

**Paper for Consideration by the S-100
Test Strategy Meeting**

IHO Producer / Agency Code Register

Submitted by:	IHO Secretariat
Executive Summary:	<p>The S-100 Geospatial Information (GI) Registry contains a Data Producer Code Register that is intended to be the authoritative list of the codes which can, if required, be stipulated in Product Specifications to identify the producers of a particular data product; for example, ENC producer codes to be used for ENCs intended to meet the ECDIS carriage requirements of SOLAS.</p> <p>While the Data Producer Code Register must continue to be the source for IHO Publication S-62 that provides the Agency Codes and Producer Codes that uniquely identify ENC Producers, its structure and contents need to be extended for other S-100 based products. This paper proposes an initial model for this extension.</p>
Related Documents:	S-57, S-58, S-62, S-63, S-64, S-99, S-100 + associated Product Specifications
Related Projects:	All other S-100 related WGs and PT's.

Introduction / Background

1. The (IHO) Producer Code list was produced to cater for S-57 ENC requirements. It was initially published as Annex A to the S-57 Appendix A, Object Catalogue, but was removed and published as a separate (S-62) document when S-57 was frozen in 2000. In 2010 the content of the S-62 document was merged with the private (industry) codes that were maintained on the web-based Open ECDIS Forum. Following the development of the first version of the IHO Registry application the composite list was included in the Registry as the Data Producer Code Register. A user interface was developed to update / maintain the register database. An output function was also developed to generate a pdf document containing the S-62 producer codes. The pdf document is made available on the IHO web site. In 2016, a new registry application was developed, by KHOA. This did not include the Producer Code Register or interfaces, so a temporary standalone application was developed. Following a discussion at the 2nd S-100 Working Group meeting (May 2017), it was agreed that the structure and format of the S-62 producer codes, (which were developed for S-57 ENCs), needed to be revised in order to cater for S-10X product requirements. It was also agreed that the data model for the Producer Codes Register needed to be revised. The following two actions were agreed:

- Action 7: Develop a draft data structure for the S-100 Producer Code Register.
- Action 8: RENCs to further investigate the use of Producer Codes and file naming conventions for S-101, including file name duplication issues.

2. The S-100 Working Group 2 paper [S-100WG2 8.5A](#) identifies shortcomings with the S-62 producer codes with respect to their use for S-10X products. It also provides recommendations on resolving these shortcomings. See also PRIMAR comment paper [S-100WG02-8.5B](#). The full database model for the original Registry database is included at Annex A.

3. The IHO Secretariat maintains a database / information system “*Country Information System*” (CIS) that is used for generating various IHO publications such are the IHO Yearbook. The CIS includes country names and codes that are duplicated in the current S-62 database and the model proposed below. The CIS also includes information that may be relevant to (or used by) the Registry application. Examples include: “*relevant international bodies*” (IHO, IMO, UMO, WMO, IOC ...), *nominated hydrographic authority*, *primary charting authority* etc..., for

