

```
In [1]: import os
import subprocess
import sys
from IPython.display import Image
# Ask GRASS GIS where its Python packages are.
sys.path.append(
    subprocess.check_output(["C:\GRASS GIS 8.3/grass83.bat", "--config", "python_pa
    ])

# Import GRASS packages
import grass.script as gs
import grass.jupyter as gj
```

```
In [2]: import sys
v = sys.version_info
print(f"We are using Python {v.major}.{v.minor}.{v.micro}")
```

We are using Python 3.9.5

```
In [3]: # Create a GRASS GIS session.
#gj.init("./data", "nc_spm_08_grass7", "user1")
#opening local datafolder
gj.init("C:\\Users\\15302\\Documents\\grassdata", "MaVitu", "PERMANENT")

# Make a new mapset like this
# gs.run_command("g.mapset", mapset="HW3_water_simulation", Location="nc_spm_08_gra
```

Out[3]: <grass.jupyter.setup._JupyterGlobalSession at 0x185ac49ff70>

```
In [4]: # show current GRASS GIS settings, this also checks if the session works
gs.gisenv()
print(gs.read_command("g.version", flags="e"))
```

GRASS 8.3.0 (2023)
PROJ: 9.2.1
GDAL/OGR: 3.7.0
GEOS: 3.11.2
SQLite: 3.41.1

```
In [5]: gs.list_grouped(type=['raster'])
```

```
Out[5]: {'PERMANENT': ['AP_05436_FBS_F0240_RT1.dem',
  'Sentinel2021.alpha',
  'Sentinel2021.blue',
  'Sentinel2021.green',
  'Sentinel2021.red',
  'SentinelJan292020.blue',
  'SentinelJan292020.green',
  'SentinelJan292020.red',
  'Sentinel_Jan29_2020_Second.blue',
  'Sentinel_Jan29_2020_Second.green',
  'Sentinel_Jan29_2020_Second.red',
  'aspect',
  'basins',
  'basins300',
  'basins30000',
  'darin_di',
  'draindir300',
  'flow_accum',
  'flowaccum300',
  'ha;fbasins30000',
  'half_basins',
  'relief',
  'shaded_relief',
  'slope',
  'slope300',
  'top_index',
  'topindex300']}]
```

```
In [ ]: gs.list_grouped(type = "vector")
```

```
In [ ]: gs.vector_info("basin_vector")
```

```
In [ ]: #interactive mapraleigh_map = gj.InteractiveMap(width = 500, use_region=True, tiles
mv_map = gj.InteractiveMap(width = 500, use_region=True, tiles="OpenStreetMap")
mv_map.add_raster("flow_accum")
mv_map.add_vector("basin_vector")
mv_map.add_layer_control(position = "bottomright")
mv_map.show()
```

```
In [ ]: print(gs.read_command('g.region', flags='p'))
```

```
In [ ]: img = gj.Map(use_region=True)
img.d_rast(map="flow_accum")
img.d_vect(map="basin_vector") # Roads
img.d_legend(raster="flow_accum", at=(55, 95, 85, 90))
# Display map
img.show()
```

```
In [ ]: !d.mon start=wx0
```

```
In [ ]: !d.rast flow_accum
```

```
In [ ]: !d.vect -o basin_vect
```

```
In [ ]: !d.vect contours
```

```
In [6]: %%bash
pwd
g.list type=raster,vector -m -t
```

```
/mnt/c/Users/15302/Pythonwork
```

```
-bash: line 2: g.list: command not found
```

```
-----
CalledProcessError                                Traceback (most recent call last)
```

```
Cell In[6], line 1
```

```
----> 1 get_ipython().run_cell_magic('bash', '', 'pwd\ng.list type=raster,vector -m
-t\n')
```

```
File C:\GRASS GIS 8.3\Python39\lib\site-packages\IPython\core\interactiveshell.py:24
93, in InteractiveShell.run_cell_magic(self, magic_name, line, cell)
```

```
    2491 with self.builtin_trap:
    2492     args = (magic_arg_s, cell)
-> 2493     result = fn(*args, **kwargs)
    2495 # The code below prevents the output from being displayed
    2496 # when using magics with decorator @output_can_be_silenced
    2497 # when the last Python token in the expression is a ';'.
    2498 if getattr(fn, magic.MAGIC_OUTPUT_CAN_BE_SILENCED, False):
```

```
File C:\GRASS GIS 8.3\Python39\lib\site-packages\IPython\core\magics\script.py:154,
in ScriptMagics._make_script_magic(<locals>.named_script_magic(line, cell)
```

```
    152 else:
    153     line = script
--> 154 return self.shebang(line, cell)
```

```
File C:\GRASS GIS 8.3\Python39\lib\site-packages\IPython\core\magics\script.py:314,
in ScriptMagics.shebang(self, line, cell)
```

```
    309 if args.raise_error and p.returncode != 0:
    310     # If we get here and p.returncode is still None, we must have
    311     # killed it but not yet seen its return code. We don't wait for it,
    312     # in case it's stuck in uninterruptible sleep. -9 = SIGKILL
    313     rc = p.returncode or -9
--> 314     raise CalledProcessError(rc, cell)
```

```
CalledProcessError: Command 'b'pwd\ng.list type=raster,vector -m -t\n'' returned non
-zero exit status 127.
```

```
In [7]: %lsmagic
```

Out[7]: Available line magics:

```
%alias %alias_magic %autoawait %autocall %automagic %autosave %bookmark %cd
%clear %cls %code_wrap %colors %conda %config %connect_info %copy %ddir %
debug %dhist %dirs %doctest_mode %echo %ed %edit %env %gui %hist %histor
y %killbgscripts %ldir %less %load %load_ext %loadpy %logoff %logon %logs
tart %logstate %logstop %ls %lsmagic %macro %magic %matplotlib %mkdir %mo
re %notebook %page %pastebin %pdb %pdef %pdoc %pfile %pinfo %pinfo2 %pip
%popd %pprint %precision %prun %psearch %psource %pushd %pwd %pycat %pyla
b %qtconsole %quickref %recall %rehashx %reload_ext %ren %rep %rerun %res
et %reset_selective %rmdir %run %save %sc %set_env %store %sx %system %t
b %time %timeit %unalias %unload_ext %who %who_ls %whos %xdel %xmode
```

Available cell magics:

```
%%! %%HTML %%SVG %%bash %%capture %%cmd %%code_wrap %%debug %%file %%html
%%javascript %%js %%latex %%markdown %%perl %%prun %%pypy %%python %%pytho
n2 %%python3 %%ruby %%script %%sh %%svg %%sx %%system %%time %%timeit %%
writefile
```

Automagic is ON, % prefix IS NOT needed for line magics.

In []: