

Операционные системы

Продвинутое использование git

Зиани Сид-Ахмед

14 февраля 2025

Российский университет дружбы народов, Москва, Россия

Цели и задачи работы

Получение навыков правильной работы с репозиториями git.

- 1 Выполнить работу для тестового репозитория.
- 2 Преобразовать рабочий репозиторий в репозиторий с git-flow и conventional commits.

Процесс выполнения лабораторной работы

```
zianisidahmed@zianisidahmed:~$  
zianisidahmed@zianisidahmed:~$ pnpm setup  
Appended new lines to /home/zianisidahmed/.bashrc  
  
Next configuration changes were made:  
export PNPM_HOME="/home/zianisidahmed/.local/share/pnpm"  
case ":$PATH:" in  
  *":$PNPM_HOME:") ;;  
  *) export PATH="$PNPM_HOME:$PATH" ;;  
esac  
  
To start using pnpm, run:  
source /home/zianisidahmed/.bashrc  
zianisidahmed@zianisidahmed:~$ source ~/.bashrc  
zianisidahmed@zianisidahmed:~$
```

Рис. 1: Node.js

```
zianisidahmed@zianisidahmed:~$ pnpm add -g commitizen
```

```
Update available! 9.13.0 → 10.4.0.  
Changelog: https://github.com/pnpm/pnpm/releases/tag/v10.4.0  
Run "pnpm self-update" to update.
```

```
Follow @pnpmjs for updates: https://x.com/pnpmjs
```

```
[WARN] 2 deprecated subdependencies found: glob@7.2.3, inflight@1.0.6
```

```
Packages: +151
```

```
Progress: resolved 151, reused 0, downloaded 151, added 151, done
```

```
/home/zianisidahmed/.local/share/pnpm/global/5:
```

```
+ commitizen 4.3.1
```

```
Done in 3.6s
```

```
zianisidahmed@zianisidahmed:~$
```

Рис. 2: установка commitizen

```
zianisidahmed@zianisidahmed:~$  
zianisidahmed@zianisidahmed:~$ pnpm add -g standard-changelog  
[WARN] 2 deprecated subdependencies found: glob@7.2.3, inflight@1.0.6  
Packages: +39  
+++++  
Progress: resolved 190, reused 151, downloaded 39, added 39, done  
  
/home/zianisidahmed/.local/share/pnpm/global/5:  
+ standard-changelog 6.0.0  
  
Done in 2.5s  
zianisidahmed@zianisidahmed:~$
```

Рис. 3: установка standard-changelog

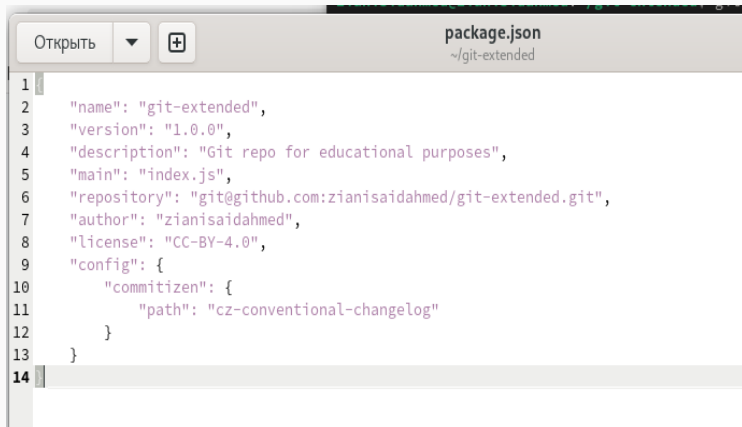


Рис. 4: package.json

Использование commitizen

```
zianisidahmed@zianisidahmed: ~/git-extended$ git add .
zianisidahmed@zianisidahmed: ~/git-extended$ git cz
cz-cli@4.3.1, cz-conventional-changelog@3.3.0

? Select the type of change that you're committing: chore: Other changes that don't modify src or test files
? What is the scope of this change (e.g. component or file name): (press enter to skip)
? Write a short, imperative tense description of the change (max 93 chars):
  (4) test
? Provide a longer description of the change: (press enter to skip)

? Are there any breaking changes? No
? Does this change affect any open issues? No
[master cf99fae] chore: test
 1 file changed, 14 insertions(+)
 create mode 100644 package.json
zianisidahmed@zianisidahmed: ~/git-extended$ git push
Перечисление объектов: 4, готово.
Подсчет объектов: 100% (4/4), готово.
При сжатии изменений используется до 4 потоков
Сжатие объектов: 100% (3/3), готово.
Запись объектов: 100% (3/3), 1.12 КиБ | 1.13 МиБ/с, готово.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:zianisaidahmed/git-extended.git
 a0e6e92..cf99fae master -> master
zianisidahmed@zianisidahmed: ~/git-extended$
```

