



Ophyd.v2

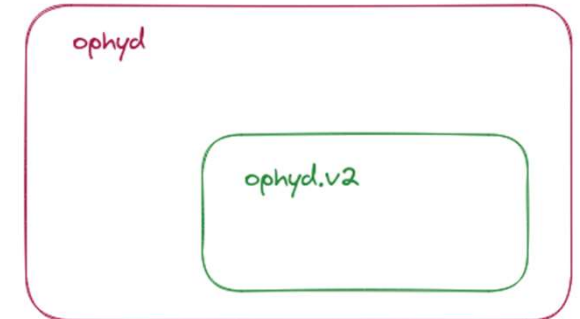
Ronaldo Mercado

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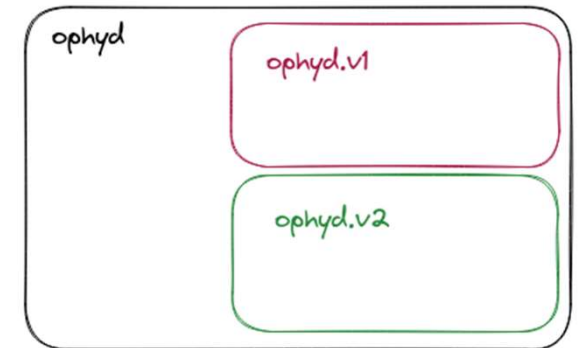
Diamond Light Source

What is it?

- Backwards compatible new version of Ophyd
- Focus on Async, Modularity and Flyscanning
- PVA support
- Developed within ophyd repository
- V2 Devices in separate ophyd-epics-devices repo
- Will be available as pre-release during 1.x releases
- Can use v1 and v2 Devices alongside each other
- 2.x releases will be made when API stabilizes
- 2.x will mean an explicit import of ophyd.v1 or ophyd.v2



Release 1.x



Release 2.x

Async

- Asyncio instead of threads
- More predictable
- More readable
- Parallel connect of Devices

```
def caput_thread(pv, value):  
    t = Thread(caput, (pv, value))  
    t.start()  
    return t  
  
def run():  
    t1 = caput_thread(motor, 1)  
    t2 = caput_thread(pv, 2)  
    t1.join()  
    t2.join()  
    caput(motor, 3)
```

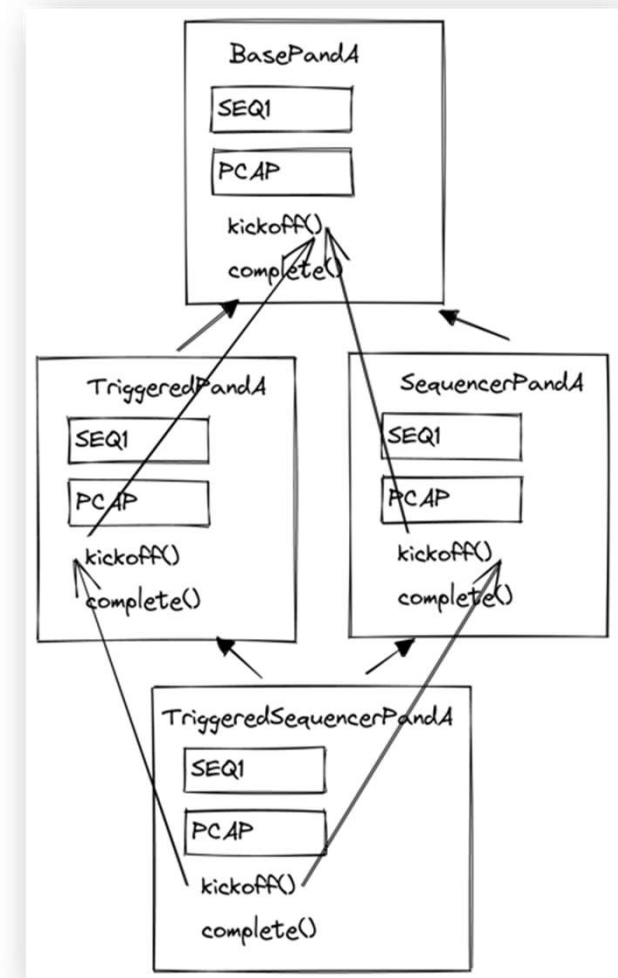
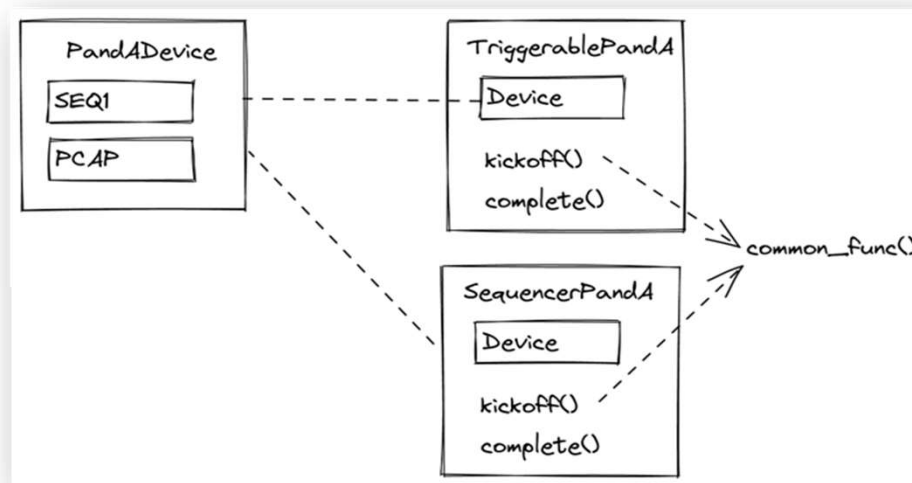


```
with DeviceCollector():  
    det = epicsdemo.Sensor(pv_prefix)  
    samp = epicsdemo.SampleStage(pv_prefix)  
    # Devices connected in parallel here
```

```
async def run():  
    await asyncio.gather(  
        caput(motor, 1),  
        caput(pv, 2)  
    )  
    await caput(motor, 3)
```

