11th Meeting of the IHO (S-100WG) S-101 Project Team

Use and Modelling of the UpdateInformation Feature

Agenda Item 08.4

KEY POINTS

- Intended to replace the current update highlight mechanism in ECDIS for S-101 Updates (Paper S-101PT10-07.10, related discussion, Decision and Action S-101PT10/21).

- Designed to restrict the highlighting of changes included in an ENC Update at the feature instance level (any associated features (geometry relationships, etc) are not expected to be highlighted.

- Discoverable by the end-user in the ECDIS Pick Report – additional (optional) information related to the Update may be included.

- Provides flexibility at the Data Producer level (for example inconsequential changes may be excluded from highlight; or important changes may highlighted in New Editions)

- S-52 (Edition 4.0(.3)) Annex A, Part 1

10.7.2 Identifying Automatic Chart Corrections On Mariners Demand
The ECDIS manufacturer must provide a means of identifying chart corrections to the SENC on demand by the Mariner.

Note: Manufactures may choose to implement a filtering mechanism to emphasise only the significant change to the Mariner.

On mariners demand automatic chart corrections of ENC information must be highlighted as follows:

10.7.2.1 Added Feature
When the ENC ISO 8211 record update instruction (RUIN) is set to 1 = Insert:

Point object:	Superimpose SY(CHRVID01).
Line object:	Overwrite with line LC(CHRVID02).
Area object:	Overwrite area boundary with line LC(CHRVID02) and superimpose SY(CHRVID01) on any centred symbol.

10.7.2.2 Deleted Feature
When the ENC ISO 8211 record update instruction (RUIN) is set to 2 = Delete :

Point object:	Superimpose SY(CHRVDEL1).
Line object:	Overwrite with line LC(CHRVDEL2) (do not remove the original line).
Area object:	Overwrite area boundary with line LC(CHRVDEL2) and superimpose SY(CHRVDEL1) on any centred symbol.

10.7.2.3 Moved Feature
As for deleted feature, followed by added feature.

10.7.2.4 Modified Feature
When the ENC ISO 8211 record update instruction (RUIN) is set to 3 = Modify:

Point:	Superimpose SY(CHRVID01) and SY(CHRVDEL1).
Line:	Overwrite with LC(CHRVID02) and LC(CHRVDEL2).
Area:	Overwrite the boundary with LC(CHRVID02) and LC(CHRVDEL2) and also superimpose SY(CHRVID01) and SY(CHRVDEL1) on any centred symbol.

CHRVID01

CHRVID02

CHRVDEL1

CHRVDEL2

CHRVID01

CHRVID02

IHO — International Hydrographic Organization

3.11 Update information

IHO Definition: UPDATE INFORMATION. The Update Information metadata feature is used to represent a change to the information shown.

S-101 Metadata Feature: Update Information

Primitives: Point, Curve, Surface

Real World	Paper Chart Symbol	ECDIS Symbol

S-101 Attribute	S-57 Acronym	Allowable Encoding Value	Type	Multiplicity
update description			C	1,1
language		ISO 639-2/T	(S) TE	0,1
text			(S) TE	1,1
fixed date range		See clause 2.4.8	C	0,1 †
date end	(DATEND)		(S) TD	0,1
date start	(DATSTA)		(S) TD	0,1
update number			IN	1,1
update type		1. insert 2. delete 3. modify 4. move	EN	1,1
scale minimum	(SCAMIN)	See clause 2.5.9	IN	0,1 †
source			TE	0,1
information		See clause 2.4.6	C	0,*
file locator			(S) TE	0,1
file reference	(TXTDSC) (NTXTDS)		(S) TE	0,1 †
headline			(S) TE	0,1
headline			(S) TE	0,1
language		ISO 639-2/T	(S) TE	0,1
text	(INFORM) (NINFOM)		(S) TE	0,1 †

† For each instance of **fixed date range**, at least one of the sub-attributes **date end** or **date start** must be populated.

fixed date range and/or **scale minimum** are mandatory if **fixed date range** and/or **scale minimum** are populated for the associated Geo feature, and must be identical to the values populated for the associated Geo feature.

For each instance of **information**, at least one of the sub-attributes **file reference** or **text** must be populated.

INT 1 Reference:

3.11.1 Update information

If it is required to encode information about changes made to ENC data it must be done using Update Information. This feature must be encoded to cover the extent of changed data incorporated in the System

Database via ENC Updates (ER Application Profile), and may also be used to indicate changes introduced in ENC New Editions. It carries information about the changes. The meta feature **Update Information** is used by the ECDIS to provide, on request, a visual indication to the Mariner of information that has changed in the System Database when an ENC Update is applied. Therefore, an associated instance of **Update Information** corresponding to each feature instance included in an ENC Update dataset (ER Application Profile) is mandatory for all changes that impact on navigation*. **Update Information** may must be associated with features that have changed using the association **Updated Information** (see clause 25.19).

