

# Операционные системы

Командная оболочка Midnight Commander

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## Цели и задачи работы

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Ознакомление с файловой системой Linux, её структурой, именами и содержанием каталогов. Приобретение практических навыков по применению команд для работы с файлами и каталогами, по управлению процессами, по проверке использования диска и обслуживанию файловой системы.

- 1 Изучить возможности Midnight Commander
- 2 Изучить редактор Midnight Commander

## Процесс выполнения лабораторной работы

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# Работа с Midnight Commander

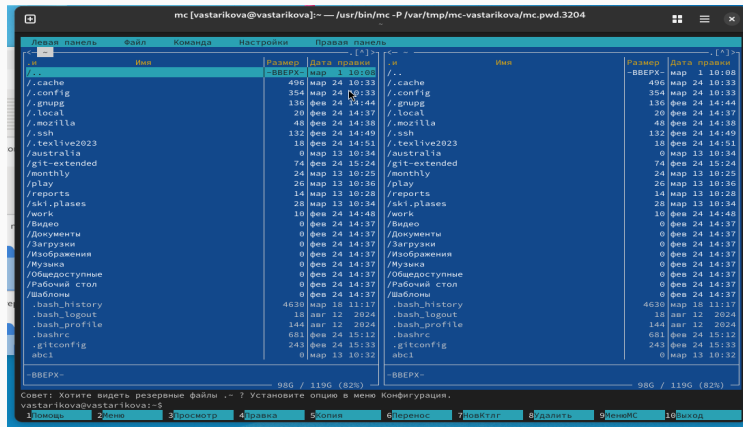


Рис. 1: Запуск mc

# Работа с Midnight Commander

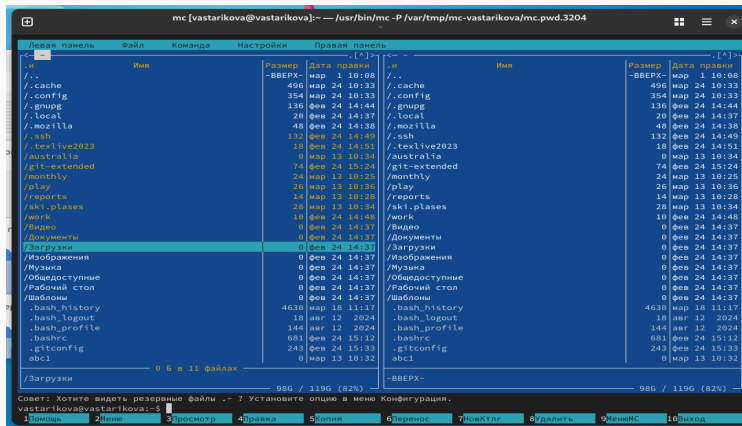


Рис. 2: Выделение

# Работа с Midnight Commander

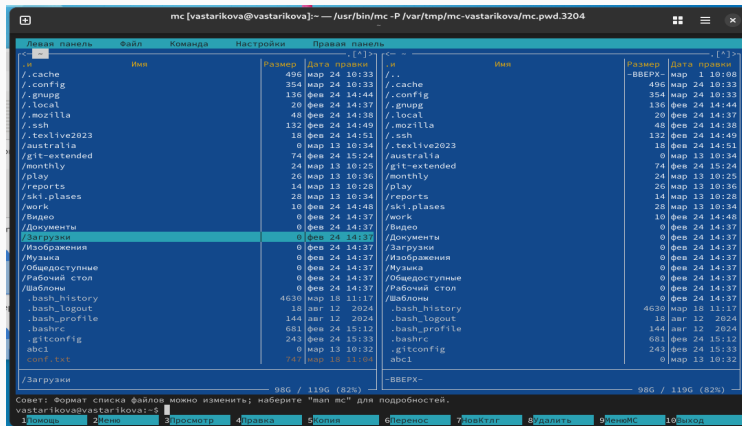


Рис. 3: Отмена



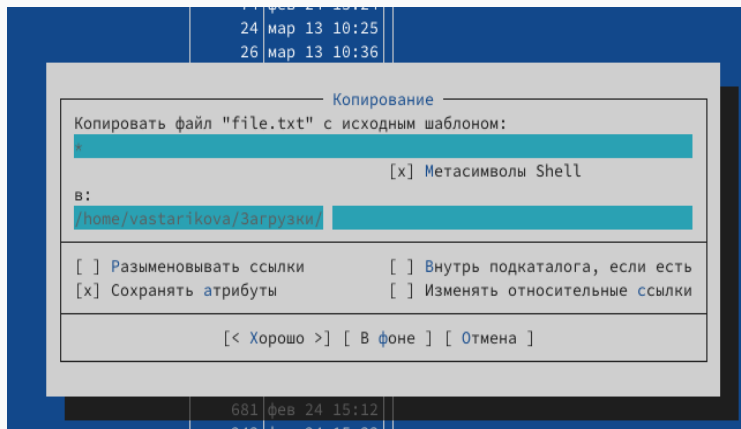


Рис. 4: Копирование

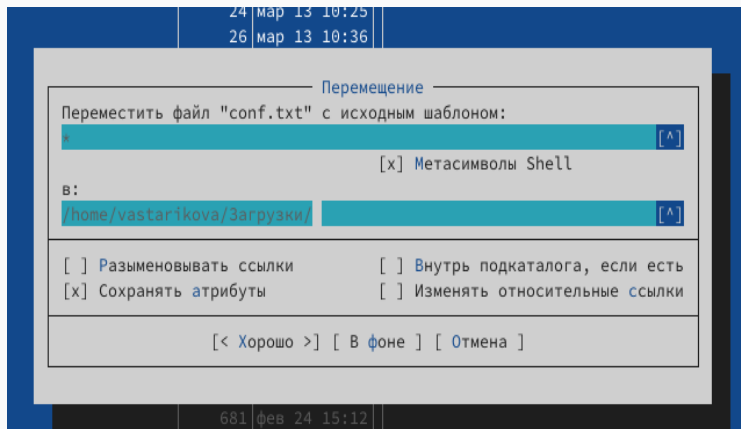


Рис. 5: Перемещение

# Работа с Midnight Commander

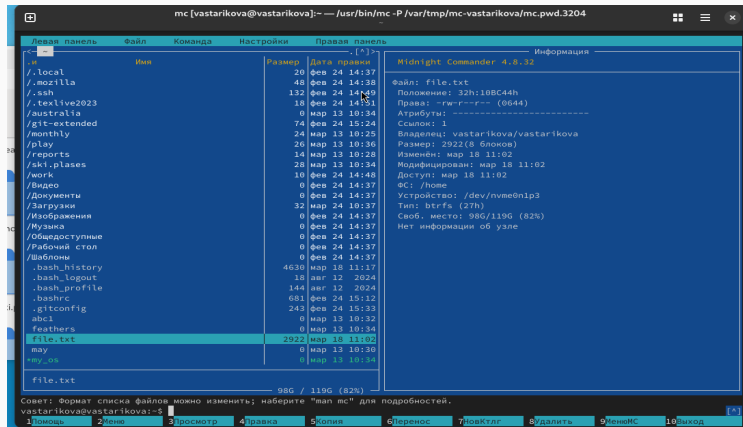


