

Операционные системы

Продвинутое использование git

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18 февраля 2025

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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

```
artyapkova@artyapkova:~$ pnpm setup
Appended new lines to /home/artyapkova/.bashrc

Next configuration changes were made:
export PNPM_HOME="/home/artyapkova/.local/share/pnpm"
case ":$PATH:" in
  *:$PNPM_HOME:*) ;;
  *) export PATH="$PNPM_HOME:$PATH" ;;
esac

To start using pnpm, run:
source /home/artyapkova/.bashrc
artyapkova@artyapkova:~$ source ~/.bashrc
artyapkova@artyapkova:~$
```

Рис. 1: Node.js

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

```
Update available! 9.13.0 → 10.4.1.  
Changelog: https://github.com/pnpm/pnpm/releases/tag/v10.4.1  
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/artyapkova/.local/share/pnpm/global/5:  
+ commitizen 4.3.1
```

```
Done in 3.4s
```

```
artyapkova@artyapkova:~$
```

Рис. 2: установка commitizen

```
artyapkova@artyapkova:~$  
artyapkova@artyapkova:~$ 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/artyapkova/.local/share/pnpm/global/5:  
+ standard-changelog 6.0.0  
  
Done in 1.9s  
artyapkova@artyapkova:~$
```

Рис. 3: установка standard-changelog

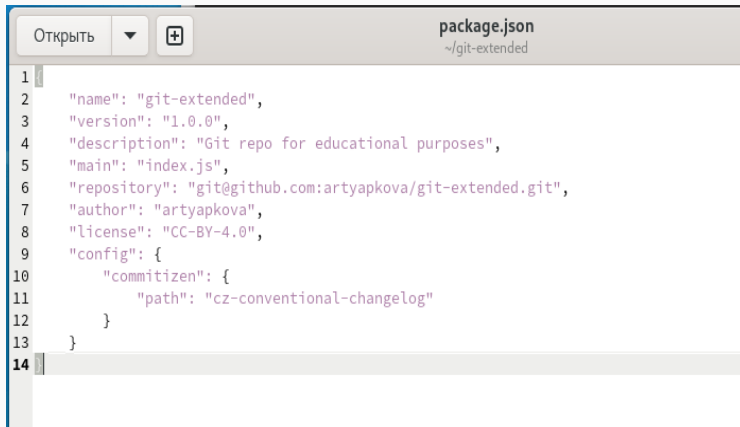


Рис. 4: package.json

Использование commitizen

```
artyapkova@artyapkova:~/git-extended$ git add .
artyapkova@artyapkova:~/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 7b0eaf9] chore: test
1 file changed, 14 insertions(+)
create mode 100644 package.json
artyapkova@artyapkova:~/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 | 1.12 МиБ/с, готово.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:artyapkova/git-extended.git
  7d18fdd..7b0eaf9  master -> master
artyapkova@artyapkova:~/git-extended$
```

Рис. 5: Отправка

```
artyapkova@artyapkova:~/git-extended$
artyapkova@artyapkova:~/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/artyapkova/git-extended/.git/hooks]
artyapkova@artyapkova:~/git-extended$ git branch
* develop
  master
artyapkova@artyapkova:~/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/artyapkova/git-extended/pull/new/develop
remote:
To github.com:artyapkova/git-extended.git
* [new branch]      develop -> develop
artyapkova@artyapkova:~/git-extended$
```

Рис. 6: Инициализация и загрузка изменений

```

artyapkova@artyapkova:~/git-extended$ git branch --set-upstream-to=origin/develop develop
branch 'develop' set up to track 'origin/develop'.
artyapkova@artyapkova:~/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'

artyapkova@artyapkova:~/git-extended$ standard-changelog --first-release
✓ created CHANGELOG.md
✓ output changes to CHANGELOG.md
artyapkova@artyapkova:~/git-extended$ git add CHANGELOG.md
artyapkova@artyapkova:~/git-extended$ git commit -am 'chore(site): add changelog'
[release/1.0.0 b35ddc9] chore(site): add changelog
1 file changed, 4 insertions(+)
 create mode 100644 CHANGELOG.md
artyapkova@artyapkova:~/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
Уже на «master»
Ваша ветка опережает «origin/master» на 2 коммита.
(используйте «git push», чтобы опубликовать ваши локальные коммиты)
Переключились на ветку «develop»
Эта ветка соответствует «origin/develop».
Merge made by the 'ort' strategy.
CHANGELOG.md | 4 +++

```

Рис. 7: Завершение релиза

Отправим данные на github

```
artyapkova@artyapkova:~/git-extended$  
artyapkova@artyapkova:~/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 'release/1.0.0' on GitHub by visiting:  
remote:   https://github.com/artyapkova/git-extended/pull/new/release/1.0.0  
remote:  
To github.com:artyapkova/git-extended.git  
 * [new branch]      release/1.0.0 -> release/1.0.0  
artyapkova@artyapkova:~/git-extended$ git push --tags  
Everything up-to-date  
artyapkova@artyapkova:~/git-extended$ gh release create v1.0.0 -F CHANGELOG.md  
https://github.com/artyapkova/git-extended/releases/tag/v1.0.0  
artyapkova@artyapkova:~/git-extended$
```

