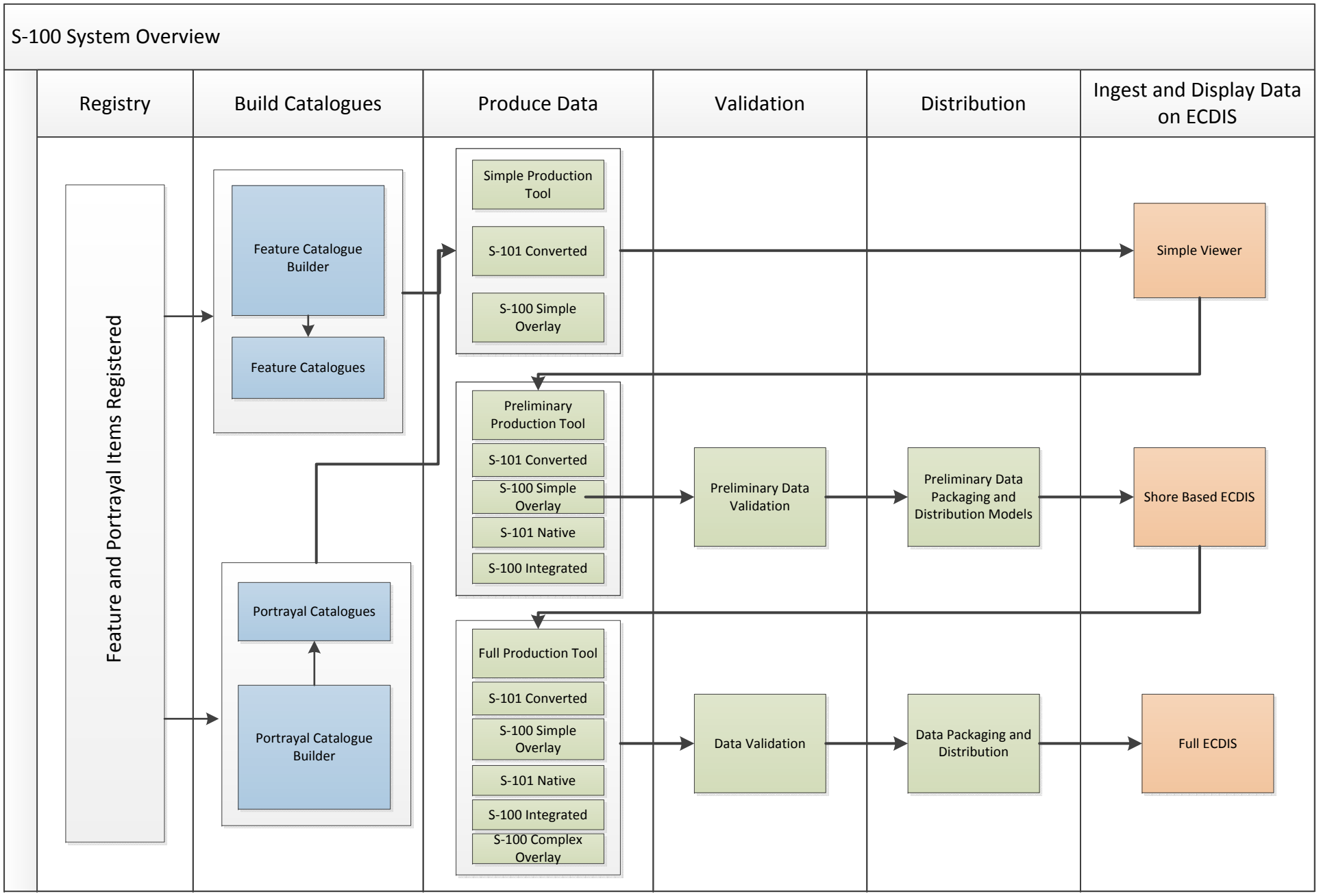
