3rd S-100WG MEETING
Singapore – 10-14 April 2018

Paper for Consideration by the S-100 Working Group (S-100WG)

Guidelines for Proposals to the IHO Geospatial Information Registry - Progress

Submitted by:	IHO Secretariat (TSSO).
Executive Summary:	Progress report on the drafting of a set of Guidelines and Conventions for proposals to the IHO GI Registry.
Related Documents:	1. IHO Publication S-99 - *Operational Procedures for the Organization and Management of the S-100 Geospatial Information Registry*. 2. S-100WG2-09.4A - *Guidelines for Proposals to the IHO Geospatial Information Registry and Formation of an IHO GI Registry Project Team*. 3. Minutes and Actions of S-100WG2.
Related Projects:	Development of the IHO Geospatial Information Registry; S-100 based Product Specification development.

Introduction / Background

1. The S-100WG has approved the drafting of a document providing guidelines and conventions for Proposers, Assessors and the Register Manager(s) to assist and inform in the development and assessment of proposals to the IHO Geospatial Information (GI) Registry (S-100WG2 Action 21 refers). This paper provides a summary of the progress made in the development of this document since S-100WG2; and includes a "first draft" of the document for information of the S-100WG.

Analysis / Discussion

2. IHO Publication S-99 - *Operational Procedures for the Organization and Management of the S-100 Geospatial Information Registry* provides high level instruction as to the structure, operation and management processes for the IHO GI Registry. Further guidance as to how the structure and processes outlined in S-99 have been implemented and are executed in the IHO GI Registry interface are included in the document *S-100 GI Registry – User Guide* (currently in draft (ROK), however on hold while the "new" Registry is being developed).

3. While S-99 and the draft GI Registry User Guide provide an overview for the operation and management of the GI Registry; and operation and navigation of the GI Registry interface, there is no set of guidelines for Submitting Organizations to follow in developing proposals; and no criteria against which the Register Manager and Domain Control Body can assess submitted proposals for suitability and approval. This has resulted in the inability of the Register Manager to enforce consistency in the Register content; and no criteria or authority on which to assess, and subsequently accept/reject, proposals other than personal opinion.

4. At the S-100WG2 meeting, approval was given for the development of a set of guidelines and conventions for Submitting Organizations, Domain Control Bodies and Register Manager(s) so as to standardize and inform as much as possible the "day to day" activities related to the IHO GI Registry. The development of these guidelines has been done incrementally over the past 12 months by the IHO Technical Standards Support Officer (TSSO) in his capacity as the IHO GI Registry Manager, in parallel with normal Registry activities; and performing a review of the content of the Feature Concept Dictionary (FCD) Register. The resultant draft "Conventions and Guidelines for the Content of the IHO GI Registry" document is included as Annex A to this paper.

5. The main points in regard to the draft as it is so far include (but are not limited to):
   - The document has been nominally assigned S-99 Annex A;
   - The document is very much a "work in progress", and is essentially a compendium of the thoughts of the TSSO at this stage of the documents' development. A large portion of the document is dedicated to draft wording or questions that need to be addressed. Text highlighted in yellow is guidance that the TSSO considers is the right way to go but needs to be discussed and agreed; and the text highlighted in blue are placeholders for discussion items for consideration and

development of guidance, as required;
- An initial review of the document has been conducted by members of the IHO GI Registry Project Team. Amendments to the document have been made based on feedback, and further discussion items are included as comments in the draft. Comments from the Project Team have been included in the draft document to facilitate further discussion;

6. Based on the work done so far on the draft, in conjunction with the FCD Register content review, it is considered that considerable further work is required, with as much input as possible from the Project Team; current Submitting Organization and DCB representatives; and other parties in the process of developing S-100 based Product Specifications. This input is considered vital as there is a likelihood that the resulting conventions and guidelines for the content of the IHO GI Registry will impact on all Product Specifications currently in development. This input may be facilitated by conducting an "IHO GI Registry Workshop", and inviting all relevant representatives to attend.