Рис. 5: Отправка

```
zianisidahmed@zianisidahmed:~/git-extended$
zianisidahmed@zianisidahmed:~/git-extended$ git flow init

Which branch should be used for bringing forth production releases?
- master
Branch name for production releases: [master]
Branch name for "next release" development: [develop]

How to name your supporting branch prefixes?
Feature branches? [feature/]
Bugfix branches? [bugfix/]
Release branches? [release/]
Hotfix branches? [hotfix/]
Support branches? [support/]
Version tag prefix? []
Hooks and filters directory? [/home/zianisidahmed/git-extended/.git/hooks]
zianisidahmed@zianisidahmed:~/git-extended$ git branch
* develop
  master
zianisidahmed@zianisidahmed:~/git-extended$ git push --all
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
remote:
remote: Create a pull request for 'develop' on GitHub by visiting:
remote:   https://github.com/zianisaidahmed/git-extended/pull/new/develop
remote:
To github.com:zianisaidahmed/git-extended.git
 * [new branch]      develop -> develop
zianisidahmed@zianisidahmed:~/git-extended$
```

Рис. 6: Инициализация и загрузка изменений

```
zianisidahmed@zianisidahmed:~/git-extended$ git flow release start 1.0.0
Переключились на новую ветку «release/1.0.0»

Summary of actions:
- A new branch 'release/1.0.0' was created, based on 'develop'
- You are now on branch 'release/1.0.0'

Follow-up actions:
- Bump the version number now!
- Start committing last-minute fixes in preparing your release
- When done, run:

    git flow release finish '1.0.0'

zianisidahmed@zianisidahmed:~/git-extended$ standard-changelog --first-release
✓ created CHANGELOG.md
✓ output changes to CHANGELOG.md
zianisidahmed@zianisidahmed:~/git-extended$ git add CHANGELOG.md
zianisidahmed@zianisidahmed:~/git-extended$ git commit -am 'chore(site): add changelog'
[release/1.0.0 7882caa] chore(site): add changelog
1 file changed, 4 insertions(+)
 create mode 100644 CHANGELOG.md
zianisidahmed@zianisidahmed:~/git-extended$ git flow release finish 1.0.0
Переключились на ветку «master»
Эта ветка соответствует «origin/master».
Merge made by the 'ort' strategy.
CHANGELOG.md | 4 ++++
1 file changed, 4 insertions(+)
 create mode 100644 CHANGELOG.md
```

Рис. 7: Завершение релиза

Отправим данные на github

```
zianisidahmed@zianisidahmed:~/git-extended$  
zianisidahmed@zianisidahmed:~/git-extended$ git push --all  
Перечисление объектов: 6, готово.  
Подсчет объектов: 100% (6/6), готово.  
При сжатии изменений используется до 4 потоков  
Сжатие объектов: 100% (4/4), готово.  
Запись объектов: 100% (5/5), 2.69 КиБ | 2.69 МиБ/с, готово.  
Total 5 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)  
To github.com:zianisidahmed/git-extended.git  
    cf99fae..fb656ac  develop -> develop  
    cf99fae..249bc3f  master -> master  
zianisidahmed@zianisidahmed:~/git-extended$ git push --tags  
Перечисление объектов: 1, готово.  
Подсчет объектов: 100% (1/1), готово.  
Запись объектов: 100% (1/1), 164 байта | 164.00 КиБ/с, готово.  
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)  
To github.com:zianisidahmed/git-extended.git  
    * [new tag]          1.0.0 -> 1.0.0  
zianisidahmed@zianisidahmed:~/git-extended$ gh release create v1.0.0 -F CHANGELOG.md  
https://github.com/zianisidahmed/git-extended/releases/tag/v1.0.0  
zianisidahmed@zianisidahmed:~/git-extended$
```

Рис. 8: Отправка

```
zianisidahmed@zianisidahmed:~/git-extended$  
zianisidahmed@zianisidahmed:~/git-extended$ git flow feature start feature_branch  
Переключились на новую ветку «feature/feature_branch»  
  
Summary of actions:  
- A new branch 'feature/feature_branch' was created, based on 'develop'  
- You are now on branch 'feature/feature_branch'  
  
Now, start committing on your feature. When done, use:  
  
    git flow feature finish feature_branch  
  
zianisidahmed@zianisidahmed:~/git-extended$ touch test2  
zianisidahmed@zianisidahmed:~/git-extended$ git flow feature finish feature_branch  
Переключились на ветку «develop»  
Эта ветка соответствует «origin/develop».  
Уже актуально.  
Ветка feature/feature_branch удалена (была fb656ac).  
  
Summary of actions:  
- The feature branch 'feature/feature_branch' was merged into 'develop'  
- Feature branch 'feature/feature_branch' has been locally deleted  
- You are now on branch 'develop'  
  
zianisidahmed@zianisidahmed:~/git-extended$
```

