

Agreed changes to the INSPIRE Technical Documentation for “D2.8.II.3 INSPIRE Data Specification on Orthoimagery – Technical Guidelines” version 3.0

Color coded legend: **onlineDescription** - red color: what is agreed to be changed

externalDescription – yellow color: what is the precise change

Change: 1

Affected documents: **TGs**

Themes: **Elevation, Orthoimagery**, (+)

Subject: Clarify structure of coverage encoding-related sections in TGs - "Default encoding(s)" and "Alternative encoding(s)"

Description: The structure of sections “Default encoding(s)” (e.g. 9.4.1.2 in the Elevation TG) and “Alternative encoding(s)” (e.g. 9.4.2.1 in the Elevation TG) relative to coverage data need to be aligned with the different options foreseen to deliver this kind of data in INSPIRE (those explained in section 9.3 in the Elevation TG), in order to make it clear and avoid readers to misinterpret the content.

This is just an editorial clarification of the structure in the mentioned TG documents, rather than a change of content.

The proposal is applicable to both, TGs on Elevation and Orthoimagery, and probably to TGs from other INSPIRE themes dealing with coverage data.

Corrigendum: proposal for Section 9.4.1.2 – Pages 114-116:

9.4.1.2 – Default encoding(s) for application schema ElevationGridCoverage (coverage data)

Name: *ElevationGridCoverage* GML Application Schema

Version: version 3.0,

Specification: D2.8.II.1 Data Specification on *Elevation* – Technical Guidelines

Character set: UTF-8

The xml schema document is available on the INSPIRE website

<http://inspire.jrc.ec.europa.eu/schemas/el-bas/3.0rc3/ElevationBaseTypes.xsd>

A) GML multipart representation

A.1) GML Application Schema for Coverages (for the coverage domain)

Name: GML Application Schema for Coverages

Version: version 1.0.0

Specification: OGC GML Application Schema – Coverages [OGC 09-146r2]

Character set: UTF-8

The xml schema documents are available from <http://schemas.opengis.net/gmlcov/1.0/>.

A.2) TIFF (for the coverage range)

Name: TIFF

Version: 6

Specification: TIFF Baseline

Character set: UTF-8

NOTE The Geographic Tagged Image File Format (GeoTiff), associates geo-referencing information with TIFF imagery and gridded data by supplying metadata as TIFF tags. Since it fully complies with the TIFF 6.0 specifications, it may be implemented in place of TIFF format to meet this requirement.

TG Requirement 7	If the format used for encoding the coverage range also includes information about the coverage domain, this information shall be consistent with the information encoded using the GML Application Schema for Coverages.
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EXAMPLE The following is a complete RectifiedGridCoverage instance showing an ElevationGridCoverage using GML multipart representation.

<<Include here the GMLCOV example proposed by 2647>> (See Issue number 72)

B) GML Application Schema for Coverages (for the coverage domain and range)

Name: GML Application Schema for Coverages

Version: version 1.0.0

Specification: OGC GML Application Schema – Coverages [OGC 09-146r2]

Character set: UTF-8

The xml schema documents are available from <http://schemas.opengis.net/gmlcov/1.0/>.

NOTE The GML Application Schema is to be used to encode both the domain and the range of the coverage.

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Note that the current NOTE included in TG EL v3.0:

NOTE For elevation only one format is described below for representing the range set. Formats such as ESRI ASCII Grid are specifically excluded from this specification.

... excluding the possibility to use ESRI ASCII Grid as an output format has been explicitly removed from this section. This has been done in order to align TG EL with the content of the *Technical Guidance for the implementation of INSPIRE Download Services using WCS v1.0 rc1*.

Discussion link: <https://themes.jrc.ec.europa.eu/discussion/view/49915/clarify-the-structure-of-coverage-encoding-related-sections-in-the-tgs-default-encodings-and-alternative-encodings>

<https://themes.jrc.ec.europa.eu/discussion/view/49915/clarify-the-structure-of-coverage-encoding-related-sections-in-the-tgs-default-encodings-and-alternative-encodings>

Change: 2

Affected documents: **TG**

Themes: **Orthoimagery**

Subject: Renumber Annex E “Encoding rules for TIFF and JPEG 2000 file formats - INSPIRE TG on OI

Description: Annex E Encoding rules for TIFF and JPEG 2000 file formats comes after another Annex E entitled Data structure examples. It must therefore be renumbered to Annex F. This being the last annex of the TG, the renumbering will not affect further sections of the TG.

Corrigendum: Page 128: *Annex E (normative) Encoding rules for TIFF and JPEG 2000 file formats* must be renumbered to *Annex F (normative) Encoding rules for TIFF and JPEG 2000 file formats* and all sub-sections must be updated as well. Eventually the ToC shall be updated.

