

Title: Part 13 extension for spatial relations involving MultiPoint geometries

S-100 Maintenance - Change Proposal Form

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Change Proposal Type (*Select only one option*)

1. Clarification	2. Correction	3. Extension
		X

Location (*Identify all change proposal locations*)

S-100 Version No.	Part No.	Section No.	Proposal Summary
5.0	13	13-8.2.3	Add 13-8.2.3.2 HostSpatialRelatePoints

Change Proposal

Add a Part 13 host scripting function to support evaluating spatial relationships between each point of a multipoint geometry and any other non-multipoint geometry.

Change Proposal Justification

To implement proposed S-101 portrayals of data quality it may be necessary to determine which QoBD feature contains each point of a Sounding feature.

Currently, S-100 Part 13 provides a single spatial operation function: **HostSpatialRelate**. This function can only relate entire geometries to one another; it is not possible to relate individual points of a MultiPoint geometry (individual soundings) to other geometries (such as the surface associated with a QoBD feature).

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.

13-8.2.3.1 boolean HostSpatialRelate(string *spatialID1*, string *spatialID2*, string *intersectionPatternMatrix*)

[...]

13-8.2.3.2 boolean[] HostSpatialRelatePoints(string *spatialID1*, string *spatialID2*, string[] *intersectionPatternMatrix*)

Return Value:

boolean[]

For each point of a MultiPoint geometry, returns true if the point and other geometry are related as specified in the DE-9IM matrix.

Parameters:

spatialID1: string

Uniquely identifies a spatial instance.

spatialID2: string

Uniquely identifies a spatial instance.

intersectionPatternMatrix: string

DE-9IM intersection matrix expressed as nine characters in row major order.

Remarks:

Spatially relates each point of a MultiPoint geometry to another geometry using the DE-9IM intersection specified via the *intersectionPatternMatrix* string.

One of *spatialID1* or *spatialID2* must identify a MultiPoint geometry, the other geometry must not be a MultiPoint. It is the hosts responsibility to iterate over each point of the MultiPoint geometry and spatially relate the point to the other spatial instance.

For details on DE-9IM string representation refer to ISO 19125-1:2004, *Geographic information – Simple feature access – Part 1: Common architecture, section 6.1.14.2 The Dimensionally Extended Nine-Intersection Model (DE-9IM)*.