

IHO S-101PT

S-100PT4 meeting

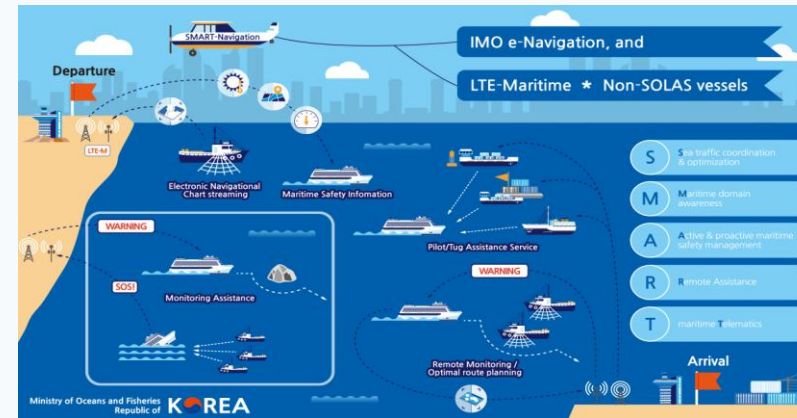
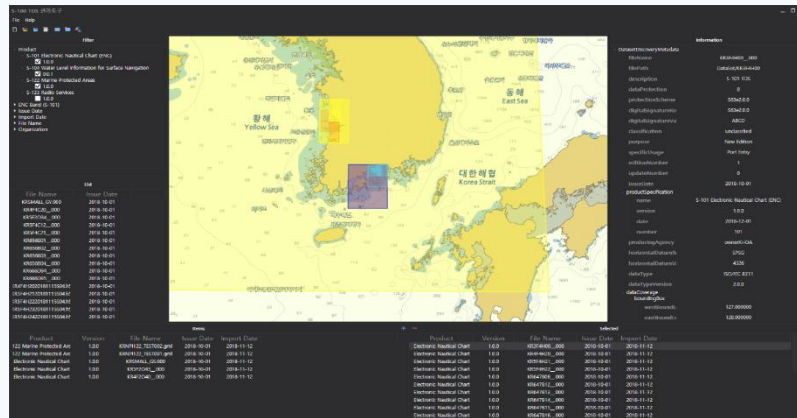
S-101 ENC conversion