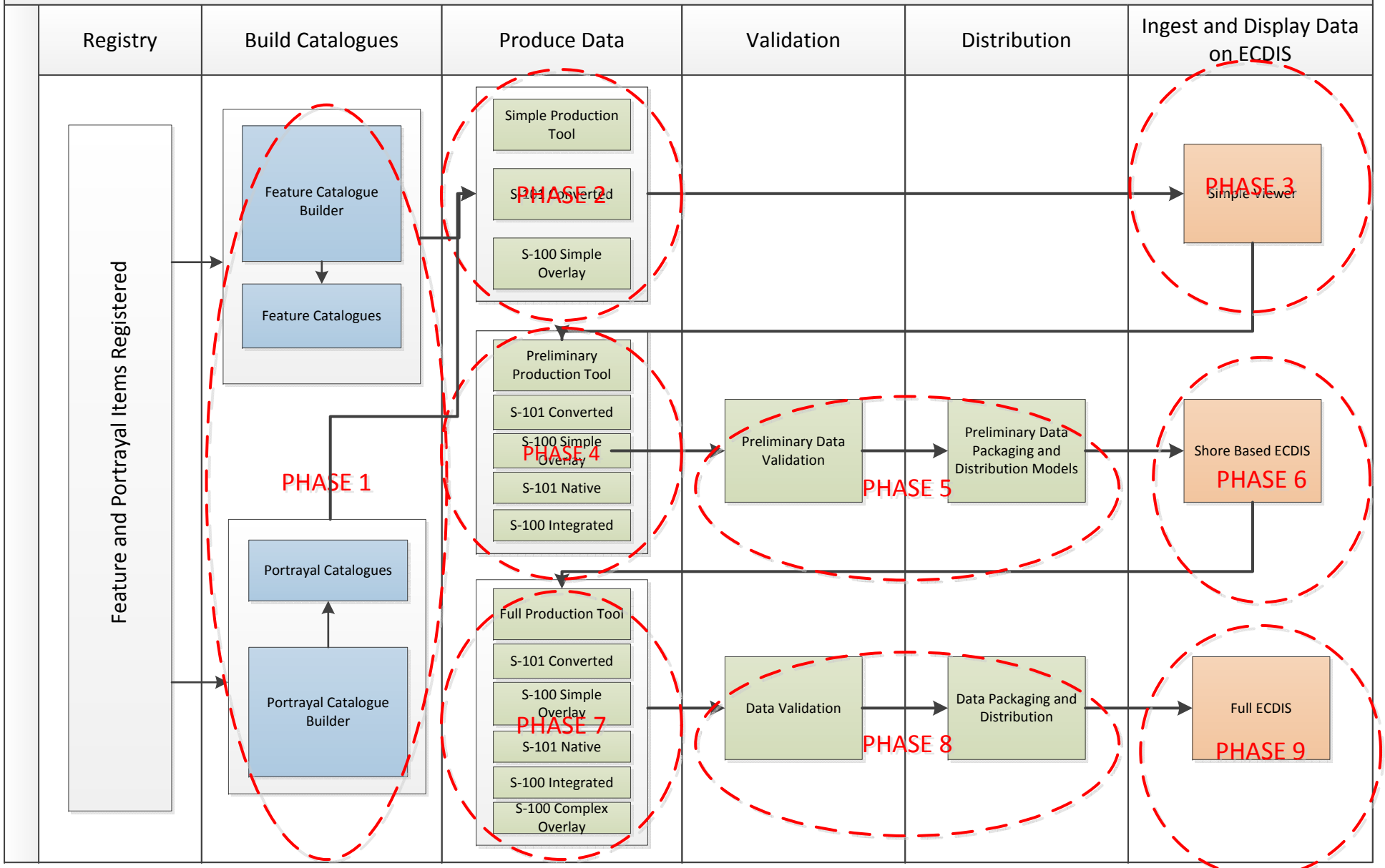


