**Paper for consideration by IALA ENAV and IHO S-100WG (S-101PT)**

# Addition of Maritime Resource Names (MRN) into S-101 and S-201

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| Submitted by: | NIPWG |
| Executive summary: | Maritime Resource Names (MRN) for AtoN should be included into S-101 and S-201 in order to facilitate future interoperability between these and other S-100 PS. |
| Related documents: | NIPWG 3-28.2 |
| Related projects: | S-101, S-201, (S-125 Navigational Services) |

## 1 Introduction / Background

At HSSC6, SNPWG proposed a renewal of the international light numbering system to be done in close liaison with the responsible IALA Committee. IALA ENAV17 produced the draft Guideline on Unique Identifiers for Maritime Resources, introducing the Maritime Resource Name (MRN) as a method for creation of globally Unique Identifiers. The MRN is a URN- scheme that makes national AtoN numbers globally unique by applying the (national) prefix specified by the guideline. In addition to AtoN numbers, the larger scale use of unique identifiers is a necessary development across e-Navigation to maintain harmonization across domains and services. Navigationally unique objects such as AtoN, VTS- products and services and other maritime resources require identification to avoid duplication and misalignment.

### 1.1 MRN, and S-125 Navigational Services

The adoption of MRN is decided to be included in S-100 specification. The MRN needs to be added also to S-101 and S-201, in order to achieve interoperability benefits for future S-100 PS.

Currently, IALA S-201 draft includes the attribute ID Code, which is available for all features. The current draft has no references to MRN. Due to the similar structure of the S-101 and S-201 product specifications, the inclusion of MRN should be harmonized between the two.

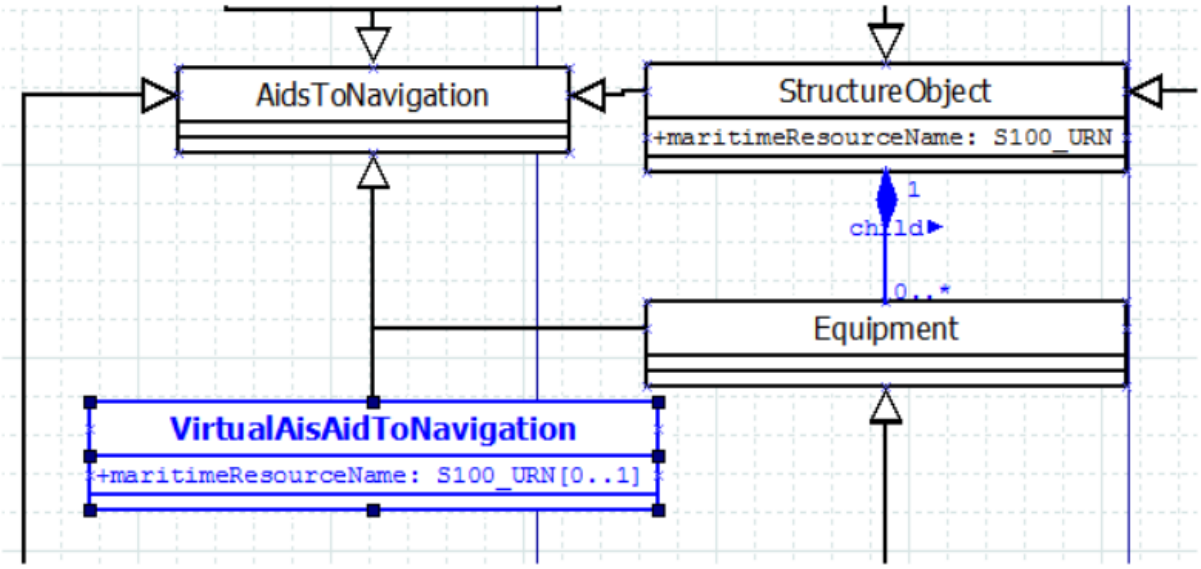


Figure 1 Addition of MRN to the structure- and VirtualAisAidToNavigation features.

## 2 Analysis / Discussion

The traditional way of uniquely identifying AidsToNavigation belonging to different authorities has been using the international light numbers, based on recommendations in S-12. The new MRN- scheme described in paper ENAV17-14.1.5 extends the use of unique identifiers to include all kinds of navigational aids. The MRN- scheme is using the identifier “AtoN” to describe these features. A clear statement was not found, stating whether a distinction has been made between an AtoN (structure) and a light (equipment). It is assumed the MRN "AtoN" should be encoded on the structure. The same physical structure could anyway contain multiple lights, and/or have multiple numbers attached to it in the national database. In these cases, the structures will need to be duplicated in the products.

### 2.1 AIS and V-AIS

Virtual Aids to Navigation are entering the maritime world. Compared to conventional AtoNs, these particular AtoNs have a few additional characteristics:

- AIS is usually part of a real AtoN structure, except V-AIS which are solely virtual.
- V-AIS in particular are assumed to be used for temporary purposes.
- Temporary V-AIS are not always added to charts or AtoN databases.

In S-101 Physical AIS AtoN is an equipment feature. Virtual Aids to navigation is encoded without associations to a structure feature. Further excerpt from S-101 DCEG;

"Physical AIS aids to navigation must be encoded, where required, using the geometry of the physical aid to navigation from which the AIS signal is, or appears to be transmitted."

AIS AtoN is also uniquely identified by MMSI- number. V-AIS are still an AtoN and should in this regard be part of the MRN- scheme, in order to be uniquely identifiable between products where it exists.

Product Specifications should state that;

- Physical AIS AtoN should inherit the MRN of the structure
- Virtual Ais AtoN has no structure. In order to add UID/MRN for V-AIS, it must thus be added directly to the *Virtual AIS aid to Navigation* feature. The MRN for V-AIS might need to be optional. Another approach would be to use MMSI as part of the MRN if a national AtoN number is not available.

### 2.2 Persistency

Sometimes the term “Persistent” is used together with the “Unique identifier”. Persistency defines the uniqueness over time, and in computer science, persistence is defined as “a state that outlives the process that created it”.

The persistency of the unique identifiers will in future be determined within the national authority, responsible of the internal light numbers. There might be different national approaches to persistency, and reusing of AtoN/light numbers. The concept of persistency might need to be defined and a guideline should be made regarding which changes to AtoN and light numbers are allowed without justify a new number.

AtoN-numbers will be a part of the MRN, and uniquely identify a specified AtoN within several product specifications. Is there a need for guidelines for reusing AtoN numbers when significant changes are made to AtoNs, in order to avoid confusion?

## 3 Conclusions

As S-201 is assumed to be used as the future standard way to exchange AtoN information between organizations, also the Maritime Resource name should be included. In order to enable interoperability between product specifications, the MRN should be included also into S-101.

## 4 Actions required by IALA ENAV and IHO S-100WG (S-101PT)

IALA ENAV and S100WG are invited ;

- to note the paper
- to discuss the use of MRN for AtoN within S-101 and S-201 respectively.
- to include MRN into the respective product specifications.

IALA ENAV is invited

- to discuss, whether the MRN scheme requires further guidelines for assigning national unique identifiers (national AtoN numbers).