

Notes (07 November 2018)

Folder Organization:

Wherever local files are referenced in the XSD files and XML sample files, the references are based on this organization of folders.

Table 1. File and folder organization

S-100 schemas and other files		
schemas/	This folder. Contains the S-100 schemas. Optionally, may contain the ISO schemas as well.	
s100/	S-100 schemas	
4.0.0/	Edition 4.0.0 schemas container	
S100Catalog/	Exchange catalogue schema container	
20180502/	OBSOLETE DRAFT	
20180619/	OBSOLETE DRAFT	
20181015/	Build 20181015 of the exchange catalogue schemas. This build includes revisions to the exchange catalogue arising from TSM6.	
Files in S100Catalog build folders: (20180502 and 20180619 are obsolete as of 15 Oct. 2018) 20180502 20180619 20181015	S100_ExchangeCatalog.xsd	XML schema for S-100 exchange catalogue
	s100mds.xsd	container file for S-100 extensions to service identification metadata
	serviceIdentification.xsd	S-100 extensions to service identification metadata
	ISOTS19139A1Constraints_v1.4.sch	Schematron ISO 91139 constraints (necessity for S-100 Edition 4.x TBD)
	S100_DSMD.sch	Schematron file with S-100-specific validation checks for ISO 19115-1 metadata files for vector datasets
	S100_XC.sch	Schematron file with S-100-specific validation checks for exchange catalogues
S100DE/	Data encryption schema container	
20180619/	OBSOLETE DRAFT.	
20181015/	Build 20181015 of the permit file XML schema. For the October 1028 draft of S-100 4.0.0 Edition.	
S100FC/	Feature catalogue schema container	
20180502/	OBSOLETE DRAFT. This build DOES NOT include the revisions due to introduction of ISO 19115-1 and 19115-3.	
20180611/	Build 20180611 of the feature catalogue schemas. This build DOES include the revisions due to introduction of ISO 19115-1 and 19115-3.	
S100GML/	GML profile container	
20180502/	Build 20180502 of the GML profile. Future distributions may have additional or other build folders.	

S100IC/	MOVED to S98 folder, following the assignment of an S- number to this specification.
S100XSLTPR/	Container for S-100 XSLT portrayal schemas.
20180619/	DELETE - OBSOLETE DRAFT. Lacks LUA in file formats.
20181015/	Container for 20181015 build of XSLT portrayal schemas. The same as the obsolete 20180619 build, but updated to include "LUA" in the FileFormat enumeration.
resources/	Container for resource files
Codelists/	Container for S-100 codelists (see the next table)
XMLCatalogs/	Container for XML catalogs. Currently empty, reserved for developer-provided XML catalogs.
w3c/	(folder hierarchy with W3C XLink schema)
<i>ISO schemas and other files</i>	
standards.iso.org/	Folder with ISO TC211 schemas. These are a snapshot of the "working versions" from the ISO TC211 GitHub site. (Distribution held pending clarification of permissions.)
19110/ 19115/ 19135/ 19139/ 19157/	ISO schemas. The names and organization are the same as in the ISO distribution. Notes: (1) Some ISO schema files may import other schema files from the ISO site, so without an implementation based on XML catalogs, those imports will access the offsite files. At this point of time (June 2018) there is no known problem related to this, but as time passes and schemas evolve this might change. (2) The ISO distribution also includes 19111, 19155, and 19165 folders, which have been removed since they are not required for S-100 4.0.0 (determined by visual inspection - please inform the S-100 WG chair if they are in fact needed).
<i>Schemas for product specifications</i>	
S98/ S101/ S111/ etc.	Folders for schemas for individual product specifications, including metadata/exchange catalogue schemas extending the S-100 generic schemas. As of 7 November 2018, these schemas are under development.
<i>Samples</i>	
samples/	Samples folder
S100_4_0/	Folder with S-100 4.0 samples
FC/	Feature catalogue sample(s).
20180611/	Sample conforming to the 20180611 build of the feature catalogue schema
permits/	Permits file sample(s).
20180619/	OBSOLETE DRAFT
20181015/	Sample permit file corresponding to the 20181015 build of the permit file schema (for the October 2018 draft of S-100 Ed. 4.0.0).
xc/	Samples of S-100 exchange catalogue and ISO 19115-3 metadata.
20180508/	OBSOLETE DRAFT.
20180619/	OBSOLETE DRAFT.
20181015/	Samples for the 20181015 build of the exchange catalogue schemas. Includes updated digital signature examples and TSM6 revisions.

