Nested workflows

http://dev.mygrid.org.uk/wiki/display/tav250/Nested+workflows

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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
Select **New workflow** and click **Import workflow**
- 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?
Editing the nested workflow, and add:

- REST service *dbfetch*
  - As of tutorial 2, from Service Catalogue / Available Services
  - Or using the *URL template*
    http://www.ebi.ac.uk/Tools/dbfetch/dbfetch/{db}/{id}

- Workflow Input Port *id*
- Workflow Output Port *fetched* (nicer name than responseBody)
- Text Constant *db* – value uniprotkb

- Connect *dbfetch* to workflow ports and text constant
- To test, run the nested workflow separately, using the input P15409
*Go back to the Design perspective.*

*To “save” the nested workflow into its parent, do File -> Save*

*Go to the parent using the Windows menu*
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**.
The nested workflow now appears as a regular service in the master workflow

- Rename from *Workflow4* to *dbfetch*
- Right-click on *id* to set the **Constant Value** P15409
- Connect *fetched* to a new Workflow Output port.
- **File -> Save** the master workflow
- Run the master workflow
- Right-click on Workflow24 and Edit Nested Workflow
  - Replace db_value with another workflow input port
  - Use File -> Save as... to a file, then File -> Close
  - In the master workflow, Expand nested workflow. What happened?
  - Right click and use Replace nested workflow

- Create a new nested workflow
  - Use “Import from file” or “Already opened workflow” to import the InterproScan workflow from the Asynchronous Service tutorial
  - Check how your master workflow now contains a nested, nested workflow.
  - (Advanced): Do you see any advantage of this approach with regards to the Control Link?

- (Advanced): Try Insert -> Merge workflow
  - What do you see as advantages and problems with this approach?