Рис. 6: Информация

# Работа с Midnight Commander

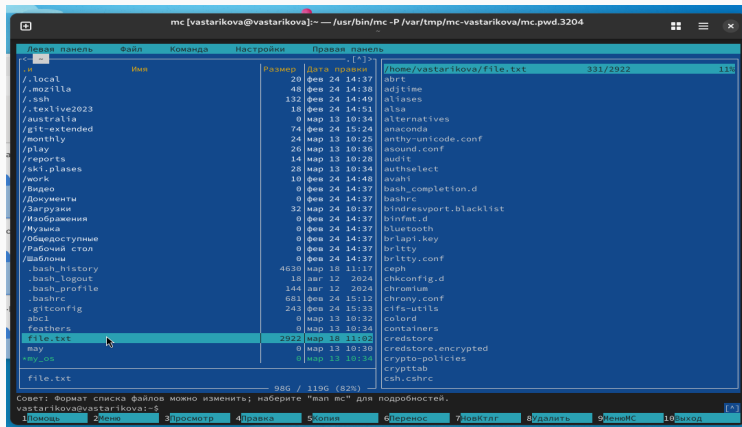


Рис. 7: Быстрый просмотр

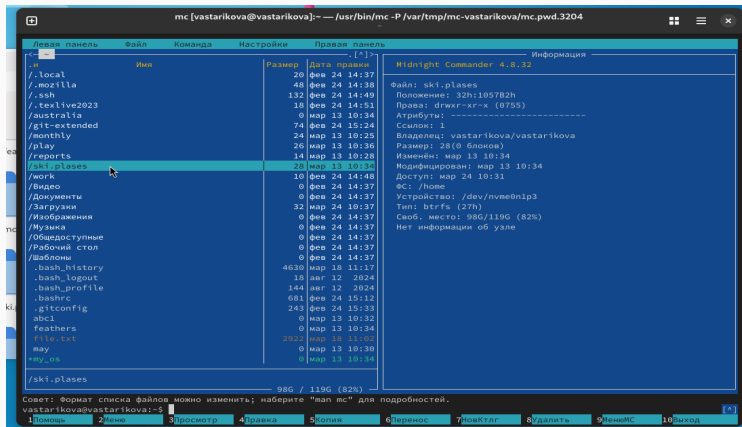


Рис. 8: Информация

# Работа с Midnight Commander

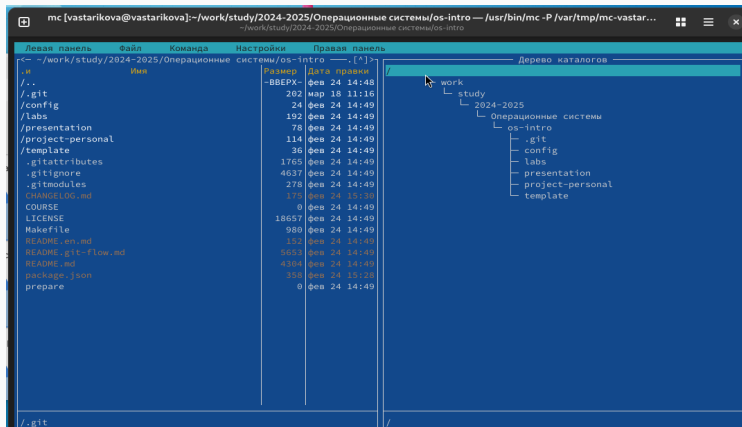
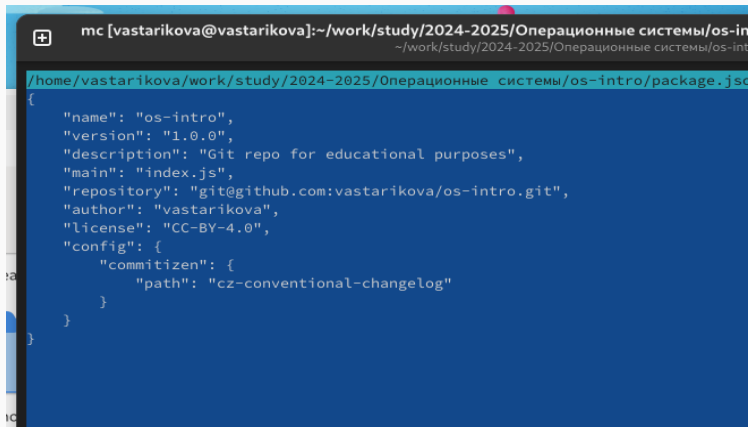


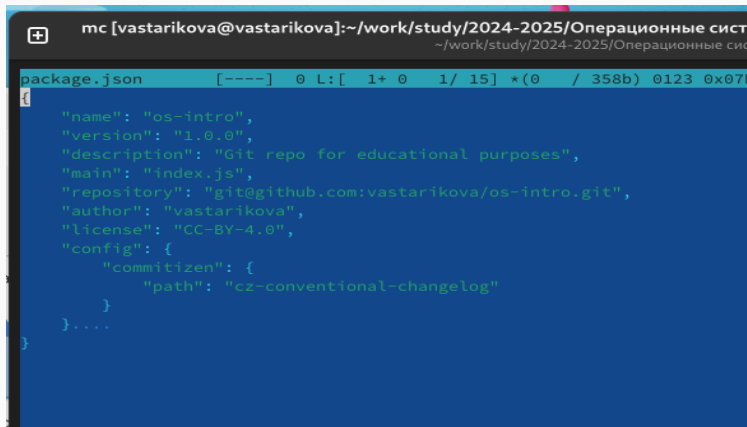
Рис. 9: Дерево каталогов



The screenshot shows the Midnight Commander (mc) interface. The title bar at the top indicates the current directory is `~/work/study/2024-2025/Операционные системы/os-intro`. The main window displays the contents of the file `/home/vastarikova/work/study/2024-2025/Операционные системы/os-intro/package.json`. The file's content is a JSON object with the following fields:

```
{
  "name": "os-intro",
  "version": "1.0.0",
  "description": "Git repo for educational purposes",
  "main": "index.js",
  "repository": "git@github.com:vastarikova/os-intro.git",
  "author": "vastarikova",
  "license": "CC-BY-4.0",
  "config": {
    "commitizen": {
      "path": "cz-conventional-changelog"
    }
  }
}
```

Рис. 10: Просмотр содержимого текстового файла



The screenshot shows the Midnight Commander (mc) interface. The title bar at the top reads "mc [vastarikova@vastarikova]:~/work/study/2024-2025/Операционные сист". Below the title bar, the file "package.json" is open, and its content is displayed in a blue-themed editor. The file content is a JSON object with the following fields: "name", "version", "description", "main", "repository", "author", "license", and "config". The "config" field contains a "commitizen" object with a "path" field. The editor shows the first few lines of the JSON file, with the cursor positioned at the beginning of the first line.

```
mc [vastarikova@vastarikova]:~/work/study/2024-2025/Операционные сист
~/work/study/2024-2025/Операционные сист
package.json  [-----]  0 L:[ 1+ 0 1/ 15] *(0 / 358b) 0123 0x071
{
  "name": "os-intro",
  "version": "1.0.0",
  "description": "Git repo for educational purposes",
  "main": "index.js",
  "repository": "git@github.com:vastarikova/os-intro.git",
  "author": "vastarikova",
  "license": "CC-BY-4.0",
  "config": {
    "commitizen": {
      "path": "cz-conventional-changelog"
    }
  }
}
```

