

Продвинутое использование git

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Цели и задачи работы

Цель лабораторной работы

Получение навыков правильной работы с репозиториями git.

Задачи лабораторной работы

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

Процесс выполнения лабораторной работы

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

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

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

Рис. 1: Node.js

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

Update available! 8.12.0 → 9.9.0.
Changelog: <https://github.com/pnpm/pnpm/releases/tag/v9.9.0>
Run "pnpm add -g pnpm" to update.

Follow @pnpmjs for updates: <https://twitter.com/pnpmjs>

```
WARN 2 deprecated subdependencies found: glob@7.2.3, inflight@1.0.6  
Packages: +152  
Progress: resolved 152, reused 0, downloaded 152, added 152, done  
  
/home/dtsegtstur/.local/share/pnpm/global/5:  
+ commitizen 4.3.0  
  
Done in 8.2s  
dtsegtstur@dtsegtstur:~$
```

Рис. 2: установка commitizen

```
dtsegtstur@dtsegtstur:~$  
dtsegtstur@dtsegtstur:~$ pnpm add -g standard-changelog  
WARN 2 deprecated subdependencies found: glob@7.2.3, inflight@1.0.6  
Packages: +39  
+-----+  
Progress: resolved 191, reused 152, downloaded 39, added 39, done  
  
/home/dtsegtstur/.local/share/pnpm/global/5:  
+ standard-changelog 6.0.0  
  
Done in 3.9s  
dtsegtstur@dtsegtstur:~$
```

Рис. 3: установка standard-changelog

package.json

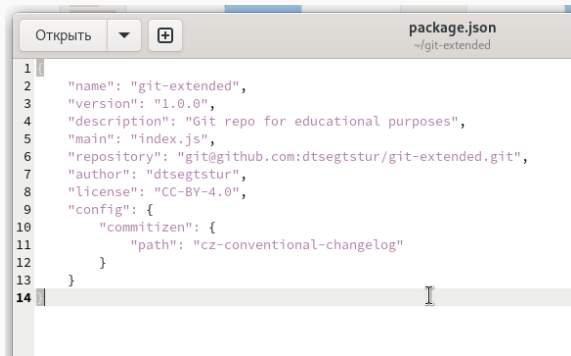


Рис. 4: package.json

Использование commitizen

```
dtsegtstur@dtsegtstur:~/git-extended$ gedit package.json
dtsegtstur@dtsegtstur:~/git-extended$ git add .
dtsegtstur@dtsegtstur:~/git-extended$ git cz
cz-cli@4.3.0, 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 617570c] chore: test
1 file changed, 14 insertions(+)
create mode 100644 package.json
dtsegtstur@dtsegtstur:~/git-extended$ git push
Перечисление объектов: 4, готово.
Подсчет объектов: 100% (4/4), готово.
При сжатии изменений используется до 6 потоков
Сжатие объектов: 100% (3/3), готово.
Запись объектов: 100% (3/3), 1.12 КБ | 571.00 КБ/с, готово.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:dtsegtstur/git-extended.git
 66c3ee1..617570c master -> master
dtsegtstur@dtsegtstur:~/git-extended$
```

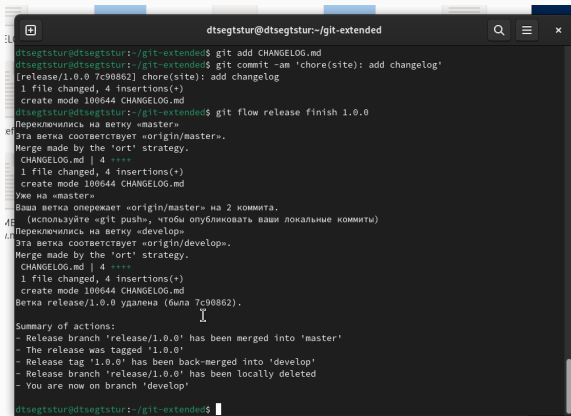
Рис. 5: Отправка

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

Рис. 6: Инициализация и загрузка изменений

A terminal window titled 'dtsegtstur@dtsegtstur:~/git-extended' showing the final steps of a git-flow release. The user has added a changelog, committed it, and run 'git flow release finish 1.0.0'. The terminal output shows the merge of the release branch back into 'master', tagging '1.0.0', merging back into 'develop', and deleting the release branch. The process ends with the user on the 'develop' branch.

```
dtsegtstur@dtsegtstur:~/git-extended$ git add CHANGELOG.md
dtsegtstur@dtsegtstur:~/git-extended$ git commit -am 'chore(site): add changelog'
[release/1.0.0 7c90862] chore(site): add changelog
1 file changed, 4 insertions(+)
create mode 100644 CHANGELOG.md
dtsegtstur@dtsegtstur:~/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 +++
1 file changed, 4 insertions(+)
create mode 100644 CHANGELOG.md
Ветка release/1.0.0 удалена (была 7c90862).

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'

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

Рис. 7: Завершение релиза

Отправим данные на github

