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DEFENCE GEOSPATIAL INFORMATION WORKING GROUP
DGIWG
SPECULUM ORBIS TERRARUM

DGIWG – xxx + Defence Geoprocessing profiles

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Copyright:	

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(as applicable)

Executive Summary

(The inclusion of an Executive Summary is the discretion of the author(s)).

Acknowledgement

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i.Contributing participants

Nation	Parent organization
France	Institut National de l'Information Géographique et Forestière (IGN)
Germany	Bundeswehr Geoinformation Centre (BGIC)
United States	National Geospatial-Intelligence Agency (NGA)
United Kingdom	JtUser-C4ISR-Standards-Dev3

ii.Document points of contact

For internal documents use:

All questions regarding this document shall be directed to the editor or the contributors:

Person	Organization	Email
Dimitri Sarafinof	National Institute of Geographic and Forest Information	Dimitri.Sarafinof@ign.fr [mailto:Dimitri.Sarafinof@ign.fr]
Xxxx Xxxx	Xxxxx	xxx.yyyy@zzzz.com [mailto:xxx.yyyy@zzzz.com]

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iii.Revision history

Date	Edition number	Primary clauses modified	Description
2019.08.22	0.1	Dimitri	first draft from DGIWG adoc template

iv. Future work

Chapter 1. Introduction

(Mandatory. The introduction is located on a separated page preceding the 'Scope' statement. The introduction is not numbered.)

Geoprocessing is a GIS operation used to manipulate spatial data. A typical geoprocessing operation takes an input dataset, performs an operation on that dataset, and returns the result of the operation as an output dataset. Common geoprocessing operations include geographic feature overlay, feature selection and analysis, topology processing, raster processing, and data conversion. Geoprocessing allows for definition, management, and analysis of information used to form decisions.[Wade, T. and Sommer, S. eds. A to Z GIS]. Geoprocessing may be done locally or remotely on a server (typically trhough the web or a network).

This document defines geoprocesses at the generic level which may be implemented by any version of OGC WPS standard or eventually another geoprocessing API.

Chapter 2. Scope

(Mandatory)

This document defines geoprocesses at the generic level which may be implemented by any version of OGC WPS standard or eventually another geoprocessing API. Following geoprocesses are defined: *- include final list here*

Chapter 3. Conformance

(Mandatory for standards)

3.1. Conformance classes

This document establishes xx conformance classe(s):

- DGIWG process,
- DGIWG generic xxx process profile,
- …

"DGIWG process" class define requirements for defining generic process description *"DGIWG generic xxx process profile"* classes defines generic process profiles according to "DGIWG process" conformance class. Process profiles are blueprints for process implementations and are meant to harmonize process implementations to a certain degree. They serve as a reference for process implementations by providing a description of what the process actually does. These generic processes profiles can be implemented by OGC WPS standards (verions 1 or 2) or possibliby other geoprocessing APIs. Annex A lists the conformance abstract tests which shall be exercised on process profiles claiming to implement these conformance classes.

Conformance class name	Operation or behavior	OGC WPS Conformance Test	DGIWG WPS Conformance Test
DGIWG process http://www.dgiwg.org/std/geoprocessing/1.0/conf/process	DGIWG requirement y to z	-	Annex A.1
DGIWG generic measurement process profile http://www.dgiwg.org/std/geoprocessing/1.0/conf/generic-measurement	DGIWG requirement y to z	-	Annex A.2.1
DGIWG generic elevation process profile http://www.dgiwg.org/std/geoprocessing/1.0/conf/generic-elevation	DGIWG requirement y to z	-	Annex A.2.2

Conformance class name	Operation or behavior	OGC WPS Conformance Test	DGIWG WPS Conformance Test
DGIWG generic xxxx process profile http://www.dgiwg.org/std/geoprocessing/1.0/conf/generic-xxxx	DGIWG requirement y to z	-	Annex A.2.3

Table 1. Conformance classes

3.2. Backward compatibility

Chapter 4. References

(As applicable)

4.1. Normative references

ID	Title	Reference	Version
[1]	OGC® WPS 2.0.2 Interface Standard	OGC 14-065	2.0.2
[2]	OGC® OWS-Common 2.0 Implementation Specification	06-121r9	2.0.0

4.2. Informative references

Title	Reference	Version
OGC® Testbed-13: Workflows ER	OGC 17-029	r1
OGC® Testbed-13: Cloud ER	OGC 17-035	-
OGC® Testbed-14 ERs to be added here	OGC 18-XXX	-

Chapter 5. Terms, definitions, and abbreviations

(As applicable)

5.1. Definitions

For the purposes of this document, terms and definitions found in WPS 2.0 ([Ref-1]) apply.

5.2. Abrevations

BBox	Bounding Box
CRS	Coordinate Reference System
HTTP	Hypertext Transfer Protocol
WPS	Web Processing Service
XML	Extensible Markup Language

Chapter 6. DGIWG Process (Normative)

6.1. Introduction

This chapter defines normative requirements to implement "DGIWG process" class.

6.2. Normative requirements

The Normative requirements requested by this conformance class are summarized in Table 2.

No.	Requirement	Compliance
1	a DGIWG generic process profile shall satisfy requirements from http://www.opengis.net/spec/WPS/2.0/req/native-process/model/profile/generic ([OGC-WPS-2.0]) requirement class.	M
2	a DGIWG generic process profile shall additionaly provide elements according to Table 5 for the description of a DGIWG generic process.	M
3	a DGIWG generic process profile shall additionaly provide elements according to Table 6 for the description of input/output parameters.	mail
4	a DGIWG generic process profile shall be documented using template provided in Annex XX.	M

Table 2. DGIWG process Normative Requirements

6.3. Non-Normative Recommendations for Implementation

The non-normative recommandations defined by this conformance class are summarized in Table 3.

No.	Requirement	Compliance
1	A DGIWG process should …	O
2	A DGIWG process should …	O
3	…	…

Table 3. DGIWG process Non-normative Recommendations for DGIWG processes.

6.4. General

While this document definitions and requirements may be used by any geoprocessing implementation, OGC WPS 2.0 specification ([OGC-WPS-2.0]) provides a mechanism to define common processing functionality. Aiming at harmonization, the definitions of process profiles

may be used to foster a common understanding of widely used processing functions. However, they may also be used to harmonize the technical details of process interfaces and thus document particular interoperability arrangements between process providers and consumers.

A process profile is a description of a process on an interface level. Process profiles may have different levels of abstraction and cover several aspects. On a generic level, a process profile may only refer to the provided functionality of a process, i.e. by giving a verbal or formal definition how the outputs are derived from the inputs. On a concrete level a process profile may completely define inputs and outputs including data type definitions and formats. This document specifies requirement to develop process profiles at a generic level.

Figure below provides an UML description of the generic process model. .Generic process model (source [OGC-WPS-2.0]) image::./images/GenericProcess.png[WPS_GenericProcess,align=center]

Requirement 1: a DGIWG generic process profile shall satisfy requirements from http://www.opengis.net/spec/WPS/2.0/req/native-process/model/profile/generic ([OGC-WPS-2.0]) requirement class.

For convenience, detailed requirement from <<>> are repeated below:

Requirement	http://www.opengis.net/spec/WPS/2.0/req/native-process/model/profile/generic/structure A process description shall comply with the structure defined in Figure 13 and Table 18.
Requirement	http://www.opengis.net/spec/WPS/2.0/req/native-process/model/profile/generic/description-language The language of the human-readable elements within the process description shall be identified by a language identifier as specified in IETF RFC 4646.
Requirement	http://www.opengis.net/spec/WPS/2.0/req/native-process/model/profile/generic/io-description-type The description of process inputs and outputs shall comply with the structure defined in Figure 13, Table 19, and Table 20.