Рис. 11: Отредактируем содержимое текстового файла без сохранения результатов



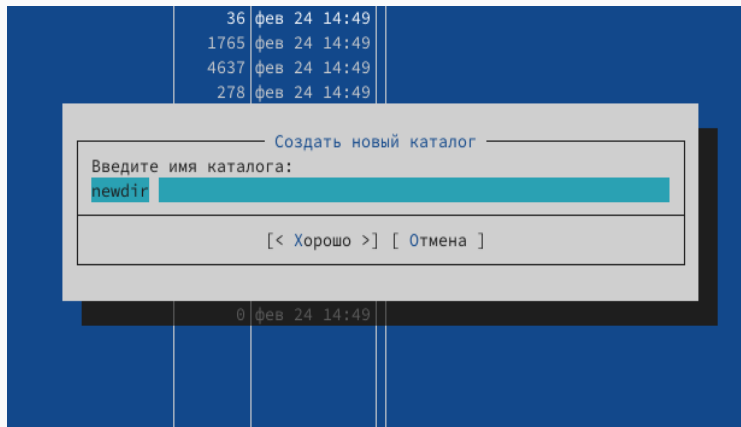


Рис. 12: Создание каталога

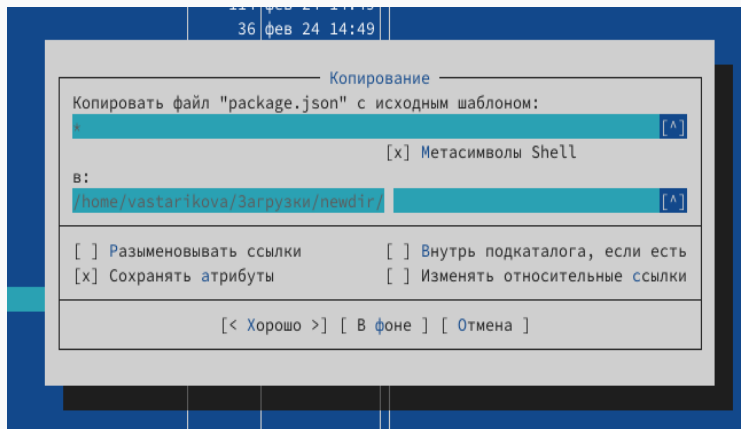


Рис. 13: Копирование в файлов в созданный каталог

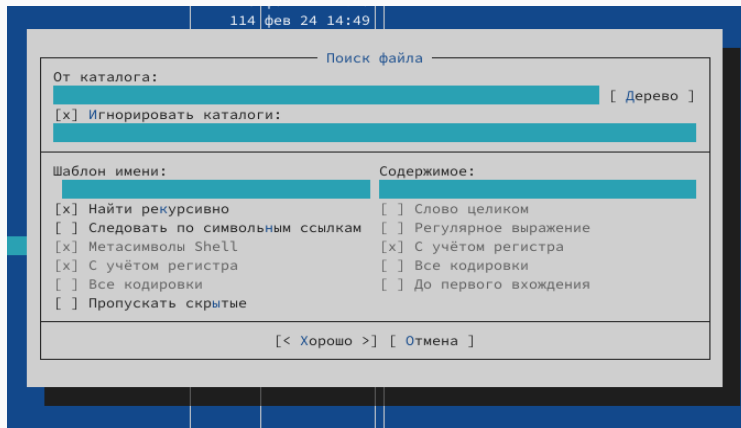


Рис. 14: Поиск файлов

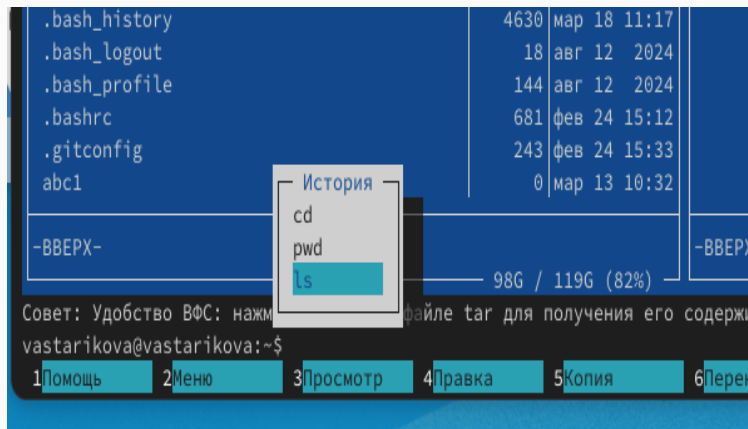


Рис. 15: История команд

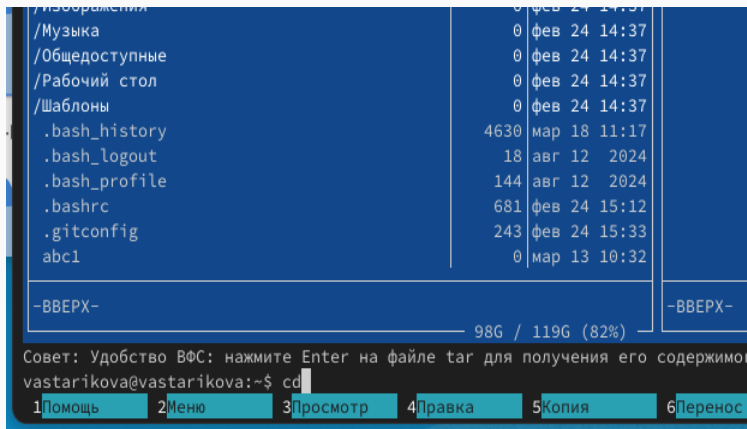


Рис. 16: Переход в домашний каталог



```
mc.ext.ini [----] 0 L:[ 1+ 0 1/1136]*(0 /26909b) 0035 0x023 [*][X]
# Midnight Commander 4.0 extension file
#
# Warning: The structure of this file has been completely changed with the version 4.0!
#
# All lines starting with # or empty lines are ignored.
#
# IMPORTANT: mc scans this file only upon first use or after editing it using the
# mc "Edit extension file" command (F9-c-e). If you edit this file in any other way
# while mc is running, you will need to press F9-c-e and exit the editor for your
# changes to take effect, or exit mc and start it again.
#
# Section name can be anything with following exceptions:
#   there are two reserved section names:
#       mc.ext.ini
#       Default
#   special name pattern:
#       Include/xxxxx
# See below for more details.
#
# Section [mc.ext.ini] is mandatory. It contains file metadata.
# "Version" parameter is mandatory. It contains the file format version.
#
# Section [Default] is optional. It is applied only if no other match was found.
#
# Sections like [Include/xxxx] can be referenced as "Include=xxxx" from other sections.
# Section [Include/xxxx] can be located as before as after sections that point to it.
#
# Sections are processed from top to bottom, thus the order is important.
# If there are more than one sections with the same name in this file, the first
# section will be used.
#
# [Default] should be a catch-all action and come last.
```

Рис. 17: Просмотр файла расширений

A screenshot of the Midnight Commander file manager's menu system. The window has a title bar with standard Linux window controls and a menu bar with 'File', 'Edit', 'View', 'Goto', 'Tools', 'Options', 'Help', and 'Exit'. The 'File' menu is open, showing a list of options. The background is a dark blue terminal window with white text. The menu options are: '1 Помощь' (Help), '2 Сохранить' (Save), '3 Блок' (Block), '4 Замена' (Replace), '5 Копия' (Copy), '6 Переименовать' (Rename), '7 Поиск' (Search), '8 Удалить' (Delete), '9 Меню' (Menu), and '10 Выход' (Exit). The 'File' menu is currently open, showing a list of options: '1 t t' (Do something on the current file), '2 t t' (Do something on the tagged files), '3 t t' (Do something on the current file and tagged files), '4 t t' (Do something on