Рис. 9: Объединение веток

```

Merge made by the 'ort' strategy.
 CHANGELOG.md | 4 +++
 package.json | 2 +-
 2 files changed, 5 insertions(+), 1 deletion(-)
Ветка release/1.2.3 удалена (была 17c7b79).

Summary of actions:
- Release branch 'release/1.2.3' has been merged into 'master'
- The release was tagged '1.2.3'
- Release tag '1.2.3' has been back-merged into 'develop'
- Release branch 'release/1.2.3' has been locally deleted
- You are now on branch 'develop'

zianisidahmed@zianisidahmed:~/git-extended$ git push --all
Перечисление объектов: 9, готово.
Подсчет объектов: 100% (9/9), готово.
При сжатии изменений используется до 4 потоков
Сжатие объектов: 100% (6/6), готово.
Запись объектов: 100% (6/6), 2.80 КиБ | 2.80 МиБ/с, готово.
Total 6 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To github.com:zianisaidahmed/git-extended.git
   fb656ac..16812fb  develop -> develop
   249bc3f..4d2fcd3  master -> master
zianisidahmed@zianisidahmed:~/git-extended$ git push --tags
Перечисление объектов: 1, готово.
Подсчет объектов: 100% (1/1), готово.
Запись объектов: 100% (1/1), 163 Байта | 163.00 КиБ/с, готово.
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:zianisaidahmed/git-extended.git
 * [new tag]         1.2.3 -> 1.2.3
zianisidahmed@zianisidahmed:~/git-extended$ gh release create v1.2.3 -F CHANGELOG.md
https://github.com/zianisaidahmed/git-extended/releases/tag/v1.2.3
zianisidahmed@zianisidahmed:~/git-extended$

```

Рис. 10: Завершение релиза

Подготовка рабочего репозитория

```
zianisidahmed@zianisidahmed:~/work/study/2024-2025/Операционные системы/os-intro$ gedit package.json
zianisidahmed@zianisidahmed:~/work/study/2024-2025/Операционные системы/os-intro$ git add .
zianisidahmed@zianisidahmed:~/work/study/2024-2025/Операционные системы/os-intro$ git cz
cz-cli@4.3.1, cz-conventional-changelog@3.3.0

? Select the type of change that you're committing: chore:   Other changes that don't modify src or test files
? What is the scope of this change (e.g. component or file name): (press enter to skip)
? Write a short, imperative tense description of the change (max 93 chars):
  (4) test
? Provide a longer description of the change: (press enter to skip)

? Are there any breaking changes? No
? Does this change affect any open issues? No
[master 8aeed12] chore: test
 3 files changed, 88 insertions(+), 205 deletions(-)
  create mode 100644 package.json
zianisidahmed@zianisidahmed:~/work/study/2024-2025/Операционные системы/os-intro$ git push
Перечисление объектов: 16, готово.
Подсчет объектов: 100% (16/16), готово.
При сжатии изменений используется до 4 потоков
Сжатие объектов: 100% (9/9), готово.
Запись объектов: 100% (9/9), 4.78 КиБ | 4.78 МБ/с, готово.
Total 9 (delta 4), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (4/4), completed with 4 local objects.
To github.com:zianisaidahmed/os-intro.git
 53fad53..8aeed12  master -> master
zianisidahmed@zianisidahmed:~/work/study/2024-2025/Операционные системы/os-intro$
```

Рис. 11: package.json и коммит

Подготовка рабочего репозитория

```
ERR_PNPM_PACKAGE_JSON_EXISTS package.json already exists
zianisidahmed@zianisidahmed:~/work/study/2024-2025/Операционные системы/os-intro$ gedit package.json
zianisidahmed@zianisidahmed:~/work/study/2024-2025/Операционные системы/os-intro$ git add .
zianisidahmed@zianisidahmed:~/work/study/2024-2025/Операционные системы/os-intro$ git cz
cz-cli@4.3.1, cz-conventional-changelog@3.3.0

? Select the type of change that you're committing: chore:   Other changes that don't modify src or test files
? What is the scope of this change (e.g. component or file name): (press enter to skip)
? Write a short, imperative tense description of the change (max 93 chars):
  (5) test2
? Provide a longer description of the change: (press enter to skip)

? Are there any breaking changes? No
? Does this change affect any open issues? No
error: object file .git/objects/8a/eed12f2751d7333e1d13fdbd5a41210664db78 is empty
error: object file .git/objects/8a/eed12f2751d7333e1d13fdbd5a41210664db78 is empty
fatal: не удалось разобрать HEAD

Git exited with code 128. Did you forget to run:

    git config --global user.email "you@example.com"
    git config --global user.name "Your Name"

git exited with error code 128
zianisidahmed@zianisidahmed:~/work/study/2024-2025/Операционные системы/os-intro$
```

Рис. 12: Завершение релиза

Выводы по проделанной работе

Мы приобрели практические навыки взаимодействия с дополнительными функциями гитхаб.