Table 2. Codelists

S-100 Codelist locations	
<code>S100/4.0.0/resources/Codelists/</code>	Container for S-100 codelist folders
<code>cat/codelists.xml</code>	Comprehensive ISO codelists file. IHO S-100 codelists in ISO catalog format. Supplements the ISO codelists file by defining two codelists not defined in that file. Updated 2018-11-05 to add a codelist for the data encoding format described in S-100 Part 10c, for use by specifications which encode that in metadata files.
<code>gml/*.xml</code>	IHO S-100 codelists in GML dictionary format (currently none)
ISO Codelist locations	
<code>standards.iso.org/19115/resources/Codelists/</code>	Container for ISO codelist folders (see Note 2 below)
<code>cat/codelists.xml</code>	Comprehensive ISO codelists file. ISO TC211 codelists in a single file in ISO catalog format.
<code>gml/*.xml</code>	Codelists in separate files in GML dictionary format. Currently has more codelists than the ISO "cat" codelists.xml
<code>standards.iso.org/191xx/.../codelists.xml</code>	Additional locations for the codelists for individual specifications as separate files. The ISO TC211 distribution includes these files for convenience. However, to minimize the chances of conflicts, S-100 implementations must treat these files as fallbacks, i.e., use these files only if the codelist is not specified in the ISO 19115 comprehensive codelists file or the S-100 comprehensive codelists file.

Version numbering:

The S-100 schemas have the version number in the <schema> element. The format is N1.N2.N3-YYYYMMDD where:

- N1, N2, and N3 are the major version, revision, and clarification number respectively of the S-100 edition
- YYYYMMDD the build date of the schema.

Example: <schema . . . version="4.0.0-20180502"> indicates build 20180502 of the schemas for S-100 Edition 4.0.0.

Clarifications to the S-100 standard may or may not result in an update of the XSD files. If an update does result, it will be a "non-substantive change" and will not change the structure of the schema, but may correct grammatical and spelling errors (including element definitions); or amend or update cross references. If the schemas are updated, the build date will also be updated.

Corrections to XSD files which are due to errors or amendments to the XSD files themselves and not caused by changes in S-100 will result in a new version of the schema files which has the same S-100 edition component but a different build date from the previous version of the schemas.

Dependency on particular versions of the schemas should be checked by comparing at least the N1.N2 and YYYYMMDD portions of the schema version. This means that the schema build date may have to be included where there is a dependency on XML schema structure (including the presence of enumerates, upper and lower bounds on multiplicity, etc.)

Additional notes:

- 1) The namespaces and referenced XSDs use the March 2018 ISO "Working Version" schemas by default. This is because "During September 2017 some problems were identified with the (ISO) codelists and a significant upgrade was made." Update (7 Nov. 2018): A note on the ISO working version now says "The schemas developed in this repository that include recent changes have been migrated to the Official ISO Schema Repository at <http://standards.iso.org> on September 18, 2018."
- 2) The official location of the ISO final schemas for ISO 19115-1/2/3 (for schema validation purposes) is given in a comment in the ExchangeCatalog.xsd file. To use the "final schemas" change the schemaLocation and namespaces in both the schemas and XML files. Schema-validity with subsequent ISO versions which implement the same 19115-X version is probable but not guaranteed. The same applies to Schematron rules. The codelist keys or values, however, may have changed and compatibility between ISO's "final" and working versions is not guaranteed.
- 3) ISO-provided Schematron files for validation are at present (11 May 2018) NOT included in the folders for the revised schemas, but Schematron files for the PREVIOUS versions may be available from the previous version's folders as the schemas. For example, cit.sch is provided in the folder standards.iso.org/19115/-3/cit/1.0/ but not in standards.iso.org/19115/-3/cit/2.0/. They MAY work for the revised versions as well (comprehensive testing has not been done nor is there an ISO statement clarifying this). Keep in mind the statements in Note 2 about Schematron rules and codelists.
- 4) XML catalogs describe mappings between external references and locally cached equivalents. They allow software tools and applications to resolve references to external entities (e.g., in schemaLocation attributes) in terms of locally cached files. (See "XML Catalogs - OASIS Standard V1.1, 7 October 2005" URI: <<https://www.oasis-open.org/committees/download.php/14810/xml-catalogs.pdf>>.) The development of XML catalogs for S-100 is not planned at present. This folder is reserved for depositing XML catalogs that may be prepared by developers.
- 5) There are discrepancies between ISO 19115-1 and the schemas distributed by ISO (both the final and working versions) in the folder and filenames of the codelist files. The sample in this distribution attempts to match the actual location of the codelists to the values encoded in the

samples, but the values encoded in the sample (i) need to be checked, and (ii) may have to be updated after ISO correct their discrepancies. Also, some codelists are missing from the ISO distribution. Note: (7 Nov. 2018): The discrepancies should have been resolved before the Sep. 18 migration to the official repository. Please inform us if they still exist.)

- 6) ISO 19115-3 defines the allowed space for character set codes (ISO CodeList MD_CharacterSetCode) as “use IANA Character Set register: <http://www.iana.org/assignments/character-sets>”. This is different from the ISO 19139 specification. MD_CharacterSetCode is used as the datatype for character PT_Locale and therefore the metadata attributes which are of type PT_Locale. The effects on S-100 artifacts, including various catalogues and the registry, remain to be determined. Meanwhile, the 19115-3 definition is defined in an S-100 codelists.xml resource file.