

# Workflows made easy: the **nf-core** community

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What is  nextflow?

# Nextflow

Nextflow is a language, a runtime, and a community



## Reproducible

Integration with code management tools, with versioned releases.



## Portable

Docker, Singularity, Conda, works with most compute environments.



## Scalable

5 samples on your laptop, 5k on an HPC or 5 million in the cloud.

**Nextflow's versatility highlights the need  
for standardization**

nf-core 

# nf-core principles

Principles that guide the nf-core community



## Standards

Documentation  
Use a common template  
Use public containers  
and/or virtual  
environments



## Best practices

1 pipeline per data type  
and/or usage  
No duplicates



## Stable tags

Release with extensive  
CI/CD  
Cloud ready



## Cooperation

Develop with the  
community



## Open source

MIT license



## Components

Collaborate on  
component-level  
Tools work for any  
Nextflow pipeline

# nf-core components

Pick and choose which component you need



## Pipelines

141 pipelines



## Modules

~1700 modules  
~100 subworkflows



## Test data

Minimal test data for CI  
for all modules  
+ tests with nf-test 🚀



## Linting

Conventions to test for  
consistency



## Schema

Validation, channels and  
user interface

 **nf-schema**



## Tooling

Development and  
deployment  
Pipeline template

# nf-core community

A community effort to collect a curated set of analysis pipelines built using Nextflow

**12k+**

Slack  
users

**500+**

GitHub  
contributors

**175+**

GitHub  
repositories

**100k+**

GitHub  
commits

**7.9k+**

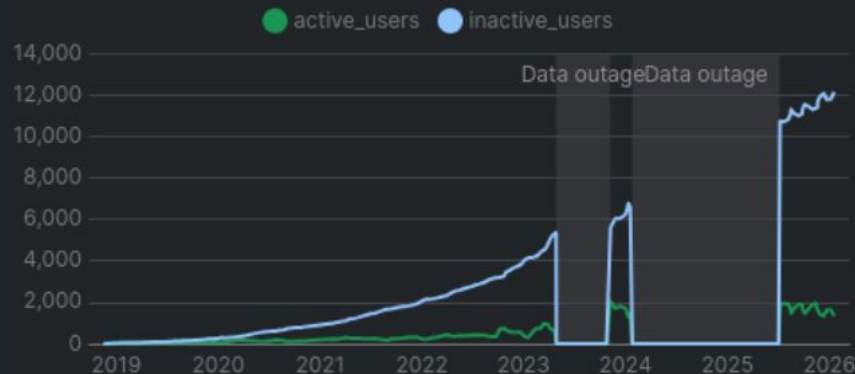
Github  
stars

**793k+**

Unique Github  
views

## nf-core Slack users over time

Per day from 2018-11-15 to 2026-01-19





# nf-core pipelines

Most used pipelines (based on unique repository clones)



## Rnaseq

Gene expression  
analysis on RNA data



## Atacseq

Analysis of ATAC-seq  
data



## Ampliseq

Amplicon sequencing  
analysis



## Sarek

Allround variant  
detection on srDNA  
data



## Fetchngs

Fetch metadata and  
Fastq files from public  
databases



## Viralrecon

Assembly and variant  
calling on viral samples

# nf-core socials

How to contribute to or follow nf-core



**Slack**

[nf-co.re/join/slack](https://nf-co.re/join/slack)



**GitHub**

[github.com/nf-core](https://github.com/nf-core)



**Mastodon**

[@nf\\_core@mstdn.science](https://mstdn.science/@nf_core)



**Bluesky**

[@nf-co.re](https://bsky.app/profile/nf-co.re)



**LinkedIn**

[linkedin.com/  
company/nf-core](https://linkedin.com/company/nf-core)



**YouTube**

[youtube.com/  
@nf-core](https://youtube.com/nf-core)



nf-core/tools

Pipelines, Modules &  
Subworkflows

Standards & Best  
practices

Community

## CHOOSE YOUR ADVENTURE

---

Who are you?

[1] User

I have data to analyze

[2] Developer

I want to contribute to nf-core

> \_

## CHOOSE YOUR ADVENTURE

---

Who are you?

