



nextflow

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NEXTFLOW VS. SNAKEMAKE

	NEXTFLOW	SNAKEMAKE
Platform	Groovy/JVM	Python
Workflow modules	Yes	Yes
Docker support	Yes	Yes
Conda support	Yes	Yes (same author for conda project)
Build-in batch schedulers	Yes	Yes
Remote files	Yes	Yes

Ref: <https://doi.org/10.1038/nbt.3820>

STYLE

NEXTFLOW

```
process NAME {  
    label: ...  
    when: ...  
    input: ...  
    output: ...  
    script: ...  
    ...  
}
```

SNAKEMAKE

```
rule NAME:  
    version: ...  
    input: ...  
    output: ...  
    resources: ...  
    log: ...  
    script: ...  
    shell: ...  
    notebook: ...  
    ...
```

WORKFLOW

NEXTFLOW

```
process foo { ... }  
process bar { ... }  
workflow NAME {  
    take: ...  
    main:  
        foo() | bar()  
    emit: ...  
}
```

SNAKEMAKE

```
subworkflow foo:  
    output: pipe(...)  
    ...  
rule NAME:  
    input: foo()  
    output: ...  
    shell: ...
```

GET STARTED



Requirements: Java 8 (or later)



Installation:

```
wget -qO- https://get.nextflow.io | bash
```

HELLO WORLD

```
#!/usr/bin/env nextflow
nextflow.enable.dsl=2
input = Channel.of("Hello", "Hi")
workflow {
    input | p1
    p1.out.result | p2 | view
}

process p1{
    input: val(word)
    output: val(result), emit: result
    exec: result = "$word world"
}

process p2{
    input: val(data)
    output: val(res)
    exec: res = data.toUpperCase()
}
```

```
$ nextflow test.nf
```

```
N E X T F L O W ~ version 20.10.0
```

```
Launching `test.nf` [stoic_meucci] - revision: 565aea2060
```

```
executor > local (4)
```

```
[6a/c3ef0e] process > p1 (1) [100%] 2 of 2 ✓
```

```
[dc/1d0443] process > p2 (2) [100%] 2 of 2 ✓
```

```
HI WORLD
```

```
HELLO WORLD
```

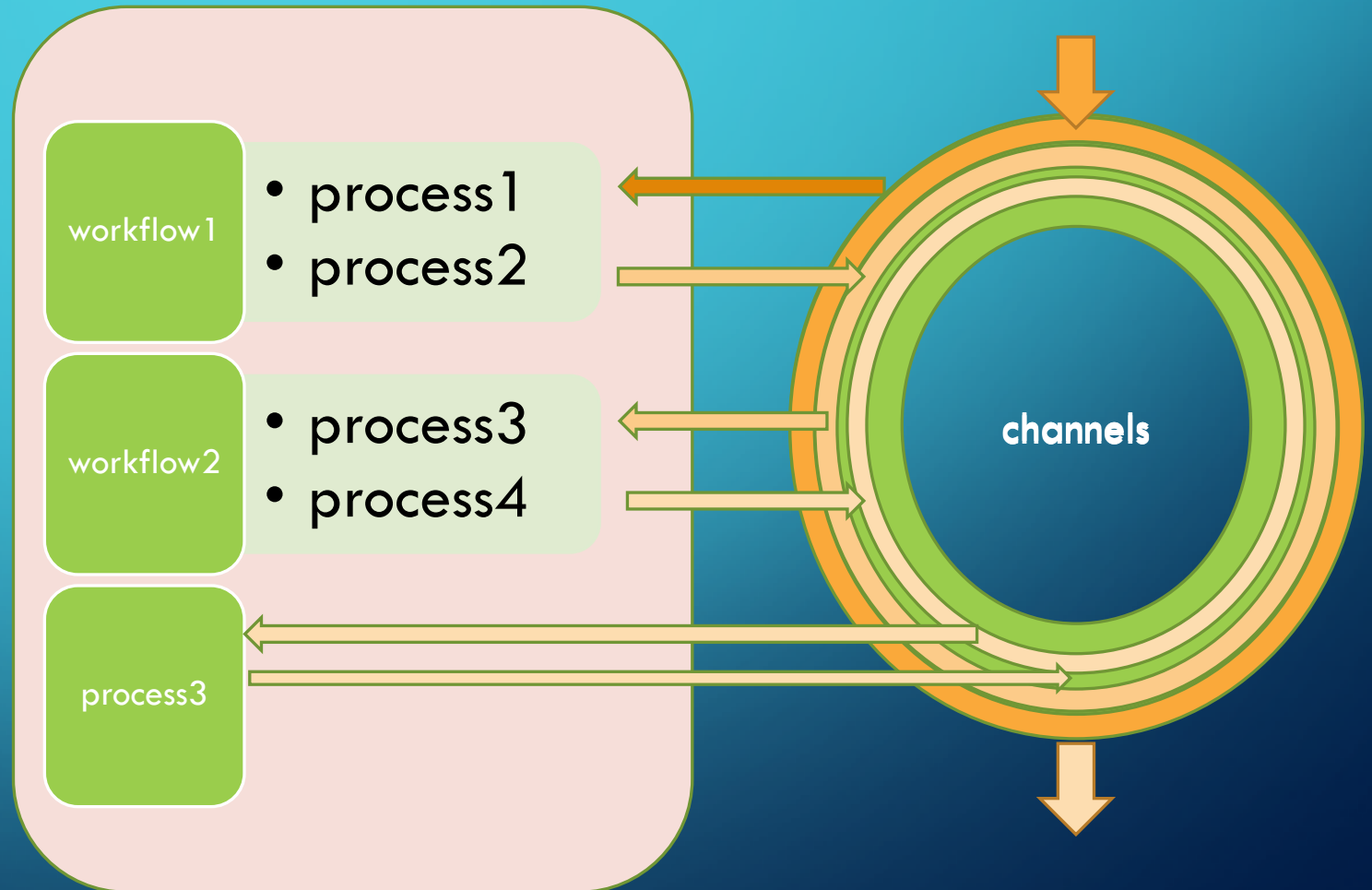


BASIC CONCEPTS

- params: an object can be access by whole pipeline
- channel: asynchronous FIFO queues
- process: a function unit
- workflow: a function unit by multiple process



UNDERSTAND THE CONCEPTS





SCRIPTING

<https://github.com/jianhong/nextflowTutorial>





MORE INFORMATION

- <https://nextflow.io/>
- <https://nf-co.re/>
- <https://groovy-lang.org/>