

General hooks

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- Implemented extensions (DESY):
 - stop function
 - repeating points condition



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Motivation

Customize scans without defining new macros

- Applies to all hookable macros
- New hooks positions can be used
- All available and user defined macros can be set as general hook
- Controlled via Spock environment variables
- Macros defined to set/unset general hooks



Implementation

- Modification of `msmacromanager.py`
- Added to the macro object like the standard hooks
- No extra function to call them
- Macros added to `env.py` to set/unset the general hooks



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p06/door/hasp029rack.01 [31]: `lsgh`

No general hooks

p06/door/hasp029rack.01 [32]: `defgh 'check_beam' pre-scan post-scan`

Defining general hook

`check_beam`p06/door/hasp029rack.01 [33]: `lsgh`

Hook place	Hook(s)
post-scan	check_beam
pre-scan	check_beam

p06/door/hasp029rack.01 [34]: `lsenv _GeneralHooks`

Name

Value

Type

Name	Value	Type
_GeneralHooks	[('check_beam', ['pre-scan', 'post-scan'])]	list

p06/door/hasp029rack.01 [35]: `defgh 'mv exp_dmy01 10' pre-scan`

Defining general hook

`mv exp_dmy01 10`p06/door/hasp029rack.01 [36]: `lsgh`

Hook place	Hook(s)
post-scan	check_beam
pre-scan	check_beam
	mv exp_dmy01 10

p06/door/hasp029rack.01 [37]: `undefgh`

Undefined all general hooks

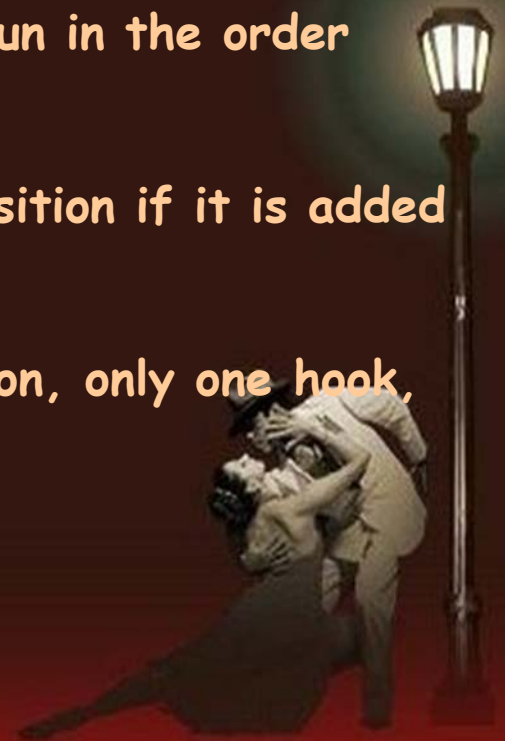
p06/door/hasp029rack.01 [38]: `lsgh`

No general hooks

p06/door/hasp029rack.01 [39]:

Some remarks

- For each hook position can run different macros (hooks)
- The different hooks for a hook position will run in the order they were added
- The same macro can run several times in a position if it is added several times
- All hooks can be disable at once for all position, only one hook, or only one hook for one position



Examples

- Check motor limits in step scans (pre-scan)
- Prepare 2D detectors: create directories, set save directory, file name, file index, ... in detector TS (pre-scan)
- Set attenuators, set undulator, check shutter, check current (pre-scan)
- Restore changes (post-scan)
- Macro to be repeated (defined 'body' hook position)



Implemented extensions (DESY)

General Stop function:

- Implemented in class Macro (macro.py):
 - added getGeneralOnStopFunction
 - called by _stopOnError before on_stop
- Applies to all macros
- Defined as a function in external python file imported by macro.py
- Controlled by environment variable
- Macros select/deselect its use
- Example: check and restore beamline conditions

Define action to be performed if macro is stopped (ctrl-C)



Implemented extensions (DESY)

General condition:

- Implemented in classes Macro (macro.py):
 - added getGeneralCondition
- and Sscan (gscan.py):
 - called by stepUp at the end of each step
- Applies to step scans
- Defined as macro
- Controlled by environment variable
- Macros select/deselect its use
- Example: repeat scan points if beam current under limit

Define condition to be fulfilled for going to next scan point

All points are sent to recorders

