|  |
| --- |
| IALA Guideline |

Gxxx

Management of the IALA MRN namespace

Edition 1.0

Date

urn:mrn:iala:pub:gxxxx:ed1.0

Revisions to this document are to be noted in the table prior to the issue of a revised document.

|  |  |  |
| --- | --- | --- |
| Date | Details | Approval |
| October 2025 | First draft |  |
|  |  |  |
|  |  |  |
|  |  |  |

[1. MARITIME RESOURCE NAME SYNTAX 3](#_Toc212125789)

[1.1. MANAGEMENT OF THE “INT” AND “IALA” NAMESPACES 3](#_Toc212125908)

[1.1.1. NAMESPACE EXAMPLES 4](#_Toc212125909)

[1.2. EXTENDABILITY 5](#_Toc212125910)

[1.2.1. EXTENDED APPLICATIONS WITHIN THE IALA NAMESPACE 5](#_Toc212125911)

[2. AREAS OF APPLICATION 6](#_Toc212125912)

[2.1. IALA NAMESPACE 6](#_Toc212125913)

[2.2. USE OF WILDCARD NAMESPACE (‘INT’ NAMESPACE) 6](#_Toc212125914)

[3. DEFINITIONS 6](#_Toc212125915)

[4. ABBREVIATIONS 6](#_Toc212125916)

List of Tables

Table 1 Examples of translating a URN identifier into a GML accepted identifier 4

Table 2 Current Areas of application of MRN within IALA Namespace 6

List of Figures

Figure 1 Example of multiple Domain and Namespace use 5

TOC Suggested by Axel Hahn:

* Content:
* Introduction
* Background
* Description of the usage of MRN in the Domain of IALA (Requirements, etc).
* Some chapters on: How to use MRN for AtoN and VTS  (Recommendation to members)
* How to apply MRN in S-100 Product Specifications and S-100 conform data  (MRN as a concept is used for the data structures described in the Product Specification) it application and the inner structure is “data”).
* How to apply MRN in Description of Technical Services (with support from DTEC by ARM/VTS)

# MARITIME RESOURCE NAME SYNTAX

## MANAGEMENT OF THE “INT” AND “IALA” NAMESPACES

The MRN syntax for IALA namespaces are defined in the Namespace Specific String (NSS) section of the MRN identifier.

<NSS> is composed as follows:

<NSS> ::=’<governing-organization>’:’<type>’:’<type-specific-part>’

Inserting ‘iala’ or ‘int’ as <governing-organization> will create namespaces where IALA can define unique type identifiers that must contain a minimum of 3 lower case alphanumeric characters:

urn:mrn:iala: ‘<type>’:’<type-specific-part>’

Examples of ‘types’ include: aton (AtoN), wwy (Waterway), vts (VTS Name), etc.

The ‘int’ namespace is a wildcard that is reserved for use when it impractical to assign a governing organization, including for example ‘iala', 'a country' or 'a service provider'. Use of the ‘int’ namespace is intended to be temporary and may, for example, be used while any competent organization is established, while assignment is pending, or for test purposes.

It is important to note that some data formats that use Uniform Resource Identifier (URI) namespaces (GML, XML, RDF, OWL) may give specific meaning to parts of the MRN ID, such as GML where the colon has special significance. MRNs therefore cannot be used verbatim for GML identifiers (“gml:id”) or tags. Instead, for GML formats, either MRNs should be used as values for an attribute designed to carry identifiers, or translated into a format compatible with GML, or rules for mapping GML identifiers to MRNs should be defined.

1. Examples of translating a URN identifier into a GML accepted identifier

|  |  |
| --- | --- |
| URN ID Example | GML acceptable ID version |
| urn:mrn:iala:aton:us:1234.5 | us-1234.5 |
| urn:mrn:iala:aton:js:cg:54321678 | js.cg.54321678 |

The ‘:’ (colon) character has been translated into a ‘-’ (dash) or a ’.’ (punctuation), and the urn:mrn:iala:aton: part has been omitted as this part would always be fixed in the product. Additional parts of the URN ID could be omitted, but the retained parts yield an ID that is still human readable as well as machine-processable in the same way as the original MRN.

