

Paper for Consideration by the S-101PT

Order of Records in S-101

Submitted by:	SevenCs GmbH – Holger Bothien; Nautical Dimensions – Frank Hippmann
Executive Summary:	Proposal to better definition of the order of records in a dataset file
Related document(s):	S-101 Product specification

Introduction / Background

The current version of the S-101 Product Specification defines the order of records in the (normative) Annex B under clause B.1.

It is still based on the corresponding section of the S-57 ENC PS and has a few problems.

Analysis/Discussion

The order of records should make sure that every record that is referenced must be defined before. This general rule exists in the product specification. However, the order described is not sufficient to achieve that goal especially if update files are taken into consideration. On the other hand, there is no reason for the sub-order of feature types at all. In S-100 three types of records may have references to records of the same type.

- Information Type records
- Composite Curve records
- Feature Type records

In all this groups the order must satisfy the general rule mentioned above.

Consider update files the RUIN (Record Update Instruction must be taken into consideration. The general rule should be:

1. Insert all new records, in the order used in base files
2. Modify all existing records if necessary
3. Delete records in an order so that every record that will be deleted is not referenced by any other record anymore.

Conclusions

Taken all the above into consideration the following order should be defined

1. Dataset General Information record
2. Dataset Coordinate Reference System record
3. Information Type records (RUIN=Insert) ordered from child to parent
4. Point records (RUIN=Insert)
5. Multi Point records (RUIN=Insert)
6. Curve records (RUIN=Insert)
7. Composite Curve records (RUIN=Insert) ordered from child to parent
8. Surface records (RUIN=Insert)
9. Feature Type records (RUIN=Insert) ordered from child to parent
10. Information Type records (RUIN=Modify)
11. Point records (RUIN= Modify)
12. Multi Point records (RUIN= Modify)
13. Curve records (RUIN= Modify)

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14. Composite Curve records (RUIN= Modify)
15. Surface records (RUIN= Modify)
16. Feature Type records (RUIN= Modify)
17. Feature Type records (RUIN=Delete) ordered from parent to child
18. Surface records (RUIN=Delete)
19. Composite Curve records (RUIN=Delete) ordered from parent to child
20. Curve records (RUIN=Delete)
21. Multi Point records (RUIN=Delete)
22. Point records (RUIN=Delete)
23. Information Type records (RUIN=Delete) ordered from parent to child

The sentence:

This order of records will enable the import software to check that the child record exists each time the parent record references it (that is, it will already have read the child record so it will know if it exists or not).

should be kept and the following text should be added.

It will furthermore guarantee that all records that are going to be deleted are not referenced by any other record.

In section B.2 the sentence

The order of records in the files must be the same as that described in these tree structure diagrams.

Is not true and should be removed. The tree structure diagrams does not define the order but the hierarchy of records, fields, and sub-fields.

Note that the order of records is currently only defined by the product specification but is in fact a general rule that applies to all products that uses the ISO8211 encoding. A separate proposal has been made to the S-100 WG to insert these rules into S-100 Part 10a.

Product specification may not use all record types defined by S-100 Part 10a or restrict the use of fields for specific record types but should not alter the general record order.

Recommendations

It is recommended that the proposed changes should be added to the product specification to give software manufacture a better guidance to implement production software as well as import routines.

Action Required by the S-101PT

The S-101PT is invited to:

- a. Note this paper
- b. Discuss this paper
- c. Endorse the proposals and make the appropriate changes