

# Операционные системы

Продвинутое использование git

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2026-02-23

Цели и задачи работы

Процесс выполнения лабораторной работы

Выводы по проделанной работе

## 1. 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.

## 2. Процесс выполнения лабораторной работы

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

Рисунок 1: Node.js

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

Update available! 10.27.0 → 10.30.1.
Changelog: https://pnpm.io/v/10.30.1
To update, run: pnpm self-update

WARN GET https://registry.npmjs.org/ansi-escapes error (502). Will retry in 10 seconds. 2 retries left.
WARN Request took 10295ms: https://registry.npmjs.org/ansi-escapes
WARN 2 deprecated subdependencies found: glob@7.2.3, inflight@1.0.6
Packages: +149
+++++
Progress: resolved 149, reused 0, downloaded 149, added 149, done

/home/imgorbunov/.local/share/pnpm/global/5:
+ commitizen 4.3.1

Done in 12.5s using pnpm v10.27.0
imgorbunov@imgorbunov:~$
```

Рисунок 2: установка commitizen



```
imgorbunov@imgorbunov:~$  
imgorbunov@imgorbunov:~$ pnpm add -g standard-changelog  
WARN 2 deprecated subdependencies found: glob@7.2.3, inflight@1.0.6  
Packages: +32  
+++++  
Progress: resolved 181, reused 149, downloaded 32, added 32, done  
  
/home/imgorbunov/.local/share/pnpm/global/5: I  
+ standard-changelog 7.0.1  
  
Done in 2.4s using pnpm v10.27.0  
imgorbunov@imgorbunov:~$
```

Рисунок 3: установка standard-changelog

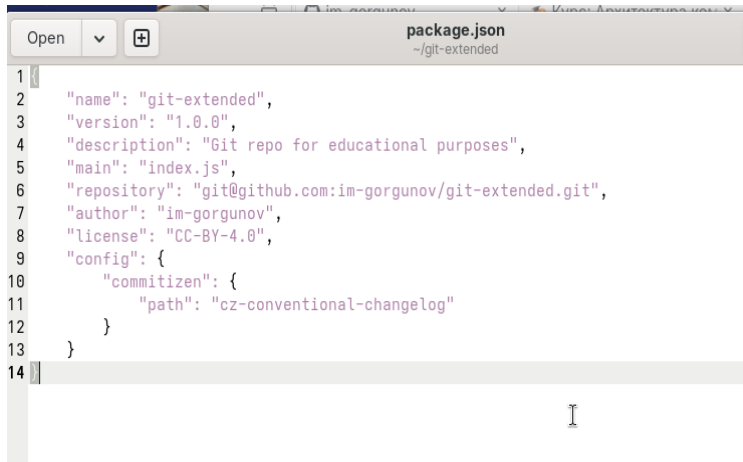


Рисунок 4: package.json

# Использование commitizen

```
imgorbunov@imgorbunov:~/git-extended$  
imgorbunov@imgorbunov:~/git-extended$ git add .  
imgorbunov@imgorbunov:~/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 9fe1e11] chore: test  
  1 file changed, 14 insertions(+)  
  create mode 100644 package.json  
imgorbunov@imgorbunov:~/git-extended$ git push  
Enumerating objects: 4, done.  
Counting objects: 100% (4/4), done.  
Delta compression using up to 8 threads  
Compressing objects: 100% (3/3), done.  
Writing objects: 100% (3/3), 1.11 KiB | 1.11 MiB/s, done.  
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)  
To github.com:im-gorgunov/git-extended.git  
  49f4b39..9fe1e11  master -> master  
imgorbunov@imgorbunov:~/git-extended$
```

Рисунок 5: Отправка

```
imgorbunov@imgorbunov:~/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? [] v
Hooks and filters directory? [/home/imgorbunov/git-extended/.git/hooks]
imgorbunov@imgorbunov:~/git-extended$ git branch
* develop
  master

imgorbunov@imgorbunov:~/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/im-gorgunov/git-extended/pull/new/develop
remote:
To github.com:im-gorgunov/git-extended.git
 * [new branch]      develop -> develop
imgorbunov@imgorbunov:~/git-extended$
```

Рисунок 6: Инициализация и загрузка изменений

```

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'

imgorbunov@imgorbunov:~/git-extended$ standard-changelog --first-release
imgorbunov@imgorbunov:~/git-extended$ git add CHANGELOG.md
imgorbunov@imgorbunov:~/git-extended$ git commit -am 'chore(site): add changelog'
[release/1.0.0 0a670df] chore(site): add changelog
 1 file changed, 4 insertions(+)
 create mode 100644 CHANGELOG.md
imgorbunov@imgorbunov:~/git-extended$ git flow release finish 1.0.0
Switched to branch 'master'
Your branch is up to date with 'origin/master'.
Merge made by the 'ort' strategy.
CHANGELOG.md | 4 ++++
 1 file changed, 4 insertions(+)
 create mode 100644 CHANGELOG.md
Already on 'master'
Your branch is ahead of 'origin/master' by 2 commits.
(use "git push" to publish your local commits)
Switched to branch 'develop'
Your branch is up to date with 'origin/develop'.
Merge made by the 'ort' strategy.
CHANGELOG.md | 4 ++++
 1 file changed, 4 insertions(+)
 create mode 100644 CHANGELOG.md
Related branch: release/1.0.0 (was 0a670df)

```

Рисунок 7: Завершение релиза

## Отправим данные на github