### NAMESPACE EXAMPLES

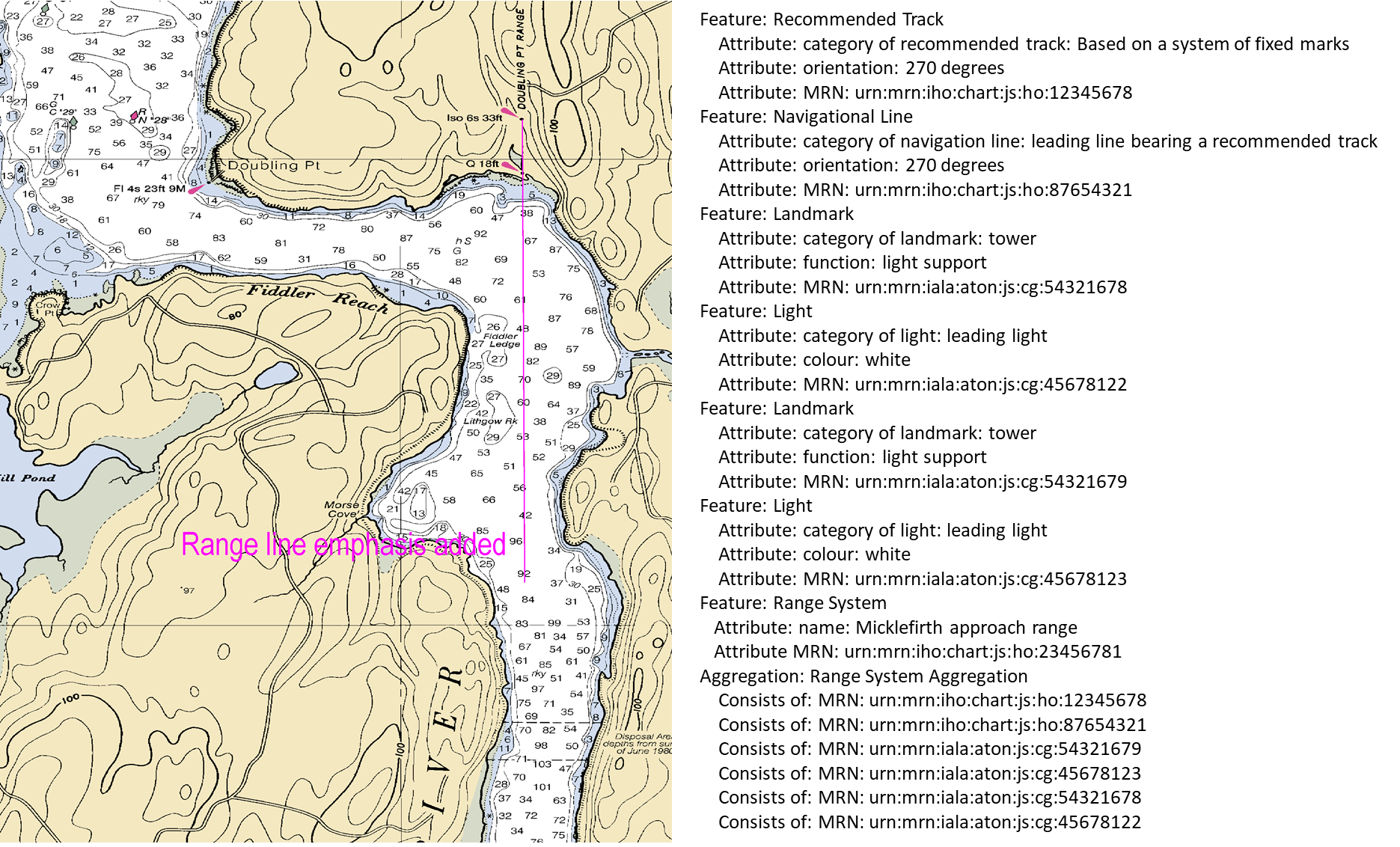
The identifiers related to AtoN use a schema allowing for decentralised management of their identifiers. This scheme includes <ISO 3166 Code>:<managed name spaces>, where <ISO 3166 Code> is the identifier defined by ISO 3166-1 alpha-2 codes for the representation of names of a country, territory, or area of geographical interest.

For example:

urn:mrn:iala:aton:us:1234.5

urn:mrn:iala:aton:gb:sco:1234.5

It is envisaged that for <managed name spaces> all existing naming/numbering schema within a country, territory, or area of geographical interest could be re used to a large degree. See Annexes for further detail.



1. Example of multiple Domain and Namespace use

## EXTENDABILITY

The MRN is intended to be an extendable mechanism across the maritime domain.

### EXTENDED APPLICATIONS WITHIN THE IALA NAMESPACE

IALA will extend the set of MRN type namespaces as appropriate. Definitions of new areas of application of the namespace within the specific domain will be published as additional or amended annexes to this Guideline.