* Data producers may consider the non-inclusion of an instance of **Update Information** for minor changes to a feature that have no impact on navigation, such as correction of spelling/syntax errors in text strings or associated text files. For further guidance see Section 31.

Remarks:
- The mandatory attribute **update number** must be used to indicate the Update number of the Update dataset that the changed information is included in, as indicated in the file extension of the Update dataset.
- The mandatory attribute **update type** must be used to indicate the type of update applicable to the feature (insertion, deletion, modification, move).
- The mandatory complex attribute **update description** information (see clause 2.4.6) must may be used to provide a brief textual description of the changes to the dataset associated feature as included in the Update. If a more detailed description of the Update is required, this should be encoded using the complex attribute information (see clause 2.4.6).
- Where the changed information is related to an information type, the **Update Information** should be associated with the features to which the information type is associated.
- The attribute **source** may be used to indicate the related paper chart Notice to Mariner's number.
- At each New Edition of an ENC cell, **Update Information** features which are no longer relevant must be deleted; and for the next Update to an ENC cell, **Update Information** features included in the previous Update dataset should be considered for deletion. Where a new Update impacts a feature that has previously been updated, any existing instance of **Update Information** associated to the feature must be deleted as part of the new Update; this may must be done by deleting the existing **Update Information** from the dataset, or by removing the impacted feature(s) from the association **Updated Information** if there are features included in the association that are not impacted by the new Update.
- The creation of **Update Information** meta feature instances and the corresponding **Updated Information** association instances may be substantively automated in ENC production systems and associated databases, with automated population of the mandatory attributes **update number** and **update type** based on the change made to the data; and the complex attribute **fixed date range** and attribute **scale minimum** based on the attribution of the associated geo feature. Any additional information populated for **Update Information** is at the discretion of the Data Producer.
- Where information has been deleted from an ENC the Update Information feature should cover the extent of the deleted information.

Distinction: Information Area; Caution Area.

Feature/Feature associations: Updated Information

28.X update number

IHO Definition: UPDATE NUMBER. The number corresponding to the extension part of the file name for an Update dataset.

Attribute Type: Integer

Indication: For an Update file, corresponds to the EEE of an ENC dataset file name 101CCCCØØØØØØØØØØ.EEE.

Format: xxx

Minimum value: 0

Example: 1 for Update number 1

Remarks:
- Leading zeros must not be encoded.

28.Y update type

IHO Definition: UPDATE TYPE. An action performed when the contents of a dataset are changed.

Attribute Type: Enumeration

1) **insert**
   IHO Definition: To put or introduce into the body of something. (Merriam-Webster Dictionary).
2) **delete**
   IHO Definition: To eliminate especially by cutting out or erasing. (Adapted from Merriam-Webster Dictionary).
3) **modify**
   IHO Definition: To make basic or fundamental changes to the characteristics of something, often to give a new orientation to or to serve a new end. (Merriam-Webster Dictionary).
4) **move**
   IHO Definition: To change the place or position of something. (Adapted from Merriam-Webster Dictionary).

Remarks:
- No remarks.

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- Duplicates the geometry of the updated feature.
- Generates the required Update highlight symbology.

UPDATE TYPE

- Intended for symbology purposes only.

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Note: Manufactures may choose to implement a filtering mechanism to emphasise only the significant change to the Mariner.

On mariners demand automatic chart corrections of ENC information must be highlighted as follows:

10.7.2.1 Added Feature
When the ENC ISO 8211 record update instruction (RUIN) is set to 1 = Insert:

Point object:	Superimpose SY(CHRVID01).
Line object:	Overwrite with line LC(CHRVID02).
Area object:	Overwrite area boundary with line LC(CHRVID02) and superimpose SY(CHRVID01) on any centred symbol.

10.7.2.2 Deleted Feature
When the ENC ISO 8211 record update instruction (RUIN) is set to 2 = Delete :

Point object:	Superimpose SY(CHRVDEL1).
Line object:	Overwrite with line LC(CHRVDEL2) (do not remove the original line).
Area object:	Overwrite area boundary with line LC(CHRVDEL2) and superimpose SY(CHRVDEL1) on any centred symbol.

10.7.2.3 Moved Feature
As for deleted feature, followed by added feature.

10.7.2.4 Modified Feature
When the ENC ISO 8211 record update instruction (RUIN) is set to 3 = Modify:

Point:	Superimpose SY(CHRVID01) and SY(CHRVDEL1).
Line:	Overwrite with LC(CHRVID02) and LC(CHRVDEL2).
Area:	Overwrite the boundary with LC(CHRVID02) and LC(CHRVDEL2) and also superimpose SY(CHRVID01) and SY(CHRVDEL1) on any centred symbol.

