Lake

Land region

Vegetation

Ice area

Sloping ground

Slope topline

Tideway

Built-up area

Building, single

Airport/airfield

Runway

Bridge

Span fixed

Span opening

Conveyor

Cable, overhead

Pipeline, overhead

Pylon/bridge support

Fence/Wall

Q

IHO Definition: An area within which a uniform assessment of the quality of the non-bathymetric data exists

Geo Feature: Quality of non-bathymetric data

Primitives: surface

Attribute	Allowable Encoding Value	Type	Multiplicity
Category of Temporal Variation	1. Extreme event 2. Likely to change 3. Likely to change but significant shoaling n 4. Unlikely to change 5. Unassessed	EN	1, 1
Horizontal distance uncertainty		RE	0, 1
Horizontal Position Uncertainty		RE	1, 1
Orientation uncertainty		RE	0, 1
Survey Date Range		C	0, 1
Date end		(S) TE	1, 1
Date start		(S) TE	0, 1
Vertical uncertainty		C	0, 1
Uncertainty fixed		(S) RE	1, 1
Uncertainty variable		(S) RE	0, 1

Preview in word

Name : Date start

IHO Definition : The earliest date on which an object (e.g., a buoy) will be present.

Remarks : This attribute is to be used to indicate the deployment or implementation of an object at a specific date in the future. See also 'periodic date start' (PERSTA).

Preview in word

INT 1 Reference:

3-3.1 Quality of non-bathymetric data

The meta feature Quality of Non-bathymetric Data may be used to provide an indication of the overall uncertainty of position for all non-bathymetric features. It must not be used to provide the uncertainty of bathymetric information. Horizontal position uncertainty on the Quality of Non-bathymetric Data applies to non-bathymetric data situated within the area, while quality of horizontal measurement or horizontal position uncertainty on the associated spatial types qualifies the location of the Quality of Non-bathymetric Data feature itself. Meta features Quality of Non-bathymetric Data and Quality of Bathymetric Data may overlap.

Remarks:

- No remarks.

Distinction:

Quality of bathymetric data; quality of survey.



# Action requested of S-100WG

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- **Note** the report.
- **Request** to provide recommendations and feedbacks if any.

