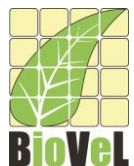




Nested workflows

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<http://www.taverna.org.uk/>



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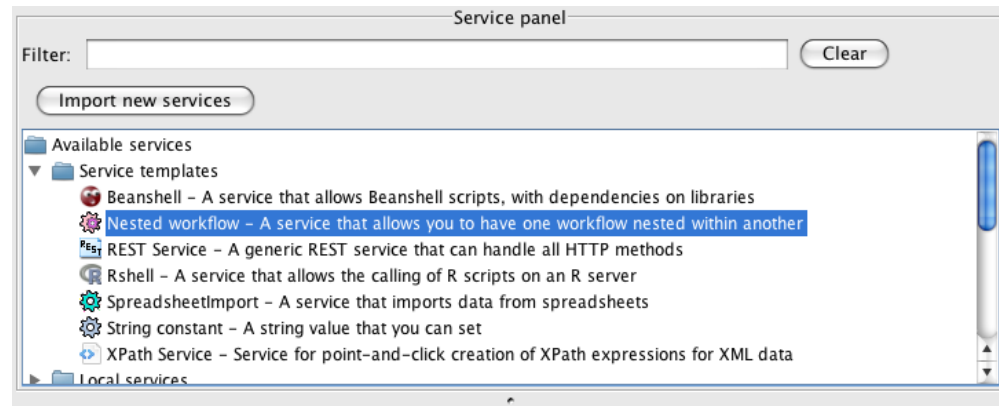
Nested workflows introduction

- A combination of services in a workflow can often be seen as playing a single functional role. For example:
 - A web service with *shims* that massage inputs and outputs
 - A series of services that perform a particular *scientific function* – e.g. filtering or merging
- **Nested workflows** is a way to group such workflows – represented as a delimited box
- Nested workflows can be **collapsed** to reduce clutter in the mother workflow
- Nested workflows can either be made from scratch, or by importing an **existing workflow**.
- A nested workflow can be **reused** in several mother workflows and are easier to replace/update.

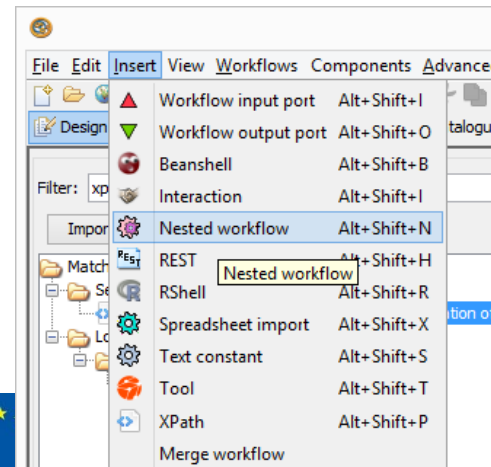


Adding a nested workflow

1. Start with File -> New workflow
2. Under **Available services**, expand **Service templates**
3. Select **Nested Workflow**.
4. Drag and drop the **Nested Workflow** to the **Workflow Diagram**.
5. In a dialog that pops up, you will have several options on how to *import* a nested workflow.



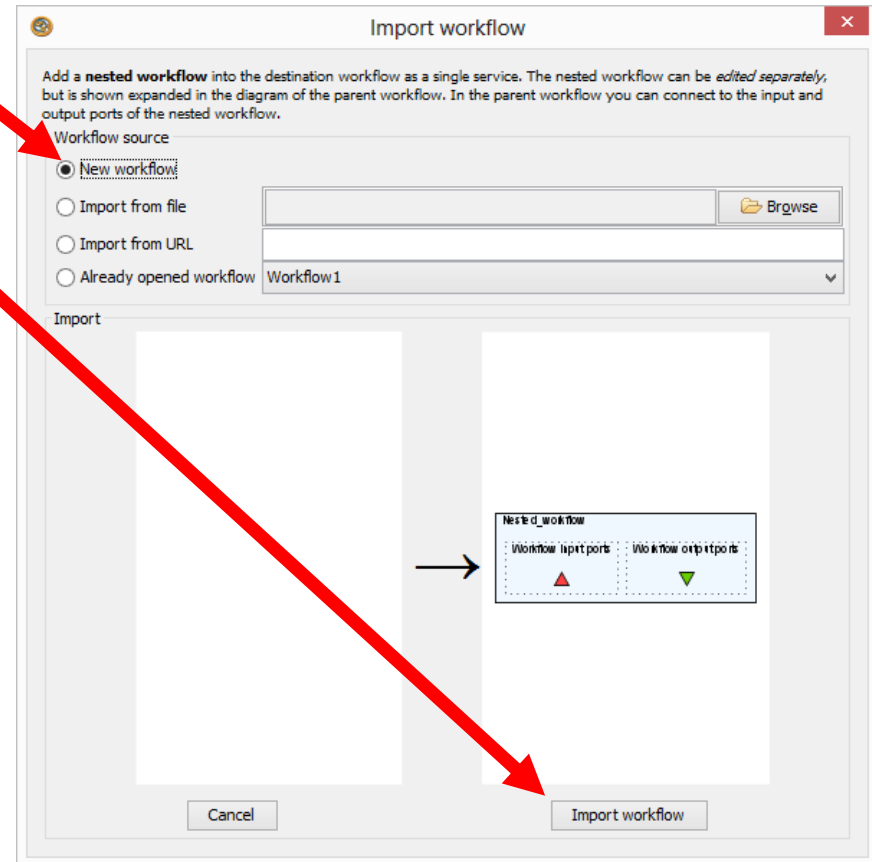
- Alternatively, in the menu, click **Insert -> Nested workflow**





New nested workflow

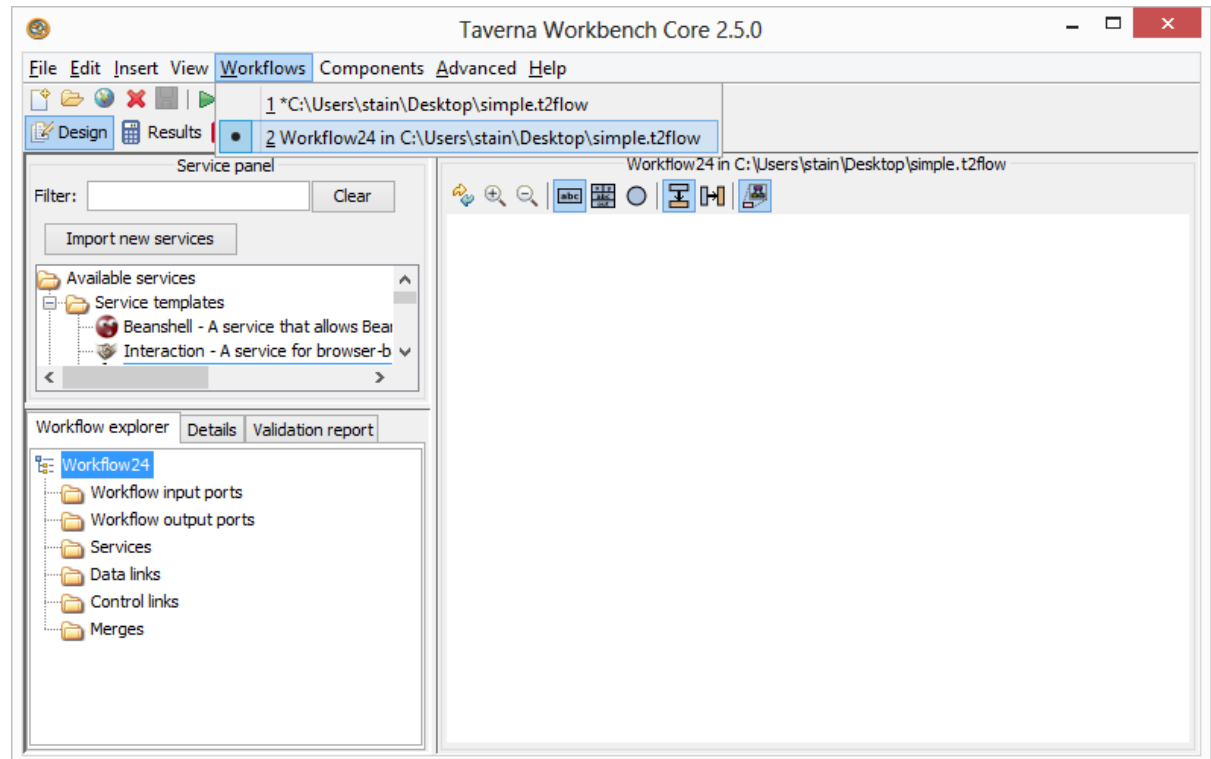
- Select **New workflow** and
- Click **Import workflow**