7. Further work on the guidelines is required to include (but is not limited to):
- More detailed explanation of the roles and responsibilities of the Register Manager, Submitting Organization and Domain Control Body representatives;
- Criteria for consideration/evaluation of applications for becoming a representative of a Submitting Organization or Domain Control Body and the process to be followed in assessing applications;
- Guidance on the order in which "related" proposals are to be submitted (simple attribute/Codelist; then enumerate/Codelist value; then complex attribute (sub-complexes of complexes first); then feature/information type).

Conclusions

8. Progress has been made on the development of Conventions and Guidelines for the Contents of the IHO GI Registry. However, there is still much to be done, and much to be learned by all concerned parties (including the TSSO), which requires full commitment from the IHO GI Registry Project Team, and may be further facilitated by an "IHO GI Registry Workshop". When completed, the guidelines will contribute to informed and consistent proposal submission and evaluation; and concise and consistent Registry content.

Recommendations

9. S-100WG to note the progress made in the development of the Conventions and Guidelines for the Contents of the IHO GI Registry document, and discuss in relation to the points raised in paragraphs 5-7 above.

10. S-100WG to agree that the guidelines are to be published as Annex A to S-99.

11. S-100WG to endorse the convening of a Workshop to facilitate progress on this task and other S-100WG based GI Registry activities through a face-to-face meeting.

Justification and Impacts

12. The recommendations included in this paper are the result of the continued observations of the IHO Secretariat (TSSO) since S-100WG2, in conjunction with discussions with ADDT, the S-100WG Chair, and the Registry development team of ROK, whose ongoing support in the development of the Registry and the Registry interface is greatly appreciated. It is considered that wider input and investment from IHO member States and Industry through the continued work of the IHO GI Registry Project Team, facilitated by a dedicated Workshop, would be beneficial.

If approved, it is suggested that the Workshop be conducted at the IHO Secretariat. The principle impact would then be on members of the Project Team and other participants in Registry activities to obtain funding to attend the Workshop. This may be mitigated to an extent by conducting the Workshop in conjunction with a related meeting (for example S-101PT).

Action required of S-100WG

The S-100WG is invited to:

a. **Note** this paper.

b. **Discuss** the issues raised in the paper.

c. **Approve** the designation of the Conventions and Guidelines for the Contents of the IHO GI Registry document as Annex A to S-99.

d. **Approve** the convening of an "IHO GI Registry Workshop" to facilitate the progression of the development of the conventions and guidelines document and the rationalization of the content of the FCD Register.

INTERNATIONAL HYDROGRAPHIC ORGANIZATION

OPERATIONAL PROCEDURES FOR THE ORGANIZATION AND MANAGEMENT OF THE S-100 GEOSPATIAL INFORMATION REGISTRY

Publication S-99

Annex A

Conventions and Guidelines for the Content of the IHO GI Registry

Edition 1.0.0, Xxxx 2018

Published by the
International Hydrographic Organization
4b, Quai Antoine 1er
B.P 445 - MC 98011 MONACO Cedex
Principauté de Monaco
Telefax: (+377) 93 10 81 40
E-mail: info@iho.int
Web http://www.iho.int

Contents

Page intentionally left blank

1 OVERVIEW

1.1 Preface

The "Conventions and Guidelines for the Content of the IHO GI Registry" have been developed to provide consistent, standardized instructions for the IHO Geospatial Information (GI) Registry Manager; Domain Control Bodies; Submitting Organizations; and Users when ……

1.2 S-99 Annex A; Conventions and Guidelines for the Content of the IHO GI Registry - Metadata

Note: This information uniquely identifies this Annex to S-99 and provides information about its creation and maintenance.

Title:	The International Hydrographic Organization Operational Procedures for the Organization and Management of the S-100 Geospatial Information Registry, Annex A – Conventions and Guidelines for the Content of the IHO GI Registry
Version:	1.0.0
Date:	Xxxx 2018
Language:	English
Classification:	Unclassified
Contact:	International Hydrographic Organization 4b quai Antoine 1er B.P. 445 MC 98011 MONACO CEDEX Principauté de Monaco Telephone: +377 93 10 81 00 Fax: +377 93 10 81 40
URL:	www.iho.int
Identifier:	S-99 Annex A
Maintenance:	Changes to S-99 Annex A; Conventions and Guidelines for the Content of the IHO GI Registry are coordinated by the IHO Secretariat and must be made available via the IHO web site.

