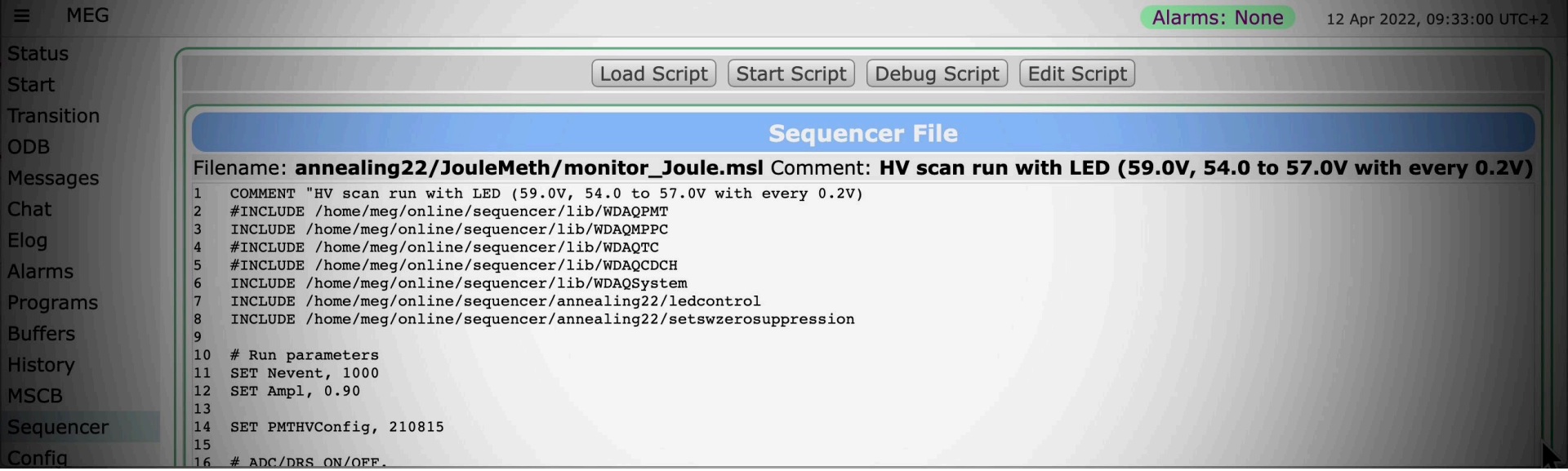
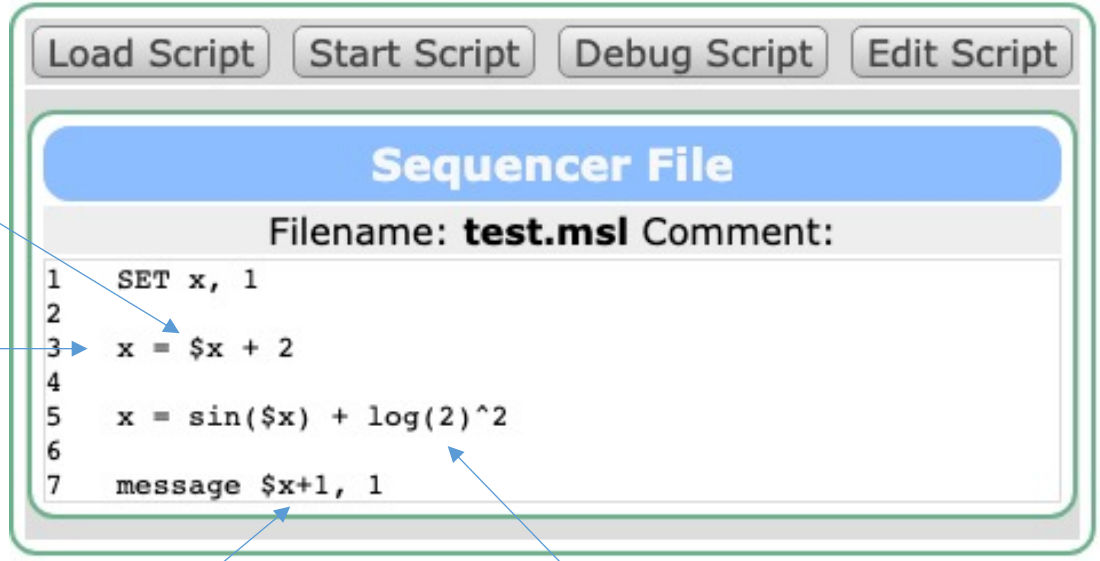


