

**Title: Part 10c Array Indexing, TIN Data Points****S-100 Maintenance - Change Proposal Form**

<b>Organisation</b>	Portolan Sciences LLC	<b>Date</b>	25-October-2023
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**Change Proposal Type** (*Select only one option*)

1. Clarification	2. Correction	3. Extension
X		

**Location** (*Identify all change proposal locations*)

No.	S-100 Version No.	Part No.	Section No.	Proposal Summary
1	5.1.0	10c	9.1.1 (new)	Add clause 9.1.1 specifying the rule for 0-basing explicit or implicit array and grid cell index values.
2		10c	9.6.1	Clarify that data values for TIN formats are located at the vertex points of the network.
3		10c	9.6.1	Spelling correction, para. 3, 3 <sup>rd</sup> sentence: "...codes indicating the corners..."

**Change Proposal**

The proposed new or revised text is in red below.

1) *Add a new clause 10c-9.1.1 clarifying array and cell indexing:*

**10c-9.1.1 Array and grid element indexing**

Arrays: When an index referencing a element of an array is used, either explicitly or implicitly, the referenced array must be treated as using 0-based indexing.

EXAMPLE: A member of the *triangles* array for a TIN defines a particular triangle by encoding the indexes of the first, second, and third coordinate pair entries in the *geometryValues* array. The values encoded in this member of the *triangles* array are 0, 1, and 2 respectively. (This is an explicit use of index values of the subject array *geometryValues*.)

Grid points and grid cells: When an index value referencing particular grid points or cells of a grid are used, either explicitly or implicitly, the grid points or cells must be treated as using 0-based indexing.

EXAMPLE: The generation of Morton codes for irregular grids or variable cell size grids uses 0-based indexing for grid points.

NOTE (informative): Application developers may need to take library or programming language conventions into account. For example, a language that uses 1-based indexing

for arrays would need to add 1 to an index value encoded in the *triangles* array in order to reference the intended element in the *geometryValues* array.

## 2) Data values for TIN formats

*Clause 10c-9.6.1 (Location of data point within cell): Insert a new paragraph at the end of the clause specifying the location for TIN coverages:*

For TIN coverages, the data points are located at the vertex points of the TIN. See Part 8 clause 8-7.4.

## Change Proposal Justification

Items 1 & 2 address questions raised by implementers. Item 3 corrects a typographical error.

## What parts of the S-100 Infrastructure will this proposal affect?

- S-100 Feature Concept Dictionary Interface or Database
- S-100 Portrayal Register
- S-100 Feature Catalogue Builder
- S-100 Portrayal Catalogue Builder
- S-100 UML Models
- S-100 GitHub Schemas

**Please send completed forms and supporting documentation to the secretary S-100WG.**