**Plugfest NSG Standards Recommendations**

One of the main focus of the Geospatial to the Edge Plugfest is to ensure that things produced by developers and data suppliers, based on the NSG profiles, are interoperable. In order to ensure this interoperability, a critical look was given to the four NSG profiles that were tested:

NSG GPKG 2.1

NSG WMS 1.0

NSG WMTS 1.1 (Not current version, but close!)

NSG WFS 1.0.

From this examination and the results of the Plugfest, AGC has some general and specific recommendations for changes to future NSG profiles and also some changes for DGIWG, from which some of these profiles were modeled from.

General Comments:

1. For all future conformance tests (Typically in Annex A), there are tests for optional features that are grouped with mandatory requirements. All optional requirements that are being tested should specifically be called optional (or if applicable) to assist developers in the creation of test tools and to clarify the standard for other users.
2. All new NSG standards should have an abstract test suite and an implementation conformance statement.

NSG GPKG 2.1:

1. An abstract test suite and the implementation conformance statement needs specifically to be added to the next profile.
	1. NSG Req 6 and 7 seems to be tested by Req 3. Is this true?
	2. NSG Req 24 seems to be tested by Req 19B. Is this true?
2. NSG requirement 19 states that: Data validity SHALL be assessed against data value constraints specified in Table 26 below using a test suite. Data validity MAY be enforced by SQL triggers.

NSG Req 24: The (min\_x, max\_x, min\_y, max\_y) values in the gpkg\_contents table SHALL be used to describe an informative bounding rectangle of all tiles in the tile pyramid data table per OGC GeoPackage Clause 1.1.3.1.1

Please note that this has been brought up during the NSG Plugfest and also to the OGC Geopackage working group, but I do not think it will be changed in the OGC Standard.

Currently, the OGC compliance test does not check the bounding box requirements for min\_X, min\_Y, max\_X and max\_Y in the gpkg\_contents table as outlined in the NSG requirement [#19](https://github.com/ngageoint/geoint-standards/issues/19). In the OGC specification, the bounding box is informative only and applications have the choice on if this is the default view. However, there is no requirements that this is the exact bounding box or the minimum bounding box of the content for the OGC standard. Later, in NSG Requirement #23 and #24, it says that the min and max values should be the full extent and references 1.1.3.1.1; however, the OGC spec does not say this, so the reference to 1.1.3.1.1 should be taken out of the NSG profile.

For more context:

<https://github.com/opengeospatial/geopackage/issues/443>

1. Requirement 78 removed but needs to be restated and included to verify the feature geometry min max values are correctly represented within the spatial trigger.

<https://github.com/opengeospatial/geopackage/issues/442>

* 1. If Req 78 is reinstated, then a fix needs to be done for equality

<https://github.com/opengeospatial/geopackage/issues/438>

1. Requirement 32 “is assignable” to clarify subtypes for complex geometry types.

<https://github.com/opengeospatial/geopackage/issues/445>

NSG WMS 1.0:

1. Make optional a queryable WMS.
2. This is more of a general question: In the OGC WMS Profile, it says that contact information should be added, and in the NSG WMS Profile, it says to follow NMF 1 and 5. In the OGC it has the following tags (simplified), but looking at NMF 1 and 5, I am having trouble identifying what is mandatory:

[<ContactInformation>](http://schemas.opengis.net/wms/1.3.0/capabilities_1_3_0.xml)

[<ContactPersonPrimary>](http://schemas.opengis.net/wms/1.3.0/capabilities_1_3_0.xml)

<ContactPerson>

<ContactOrganization>

 <ContactPosition>

[<ContactAddress>](http://schemas.opengis.net/wms/1.3.0/capabilities_1_3_0.xml)

<AddressType>

<City>

<StateOrProvince>

<PostCode>

<Country>

<ContactVoiceTelephone>

<ContactElectronicMailAddress>

What would this look like for the NSG?

