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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

- 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





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New nested workflow

Select New workflow and click Import workflow

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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?

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Building dbfetch workflow

- Editing the nested workflow, and add:
 - REST service dbfetch
 - As of tutorial 2, from Service Catalogue / Available Services
 - Or using the URL template <u>http://www.ebi.ac.uk/Tools/dbfetch/dbfetch/{db}/{id}</u>
 - 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





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 **Windows** menu

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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 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?