Table 4. WPS 2.0 requirements for generic profile requirement class (http://www.opengis.net/spec/WPS/2.0/req/native-process/model/profile/generic)

Requirement 2: a DGIWG generic process profile shall additionaly provide elements according to Table 5 for the description of a DGIWG generic process.

Name	Definition	Data type and Values	Multiplicity and use	DGIWG
Title	Title of the process, input, and output. Normally available for display to a human.	ows:Title	One (mandatory)	No channge

Name	Definition	Data type and Values	Multiplicity and use	DGIWG
Abstract	Brief narrative description of a process, input, and output. Normally available for display to a human.	ows:Abstract	Zero or one (optional) Include when available and useful.	One (mandatory)
Keywords	Keywords that characterize a process, its inputs, and outputs.	ows:Keywords	Zero or more (optional) Include when available and useful.	Mandatory (at least one)
Identifier	Unambiguous identifier of a process.	ows:Identifier Value is a URI or HTTP-URI a	One (mandatory)	HTTP-URI shall be defined with following template http://www.dgiwg.org/service/processing/process/{process-name}.
Metadata	to additional metadata about this item.	ows:Metadata Allowed values are specified in Table 5.	Zero or more (optional)	It is recommended to provide metatatda on the process profile.
Language	Language identifier for the human readable process description elements.	Character String. This language identifier shall be as specified in IETF RFC 4646.	One (mandatory)	English is mandatory in a coalition implementation (en-EN)
Input	Input items (arguments) of a process.	GenericInput structure, see Table 167.	Zero or more (optional)	no change
Output	Output items (results) of a process	GenericOutput structure, see Table 178.	One or more (mandatory)	no change

Table 5. DGIWG generic process structure (edited from Table 18 [OGC-WPS-2.0])

Requirement 3: a DGIWG generic process profile shall additionaly provide elements according

to Table 6 for the description of input/output parameters.

Name	Definition	Data type and Values	Multiplicity and use	DGIWG
Title	Title of the process, input, and output. Normally available for display to a human.	ows:Title	One (mandatory)	No channge
Abstract	Brief narrative description of a process, input, and output. Normally available for display to a human.	ows:Abstract	Zero or one (optional) Include when available and useful.	One (mandatory)
Keywords	Keywords that characterize a process, its inputs, and outputs.	ows:Keywords	Zero or more (optional) Include when available and useful.	Mandatory (at least one)
Identifier	Unambiguous identifier of a process.	ows:Identifier Value is a URI or HTTP-URI a	One (mandatory)	HTTP-URI shall be defined with following template http://www.dgiwg.org/service/processing/parameter/{parameter-name} or just parameter name ?.
Metadata	to additional metadata about this item.	ows:Metadata Allowed values are specified in Table 5.	Zero or more (optional)	It is recommended to provide metatatda on the process profile.

Name	Definition	Data type and Values	Multiplicity and use	DGIWG
minOccurs	Minimum number of times that values for this parameter are required.	Non-negative integer; defaults to “1”, ‘0’ means the input is optional.	Zero or one (optional)	no change
maxOccurs	Maximum number of times that this parameter may be present.	Non-negative integer, defaults to “1”.	Zero or more (optional)	no change
Input	Nested Input.	GenericInput structure, Table 19 (this table).	Zero or more (optional)	no change

Table 6. DGIWG generic process structure (edited from Table 19 [OGC-WPS-2.0])

Requirement 4: a DGIWG generic process profile shall be documented using template provided in Annex XX.

CAUTION	template to be developped

what king of ows:metadata ?