# AREAS OF APPLICATION

## IALA NAMESPACE

This Guideline provides the following identifier <type> specific definitions of syntax constraint under the IALA namespace in Annex A, with the following Sections:

1. Current Areas of application of MRN within IALA Namespace

|  |  |
| --- | --- |
| ID types | Syntax constraint |
| Marine Aids to Navigation | ANNEX A, Section A1 |
| VTS services | ANNEX A, Section A2 |
| Waterways | ANNEX A, Section A3 |
| Publications | ANNEX A, section A4 |
| Object | ANNEX A, section A5 |

## USE OF WILDCARD NAMESPACE (‘INT’ NAMESPACE)

This Guideline provides a description of the wildcard INT namespace in Annex B.

# DEFINITIONS

The definitions of terms used in this Guideline can be found in the *International Dictionary of Marine Aids to Navigation* (IALA Dictionary) at <http://www.iala-aism.org/wiki/dictionary> and were checked as correct at the time of going to print. Where conflict arises, the IALA Dictionary should be considered as the authoritative source of definitions used in IALA documents.

# ABBREVIATIONS

ABNF Augmented Backus-Naur Form

AtoN Marine Aid(s) to Navigation

CMDS Common Maritime Data Structure

HO Hydrographic Office

IALA International Association of Marine Aids to Navigation and Lighthouse Authorities

IANA Internet Assigned Numbers Authority

ID Identification / Identity / Identifier

IETF Internet Engineering Task Force

IHO International Hydrographic Organization

IMO International Maritime Organization (UN)

IP Internet Protocol

ISO International Organization for Standardisation

MMSI Maritime Mobile Service Identity

MRN Maritime Resource Names

MSI Marine Safety Information

NID Namespace Identifier

NSS Namespace Specific String

PUI Persistent Unique Identifier

RFC Request for comments (IETF)

UKHO United Kingdom Hydrographic Office

URN Uniform Resource Name(s)

VTS Vessel Traffic Service

XML eXtensible Markup Language

1. MRN FOR IALA NAMESPACE
   1. MRN FOR MARINE AIDS TO NAVIGATION

A unique identifier for an AtoN should be assigned by the responsible AtoN Authority.

When referenced outside the context of the national AtoN provider, the identifier should be prefixed using the MRN syntax, with the prefix:

urn:mrn:iala:aton:<ISO 3166 Code>:<managed name spaces>.

where <ISO 3166 Code> is the identifier defined by ISO 3166-1 alpha-2 codes for the representation of names of a country, territory, or area of geographical interest.

The MRN authority (e.g. National IALA member) must ensure, that the <managed name spaces> is unique within the domain, and that the syntax of the <managed name spaces> complies with the general MRN guidelines.

Examples:

urn:mrn:iala:aton:us:1234.5 [1]

In example [1] the AtoN with identifier 1234.5 defined by the US AtoN authority.

urn:mrn:iala:aton:gb:sco:6789.1 [2]

In example [2], the ISO 3166 code for the United Kingdom is ‘gb’. Within the United Kingdom, AtoN are provided by 3 different AtoN authorities and so a further identifier is used: ‘sco’ for Scotland in this example where the Scottish asset identifier is 6789.1.

For AtoN Number:

urn:mrn:iala:aton:kr:A01010001 [3]

In example [3] Region(1) + Coast(2) + AtoN Type(2) + unique number(5): A01010001

Region Code

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Region1 | Region2 | Region3 | Region4 | Region5 | Region6 | Region7 |
| A | B | C | D | E | F | G |

Coast Number

|  |  |  |  |
| --- | --- | --- | --- |
| Coast1 | Coast2 | Coast3 | Coast4 |
| 01 | 02 | 03 | 04 |

AtoN Type

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Lighthouse | Light Buoy | Buoy | Light Beacon | Beacon | Bridge | Racon |
| 01 | 02 | 03 | 04 | 05 | 06 | 07 |

For AtoN equipment and structure

urn:mrn:iala:aton:kr:light:17LLED0685 [4]

In example [4] Year + Type + unique number: 17 + LLED + 0685 → 17LLED0685

The equipment/structure type include the following:

Floating Structure, Fixed Structure, Light, Signal, Battery, Controller, Remote Telemetry Unit (RTU), Topmark, Other

* 1. MRN FOR VESSEL TRAFFIC SERVICES

A unique type namespace for VTS is assigned by the responsible MRN Authority. This Annex is reserved for description of VTS, bearing in mind that VTS could be described as a whole, or individual VTS components can be described separately.