1. In the NSG OGC WMS Profile, Annex A, A.1.3, for #3 and #4, this talks about tests for GetFeatureInfo requests, shouldn’t this be INFO\_FORMAT in order to request text/html or text/xml?
2. In the NSG OGC WMS Profile, Annex A, A.1.3, for #5 and NSG Section 6.5.5.2: “A response to a "GetCapabilities" request in English language.” What is the intent of this requirement, can it be clarified, and is there a RECOMMENDED, automated way of doing so?
3. Again, NSG Requirement 1: A NSG WMS server shall implement the requirement for service metadata elements in DGIWG Requirement 9 substituting the NSG Metadata Foundation (NMF) – Part 5: Metadata for Services as well all relevant mandatory metadata elements defined in the Minimum Mandatory Metadata for the NSG Metadata Foundation (NMF) Part 1. I am not sure what should be there, based on the documents. This should be clarified in future documents.
4. DGIWG 12 Requirement: A DGIWG WMS server shall provide a minimum keyword list based on the DFDD groups. NSG Requirement #3: An NSG WMS server shall provide a minimum keywordlist based on the NSG Application Schema (NAS) View groups. Based on the Abstract test suite, to be NAS compliant, the keywordlist for the NAS is necessary, but in the text it has that it is recommended that the DFDD keywords should also be in the NAS. The main question surrounding this is if this should be on the service or layer metadata? I am thinking layer, but please confirm. This should be clarified in future profiles.
5. The same question came up with DGIWG Requirement 13 and 14, again, this should probably be for layer, but please confirm. This should be clarified in future profiles.
6. DGIWG Requirement 15: The MaxWidth and MaxHeight shall be greater or equal to 800 pixels. This is more of a general question, this section refers to layer properties, but this refers to the server metadata elements, not layer. Is this out of place?
7. DGIWG Requirement 16 & 17, for legend URLs, there was a question if there is one for each layer or one for the entire service? The contractor took this to be on the layer, but want to verify. This should be clarified in future profiles.
8. DGIWG Requirement 18 & 19: There was a question on whether or not these were optional or mandatory, and whether this could be for the entire service or for each layer. I am thinking that these are mandatory and that this should be implemented by layer. This should be clarified in future profiles.
9. DGIWG Requirements 20 and 21, I believe are conditional and implemented on the layer—correct? This should be clarified in future profiles.
10. DGIWG Requirement 22, is mandatory, and are also implemented per layer—correct, the contractor is questioning if this is indeed mandatory, because they have no example of dimension. This should be clarified in future profiles.
11. DGIWG Requirement 32, we need an examples of a WMS server that contains dimensional values. This should be clarified in future profiles.

WMTS:

Corrections for NGA.STND.0063\_1.1\_WMTS (2018-04-27):

Note: While this is not the version that was used for the Plugfest, there are some small changes that should be made, based on the results of the Plugfest.

1. Table 7: Service Identification Parameters, Abstract Row, Mandated Value column, there should be a space between “Interoperability” and “Standard”.
2. In the title of Annex A, OCG should be OGC.
3. NSG requirement 5 Part 1, b, #2: <AccessContraints> should be <AccessConstraints>.
4. NSG requirement 5 Part 1, b, #3: Add a space between “InteroperabilityStandard” in the first sentence.
5. NSG requirement 5 Part 1, b, #4: This section talks about Keywords. The keyword list(s) for Dimension Data Structure, Themes Data Structure, and the TileMatrixSet and TileMatrix data structure are optional, so it is recommended that they are broken out with a sub 4a and a 4b for mandatory and optional items.
6. NSG requirements 5, b, #7&8: A legend and Legend are optional, and should called out as optional.
7. NSG Requirement 5, b, #12: <MinScaleDenominator> and <MaxScaleDenominator> are optional in the OGC spec and not mentioned in the DGIWG spec and should probably called out as optional
8. NSG Requirement 5, b, #13 &#14: These should be deleted because they are not applicable to a WMTS.
9. Reconsider NSG Requirement 16: “An NSG WMTS server shall provide expiration date using HTTP control headers to support caching information.” For the Plugfest no one implemented this.
10. In Annex A, NSG Reguirement 12, #3, states that there should be a response to a “GetCapabilities” request in the English language. I think that this is a mistake because it is not mentioned in the standard as a requirement, nor in the OGC WMTS document.
11. We talked about this before, but I want to verify that this because it came up again…*NSG Requirement 15:* An NSG WMTS server shall provide a keyword list defined by Normative Reference 3, the NSG Metadata Foundation (NMF) Table 12 – Keywords (shown below in Table 15). This WMTS release is referencing NMF 3.0, which pretty much says that any keywords are acceptable. However it links to an ISO document. How I interpret this is that one of those keywords should have one of the taxonomy categories (most would be Geographic human interaction services)—is that correct? So to test for keywords would to make sure that there is at least one and one would be a taxonomy category.

Corrections for DGIWG 124/Defence Profile of OGC’s Web Map Tile Service 1.0:

1. DGIWG Requirement 4, b, #2: <AccessContraints> should be <AccessConstraints>.
2. DGIWG Requirement 4, b, #4: The keyword list(s) for Dimension Data Structure, Themes Data Structure, and the TileMatrixSet and TileMatrix data structure are optional, so it is recommended that they are broken out with a sub 4a and a 4b for mandatory and optional items. Also, it has in this sentence “NAS”, but in other areas of the document it says that keywords should be based on the Defence Geospatial Information Framework (DGIF). Note: I believe that this is based on NAS, but don’t know lineage.
3. DGIWG Requirements 4, b, #7&8: A legend and Legend are optional, and should be called out as optional.
4. DGIWG Requirement 4, b, #11: <MinScaleDenominator> and <MaxScaleDenominator> are optional in the OGC spec and not mentioned in the DGIWG spec and should probably called out as optional
5. DGIWG Requirement 4, b, #12 and #13: I do not think that these are applicable to a WMTS. (Note ResourceURL is in another test).
6. Just Admin…DGIWG Requirement 14, b, there are two periods at the end of the sentence..

NSG WFS 1.0:

No known comments…