MIDAS Sequencer Update

Stefan Ritt

19.04.2022

Math added



Access variables by "$"

SET can be replaced by simple "="

sin(), abs(), floor(), log(), pow(), sqrt(), pi, e

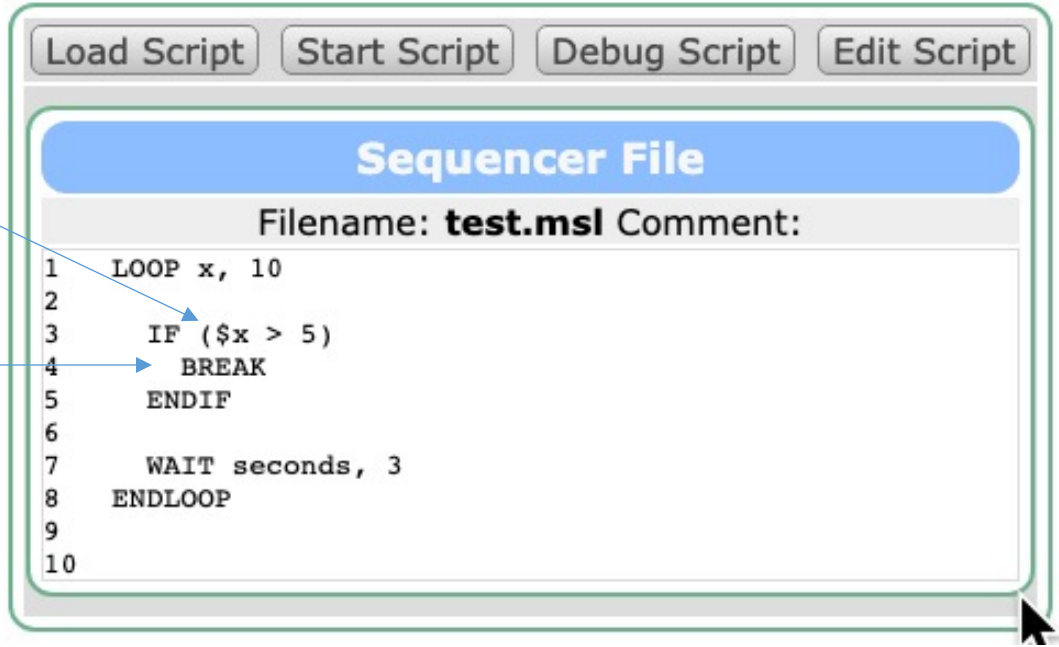
Expressions available in all commands

Credits: https://github.com/codeplea/tinyexpr

BREAK for loops

IF may contain ()

BREAK loop



Array variables

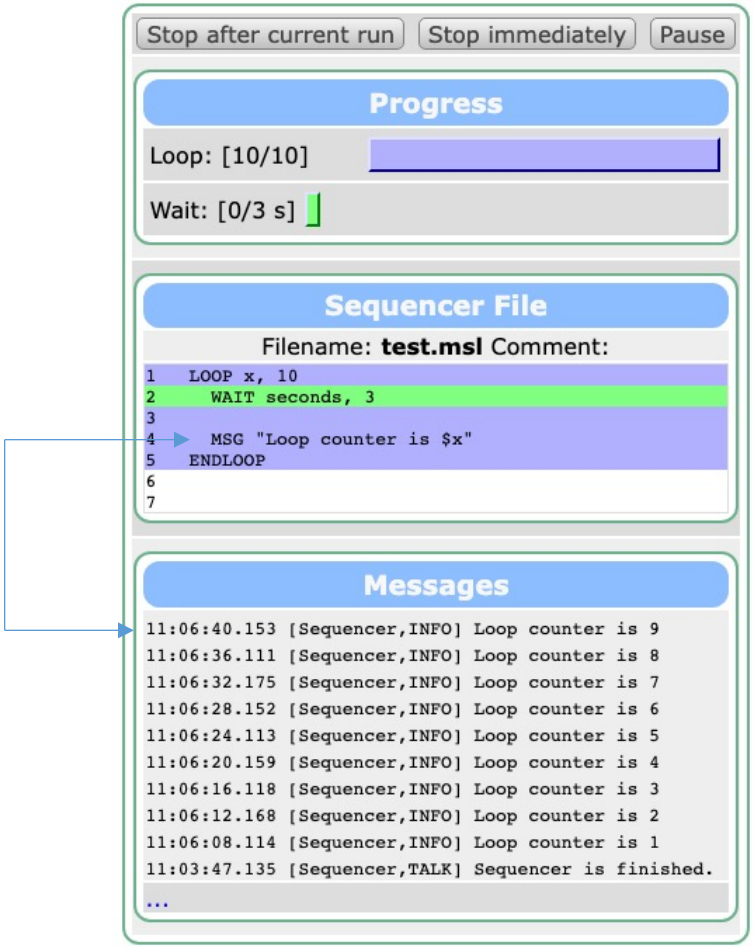
```
LOOP i, 10
  a[$i-1] = $i
ENDLOOP

ODBCREATE /Equipment/Test/Array, FLOAT, 10
ODBSET /Equipment/Test/Array, a
```

