Kepler Wokflow management tool: autoGui

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Notes, content

- This tutorial is based on autoGui version 1.9 and ITM (autoGui is available for IMAS also)
- Contents:
  - general information
  - workflow configuration and execution
  - workflow annotation to be used in autoGui

General Description

- AutoGui tool is developed to make kepler workflow configuration more user friendly (as compared to Kepler canvas)
- AutoGui can be used with annotated kepler workflows
- Autogui configures workflow outside Kepler and launches Kepler after configuration is completed
- Autogui automatically saves configuration parameters in the parameter file that is passed to the Kepler together with the workflow
- Parameter set can be saved, loaded in the autoGui
- Workflow can be executed interactively (on login node) or send to the queue
- Execution monitoring tools are available

First step: launch autoGui

- load environment
- check that autoGui module is in the module list
  - if **ets module** is loaded then it is
  - if **itmenv module** is loaded it is not automatically true (starting from itmenv/ETS_4.10b.10_v5.8.0 autoGui is not the part of itmenv, do ***module load autoGui*** if needed)
- autoGui is launched by issuing ***autoGui*** command in the terminal, this will open new (‘naked’) autoGui session
- if **ets module** is loaded the ‘dressed’ version of autoGui can be loaded with ***ets*** command; this will launch autoGui and load ETS5 workflow with default set of parameters

Workflow configuration and execution

- The detailed guide on the workflow configuration and execution is available here:

https://users.euro-fusion.org/tfwiki/images/0/09/Ets_config_ag_v2.pdf

This link is also available through the ETS documentation web page:
https://users.euro-fusion.org/tfwiki/index.php/ETS_Documentation#Configuration_of_ETS_workflow_in_Kepler
and ETS user's guide web page:
https://portal.eufus.eu/twiki/bin/view/Main/User_Guide_accessing_JET_data

Workflow annotation (introduction)

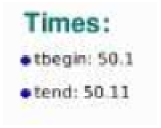
- Workflow need to be annotated to be ‘understood’ by autoGui
- Annotation is addition of the additional attribute to the parameters of the kepler workflow
- Any kepler workflow that is working under itm(imas)env can be annotated
- Workflow annotation is usually performed/controlled by the workflow manager

Workflow annotation (mechanism)

Parameter of the workflow is annotated by adding additional attribute to it

This can be done in two ways:

- editing workflow xml file
- adding attribute in the Kepler canvas (Note: additional workflow preparation is needed in general for this method to work)

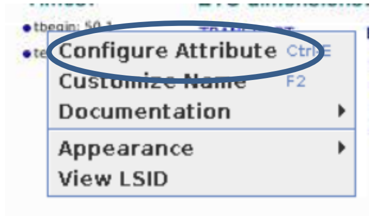

Times:
- tbegin: 50.1
- tend: 50.11

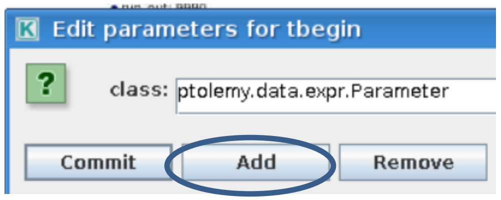
Example: annotation of the ***tbegin*** workflow parameter of ETS5 workflow

XML file:

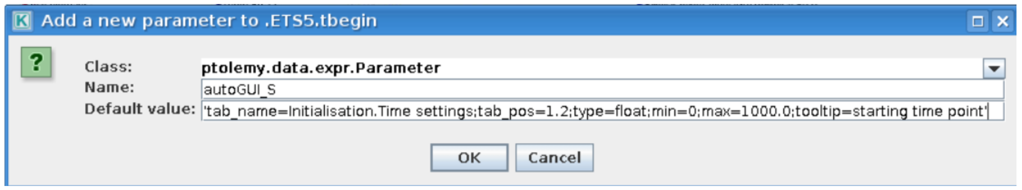
```
<property name="tbegin" class="ptolemy.data.expr.Parameter" value="50.1">
        <property name="entityId" class="org.kepler.moml.NamedObjId" value="urn:lsid:kepler-project.org/ns/:87028:71:1">
        </property>
….
        <property name="autoGUI_S" class="ptolemy.data.expr.Parameter" value="'tab_name=Initialisation.Time
settings;tab_pos=1.2;type=float;min=0;max=1000.0;tooltip=starting time point'">
        </property>
…
</property>
```

Workflow:





class: ptolemy.data.expr.Parameter



Class: ptolemy.data.expr.Parameter
Name: autoGUI_S
Default value: 'tab_name=Initialisation.Time settings;tab_pos=1.2;type=float;min=0;max=1000.0;tooltip=starting time point'

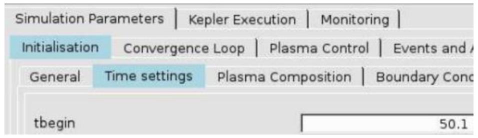
Value of autoGui attribute

Defines how autoGui will treat the parameter

'tab_name=Initialisation.Time settings;tab_pos=1.2;type=float;min=0;max=1000.0;tooltip=starting time point'

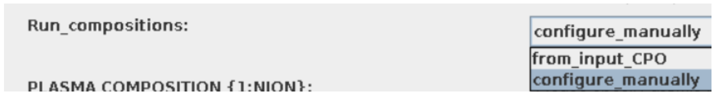
<u>tab name:</u> name of the tab, where parameter will appear

<u>tab_pos:</u> position of the tab in the autoGui



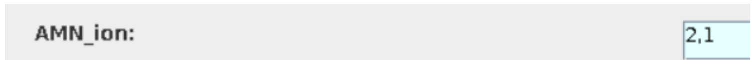
tbegin 50.1

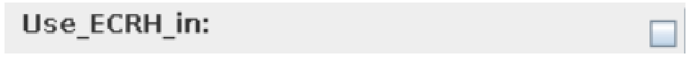
<u>type:</u> parameter type, possible types: int, float, string, vector, choice


Run_compositions: configure_manually

from_input_CPO
configure_manually

PLASMA COMPOSITION {1:NION}:


AMN_ion: 2,1

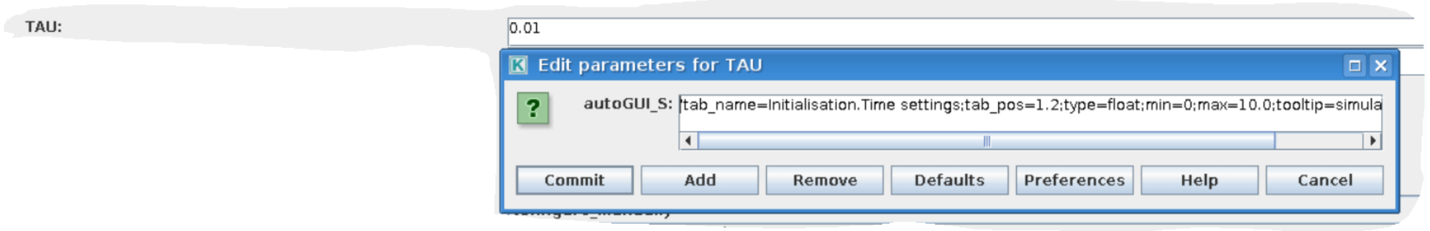

Use_ECRH_in: ☐

<u>min/max:</u> optional, limit the value of the parameter

<u>tooltip:</u> useful message to be displayed when pointing to the parameter in the autoGui

AutoGui Parameter types (property name)

autoGUI_S: simple parameter

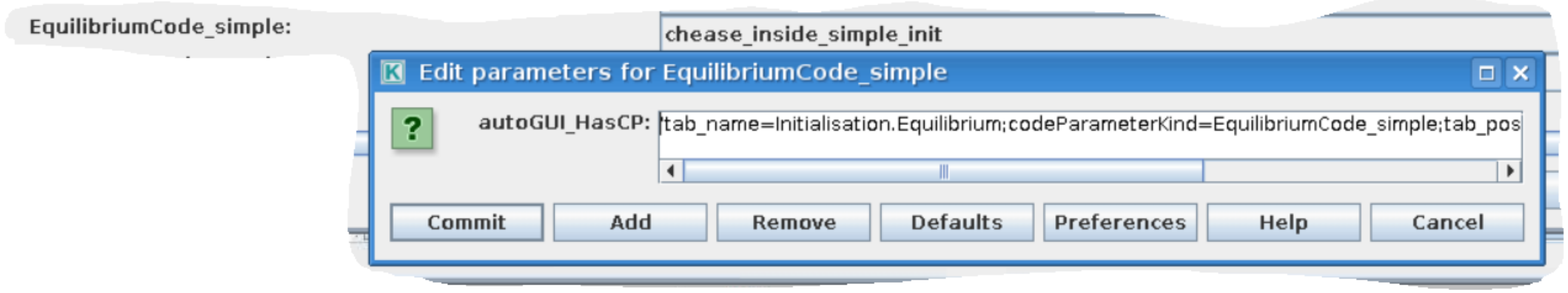


TAU: 0.01

Edit parameters for TAU

autoGUI_S: 'tab_name=Initialisation.Time settings;tab_pos=1.2;type=float;min=0;max=10.0;tooltip=simula

autoGUI_HasCP: parameter has actor with code specific parameters associated with it