[1] User

I have data to analyze

[2] Developer

I want to contribute to nf-core

> user

User



ADVENTURE: USER

-----  
Available actions:

nf-core pipelines create-params-file  
nf-core pipelines download  
nf-core pipelines launch  
nf-core pipelines list

Choose a command to continue...

> \_

User

ADVENTURE: USER

-----  
Available actions:

nf-core pipelines create-params-file

nf-core pipelines download

nf-core pipelines launch

nf-core pipelines list

Choose a command to continue...

> nf-core pipelines download

User

# The nf-core “special” repositories



nf-core/configs



.config



ADVENTURE: USER

-----  
Available actions:

nf-core pipelines create-params-file

nf-core pipelines download

nf-core pipelines launch

nf-core pipelines list

Choose a command to continue...

> nf-core pipelines create-params-file

User

## CHOOSE YOUR ADVENTURE

---

Who are you?

[1] User

I have data to analyze

[2] Developer

I want to contribute to nf-core

> developer

User

Developer



## ADVENTURE: DEVELOPER

---

contribute to an existing pipeline?

[1] YES

Add features, fix bugs...

[2] NO

Start a brand new pipeline

> YES



User

Developer

## ADVENTURE: DEVELOPER: EXISTING PIPELINE

---

Options:

[1] Create a new module or subworkflow

[2] Other

> \_

User

Developer

New  
module

# The nf-core “special” repositories



nf-core/configs



nf-core/modules



.config



modules & subworkflows

# The nf-core "special" repositories



nf-core/configs



nf-core/modules



.config



modules & subworkflows

software



wrapping

nf-core module



connecting

reproducible  
nextflow pipeline



## ADVENTURE: DEVELOPER: EXISTING PIPELINE

---

Options:

[1] Create a new module or subworkflow

[2] Other

> Create a new module or subworkflow

User

Developer

New  
module

modules  
repo

## ADVENTURE: DEVELOPER: EXISTING PIPELINE: NEW COMPONENT

---

Available actions:

```
nf-core modules bump-version
nf-core modules|subworkflows create
nf-core modules|subworkflows lint
nf-core modules|subworkflows test
```

Choose a command to continue...

```
> nf-core modules|subworkflows create
```

User

Developer

New  
module

modules  
repo



## ADVENTURE: DEVELOPER: EXISTING PIPELINE: NEW COMPONENT

---

Available actions:

```
nf-core modules bump-version
nf-core modules|subworkflows create
nf-core modules|subworkflows lint
nf-core modules|subworkflows test
```

Choose a command to continue...

```
> nf-core modules|subworkflows lint
```

User

Developer

New  
module

modules  
repo

## ADVENTURE: DEVELOPER: EXISTING PIPELINE: NEW COMPONENT

---

Available actions:

```
nf-core modules bump-version
nf-core modules|subworkflows create
nf-core modules|subworkflows lint
nf-core modules|subworkflows test
```

Choose a command to continue...

```
> nf-core modules|subworkflows test
```

User

Developer

New  
module

modules  
repo

## ADVENTURE: DEVELOPER: EXISTING PIPELINE

---

Options:

[1] Create a new module or subworkflow

[2] Other

> other

User

Developer

New  
module

Existing  
module

modules  
repo

pipelines  
repo

## ADVENTURE: DEVELOPER: EXISTING PIPELINE: OTHER

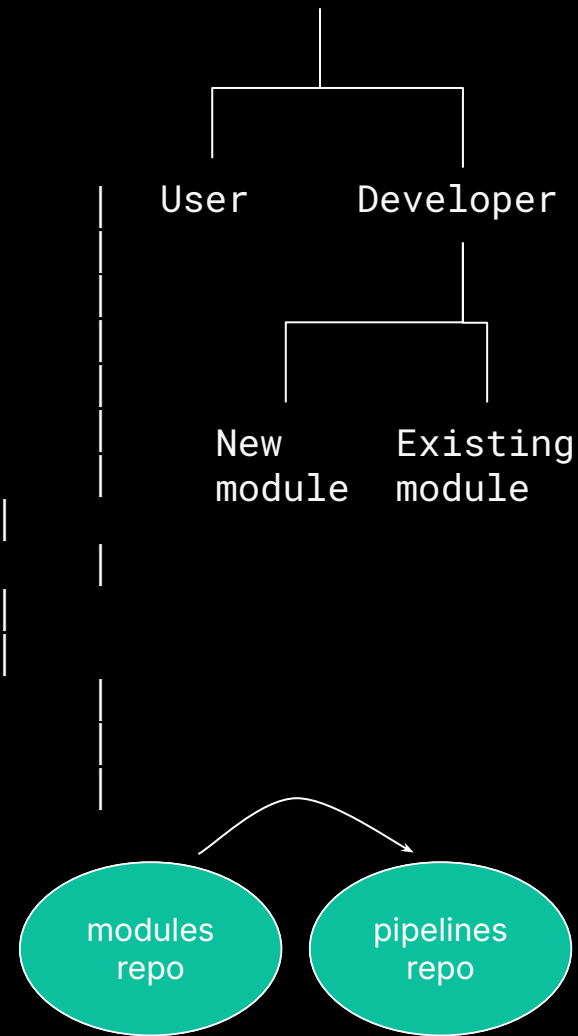
---

Available actions:

```
nf-core modules|subworkflows info
nf-core modules|subworkflows install
nf-core modules|subworkflows list
nf-core modules|subworkflows patch
nf-core modules|subworkflows remove
nf-core modules|subworkflows update
```

Choose a command to continue...

```
> nf-core modules|subworkflows install
```



## ADVENTURE: DEVELOPER: EXISTING PIPELINE: OTHER

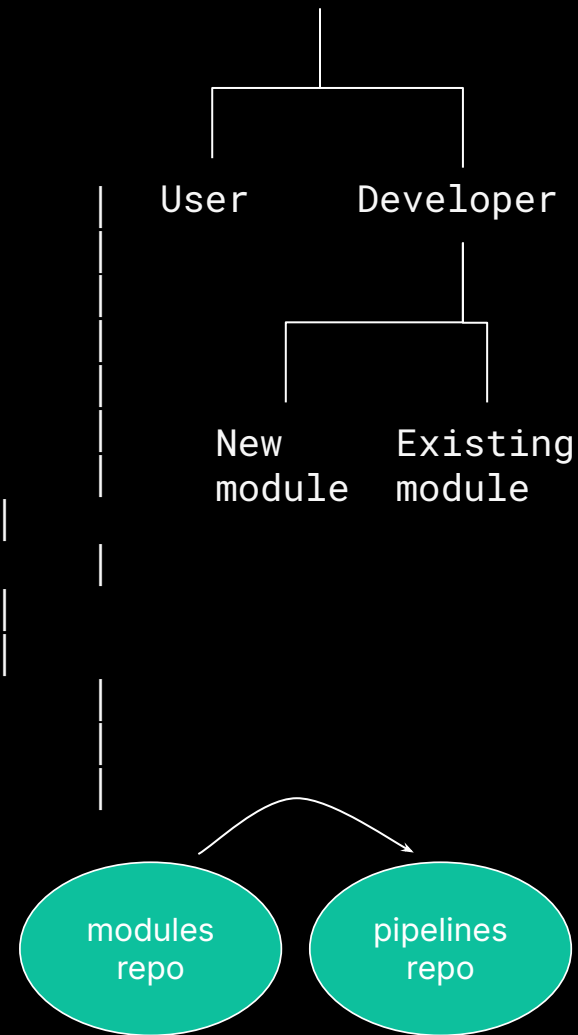
---

Available actions:

```
nf-core modules|subworkflows info
nf-core modules|subworkflows install
nf-core modules|subworkflows list
nf-core modules|subworkflows patch
nf-core modules|subworkflows remove
nf-core modules|subworkflows update
```