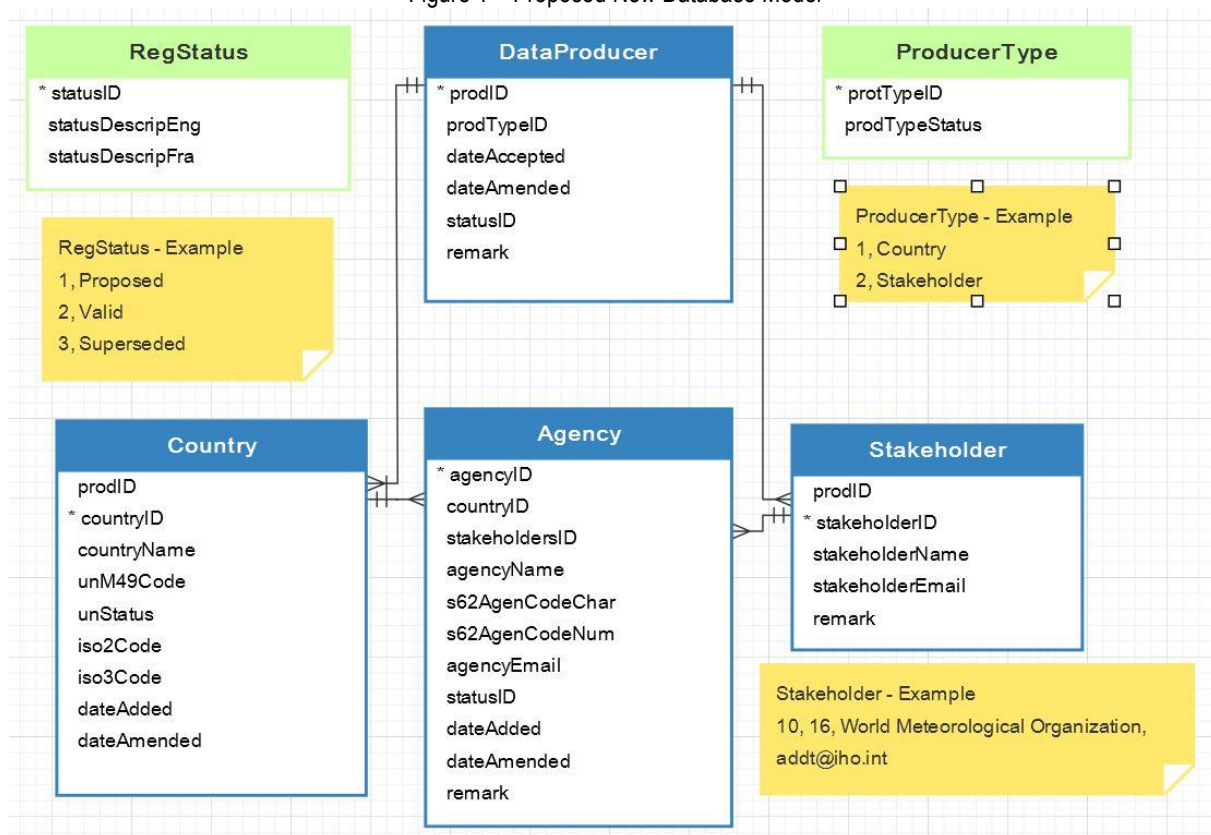
IHO Members. As far as possible, the common information in the Registry and CIS databases should be harmonised. The relevant tables from the CIS are provided at Annex B.

4. In order to minimise geopolitical sensitivities, it is proposed to use the “list of countries or areas for statistical purposes” provided by the United Nations Department of Economic and Social Affairs, as the authoritative source for country names. The list includes both the ISO and UN M49 codes for countries and dependencies and is available in several languages. It can be downloaded from the UN website at <https://unstats.un.org/unsd/methodology/m49/>.

Proposed New Data Model Producer Codes.

5. The proposed new database model provides backward compatibility for S-57 ENC products. The relevant tables and fields shown in Figure 1 below have been taken from the original S-52 applications database (shown in Annex A – Figure 2 below) and have been extended to cater for S-100 requirements. Maintenance metadata has not been included in the proposed model. Maintenance metadata will be included as part of the integration into the exiting Registry application. A description of each of the fields is presented in tables 1 to 6 below.

Figure 1 – Proposed New Database Model



Note: The current S-62 data model includes all country, stakeholder and Agency information in a single table. The proposed new structure separates these into individual tables. The *Country* and *Stakeholder* tables have a “one to many” association with the *DataProducer* table. The *Agency* table has a “one to many” association with the *Country* and *Stakeholder* tables. A description of the Database Tables is provided below.

6. Database table: DataProducer (parent table that includes common metadata)

Table 1

Name	Description	Note
prodID (PK)	Unique identifier	Mandatory field (Is linked to by Country:prodID and Stakeholder:prodID)

Name	Description	Note
prodTypeID	Value from the ProducerType table	E.g. 1 = Member State, 2 = Non-IHO, 3 = Private, 4 = ...
dateAccepted	Date when the producer was accepted	Date field
DateAmended	Date when the producer was last amended.	Date field
statusID	The registry status of an item in the registry	E.g. 1 = Proposed, 2 = Valid, 3 = Superseded, 4, Retired.
Remark	Remarks providing additional information.	Additional notes (255 characters)

7. Database table: Country or Area (includes Country information)

Table 2

Name	Description	Note
prodID (FK)	Unique identifier	Links to DataProducer:prodID
countryID (PK)	Unique identifier for the table	Mandatory
unM49Code	UN Statistics Division code	Numeric value
unStatus	UN membership status	Boolean flag (Yes, No)
iso2Code	ISO 3166-1 alpha 2 (two letter code)	Required for backward compatibility
iso3Code	ISO 3166-1 alpha 3 (three letter code)	Required for forward compatibility
dateAdded	Date when the producer was accepted	
dateAmended	Date when the producer was last amended.	