Presented by KHOA



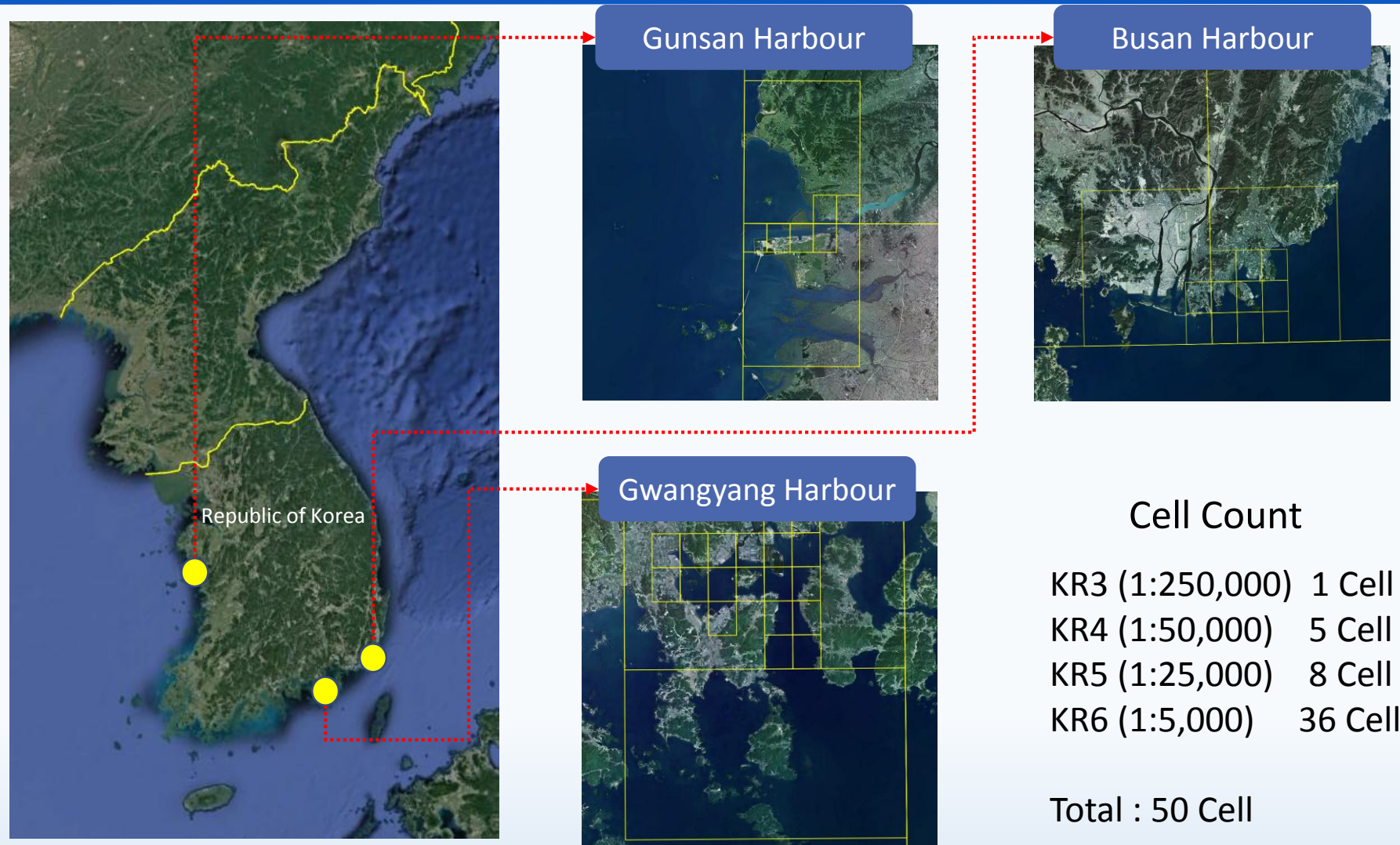
Purpose

- For KHOA S-100 Test Bed ENC Test Dataset
- For “SMART Navigation Project” (2020” Test Operation)
- For prepare produce S-101 ENC



S-101 ENC (Product Specification 1.0.0)