the current file and tagged files), '5 t t' (Do something on the current file and tagged files), '6 t t' (Do something on the current file and tagged files), '7 t t' (Do something on the current file and tagged files), '8 t t' (Do something on the current file and tagged files), '9 t t' (Do something on the current file and tagged files), and '10 t t' (Do something on the current file and tagged files). The 'File' menu is currently open, showing a list of options: '1 t t' (Do something on the current file), '2 t t' (Do something on the tagged files), '3 t t' (Do something on the current file and tagged files), '4 t t' (Do something on the current file and tagged files), '5 t t' (Do something on the current file and tagged files), '6 t t' (Do something on the current file and tagged files), '7 t t' (Do something on the current file and tagged files), '8 t t' (Do something on the current file and tagged files), '9 t t' (Do something on the current file and tagged files), and '10 t t' (Do something on the current file and tagged files). The 'File' menu is currently open, showing a list of options: '1 t t' (Do something on the current file), '2 t t' (Do something on the tagged files), '3 t t' (Do something on the current file and tagged files), '4 t t' (Do something on the current file and tagged files), '5 t t' (Do something on the current file and tagged files), '6 t t' (Do something on the current file and tagged files), '7 t t' (Do something on the current file and tagged files), '8 t t' (Do something on the current file and tagged files), '9 t t' (Do something on the current file and tagged files), and '10 t t' (Do something on the current file and tagged files).

```
menu [=====] 1 L: [ 1*16 17/370 ] *(732 /11821b) 0010 0x00A [ * ] [ X ]
shell_patterns=0

#####
# %% The % character
# %f The current file (if non-local vfs, file will be copied locally and
#      %f will be full path to it)
# %p The current file
# %d The current working directory
# %s "Selected files"; the tagged files if any, otherwise the current file
# %t Tagged files
# %u Tagged files (and they are untagged on return from expand_format)
# %view Runs the commands and pipes standard output to the view command
# If %view is immediately followed by '{', recognize keywords
#      ascii, hex, nroff and unform
#
# If the format letter is in uppercase, it refers to the other panel
#
# With a number followed the % character you can turn quoting on (default)
# and off. For example:
# %f quote expanded macro
# %1f ditto
# %0f don't quote expanded macro
#####

+ ! t t
@ Do something on the current file
  CMD=%{Enter command}
  $CMD %f

+ t t
@ Do something on the tagged files
  CMD=%{Enter command}
  for i in %t ; do
```