1.3 Terms, Definitions and Abbreviations

1.3.1 Terms and Definitions

definition 1
definition

definition 2
definition

…….

1.3.2 Abbreviations

ABB1 Abbreviation

1.4 Use of Language

Within this document:

"Must" indicates a mandatory requirement;

"Should" indicates an optional requirement, that is the recommended process to be followed, but is not mandatory;

"May" means "allowed to" or "could possibly", and is not mandatory.

1.5 Maintenance

…..

2 CONVENTIONS AND GUIDELINES

2.1 Conventions

2.1.1 Language and Spelling

The language of the IHO GI Registry is English. All concepts, terminology and definitions must be in accordance with the English language and spelling as defined in the Oxford English Dictionary, unless otherwise specified in these Conventions.

2.1.2 Register Item Name (Concept Register)

The Item Name field is used to provide the "primary" name (or term) for the concept in the IHO GI Registry Concept Register. This name is linked as the primary term for a concept to its definition by a unique identifier assigned in the Concept Register, and if considered to be specific to hydrography, will also provide via the unique identifier the equivalent entry in the IHO Dictionary (S-32).

A fundamental convention for the Concept Register (as described in ISO Standards) is that there must not be any two (or more) concepts in the Register that have the same (or can be considered to have the same) definition.

The following conventions apply for the name of all item names (or terms) proposed to the IHO GI Registry Concept Register:

- The concept name should be as "generic" as possible with regard to its relevance to hydrography. When developing a proposal for the Concept Register, proposers must consider that the concept may be used for other S-100 based Product Specifications. Where possible the concept should be able to be used in a Product Specification using the registered Item Name, without a requirement to propose an alternate "secondary" name (or alias – see clause X.X). [Need to agree on this fundamental convention in the Registry. My preference is for this to be the case – the alternative is that we have variants (differing only in terms of application-specific item names and definitions) registered (perhaps as aliases?), which would be an overhead for the administration process in the Registry.]
- The name must be concise. Every effort must be taken to avoid being too descriptive when selecting an item name.
- Where a concept can be considered to be a "sub-classification" of a particular "theme", the term identifying the "theme" should be the first part of the Item Name. For instance, "buoys" and "beacons" have been used as "themes" in the Concept Register, resulting in all registered items that are part of these "themes" beginning with the word "Buoy" (for example Buoy Cardinal") or "Beacon" (for example "Beacon Isolated Danger").
- Similar to the above, descriptive terms (for instance "direction of"; "size of") should not be used at the start of an item name.
- Where an item(s) to be registered corresponds to an established classification or identification code (for example Metarea numbers; Beaufort Force values; IUCN Code), the name of the code must be included in the item name in the Register. E.g. Metarea I; Beaufort Force 7; IUCN 1A. The meaning (or what may be interpreted as the definition) of the value must not be included in the Item Name. [**NOTE:** If this is to be the case, will need to specify how the "meaning" of the code is to be made visible to the end user, as it should not be assumed that they will have an understanding of the codes. Discussion with Tony 15/09/17: Perhaps this could be managed in the Enumerate Register? Further subsequent thinking is that perhaps the Enumerate Register could be partitioned into 2 "Domains" – one that is a compendium of enumerates and values drawn from the Concept Register; and the other having the enumerated attribute name drawn from the Concept Register but the values (international classification/ID Codes and their meanings) included only in the Enumerate Register (justification: the values themselves are not actually "concepts", but classifications of concepts). When building the Feature Catalogue, the FCB could then take the attribute, values and "meaning" of the values and include them in the Feature Catalogue such that they are all visible to the end user.]
- Only alphanumeric characters (A-Z; a-z; 0-9) and the special characters "." and "_" are allowable for Register item names. All other characters are prohibited. [What about accented letters? Lexical level??]

Commented [TS1]: RM: General comments. This Annex should focus on the technical constraints and requirements of the registers, e.g., syntax, identifiers, required and recommended fields, documentation (references and sources), avoiding and resolving inconsistencies, guidance for writing definitions, etc.. Modelling guidelines should be addressed elsewhere, specifically, the Guidance for PS developers.

