

## Paper for Consideration by the S-100

## IHO Producer / Agency Code Register

<b>Submitted by:</b>	IHO Secretariat
<b>Executive Summary:</b>	S-57 ENCs make use of Agency Codes and Producer Codes to uniquely identify ENC Producers. The Producer / Agency Codes are published in IHO Publication S-62. It is proposed that the structure and content of S-62 needs to be extended for S-100 requirements.
<b>Related Documents:</b>	S-57, S-58, S-62, S-63, S-64, S-99, S-100 + associated Product Specifications S-100WG2-09.6 Use of Codelists, S-100WG2-8.3 IALA Proposal for NUIDs
<b>Related Projects:</b>	All other S-100 related WGs and PT's.

## Introduction / Background

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 maintained on the Open ECDIS Forum, and this list was integrated into the IHO Registry application as the Producer Code Register. A user interface was developed to update / maintain the register database, and an output function was also developed to generate an S-62 pdf document. 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 standalone application was developed which is used to generate a pdf document and text listing of the codes. This will be used until it can be moved into the new Registry application. Before doing so, the S-100WG is invited to consider how the S-62 content should be changed / expanded to cater for S-100 requirements.

The current S-62 codes include;

1. ISO Country Code – (ISO 3166-1 alpha-2).
2. Producer Code - same or modified version of the Country Code.
3. Agency Code (used in the AGEN sub-field on every ENC feature).

An extract from the S-62 pdf document is provided below.

Country Name	Country Code	Agency Name	Agency Codes	
			AGEN	Prod Code
Argentina	AR		1	AR
Australia	AU	Australian Hydrographic Service (AHS)	10	AU
Australia	AU	Australian Hydrographic Service - Navy and Defence	11	AN
Bahrain	BH	Hydrographic Survey Office	20	BH
Bangladesh	BD	Hydrographic Department	660	BD
Belgium	BE	MDK – Afdeling Kust – Division Coast	30	BE
Brazil	BR	Directorate of Hydrography and Navigation (DHN)	40	BR

Table 1

## Producer Codes for S-57

The S-63 structure was designed when digital file names had to conform to the 8.3 naming convention (e.g. AA4C1XMS.000). Only the first two characters were allocated for the country/producer code information (e.g. US – United States). As additional producers requested codes, the national codes had to be extended (e.g. US, U1,

U2, U3). This mechanism may be sustainable for S-57 but is not sustainable for S-100. For example Ukraine (UA), USA (US) and Uruguay (UY) use the “U?” letter space and, if these need to be extended (e.g. to U4, U5 ....), it could be messy. Furthermore it is only possible to have 9 variants under any country code first letter e.g. U1, U2 ....U9).

**Recommendation 1:** Consider whether producer codes (i.e. the first two characters used in S-57 ENC filenames) should be included in S-10X dataset file names. Should they rather be included as metadata (e.g. dataset / exchange set metadata) for S-100 products? Note: they will have to be retained in the Producer Code database for S-57 compatibility.

### Agency Codes

The Agency codes (included in the S-57 and S-100 “AGEN” sub-field of the Feature Object Identifier - FOID) are grouped into three main number domains – as shown in table 2;

Group	Producer Agency (AGEN) Number Domain
1	IHO Member States (MS), 1 to 599
2	Other States (OS) 600 to 1599
3	Other Organizations/Entities (Private Producers) 1600 to →

Table 2

Groups 1 and 2 relate to the identification of ENCs (issued officially by or on the authority of a Government, authorized Hydrographic Office or other relevant government institution). Group 3 is used for non-official data sets (issued by “private producers”) in order to generate the indication “no ENC available” when appropriate. Since S-57 was first released, some States listed in the “Other States” (number domain 600 to 1599) have become IHO Member States. These States are no longer in the correct group, although this appears to be of little concern to ENC users. Changing an AGEN code to reflect this would have a serious impact for ENC production and is not practical, but this need to be rectified for S-100.

**Recommendation 2a:** It is proposed to combine the “IHO Member States (MS)” and “Other States (OS)” into a single number domain called “Official Producers” using the number domain 1 to 1599.