Рис. 18: Просмотр файла меню



Рис. 19: Конфигурация





Рис. 20: Внешний вид



Рис. 21: Настройки панелей



Рис. 22: Подтверждение

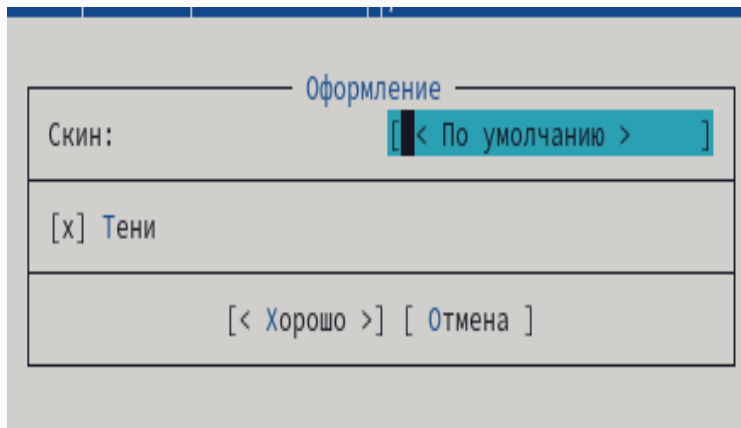


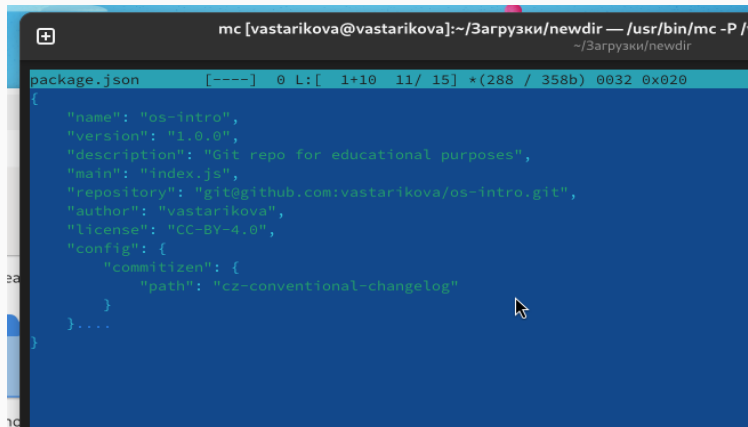
Рис. 23: Оформление



Рис. 24: Кодировка символов



Рис. 25: Распознавание клавиш

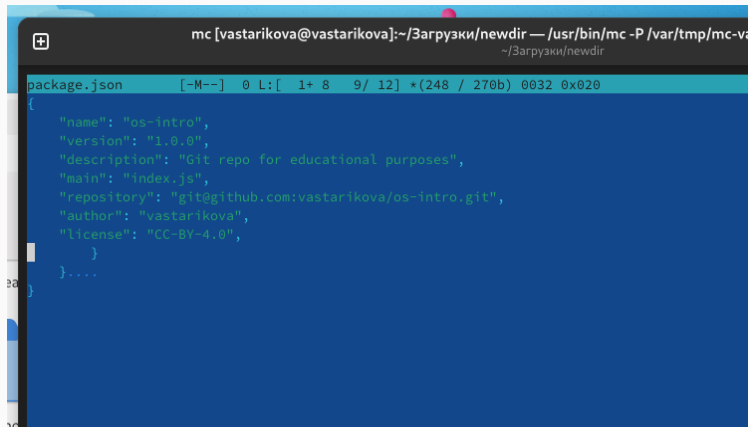


The screenshot shows the Midnight Commander (mc) file editor interface. The title bar at the top indicates the user is 'vastarikova@vastarikova' and the current directory is '~/Загрузки/newdir'. The file being edited is 'package.json', which is highlighted in a light blue bar. Below the title bar, the editor shows the JSON content of the file. The text is as follows:

```
[----] 0 L:[ 1+10 11/ 15] *(288 / 358b) 0032 0x020
{
  "name": "os-intro",
  "version": "1.0.0",
  "description": "Git repo for educational purposes",
  "main": "index.js",
  "repository": "git@github.com:vastarikova/os-intro.git",
  "author": "vastarikova",
  "license": "CC-BY-4.0",
  "config": {
    "commitizen": {
      "path": "cz-conventional-changelog"
    }
  }
}....
```

A mouse cursor is visible on the right side of the editor window.