Commented [TS2]: RM: Since S-100 will be used for a family of standards in a variety of maritime information domains, it is unlikely that different product specifications will be able to use every concept "as-is". This is even true for a single product specification, e.g., RestrictedAreaNavigational and RestrictedAreaRegulatory.
The idea and use of the Concept Register should be flexible enough to allow Product Specifications to make the necessary distinctions. It should be like a thesaurus. Consider using the architecture of existing lexical databases e.g., Wordnet, or ontology (in RDF, OWL, or SKOS, specifications for which have been published by ISO or W3C).

Commented [TS3]: RM: This should be guidance rather than a rule, otherwise given the ambiguities of natural language, we will end up with some strange names [JW: Agree – amended to "should"]. ServiceVesselTraffic, ServiceRadio, ServicePilot? What is the theme – the fact that they are marine services, or the nature of the service?

Commented [TS4]: RM: The "label" in the feature catalogue should be defined with the intent that it is what the end user will see.

Commented [TS5]: RM: The rule in programming and modelling is that individual members (enumerates) are meaningful only in the context of their "container", which is a specific (named) enumeration. The context corresponds to an attribute concept. This can be elaborated with hierarchies and partitioning (subsets).
A compendium of enumerates would need to include "scopes" (= "namespaces" in XML terms) in order to be workable. A global list of individual enumerates will quickly become unmanageable.

- All names must have each word included in the name commencing with an upper case character A-Z. [What about prepositions – "of" etc? Is there an ISO convention for this?]
- Unless generally internationally accepted as such (for instance, if a non-English terms is the internationally recognized term used; or the term is an internationally recognized name in a national language), a non-English term cannot be used as the Item Name for a concept.
- Where a concept is intended to specifically define a physical characteristic (attribute) of a phenomenon, the characteristic (for instance "distance", "height", "weight") should be included in the Item Name. For instance, a concept such as "surface visibility" may have various characteristics that need to be specifically identified. If it is required to register an item that is intended to identify the maximum distance of surface visibility that has been measured at a location, the corresponding Item Name should be "Surface Visibility Distance".
- In relation to the above point, however, the units of measure for the "physical characteristic" must not be included in the item name. This is to allow application across Domains where different units of measurement may be used. The units of measurement should either be included as part of the metadata for the dataset or encoded in the Feature Catalogue (that is, specified at the Product Specification level) or modelled as an attribute bound to an application of the concept in the modelling (that is at the Feature Data Dictionary level).
- "Category of" and "Value of": Need to define the conventions for naming these concepts in the Concept Register – either Category of ...../Value of ..... or .....Category/..... Value.
    - Rather than having "Category of .....", which was required in S-57 as binding was implicit, could we have just a single generic concept "Category" or "Classification" or "Category of Feature" (or similar), the biding of enumerates being dependent on the application, and the meaning of the application inherent on the binding?
- Note inconsistencies in the FCD where in some cases the number is used and in others the spelling of the number is used. Requires a convention.

2.1.3 Alias

The Alias field is used to define alternate names for the concept. This may be required for IHO Registry user communities that require a variant of the "primary" name registered as the "Item Name" (see clause X.X above) in the Concept Register in their Product Specification.

All values populated in the Alias field must conform to the definition for the "primary" Item Name – the Alias must not be used to extend, sub-define or sub-classify the Concept Register definition in a Domain of the Feature Data Dictionary Register.

A term cannot be listed as an alias against a registered item if that term has itself been registered as a discrete item.

The Alias field must not be used to provide a translation of the Item Name into a non-English language.

Can an acronym (for instance ODAS) be included as an Alias (possible alternative is in Remarks?)?

2.1.4 CamelCase

Within the Concept Register, all CamelCase must commence with a lower case letter, with the first letter of each following word commencing with an upper case character.

EXAMPLES: categoryOfSeaArea; lightAllAround; seamount.

For the Data Dictionary Register, each Domain (Product Specification) must have the CamelCase for each type structured as follows:

- Feature and Information types: The first letter of each word must commence with an upper case letter. EXAMPLES: LightAllAround; Seamount.
- Attributes (Simple and Complex): The first letter of the CamelCase must commence with a lower case letter, with the first letter of each following word commencing with an upper case character. EXAMPLES: categoryOfSeaArea; lightAllAround; seamount.
- Codelist: The first letter of the CamelCase must commence with a lower case letter, with the first letter of each following word commencing with an upper case character. EXAMPLES: categoryOfSchedule.