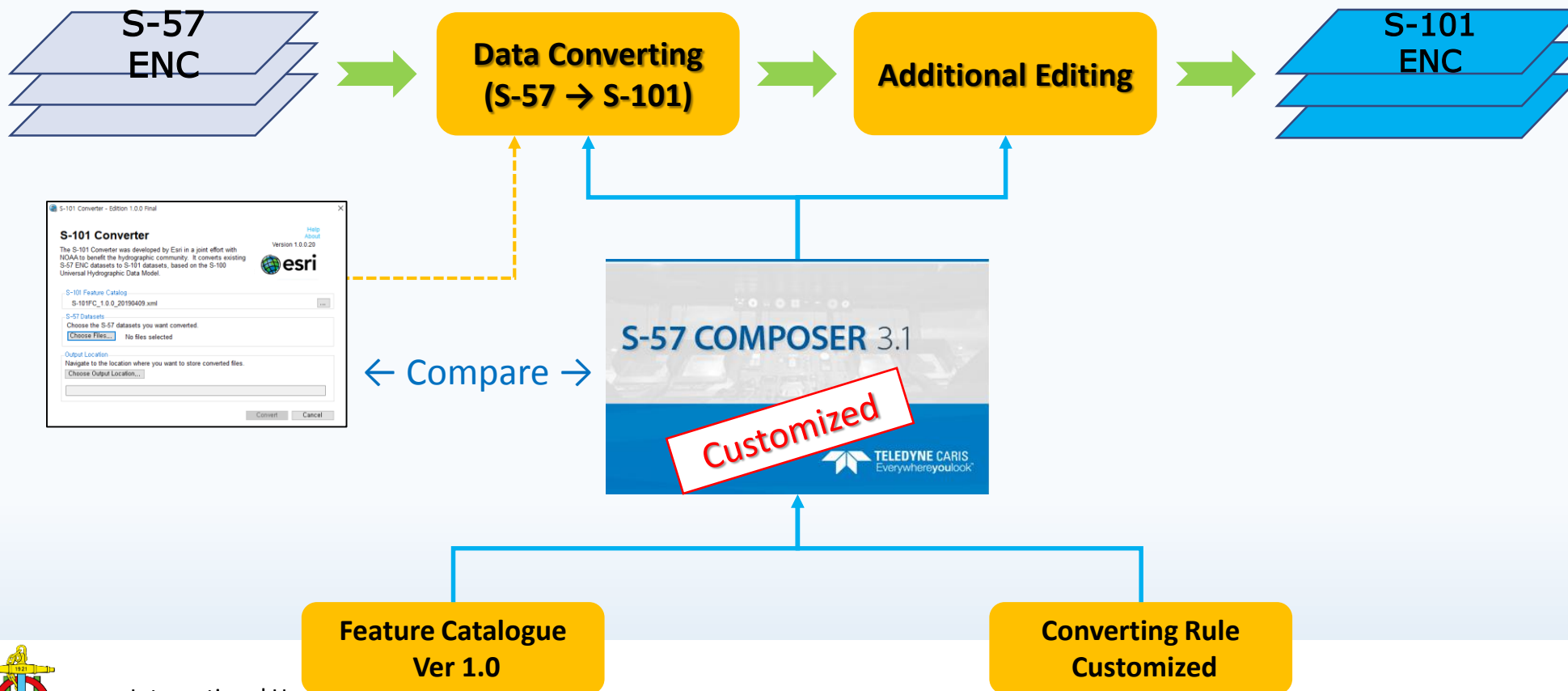
Produced Area



ENC conversion

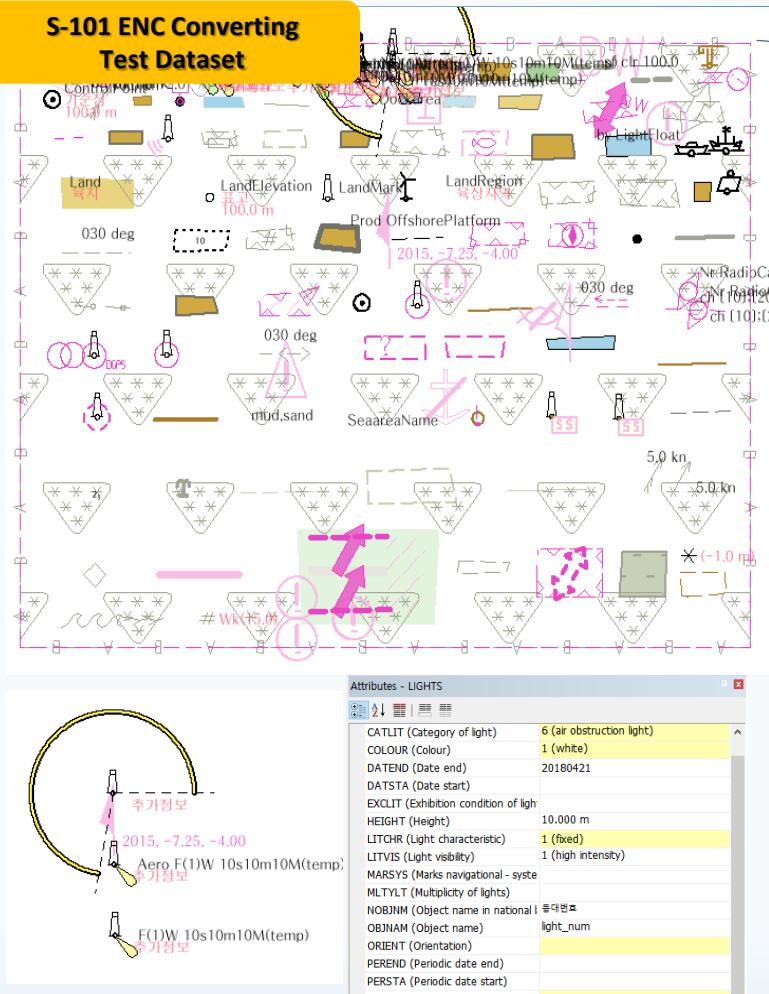
Convert & additional edit's Goal

- Mapping all object according to KHOA S-101 Consistency guide
- All attribute convert of each object



Converting result

S-101 ENC Converting Test Dataset



KHOA ENC use 118 objects of S-57.

