

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

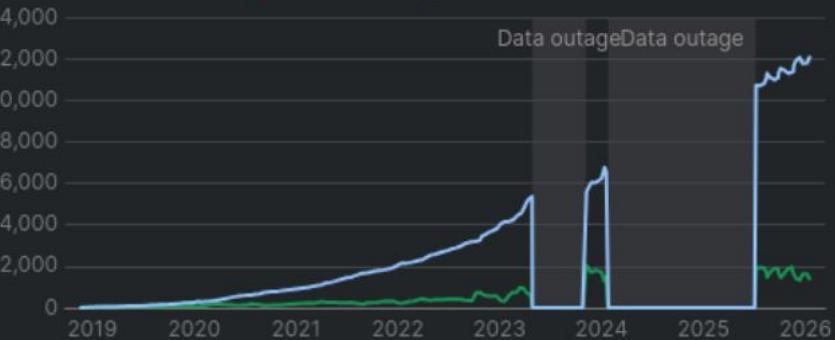
793k+

Unique Github
views

nf-core Slack users over time

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

● active_users ● inactive_users



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



GitHub

github.com/nf-core



Mastodon

@nf_core@mstdn.science



Bluesky

@nf-co.re



LinkedIn

linkedin.com/company/nf-core



YouTube

[@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

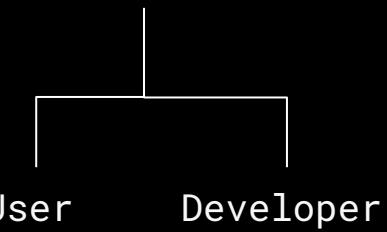
I want to contribute to nf-core

> developer

User

Developer





ADVENTURE: DEVELOPER

contribute to an existing pipeline?

[1] YES

Add features, fix bugs...

[2] NO

Start a brand new pipeline

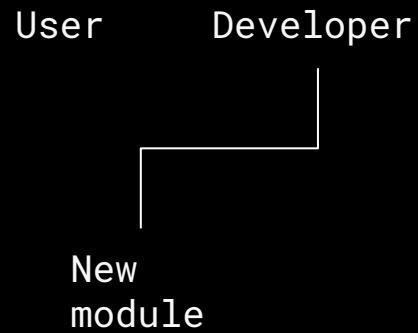
> YES

ADVENTURE: DEVELOPER: EXISTING PIPELINE

Options:

- [1] Create a new module or subworkflow
- [2] Other

> -



The nf-core “special” repositories



nf-core/configs



nf-core/modules



.config



modules & subworkflows

The nf-core “special” repositories



nf-core/configs



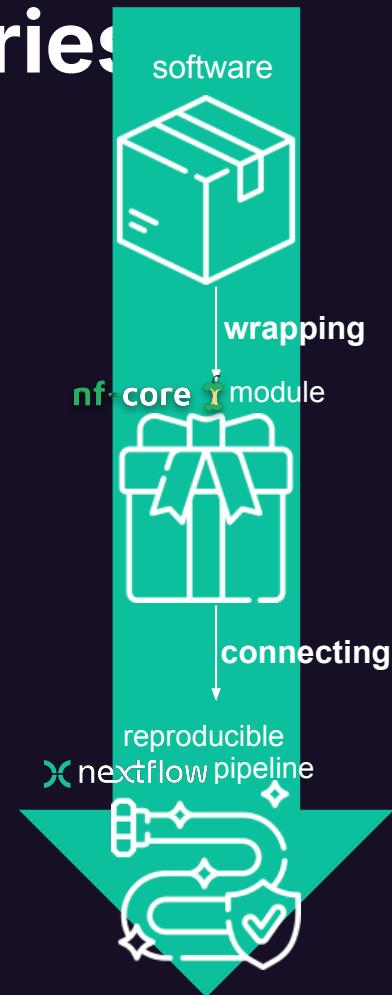
.config



nf-core/modules



modules & subworkflows

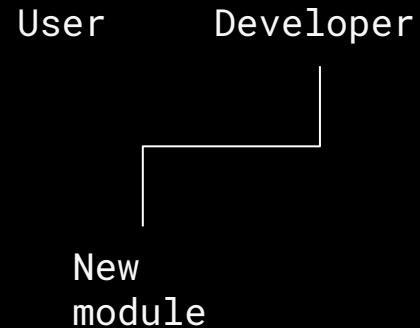


ADVENTURE: DEVELOPER: EXISTING PIPELINE

Options:

- [1] Create a new module or subworkflow
- [2] Other

> Create a new module or subworkflow



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



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



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

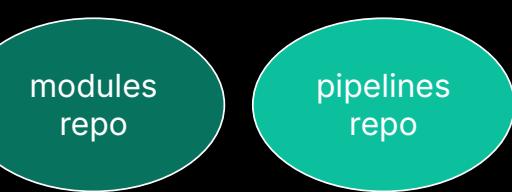
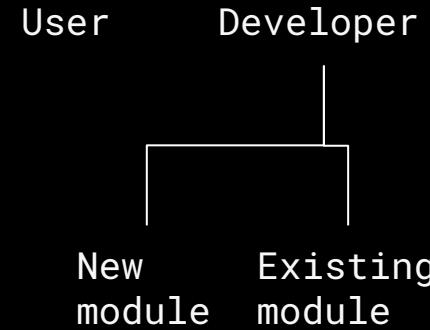


ADVENTURE: DEVELOPER: EXISTING PIPELINE

Options:

- [1] Create a new module or subworkflow
- [2] Other

> other



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...