WARNING	TBD recomandation for registering profile on DGIWG website/registry discussion

Chapter 7. DGIWG Processes Description (Normative)

7.1. Introduction

This chapter defines DGIWG processes at a generic level. These definitions may be implemented through WPS or other APIs. Following DGIWG processes are desribed below:

- elevation analysis
- distance mesurement
- range rings
- viewshed
- slope helicopter landing zone
- gazetteer
- geopackage
- geocoding
- route calculation

7.2. Elevation analysis

7.2.1. Generic process : elevation analysis

Process

```
  Identifier
http://www.dgiwg.org/service/processing/process/elevationanalysis
  Title Elevation analysis
  Keywords  elevation, analysis, highest point, lowest point
  Abstract  It provides lowest and highest point(s) on a given area.
  Metadata
```

Input

```
  Identifier    aoi
  Title Area of interest
  Keywords
  Abstract  Area of interest where a process will be executed. This could be
a BBOX, a polygon, or any surface geometry.. (GM_Surface)
  Metadata
  Multiplicity  1
```

Input

```
  Identifier    elavation_data
  Title elevationData
  Keywords  elevation, height, Digital Surface Model, Digital Elevation Model
  Abstract  Digital representation of the earth's surface. Elevation data on
which the process will be executed. It may be internal data (with a choice
for the users) or data provided by the user itself (URI, external service,
…).
  Metadata
  Multiplicity  0..1
```

Input

```
  Identifier    analysis_type
  Title Choice of highest or lowest points
  Keywords
  Abstract  Information providing if highest or lowest.
  Metadata
  Multiplicity  1
```

Output

```
  Identifier    result_points
  Title Highest or lowest points
  Keywords
  Abstract  Highest or lowest points returned by the process on the provided
area of interest. This may also contain metadata describing the data sources
used, the vertical CRS of the result.
  Metadata
```

7.2.2. Process implementation : elevation analysis

Find below a WPS 2.0 example of the elevation analysis generic process profile.

elevationAnalysis.xml

```
<wps:GenericProcess xmlns:ows="http://www.opengis.net/ows/2.0" xmlns:wps=
"http://www.opengis.net/wps/2.0" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation=
"http://www.opengis.net/wps/2.0 http://schemas.opengis.net/wps/2.0/wps.xsd">
  <ows:Title>Elevation analysis</ows:Title>
  <ows:Abstract> It provides lowest and highest point(s) on a given
area.</ows:Abstract>
  <ows:Keywords>
    <ows:Keyword>elevation</ows:Keyword>
    <ows:Keyword>analysis</ows:Keyword>
    <ows:Keyword>highest point</ows:Keyword>
    <ows:Keyword>lowest point</ows:Keyword>
  </ows:Keywords>

<ows:Identifier>http://www.dgiwg.org/service/processing/process/elevationanal
ysis</ows:Identifier>
 <!--

    HTML page providing human readable description of the generic profile
with examples.

-->
  <ows:Metadata xlink:role=
"http://www.opengis.net/spec/wps/2.0/def/process/description/documentation"
xlink:href="http://www.dgiwg.org/service/processing/process/elevationanalysis
.html"/>
  <wps:Input>
    <ows:Title>Area of interest</ows:Title>
    <ows:Abstract>
      Area of interest where a process will be executed. This could be a
BBOX, a polygon, or any surface geometry (GM_Surface).
    </ows:Abstract>
    <ows:Identifier>aoi</ows:Identifier>
    <ows:Metadata xlink:role=
"http://www.opengis.net/spec/wps/2.0/def/process/description/documentation"
xlink:href="http://www.dgiwg.org/service/processing/process/elevationanalysis
.html#aoi"/>
  </wps:Input>
  <wps:Input>
    <ows:Title>Elevation data</ows:Title>
    <ows:Abstract>
```

```
      Digital representation of the earth's surface. Elevation data on which
the process will be executed. It may be internal data (with a choice for the
users) or data provided by the user itself (URI, external service, …).
    </ows:Abstract>
    <ows:Keywords>
      <ows:Keyword>elevation</ows:Keyword>
      <ows:Keyword>height</ows:Keyword>
      <ows:Keyword>Digital Surface Model</ows:Keyword>
      <ows:Keyword>Digital Elevation Model</ows:Keyword>
    </ows:Keywords>
    <ows:Identifier>elevationData</ows:Identifier>
    <ows:Metadata xlink:role=
"http://www.opengis.net/spec/wps/2.0/def/process/description/documentation"
xlink:href="http://www.dgiwg.org/service/processing/process/elevationanalysis
.html#elevationData"/>
  </wps:Input>
  <wps:Input>
    <ows:Title>Choice of highest or lowest points</ows:Title>
    <ows:Abstract>
      Parameter indicating wether lowest points or highest points are
requested.
    </ows:Abstract>
    <ows:Identifier>analysis_type</ows:Identifier>
    <ows:Metadata xlink:role=
"http://www.opengis.net/spec/wps/2.0/def/process/description/documentation"
xlink:href="http://www.dgiwg.org/service/processing/process/elevationanalysis
.html#analysis_type"/>
  </wps:Input>
  <wps:Output>
    <ows:Title>Highest or lowest points</ows:Title>
    <ows:Abstract>
    Highest or lowest points returned by the process on the provided area of
interest. This may also contain metadata describing the data sources used,
the vertical CRS of the result.
    </ows:Abstract>
    <ows:Identifier>result_points</ows:Identifier>
    <ows:Metadata xlink:role=
"http://www.opengis.net/spec/wps/2.0/def/process/description/documentation"
xlink:href="http://www.dgiwg.org/service/processing/process/elevationanalysis
.html#result_points"/>
  </wps:Output>
</wps:GenericProcess>
```

