



# WoC Project 3: Edge Matching Service

HUMBOLDT WoC, Bad Herrenalb

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## Project Description

### The **Edge Matching Service (EMS)** : WPS implementation

- aligns LineStrings and Polygons of vector geometries so that they will be gapless and with no overlaps

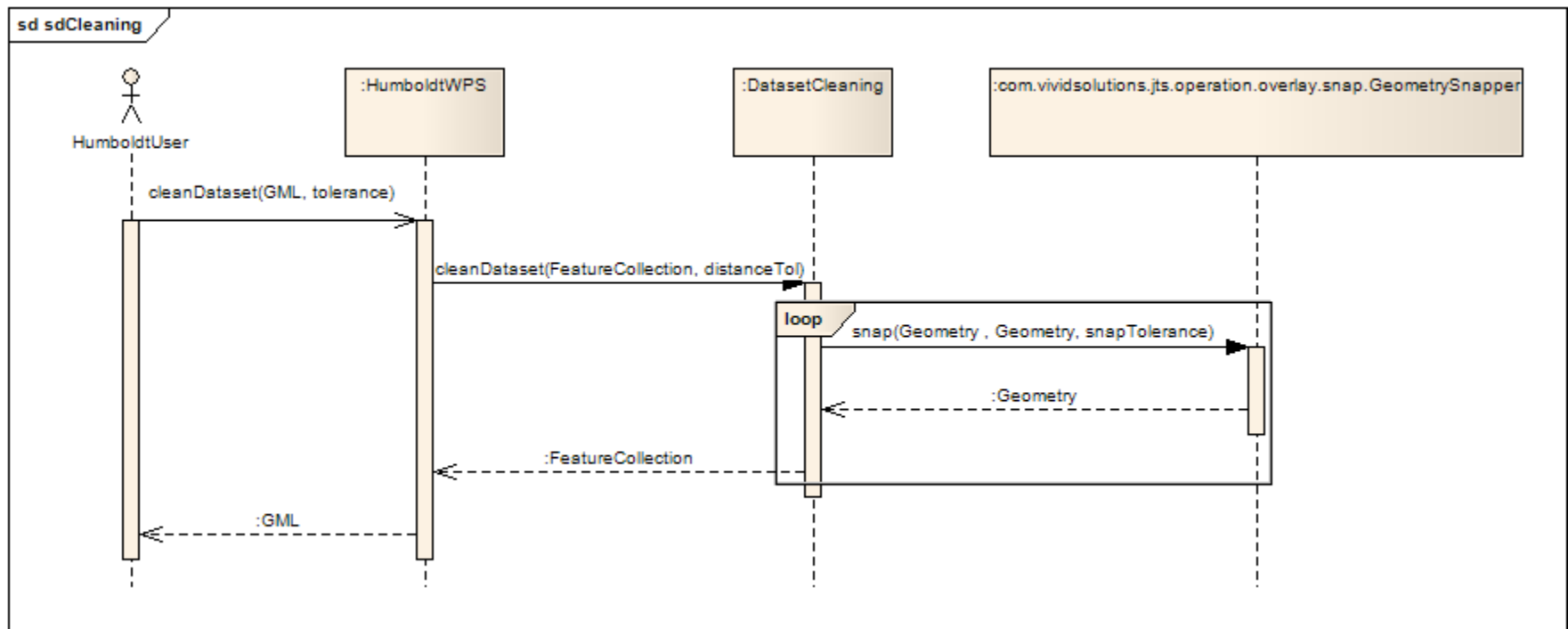
### Three modes of operation:

- *CleanDataset*: when only one dataset is provided, then the gaps and overlaps will be removed.
- *Align-to-Reference*: all candidate data sets will be transformed using the reference dataset so that points are moved up to a maximum distance also provided as input.
- *Distribute-Errors*: In this case, there is no reference data set that can be used as "ground truth", therefore all geometries will be transformed. No point or edge will be moved further than a client-specified amount.

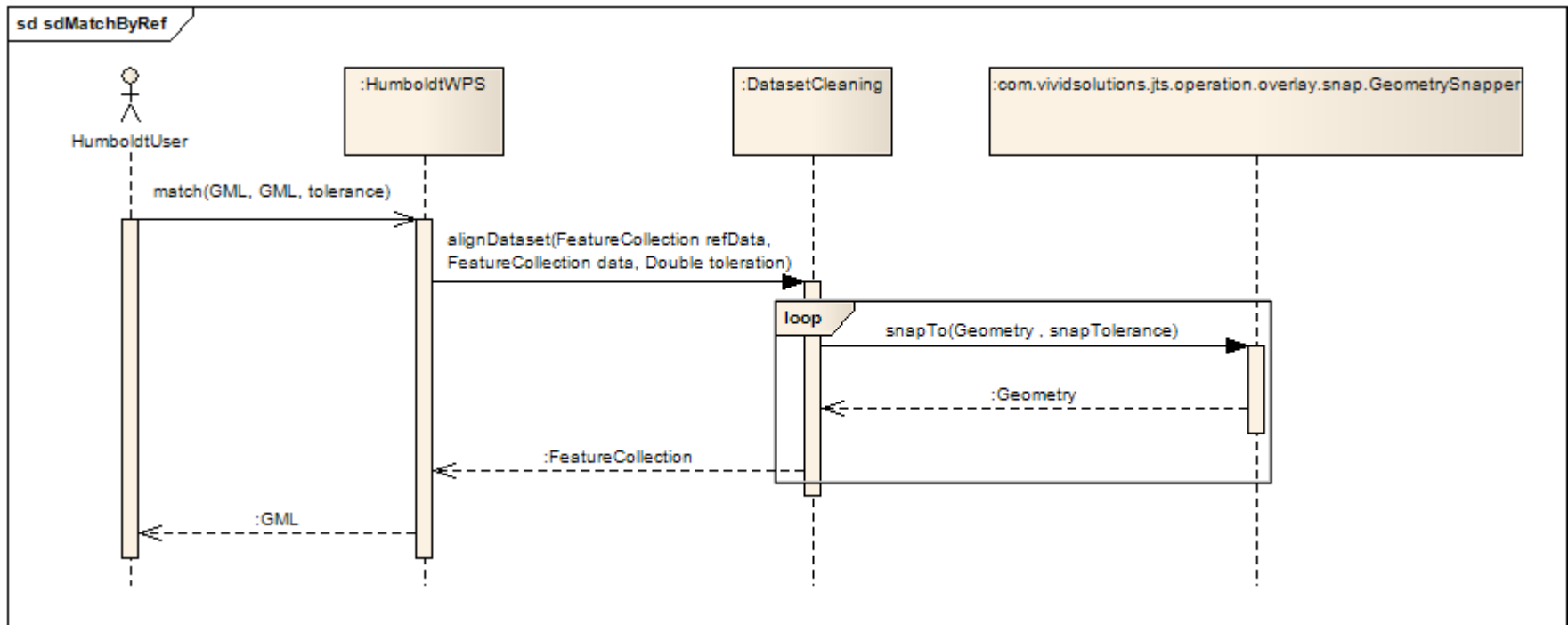
## Goals

- ▣ a test suite to ensure high quality edge matching and to show what quality of edge matching can be achieved with the JCS
- ▣ a WPS set-up that includes ProcessDescription etc.
- ▣ readers for the supported input formats (GML 2.1.2, GML 3.2, KML, etc.)
- ▣ an integration of JCS and possibly of other algorithms for the handling of edge matching.
- ▣ adding metadata on lineage to the processed data sets.