Note: The unStatus field indicates whether the Country/Area is (or is not), a UN Member States.

8. Database table: Stakeholder (includes stakeholder information)

Table 3

Name	Description	Note
prodID (FK)	Foreign Key	Links to DataProducer:prodID
stakeholderID (PK)	Unique identifier for the table	Mandatory
stakeholderName	Name of the Stakeholder Organization	E.g. World Meteorological Organization
stakeholderEmail	General email for stakeholder organization.	Required for backward compatibility
Remark	Remarks providing additional information.	

9. Database table: Agency (producer Agency information)

Table 4

Name	Description	Note
agencyID (PK)	Unique identifier for the table	Mandatory
countryID (FK)	Foreign Key	Links to Country:countryID
stakeholdersID	Foreign Key	Links to Stakeholders:stakeholderID
agencyName	Name of the Agency	
s62AgenCodeChar	S-62 agency - character code	E.g. CN = China (MSA), C1 = China (Navy) [required for backwards compatibility]
s62AgenCodeNum	S-62 agency – numeric code	E.g. 70 = China (MAS), 71 = China (Navy) Required for forward ward compatibility
agencyEmail		
statusID	The registry status of an item in the registry	E.g. 1 = Proposed, 2 = Valid, 3 = Superseded, 4 = Retired.
dateAdded	Date when the producer was accepted	
dateAmended	Date when the producer was last amended.	
Remark	Remarks providing additional information.	

10. Database Table: RegStatus (To be used as enumerated values)

Table 5

Name	Description	Note
statusID (PK)	Unique identifier for the table	Mandatory
statusDescriptEng	Description in English	
statusDescriptFre	Description in French	

11. Database Table: ProducerType (To be used as enumerated values)

Table 6

Name	Description	Note
prodTypeID (PK)	Unique identifier for the table	Mandatory
prodTypeStatus	Description producer type	E.g. 1 = Member State, 2 = Non-IHO, 3 = Private, 4 = ...

Output Requirements

12. The current S-62 Producer Agency codes were designed to cater for a single product (ENC) environment. The output from the current S-62 database is a “pd” list of “registered” ENC producer agencies. It also includes information on the ENCs “usage status” (e.g. official or non-official). It is proposed that, in a multi-product environment, the “usage status” for different products will be different. This will have an impact on product interoperability and product distribution and may require the distribution of product specific use/agency information.

13. There will still however be a need for a composite resource of Producer / Agency Register information. It is proposed that this should be in the form of an S-100 “Open Dictionary - Code List”. If the Code List must include “product specific” information; it should be accessed from the “Product Specification Register (when established). Note: Although S-100 makes provision for Code Lists, it does not define a template format or structure for them.

Recommendations

14. The WG is invited to discuss the issues presented in this paper and to consider;
- whether the proposed database model is appropriate and adequate for the new Country/Agency Register;
 - whether the proposed database model is appropriate and adequate for outputting S-100 Country and Agency – Code List(s);
 - whether the UN Country/Area list should be adopted as the authoritative source for this information;
 - how product specific information will be obtained from the “Product Specification” Register; and
 - to define a template format or structure for S-100 Code Lists.

Justification and Impacts

15. The current producer agency code structure is not sufficiently robust to support the needs of future S-100 products and services. The future Producer Code Register should be able to support a more comprehensive producer code data structure, and provide better web access mechanisms.

Action Required

16. The WG is invited to consider the proposal and agree on a way forward.

Original S-62 Register Database Model

The database model from first Registry implementation is presented below.

Figure 2 – Current S-62 Data Model

The screenshot shows a database management tool interface with the following tables and their fields:

