

Paper for Consideration by S-100WG4

Progress Report on S-101 Feature Catalogue 1.0.0

Submitted by:	Republic of Korea (KHOA)
Executive Summary:	This paper describes the management process for feature association and role
Related Documents:	S-100, S-99, TSM6-7.1A
Related Projects:	KHOA S-100 Test Bed Project

Introduction / Background

KHOA is in charge of S-101 FC (Feature Catalogue) management to enhance the S-100/10X stability and prosperity. This paper is a report of S-101 FC creation following the S-101 Product Specification and DCEG 1.0.0 version after the S-100WG3 and TSM6 meetings.

Analysis/DiscussionHistory of S-10X Feature Catalogue and S-100 FCB

For the S-100 standard activation and application, KHOA started to take charge of the S-101 FC creation and management. At the TSM6 meeting in 2018, KHOA reported the new version of S-101 FC based on the S-101 DCEG made at July 2018 version. After the TSM6, KHOA revised and modified the S-101 FC following the TSM6 participant's review. KHOA circulated S-101 FC to S-100WG stakeholders and developers and received approximately 30 review e-mail (including around 120 points of opinion) since October 2018. KHOA corrected around 100 points which is error of S-101 FC.

As S-101 DCEG has been revised at November 2018, KHOA re-created S-101 FC again and found that various feature of association multiplicity value has been changed at this period. The S-101 FC was also produced with the contents of S-100 Ed. 4.0.0 in order to cope with the publication of the S-100 standard 4.0.0. In this paper, the discrepancies in the DCEG documents found during this S-101 FC creation process will be reported.

Binding problem for All Geo Features

23 Cartographic Features							
23.1 Text placement							
<u>Feature/Information associations</u>							
Type	Association Name	Association Ends					
		Class	Role	Mult	Class	Role	Mult
Asso	Text Association	Text Placement	Identifies	0,1	All Geo Features	Positions	1,1

Figure 1. Text placement (Information type)

In the current S-101 DCEG document, the information type to be bound to All Geo Feature is defined as shown in Figure 1. However there is no text for binding information of geo-type features to Text placement shown as Figure 2.

22.2 Vessel traffic service area							
<u>Feature/Information associations</u>							
Type	Association Name	Association Ends					
		Class	Role	Mult	Class	Role	Mult
Asso	Additional Information	Vessel Traffic Service Area	Information provided for	1,*	Contact Details	Provides information	0,1

Figure 2. Vessel traffic service area (Feature type)

In this case, it is necessary to discuss whether to bind text placement to all features at the time of S-101 FC production, or whether to bind only the item that binds text placement on feature page. In the case of Nautical information among information types, all Geo Feature is labeled as shown in Figure 3. However, since Nautical information is bound only to specific Feature pages, there is no uniformity in DCEG.

24.4 Nautical information

Feature/Information associations							
Type	Association Name	Association Ends					
		Class	Role	Mult	Class	Role	Mult
Asso	Additional Information	Nautical Information	Provides information	0,1	All Geo Features	Information provided for	1,*

Figure 3. Text placement (Information type)

16.10 Caution area

Feature/Information associations							
Type	Association Name	Association Ends					
		Class	Role	Mult	Class	Role	Mult
Asso	Additional Information	Caution Area	Information provided for	1,*	Nautical Information	Provides information	0,1
Asso	Caution Area Association	Caution Area	Consists of	1,*	Archipelagic Sea Lane, Traffic Separation Scheme	Component of	0,1
Aggr	Fairway Auxiliary	Caution Area	Has auxiliary	1,*	Fairway	Auxiliary to	0,1

Figure 4. Text placement (Information type)