When referenced outside the context of the VTS provider, the identifier should be prefixed using the MRN syntax, with the prefix:

urn:mrn:iala:vts:<ISO 3166 Code>:<managed name spaces>.

where <ISO 3166 Code> is the identifier defined by ISO 3166-1 alpha-2 codes for the representation of names of a country, territory, or area of geographical interest.

The MRN authority (e.g., National IALA member) must ensure, that the <managed name spaces> is unique within the domain, and that the syntax of the <managed name spaces> complies with the general MRN guidelines.

Examples:

urn:mrn:iala:vts:ca:ecareg [1]

In example [1] the VTS zone identifier for Eastern Canada VTS zone as defined by the Canadian Coast Guard.

urn:mrn:iala:vts:nl:rtd:me [2]

In example [2], the VTS zone identifier for ‘rtd’ for Port of Rotterdam and ‘me’ for the Maas entrance to the port.

* 1. MRN FOR WATERWAYS

A unique type namespace for waterways (wwy) is assigned by the responsible MRN Authority. This Annex is reserved for description of waterways, bearing in mind that waterway could be described as a whole, or individual waterway segments can be described separately.

When referenced outside the context of the waterway, the identifier should be prefixed using the MRN syntax, with the prefix:

urn:mrn:iala:wwy:<ISO 3166 Code>:<managed name spaces>.

where <ISO 3166 Code> is the identifier defined by ISO 3166-1 alpha-2 codes for the representation of names of a country, territory, or area of geographical interest.

Example:

urn:mrn:iala:wwy:us:atl:chba:potri [1]

In example the identifier to the Potomac River waterway using a scalable approach showing the relationships between waterways from national to regional to local level. The name spaces are atl for Atlantic, chba for Chesapeake Bay, and potri for Potomac River.

* 1. MRN FOR publications

A unique type namespace for publications (pub) is assigned by the responsible MRN Authority. This Annex is reserved for description of publications.

When referenced outside the context of the publication author, the identifier should be prefixed using the MRN syntax, with the prefix:

urn:mrn:iala:pub:<managed name spaces>

or

urn:mrn:iala:pub:<ISO 3166 Code>:<managed name spaces>

where <ISO 3166 Code> is the identifier defined by ISO 3166-1 alpha-2 codes for the representation of names of a country, territory, or area of geographical interest.

Examples:

urn:mrn:iala:pub:g1143 [1]

In example [1] the publication with identifier g1143 defined by IALA.

urn:mrn:iala:pub:ca:cg:ramn:2018 [2]

In example [2], the ISO 3166 code for the Canada is ‘ca’. The code for the Canadian Coast Guard within Canada is ‘cg’ and they have issued the Radio Aids to Marine Navigation publication with the code ‘ramn’. The year of issue is 2018.

* 1. MRN for objects as A wildcard

A unique type namespace for objects (obj) is assigned by the responsible authorities. Object (obj) is a reserved wildcard for use where it is unknown or impractical to assign another type, the identifier should be prefixed using the MRN syntax, with the prefix:

urn:mrn:iala:obj:<ISO 3166 Code>:<managed name spaces>.

where <ISO 3166 Code> is the identifier defined by ISO 3166-1 alpha-2 codes for the representation of names of a country, territory, or area of geographical interest.

The MRN authority (e.g. National IALA member) must ensure, that the <managed name spaces> is unique within the domain, and that the syntax of the <managed name spaces> complies with the general MRN guidelines.

Examples:

urn:mrn:iala:obj:us:nm:42.42 [1]

In example [1] the flying saucer with identifier 42.42 defined by the US flying saucer authority in New Mexico.

urn:mrn:iala:obj:gb:sco:swan52 [2]

In example [2], the ISO 3166 code for the United Kingdom is gb. Within the United Kingdom, mute swans are tracked by 3 different mute swan authorities and so a further identifier is used: sco for Scotland in this example where the Scottish mute swan identifier is swan52.

1. MRN FOR INT NAMESPACE

IALA recognises that a multitude of different naming schemes exist today, and that various countries have their own usage rules.  It is not feasible to create a naming schema that encompasses all possibilities, or force countries to adapt to a rigid system.  Therefore, IALA recognises the possibility that “wildcard” characters be identified and used in the MRN namespace, to allow for situations that cannot be foreseen or for those objects that do not correspond exactly with the structure. For this reason, IALA has reserved the “int” namespace to act as a wildcard for use where it is unknown or impractical to assign another namespace as an Organization ID <OID>.

No provision is made for avoiding collision of MRNs within the "int" namespace, but measures should be taken to ensure uniqueness.  It is not recommended that implementers use the "int" namespace for any purposes other than documentation, private testing, and experimental contexts.