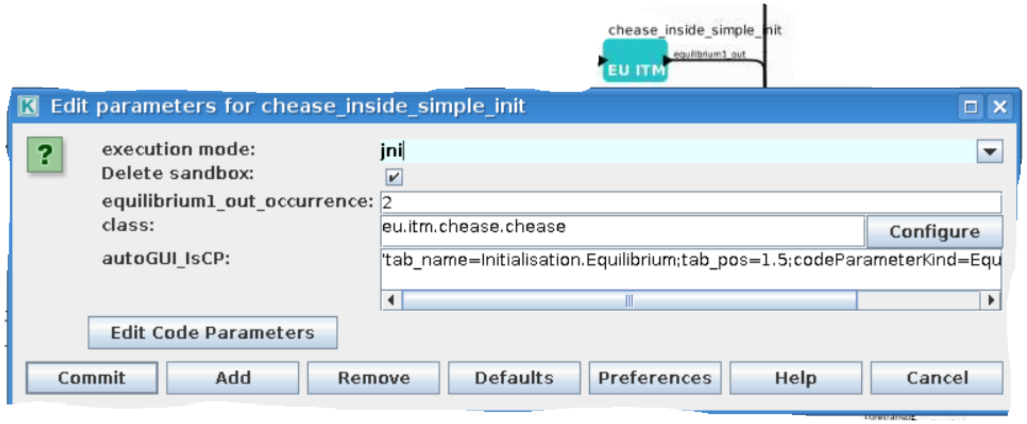


EquilibriumCode_simple: chease_inside_simple_init

Edit parameters for EquilibriumCode_simple

autoGUI_HasCP: 'tab_name=Initialisation.Equilibrium;codeParameterKind=EquilibriumCode_simple;tab_pos

autoGUI_IsCP: actor contains code specific parameters



Edit parameters for chease_inside_simple_init

execution mode: jni

Delete sandbox: ✓

equilibrium1_out_occurrence: 2

class: eu.itm.chease.chease

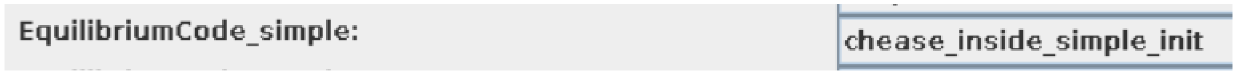
autoGUI_IsCP: 'tab_name=Initialisation.Equilibrium;tab_pos=1.5;codeParameterKind=Equ

Annotating actors with code specific parameters

Two parts should be annotated consistently: autoGUI_HasCP and autoGUI_IsCP

Simple example (name of the actor is the name in the choice)

autoGUI_HasCP



EquilibriumCode_simple: chease_inside_simple_init

'tab_name=Initialisation.Equilibrium;codeParameterKind=EquilibriumCode_simple;tab_pos=1.5;type=choice;tooltip=chease or other choice'

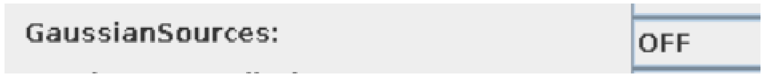
autoGUI_IsCP

'tab_name=Initialisation.Equilibrium;tab_pos=1.5;codeParameterKind=EquilibriumCode_simple'

codeParameterKind is used to build correspondence

More advanced example (name of the actor is not the name of the choice)

autoGUI_HasCP



GaussianSources: OFF

'tab_name=Convergence Loop.Sources.Main; tab_pos=2.4.1; codeParameterKind=GaussianSources; type=choice; tooltip= gaussian'

autoGUI_IsCP

'tab_name=Convergence Loop.Sources.Main; tab_pos=2.4.1; codeParameterKind=GaussianSources; correspondentChoice=ON'

correspondentChoice is used to define the value of the HasCP parameter when code parameters should be used