

# Операционные системы

Продвинутое использование git

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## Цели и задачи работы

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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

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

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

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

Рис. 1: Node.js

```
kbairamov@kbairamov:~$  
kbairamov@kbairamov:~$ 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/kbairamov/.local/share/pnpm/global/5:  
+ commitizen 4.3.1  
  
Done in 2.9s  
kbairamov@kbairamov:~$
```

Рис. 2: установка commitizen

```
kbairamov@kbairamov:~$  
kbairamov@kbairamov:~$ 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/kbairamov/.local/share/pnpm/global/5:  
+ standard-changelog 6.0.0  
  
Done in 2.1s  
kbairamov@kbairamov:~$
```

Рис. 3: установка standard-changelog



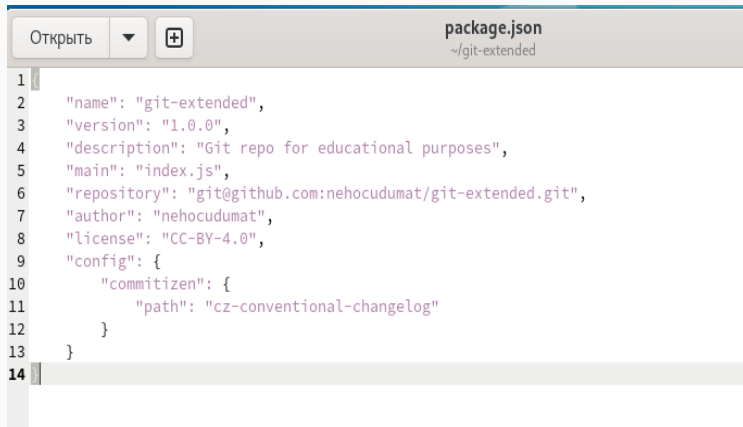


Рис. 4: package.json

# Использование commitizen

```
kbairamov@kbairamov:~/git-extended$ gedit package.json
kbairamov@kbairamov:~/git-extended$ git add .
kbairamov@kbairamov:~/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 317bf2d] chore: test
 1 file changed, 14 insertions(+)
 create mode 100644 package.json
kbairamov@kbairamov:~/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:nehocudumat/git-extended.git
   1b2d87a..317bf2d master -> master
kbairamov@kbairamov:~/git-extended$
```

Рис. 5: Отправка

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

Рис. 6: Инициализация и загрузка изменений

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

kbairamov@kbairamov:~/git-extended$ standard-changelog --first-release
✓ created CHANGELOG.md
✓ output changes to CHANGELOG.md
kbairamov@kbairamov:~/git-extended$ git add CHANGELOG.md
kbairamov@kbairamov:~/git-extended$ git commit -am 'chore(site): add changelog'
[release/1.0.0 1a22992] chore(site): add changelog
 1 file changed, 4 insertions(+)
   create mode 100644 CHANGELOG.md
kbairamov@kbairamov:~/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

```
kbairamov@kbairamov:~/git-extended$  
kbairamov@kbairamov:~/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), 2.68 КиБ | 2.68 МиБ/с, готово.  
Total 5 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)  
To github.com:nehocudumat/git-extended.git  
  317bf2d..9b8927f  develop -> develop  
  317bf2d..f69c34f  master -> master  
kbairamov@kbairamov:~/git-extended$ git push --tags  
Перечисление объектов: 1, готово.  
Подсчет объектов: 100% (1/1), готово.  
Запись объектов: 100% (1/1), 161 байт | 161.00 КиБ/с, готово.  
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)  
To github.com:nehocudumat/git-extended.git  
  * [new tag]          1.0.0 -> 1.0.0  
kbairamov@kbairamov:~/git-extended$ gh release create v1.0.0 -F CHANGELOG.md  
https://github.com/nehocudumat/git-extended/releases/tag/v1.0.0  
kbairamov@kbairamov:~/git-extended$
```