Catalogues
Data
ECDIS

Notes:
- There is a detailed activity diagram for each box in the diagram
- Feature and Portrayal Catalogues feed into each aspect of the system
- Feature Catalogues feed into both the production and display of data
- Portrayal Catalogues feed primarily into the display of data
- S-100 Integrated means that there may be a partial replacement of the underlying base S-101 data. For example, an S-102 bathymetric dataset may replace part of the base ENC for navigation purposes
- There are potentially two types of overlays – a simple overlay that sits on top of the base data, or a more complex overlay that interacts directly with the base dataset.

STANDARDS
S-100
S-101
S-10X
IEC 61174
IMO

S-100 System Overview



Catalogues
Data
ECDIS

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STANDARDS
S-100
S-101
S-10X
IEC 61174
IMO

Feature Catalogue Builder Systems View

Phase 1A

Standards

S-100 Part 2a Feature Concept Dictonaries

S-100 Part 3 General Feature Model

S-100 Part 5 Feature Catalogue

S-100 Feature Catalogue Schema .xsd

Inputs

Start

IHO GI Registry

FCD Register Items

User defined items

System/Processes

Feature Catalogue Builder

PROCESSES:

- Create catalogue – enter basic information
- Add, Edit or Delete items
- Create Bindings
- Specify multiplicity – mandatory, optional, conditional/ mandatory
- Output catalogue
- Copy a catalogue
- Validate the catalogue to ensure that it is correct
- Digital Signature
- Delete a catalogue

Outputs

End

Digital Signature

Feature Catalogue.HTML

XSLT

Feature Catalogue.XML

Portrayal Catalogue Builder Systems View

Phase 1B

Standards

S-100 Part 9 Portrayal

S-100 Portrayal Catalogue Schema .xsd

Inputs

Start

S-10X Feature Catalogue

IHO GI Registry Portrayal

SVG Symbols

User defined Symbols

System/Processes

Protrayal Catalogue Builder

PROCESSES:

- Create Catalogue
- Input relevant feature catalogue .XML
- Read Feature Catalogue
- Read elements from the Portrayal Register
- Create Rules for Points, Lines and Surfaces
- Copy an existing catalogue
- Edit a Catalogue
- Delete a Catalogue
- Validate a Catalogue
- Output catalogue
- Validate the catalogue to ensure that it is correct
- Digital Signature
- Delete a catalogue

Outputs

End

Digital Signature

Portrayal Catalogue.HTML

XSLT

Portrayal Catalogue.XML

S-57 to S-10X Converted Data

Phase 2

Standards

S-57

S-100

S-101

Inputs

Start

S-101 XML Feature Catalogue

S-57 ENC

System/Processes

S-57 to S-101 Convertor

PROCESSES

- Input S-101 Feature Catalogue
- Input S-57 ENC
- Convert S-57 data to S-101

Outputs

The convertor is initially designed to convert S-57 data to S-101 data. However, it can be modified to convert other S-57 based data to other S-100 compliant datasets – as long as there is an appropriate S-100 Feature Catalogue

End

S-101 Compliant ENC

S-100 Simple Viewer

Phase 3

Standards

S-100

S-101

S-101 Feature Catalogue

S-101 Portrayal Catalogue

Inputs

Start

S-101 Feature Catalogue

S-101 Portrayal Catalogue

S-101 Datasets

System/Processes

S-100 Simple Viewer

PROCESSES:

- Input S-101 Feature Catalogue
- Input S-101 Portrayal Catalogue
- Input S-101 Converted Data
- Portray S-101 Data according to the portrayal catalogue

CONSTRAINTS

No updates
No alerts and indications
No digital signatures

Outputs

The process for simple overlays is similar to S-101 ENCs. The only change would be the data and catalogues.

S-101 ENC Displayed using S-101 Portrayal rules

End

Preliminary Production Tool

Phase 2C

Standards	Inputs	System/Processes	Outputs

Preliminary Data Validation

Phase 3

Standards	Inputs	System/Processes	Outputs

Preliminary Distribution

Phase 4

Standards	Inputs	System/Processes	Outputs

Shore Based ECDIS

	Standards	Inputs	System/Processes	Outputs
Phase 5				

Full Production Tool

Phase 6

Standards	Inputs	System/Processes	Outputs

S-100/S-101 System Testing

	Valid Catalogues Produced	Valid ENC is Sent	ECDIS Meets User Requirments
Who/What	IHO/TSMAD Build and Maintain Catalogues	Hydrographic Offices Produce S-101 ENCs and S-101 Exchange Sets (ES)	ECDIS OEMs Build S-100 ECDIS
Input Data	S-101 DCEG *Feature Register Items* *Feature Catalogue (XML)* Portrayal Rules (LUT) Portrayal Register Items	S-57 ENC Source Data Catalogues S-101 ENC	Valid S-101 Exchange Set
Output Data	Feature Catalogue (XML) Portrayal Catalogue	S-101 ENC (Converted) S-101 ENC (Native) Valid S-101 ES Valid S-101 ENC	
System	*Feature Catalogue Builder* UKHO Portrayal Catalogue Builder IHO Contract	S-101 Convertor S-101 Production Software S-101 Validation Software	S-100 ECDIS
System Standards	S-100 Part 5 Feature Catalogues S-100 Part 9 Portrayal S-100	S-101 Product Specification S-101 Feature Catalogue S-100 S-101 Data Classification and Encoding Guide DCEG subgroup S-101 Feature Catalogue S-101 Validation Checks (S-58) S-101 Product Specification	
System Requirements			**IMO Performance Standard**
System Testing	S-100 Test Data (S-101 ENCs, Ess, S-10X data) S-100 and S-101 Test Scenarios + Cases Test Plan *IHO Testing and Validation*	*Testing Enforced through Validation* S-101 Validation Test Data Validation Tool Accreditation	IEC Test Standards IHO Test Data (S-64) ECDIS Type Approval

Colour Coding for diagram

Text convention *italics* mean components which have been developed but are incomplete, **bold** text indicates items which have been tested and are complete. Underline indicates items not started. Unstyled text are items which are in development.