Workflows menu

- What happened? Why is the *Design* perspective empty?
- Look in the **Workflows** menu
- Are you able to switch back and forth between the nested and mother workflow?





Building interaction workflow

- Edit the nested workflow, and add an **ask** service – under **Available services** -> **Interaction** -> **ask**
- Interaction services let a user interact in their browser with a running workflow
- Rename the service to *ask_for_name*
- Right-click on the **message** port and click **Constant value**
- You may need to click the show ports to see the ports of the ask service
- Put *Please enter the scientific name of the species* in the text box and click **OK**
- Connect the *answer* port to a new workflow output port
- To test, run the nested workflow separately
- A tab should open in your browser where you can enter a species name



Nested ask for name workflow

Notice
Nested_workflow
in the name

The screenshot shows the Taverna Workbench interface. The main window displays a workflow diagram titled 'Workflow8 from Nested_workflow in Workflow5'. The diagram consists of several components: an input port 'message_value' with a sub-port 'value', a task 'message' with a sub-task 'ask_for_name' and an output 'answer', and a final output port 'answer' within a dashed box labeled 'Workflow output ports'. The 'Service panel' on the left lists several services, including 'Nested workflow - A service that all...', 'REST Service - A generic REST servi...', 'Rshell - A service that allows the cal...', 'SpreadsheetImport - A service that...', and 'Text constant - A string value that...'. A red arrow points from the text 'Nested_workflow in the name' to the 'Nested workflow' service in the panel. The 'Workflow explorer' at the bottom left shows a tree view for 'Workflow8' with folders for 'Workflow input ports', 'Workflow output ports', 'answer', and 'Services', which contains 'ask_for_name' with sub-elements 'message', 'title', and 'answer'.



Saving nested workflow

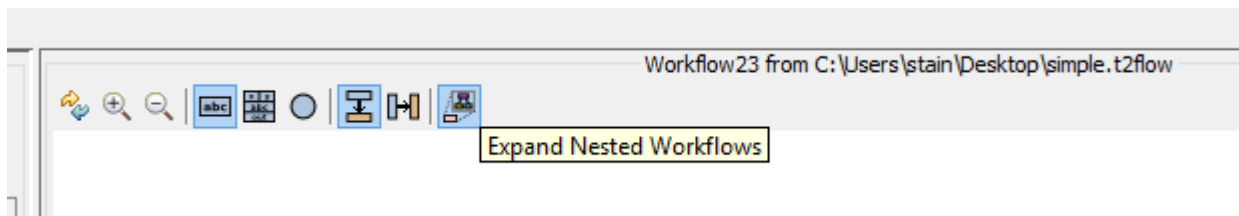
- Go back to the Design perspective.
- To “save” the nested workflow into its parent, do **File -> Save**
- Go to the parent using the **Workflows** menu

The screenshot shows the Taverna Workbench Biodiversity 2.5.0 interface. The 'Workflows' menu is highlighted with a red arrow. The main workspace displays a workflow diagram with a nested workflow component. The nested workflow is shown as a box containing a 'message_value' input port, an 'ask_for_name' service, and an 'answer' output port. The workflow is titled 'Workflow5' and is currently in the 'Design' perspective.



Collapse the nested workflow

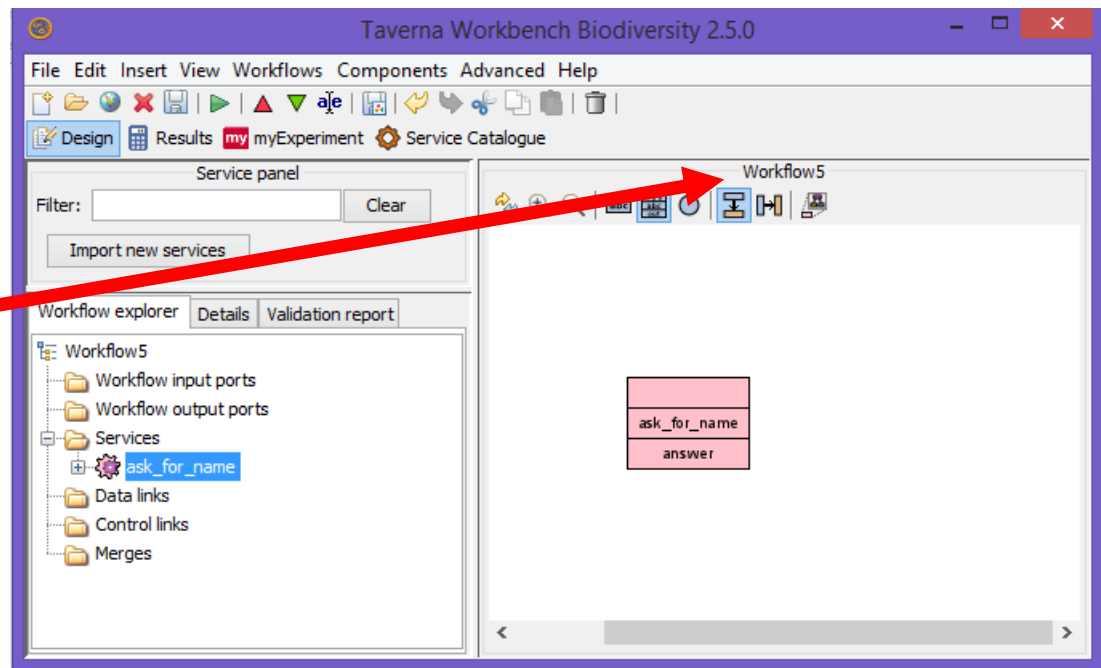
- Nested workflows can be **collapsed** to hide the implementation details
- In the **diagram** toolbar, click to disable **Expand Nested Workflows**
- Also click to **Display all service ports**





Nested workflow as a service

- The nested workflow now appears as a regular service in the master workflow
- Rename this to *ask_for_name*
- Notice *no nested in the workflow name*





Adding another Nested Workflow

- Add another nested workflow but this time **Import from file** and choose the *Species_Occurrence* workflow you created before
 - Available from <http://www.myexperiment.org/workflows/4484.html>
- Connect the *answer* port of *ask_for_name* to the *sciName* port of *Species_Occurrence*
- Connect *locatedOccurrences* to a new workflow output port



Nested workflow run

- Run the workflow
- Enter *Marmota marmota* into your web browser
- You will see occurrence information about marmots



Merging workflows

- Delete the *ask_for_name* service
- You can also merge workflows. This adds the merged-in workflow directly into the current workflow – it does **not** create a service for the merged workflow
- From the top-level menu **Insert** chose **Merge workflow**
- The dialog looks very like the Nested workflow dialog



Merging workflows - 2

- This time we will merge a workflow that is on myExperiment
- In the group on myExperiment, find the **Species_choser** workflow
 - See: <http://www.myexperiment.org/workflows/4487>
- Right-click on the **Download** link and copy the link address


Showing 1 result.