7.3. Distance mesurement

7.3.1. Generic process : distance measurement

Process

```
  Identifier
http://www.dgiwg.org/service/processing/process/distancemeasurement
  Title Distance measurement
  Keywords  distance
  Abstract  It provides the distance between two or more points.
  Metadata
```

Input

```
  Identifier    points_list
  Title List of points
  Keywords
  Abstract  List of two or more points in a given CRS. CRS may be 2D or 3D
(with Z or height information).
  Metadata
  Multiplicity  1
  Data format
```

Input

```
  Identifier    measurement_method
  Title Method of measurement
  Keywords
  Abstract  Method of measurement to be used for the calculation (for example
euclidean, geodesic, …). This could include Z coordinate (or height above
elispoid).
  Metadata
  Multiplicity  0..1
  Data format
```

Input

```
  Identifier    uom
  Title Unit of measure
  Keywords
  Abstract  Unit of measure for the measured distance(s) to be returned.
  Metadata
  Multiplicity  1
  Data format
```

Output

```
  Identifier    distance_results
  Title Distance results
  Keywords
  Abstract  Result set containing indivual distance between each point pair
and/or the sum. This should include uom.
  Metadata
```

7.3.2. Process implementation : distance measurement

Find below a WPS 2.0 example of the distance measurement generic process profile.

