Development

- In the first Eclipse instance, the source code of the different projects are
  - *wfwps*: EMF project containing the ecore metamodel (*wfwps.ecore*)
  - *wfwps.design*: Sirius project containing the graphical interface description (*wfwps.odesign*)
  - *wfwps.acceleo*: Acceleo project containing the code generation templates (*generate.mtl*, *generateLoacalWPS.mtl*, *generateWF.mtl*)
  - *NoumeaUI* : JavFX project containing the user interface

Application Running

- Select the *NoumeaUI* project
- Right-click *Run As / Eclipse Application*
  - Launch a new Eclipse instance

Create a WPS library

- In the *wfwpsLibrary* project create a wps library
  - *File/New/Other…/Example EMF Model Creation Wizards/Wfwps Model*
  - *Next*
  - Select the *wfwpsLibrary* folder
  - Give a name to your lib *myLib.wfwps* (the extension wfwps is mandatory)
  - *Next*
  - *Model Object :* select *Workflow Wps*
  - *Finish*
- Select the *wfwpsLibrary* folder
  - Right click and *Viewpoints selection*
  - If not selected, click on *wfwps view point*

Create a WPS Java project by reusing the TemplateProject

- Copy/paste the *TemplateProject* modifying the new *projectName*
  - The project uses the jdk 1.8 (*Build Path/Configure Build Path*)
- Modify the following information in the *pom.xml* file

```
<groupId>yourGroupID</groupId>
<artifactId>NewProjectName</artifactId>
<version>VersionNumber</version>
<name>WPSjarName</name>
```

- Modify if necessary the version numbers in the *pom.xml* file

```
<geotools.version>17.2</geotools.version>
<geoserver.version>2.11.2</geoserver.version>
```

  - the version numbers have to be the same as the geoserver et geotools version numbers installed in your *Geoserver* installation
- Add the domain-specific java code in a specific package in the *src/main/java* folder
  - you need to implement a non static *public* function *myFunction* member in a class *myClass.java*
  - the class has a public by-default constructor, with no parameter
  - the inputs and the output of the function must have the following types : *boolean*, *int*, *double*, *String*, *Geometry*, *FeatureCollection<SimpleFeatureType, SimpleFeature>*
  - the execution of the function is self-consistent, no extra code has to be executed before it

Noumea User Interface

- to launch the User Interface, in *My FX View* tab: click on the *Noumea Button*

Configuration

- *Configuration* tab
  - select your *Library* file *myLib.wfwps*
  - select your *Java Project*
  - define the *GeoServer Path*
    - The folder containing the Geoserver *bin* folder

Edit a model of local WPS (a WPS model of a java function)

- *Local Modelling* tab
  - select your *class* file *myClass.java*
  - select your *function myFunction*
  - click on *Modelling*
    - Give a name for the WPS
  - In the editor (see after)
    - modify the *abstract* of the WPS

Edit a model of remote WPS

- *Remote Modelling* tab
  - define the server address (without http://)
  - click on *modelling*
  - select all the WPS to model (if the remote server is available)
  - In the editor (see after)
    - modify the *abstract* of the WPS
    - click on each *input* and *output :* modify, if necessary, the *Type* feature

Edit models of workflow and wps

- in *myLib.wfwps,* select the *Workflow Wps, right click New Representation / new Library Diagram*
- the model of WPS are yet represented
  - the type of inputs and outputs of WPS may be changed
- use the *Properties* tab to have access to the properties of modeled elements
- add workflow (*new Workflow* in the *Worflow Palette*)
  - add a *name* and an *abstract* to the workflow (*Properties* tab)
- add inputs and output to the workflow (*new Workflow Input* and *new Workflow Output* in the *Workflow Palette*)
  - add a *name* and an *abstract* for each (*Properties* tab)
  - select the correct type for each (*Properties* tab)
- double click on the workflow to open the corresponding graphical workflow editor
  - the inputs and outputs of the workflow are represented and cannot be deleted from this view
- import local WPS (*Local WPS Call* in the *Workflow Palette*)
  - select the corresponding local WPS by clicking on [..] (*Properties* tab)
  - double-click on the added *WPS Call* to add inputs and output
- import remote WPS (*Remote WPS Call* in the *Workflow Palette*)
  - select the corresponding remote WPS by clicking on [..] (*Properties* tab)
  - double-click on the added *WPS Call* to add inputs and output
- import Workflow (*Workflow Call* in the *Workflow Palette*)

    - select the corresponding remote WPS by clicking on [...] (*Properties* tab)
    - double-click on the added *Workflow Call* to add inputs and output
- use the palette to add *WMS Call*, *WFS Call* and constant data (*Boolean Value*, *Integer Value*, *Double Value*, *String Value*)
    - add *name*, *abstract*, and properties through the *Properties* tab
- add links between elements (*new Link* in the *Workflow Palette*)
- To delete an element (WPS, link, constant, …)
    - *Right click on the element - Edit / Delete from Model*
- Validate the diagram before generation
    - *Right click on the diagram - Validate Diagram*

Java code generation

- *Generation* tab
    - select models of local WPS
    - select models of Workflow
    - click on Generate
        - java code is generated in *\src\main\java\ProjectName\WPSpackage*
        - generate WPS-specific java code for each selected local WPS
        - generate Java code for all workflows
        - modify the org.geotools.process.ProcessFactory file to declare the WPS (selected local WPS and selected workflows)
    - if a project uses a local WPS defined in another project, it is necessary to add Maven dependency to the other project
        - *pom.xml/Dependencies/Add …*
        - *and for the used project*
            - *Right click -> Run As / Maven Build*
            - *Goals: install*

WPS deployment

- Select the Java Project
    - *Right click -> Run As / Maven Build*
        - *Goals: compile*
        - *Goals : package*
            - generation of the `WPSjarName-VersionNumber`.jar in the *projectName/target* folder

- *Deployment* tab
    - Just click on *Deploy*
        - stop *GeoServer,* copy the generated jar in the corresponding GeoServer folder *GeoServerinstall*/`webapps/geoserver/WEB-INF/lib`, re-start *GeoServer*

WPS testing

- you can test the deployed WPS with *GeoServer* using the local address http://localhost:8080/geoserver