Taverna 2

 Species chooser (1)

Original Uploader

Created: 01/10/14 @ 15:18:47

Credits:  Alan Williams

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 Alan Williams

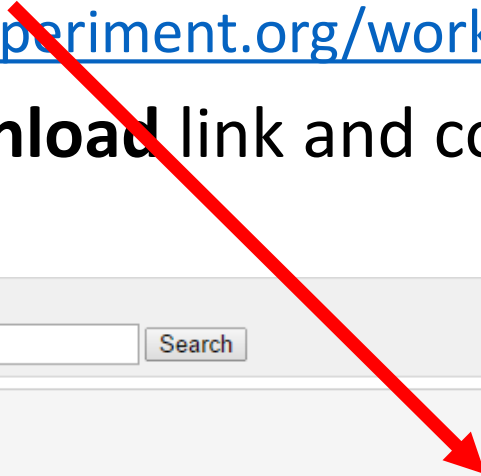


No description

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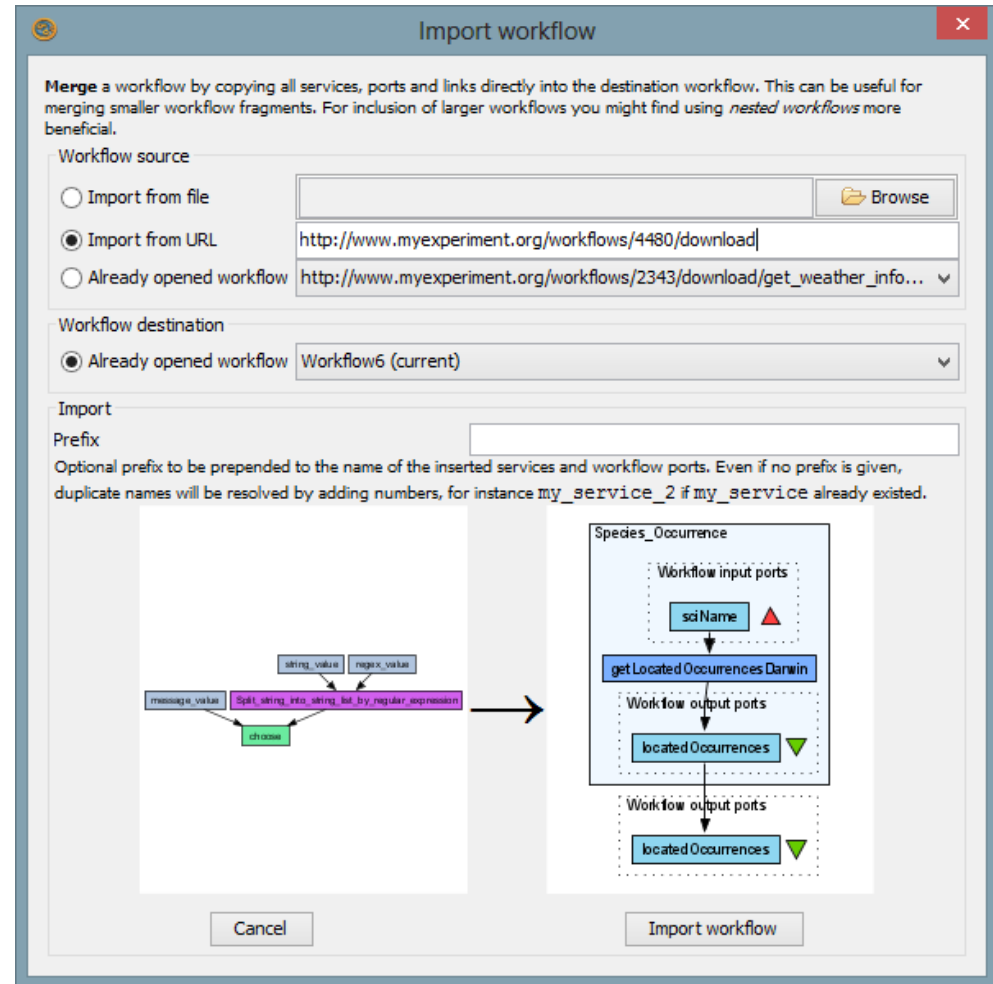
-  View
-  Download (v1)
-  Manage





Merging workflows - 3

- In the merge dialog select **Import from URL** and put in the download URL of the workflow
- Click **Import workflow**





Merging workflows -4

- Connect the *answer* port of the *choose* service to the *sciName* port of *Species_Occurrence* service
- Run the workflow
- What do you see as advantages and problems with merging workflows?