See the Table 13 in the Annex

Discussion link: <https://themes.jrc.ec.europa.eu/discussion/view/32920/inconsistencieserrors-found-in-the-inspire-tgs-on-orthoimagery>

Change: 3

Affected documents: **TG**

Themes: **Orthoimagery**

Subject: Correction of inconsistencies/errors found in Annex E “Encoding rules for TIFF and JPEG 2000 file formats (Issue number1) - INSPIRE TG on OI

Description: As discussed and justified in the thread below of the INSPIRE Thematic Clusters collaboration platform, it is necessary to make the proposed corrections to the following errors found in INSPIRE TG on Orthoimagery – Annex E “Encoding rules for TIFF and JPEG 2000 file formats”: (Issues 2536, 2644, 2645, 2646, 2643).

Corrigendum: "Page 143: Errors in the transformation from offsets to sizes - in table 13 “Mapping between boxes in JP2 format and GML elements”.

- 'HEIGHT' box in JP2, maps to 'domainSet.limits.high[1] - domainSet.limits.low[1] + 1' in GML (was written 'domainSet.limits.high[1] - domainSet.limits.low[1]' by error).

- 'WIDTH' box in JP2, maps to 'domainSet.limits.high[0] - domainSet.limits.low[0] + 1' in GML (was written 'domainSet.limits.high[0] - domainSet.limits.low[0]' by error). "

See the Table 13 in the Annex

Discussion link: <https://themes.jrc.ec.europa.eu/discussion/view/32920/inconsistencieserrors-found-in-the-inspire-tgs-on-orthoimagery>

Change: 4

Affected documents: **TG**

Themes: **Orthoimagery**

Subject: Correction of inconsistencies/errors found in Annex E “Encoding rules for TIFF and JPEG 2000 file formats (Issue number2) - INSPIRE TG on OI

Description: As discussed and justified in the thread below of the INSPIRE Thematic Clusters collaboration platform, it is necessary to make the proposed corrections to the following errors found in INSPIRE TG on Orthoimagery – Annex E “Encoding rules for TIFF and JPEG 2000 file formats”: (Issues 2536, 2644, 2645, 2646, 2643).

Corrigendum: "Page 142: Errors in the transformation from offsets to sizes - in Table 12 ""mapping between markers in JPEG2000 codestream and GML elements"".

- 'Xsiz' marker in JPEG2000 codestream, maps to 'domainSet.limits.high[0] + 1' (was written 'domainSet.limits.high[0]' by error).
- 'Ysiz' marker in JPEG2000 codestream, maps to 'domainSet.limits.high[1] + 1' (was written 'domainSet.limits.high[1]' by error).
- 'Ssiz' marker in JPEG2000 codestream, must have the following Value: 'x000 0000 to x0100101 Component sample bit depth = value + 1. x=0 (unsigned values) x=1 (signed values)' "

See the Table 13 in the Annex

Discussion link: <https://themes.jrc.ec.europa.eu/discussion/view/32920/inconsistencieserrors-found-in-the-inspire-tgs-on-orthoimagery>

Change: 5

Affected documents: **TG**

Themes: **Orthoimagery**

Subject: Correction of inconsistencies/errors found in Annex E “Encoding rules for TIFF and JPEG 2000 file formats (Issue number3) - INSPIRE TG on OI

Description: As discussed and justified in the thread below of the INSPIRE Thematic Clusters collaboration platform, it is necessary to make the proposed corrections to the following errors found in INSPIRE TG on Orthoimagery – Annex E “Encoding rules for TIFF and JPEG 2000 file formats”: (Issues 2536, 2644, 2645, 2646, 2643).

Corrigendum: "Page 144: Error when writing binary number 37 - in table 13 “Mapping between boxes in JP2 format and GML elements”.

- 'bpc' ('bpcc' type - bits per component) must have the following Condition/Value: 'x000 0000 to x0100101 Component sample bit depth = value + 1. x=0 (unsigned values) x=1 (signed values)' "

See the Table 13 in the Annex

Discussion link: <https://themes.jrc.ec.europa.eu/discussion/view/32920/inconsistencieserrors-found-in-the-inspire-tgs-on-orthoimagery>

Change: 6

Affected documents: **TG**

Themes: Orthoimagery

Subject: Correction of inconsistencies/errors found in Annex E “Encoding rules for TIFF and JPEG 2000 file formats (Issue number4) – INSPIRE TG on OI

Description: “As discussed and justified in the thread below of the INSPIRE Thematic Clusters collaboration platform, it is necessary to make the proposed corrections to the following errors found in INSPIRE TG on Orthoimagery – Annex E “Encoding rules for TIFF and JPEG 2000 file formats”: (Issues 2536, 2644, 2645, 2646, 2643).

