

# Продвинутое использование git

---

Швецов Михаил Романович<sup>1</sup>

10 июня, 2024, Москва, Россия

<sup>1</sup>Российский Университет Дружбы Народов

# Цели и задачи работы

---

# Цель лабораторной работы

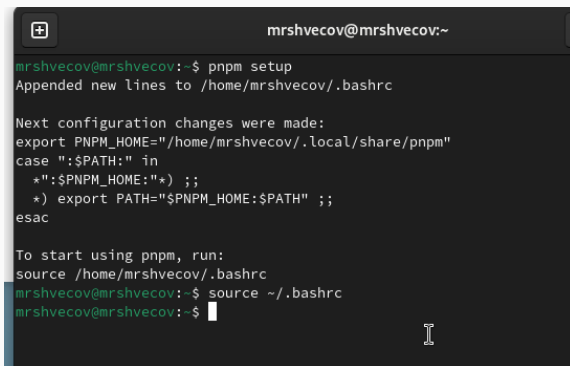
Получение навыков правильной работы с репозиториями git.

# 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**

---

A terminal window with a dark background and light text. The title bar shows 'mrshvecov@mrshvecov:~'. The terminal content shows the execution of 'pnpm setup', which appends lines to the '.bashrc' file. It then displays the configuration changes made to the file, including the export of 'PNPM\_HOME' and a case statement for 'PATH'. Finally, it instructs the user to source the '.bashrc' file to start using pnpm.

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

Рис. 1: Node.js

```
mrshvecov@mrshvecov:~$ source ~/.bashrc
mrshvecov@mrshvecov:~$ pnpm add -g commitizen

Update available! 8.12.0 → 9.2.0.
Changelog: https://github.com/pnpm/pnpm/releases/tag/v9.2.0
Run "pnpm add -g pnpm" to update.

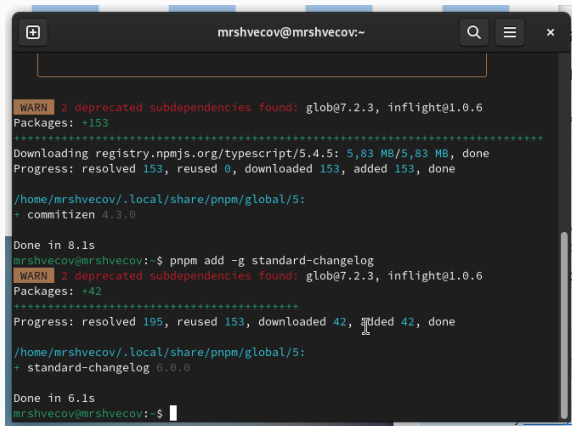
Follow @pnpmjs for updates: https://twitter.com/pnpmjs

WARN 2 deprecated subdependencies found: glob@7.2.3, inflight@1.0.6
Packages: +153
+-----+
Downloading registry.npmjs.org/typescript/5.4.5: 5,83 MB/5,83 MB, done
Progress: resolved 153, reused 0, downloaded 153, added 153, done

/home/mrshvecov/.local/share/pnpm/global/5:
+ commitizen 4.3.0
Done in 8.1s
mrshvecov@mrshvecov:~$
```

Рис. 2: установка commitizen

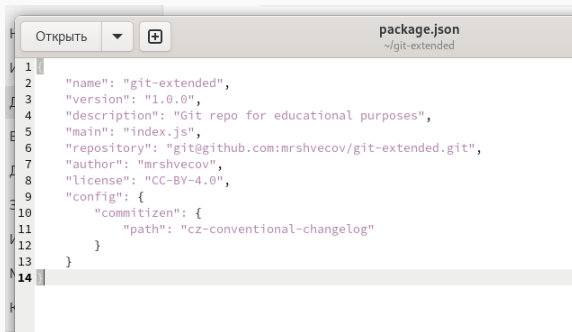
# standard-changelog



```
mrshvecov@mrshvecov:~  
  
WARN 2 deprecated subdependencies found: glob@7.2.3, inflight@1.0.6  
Packages: +153  
+-----+  
Downloading registry.npmjs.org/typescript/5.4.5: 5,83 MB/5,83 MB, done  
Progress: resolved 153, reused 0, downloaded 153, added 153, done  
  
/home/mrshvecov/.local/share/pnpm/global/5:  
+ commitizen 4.3.0  
  
Done in 8.1s  
mrshvecov@mrshvecov:~$ pnpm add -g standard-changelog  
WARN 2 deprecated subdependencies found: glob@7.2.3, inflight@1.0.6  
Packages: +42  
+-----+  
Progress: resolved 195, reused 153, downloaded 42, added 42, done  
  
/home/mrshvecov/.local/share/pnpm/global/5:  
+ standard-changelog 6.0.0  
  
Done in 6.1s  
mrshvecov@mrshvecov:~$
```

Рис. 3: установка standard-changelog





**Рис. 4:** package.json

# Использование commitizen

```
}
mrshvecov@mrshvecov:~/git-extended$ gedit package.json
mrshvecov@mrshvecov:~/git-extended$ git add .
mrshvecov@mrshvecov:~/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 9b81b16] chore: test
1 file changed, 14 insertions(+)
create mode 100644 package.json
mrshvecov@mrshvecov:~/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), 1.11 КиБ | 570.00 КиБ/с, готово.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:mrshvecov/git-extended.git
   f62ad56..9b81b16  master -> master
mrshvecov@mrshvecov:~/git-extended$
```

