

# Compliance Testing of Open Source Software for Web Processing Services

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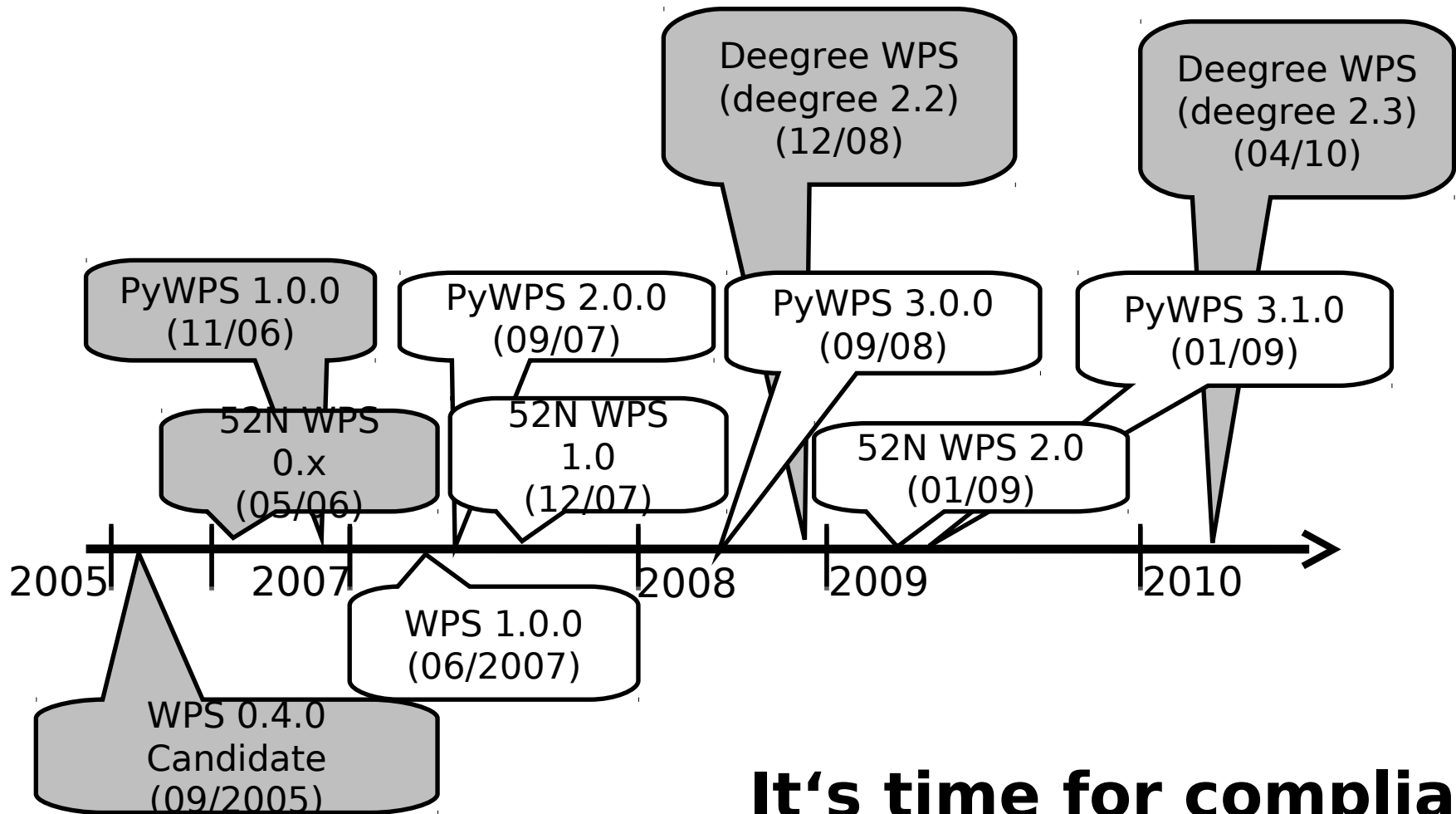


**No Shootout!**



**Compliance!**

# History Class



**It's time for complianc**

# Compliance is crucial

- Open Source products
- Transparency
- Flexibility for the users
- Supports the community!
- THE argument over proprietary standards



Open Geospatial Consortium Inc.