Рис. 8: Отправка

```
[new tag] 21910 -> 21910
kbairamov@kbairamov:~/git-extended$ gh release create v1.0.0 -F CHANGELOG.md
https://github.com/nehocudumat/git-extended/releases/tag/v1.0.0
kbairamov@kbairamov:~/git-extended$
kbairamov@kbairamov:~/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

kbairamov@kbairamov:~/git-extended$ touch test2
kbairamov@kbairamov:~/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 9b8927f).

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'

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

Рис. 9: Объединение веток

```
kbairamov@kbairamov:~/git-extended
~/git-extended

package.json | 2 +-
2 files changed, 5 insertions(+), 1 deletion(-)
Ветка release/1.2.3 удалена (была ebf0c27).

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'

kbairamov@kbairamov:~/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 МБ/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:nehocudumat/git-extended.git
 9b8927f..7893453 develop -> develop
 f69c34f..68cc50a master -> master
kbairamov@kbairamov:~/git-extended$ git push --tags
Перечисление объектов: 1, готово.
Подсчет объектов: 100% (1/1), готово.
Запись объектов: 100% (1/1), 161 байт | 161.00 КиБ/с, готово.
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:nehocudumat/git-extended.git
 * [new tag]      1.2.3 -> 1.2.3
kbairamov@kbairamov:~/git-extended$ gh release create v1.2.3 -F CHANGELOG.md
https://github.com/nehocudumat/git-extended/releases/tag/v1.2.3
kbairamov@kbairamov:~/git-extended$
```

Рис. 10: Завершение релиза

## Подготовка рабочего репозитория

```
kbairamov@kbairamov:~/work/study/2024-2025/Операционные системы/os-intro$ gedit package.json
kbairamov@kbairamov:~/work/study/2024-2025/Операционные системы/os-intro$ git add .
kbairamov@kbairamov:~/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 2b34e2a] chore: test
 3 files changed, 88 insertions(+), 205 deletions(-)
 create mode 100644 package.json
kbairamov@kbairamov:~/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 МиБ/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:nehocudumat/os-intro.git
 d0f1eb4..2b34e2a  master -> master
kbairamov@kbairamov:~/work/study/2024-2025/Операционные системы/os-intro$
```

Рис. 11: package.json и коммит



## Подготовка рабочего репозитория

```
Эта ветка соответствует «origin/develop».
Merge made by the 'ort' strategy.
  CHANGELOG.md | 112 ++-----
  1 file changed, 2 insertions(+), 110 deletions(-)
Ветка release/1.0.0 удалена (была 503ab04).

Summary of actions:
- Release branch 'release/1.0.0' has been merged into 'master'
- The release was tagged '1.0.0'
- Release tag '1.0.0' has been back-merged into 'develop'
- Release branch 'release/1.0.0' has been locally deleted
- You are now on branch 'develop'

kbairamov@kbairamov:~/work/study/2024-2025/Операционные системы/os-intro$ git push --all
Перечисление объектов: 7, готово.
Подсчет объектов: 100% (7/7), готово.
При сжатии изменений используется до 4 потоков
Сжатие объектов: 100% (5/5), готово.
Запись объектов: 100% (5/5), 2.75 КиБ | 2.75 МиБ/с, готово.
Total 5 (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:nehocudumat/os-intro.git
  2b34e2a..f06b885  develop -> develop
  2b34e2a..3f758d3  master -> master
kbairamov@kbairamov:~/work/study/2024-2025/Операционные системы/os-intro$ git push --tags
Перечисление объектов: 1, готово.
Подсчет объектов: 100% (1/1), готово.
Запись объектов: 100% (1/1), 161 байт | 161.00 КиБ/с, готово.
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:nehocudumat/os-intro.git
  * [new tag]          1.0.0 -> 1.0.0
kbairamov@kbairamov:~/work/study/2024-2025/Операционные системы/os-intro$
```

Рис. 12: Завершение релиза

## Выводы по проделанной работе

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Мы приобрели практические навыки взаимодействия с дополнительными функциями гитхаб.