Using Taverna – building a simple workflow

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http://www.taverna.org.uk/
Available Service

We will start with something easy - retrieving a protein sequence from a remote database and identifying functional motifs

- Expand the list
- Available Services
  - Local Services
    - ncbi
- Select ‘Get Protein FASTA’ and drag-and-drop it into the empty workflow diagram
Workflow input/output ports

• In a blank space in the workflow diagram, **Right-click** and select **Workflow input port** from the **Insert** section

• Type in a name for this input (e.g. ID) and click **ok**

• Do the same to create a new **Workflow Output Port**. Call this output **Sequence**
Connecting ports

• You now have 3 boxes in the diagram and we need to connect them up to build our workflow.

• Click on the input box ID and drag towards Get_Protein_Fasta and let go. An arrow will connect the two boxes.
Your first workflow

• Click on the output box *Sequence*, drag towards "Get_protein_fasta", and let go. An arrow will connect the two boxes.

• You have now built your first workflow!
Running workflow

• In the menu, select “File -> Run workflow”, or click on the green play button at the top of the workbench.
Providing workflow inputs

An input window will appear. We have not yet added a description of the workflow or the input.

Click on ‘Set Value’ in the input window and add a Uniprot protein identifier (e.g. P15409) where it says “some input data goes here”
Workflow results

- Click **Run workflow** - The workbench changes to the **Results** perspective

- In the bottom left, click on **Sequence** then **Value 1**

- You will now see a protein sequence from Uniprot
Validate your Workflow

• Taverna can check to see that everything is connected properly and that all the services in your workflow are available

• Go to the workflow explorer ("Design" button) and click on ‘Validation report’ tab

• See if Taverna has found any problems with the workflow. Errors will be displayed in red, warnings in yellow. Workflows with warnings often still run.

• If there are problems, follow the instructions to resolve them by clicking on the ‘Solution’ tab

• Are you able to create a workflow that gives warnings or errors?
  
  ☐ Tip: Try deleting the data link to the workflow output port
Validate your Workflow - 2

• Are you able to create a workflow that gives warnings or errors?
  • Try deleting the data link to the workflow output port
    ❑ Right-click on the arrow link to Sequence and choose delete link
    ❑ In the workflow explorer there should be a red cross against Sequence
    ❑ Look at the Validation report
  • Recreate the link to Sequence
    ❑ Removing the link from ID does not break the workflow