distanceMeasurement.xml

```
<wps:GenericProcess xmlns:ows="http://www.opengis.net/ows/2.0" xmlns:wps=
"http://www.opengis.net/wps/2.0" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation=
"http://www.opengis.net/wps/2.0 http://schemas.opengis.net/wps/2.0/wps.xsd">
  <ows:Title>Distance measurement</ows:Title>
  <ows:Abstract>
    It provides the distance between two or more points.
  </ows:Abstract>
  <ows:Keywords>
    <ows:Keyword>distance</ows:Keyword>
  </ows:Keywords>
  <ows:Identifier>
  http://www.dgiwg.org/service/processing/process/distancemeasurement
  </ows:Identifier>
   <!--

    HTML page providing human readable description of the generic profile
with examples.

  -->
```

```
  <ows:Metadata xlink:role=
"http://www.opengis.net/spec/wps/2.0/def/process/description/documentation"
xlink:href="http://www.dgiwg.org/service/processing/process/distancemeasureme
nt.html"/>
  <wps:Input>
    <ows:Title>List of points</ows:Title>
    <ows:Abstract>
    List of two or more points in a given CRS. CRS may be 2D or 3D (with Z or
height information).
    </ows:Abstract>
    <ows:Identifier>points_list</ows:Identifier>
    <ows:Metadata xlink:role=
"http://www.opengis.net/spec/wps/2.0/def/process/description/documentation"
xlink:href="http://www.dgiwg.org/service/processing/process/elevationanalysis
.html#points_list"/>
    </wps:Input>
    <wps:Input>
    <ows:Title>Method of measurement</ows:Title>
    <ows:Abstract>
      Method of measurement to be used for the calculation (for example
euclidean, geodesic, ⋯). This could include Z coordinate (or height above
elispoid).
    </ows:Abstract>
    <ows:Identifier>measurement_method</ows:Identifier>
    <ows:Metadata xlink:role=
"http://www.opengis.net/spec/wps/2.0/def/process/description/documentation"
xlink:href="http://www.dgiwg.org/service/processing/process/elevationanalysis
.html#measurement_method"/>
  </wps:Input>
  <wps:Input>
    <ows:Title>Unit of measure</ows:Title>
    <ows:Abstract>
    Unit of measure for the measured distance(s) to be returned.
    </ows:Abstract>
    <ows:Identifier>uom</ows:Identifier>
    <ows:Metadata xlink:role=
"http://www.opengis.net/spec/wps/2.0/def/process/description/documentation"
xlink:href="http://www.dgiwg.org/service/processing/process/elevationanalysis
.html#uom"/>
  </wps:Input>
  <wps:Output>
    <ows:Title>Distance results</ows:Title>
    <ows:Abstract>
    Result set containing indivual distance between each point pair and/or
the sum. This should include uom..
    </ows:Abstract>
    <ows:Identifier>distance_results</ows:Identifier>
```

```
    <ows:Metadata xlink:role=
"http://www.opengis.net/spec/wps/2.0/def/process/description/documentation"
xlink:href="http://www.dgiwg.org/service/processing/process/elevationanalysis
.html#distance_results"/>
  </wps:Output>
</wps:GenericProcess>
```

Appendix A: Abstract Test Suite

An Abstract Test Suite may be relevant to an Engineering Report.

An Abstract Test Suite is specified in Clause 9 and Annex A of ISO 19105. That Clause and Annex specify the ISO/TC 211 requirements for Abstract Test Suites. Examples of Abstract Test Suites are available in an annex of most ISO 191XX documents, one of the more useful is in ISO 19136. Note that this guidance may be more abstract than needed in an OGC® Implementation Standard.

Test identifier	/test/case/id
Test purpose:	Confirm that the IUT satisfies all applicable requirements for conformance level 1.
Test method:	Functional testing performed in an automated and/or manual manner. Verify the behaviour of the IUT for the following operations: • GetCapabilities (mandatory) • DescribeRecord (mandatory) • GetRecords (mandatory) • GetRecordById (mandatory) • GetRepositoryItem (mandatory) • GetDomain (optional)
Requirement:	DGIWG-XXX : clause 2.2
Test type:	Capability

Table 7. A.1.1 Conformance level 1

Test identifier	http://www.dgiwg.org/xxx/xxx
Test purpose:	The XML response entity is valid.
Test method:	Validate content of response entity against corresponding element declaration.
Requirement:	DGIWG-XXX : clause. 10.2.5.1, p. 118
Test type:	Capability

Table 8. A.1.2 Test case for validity of XML response entity

Test identifier	/test/case/id
Test purpose:	Confirm that the IUT satisfies all applicable requirements for conformance level 1.

