Paper for Consideration by ENCWG

S-58 check 555 proposed changes

Submitted by:	PRIMAR
Executive Summary:	Severity of S-58 check 555
Related Documents:	S-58 6.1.0
	S-57 Appendix B.1 - ENC Product Specification
Related Projects:	

Introduction / Background

PRIMAR proposes changes to S-58 check 555. The Critical severity of the check may be unnecessary for all possible outcomes of this check. We propose to divide the check into two new ones, 555a with Category Critical and 555b with Category Error or Warning.

Analysis

1. In May 2017 PRIMAR started using a new validation tool version in our validation procedures.
This new version included a test reporting errors related to S-58 check 555

555	If the order of the data in a base or update file is not correct.	Incorrect data order.	Amend data order.	6.1.1	C

2. We experienced this error to be reported on data from a couple of producing agencies and when investigating further we found the error being present in some of these data since 2012.

3. The error specific reports: Invalid data order: a meta feature appears in the dataset after a geo feature.

This seems to be reported correctly according to S-57 Appendix B.1 - ENC Product Specification, chapter 6.1.1:

6.1.1   Catalogue and data set files

These files are composed of the records and fields defined in the following tree structure diagrams (see clauses 6.2.1, 6.3.1 and 6.4.1).

The order of data in each base or update cell file is described below :

```
Data set file
    Data set general information record
    Data set geographic reference record (for EN application profile)
    Vector records
        Isolated nodes (SG3D)
        Isolated nodes (SG2D)
        Connected nodes
        Edges
    Feature records
        Meta features
        Geo features (ordered from slave to master)
        Collection features
```

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

4. As S-58 6.1.0 does not come into force before 1st of September 2019, at the present time those errors are still existing in the data within our service and has been there at least since 2012. At present time those data are being used by at least 12 different ECDIS systems.

During the time of use since 2012 we have never received any complaints related to this error. Having had those data in our service for such a long time period, and the data being used by so many different systems, makes us question whether the severity of this error should be reconsidered. Perhaps the check could be divided into two checks, one where Category equals Critical and one where Category equals Error or Warning.

5. If we look at the order of data, it does make sense that for Collection features child records could be found in the Meta features (e.g. the encoding of M_NPUB in a Traffic separation scheme and the M_NPUB being part of the aggregation).

But does it make sense that Meta features must be listed before Geo features? Is there any situation where a Geo feature will use a child record found in the Meta features?

If there are no such situation where a Geo feature will use a child record found in the Meta features, it may not be critical that a Meta feature appears in the structure after a Geo feature.

6. We also think the order of Isolated nodes (SG3D), Isolated nodes (SG2D) and Connected nodes are not important, if they occur before Edges and Feature records. Therefore, inconsistencies in this order could also be less severe than Critical.

7. Based on above descriptions we could consider if test 555 should be divided into separate checks, making one less severe than the other.

The proposed new a and b check:

555a	If the order of the data in a base or update file is not correct, except for when: 1. isolated nodes (SG2D) are listed before isolated nodes (SG3D) or 2. connected nodes are listed before isolated nodes (SG3D) or 3. connected nodes are listed before isolated nodes (SG2D) or 4. meta features are listed before a geo features	Incorrect data order	Amend data order	6.1.1	C

555b	If the order of the data in a base or update file is such that: 1. isolated nodes (SG2D) are listed before isolated nodes (SG3D) or 2. connected nodes are listed before isolated nodes (SG3D) or 3. connected nodes are listed before isolated nodes (SG2D) or 4. meta feature are listed before a geo feature.	Incorrect data order	Amend data order	6.1.1	E/W

Conclusions

Experience over a time period indicates that the severity of all possible outcomes of check 555 may not need to be classified as Critical. Therefore, check 555 is proposed to be divided into two new checks, 555a with Category Critical and 555b with Category Error or Warning.

Action Required of ENCWG

The ENCWG is invited to:

Note this paper and discuss if the proposals are acceptable, and

decide whether proposed check 555b should be categorized as Warning or Error.