- tblregistermanager**:
 - P_uniqueID : int(11)
 - registerIdentifier_FK : int(11)
 - name : char(50)
 - individualName : char(50)
 - positionName : char(50)
 - voiceNum : char(20)
 - faxNum : char(20)
 - addressDeliveryPoint : char(50)
 - addressCity : char(50)
 - addressAdminArea : char(50)
 - addressPostCode : char(50)
 - addressCountry : char(50)
 - eMailAddress : char(50)
 - contactInstructions : char(50)
 - role : smallint(6)
- tblmembership_grouppermissions**:
 - permissionID : int(10) unsigned
 - groupID : int(11)
 - tableName : varchar(100)
 - allowInsert : tinyint(4)
 - allowView : tinyint(4)
 - allowEdit : tinyint(4)
 - allowDelete : tinyint(4)
- tblmembership_userrecords**:
 - recID : bigint(20) unsigned
 - tableName : varchar(100)
 - pkValue : varchar(255)
 - memberID : varchar(20)
 - dateAdded : bigint(20) unsigned
 - dateUpdated : bigint(20) unsigned
 - groupID : int(11)
- tblmembership_users**:
 - memberID : varchar(20)
 - passMD5 : varchar(40)
 - email : varchar(100)
 - signupDate : date
 - groupID : int(10) unsigned
 - isBanned : tinyint(4)
 - isApproved : tinyint(4)
 - custom1 : text
 - custom2 : text
 - custom3 : text
 - custom4 : text
 - comments : text
 - pass_reset_key : varchar(100)
 - pass_reset_expiry : int(10) unsigned
- tblmembership_groups**:
 - groupID : int(10) unsigned
 - name : varchar(20)
 - description : text
 - allowSignup : tinyint(4)
 - needsApproval : tinyint(4)
- tblmembership_userpermissions**:
 - permissionID : int(10) unsigned
 - memberID : varchar(20)
 - tableName : varchar(100)
 - allowInsert : tinyint(4)
 - allowView : tinyint(4)
 - allowEdit : tinyint(4)
 - allowDelete : tinyint(4)
- tblagencycodes**:
 - P_UniqueID : int(11)
 - registerIdentifier_FK : int(11)
 - countryName : varchar(500)
 - countryCode : varchar(10)
 - agencyName : varchar(500)
 - agencyCodeNumeric : int(10) unsigned
 - agencyCodeAlphanumeric : varchar(10)
 - status : smallint(6)
 - dateAccepted : date
 - dateAmended : date
 - remarks : varchar(1000)
 - name : varchar(45)
 - email : varchar(45)
- tblitemstatustype**:
 - status : smallint(6)
 - meaning : char(24)
- tblmonth**:
 - month : varchar(2)
- tbliday**:
 - day : varchar(2)
- tblyeardate**:
 - year : varchar(4)
- tblregister**:
 - P_uniqueID : int(11)
 - registerIdentifier_FK : int(11)
 - P_shortName : varchar(25)
 - P_public : int(10) unsigned
 - P_registerType : tinyint(4)

A callout bubble points to the **tblagencycodes** table with the text: "Table containing Country and Agency information".

IHO Secretariat – Country Information System

Data tables / fields from the IHO Secretariat CIS:

tbl_country2 - (data table for country and dependency information)

- Country name in English, used in the IHO Yearbook
- Country name in French, used in the IHO Yearbook
- Country name in English, used in ISO 3166
- Country name in French, used in ISO 3166
- Country name in English, used in the United Nations
- Country name in French, used in the United Nations
- IHO membership status
- UN membership status
- IMO membership status
- IOC membership status
- IALA membership status
- Status of SOLAS Convention contracting
- Status of UNCLOS ratification
- ISO 3166 2-digit country code
- ISO 3166 3-digit country code
- ISO 3166 numeric country code
- Country it belongs to
- National Day
- Date joined IHB
- Date ratification IHO Convention
- Date approval Protocol of Amendments to the IHO Convention (2005)
- Date of establishment and Relevant National Legislation
- Date entry into force of SOLAS Convention
- Declared National Tonnage
- Month and year tonnage date reported
- Tonnage note
- Contribution
- Contribution note
- Account code
- Display information in the IHO Yearbook?
- Latest date of updating

tbl_country_hydro - (data table for hydrography information)

- Nominated Hydrographic Authority
- Primary Charting Authority
- Effective MSI capability

tbl_agency2 - (data table for agency information)

- Name of agency
- Agency priority in the country
- Parent body of agency

- Web address
- Annual operating budget
- Total number of staff employed
- Total number of paper charts published
- Number of INT charts published
- Number of ENC cells published
- Number of RNC published
- Number of other charts published
- Type of publications produced
- Principal functions of the organization or the department
- Other information of interest
- Display information in the IHO Yearbook?
- Financial contact?
- Latest date of updating
- Time stamp in English
- Time stamp in French
- Time stamp in Spanish