Commented [TS6]: RM: Don't know if there is an ISO convention, but they should begin with lower case in the long name and upper case in the camel-case code. [JW: Other way around?]

Commented [TS7]: RM: If I understand this right, this is likely to be counterproductive, it will proliferate entries in the concept register. Instead, the idea of "senses" (or "scopes") should be added to the concept register too. This can be part of a lexical database or ontology-based approach to the concept register.

Commented [TS8]: RM: Agreed!

Commented [TS9]: RM: Based on type of scale. Ratio and interval scales indicate value. Nominal scale implies category. I suggest addressing this question in the "Guidance for PS Developers". [JW: Not sure what this means?]

Commented [TS10]: RM: A. I don't see how a single "category" concept can work. There might be more than one category attribute bound to a feature or info type. Also, "category" by itself is too high-level.
B. This would appear to require wholesale reworking of all the product specifications that have been developed so far.

Commented [TS11]: RM: Don't know. Sounds OK in principle, but it's possible different domains within maritime information might already be using the same acronym?

- Enumerated and Codelist identifiers: The first letter of each word must commence with a lower case letter. EXAMPLES: seamount; windturbine; beaufortforce7.

The following additional conventions apply for the name of all camelCase proposed to the IHO GI Registry Concept Register:

- There must be a direct correlation between the camelCase and the Register Item Name in the Concept Register. That is, the camelCase must essentially be the equivalent of the Item Name, but structured in the camelCase format. For example, Depth Area –> depthArea is acceptable, however Strips And Patches –> iceStrips is not acceptable.
- Use of numbers within camelCase needs to be specified.

Commented [TS12]: RM: Where the usual definition includes a number, e.g., the Beaufort scale, IMDG classification of hazardous cargoes. Also, some IMDG classes include a "." (turn it into an underscore?).

2.1.5 Alpha Code

Where possible, all registered items must have a unique Alpha Code assigned.

The following conventions apply for the name of all Alpha Codes proposed to the IHO GI Registry Concept Register:

- Alpha Codes must include exactly 6 characters.
- Only upper case characters (A-Z), numerals (0-9) and the special character "_" are allowable for Register item Alpha Codes. All other characters are prohibited.

Commented [TS13]: RM: Time to extend this, I think. 12? 16? Legacy alpha codes can stay 6 characters long.

Commented [TS14]: RM: "$" may cause problems for downstream artefacts and software. Identifiers use numerals (above) so why not alphacodes?

2.1.6 Definition

- There must be a direct correlation between the definition for a registered item and the item name. Where the item name is generic, the definition for that item must also be suitably generic. Item names that are specific to an application must have the definition relevant to that application.
- The term (item name) being defined must not be included as the introductory phrase for the definition. For example, the definition for the term Depth Area must not commence with "A depth area is …". Similarly, definitions must not include reference to other Register fields for the item, such as camelCase and AlphaCode; and must not imply a direct relationship to other registered items such as inclusion of implied modelling.
- Standard punctuation convention must be applied to all definitions. For instance, all definitions must end with the appropriate punctuation (generally a full-stop).
- Where possible, definitions must avoid inclusion of units of measure.

2.1.7 Reference

Wherever possible, the authority for the definition of a concept should be included, using the Reference field.

Before preparing a submission to add a new item to the Concept Register, a check should be conducted on the predefined list of references to ensure that authority for the definition for the new concept is listed in the predefined "drop down" list. Where the authority is not included in the predefined list, the proposer should submit an additional proposal to have the authority included.

Commented [TS15]: Is this possible for proposers in the current interface?

Need a clear distinction here between the "Reference" field and the "Definition source" field.

2.1.8 Definition Source

Need a clear distinction here between the "Reference" field and the "Definition source" field.

2.1.9 Remarks

Within the Concept Register, the Remarks field must be restricted to general information about the concept. There should be no inference of binding (for example for a specific Product Specification) at the geometry or feature level; or any "guidance" on implementation (encoding) of the concept, specific to a Product Specification(s).