Test method:	Functional testing performed in an automated and/or manual manner. Verify the behaviour of the IUT for the following operations: • GetCapabilities (mandatory) • DescribeRecord (mandatory) • GetRecords (mandatory) • GetRecordById (mandatory) • GetRepositoryItem (mandatory) • GetDomain (optional)
Requirement:	DGIWG XXX: cl. 2.2
Test type:	Capability

Table 9. A.2.1 Conformance level 2

Test identifier	http://www.dgiwg.org/xxx/xxx
Test purpose:	The XML response entity is valid.
Test method:	Validate content of response entity against corresponding element declaration.
Requirement:	OGC DGIWG XXX: clause. 10.2.5.1, p. 118
Test type:	Capability

Table 10. A.2.2 Test case for validity of XML response entity

Appendix B: DGIWG Generic profiles examples

elevationAnalysis.xml

```
<wps:GenericProcess xmlns:ows="http://www.opengis.net/ows/2.0" xmlns:wps=
"http://www.opengis.net/wps/2.0" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation=
"http://www.opengis.net/wps/2.0 http://schemas.opengis.net/wps/2.0/wps.xsd">
  <ows:Title>Elevation analysis</ows:Title>
  <ows:Abstract> It provides lowest and highest point(s) on a given
area.</ows:Abstract>
  <ows:Keywords>
    <ows:Keyword>elevation</ows:Keyword>
    <ows:Keyword>analysis</ows:Keyword>
    <ows:Keyword>highest point</ows:Keyword>
    <ows:Keyword>lowest point</ows:Keyword>
  </ows:Keywords>

<ows:Identifier>http://www.dgiwg.org/service/processing/process/elevationanal
ysis</ows:Identifier>
 <!--

    HTML page providing human readable description of the generic profile
with examples.

-->
  <ows:Metadata xlink:role=
"http://www.opengis.net/spec/wps/2.0/def/process/description/documentation"
xlink:href="http://www.dgiwg.org/service/processing/process/elevationanalysis
.html"/>
  <wps:Input>
    <ows:Title>Area of interest</ows:Title>
    <ows:Abstract>
      Area of interest where a process will be executed. This could be a
BBOX, a polygon, or any surface geometry (GM_Surface).
    </ows:Abstract>
    <ows:Identifier>aoi</ows:Identifier>
    <ows:Metadata xlink:role=
"http://www.opengis.net/spec/wps/2.0/def/process/description/documentation"
xlink:href="http://www.dgiwg.org/service/processing/process/elevationanalysis
.html#aoi"/>
  </wps:Input>
  <wps:Input>
    <ows:Title>Elevation data</ows:Title>
    <ows:Abstract>
```

```
      Digital representation of the earth's surface. Elevation data on which
the process will be executed. It may be internal data (with a choice for the
users) or data provided by the user itself (URI, external service, …).
    </ows:Abstract>
    <ows:Keywords>
      <ows:Keyword>elevation</ows:Keyword>
      <ows:Keyword>height</ows:Keyword>
      <ows:Keyword>Digital Surface Model</ows:Keyword>
      <ows:Keyword>Digital Elevation Model</ows:Keyword>
    </ows:Keywords>
    <ows:Identifier>elevationData</ows:Identifier>
    <ows:Metadata xlink:role=
"http://www.opengis.net/spec/wps/2.0/def/process/description/documentation"
xlink:href="http://www.dgiwg.org/service/processing/process/elevationanalysis
.html#elevationData"/>
  </wps:Input>
  <wps:Input>
    <ows:Title>Choice of highest or lowest points</ows:Title>
    <ows:Abstract>
      Parameter indicating wether lowest points or highest points are
requested.
    </ows:Abstract>
    <ows:Identifier>analysis_type</ows:Identifier>
    <ows:Metadata xlink:role=
"http://www.opengis.net/spec/wps/2.0/def/process/description/documentation"
xlink:href="http://www.dgiwg.org/service/processing/process/elevationanalysis
.html#analysis_type"/>
  </wps:Input>
  <wps:Output>
    <ows:Title>Highest or lowest points</ows:Title>
    <ows:Abstract>
    Highest or lowest points returned by the process on the provided area of
interest. This may also contain metadata describing the data sources used,
the vertical CRS of the result.
    </ows:Abstract>
    <ows:Identifier>result_points</ows:Identifier>
    <ows:Metadata xlink:role=
"http://www.opengis.net/spec/wps/2.0/def/process/description/documentation"
xlink:href="http://www.dgiwg.org/service/processing/process/elevationanalysis
.html#result_points"/>
  </wps:Output>
</wps:GenericProcess>
```

