Paper for Consideration by TSM3

Alert and indications model for S-100

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Executive Summary:	This is a discussion paper about need and justification to included Alerts and indications model for S-100. Further this paper propose possible technical methods to implement this kind of functionality within S-100 model.
Related Documents:	TSMAD28_DIPWG6_12.4A_What_is_needed_for_full_machine_readability.
Related Projects:	Development of S-100, Development of S-101, Development of S-10X product specifications

Introduction / Background

1. The writer has promoted by spoken comments in many IHO meetings the promised "in S-100 there is no need for software upgrade" slogan.

2. The writer has been asked to put these spoken comments in an official input paper so that the issue could be addresses. Such official input paper was presented at TSMAD28 (see TSMAD28/DIPWG6 12.4). This paper listed 6 items to be solved (see para 5 of TSMAD28/DIPWG6 12.4). This paper is focusing on issue:

> 5.4 Available, if any, functionality based on object(s)/attribute(s) combinations. Good examples from history are "detection of safety contour", "detection of navigational hazards" and "detection of areas for which special condition exist".

Analysis/Discussion

3. What does "no need for sw upgrade mean" ? For us manufacturers it means two use cases:

> 3.1 There is no need for sw upgrade when the end user start to use a new S-10X product layer and
> 3.2 There is no need for sw upgrade when the end user keeps his system up-to-date with an S-10X product layer which has already been in use in his system.

4. The promise: No need for sw upgrade when the end user begins to use new S-10X product layer. In practise this means that the end user can register new S-10X product layers in his ECDIS. This registration should then establish everything needed in an ECDIS to receive, to display and to provide intended functionality for the end user. In practise the registration happens by the ECDIS reading machine readable file(s).

5. One may argue that functionality based on feature(s)/attribute(s) combinations (for example detection of safety contour, detection of navigational hazards and detection of areas with special conditions only for S-101 ENC charts but that is not true. The AML and S-102 bathymetric layer are both good examples what kind of requirements may arrive from generic S-10X product layers.

6. Next issue within registration is how and from where the end user can learn about possible new S-10X product layers available for registration for his ECDIS. I have heard people taking about Discovery lists, Maritime Service Portfolios, etc. For time being and from the main message of this paper point of view the detail of original source of machine readable file(s) for the registration could be ignored today. From this paper point of view we can assume that the machine readable files for registration are available for reading by ECDIS in a media which is supported by the ECDIS (for example DVD, USB memory stick, LAN connection to network drive, etc.).

7. After the initial registration the detailed specifications of an S-10X product layer may change. In such case it is assumed that a new registration should be performed (i.e. it is assumed that this is like new edition and not like incremental update). It is also assumed that a need for this re-registration will happen quite seldom compared to update of the data itself (based on history for example the HSSC meeting has approved only once per year a new edition or supplement). Anyhow usability of the ECDIS requires that there is a technical method to detect the need for re-registration of an S-10X product layer. Then the ECDIS can after the detection ask permission from the end user to perform the re-registration.

8. In nutshell the required technical implementation features of the expected end user functionality of alerts and indications could summarized:

8.1 List of "feature names" for each cause of alert or indication. Later called in this document "AlertOrIndicationLayer". This list will be the basis of the Human Machine Interface.

8.2 Attributes of the AlertOrIndication object, for example (enumeration values within brackets):

- CategoryOfAlertOrIndication (alert/indication)
- PriorityOfAlert (alarm/warning/caution), if we follow IMO alert priority scheme)
- UsageOfAlertOrIndication (Route/MonitoredRoute/PlannedRoute/OwnShip/StandAlone)

8.3 List of feature&attribute combinations (and conditions) related to each listed AlertOrIndicationLayer. This list obviously reference the feature catalog of the related S-10X layer

8.4 Portrayal of alerts and indications. At least there is a need to specify portrayal of each AlertOrIndicatioLayer for the highlight of geographical areas affected by that alert or indication. Obviously the portrayal should be separately defined based on each possible attribute combination of the AlertOrIndicationLayer.

9. One could think that Alerts and Indications have something in common with the Portrayal. For example:

9.1 "object name" of AlertOrIndicationLayer is similar as name of the "viewing group layer" for portrayal.

9.2 Further feature&attribute combinations (and conditions) are similar to the look-up-table system used in portrayal

Therefore one could copy-paste relevant parts of the portrayal model into this alerts or indication model.

Conclusions

10. Defining "alert and indication" model is today not so difficult as it is possible to reuse the good work already done for the first portrayal model included into the S-100. More or less the issue is like:

10.1 Create AlertOrIndication feature with relevant attributes

10.2 Create AlertOrIndicationLayer concept

10.3 Then copy-paste the ideas of portrayal model as a separate machine readable catalogue from the portrayal itself.

10.4 One detail to think about is how to arrange the portrayal part of "alerts and indication" model – could it be part of the portrayal of the related S-10X layer itself or would it need a separate portrayal model,

Recommendations

12. The issues described by this paper should be studied and appropriate drafting processes should be initiated.

Justification and Impacts

13. We have all seen how difficult it is within IMO to overrule "grandfather" principle for already installed equipment. We can all share the view that the S-100 is an ultimate solution to improve the situation by creating platforms which can be compatible with S-10X layer never heard by the sw developers when the ECDIS was originally designed and manufactured.

14. The promise will not be true in reality, if we fail to provide just one of the machine readable components of the registration. Just one missing detail will cause the need to hardcode the non-machine readable details in the sw and therefore each new S-10X layer or an update to existing S-10X layer will fail to meet the promise "in S-100 there is no need for software upgrade".

15. The failure to meet the promise will increase the voice of the IMO member state choir which is singing that ECDIS has been not mature enough for being mandatory carriage requirement. A replacement of a blue box by a green box does not help, if the change is only in the colour of the box, but not in the content.

Action Required of TMS3

The TMS3 is invited to:

a)   Discuss and agree the issues presented in this paper

b)   Create a plan for drafting required text for the next edition of the S-100

c)   Create a plan for drafting required objects, attributes, etc. of the "alerts and indication" model for S-101 ENC charts