28.Y update type

IHO Definition: UPDATE TYPE. An action performed when the contents of a dataset are changed.

Attribute Type: Enumeration

1) **insert**
   IHO Definition: To put or introduce into the body of something. (Merriam-Webster Dictionary).

2) **delete**
   IHO Definition: To eliminate especially by cutting out or erasing. (Adapted from Merriam-Webster Dictionary).
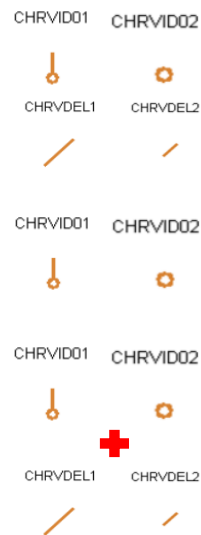
3) **modify**
   IHO Definition: To make basic or fundamental changes to the characteristics of something, often to give a new orientation to or to serve a new end. (Merriam-Webster Dictionary).
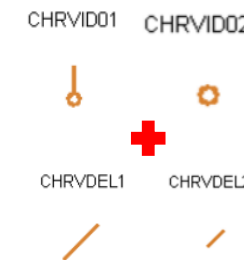
4) **move**
   IHO Definition: To change the place or position of something. (Adapted from Merriam-Webster Dictionary).

Remarks:
- No remarks.

Existing process or new symbol?

UPDATE NUMBER

28.X   update number

IHO Definition: **UPDATE NUMBER.** The number corresponding to the extension part of the file name for an Update dataset.

Attribute Type: Integer

Indication: For an Update file, corresponds to the EEE of an ENC dataset file name 101CCCC000000000.EEE.

Format: xxx

Minimum value: 0

Example: 1 for Update number 1

Remarks:
• Leading zeros must not be encoded.

• A new attribute updateNumber has been added to aid in the portrayal of the UpdateInformation features when the Mariner chooses to view update highlights based on dataset load. The requirement for this attribute will need to be determined through testing.

- ## Intended for date dependant Updates.
  - For insertions and modifications, duplication of the dates populated in dateEnd and dateStart for the associated feature.
  - For deletions, dateEnd and dateStart transposed?
  - For moves, dependent on portrayal solution?
  - For deletions, how is the existing process of the retention of the symbol to be handled?

10.7.2.2 Deleted Feature
When the ENC ISO 8211 record update instruction (RUIN) is set to 2 = Delete :

Point object:	Superimpose SY(CHRVDEL1).
Line object:	Overwrite with line LC(CHRVDEL2) (do not remove the original line).
Area object:	Overwrite area boundary with line LC(CHRVDEL2) and superimpose SY(CHRVDEL1) on any centred symbol.

10.7.2.3 Moved Feature
As for deleted feature, followed by added feature.

29.4 fixed date range

IHO Definition: FIXED DATE RANGE. An active period of a single fixed event or occurrence, as the date range between discrete start and end dates.

Indication: The complex attribute describes single fixed period, as the date range between its sub-attributes.

Sub-attributes: **date end** see clause 27.78
date start see clause 27.80

Remarks:
- The sub-attributes **date start** and **date end** must be encoded in the format YYYYMMDD; using 4 digits for the calendar year (YYYY) and, optionally, 2 digits for the month (MM) (for example April = 04) and 2 digits for the day (DD). When no specific month and/or day is required/known, the values are replaced with dashes (-).

- The complex attribute fixedDateRange has been added. This attribute is intended to be populated only if the feature being updated has fixedDataRange populated; and if populated must have identical values to the feature being updated.

RECOMMENDATIONS

- Approve the revised modelling and associated encoding guidance for the UpdateInformation meta feature and discuss any improvements that may be made in the model or associated guidance.

- Approve the replacement of the existing S57/S-52 method for the highlighting of S-101 ENC Updates at mariner request with highlighting using the UpdateInformation meta feature.

- Discuss the technical aspects of this implementation.

- Agree for the approved changes to the UpdateInformation meta feature to be included in S-101 Edition 1.2.0 for implementation and testing purposes, in particular the testing of the methodology in the dual-fuel environment, with the intention to incorporate changes resulting from feedback on this modelling and associated ENC Update highlight methodology in the operational S-101 Edition 2.0.0.

ACTIONS REQUESTED OF S-101PT

- **Discuss** the proposal.
- **Approve** the recommendations included in the proposal.
- **Initiate** further action as required.

THANK YOU

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