

```
In [2]: from IPython.core.display import display, HTML
display(HTML("<style>.container { width:90% !important; }</style>"))
```

```
In [2]: !rm -rf signac.rc workspace project.py notebook.tex
```

Creating a Project

```
In [1]: import signac
project = signac.init_project("Projectiles")
!ls
```

Notebook.ipynb signac.rc

```
In [2]: job = project.open_job({"theta": 1.57})
job.init()
!find . -not -path '*/\.*'
```

```
.
./Notebook.ipynb
./signac.rc
./workspace
./workspace/4f8a64741a09749ac1320f4b61292e0c
./workspace/4f8a64741a09749ac1320f4b61292e0c/signac_statepoint.json
```

```
In [3]: print(job.get_id())
print(job.statepoint())
```

4f8a64741a09749ac1320f4b61292e0c
{'theta': 1.57}

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Automating Workflows

```
In [4]: %%writefile project.py
import flow
from flow.project import FlowProject

@FlowProject.operation
@FlowProject.post(lambda job: 'tmax' in job.document)
def calculate(job):
    import numpy as np
    g = 9.81
    roots = np.roots([-g/2, np.sin(job.sp.theta), 0])
    tmax = roots[roots != 0][0]
    job.doc.tmax = tmax

if __name__ == "__main__":
    FlowProject().main()
```

Writing project.py

```
In [5]: !python project.py run
```

Execute operation 'calculate(4f8a64741a09749ac1320f4b61292e0c)'...

```
In [6]: !find workspace
job.document()
```

```
workspace
workspace/4f8a64741a09749ac1320f4b61292e0c
workspace/4f8a64741a09749ac1320f4b61292e0c/signac_job_document.json
workspace/4f8a64741a09749ac1320f4b61292e0c/signac_statepoint.json
```

```
Out[6]: {'tmax': 0.2038735337271834}
```

```
In [3]: j.doc.distance = 10
dir = j.workspace()
!find workspace
!echo -n "Job Document: " && cat $dir/signac_job_document.json
```

```
workspace
workspace/09310923e2ddaf5d55201ccfa25b594a
workspace/09310923e2ddaf5d55201ccfa25b594a/signac_job_document.json
workspace/09310923e2ddaf5d55201ccfa25b594a/signac_statepoint.json
Job Document: {"distance": 10}
```

```
In [4]: with j:
    with open('distance.txt', 'w') as f:
        f.write('10')
    dir = j.workspace()
    !cat $dir/distance.txt
```

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