## Architecture – CleanDataset process

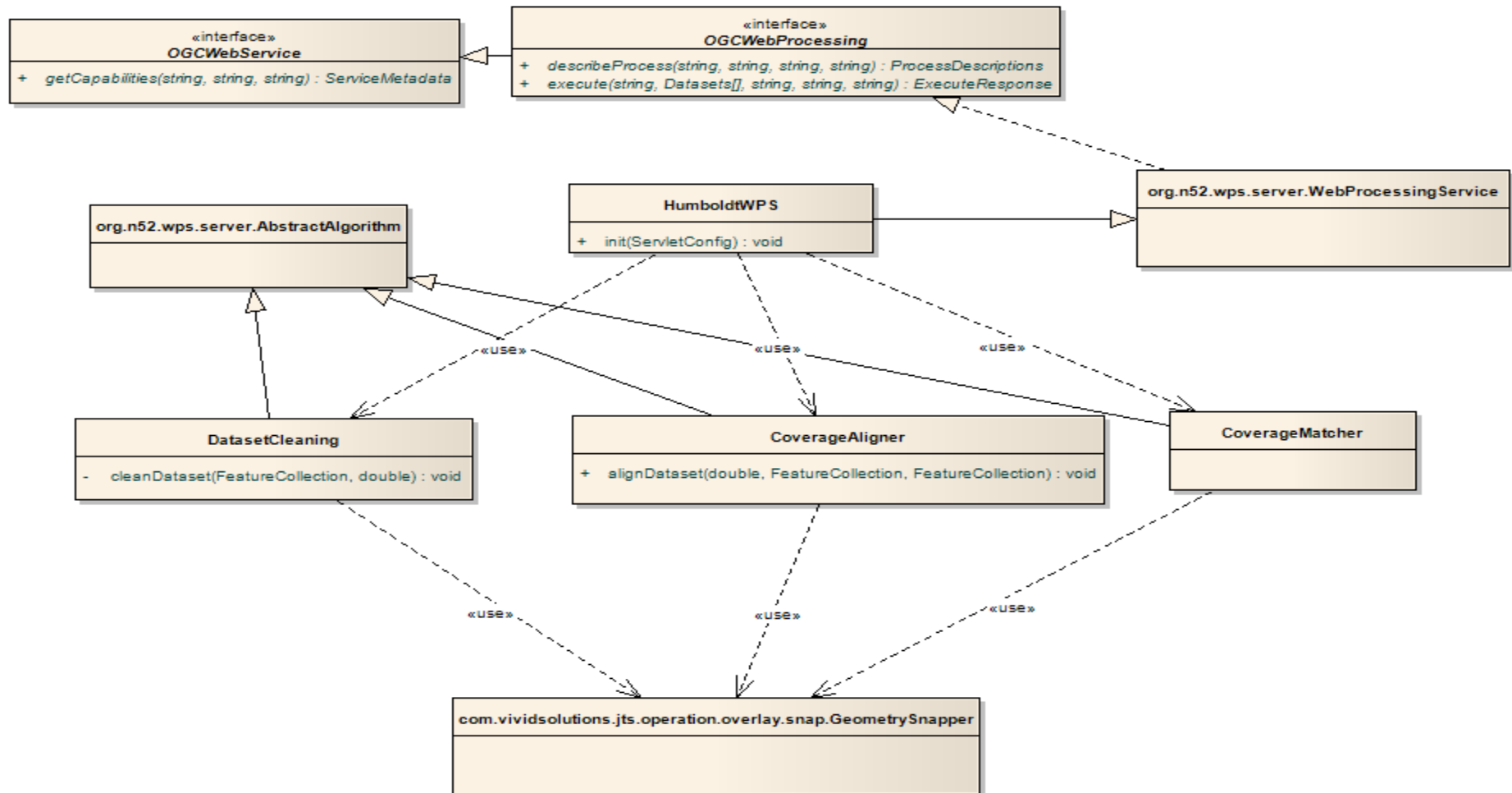


## Architecture – Align To Reference process



## Architecture – static structure

class Domain Objects



 Work done

▣ Two processes:

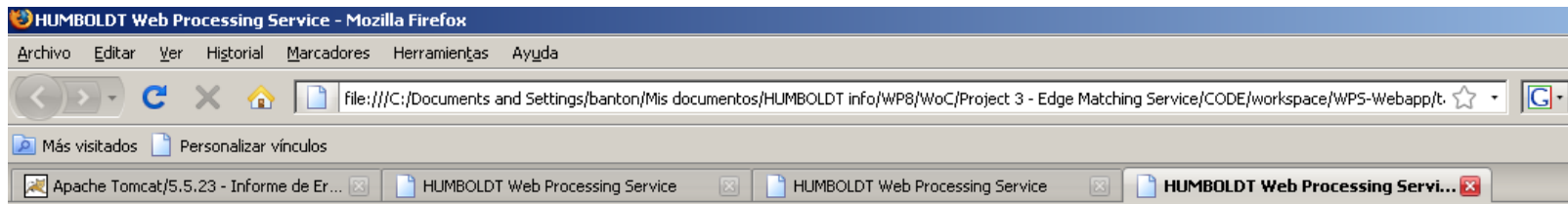
- Data Cleaning Process
- Coverage Aligner Process

▣ Test data created

--> *Get Capabilities*



# Test



## HUMBOLDT Web Processing Services for Data Harmonisation

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This is the welcome page for the WebProcessingService 1.0.0 implementation for the HUMBOLDT Fast Track Scenario Protected Areas implementation.