distanceMeasurement.xml

```
<wps:GenericProcess xmlns:ows="http://www.opengis.net/ows/2.0" xmlns:wps=
```

```
"http://www.opengis.net/wps/2.0" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation=
"http://www.opengis.net/wps/2.0 http://schemas.opengis.net/wps/2.0/wps.xsd">
  <ows:Title>Distance measurement</ows:Title>
  <ows:Abstract>
    It provides the distance between two or more points.
  </ows:Abstract>
  <ows:Keywords>
    <ows:Keyword>distance</ows:Keyword>
  </ows:Keywords>
  <ows:Identifier>
  http://www.dgiwg.org/service/processing/process/distancemeasurement
  </ows:Identifier>
   <!--

    HTML page providing human readable description of the generic profile
with examples.

  -->
  <ows:Metadata xlink:role=
"http://www.opengis.net/spec/wps/2.0/def/process/description/documentation"
xlink:href="http://www.dgiwg.org/service/processing/process/distancemeasureme
nt.html"/>
  <wps:Input>
    <ows:Title>List of points</ows:Title>
    <ows:Abstract>
    List of two or more points in a given CRS. CRS may be 2D or 3D (with Z or
height information).
    </ows:Abstract>
    <ows:Identifier>points_list</ows:Identifier>
    <ows:Metadata xlink:role=
"http://www.opengis.net/spec/wps/2.0/def/process/description/documentation"
xlink:href="http://www.dgiwg.org/service/processing/process/elevationanalysis
.html#points_list"/>
    </wps:Input>
    <wps:Input>
    <ows:Title>Method of measurement</ows:Title>
    <ows:Abstract>
      Method of measurement to be used for the calculation (for example
euclidean, geodesic, …). This could include Z coordinate (or height above
elispoid).
    </ows:Abstract>
    <ows:Identifier>measurement_method</ows:Identifier>
    <ows:Metadata xlink:role=
"http://www.opengis.net/spec/wps/2.0/def/process/description/documentation"
xlink:href="http://www.dgiwg.org/service/processing/process/elevationanalysis
.html#measurement_method"/>
```

```
  </wps:Input>
  <wps:Input>
    <ows:Title>Unit of measure</ows:Title>
    <ows:Abstract>
    Unit of measure for the measured distance(s) to be returned.
    </ows:Abstract>
    <ows:Identifier>uom</ows:Identifier>
    <ows:Metadata xlink:role=
"http://www.opengis.net/spec/wps/2.0/def/process/description/documentation"
xlink:href="http://www.dgiwg.org/service/processing/process/elevationanalysis
.html#uom"/>
  </wps:Input>
  <wps:Output>
    <ows:Title>Distance results</ows:Title>
    <ows:Abstract>
    Result set containing indivual distance between each point pair and/or
the sum. This should include uom..
    </ows:Abstract>
    <ows:Identifier>distance_results</ows:Identifier>
    <ows:Metadata xlink:role=
"http://www.opengis.net/spec/wps/2.0/def/process/description/documentation"
xlink:href="http://www.dgiwg.org/service/processing/process/elevationanalysis
.html#distance_results"/>
  </wps:Output>
</wps:GenericProcess>
```

Appendix C: UML model

A UML model may be relevant to an Engineering Report. This template thus includes this annex as the place for recording this UML model.

Instructions and guidelines on the usage of UML models are provided in OGC document OGC-121r9 [https://portal.opengeospatial.org/files/?artifact_id=38867].

Appendix D: Revision History

NOTE	*Example History (Delete this note).* replace below entries as needed

Date	Editor	Release	Primary clauses modified	Descriptions
August 22, 2018	D. Sarafinof	.1	all	initial version

Table 11. Revision History

Appendix E: Bibliography