Date: 2007-06-08

Reference number of this document: OGC 05-007r7

Version: 1.0.0

Category: OpenGIS® Standard

Editor: Peter Schut

OpenGIS® Web Processing Service

# VERSION 1.0.0

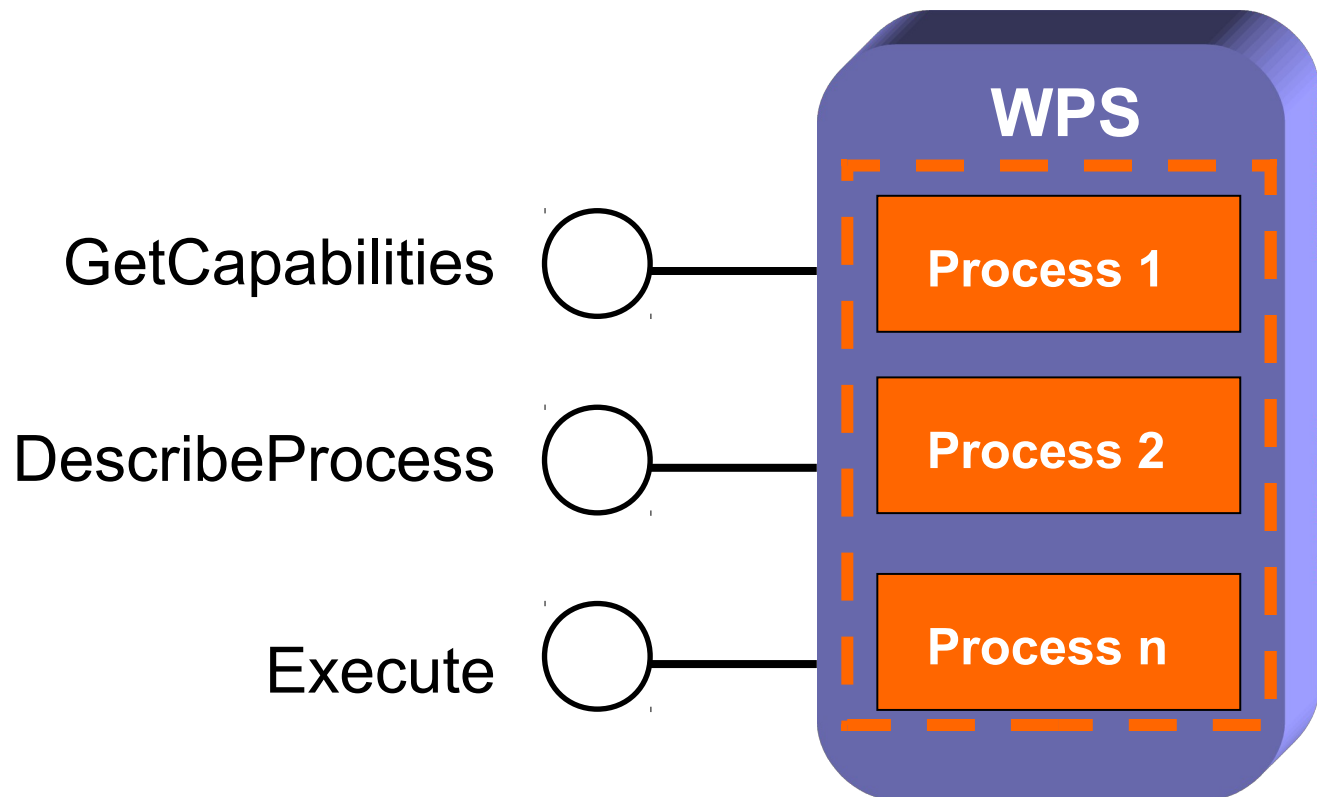
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Document type: OGC Publicly Available Standard  
Document Subtype: OGC Standard  
Document stage: Approved  
Document language: English