Рис. 26: Файл с текстом



The screenshot shows the Midnight Commander (mc) file editor interface. The title bar at the top indicates the current directory is `~/Загрузки/newdir` and the file being edited is `package.json`. The status bar below the title bar shows file details: `[-M--] 0 L: [ 1+ 8 9/ 12] *(248 / 270b) 0032 0x020`. The main editing area displays the content of `package.json` in a light blue background with white text. The content is a JSON object with the following fields: `"name": "os-intro", "version": "1.0.0", "description": "Git repo for educational purposes", "main": "index.js", "repository": "git@github.com:vastarikova/os-intro.git", "author": "vastarikova", "license": "CC-BY-4.0",` followed by a closing brace and ellipsis. A vertical cursor is positioned at the end of the first line of the JSON object.

```
{
  "name": "os-intro",
  "version": "1.0.0",
  "description": "Git repo for educational purposes",
  "main": "index.js",
  "repository": "git@github.com:vastarikova/os-intro.git",
  "author": "vastarikova",
  "license": "CC-BY-4.0",
}
```

Рис. 27: Файл с текстом



## Работа с редактором Midnight Commander

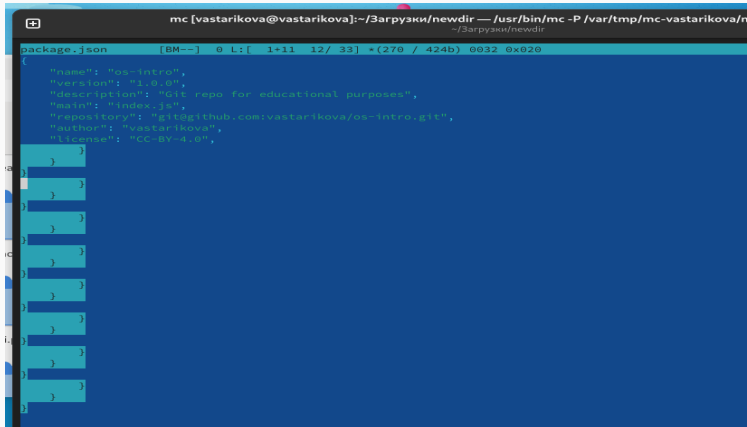


Рис. 28: Копирование фрагмента

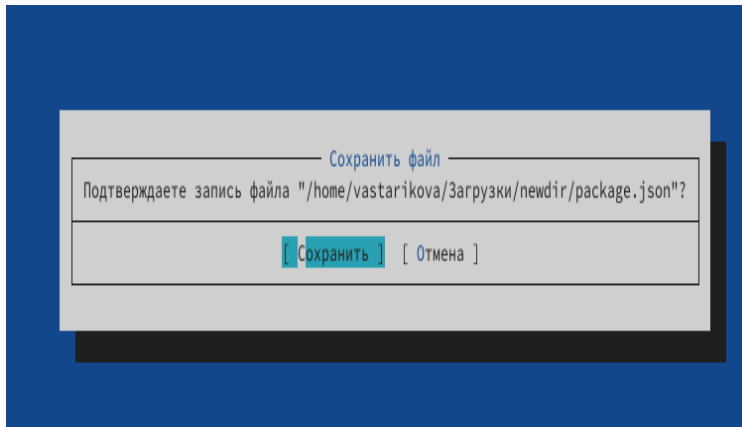
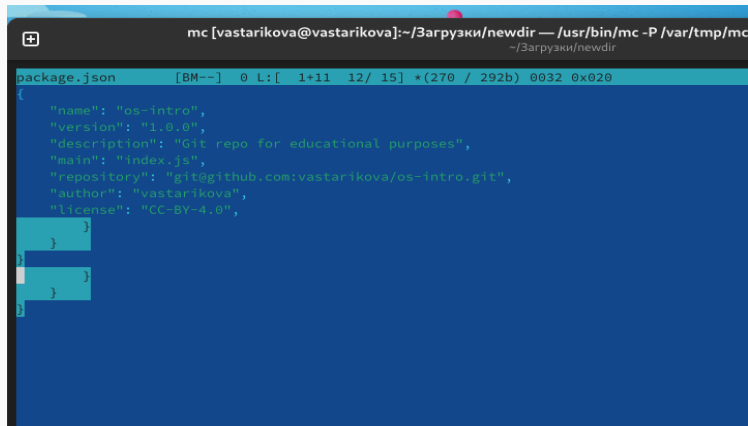