- IHO/TSMAD
- IHO/DIPWG
- IHO
- ENC Software Producers (Production and Validation)
- ECDIS OEMs
- IEC/IMO
- Hydrographic Offices
- Process
- Source Data

S-100/S-101 System Testing

	Register	Valid Catalogues Produced	Valid ENC is Sent	ECDIS Meets User Requirments
Who/What	IHO/TSMAD Maintain IHO S-100 Registry	IHO/TSMAD/DIPWG Build and Maintain Catalogues	Hydrographic Offices Produce S-101 ENCs and S-101 Exchange Sets (ES)	ECDIS OEMs Build S-100 ECDIS
Input Data	Proposals	S-101 DCEG *Register Items* *Feature Catalogue (XML)* Portrayal Rules (LUT) Register Items	S-57 ENC Source Data Catalogues S-101 ENC	Valid S-101 Exchange Set
Output Data	Approved Items	Feature Catalogue (XML) Portrayal Catalogue	S-101 ENC (Converted) S-101 ENC (Native) Valid S-101 ES Valid S-101 ENC	
System	IHO GI Registry FCD Register Portrayal Register	*Feature Catalogue Builder* UKHO Portrayal Catalogue Builder IHO Contract	S-101 Convertor S-101 Production Software S-101 Validation Software	S-100 ECDIS
System Standards	S-100 Part 2 Management of IHO GI Registers S-100 Part 2a Feature Concept Dictionary Registers S-100 S-99	S-100 Part 5 Feature Catalogues S-100 Part 9 Portrayal DIPWG S-100	S-101 Product Specification S-101 Feature Catalogue S-100 S-101 Data Classification and Encoding Guide DCEG subgroup S-101 Feature Catalogue S-101 Product Specification S-101 Validation Checks (S-58)	
System Requirements				**IMO Performance Standard**
System Testing		S-100 Test Data (S-101 ENCs, Ess, S-10X data) S-100 and S-101 Test Scenarios + Cases Test Plan *IHO Testing and Validation*	*Testing Enforced through Validation* S-101 Validation Test Data Validation Tool Accreditation	IEC Test Standards IHO Test Data (S-64) ECDIS Type Approval

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Test Standard/ Data
System
Exchange Set
Standard
Catalogue
Register Items
ENC dataset
Process
Source Data

S-100/S-101 System Testing

	Register	Valid Catalogues Produced	S-10X Datasets	ECDIS Meets User Requirments
Who/What	IHO/TSMAD Maintain IHO S-100 Registry	IHO/TSMAD/DIPWG Build and Maintain Catalogues	Depending on the nature of the dataset it could be hydrographic offices, weather services, etc. Produce S-10X Products	ECDIS OEMs Build S-100 ECDIS
Input Data	Proposals	S-101 DCEG *Register Items* *Feature Catalogue (XML)* Portrayal Rules (LUT) Register Items	Source Data Catalogues S-10X Datasets	Valid S-101 Exchange Set
Output Data	Approved Items	Feature Catalogue (XML) Portrayal Catalogue	S-10X Simple Overlays (ICE,MPA,Weather) S-10X Complex Overlays (Partial ENC replacement, S-102) Valid S-10X ES Valid S-10X Product	
System	IHO GI Registry FCD Register Portrayal Register	*Feature Catalogue Builder* UKHO Portrayal Catalogue Builder IHO Contract	S-10X Production Software (Note – some simple overlays may be initially converted data) S-10X Validation Software (If Needed)	S-100 ECDIS
System Standards	S-100 Part 2 Management of IHO GI Registers S-100 Part 2a Feature Concept Dictionary Registers S-100 S-99	S-100 Part 5 Feature Catalogues S-100 Part 9 Portrayal DIPWG S-100	S-10X Product Specification S-100	
System Requirements				**IMO Performance Standard**
System Testing		S-100 Test Data (S-101 ENCs, Ess, S-10X data) S-100 and S-101 Test Scenarios + Cases Test Plan *IHO Testing and Validation*	*Testing Enforced through Validation* S-101 Validation Test Data Validation Tool Accreditation	IEC Test Standards IHO Test Data (S-64) ECDIS Type Approval

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Test Standard/ Data	System	Exchange Set
Standard	Catalogue	Register Items
S-10X dataset	Process	Source Data