[S100WG6-4.20]

Title: Datatype Formats

S-100 Maintenance - Change Proposal Form

Organisation	Portolan Sciences LLC	**Date**	26-Nov-2021
Contact	Raphael Malyankar	**Email**	raphaelm@portolansciences.com

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	4.0.0	1	4.5.1 General considerations	Add paragraph saying data formats can use representations appropriate to the format.
2		1	4.5.2 Table 1-2 Date	Add at the end of the Description: In XML formats, the XML Schema standard type should be used instead of the ISO 8601 basic representation (which is not a standard type in XML). EXAMPLE: 1998-09-18
3		1	4.5.2 Table 1-2 Time	Add at the end of the Description: In XML formats, the XML Schema standard type should be used instead of the ISO 8601 basic representation (which is not a standard type in XML). EXAMPLES: 18:30:59Z, 18:30:59+01:00, 18:30:59
4		1	4.5.2 Table 1-2 DateTime	Add at the end of the Description: In XML formats, the XML Schema standard type should be used instead of the ISO 8601 basic representation (which is not a standard type in XML). EXAMPLES: 1985-04-12T10:15:30, 1985-04-12T10:15:30+01:00, 1985-04-12T10:15:30Z

Change Proposal

XML Schema requires hyphen and colon separators in date and time (the W3C XML Schema Datatypes specification mandates the ISO 8601 “extended” format - the ISO 8601 “basic” format is invalid). The XML datatypes are used for date, time, and dateTime in ISO schemas and GML, which are in turn used in S-100 metadata and the GML format. S-100 Table 1-2 mentions only the "basic format" which, being invalid XML date/time/dateTime values, would cause validation failures in S-100 metadata and GML.

Changing the S-100 XML schemas to use strings with pattern restrictions instead is not feasible due to the complexity of the restrictions and the need for ISO compatibility. The XML built-in types are used in the schemas issued by ISO TC211 (metadata) and OGC (GML). They must be retained for ISO and GML compatibility. With the built-in XML date and time types, validation can be done automatically with off-the-shelf software.

This proposal is a clarification. No revisions to the S-100 metadata schemas, the GML profile, or existing product specifications are needed.

Item 1 (new text in red)

1-4.5.1 Primitive types

The basic data types are grouped into two categories:

1) Primitive types: Fundamental types for representing values, for instance CharacterString, Integer, Boolean, Date, Time, etc.

2) Complex types: A combination of types, for instance a combination of measure types and units of measurement.

The repertoire of basic data types is described in the following sub-clauses.

S-100 data formats may represent values using appropriate built-in or standard types. For example, the ISO 8211 format (Part 10a) represents the values of all thematic feature attributes in strings instead of using the ISO 8211 signed integer, unsigned integer, or signed floating point representations for thematic attributes of S-100 type Integer or Real.

Change Proposal Justification

This clarification is needed to remove a source of misunderstandings in the implementation of S-100 and ensure compatibility with ISO and GML specifications and schemas.

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.