## Compliance a prerequisite

# WPS 101

- Data → Information
- HTTP / XML



# Interoperability

- OGC WPS Compliance
  - Compliant WPS responses
  - Full support of the specification
    - Store, asynchronous, synchronous
- Product interoperability
  - Real-world problem



# SETUP

# Test environment

- Intel Dual core CPU @ 1.66 GHz on a Dell laptop
- Ubuntu 10.4
- Tomcat 6.0.26/Apache2
- Java 6

# Candidate Services




52north

PyWPS

zoo

deegree

# Service facts

		<i>PyWPS</i> Python/Apache		
Environment	cat	he		
Tested version	2.0.0 rc 5	3.2	rc: 3.0	1.0
Stated compliance	Full	Full - with limitations	Full	Full
Installation successful	yes	yes	yes - Requires tomcat 6	Internal Server error: cannot find libjavaplugin_jni.so
Remote endpoint	yes	yes	yes	yes

# Remote endpoints

deegree

<http://deegree3-testing.deegree.org/deegree-wps-demo/services>

PyWPS

<http://apps.esdi-humboldt.cz/cgi-bin/wps/wps>

52north

<http://giv-wps.uni-muenster.de:8080/wps/WebProcessingService>

ZOO

<http://zoo-project.org/zoosoo/>

# Not tested... Sorry!




## GeoServer

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## 4. WPS - Web Processing Service

 This documentation is no longer maintained. Please see the new GeoServer documentation at <http://docs.geoserver.org>

### General

#### **Unsupported**

The WPS module is currently a work-in-progress and not supported as part of the standard GeoServer configuration.

# Candidate Clients

	<b>Version</b>	<b>Results</b>
XML Clients	n/a	yes
uDig	1.3	yes
52N OpenLayers	1.0	yes
QGIS	1.5.0	no
gvSIG	1.10	no
JUMP	1.3.2 w/ 2.0 rc1	yes

# Client Test procedure

- Server Login
- Process selection
- Process Execution
  - Buffer
- Applied data
  - LineString Features from WFS (Tasmanian roads)
  - No raster data



# OGC Compliance

- Validated with XMLSpy
- GetCapabilities (HTTP-GET)
- DescribeProcess (HTTP-GET)
- Execute (HTTP-POST)
  - Store
  - Synchronous
  - Asynchronous

Product Compliance


# RESULTS

# XML Clients

**WPS TestClient...**






<b>Server:</b>	<input type="text" value="http://localhost8080/wps/WebProcessingService"/>
	Choose a request ▾
<b>Request:</b>	
	Choose: <input type="text" value="example"/> ▾ <input type="text" value="DescribeAll.xml"/> ▾
	<pre>&lt;?xml version="1.0" encoding="UTF-8"?&gt; &lt;DescribeProcess xmlns="http://www.opengis.net/wps/1.0.0" xmlns:ows="http://www.opengis.net/ows/1.1" xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.opengis.net/wps/1.0.0 http://schemas.opengis.net/wps/1.0.0/wpsDescribeProcess_request.xsd" service="WPS" version="1.0.0" language="en"&gt;   &lt;ows:Identifier&gt;ALL&lt;/ows:Identifier&gt; &lt;/DescribeProcess&gt;</pre>
	<input type="button" value="Clear"/> <input type="button" value="Send"/>
	<input type="text" value="http://ows7.la-Hon.de/d3WPS_JTS/services"/> <input type="button" value="SEND"/>