Loop variables run from 1…n
Array indices run from 0…n-1

New command

MSG to produce midas messages



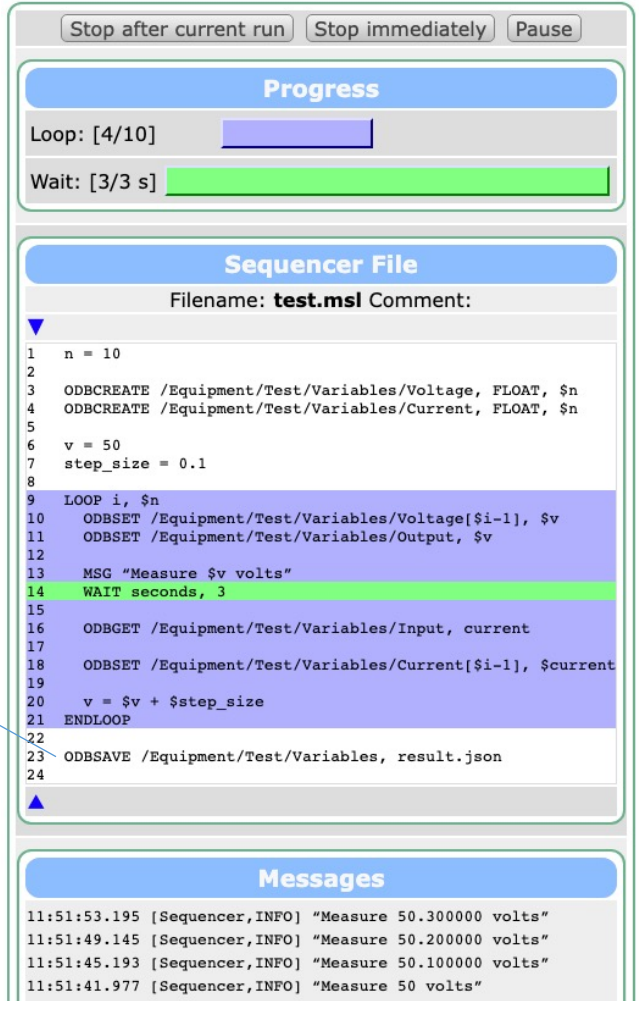
ODBSAVE / ODBLOAD

- ODBLOAD used already to replace many ODBSET …
- ODBSAVE /Equipment/…/Result file.odb
  - Can be used to save measurement results or snapshots of MPPC currents for example
  - Works with .odb, .xml and .json files

