

Use of GML within CATALOG.XML

- CATALOG.XML (exchange set catalogue) under Part 17 has its own schema. The schema includes GML Schemas (from ISO) for elements defining dataset coverage. These are fixed.
- GML Schemas (mostly under NIPWG product specifications) also include the same ISO GML Schemas for geometry elements. Also fixed.
- The ISO GML Schemas allow a full range of GML geometries to be used within elements in S-100 schemas.
- The CATALOG.XML is a mixture of S-100 bespoke XML and included GML. NIPWG datasets are GML documents which conform to the S-100 GML profile.

Representation of Coverage Polygons

- There is an “almost infinite” number of ways of representing a Polygon using GML. In order to simplify implementation for OEMs and others it may be advantageous to “profile” which methods of polygon representation we allow within CATALOG.XML.
- Potential to extend to other S-100 products too.
- NIPWG10 decided to restrict the GML used, not to define an S-100 GML Polygon.
- Need to make sure we preserve the ability to reference geometries to preserve the ability to share common geometry.
- Also (to be clear) we are **not** extending or modifying Part 10b. Clarifications are possible though.
- This simplifies coverage polygons to a single exterior with 0 or more interiors

```

<S100XC:boundingPolygon>
  <gex:polygon>
    <gml:Polygon gml:id="DC1">
      <gml:exterior>
        <gml:LinearRing>
          <gml:posList srsName="EPSG:4326">
            0.0 0.0 1.0 0.0 1.1 1.1 0.0 1.0 0.0 0.0
          </gml:posList>
        </gml:LinearRing>
      </gml:exterior>
      <gml:interior>
        <gml:LinearRing>
          <gml:posList srsName="EPSG:4326">
            0.25 0.25 0.75 0.25 0.75 0.75 0.25 0.75 0.25 0.25
          </gml:posList>
        </gml:LinearRing>
      </gml:interior>
    </gml:Polygon>
  </gex:polygon>
</S100XC:boundingPolygon>

```

- Bounding Polygons are restricted to a single GML Polygon
 - with a valid gml:id
 - with an SRS defined in each of the posList coordinates of EPSG:4326)
 - single exterior element
 - optional (i.e. 0 or more) interior elements.
 - Each exterior or optional interior is a Linear Ring with >=4 coordinate pairs, with the first and last coordinate pair being identical, i.e. the Linear Ring is closed. Individual positions or posList can be used.
 - Coordinate order is as per EPSG:4326, latitude/longitude.
 - Geometry can also be by reference

- No further constraints are required