Both ways of Feature's feature association

19.2 Light all around								19.3 Sector lights							
Feature/Information associations								Feature/Information associations							
Type	Association Name	Association Ends						Type	Association Name	Association Ends					
		Class	Role	Mult	Class	Role	Mult			Class	Role	Mult	Class	Role	Mult
Comp	Structure/Equipment	Light All Around	Supports	0,*	Beacon Cardinal, Beacon Isolated Danger, Beacon Lateral, Beacon Safe Water, Beacon Special Purpose/General, Bridge, Building, Buoy Cardinal, Buoy Emergency Wreck Marking, Buoy Installation, Buoy Isolated Danger, Buoy Lateral, Buoy Safe Water, Buoy Special Purpose/General, Crane, Conveyor, Daymark, Fishing Facility, Floating Dock, Fortified Structure, Hulk, Landmark, Light All Around, Light Float, Light Vessel, Mooring/Warping Facility, Offshore Platform, Pile, Pipeline Overhead, Pontoon, Pylon/Bridge Support, Shoreline Construction, Silo/Tank, Span Fixed, Span Opening, Wind Turbine	Supported by	0,1	Comp	Structure/Equipment	Light Sectored	Supports	0,*	Beacon Cardinal, Beacon Isolated Facility, Floating Dock, Fortified Structure, Hulk, Landmark, Light All Around, Light Sectored, Light Float, Light Vessel, Mooring/Warping Facility, Offshore Platform, Pile, Pipeline Overhead, Pontoon, Pylon/Bridge Support, Shoreline Construction, Silo/Tank, Span Fixed, Span Opening, Wind Turbine	Supported by	0,1
Comp	Structure/Equipment	Light All Around ¹	Supported by	0,1	Fog Signal, Light All Around, Light Fog Detector, Retroreflector.	Supports	0,*	Comp	Structure/Equipment	Light Sectored ²	Supported by	0,1	Fog Signal, Light Fog Detector, Retroreflector.	Supports	0,*
Aggr	Range System Aggregation	Light Sectored	Consists of	1,*	Range System	Component of	0,1	Aggr	Range System Aggregation	Light Sectored	Consists of	1,*	Range System	Component of	0,1
Aggr	Traffic Separation Scheme Aggregation	Light Sectored	Consists of	1,*	Traffic Separation Scheme	Component of	0,1	Aggr	Traffic Separation Scheme Aggregation	Light Sectored	Consists of	1,*	Traffic Separation Scheme	Component of	0,1
Asso	Aids to Navigation Association	Light Sectored	Consists of	1,*	Archipelagic Sea Lane, Bridge, Deep Water Route, Fairway System, Traffic Separation Scheme, Two-Way Route	Component of	0,1	Asso	Aids to Navigation Association	Light Sectored	Consists of	1,*	Archipelagic Sea Lane, Bridge, Deep Water Route, Fairway System, Traffic Separation Scheme, Two-Way Route	Component of	0,1

Figure 5. Feature association (between light all around and light sectored)

On the left side of Figure 5, Light all around is bound to both ways as it can be equipment. However on the right side of Figure 5, light sectored has just one way binding even if this can have both ways. It seems like a discrepancy of S-101 DCEG document.

Needs for S-100 FCB improvement

19.2 Light all around							
<u>Feature/Information associations</u>							
Type	Association Name	Association Ends					
		Class	Role	Mult	Class	Role	Mult
Aggr	Traffic Separation Scheme Aggregation	Light All Around	Consists of	1,*	Traffic Separation Scheme	Component of	0,1
Asso	Aids to Navigation Association	Light All Around	Consists of	1,*	Archipelagic Sea Lane, Bridge, Deep Water Route, Fairway System, Traffic Separation Scheme, Two-Way Route	Component of	0,1

Figure 6. Feature association (traffic separation scheme)

In the case of the S-101 DCEG developed in the past, there is no case where the feature association is duplicated like traffic separation scheme. However as shown in Figure 6, some features are bound for complex times.

The current S-100 FCB checks for duplicate functions and prevents input, so this function of S-100 FCB should be fixed.

Needs for DCEG document structure revision

24 Information types							
24.1 Contact details							
<u>Feature/Information associations</u>							
Type	Association Name	Association Ends					
		Class	Role	Mult	Class	Role	Mult
Asso	Additional Information	Contact Details	Provides information	0,1	Fog Signal, Pilot Boarding Place, Vessel Traffic Service Area	Information provided for	1,*

Figure 7. Information-Feature association (contact details)

When the feature has association with information, feature can bound information but information cannot bound feature as information is non-geospatial type. The present S-101 DCEG has information such as information bound to feature. The red highlighted part should be deleted shown in Figure 7.

Conclusions

The S-101 FC has been created according to the revised S-101 DCEG documents since the last S-100WG3 and TSM6, and reported on the improvement needs identified in the process. After reviewing the results of the S-101 FC creation through the S-100WG4, KHOA is planning to release the S-101 FC 1.0.0 official version in May 2019.

Recommendations

Request review by S-100WG4 participants.

Action Required of S-100WG

The S-100WG4 is invited to:

- a. Note this paper