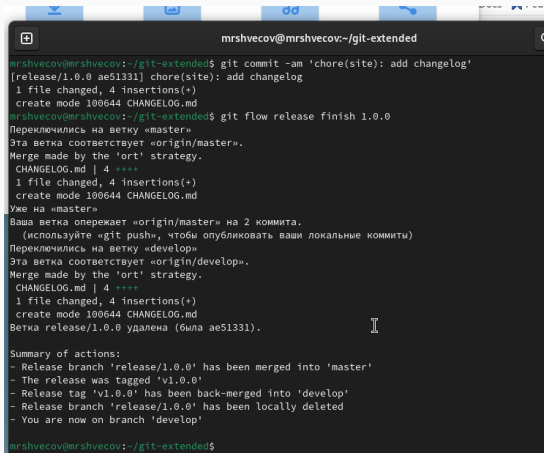
Рис. 5: Отправка

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

Рис. 6: Инициализация и загрузка изменений

A terminal window titled 'mrshvecov@mrshvecov:~/git-extended' showing the completion of a git-flow release. The user runs 'git commit -am 'chore(site): add changelog'', which creates a commit on the 'release/1.0.0' branch. Then, they run 'git flow release finish 1.0.0'. The terminal shows the process of merging the release branch into 'master', tagging 'v1.0.0', merging back into 'develop', and deleting the release branch. The final state is on the 'develop' branch.

```
mrshvecov@mrshvecov:~/git-extended$ git commit -am 'chore(site): add changelog'
[release/1.0.0 ae51331] chore(site): add changelog
 1 file changed, 4 insertions(+)
 create mode 100644 CHANGELOG.md
mrshvecov@mrshvecov:~/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 ae51331).

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'
mrshvecov@mrshvecov:~/git-extended$
```

Рис. 7: Завершение релиза

# Отправим данные на github

```
mrshvecov@mrshvecov: ~/git-extended$
mrshvecov@mrshvecov:~/git-extended$
mrshvecov@mrshvecov:~/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 | 912.00 КиБ/с, готово.
Total 5 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:mrshvecov/git-extended.git
   9b81b16..21a3675  develop -> develop
   9b81b16..20925f5  master -> master
mrshvecov@mrshvecov:~/git-extended$ git push --tags
Перечисление объектов: 1, готово.
Подсчет объектов: 100% (1/1), готово.
Запись объектов: 100% (1/1), 154 байта | 154.00 КиБ/с, готово.
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:mrshvecov/git-extended.git
   * [new tag]         v1.0.0 -> v1.0.0
mrshvecov@mrshvecov:~/git-extended$ gh release create v1.0.0 -F CHANGELOG.md
https://github.com/mrshvecov/git-extended/releases/tag/v1.0.0
mrshvecov@mrshvecov:~/git-extended$
```

Рис. 8: Отправка

# Объединение веток

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

mrshvecov@mrshvecov:~/git-extended$ touch test2
mrshvecov@mrshvecov:~/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 21a3675).

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'

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

Рис. 9: Объединение веток

```
mrshvecov@mrshvecov:~/git-extended
Ветка release/1.2.3 удалена (была cb7ac28).

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'

mrshvecov@mrshvecov:~/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), 2.79 Киб | 1.39 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:mrshvecov/git-extended.git
  21a3675..b56be0d develop -> develop
  20925f5..eb2cee9 master -> master
mrshvecov@mrshvecov:~/git-extended$ git push --tags
Перечисление объектов: 1, готово.
Подсчет объектов: 100% (1/1), готово.
Запись объектов: 100% (1/1), 154 байта | 154.00 КиБ/с, готово.
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:mrshvecov/git-extended.git
 * [new tag]          v1.2.3 -> v1.2.3
mrshvecov@mrshvecov:~/git-extended$ gh release create v1.2.3 -F CHANGELOG.md
https://github.com/mrshvecov/git-extended/releases/tag/v1.2.3
mrshvecov@mrshvecov:~/git-extended$
```

Рис. 10: Завершение релиза

# Подготовка рабочего репозитория

```
mrshvecov@mrshvecov:~/work/study/2023-2024/Операционные системы/os-intro$ gedit package.json
mrshvecov@mrshvecov:~/work/study/2023-2024/Операционные системы/os-intro$ git add .
mrshvecov@mrshvecov:~/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 68561a7] chore: test
1 file changed, 15 insertions(+)
 create mode 100644 package.json
mrshvecov@mrshvecov:~/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 | 567.00 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:mrshvecov/os-intro.git
 bc81139..68561a7  master -> master
mrshvecov@mrshvecov:~/work/study/2023-2024/Операционные системы/os-intro$
```

Рис. 11: package.json и коммит



# Подготовка рабочего репозитория

```
stat bc81139..68561a7 master -> master
mrshvecov@mrshvecov:~/work/study/2023-2024/Операционные системы/os-intro$ 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/mrshvecov/work/study/2023-2024/Операционные системы/os-intro
/.git/hooks]
mrshvecov@mrshvecov:~/work/study/2023-2024/Операционные системы/os-intro$ git branch
* develop
  master
mrshvecov@mrshvecov:~/work/study/2023-2024/Операционные системы/os-intro$ 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/mrshvecov/os-intro/pull/new/develop
remote:
To github.com:mrshvecov/os-intro.git
 * [new branch]    develop -> develop
mrshvecov@mrshvecov:~/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.