MRN USE CASES - 1

- S-98 Annex C clause 15-4: Add #11:
  - **“When interoperability is enabled by the mariner, the pick report should combine information from different products when picked features include common unique identifier “*interoperabilityID*”. Note: the format of the “*interoperabilityID*” is MRN and multiplicity is [0..].”**

Example 1:

S-101 ENC contains a RestrictedArea feature and S-131 a HarbourAreaSection feature both with interoperabilityID=urn:mrn:iho:N004:s101:1234-5678 (its geometry was originally created for an S-101 ENC, and reused by S-131, whence “s101”). There is a Regulations info type associated to the S-131 feature. When interoperability is enabled, the pick report detects the common *interoperabilityID* and displays the content of the Regulations as being (also) connected to the S-101 RestrictedArea even though the S-101 ENC does not actually contain the Regulations info type.

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International Hydrographic Organization

Example 2:

Norwegian National Maritime Traffic Regulation Section 124 – 125.
Interoperability ID:
urn:mrn:iho:no:N004:NationalMarineTrafficReg:124125_20230914_1200
is displayed or linked whenever any feature that includes that MRN as an interoperabilityID is picked.

CASE 2

- The Halifax Port information guide describes waiting anchorages (“AnchorageArea” features) within port areas and provides specific port regulations for their use. The anchorages are also encoded in S-101 ENC. S-131 encodes none of the “AnchorageArea” feature attributes, because all S-131 needs is a geographic location to which the port-specific “Regulations” information type is attached. The S-131 feature references the original S-101 feature by referencing its MRN. This provides an audit trail that enables any revisions such as relocations to be tracked and applied to S-131 promptly.

MRN BREAKOUT MEETING NOTES

International Hydrographic Organization

- MRN guidance covers multiple areas, IHO usage (in secretariat), IHO usage for its publications and datasets, as well as within datasets under the S-100 regime.
- Within the S-100 regime, MRNs are a type (actually URN) and need a unique name, proposal “interoperabilityID” – functionality as described in these slides.
- MRN does three things:
  - **It identifies (general agreement it should only identify, nothing else)**
  - **Unique**
  - **Persistent**
- It “identifies” – under S-100 the obvious thing to identify is features and information types under the GFM
- So, no product identifiers mandated in MRNs, as the thing which is identified is the feature (physical, but not necessarily). As the attribute "interoperabilityIdentifier" would be defined in the registry, suggestion ("a common identifier for features which describe the same physical feature and which is used to designate features whose information should be combined in pick reports“)… or words to that effect it is only necessary to require that products sharing such feature types all use that attribute and data producers populate it properly
- It is likely the iho MRN namespace will be sub-divided for producing organisations to manage according to their own regimes. Guidance can be given for this which may be helpful but it will be up to them to manage their own namespace. Use of a producer code to designate the organization’s namespace may help to ensure uniqueness between different organisations, e.g. urn:mrn:iho:GB00:<GB MRN> can never equal urn:mrn:iho:CA00:<CA MRN> - this will need to be defined and implemented
- S-100WG will need a paper to clarify the existing guidance in S-100 on how identifiers are implemented. It must be done at the S-100 level because it can be (optionally) used by all product specifications. S-100 will clarify that an interoperabilityID attribute with type URN will be implemented in product specifications. These will be MRNs in the data producer’s namespace. Features will have 0..* interoperabilityIDs.
- S-98 will need a clause to explain how the interrogation and combined information is formed. This will include the name of the interoperability identifier in each product specifications’ feature catalogue.
- Persistence and uniqueness can be partly assured by validation
- A registry submission will need to be made for the interoperability identifier.
- Other use cases and implementation guidance for MRNs/identifiers will be looked at in future meetings.

Notes from discussions/emails.

- FWIW when I think about interoperabilityID there may be implementation issues necessitating limiting the application to features which have the same geometry or are in the same bounding box or something similar, or otherwise filtered, otherwise the application may have to scan whole datasets or pre-process them by mapping interoperability IDs to feature and info type addresses/IDs?
- My understanding that the check for matching interoperabilityID is based on what the **pick report got when it drilled through the stack of features at the cursor location**. I am not proposing generic check within ENDS database as that is too heavy operation.
- Limiting to **picked features only** would work fine, thanks for the clarification. I expect the hypothetical Norwegian regulation in question is a regulation that specifes the geometry of an area, then (possibly also the rules applying within that area).

As the attribute "interoperabilityIdentifier" would be defined in the registry, as "a common identifier for features which describe the same physical feature and which is used to designate features whose information should be combined in pick reports" (or words to that effect - we need to write a proper, unambiguous definition) it is only necessary to require that products sharing such feature types all use that attribute and data producers populate it properly. Again, the details of that requirement need to be worked out. No need for a separate interoperability identifer attribute in each product.

- About HDF5 datasets, the idea may not work for gridded or TIN data though it should work for fixed stations