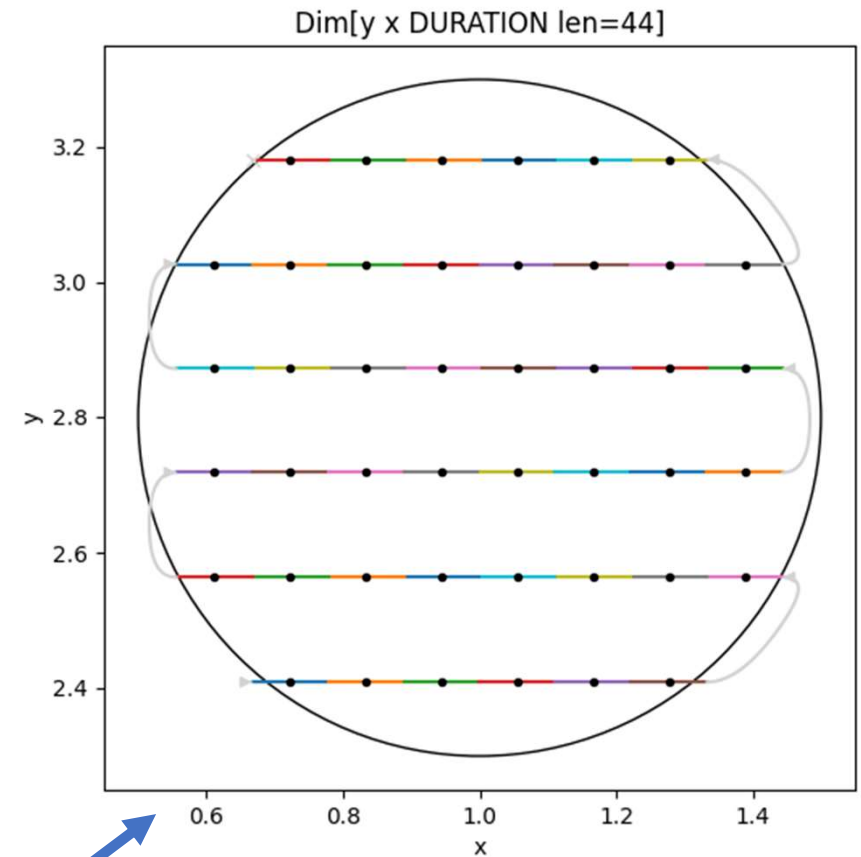
Modularity

- Favour composition over inheritance
- Split Logic and I/O when there are multiple ways to use a Device
- Abstract common logic into utility functions



Flyscanning

- Port techniques developed in DLS pymalcolm
- PandA support
- Start with time resolved triggering
- Move to 1D position compare
- Then ND trajectory scanning
- ScanSpec to describe arbitrary scan paths



```
from scanspec.specs import Line, fly
from scanspec.regions import Circle

grid = Line(y, 2.1, 3.8, 12) * ~Line(x, 0.5, 1.5, 10)
spec = fly(grid, 0.4) & Circle(x, y, 1.0, 2.8, radius=0.5)
```

Current Status

- Under active development
- Time resolved prototypes will be deployed at DLS over the summer
- Position compare towards end of the year
- Bi-weekly collaboration meetings focused on ophyd.v2
- Open to anyone who is interested