

Spock Logging

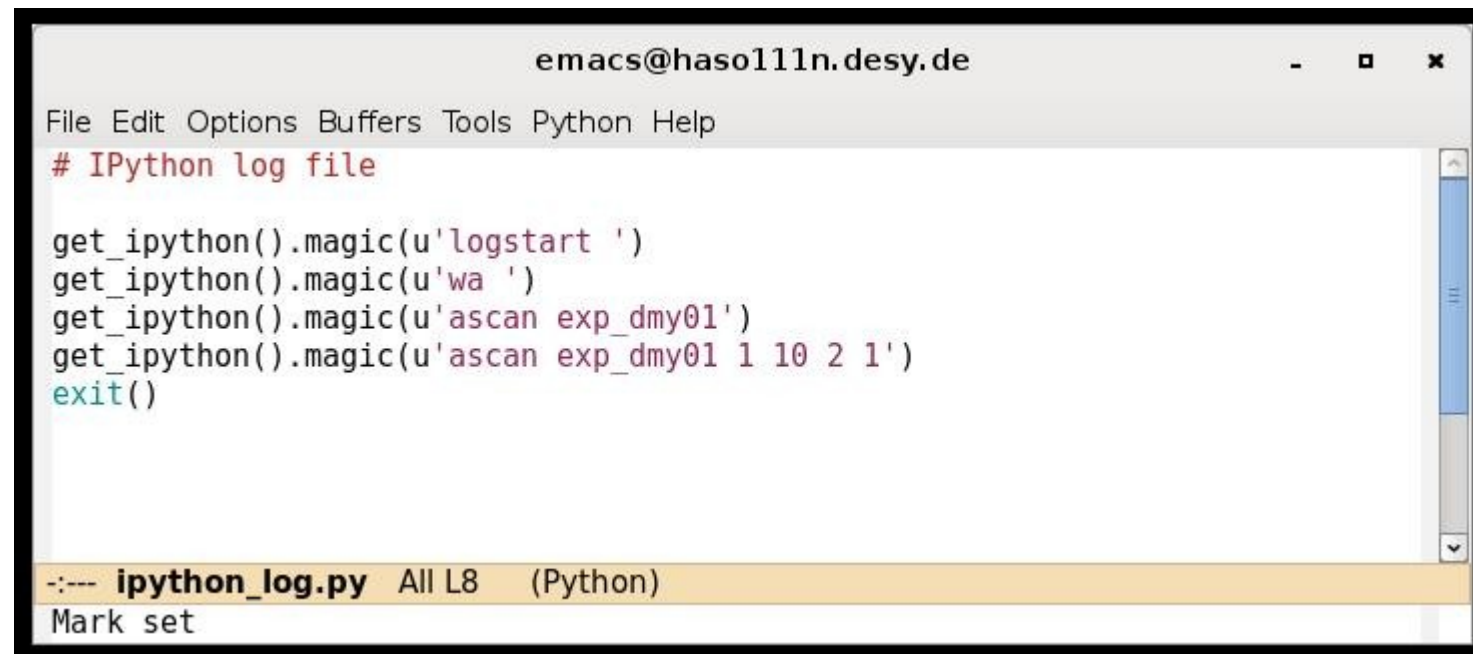
Sardana Follow-up Meeting - 11.12.2017

Motivation:

Store in a file the spock commands and outputs

Default Spock Loggings:

- ipython history:
 - always active
 - saved in ipython profile directory in sqlite format (history.sqlite), exportable to plain-text with:
`%history -g -f filename`
 - only spock commands
- ipython logging:
 - activated with:
`%logstart`
 - saved in spock running directory in python file (ipython_log.py)
 - only spock commands. Timestamping and macro output (NOT spock output, BUT return value from macros) can be added with options -t and -o:
`% logstart -t -o`



The image shows a screenshot of an Emacs editor window. The title bar at the top reads "emacs@haso111n.desy.de" and includes standard window control buttons (minimize, maximize, close). Below the title bar is a menu bar with the following items: "File", "Edit", "Options", "Buffers", "Tools", "Python", and "Help". The main editing area contains a Python script with the following lines of code:

```
# IPython log file

get_ipython().magic(u'logstart ')
get_ipython().magic(u'wa ')
get_ipython().magic(u'ascan exp_dmy01')
get_ipython().magic(u'ascan exp_dmy01 1 10 2 1')
exit()
```

At the bottom of the window, there is a status bar with a yellow background. It displays the text ":- ipython_log.py All L8 (Python)" and "Mark set".

Current solutions not accepted by our users

Own spock logging solution implemented:

- Controlled via Spock environment variables:

LogMacroOnOff : if True logging is active

LogMacroPath: directory where the file will be stored (default /tmp)

LogMacroAll: if 0 only the macros called from spock will be written, if 1 also the macros called by macro

LogMacroMode: if False logging appended, if True current file copied to backup file and a new file created

Macros to set/unset variables are available.