```
dtsegtstur@dtsegtstur:~/git-extended$  
dtsegtstur@dtsegtstur:~/git-extended$ git push --all  
Перечисление объектов: 6, готово.  
Подсчет объектов: 100% (6/6), готово.  
При сжатии изменений используется до 6 потоков  
Сжатие объектов: 100% (4/4), готово.  
Запись объектов: 100% (5/5), 2.67 КиБ | 683.00 КиБ/с, готово.  
Total 5 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)  
To github.com:dtsegtstur/git-extended.git  
  617570c..5a5f4a3  develop -> develop  
  617570c..342b13e  master -> master  
dtsegtstur@dtsegtstur:~/git-extended$ git push --tags  
Перечисление объектов: 1, готово.  
Подсчет объектов: 100% (1/1), готово.  
Запись объектов: 100% (1/1), 152 байта | 152.00 КиБ/с, готово.  
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)  
To github.com:dtsegtstur/git-extended.git  
  * [new tag]          1.0.0 -> 1.0.0  
dtsegtstur@dtsegtstur:~/git-extended$ gh release create v1.0.0 -F CHANGELOG.md  
https://github.com/dtsegtstur/git-extended/releases/tag/v1.0.0  
dtsegtstur@dtsegtstur:~/git-extended$
```

Рис. 8: Отправка

Объединение веток

```
dtsegtstur@dtsegtstur:~/git-extended$ git flow feature start feature_branch
Перешли 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 to your feature. When done, use:

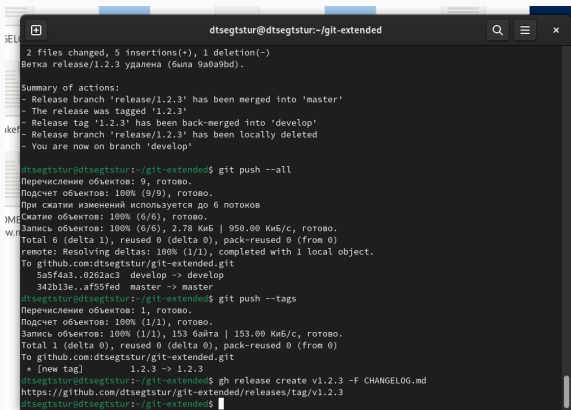
git flow feature finish feature_branch

dtsegtstur@dtsegtstur:~/git-extended$ touch test2
dtsegtstur@dtsegtstur:~/git-extended$ git flow feature finish feature_branch
Перешли на ветку «develop»
Эта ветка соответствует «origin/develop».
Уже актуально.
Ветка feature/feature_branch удалена (была 5a5f4a3).

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'

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

Рис. 9: Объединение веток

A terminal window titled 'dtsegtstur@dtsegtstur:~/git-extended' showing the final steps of a git-flow release. The output includes a summary of actions (merging release/1.2.3 into master, tagging 1.2.3, back-merging into develop, and deleting the release branch), a successful push of all objects to the remote repository, and a successful push of tags. The terminal text is as follows:

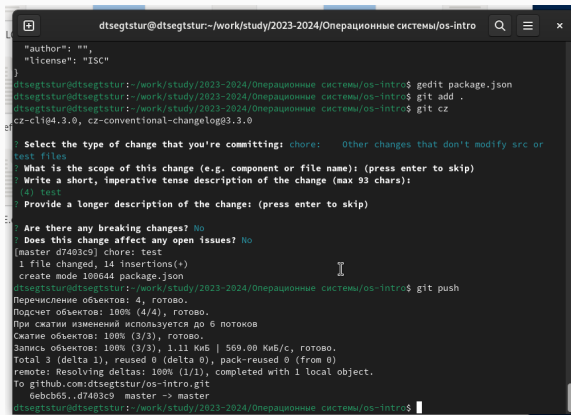
```
2 files changed, 5 insertions(+), 1 deletion(-)
Ветка release/1.2.3 удалена (была 9a0a9bd).

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'

dtsegtstur@dtsegtstur:~/git-extended$ git push --all
Перечисление объектов: 9, готово.
Подсчет объектов: 100% (9/9), готово.
При сжатии изменений используется до 6 потоков
Сжатие объектов: 100% (6/6), готово.
Запись объектов: 100% (6/6), 2.78 Киб | 950.00 Киб/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:dtsegtstur/git-extended.git
  5a5f4a3..0262ac3  develop -> develop
  342b13e..af55fed  master -> master
dtsegtstur@dtsegtstur:~/git-extended$ git push --tags
Перечисление объектов: 1, готово.
Подсчет объектов: 100% (1/1), готово.
Запись объектов: 100% (1/1), 153 байта | 153.00 Киб/с, готово.
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:dtsegtstur/git-extended.git
 * [new tag]         1.2.3 -> 1.2.3
dtsegtstur@dtsegtstur:~/git-extended$ gh release create v1.2.3 -F CHANGELOG.md
https://github.com/dtsegtstur/git-extended/releases/tag/v1.2.3
dtsegtstur@dtsegtstur:~/git-extended$
```