To learn about the capabilities, use the following links:

- [GetCapabilities request](#)
- [ProcessDescription of the Coordinate Transformation Service](#)
- [ProcessDescription of the Dataset Cleaning Process](#)
- [ProcessDescription of the Coverage Aligner Process](#)

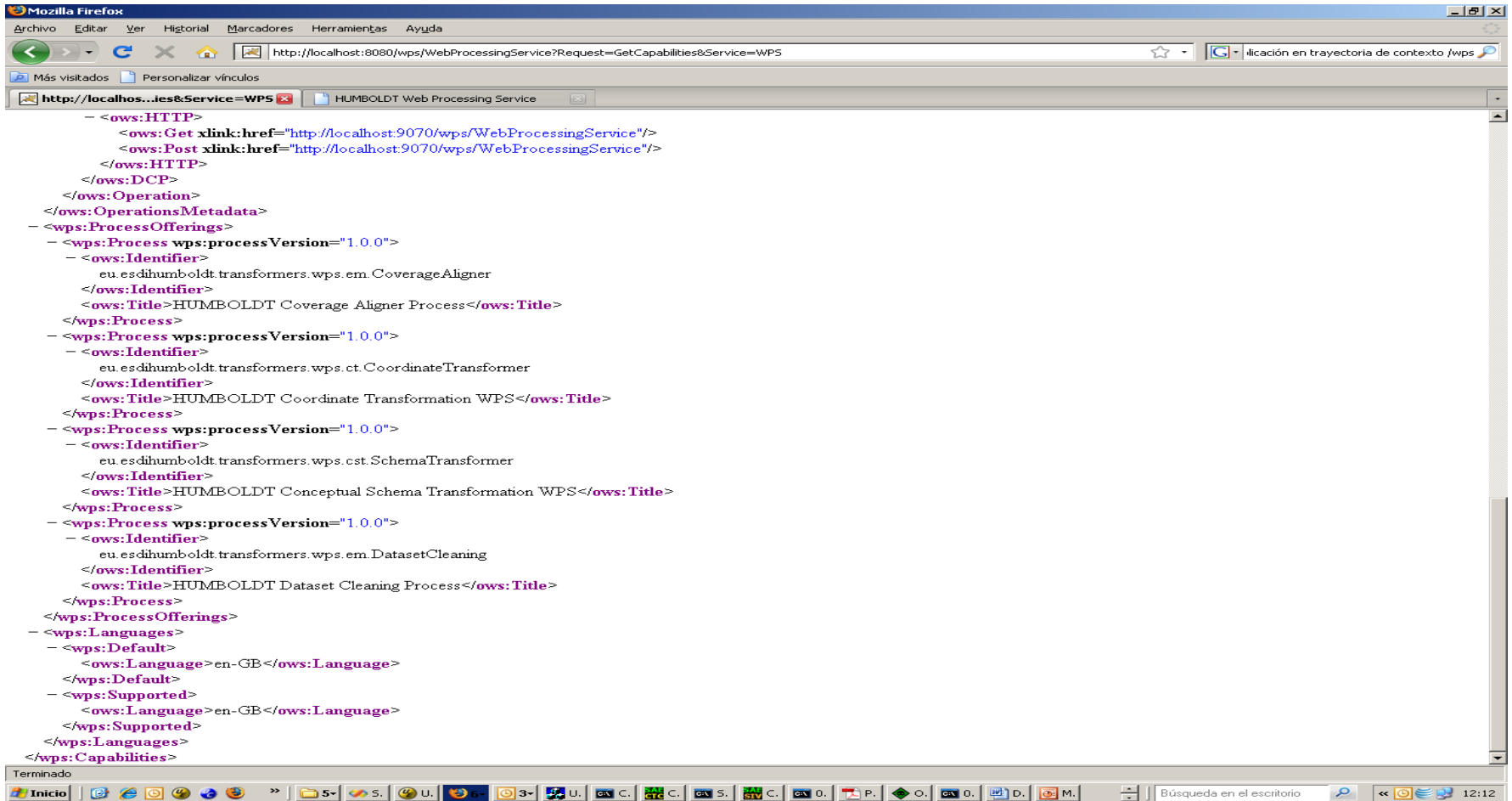
You can also test the service by accessing this simple form:

- [Simple testing form](#)

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# Get Capabilities



```

- <ows:HTTP>
  <ows:Get xlink:href="http://localhost:9070/wps/WebProcessingService"/>
  <ows:Post xlink:href="http://localhost:9070/wps/WebProcessingService"/>
</ows:HTTP>
</ows:DCP>
</ows:Operation>
</ows:OperationsMetadata>
- <wps:ProcessOfferings>
- <wps:Process wps:processVersion="1.0.0">
- <ows:Identifier>
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- <ows:Identifier>
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- <ows:Identifier>
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- <ows:Identifier>
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</wps:Process>
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- <wps:Supported>
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</wps:Supported>
</wps:Languages>
</wps:Capabilities>

```

## Data Cleaning Process

### Process Description:

#### ▪ **Inputs:**

- *Input Geometry*: The Geometry to clean
- *Distance tolerance*: Maximum distance of two edges to be matched.

#### ▪ **Output:**

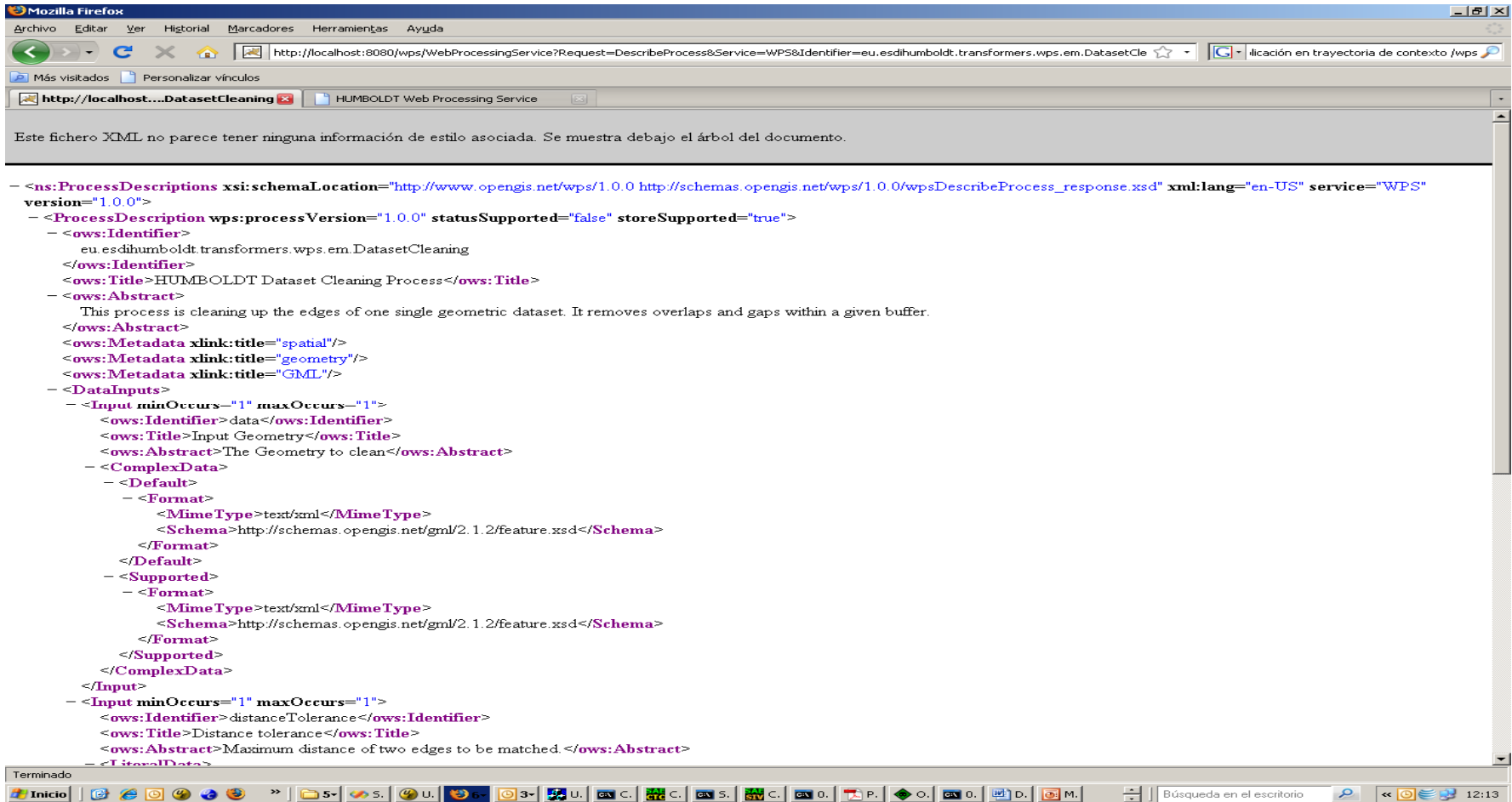
- *Cleaned dataset*: The dataset after cleaning the edges.

→ Process Descriptions

→ Using WPS Client: uDIG *Note: uDIG doesn't support GML 2.1*

→ Results on gvSIG

## Data Cleaning Process – Process Description

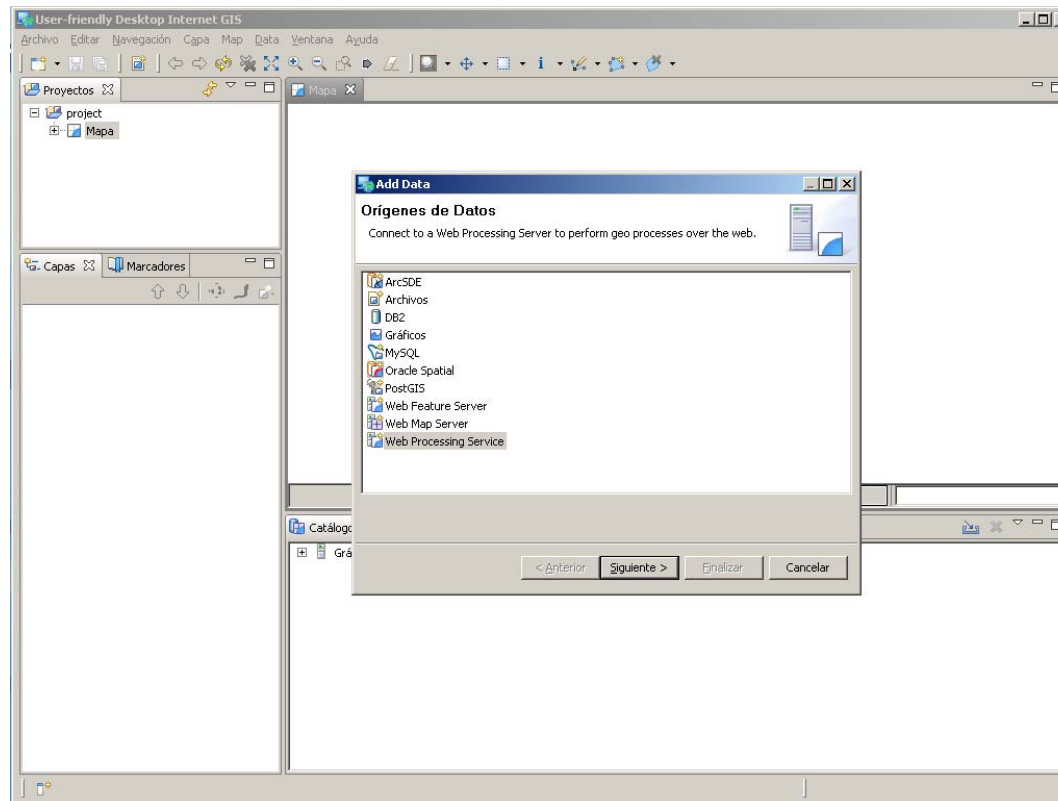


Este fichero XML no parece tener ninguna información de estilo asociada. Se muestra debajo el árbol del documento.