**Recommendation 2b:** It is proposed to keep the 1600 to → domain for “Other Organizations/Entities (Private Producers).”

**Recommendation 2c:** For S-57 compatibility, these two number domains (1 → 1599 and 1600 →) should be maintained. For S-100, these number domains and any further domain groupings, should be implemented using attribute fields (e.g. Official, Private, xxxxx) or similar mechanism in the registry database.

### Producer/Agency Codes for S-100 based products

Some example of how producer information is implemented in S-100 based Product Specifications if provided below:

The current S-101 (draft) includes reference to the “issuing agency” under paragraph 11.3.2 Dataset file naming - CCXXXXXXXXX.EEE. CC is used to identify the issuing agency and is mandatory. The third to tenth characters are optional and may be used in any way by the producer to provide the unique file name.

The file name forms a unique identifier where:

- CC - the first two characters identify the issuing agency (mandatory).
- the third to tenth characters are optional and may be used in any way by the producer to provide the unique file name. The following characters are allowed in the dataset name, A to Z, 0 to 9 and the special character \_ (underscore).

S-102 - Bathymetric Surface PS does not make any reference to Producer or Agency code information. Producer information is included as part of the dataset metadata “CI\_ResponsibleParty”.

S-104 states “Use S62 – IHO Producers list Agency responsible for producing the data” and also makes reference to “CI\_ResponsibleParty”

S-112 – AIS Application-Specific Message Dynamic Water Level Data Product Specification. No producer code information specified.

### Analysis/Discussion/Conclusions

S-100 Edition 2.0.0 identifies the “Registers of IHO producer codes” as one of the three Registers in the Registry. In section 1-4.8, it makes reference to “ENC Producer” and “Agency” code lists as being “available at specified URI web addresses”. These code lists are also illustrated in figure 1-8 in this section. (Note - it is proposed that the example URIs (URI=http://www.iho.int/producers/enc/ver1\_5 and URI=http://www.iho.int/agency/ver1\_5) should actually be URLs). There does not appear to be any other reference to these code lists in the S-100 document, nor are they included in the UML models. S-100 Ed 2, section 4A-D (Discovery Metadata and Exchange Catalogues) does include “producingAgency” which has a value type of CI\_ResponsibleParty.

Agency Codes are also used for data distribution. They are included in the S-63 SERIAL.ENC support files which enable Data Clients to identify catalogue information prior to the actual data being loaded.

**Recommendation 3a:** It is recommended that the IHO Registry continues to provide a universal mechanism that enables data producers and data providers to identify and authenticate future S-100 products and services and the model should be extended to support all S-100 based Product Specification requirements.

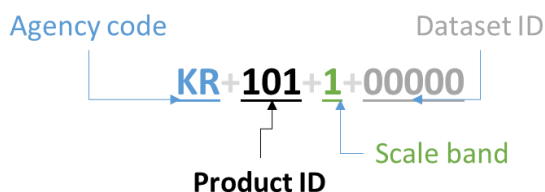
**Recommendation 3b:** It is proposed that S-62 producer/agency codes should be made available as a code list. (What is currently included in S-62 is similar to a simple code list described in S-100 section 1.4.8).

**Recommendation 3c:** It is proposed that the discovery metadata structure described in Appendix 4A-D (Discovery Metadata for Information Exchange Catalogues), may provide a better mechanism for encoding producer/agency information in an S-10x multiple product environment.

Alternative solution if the WG decides that Agency code information (e.g. USXXXXX) should be included in dataset filenames.

In an S-57 environment, the file name of dataset has an agency code and dataset identification such as AA4C1XMS and KR1F0000 etc. So far, it has not been an issue because ENCs are only used in ECDIS. However in S-100 multiple products, a possibility could be simply to standardise a file name format so as to include basic information such as producer, user, distributor and scaleband etc.

The following is an example for discussion.



### Recommendations

The WG is invited to discuss the issues presented above, with a view to determining what is required for S-100, and how this will be implemented in the new Registry application.

### Justification and Impacts

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**

The WG is invited to note the proposal and discuss the issues presented above.