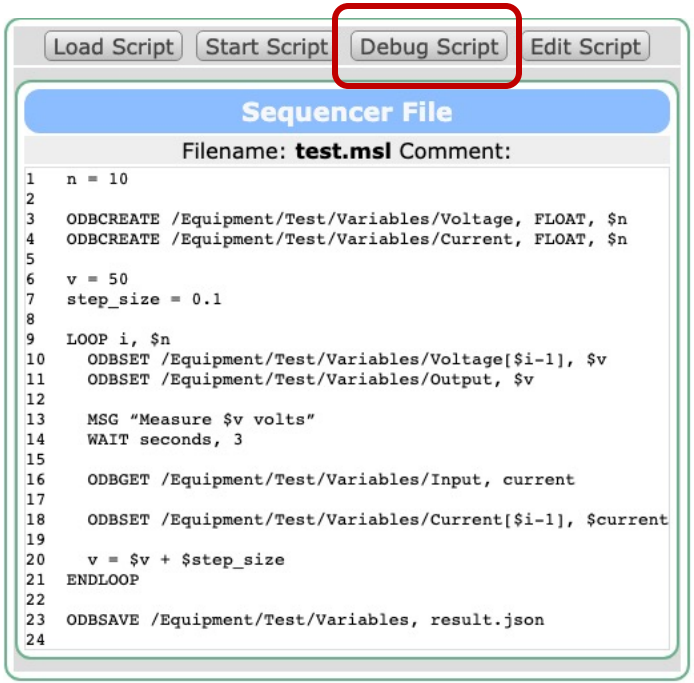
Full Example I-V curve

result.json

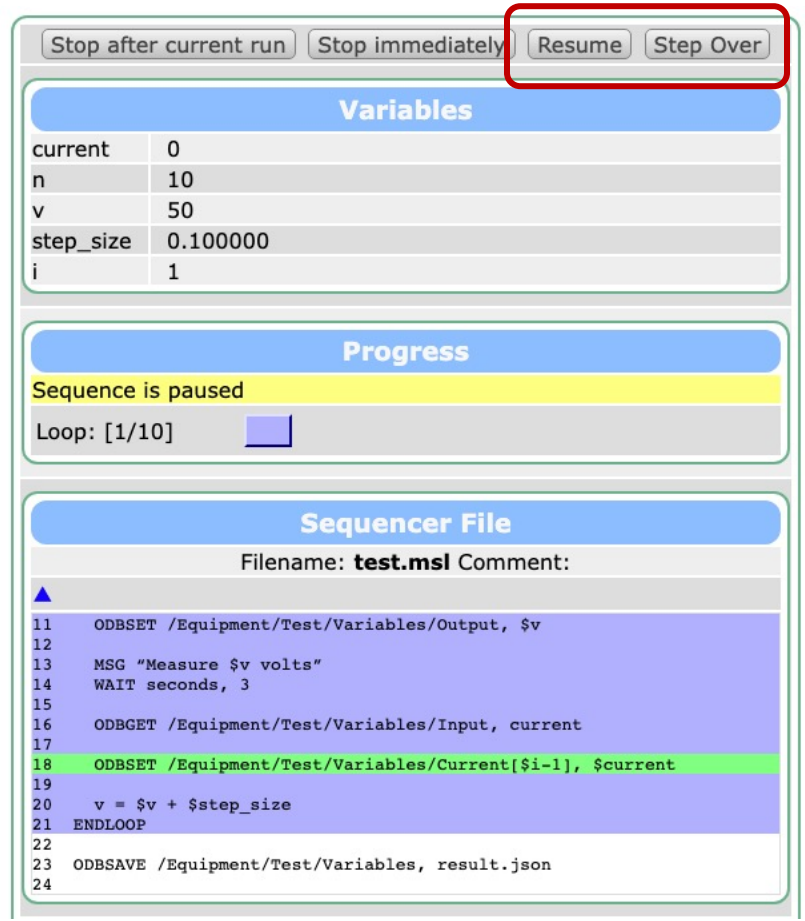
```
{
  "Output" : 50.9,
  "Current" : [
     5.6,   6.4,   7.5,  12.8,  54.3,
    78.2, 125.7, 175.5, 273.4, 389.5 ],
  "Voltage" : [
     50,   50.1,  50.2,  50.3,  50.4,
     50.5, 50.6,  50.7,  50.8,  50.9 ],
  "Input" : 389.5
}
```



Debugging Scripts



Variables



Conclusions

- New functionality in MIDAS sequencer make it much more useful for us
- Can do “non-run-based” measurements
  - I-V curve
  - Beamline scan: change magnet, measure scaler
  - Results in ODB can be shown in custom page
- Debugging for easier code development
- Limitations:
  - Include files are not shown on web page (debugger sticks at “CALL”)
  - You might have to clear your browser cache to get new features
- If you are missing something, please let me know