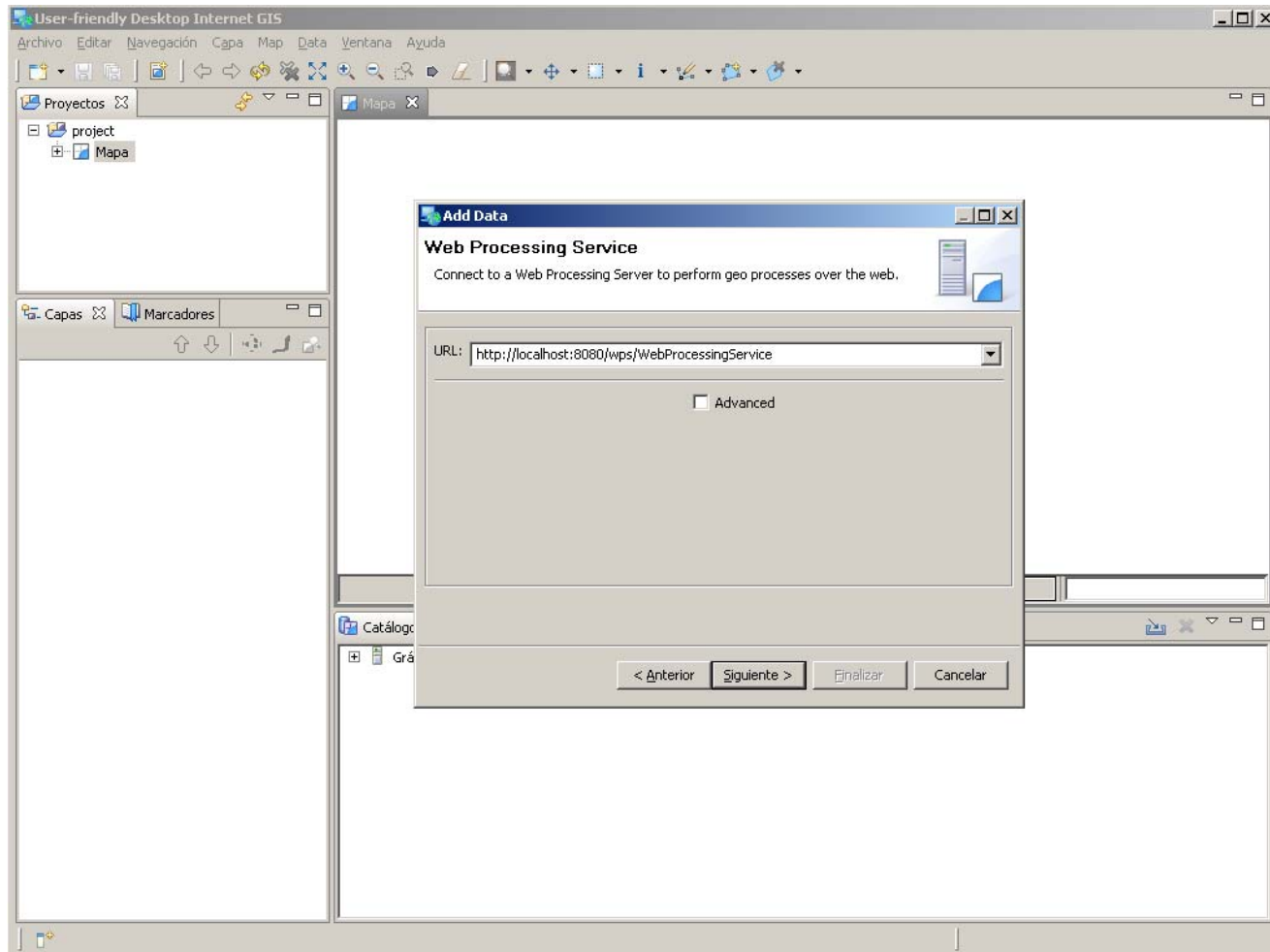
```
<?xml version="1.0" encoding="UTF-8" ?>
<ns:ProcessDescriptions xsi:schemaLocation="http://www.opengis.net/wps/1.0.0 http://schemas.opengis.net/wps/1.0.0/wpsDescribeProcess_response.xsd" xml:lang="en-US" service="WPS"
version="1.0.0">
  <ProcessDescription wps:processVersion="1.0.0" statusSupported="false" storeSupported="true">
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      eu.esdihumboldt.transformers.wps.em.DatasetCleaning
    </ows:Identifier>
    <ows:Title>HUMBOLDT Dataset Cleaning Process</ows:Title>
    <ows:Abstract>
      This process is cleaning up the edges of one single geometric dataset. It removes overlaps and gaps within a given buffer.
    </ows:Abstract>
    <ows:Metadata xlink:title="spatial"/>
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        <LiteralData>
```

## Data Cleaning Process – WPS demo

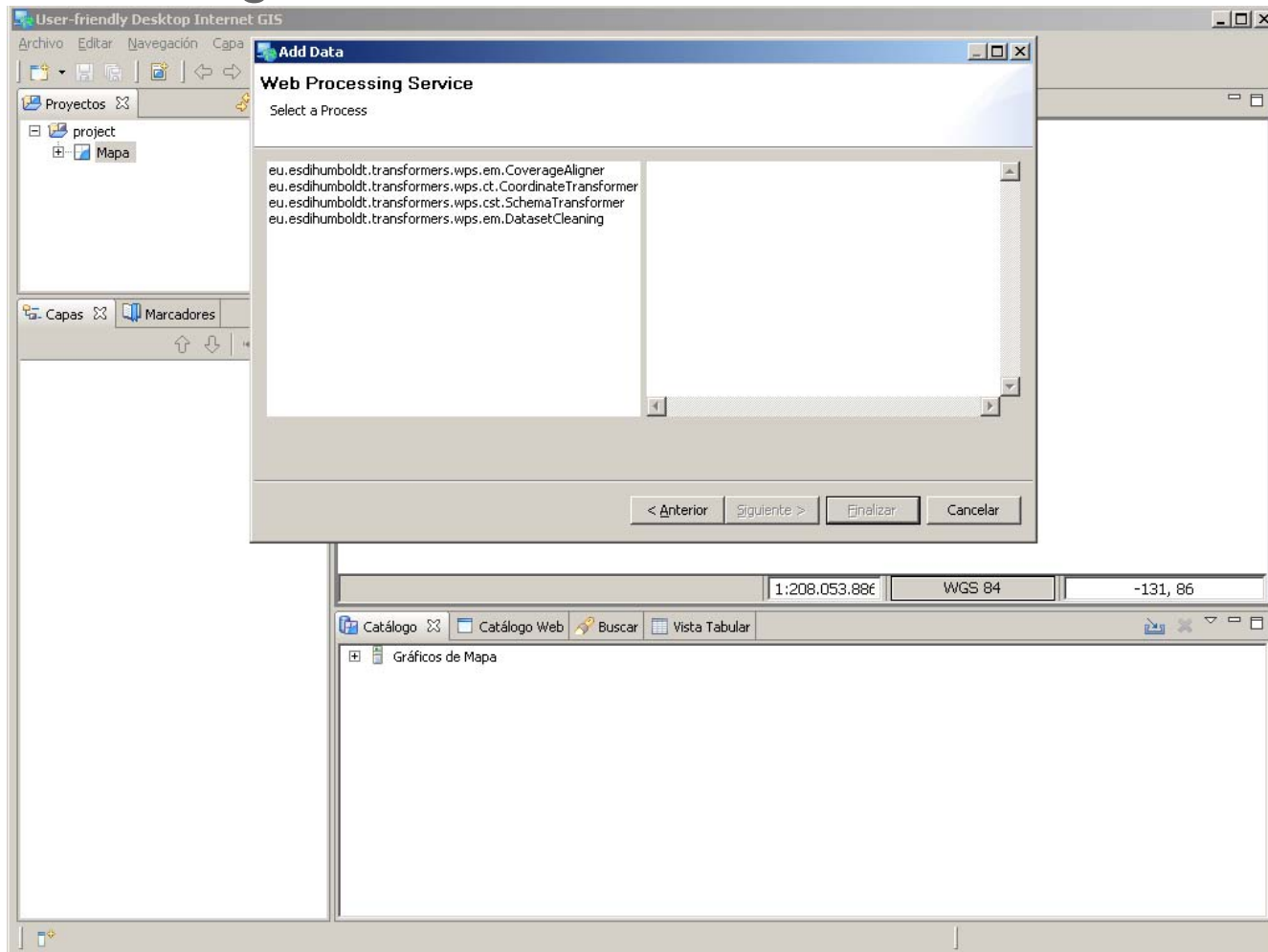
### uDIG as WPS Client:



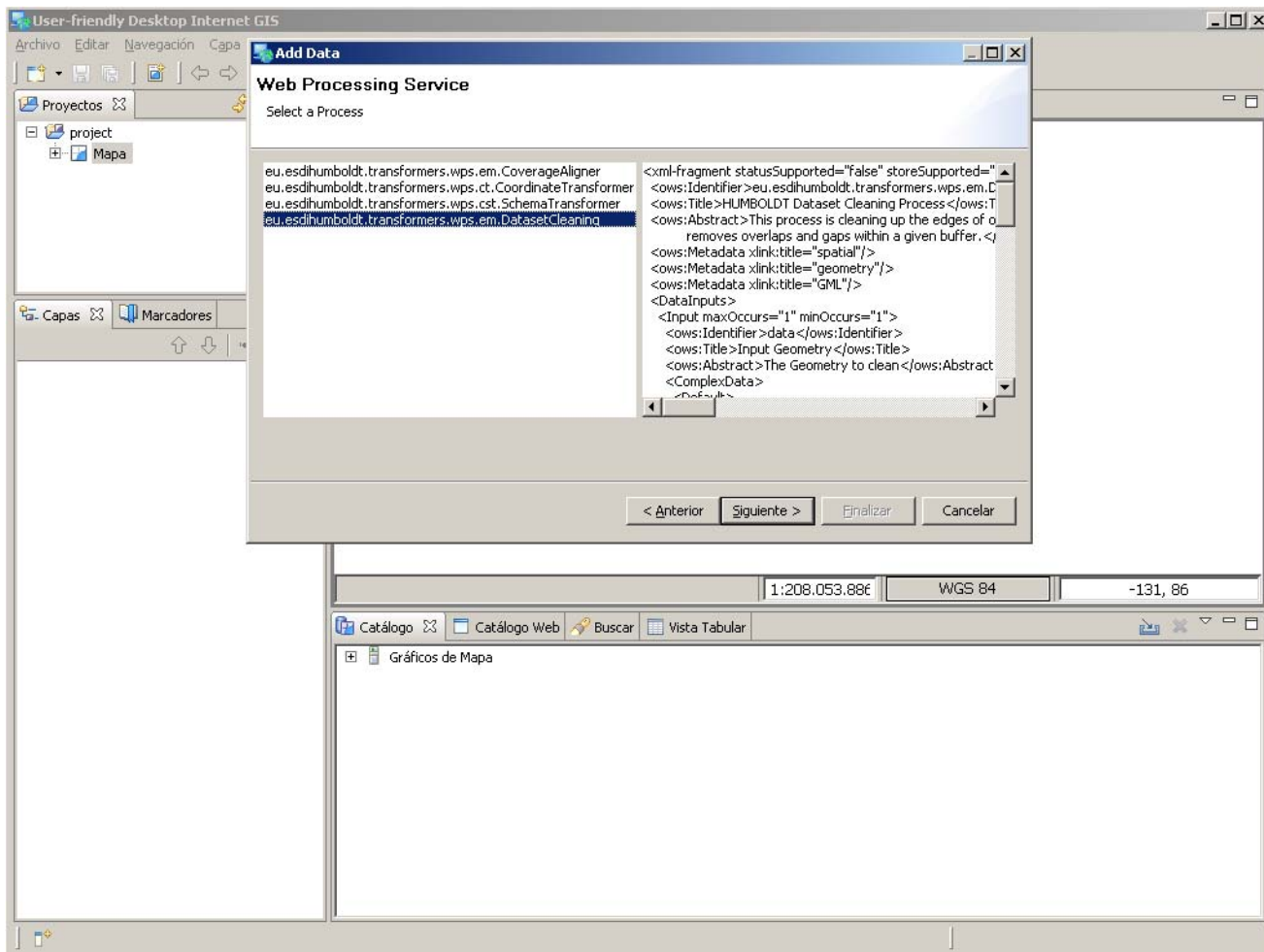
## Data Cleaning Process – WPS demo



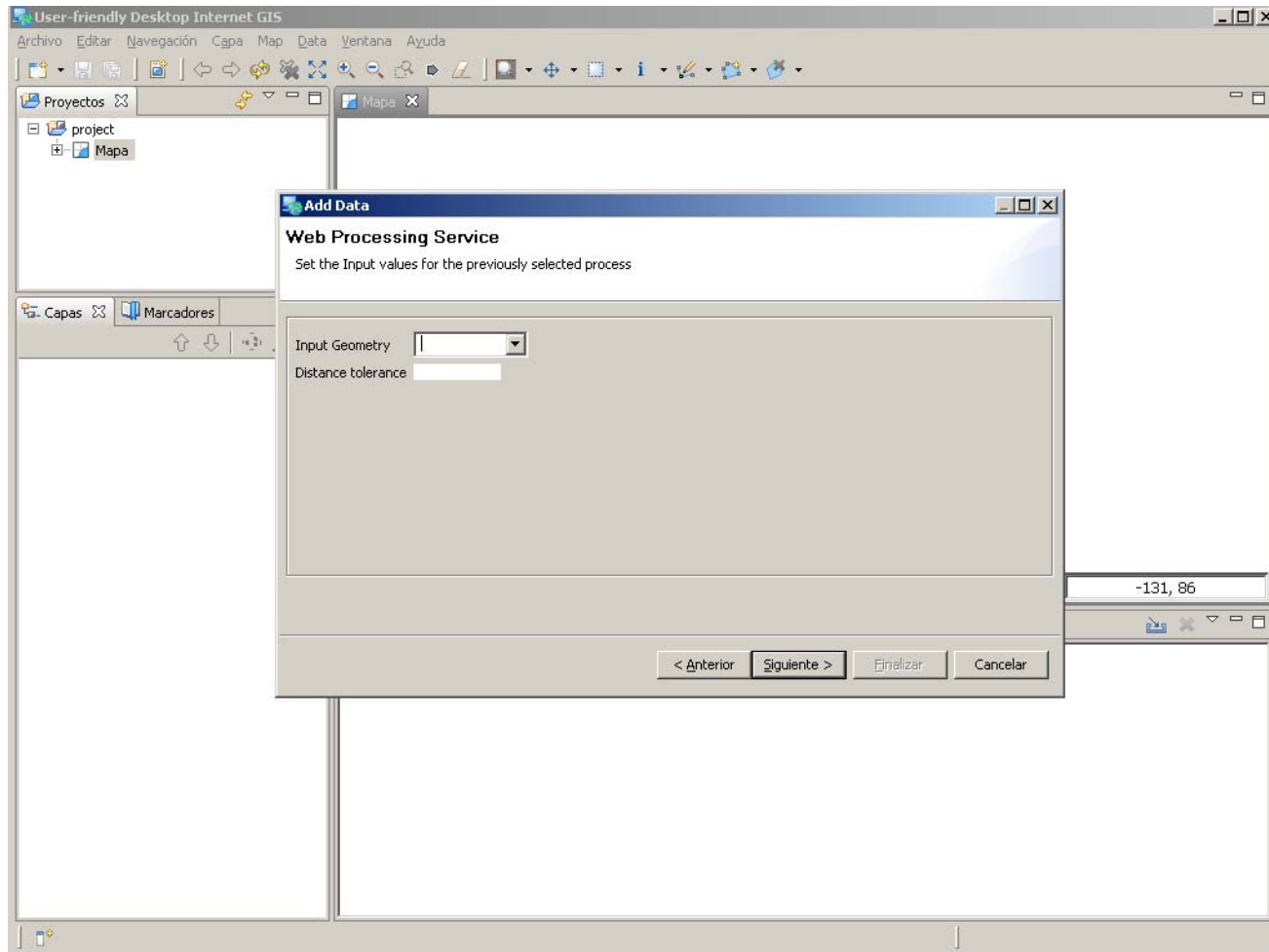
## Data Cleaning Process – WPS demo



## Data Cleaning Process – WPS demo

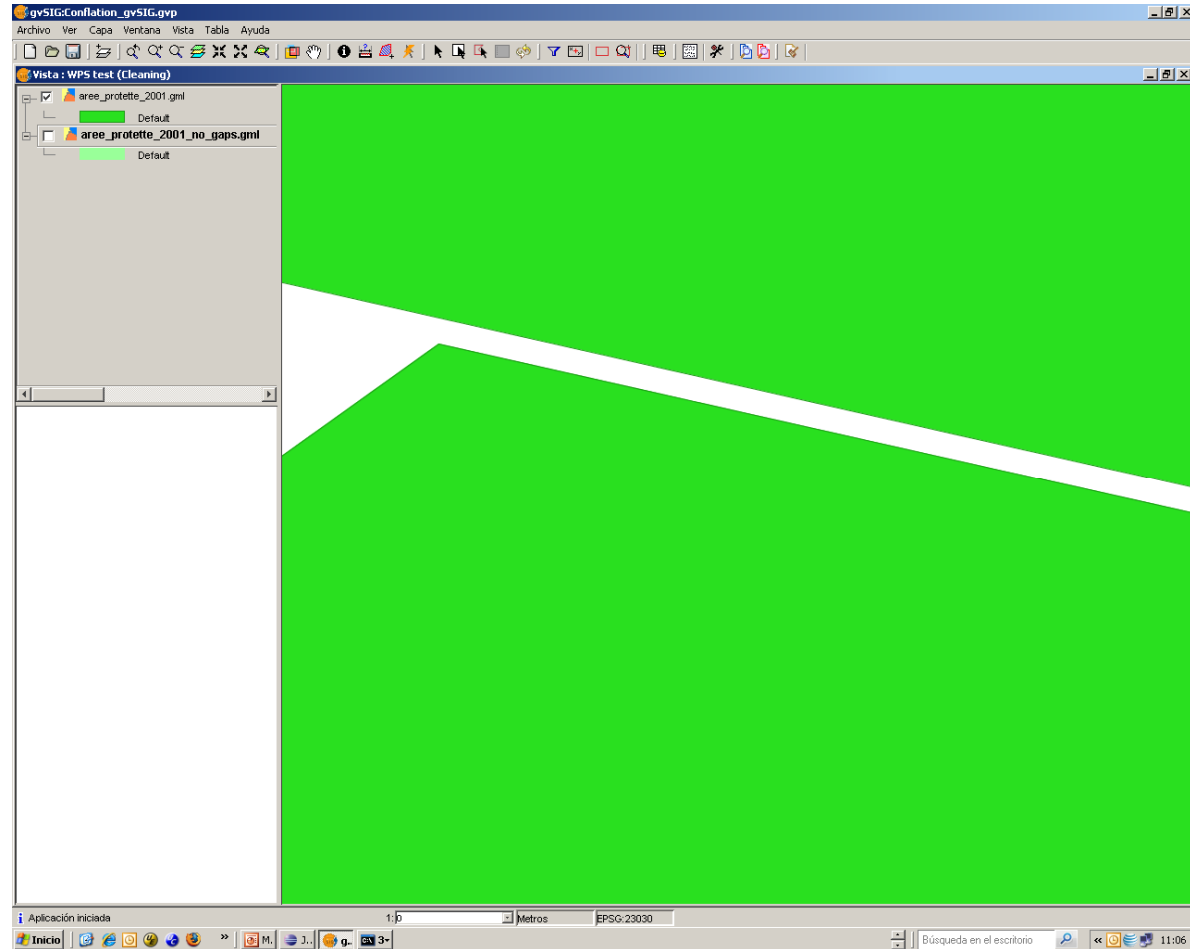


## Data Cleaning Process – WPS demo



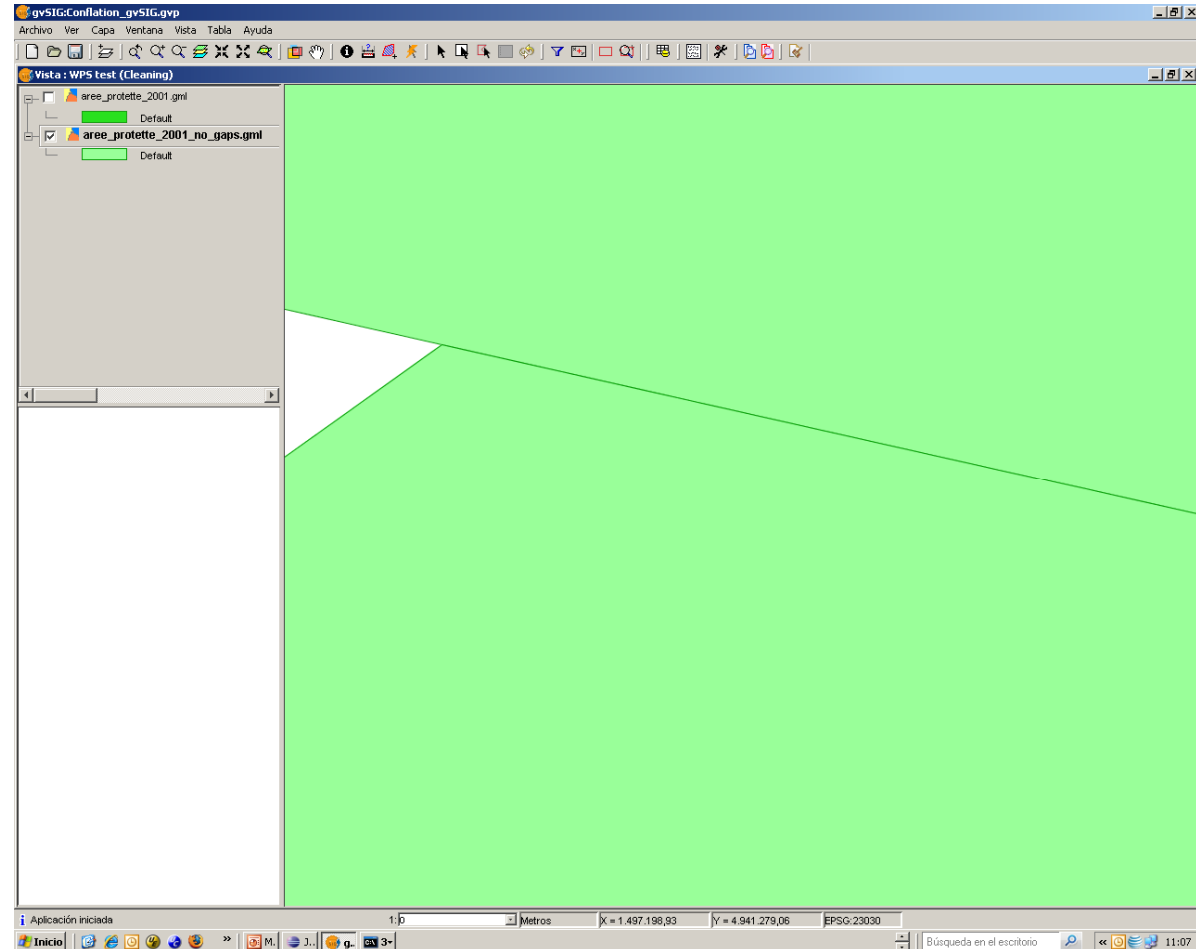
## 

Input:



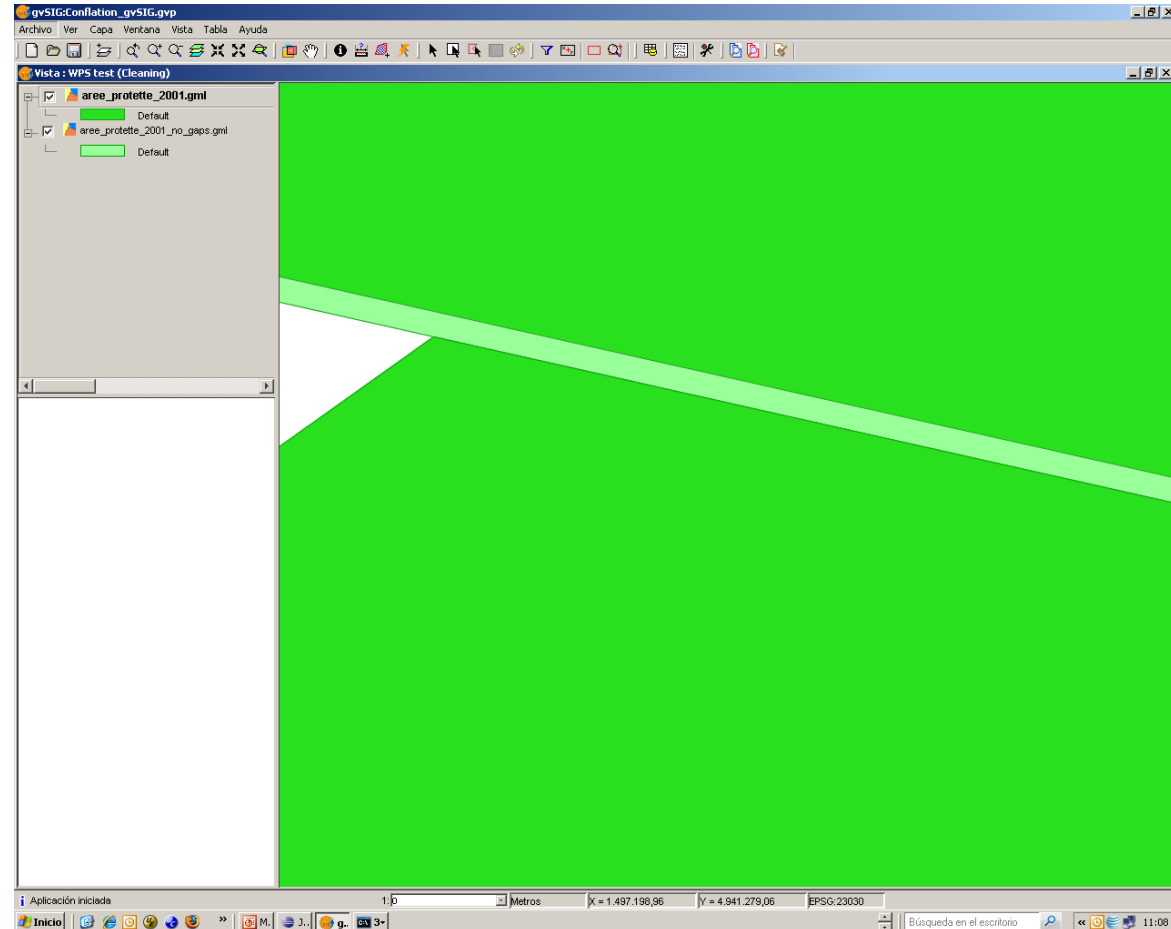
## 

Output:



## Data Cleaning Process - Results

 Result:



## Coverage Aligner Process

### Process Description:

#### ▪ **Inputs:**

- *Input reference dataset.*
- *Input dataset:* Input dataset which will be aligned to reference dataset
- *Distance tolerance:* Maximum distance of two edges to be matched.

#### ▪ **Output:**

- *Aligned dataset:* The dataset with aligned edges..

→ Process Descriptions

→ Using WPS Client: uDIG *Note: uDIG doesn't support GML 2.1*

→ Results on GeoMedia

 Goals Achieved

- ▣ a WPS set-up that includes ProcessDescription etc.
- ▣ readers for the supported input formats (GML 2.1.2)
- ▣ an integration of JTS and possibly of other algorithms for the handling of edge matching.

## Goals to Achieve in future (Next steps)

- ▣ a test suite to ensure high quality edge matching and to show what quality of edge matching can be achieved with the JCS  
→ JK
- ▣ readers for the supported input formats (GML 3.2, KML, etc.) → TK
- ▣ adding metadata on lineage to the processed data sets --> ABA
- ▣ find stable GML implementation