```
imgorbunov@imgorbunov:~/git-extended$  
imgorbunov@imgorbunov:~/git-extended$ git push --all  
Enumerating objects: 6, done.  
Counting objects: 100% (6/6), done.  
Delta compression using up to 8 threads  
Compressing objects: 100% (4/4), done.  
Writing objects: 100% (5/5), 2.67 KiB | 2.67 MiB/s, done.  
Total 5 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)  
To github.com:im-gorgunov/git-extended.git  
  9fe1e11..8130a07  develop -> develop  
  9fe1e11..da69066  master -> master  
imgorbunov@imgorbunov:~/git-extended$ git push --tags  
Enumerating objects: 1, done.  
Counting objects: 100% (1/1), done.  
Writing objects: 100% (1/1), 156 bytes | 156.00 KiB/s, done.  
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)  
To github.com:im-gorgunov/git-extended.git  
  * [new tag]          v1.0.0 -> v1.0.0  
imgorbunov@imgorbunov:~/git-extended$ gh release create v1.0.0 -F CHANGELOG.md  
https://github.com/im-gorgunov/git-extended/releases/tag/v1.0.0  
imgorbunov@imgorbunov:~/git-extended$
```

Рисунок 8: Отправка

```
imgorbunov@imgorbunov:~/git-extended$  
imgorbunov@imgorbunov:~/git-extended$ git flow feature start feature_branch  
Switched to a new branch '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  
  
imgorbunov@imgorbunov:~/git-extended$ touch test2  
imgorbunov@imgorbunov:~/git-extended$ git flow feature finish feature_branch  
Switched to branch 'develop'  
Your branch is up to date with 'origin/develop'.  
Already up to date.  
Deleted branch feature/feature_branch (was 8130a07).  
  
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'  
  
imgorbunov@imgorbunov:~/git-extended$
```

Рисунок 9: Объединение веток

```
Summary of actions:
- Release branch 'release/1.2.3' has been merged into 'master'
- The release was tagged 'v1.2.3'
- Release tag 'v1.2.3' has been back-merged into 'develop'
- Release branch 'release/1.2.3' has been locally deleted
- You are now on branch 'develop'

imgorbunov@imgorbunov:~/git-extended$ git push --all
Enumerating objects: 9, done.
Counting objects: 100% (9/9), done.
Delta compression using up to 8 threads
Compressing objects: 100% (6/6), done.
Writing objects: 100% (6/6), 2.78 KiB | 2.78 MiB/s, done.
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:im-gorgunov/git-extended.git
   8130a07..8afec6b  develop -> develop
   da69066..2efd4e3  master -> master
imgorbunov@imgorbunov:~/git-extended$ git push --tags
Enumerating objects: 1, done.
Counting objects: 100% (1/1), done.
Writing objects: 100% (1/1), 156 bytes | 156.00 KiB/s, done.
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:im-gorgunov/git-extended.git
 * [new tag]           v1.2.3 -> v1.2.3
imgorbunov@imgorbunov:~/git-extended$ gh release create v1.2.3 -F CHANGELOG.md
https://github.com/im-gorgunov/git-extended/releases/tag/v1.2.3
imgorbunov@imgorbunov:~/git-extended$
```

Рисунок 10: Завершение релиза



```
imgorbunov@imgorbunov:~/work/study/2025-2026/Операционные системы/2026-1--study--os-intro$ git add .
imgorbunov@imgorbunov:~/work/study/2025-2026/Операционные системы/2026-1--study--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 e5a2f4f] chore: test
 1 file changed, 11 insertions(+), 11 deletions(-)
imgorbunov@imgorbunov:~/work/study/2025-2026/Операционные системы/2026-1--study--os-intro$ git push
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 1.11 KiB | 1.11 MiB/s, done.
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:im-gorgunov/2026-1--study--os-intro.git
   0da3335..e5a2f4f  master -> master
imgorbunov@imgorbunov:~/work/study/2025-2026/Операционные системы/2026-1--study--os-intro$
```

Рисунок 11: package.json и коммит

```
Summary of actions:
- Release branch 'release/1.0.0' has been merged into 'master'
- The release was tagged 'v1.0.0'
- Release tag 'v1.0.0' has been back-merged into 'develop'
- Release branch 'release/1.0.0' has been locally deleted
- You are now on branch 'develop'

imgorbunov@imgorbunov:~/work/study/2025-2026/Операционные системы/2026-1--study--os-intro$ git push --all
Enumerating objects: 6, done.
Counting objects: 100% (6/6), done.
Delta compression using up to 8 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (5/5), 2.75 KiB | 2.75 MiB/s, done.
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:im-gorgunov/2026-1--study--os-intro.git
   e5a2f4f..1fcb283  develop -> develop
   e5a2f4f..89b6e1c  master -> master
imgorbunov@imgorbunov:~/work/study/2025-2026/Операционные системы/2026-1--study--os-intro$ git push --tags
Enumerating objects: 1, done.
Counting objects: 100% (1/1), done.
Writing objects: 100% (1/1), 157 bytes | 157.00 KiB/s, done.
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:im-gorgunov/2026-1--study--os-intro.git
 * [new tag]          v1.0.0 -> v1.0.0
imgorbunov@imgorbunov:~/work/study/2025-2026/Операционные системы/2026-1--study--os-intro$
```

Рисунок 12: Завершение релиза

### 3. Выводы по проделанной работе

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Мы приобрели практические навыки взаимодействия с дополнительными функциями гитхаб.