Choose a command to continue...

```
> nf-core modules|subworkflows remove
```



## ADVENTURE: DEVELOPER: EXISTING PIPELINE: OTHER

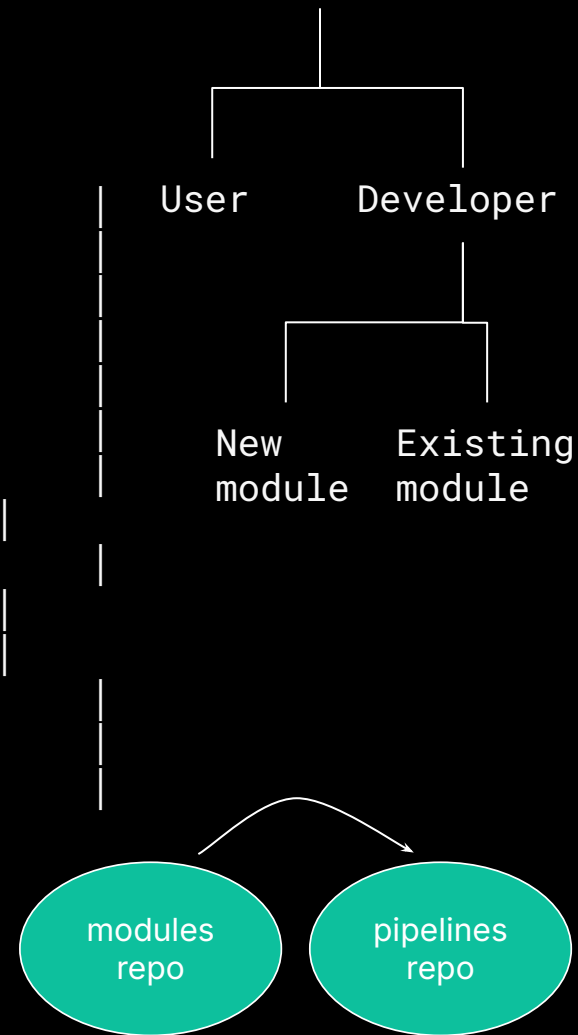
---

Available actions:

```
nf-core modules|subworkflows info
nf-core modules|subworkflows install
nf-core modules|subworkflows list
nf-core modules|subworkflows patch
nf-core modules|subworkflows remove
nf-core modules|subworkflows update
```

Choose a command to continue...

```
> nf-core modules|subworkflows update
```



## ADVENTURE: DEVELOPER

---

contribute to an existing pipeline?

[1] YES

Add features, fix bugs...

[2] NO

Start a brand new pipeline

> NO

User

Developer

New  
module

Existing  
module

New  
pipeline

pipelines  
repo

# The nf-core "special" repositories



nf-core/configs



nf-core/modules



nf-core/proposals



.config



modules & subworkflows





## ADVENTURE: DEVELOPER: NEW PIPELINE

---

Available actions:

```
nf-core pipelines bump-version
nf-core pipelines create
nf-core pipelines create-logo
nf-core pipelines lint
nf-core pipelines rocrate
nf-core pipelines schema
nf-core pipelines sync
```

Choose a command to continue...

> \_

User

Developer

New  
module

Existing  
module

New  
pipeline

pipelines  
repo

## ADVENTURE: DEVELOPER: NEW PIPELINE

---

Available actions:

```
nf-core pipelines bump-version
nf-core pipelines create
nf-core pipelines create-logo
nf-core pipelines lint
nf-core pipelines rocrate
nf-core pipelines schema
nf-core pipelines sync
```

Choose a command to continue...

```
> nf-core pipelines create
```

User

Developer

New  
module

Existing  
module

New  
pipeline

pipelines  
repo

## ADVENTURE: DEVELOPER: NEW PIPELINE

---

Available actions:

```
nf-core pipelines bump-version
nf-core pipelines create
nf-core pipelines create-logo
nf-core pipelines lint
nf-core pipelines rocrate
nf-core pipelines schema
nf-core pipelines sync
```

Choose a command to continue...

```
> nf-core pipelines create
```

User

Developer

New  
module

Existing  
module

New  
pipeline



nf-core/bytesize: nf-core pipeline template walkthrough v2  
<https://www.youtube.com/watch?v=ZZfSn0Hb-Vg>

pipelines  
repo

## ADVENTURE: DEVELOPER: NEW PIPELINE

---

Available actions:

```
nf-core pipelines bump-version
nf-core pipelines create
nf-core pipelines create-logo
nf-core pipelines lint
nf-core pipelines rocrate
nf-core pipelines schema
nf-core pipelines sync
```

Choose a command to continue...

```
> nf-core pipelines lint
```

User

Developer

New  
module

Existing  
module

New  
pipeline

pipelines  
repo

## ADVENTURE: DEVELOPER: NEW PIPELINE

---

Available actions:

```
nf-core pipelines bump-version
nf-core pipelines create
nf-core pipelines create-logo
nf-core pipelines lint
nf-core pipelines rocrate
nf-core pipelines schema
nf-core pipelines sync
```