- A possible exception to this rule is where a concept does not conform to what would be considered to be the "normal or general accepted convention" as implied for the Item Name. For instance, the concept "Date Variable" may, given that the name includes the word "Date", be considered to be used as a Date type (attribute) when implemented in Product Specifications. However, the definition describes this concept as being a recurring day that is not fixed in the Gregorian calendar, thus excluding this concept from being

applied as a Date type (?????). In this case the Remarks may include a reference to the intended type (in this case Text rather than Date) and an example (e.g. “Fourth Thursday in November”).

Where the item is used in a Product Specification, the application of the concept specific to the product may be expanded on in the Remarks field in the relevant Domain of the Feature Data Dictionary Register. This may be done, for instance, to include guidance specific to the modelling of the concept (and rules for use of the concept) within the Product Specification. However, the Remarks field must not be used to supplement or amend the definition of the concept as defined in the Concept Register.

Commented [TS16]: RM: A good example of why we should not demand too much precision in the concept register. Natural language is often imprecise or overloads terms.

Commented [TS17]: RM: How will application schema authors be able to refine the meanings of concepts, which are supposed to be as generic as possible in the concept register? Suggest deleting this paragraph, guidance about how to use register concepts in product specifications should be described in the Guidance for PS developers.

2.2 Guidelines

2.2.1 General

- All items registered in the Concept Register must not carry any implied relationship to bindings within a Product Specification (Feature Data Dictionary Register).
- Modelers must consider, when developing their Data Dictionary, the understanding of concepts by the end user that can be derived from the context (binding) in which the concept is used, as distinct from creating new Aliases that may not be required.
- Although there are fields within the Concept Register proposal form that are optional, every effort should be made to populate these fields with relevant values when preparing proposals for submission.
- [Add a decision making flow (e.g. diagram) outlining the steps to take when determining whether it is appropriate to make a proposal??]

Commented [TS18]: RM: Move to Guidance for PS Developers.

Commented [TS19]: RM: This should be moved to the guidance document for PS developers.

2.2.2 Proposals

2.2.2.1 Register item (concept) name

Names for items in the IHO GI Registry Concept Register must be as product neutral and concise as possible.

- Need to work out a hierarchy of allowable concept registration, i.e. should a concept be registered at the very generic level only in the Concept Register (e.g. Light), then Aliases for "sub-usage" derived from this in the FDD Register (e.g. Light All Around, Light Sectored, ….). If this is the case how is this going to work for definitions? Suggest that this should be based on the "hydrographically relevant" aspect, i.e. if the concept has a usage or characteristic that is distinct (by definition) in regard to its application in hydrography (or a hydrographically relevant field), it should be registered at the Concept Register level. If this is agreed, need to make sure that clear distinctions are made in the Concept Register (by definitions?) so that there is no perception of the "same" concept being registered multiple times with a different name.
- When determining how specific a proposed item name is to be, consideration must be made as to whether there will be any likelihood that the concept can be utilized by other user communities. If it is known that a concept will only be used by a single community (that is, the proposing community), then there can be some latitude in the specificity of the item name.
    - Example: The "Sector Extension" simple attribute (S-101) is intended only to improve the display of sector lights in ECDIS. This is unlikely to be required by any other S-100 based Product Specifications, and can therefore be named specifically for that purpose.
- When considering the Item Name, and it is likely that the name will include multiple words, a check of the Concept Register should be done to see if there are similar or related concepts already registered so as to be consistent with the syntax of the name in the proposal in addition to the guidance included in the Conventions at clause X.X. This is so that there is as much consistency as possible in the naming of features in the Register.

Commented [TS20]: RM: The modelling issues should be part of the guidance document for PS developers.

Examples:

Good: Beaufort 01; Beaufort Force 1 Bad: Beaufort 01 – 01-03 Knots Light Air

Proposal type: Addition; Supersession; Retirement.

2.2.2.2 Alias

When considering whether an item (concept) required for a S-100 based Product Specification can be included as an Alias to an already registered item in the Concept Register, the primary field to use in the assessment is the Definition field. The Alias field can only be used where the definition of the registered item in the Concept Register is suitable for the application of the concept in a Product Specification.

Examples:

Item Name: Radio Calling In Point Alias: Radio Reporting Point; Radio Way Point

Proposal type: Supersession.

2.2.2.3 Definition

There must be alignment between the specificity of the item being defined (item name) and its definition.

- The amount of detail that can be included in the definition for a registered item is dependent on how specific the item name is. A generic item name must have a similarly generic definition. However where an item name is very specific (that is, used by a single user community and modelled in a single way), then the definition may be very specific. For instance, such a specific definition may include information such as units of measurement.

Examples:

Proposal type: Clarification.

2.2.2.4 Distinctions

In general, a check is (must be) conducted within the Concept Register for items already registered that may satisfy the requirement before a proposal for a new item in the Register is developed. It is recommended that when conducting this check, a list is made of similar items in the Register that do not (quite) satisfy the requirement. This list can then be used as suggested distinctions within the proposal for the new item.

Proposal type: Clarification(?).

2.2.3 Feature Data Dictionary Register Considerations

2.2.3.1 Supertypes

[Consider that a good criterion for determining whether something should be proposed as a Supertype is the requirement for a concept (item) to have more than "one level" of definition. For instance, in S-57 the different types of buoy and beacon all had a separate definition for "buoy" or "beacon" before the definition for the "type" of buoy or beacon for the object class itself. From this perspective this is an indication that there should be a Supertype defined for "Buoy" and "Beacon", which would also mean that these would be registered as concepts in the Concept Register.]

2.2.3.2 Codelists

The following factors must be taken into consideration when deciding whether to model an attribute as type Codelist:

- Where it is possible to model as an enumerated attribute type, then it should be modelled thus. Considerations include:
  - Is the list of values to be assigned to the attribute a fixed list (that is, not likely to change)? If so, then the attribute should be modelled as en enumerated attribute type. If the list is likely to be extended regularly to meet the requirements of different user communities, then consideration should be given to modelling as a Codelist type attribute.
  - Is there an intended impact on the end-user system performance (for example ECDIS)? If new required values are intended to impact on the performance of the end user system, for example portrayal or alarms/indications, then Codelist type should not be used.
  - [Could we have a "register" for allowable (agreed) text strings that can be populated for the "other: [something]" Codelist value (open enumeration and open dictionary Codelists)?]

2.2.4 Enumerate Register Considerations

3.2.3.1 Enumerated Value Code Number

The Enumerated Value Code Number is a unique positive integer value that is assigned to each enumerate value that is bound to an enumerated or Codelist attribute type. All possible enumerate values that may be assigned to the enumerated attribute must be included in the Enumerate Register – in general a subset of these values will be used in the application of the enumerated attribute in a Product Specification.

There is no implied relationship between the integer number assigned to the enumerated value and the value itself, therefore there is no requirement to attempt to align a number with its value. However, where this may be considered to be advantageous, and is technically feasible (for instance the enumerated values are themselves a numbered (or assigned code) list of values), alignment may be proposed.

Values will generally be assigned in ascending numerical order commencing with the Code Number 1. Where a new value is proposed, the next available Code Number is to be used.

Commented [TS21]: RM: This is part of the process of developing a product specification – specifically the Application Schema – and guidance or criteria for how to define types, attributes, and enumerated values should be in the Guidance for PS developers document. This document should contain only technical requirements such as using only positive integers for the numeric codes of enumerates.

Commented [TS22]: RM: Addressed in the Guidance for product Specification Developers, as part of guidance on developing the application schema. Suggest deletion of this section.

Commented [TS23]: RM: This is addressed in S-100 Part 11 Appendix 11-C, and should be refined there or in the Guidance for PS developers. Suggest deleting this section.

Commented [TS24]: RM: I recommend not doing this, it turns the "other" option into another list of enumerates. Leave it to the product specification developers. At most this document should state that product specification teams should consider proposing widely used strings as listed values.

The use of the value 0 is prohibited.

Where an “unknown” or “undefined” value is to be included in the list, this must be assigned the Code Number 255.

Commented [TS25]: RM: I don’t see why this rule is needed, and it will force some data formats to use 2 bytes where only 1 is otherwise necessary – most enumerations and codelists will have fewer than 255 items. [JW: Is amending to 255 OK?]

Page intentionally left blank