Рис. 10: Завершение релиза

Подготовка рабочего репозитория



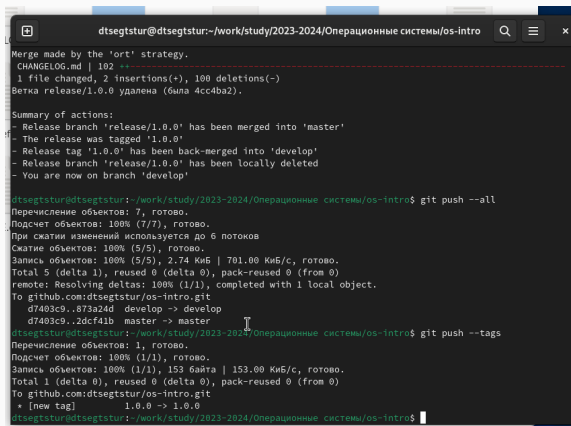
```
dtsegtstur@dtsegtstur:~/work/study/2023-2024/Операционные системы/os-intro$ cat package.json
{"author": "",
 "license": "ISC"
}
dtsegtstur@dtsegtstur:~/work/study/2023-2024/Операционные системы/os-intro$ git add .
dtsegtstur@dtsegtstur:~/work/study/2023-2024/Операционные системы/os-intro$ git cz
cz-cli@4.3.0, 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 d7403c9) chore: test
1 file changed, 14 insertions(+)
create mode 100644 package.json
dtsegtstur@dtsegtstur:~/work/study/2023-2024/Операционные системы/os-intro$ git push
Перечисление объектов: 4, готово.
Подсчет объектов: 100% (4/4), готово.
При сжатии изменений используется до 6 потоков
Сжатие объектов: 100% (3/3), готово.
Запись объектов: 100% (3/3), 1.11 КиБ | 569.00 КиБ/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:dtsegtstur/os-intro.git
 6ebcb65..d7403c9 master -> master
dtsegtstur@dtsegtstur:~/work/study/2023-2024/Операционные системы/os-intro$
```

Рис. 11: package.json и коммит

Подготовка рабочего репозитория



```
dtsegtstur@dtsegtstur:~/work/study/2023-2024/Операционные системы/os-intro$ git push --all
Merge made by the 'ort' strategy.
 CHANGELOG.md | 102 ++
 1 file changed, 2 insertions(+), 100 deletions(-)
Ветка release/1.0.0 удалена (была 4cc4ba2).

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'

dtsegtstur@dtsegtstur:~/work/study/2023-2024/Операционные системы/os-intro$ git push --all
Перечисление объектов: 7, готово.
Подсчет объектов: 100% (7/7), готово.
При сжатии изменений используется до 6 потоков
Сжатие объектов: 100% (5/5), готово.
Запись объектов: 100% (5/5), 2.74 Киб | 701.00 Киб/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:dtsegtstur/os-intro.git
 d7403c9..873a24d develop -> develop
 d7403c9..2dcf41b master -> master

dtsegtstur@dtsegtstur:~/work/study/2023-2024/Операционные системы/os-intro$ git push --tags
Перечисление объектов: 1, готово.
Подсчет объектов: 100% (1/1), готово.
Запись объектов: 100% (1/1), 153 байта | 153.00 Киб/с, готово.
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:dtsegtstur/os-intro.git
 * [new tag]      1.0.0 -> 1.0.0
dtsegtstur@dtsegtstur:~/work/study/2023-2024/Операционные системы/os-intro$
```

Рис. 12: Завершение релиза

Выводы по проделанной работе

Мы приобрели практические навыки взаимодействия с дополнительными функциями гитхаб.