<S-101 Converter 1.0.0.5 (S100WG) 2018.10>

S-57 Acronym count	S-101 Feature Matching count	Complete count	Converting ratio	Note
118	131	106	81%	S-101 side
Ignored INFORM, NINFOM to Nautical Information				

<S-57 Composer 3.1.1 (Customized by UST21) 2018>

S-57 Acronym count	S-101 Feature Matching count	Complete count	Converting ratio	Note
118	131	127	97%	S-101 side

Result

- Both tool did not lose critical feature and attribute.
- S-101 Converter can automatically conversion the relation set.
- S-57 Composer allows editing of converting rules so that it can be optimized for ENC conversion of each HO.



Feature Catalogue

Feature Catalogue Ver 1.0.0

Attribute Value type
time -> integer

XML Structure

Sequential Access

Converting Rule

Feature name (Original S-57 Composer 3.1.1 applied FC 0.8.)

Accept KHOA ENC Consistency guide

For Feature Catalogue changeable

CatalogueControl.xml

ProductInfo.xml

S-57 Composer 3.1.1 Limit

- ❗ Non-compliance S-101 file name Rule.
- ❗ Not applicable no-geometry feature and relation feature
 - Complement by adding related functions to KHOA Simple viewer

Result and Issue

Result

- Completed convert and produce of S-57 ENC 50 cell to S-101 ENC 50 cell.
- But feature insufficient for conversion process needs further editing.

Additional edit

Variable according to the ENC encoding guide of each HO

Attribute edit

- Feature name - S-101 form from DCEG – language & Display name
- About text string & form Etc..

According to S-101 KHOA Consistency guide

- Fairway name
- Support file naming rule
- Light admin No
- Notice to mariners (T)

Relation

- Structure/Equipment
- Traffic Separation Scheme
- Two way Route
- Bridge Aggregation

KR647B47 작업결과									
KR5F4H22 작업결과									
KR5F4H21 작업결과									
KR656B01 결과									
S-57	S-57	S-57	S-57	S-101	Composer	변환결과	추가작업내용		
ACH	ACH	ACH	ACH	No	Feature Name				
ACH	ACH	ACH	ACH	1	Anchor Area	변환완료	• S-101-일광성 기온 반영	• Category of anchorage 및 Status 입력	
BOCH	BOCH	BOCH	BOCH	2	Buoy Cardinal	변환완료	• 관제물명	• Structure Equipment 관계설정	
BOCH	BOCH	BOCH	BOCH	3	Buoy Lateral	변환완료	• 관제물명	• Structure Equipment 관계설정	
BOCH	BOCH	BOCH	BOCH	4	Buoy Special Purpose/General	변환완료	• S-101-일광성 기온 반영	• Topmark의 Shape information 4세(장동)	
BOCH	BOCH	BOCH	BOCH	5	Buoy Special Purpose/General	변환완료	• 관제물명	• Structure Equipment 관계설정	
BOCH	BOCH	BOCH	BOCH	6	Buoy	변환완료	• 관제물명	• Structure Equipment 관계설정	
BOCH	BOCH	BOCH	BOCH	7	Cable Submarine	변환완료	• 관제물명	• Structure Equipment 관계설정	
BOCH	BOCH	BOCH	BOCH	8	Coastline	변환완료	• 관제물명	• Structure Equipment 관계설정	
BOCH	BOCH	BOCH	BOCH	9	Information Area	변환완료	• 관제물명	• Structure Equipment 관계설정	
BOCH	BOCH	BOCH	BOCH	10	Depth Area	변환완료	• 관제물명	• Structure Equipment 관계설정	
BOCH	BOCH	BOCH	BOCH	11	Depth Contour	변환완료	• 관제물명	• Structure Equipment 관계설정	
BOCH	BOCH	BOCH	BOCH	12	Fog Signal	변환완료	• S-101-일광성 기온 반영	• Nautical Information 4세	
BOCH	BOCH	BOCH	BOCH	13	Fishing Facility	변환완료	• 관제물명	• Structure Equipment 관계설정	
BOCH	BOCH	BOCH	BOCH	14	Hazard Area Administrative	변환완료	• 관제물명	• Structure Equipment 관계설정	
BOCH	BOCH	BOCH	BOCH	15	Light All Around	변환완료	• 관제물명	• Structure Equipment 관계설정	
BOCH	BOCH	BOCH	BOCH	16	Land Area	변환완료	• 관제물명	• Structure Equipment 관계설정	
BOCH	BOCH	BOCH	BOCH	17	Landmark	변환완료	• 관제물명	• Structure Equipment 관계설정	
BOCH	BOCH	BOCH	BOCH	18	Wind Turbine	변환완료	• 관제물명	• Structure Equipment 관계설정	
BOCH	BOCH	BOCH	BOCH	19	Light Beacon	변환완료	• 관제물명	• Structure Equipment 관계설정	



