



S-101PT

Use of SMIN/SMAX in S-101

Background (S-57)

- S-57 contains feature attributes, SCAMIN and SCAMAX.
- SCAMAX is not used in S-57 ENC.

S-57 definition for SCAMIN:

- *The minimum scale at which the object may be used e.g. for ECDIS presentation.*
- *The modulus of the scale is indicated, that is 1:1 250 000 is encoded as 1250000.*
 - **Note:** modulus is not the correct terminology. Should be reciprocal, denominator or inverse.



Background (S-100/S-101)

- S-101 attributes `scaleMinimum` and `scaleMaximum` are the successors of `SCAMIN` and `SCAMAX`.
- Same incorrect usage of “modulus”.
- Also available for spatial objects, modelled after `100_GF_SpatialAttributeType`.

Incorrect Definitions

S-100 part 3

scaleMinimum	The smallest denominator of a scale for that an instance of a feature type shall be used (for example for portrayal)
scaleMaximum	The largest denominator of a scale for that an instance of a feature type shall be used (for example, for portrayal)

Should read

scaleMinimum	The denominator of the smallest scale for which the referenced geometry can be used for the instance of the feature type e.g., for depiction.
scaleMaximum	The denominator of the largest scale for which the referenced geometry can be used for the instance of the feature type e.g., for depiction.

Incorrect Definitions

S-100 10a-5.10.2.3

Scale Minimum	SMIN	b14	Denominator of the largest scale for which the feature type can be depicted by the referenced spatial object If the value is 0 it does not apply
Scale Maximum	SMAX	b14	Denominator of the smallest scale for which the feature type can be depicted by the referenced spatial object If the value is $2^{32}-1$ it does not apply

The definitions are reversed.

Items of note:

- Inconsistent use of terminology
 - "*NULL (Not Applicable)*" vs. "*does not apply*"
 - Different definitions for NULL.



Incorrect Definitions

Incorrect definitions repeated for S-101 B-5.1.31 and B-6.1.30.

- SPAS-SMIN and SPAS-SMAX are not used for S-101, therefore, definitions do not need to be repeated.



Recommendations

1. Specify that `scaleMinimum/scaleMaximum` properties of **`S100_GF_SpatialAttributeType`** are not used for S-101.
 - New section 4.8.2 Use of scale properties for feature to geometry relations
 - **Text:** *The properties `scaleMinimum` and `scaleMaximum` of `S100_GF_SpatialAttributeType` will not be used. Therefore, the encoding must always encode the values for 'Not Apply'. The scale dependent depiction will be controlled by*

Recommendations

2. Amend S-101 B-5.1.31 and B-6.1.30

Scale Minimum	SMIN	b14	$\{2^{32}-1\}$ – NULL (Not Applicable) – see Note
Scale Maximum	SMAX	b14	$\{0\}$ – NULL (Not Applicable) – see Note

Note:

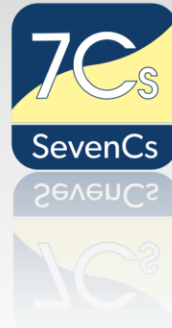
For a correct handling of older data, robust parsers should consider both 0 and $2^{32}-1$ as 'Not Applicable' for the SMIN and the SMAX sub-field.



Actions Required by S-101PT

The S-101PT is invited to:

1. note this paper
2. discuss the paper
3. revise the proposals if necessary
4. endorse the proposed changes



Thank you!