Choose a command to continue...

```
> nf-core pipelines rocrate
```



automated  
provenance  
tracking

## ADVENTURE: DEVELOPER: NEW PIPELINE

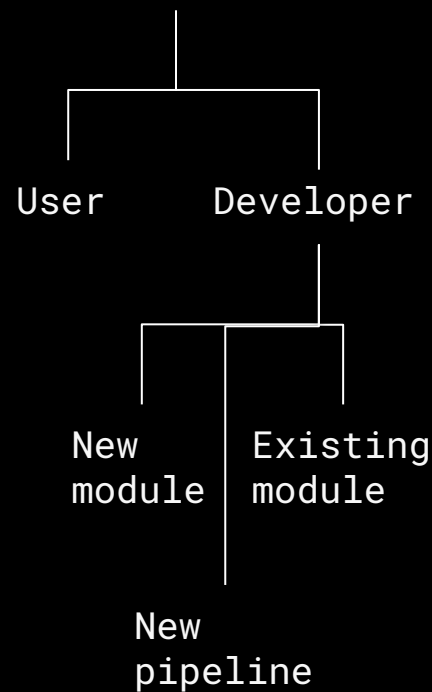
---

Available actions:

```
nf-core pipelines bump-version
nf-core pipelines create
nf-core pipelines create-logo
nf-core pipelines lint
nf-core pipelines rocrate
nf-core pipelines schema
nf-core pipelines sync
```

Choose a command to continue...

```
> nf-core pipelines schema
```



pipelines  
repo

# nf-schema

[→ Introduction](#)[📖 Usage](#)[☰ Parameters](#)[📄 Output](#)[aws Results](#)[📄 Releases](#)

## >\_ Input/output options

Define where the pipeline should find input data and save output data.

**--input**

Path to the sample sheet (CSV) containing metadata about the experimental samples.

**required**

type: string

pattern: `^\S+\.csv$`

Help text

**--outdir**

The output directory where the results will be saved. You have to use absolute paths to storage on Cloud infrastructure.

**required**

type: string

## ADVENTURE: DEVELOPER: NEW PIPELINE

---

Available actions:

nf-core pipelines bump-version  
nf-core pipelines create  
nf-core pipelines create-logo  
nf-core pipelines lint  
nf-core pipelines rocrate  
nf-core pipelines schema  
**nf-core pipelines sync**

Choose a command to continue...

> nf-core pipelines sync

User

Developer

New  
module



Existing  
module

New  
pipeline

template updates





# Important! Template update for nf-core/tools v3.5.1 #263

 Merged mirpedrol merged 5 commits into `dev` from `nf-core-template-merge-3.5.1`  on Nov 20, 2025

 Conversation 4

 Commits 5

 Checks 21

 Files changed 26



**nf-core-bot** commented on Nov 19, 2025

Member



- Bug fixes
- Nextflow updates
- New features

# Important! Template update for nf-core/tools v3.5.1 #263

Merged mirpedrol merged 5 commits into dev from nf-core-template-merge-3.5.1 on Nov 20, 2025