- Saved in plain-text in selected directory (spock_output_hostname.log)
- Spock commands and output, timestamp, macroserver warning, error, debug and info messages are included.

Already being use at Petra Beamlines

Details of running implementation

Taurus:

- core/util/log.py
 - Logger class: added loggingtofile method

Sardana:

- macroserver/macro.py
 - Macro class: read logging related environment variables, handle opening logging file, call Logger.loggingtofile in output, info, debug, warning and error methods
- macroserver/msmacromanager.py
 - MacroExecutor class: call Logger.loggingtofile for logging macro result
- macroserver/macros/standard.py
 - added macros for controlling logging

File Edit Options Buffers Tools Help

-- Fri Sep 15 10:53:28 2017

wm exp_dmy01

read_unitlimit_attrs exp_dmy01
exp_dmy01

User

High Not specified

Current 0.0

Low Not specified

-- Fri Sep 15 10:53:59 2017

wm exp_dmy02

read_unitlimit_attrs exp_dmy02
exp_dmy02

User

High Not specified

Current 0.0

Low Not specified

-- Fri Sep 15 10:59:30 2017

a2scan exp_dmy02 0.0 10.0 exp_dmy01 0.0 13.0 4 1.0

Operation will be saved in /tmp/test.spec (Spec)

Scan #1916 started at Fri Sep 15 10:59:31 2017. It will take at least 0:00:05.000456

Moving to start positions...

#Pt	No	exp_dmy02	exp_dmy01	t01	c03	c02	dt
gc_macro							
0		0	0	1	41.9221	30.1267	0.0376539
1		2.5	3.25	1	197.952	77.0822	1.32299
2		5	6.5	1	4.20551	0.071816	2.57669
3		7.5	9.75	1	114.379	23.8066	3.82021
4		10	13	1	0.0393952	-0.0448529	5.07079

Operation saved in /tmp/test.spec (Spec)

Scan #1916 ended at Fri Sep 15 10:59:37 2017, taking 0:00:06.312989. Dead time 20.8% (motion dead time 1.0%)

-- Fri Sep 15 11:00:43 2017

wm exp_dmy02

read_unitlimit_attrs exp_dmy02
exp_dmy02

User

High Not specified

Current 10.0

Low Not specified

-- Mon Sep 18 14:44:56 2017

lsm .*

Name	Type	Controller	Axis
gap02	PseudoMotor	slitctrl02	1
mot05	Motor	motctrl02	1

-:--- spock_session_haso111n.log 2% L143 (Fundamental)

Alternative implementation

Use standard logging FileHandler:

- Only modify macroserver/macro.py → Add FileHandler to Macro class
- Much less flexibility in selecting output to file or format.
- Less readable for users

(see sardana PR #480 for further discussion)

File Edit Options Buffers Tools Help

```

1 Configuration changed
2 ExtraColumns is not defined
3 SharedMemory is not defined. Use "senv SharedMemory sps" to enable it
5 Operation will be saved in /tmp/test_[ScanId].lima (Lima)
6 Scan #1771 started at Wed Jul 12 12:27:55 2017. It will take at least 0:00:04.000518
Moving to start positions...
7 #Pt No   exp_dmy01   t01       c03       c02       dt
8 [START] motion
9 8 [START] motion
10 [ END ] motion
11 10 [ END ] motion
12 [START] acquisition
13 12 [START] acquisition
14 [ END ] acquisition
15 14 [ END ] acquisition
16   0       1       1       -0.0439509  106.457   0.347139
17 16   0       1       1       -0.0439509  106.457   0.347139
22 [START] motion
23 22 [START] motion
24 [ END ] motion
25 24 [ END ] motion
26 [START] acquisition
27 26 [START] acquisition
28 [ END ] acquisition
29 28 [ END ] acquisition
30   1       4       1       28.7145   16.6681   1.48975
31 30   1       4       1       28.7145   16.6681   1.48975
36 [START] motion
37 36 [START] motion
38 [ END ] motion
39 38 [ END ] motion
40 [START] acquisition
41 40 [START] acquisition
42 [ END ] acquisition
43 42 [ END ] acquisition
44   2       7       1       0.037746  84.5065   2.61293
45 44   2       7       1       0.037746  84.5065   2.61293
50 [START] motion
51 50 [START] motion
52 [ END ] motion
53 52 [ END ] motion
54 [START] acquisition
55 54 [START] acquisition
56 [ END ] acquisition
57 56 [ END ] acquisition
58   3      10       1       1.3741   42.2904   3.72133
59 58   3      10       1       1.3741   42.2904   3.72133

```

~:--- spock_output.MacroExecutor.log Top L16 (Fundamental)