Рис. 8: Отправка

```
artyapкова@artyapкова:~/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

artyapкова@artyapкова:~/git-extended$ touch test2
artyapкова@artyapкова:~/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 7b0eaf9).

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'

artyapкова@artyapкова:~/git-extended$
```

Рис. 9: Объединение веток

```

artyapkova@artyapkova:~/git-extended$
artyapkova@artyapkova:~/git-extended$ git flow release start 1.2.3
Fatal: There is an existing release branch '1.0.0'. Finish that one first.
artyapkova@artyapkova:~/git-extended$ gedit package.json
artyapkova@artyapkova:~/git-extended$ standard-changelog
✓ output changes to CHANGELOG.md
artyapkova@artyapkova:~/git-extended$ git add CHANGELOG.md
artyapkova@artyapkova:~/git-extended$ git commit -am 'chore(site): update changelog'
[develop 4185294] chore(site): update changelog
 2 files changed, 9 insertions(+), 1 deletion(-)
 create mode 100644 CHANGELOG.md
artyapkova@artyapkova:~/git-extended$ git flow release finish 1.2.3
Fatal: Branch 'release/1.2.3' does not exist and is required.
artyapkova@artyapkova:~/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% (3/3), готово.
Запись объектов: 100% (4/4), 1.04 КиБ | 1.04 МБ/с, готово.
Total 4 (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:artyapkova/git-extended.git
 7b0eaf9..4185294 develop -> develop
artyapkova@artyapkova:~/git-extended$ git push --tags
Everything up-to-date
artyapkova@artyapkova:~/git-extended$ gh release create v1.2.3 -F CHANGELOG.md
https://github.com/artyapkova/git-extended/releases/tag/v1.2.3
artyapkova@artyapkova:~/git-extended$ █

```

Рис. 10: Завершение релиза

Подготовка рабочего репозитория

```
artyapkova@artyapkova:~/work/study/2024-2025/Операционные системы/os-intro$ gedit package.json
artyapkova@artyapkova:~/work/study/2024-2025/Операционные системы/os-intro$ git add .
artyapkova@artyapkova:~/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 12a1c8d] chore: test
3 files changed, 88 insertions(+), 205 deletions(-)
create mode 100644 package.json
artyapkova@artyapkova:~/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), 4.77 КиБ | 4.77 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:artyapkova/os-intro.git
6c918d4..12a1c8d master -> master
artyapkova@artyapkova:~/work/study/2024-2025/Операционные системы/os-intro$
```

Рис. 11: package.json и коммит

Подготовка рабочего репозитория

```
artyapkova@artyapkova:~/work/study/2024-2025/Операционные системы/os-intro$
artyapkova@artyapkova:~/work/study/2024-2025/Операционные системы/os-intro$ git push --all
Everything up-to-date
artyapkova@artyapkova:~/work/study/2024-2025/Операционные системы/os-intro$ git branch --set-upstream-to=origin/develop develop

fatal: ветка «develop» не существует
artyapkova@artyapkova:~/work/study/2024-2025/Операционные системы/os-intro$ git flow release start 1.0.0
Fatal: Not a gitflow-enabled repo yet. Please run 'git flow init' first.
artyapkova@artyapkova:~/work/study/2024-2025/Операционные системы/os-intro$ standard-changelog --first-release
✓ output changes to CHANGELOG.md
artyapkova@artyapkova:~/work/study/2024-2025/Операционные системы/os-intro$ git add CHANGELOG.md
artyapkova@artyapkova:~/work/study/2024-2025/Операционные системы/os-intro$ git commit -am 'chore(site): add changelog'
[master 936c78d] chore(site): add changelog
1 file changed, 2 insertions(+), 110 deletions(-)
artyapkova@artyapkova:~/work/study/2024-2025/Операционные системы/os-intro$ git flow release finish 1.0.0
Fatal: Not a gitflow-enabled repo yet. Please run 'git flow init' first.
artyapkova@artyapkova:~/work/study/2024-2025/Операционные системы/os-intro$ git push --all
Перечисление объектов: 5, готово.
Подсчет объектов: 100% (5/5), готово.
При сжатии изменений используется до 4 потоков
Сжатие объектов: 100% (3/3), готово.
Запись объектов: 100% (3/3), 1.05 Киб | 1.05 Миб/с, готово.
Total 3 (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:artyapkova/os-intro.git
12a1c8d..936c78d master -> master
artyapkova@artyapkova:~/work/study/2024-2025/Операционные системы/os-intro$ git push --tags
Everything up-to-date
artyapkova@artyapkova:~/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.