This specific Issue number proposes a change to clarify and facilitate the understanding of the structure for providing XML within JPEG 2000 (specifically, regarding the ‘XML box’ row in table 13 “Mapping between boxes in JP2 format and GML elements”. This change has been accepted and agreed in the discussion thread.

Corrigendum: “Page 146: Clarification of the structure for providing XML within JPEG 2000.

- In the ‘XML box’ row in table 13 “Mapping between boxes in JP2 format and GML elements”, replace the text:

“The place to provide GML within JPEG 2000 (see OGC standard for more details)” (placed in the final column of the row) with the text “N/A” – meaning that this box is not to be used.

- Add the following extra row at the end of table 13 “Mapping between boxes in JP2 format and GML elements” – meaning that this box is the one to be used: ASOC Box | ‘asoc’ | “outer” association Box for XML formatted information to a JP2 file. | Optional | The place to provide GML within JPEG 2000 (see OGC standard 05-047r3 paragraph 8.2).”

See the Table 13 in the Annex

Discussion link: <https://themes.jrc.ec.europa.eu/discussion/view/32920/inconsistencieserrors-found-in-the-inspire-tgs-on-orthoimagery>

Change: 7

Affected documents: **TG**

Themes: **Orthoimagery**

Subject: Exclude duplicated text and restructure the contents of Annex J [LC]

Description: There's a duplication of text in the Introduction of the Encoding rules for TIFF and JPEG 2000 file formats in Annex J. We suggest to improve the readability by excluding the duplication of text in the Introduction of Annex J. This can be done by replacing the introduction with the corresponding introduction of Annex E (page 128) of the Technical Guidelines on Orthoimagery. If this change is carried out, the structure of Annex J can also be amended to adopt the same structure (naming convention) as other annexes.

Corrigendum: "Replace the Introduction of Annex J (page 169, Encoding rules for TIFF and JPEG 2000 file formats) with the Introduction from the Annex E (page 128) of the Technical Guidelines on Orthoimagery. Apply the general structure of the annexes to Annex J, so that the heading of the introduction is:

- J.1 Introduction, followed by J2 Tiff format, J2.1 Format overview and so on and adjust the Table of contents of the Technical Guidelines accordingly.

Regarding the replacement of text, this self-overlapping text:

"This annex specifies how to use the TIFF or JPEG 2000 file formats for encoding the range set of grid coverages. Because pixel payload is not sufficient to construct a readable standalone image, additional descriptive information has to be packaged together in the same file, even if it is already provided somewhere else in GML. For this purpose, this part establishes schema conversion rules for all the coverage components of INSPIRE Application Schemas that have a corresponding element in the output TIFF or JPEG 2000 data structures. These conversion rules play an essential role in maintaining consistency between the different representations (i.e. GML, TIFF or JPEG 2000) of the same coverage information.

On the other hand, TIFF specifications and JPEG 2000 Standard offer many options and let some variables open for encoding image data. If this flexibility allows covering most applications, it leads, in turn, to a situation where disparate implementation platforms exist while being potentially incompatible. As a result, interoperability is often unlikely. In order to fill in this gap and to enable a controlled exchange of data across Europe, this annex draws up an implementation profile of TIFF and JPEG 2000 to constraint their usage within the scope of INSPIRE. It amounts to impose external format-dependent restrictions to the applicable values of the properties described in the INSPIRE application schemas
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..should be replaced with this text:

"This annex specifies how to use the TIFF or JPEG 2000 file formats for encoding the range set of grid coverages. Because pixel payload is not sufficient to construct a readable standalone image, additional descriptive information has to be packaged together in the same file, even if it is already provided somewhere else in GML. For this purpose, this part establishes schema conversion rules for all the coverage components of INSPIRE Application Schemas that have a corresponding element in the output TIFF or JPEG 2000 data structures. These conversion rules play an essential role in maintaining consistency between the different representations (i.e. GML, TIFF or JPEG 2000) of the same coverage information.

On the other hand, TIFF specifications and JPEG 2000 Standard offer many options and define some open variables for encoding image data. While this flexibility allows covering most applications, it may also lead to disparate and potentially incompatible implementations. As a result, interoperability might not be achievable. In order to fill this gap and to enable a successful exchange of data across Europe, this annex establishes an implementation profile of TIFF and JPEG 2000 to constraint their usage within the scope of INSPIRE. It imposes external format-dependent restrictions to the applicable values of the properties described in the INSPIRE application schemas."

Discussion link: more info: <https://ies-svn.jrc.ec.europa.eu/issues/2548>