Conversation 4

Commits 5

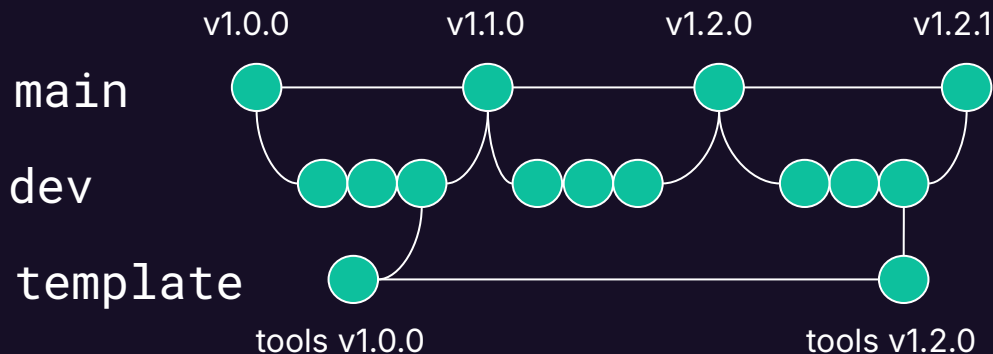
Checks 21

Files changed 26



nf-core-bot commented on Nov 19, 2025

Member



- Bug fixes
- Nextflow updates
- New features

## ADVENTURE: DEVELOPER: NEW PIPELINE

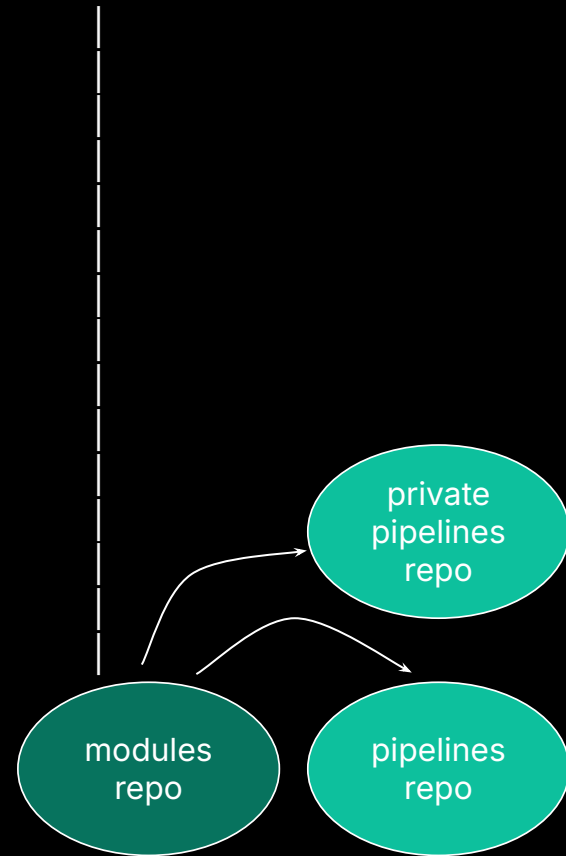
---

Available actions:

```
nf-core pipelines bump-version
nf-core pipelines create
nf-core pipelines create-logo
nf-core pipelines lint
nf-core pipelines rocrate
nf-core pipelines schema
nf-core pipelines sync
```

Choose a command to continue...

```
> nf-core pipelines sync
```



## SIDE QUEST UNLOCKED

-----

Testing your pipeline

You have created a new nf-core pipeline.  
But a pipeline without tests is dangerous...

Tools discovered:

- adding test data
- nf-test

Available actions:

nf-core test-datasets list  
nf-core test-datasets list-branches  
nf-core test-datasets search

Choose a command to continue...

> \_



nf-test

# The nf-core "special" repositories



nf-core/configs



nf-core/modules



nf-core/proposals



.config



modules & subworkflows



nf-core/test-datasets



.fasta  
.bam  
.tsv  
...

## SIDE QUEST UNLOCKED

-----

Testing your pipeline

You have created a new nf-core pipeline.  
But a pipeline without tests is dangerous...

Tools discovered:

- adding test data
- nf-test

Available actions:

nf-core test-datasets list  
nf-core test-datasets list-branches  
nf-core test-datasets search

Choose a command to continue...

> nf-core test-datasets search

## ADVENTURE COMPLETE

-----

You have successfully:

- Used nf-core pipelines
- Created and contributed to a pipeline
- Added tests with nf-test
- Used nf-core/tools like a pro

Status: nf-core contributor unlocked

> Press **ENTER** to join the community

# Summary



## Pipeline tool

Basic pipeline



## Linting

Validation of  
standards



## Collaboration

## Testing

all modules  
pipelines  
test data  
size test data

## Documentation

website

Tiles



# Thank you!



## Cedric Notredame's Lab

Jose Espinosa-Carrasco  
Luisa Santus  
Alessio Vignoli  
Suzanne Jin  
Ionas Erb  
Mathys Grapotte  
Cristina Araiz



## nf-core Infrastructure team

Phil Ewels  
Matthias Hörtenhuber  
Edmund Miller  
Julian Flesch  
Yuxin Ning



## nf-core core-team & nf-core community



## CMGG IT-team

Tom Sante  
Matthias Desmet  
Jules Haezebrouck  
Toon Rosseel  
Freerk Van Dijk

...