S-101 전자해도 변환 작업량 분석									
No	구역	Cell 명	Unique Feature 수	변환완료 Feature수	추가작업 Feature 수	비고	변환율	추가작업율	100
24	군산	KR4F2040	55	29	26	추가 1개 (Update Information)	52.7	47.3	100.0
25		KR4F4C20	60	28	32		46.7	53.3	100.0
26		KR5F2043	50	28	22	추가 1개 (Update Information)	56.0	44.0	100.0
27		KR5F4C21	62	27	35		43.5	56.5	100.0
28		KR5F2034	42	19	23	추가 1개 (Update Information)	45.2	54.8	100.0
29		KR5F4C12	50	21	29		42.0	58.0	100.0
30		KR666D94	33	18	15		54.5	45.5	100.0
31		KR666D95	26	13	13		50.0	50.0	100.0
32		KR656B01	31	14	17		45.2	54.8	100.0
33		KR656B02	33	18	15		54.5	45.5	100.0
34		KR656B03	39	20	19		51.3	48.7	100.0
35		KR656B04	31	16	15		51.6	48.4	100.0

Additional edit ratio
≈ 43%



International Hydrographic Organization
Organisation Hydrographique Internationale

Additional edit list of each ENC Cell for high quality S-101

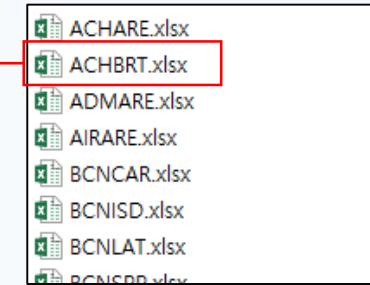
Korea Hydrographic and Oceanographic Agency

Add-Analysis S-57 all object in KHOA ENC

* S-57 Object in KHOA ENC (Total 118)

ACRONYM	CATACH	NOBJNM	OBJNAM	RADIUS	STATUS	INFORM	NINFOM	SCAMIN	SORDAT	SORIND	count
ACHBRT	5		o	o	6	o		o			5
ACHBRT	5		o					o			1
ACHBRT	1		o	o		o	o				18
ACHBRT			o						o	o	5
ACHBRT	1		o								18
ACHBRT								o			79
ACHBRT					o	o		o			22
ACHBRT				o		o	o	o			8
ACHBRT			o		3	o		o			9
ACHBRT		o	o	o				o			5
ACHBRT	1		o	o	6	o		o			6
ACHBRT	1	o	o	o		o	o	o	o	o	1

✓ Number of case attribute in each object



KHOA ENC is using 118 objects of S-57.

KHOA ENC Object usage analysis

S-57 Object / S-101 Feature Matching

S-57 Object / S-101 Feature Matching Table							
No.	S-57 ACRONYM	S-101 Feature	Type	작성여부	검토필요		비고
					1차	완료	
1	ACHARE	Anchorage Area	p,s	o			
2	ACHBRT	Anchor Berth	p,s	o			
3	ADMARE	Administration Area	s	o			
		Vessel Traffic Service Area	s	o			
		Pilot Boarding Place	s	o			
4	AIRARE	Airport/Airfield	p,s	o			
5	BCNCAR	Beacon Cardinal	P	o			
6	BCNISD	Beacon Isolated Danger	P	o			
7	BCNLAT	Beacon Lateral	P	o			
8	BCNSPP	Beacon Special Purpose/General	P	o			
9	BERTHS	Berth	p,c,s	o			
10	BOYCAR	Buoy Cardinal	p	o			
11	BOYINB	Buoy Installation	p	o			
12	BOYISD	Buoy Isolated Danger	p	o			
13	BOYLAT	Buoy Lateral	p	o			
14	BOYSAW	Buoy Safe Water	p	o			
15	BOYSPP	Buoy Special Purpose/General	p	o			
16	BRIDGE	Bridge	p,c,s,n	o			
		Span Fixed	s	o			
		Span Opening	c,s	o			
17	BUAARE	Built-up Area	p,s	o			

S-101 New component

Feature Relation

Information Type

Feature conflation and separation

:




International Hydrographic Organization
Organisation Hydrographique Internationale



Korea Hydrographic and Oceanographic Agency

Add-S-101 consistency guide by KHOA

Make S-101 encoding guide for KHOA ENC consistency



해양수산부
국립해양조사원

S-100 Consistency

MainPage

S-57/S-101

Admin My Sites 0 UST21

Total Search

Search...

Recently Modified

Title	Modified Date	Tags
Public Remark	11/8/18	
Encoding Standard	11/7/18	s-101 two way route
TwowayRoute_ex1.png	11/7/18	
Encoding Standard	11/7/18	s-57 pilpnt_s-101 pile

기본정보

용어 정리

S-57 전자해도 속성 타입

Attribute	약어	Definition
List	L	미리 정의된 값들을 리스트에서 하나 또는 두 개 이상 선택
Free text	S	일반적인 Text 형태
Enumeration	E	미리 정의된 값들을 리스트에서 하나만 선택
Float	F	부동소수점
Integer	I	정수
Coded string	A	미리 정의된 형태의 Text 형태

무선국

무선 주파수를 송신하기 위한 장치가 설치된 곳

S-57 Object

Edit Select Web Content Add

No.	Search
1	Everything
2	
3	
4	
5	
6	
7	

S-57

S-57 속성 입력 현황

Acronym	Value	속성 Type
CATROS	무선국명(종류)	List
ESTRNG	송신 예상 범위(단위:M)	Float
OBINAM	무선국 명칭(국문)	Free text
NOBINM	무선국 명칭(국문)	Free text
SIGFRQ	신호 주파수(단위:Hz)	Integer
STAIS	무선국 상태	List

RDOSTA (S-57)

Radio Station /

Physical AIS Aid to Navigation /

Virtual AIS to Navigation (S-101)

Sign In

You are signed in as UST21.

Public Remark

- 외부참조파일을 입력할 경우 명명기준 확인
(101CCCCXXXXXXX.EEE) - 101 : Product명, CCCC: Agency code, XXXXXXXX.EEE: 파일명
예시: 기존 KR001_E1.TXT -> 101KR000010E100.TXT ("_" 는 0으로 변경)

- [Feature name] 또는 [Information] 입력시 [language]항목 필수 입력(eng또는kor)

S-101 Matching

S-101 속성 매칭

No.	S-57 Acronym	Attribute	Mult.	Type	Value
1	CATROS	Category of radio station	0..1	EN	무선국 종류
2	ESTRNG	Estimated range of transmission	0..1	RE	송신 예상 범위 (단위:M)
3	OBINAM	Feature name	0..*	BO	False
		Language		TE	eng



International Hydrographic Organization
Organisation Hydrographique Internationale



Korea Hydrographic and Oceanographic Agency

Action requested

- Action Required of S-100PT4
 - a. Note this paper