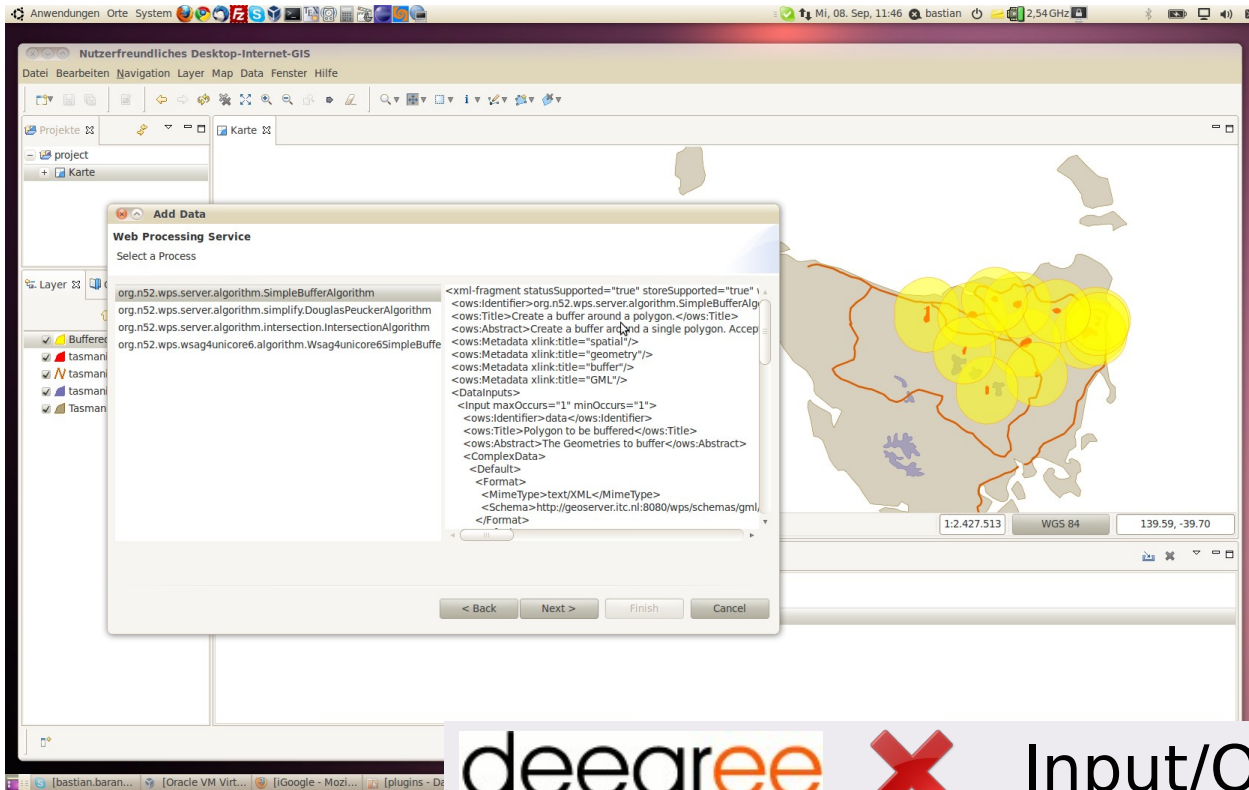


Select or enter a request in the upper frame and click the "SEND" button.  
After processing, the service response will be displayed in the lower frame.

# XML Clients - results

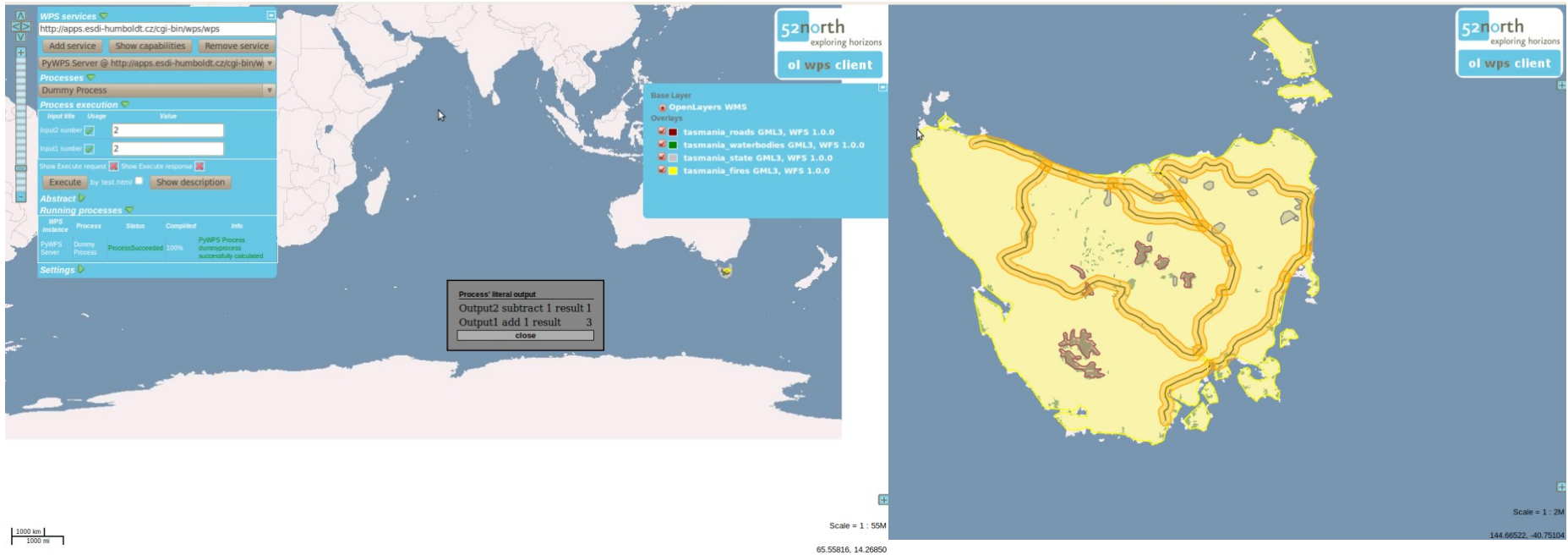
	Deegree Client	52°North test client
	✓	✗
<i>PyWPS</i>	✓	✗
	✓	✓
	✗	✗