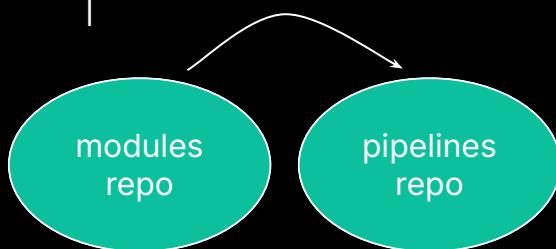
```
> nf-core modules|subworkflows install
```

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...

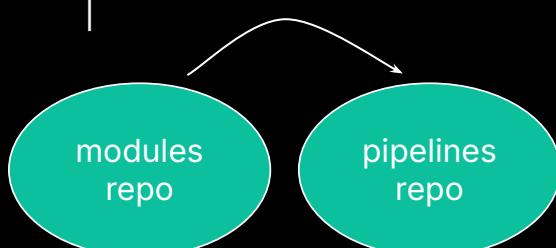
```
> nf-core modules|subworkflows remove
```

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...

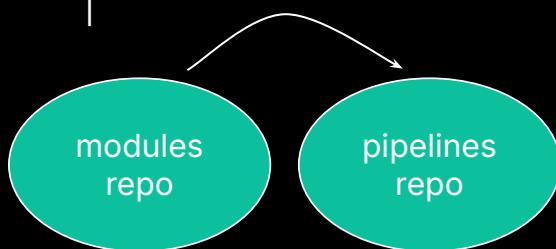
```
> nf-core modules|subworkflows update
```

User Developer

New module Existing module

modules
repo

pipelines
repo



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/bytessize: 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
```

User Developer

New module Existing module

New pipeline

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

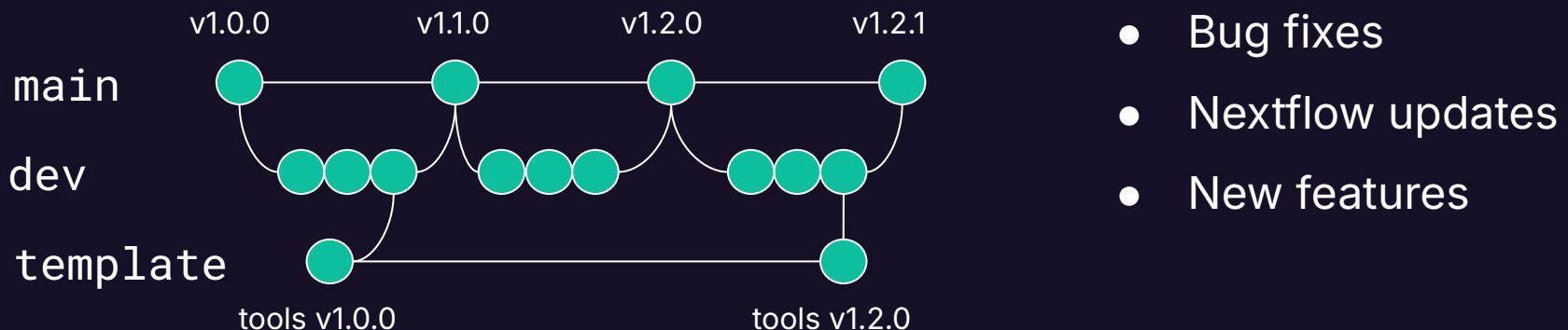
Checks 21

Files changed 26



nf-core-bot commented on Nov 19, 2025

Member ...



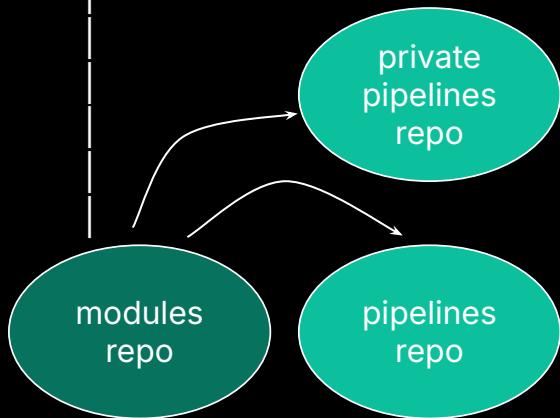
ADVENTURE: DEVELOPER: NEW PIPELINE

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

Basic pipeline



Collaboration

Lintering

all modules
pipelines
test data
size test data



Linting

Validation of standards

Deployment

website

Tiles

Thank you!



Cedric Notredame's Lab

Jose Espinosa-Carrasco
Luisa Santus
Alessio Vignoli
Suzanne Jin
Jonas 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

...