# uDig



deegree	✗	Input/Output not supported
PyWPS	✗	
52north	✓	Metadata not compliant
ZOO	✗	Metadata not

# OpenLayers



deegree



ProcessID not found

PyWPS



Dummy/literal data process work

52north

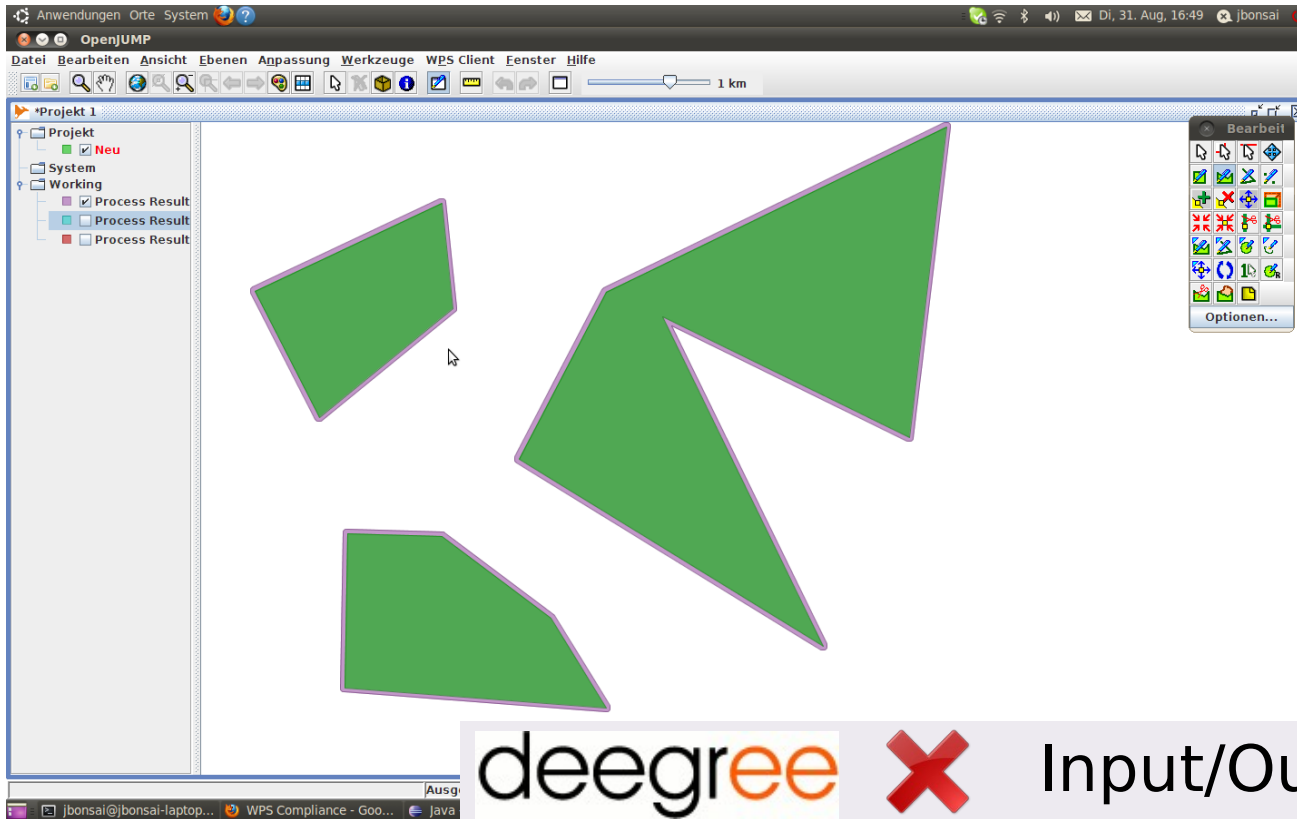


ZOO



No processes found

# JUMP



deegree



Input/Output not supported

PyWPS



52north



Metadata not compliant

ZOO



Metadata not

OGC Compliance

# RESULTS



# GetCapabilities

- HTTP-GET Query

REQUEST=GetCapabilities&SERVICE=WPS&version=1.0.0

deegree



PyWPS



processVersion="1.0.0" missing

52north



<ows:Metadata

ZOO



xlink:Test="Demo"/> invalid

# DescribeProcess

- HTTP-GET Query

REQUEST=DescribeProcess&Service=WPS&version=  
1.0.0&identifier=**xxx**

- Example process buffer

deegree



MimeType wrong

PyWPS



namespace

52north



wrong element dataType in

ZOO



Format

# Execute

- HTTP-POST
- Example process buffer

	Sync	Stor	asyn
deegree	✓	e ✓	c ✓
PyWPS	✓	✗	✗
52north	✓	✓	✓
ZOO	✗	✗	✗

# CONCLUSION

# Conclusion

- Compliance a prerequisite for successful Open Source software
  - Compliance between products
    - pair-wise
    - Client-Server
  - Spec compliance
- Results are not OGC certified!
- Standardized test suite required
- Output/Input problem
- Validate your schemas!

# Conclusion (contd.)

Client-Server interoperability		XML	uDi	OL
deegree		✓	✗	✗
PyWPS		✗	✗	✓
52north		✓	✓	✓
ZOO		✗	✗	✗

OGC	Cap	Des	stor	syn	asyn
deegree	s ✓	c ✓	e ✓	c ✓	c ✓
PyWPS	✗	✗	✗	✓	✗
52north	✓	✓	✓	✓	✓
ZOO	✗	✗	✗	✗	✗

# Invitation...

- Compliance testing with volunteers
- Stand up with demo servers
- Join the team
  - Mailing list
  - Wiki



# Thanks for your attention!

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Welcome to the *Sensor Web, Web-based Geoprocessing, and Simulation Lab!* SWSL is a competence center for geosensor networks and distributed geoprocessing at the Institute for Geoinformatics (ifgi) of the University of Münster, Germany.

## NEWS

About ongoing projects, research papers, new demos, and theses by SWSL members.

## SWSL @ GIScience workshop – Role of VGI in Advancing Science

By Theodor | September 2, 2010

At the 14th September 2010 the workshop about Role of VGI in Advancing Science will take place as part of this year's GIScience conference in Zürich, Switzerland. SWSL has submitted a position paper entitled *Supporting VGI With Standardized Sensor Web and Web-based Geoprocessing*.

Volunteered Geographic Information (VGI) is about user-generated geographic content created with low-cost tools and shared on the Web. It appears currently to be a hot topic in research and we believe that it is relevant for our research regarding Sensor Web and web-based Geoprocessing. We are looking forward to sharing our experience about Sensor Web and web-based Geoprocessing with the VGI community. Additionally, we are curious about the input especially regarding motivating and creating incentives for people to contribute VGI.

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