Рис. 29: Сохранение



The screenshot shows the Midnight Commander (mc) interface. The title bar at the top reads: `mc [vastarikova@vastarikova]:~/Загрузки/newdir — /usr/bin/mc -P /var/tmp/mc`. Below the title bar, the current file is `package.json`, with file details: `[BM--] 0 L: [ 1+11 12/ 15] *(270 / 292b) 0032 0x020`. The main editing area displays the content of `package.json` in a JSON format:

```
{
  "name": "os-intro",
  "version": "1.0.0",
  "description": "Git repo for educational purposes",
  "main": "index.js",
  "repository": "git@github.com:vastarikova/os-intro.git",
  "author": "vastarikova",
  "license": "CC-BY-4.0",
}
```

Рис. 30: Отмена

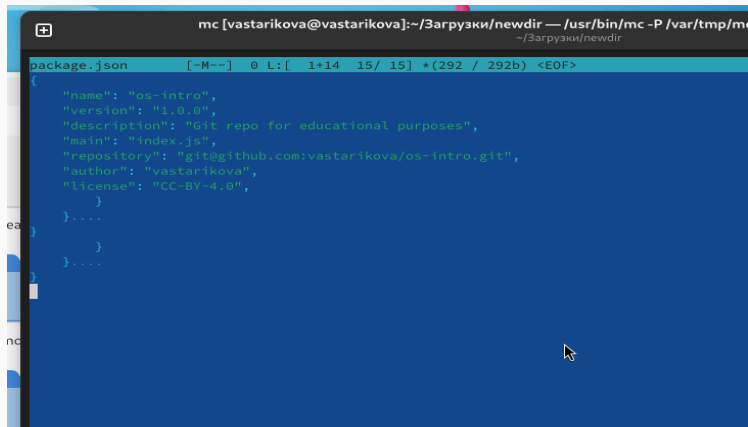
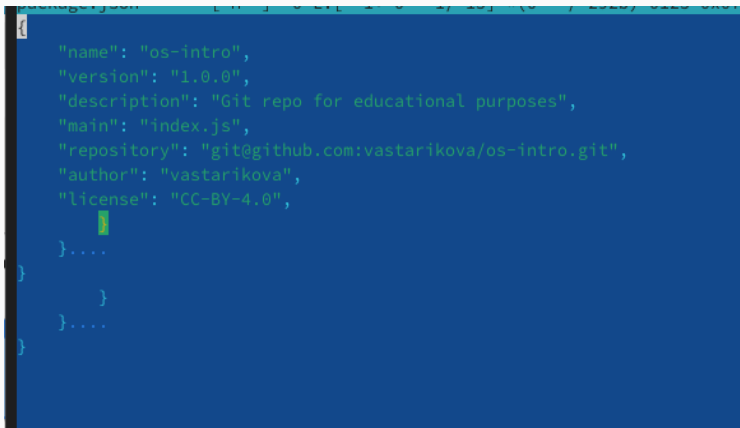


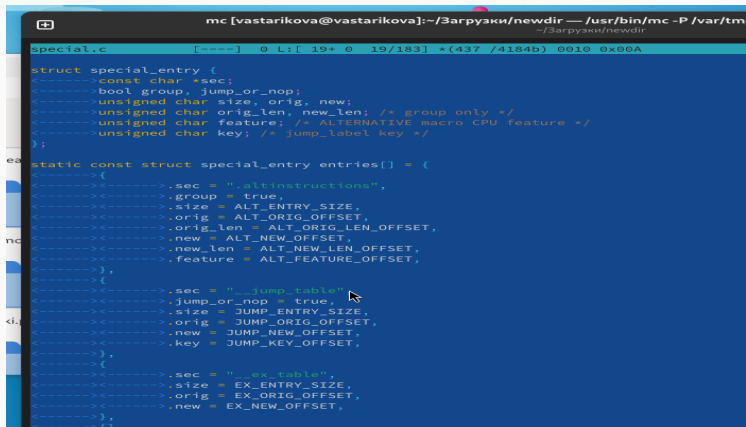
Рис. 31: Переход в конец файла



```
package.json {
  "name": "os-intro",
  "version": "1.0.0",
  "description": "Git repo for educational purposes",
  "main": "index.js",
  "repository": "git@github.com:vastarikova/os-intro.git",
  "author": "vastarikova",
  "license": "CC-BY-4.0",
}....
}
}....
}
```

Рис. 32: Переход в начало файла

## Работа с редактором Midnight Commander



```
mc [vastarikova@vastarikova]:~/Загрузки/newdir — /usr/bin/mc -P /var/tmp/...
~/Загрузки/newdir
special.c  [====]  0 L: [ 19+ 0  19/183]  *(437 /4184b)  0010 0x00A

struct special_entry {
<----->const char *sec;
<----->bool group, jump_or_nop;
<----->unsigned char size, orig, new;
<----->unsigned char orig_len, new_len; /* group only */
<----->unsigned char feature; /* ALTERNATIVE macro CPU feature */
<----->unsigned char key; /* jump_label key */
};

static const struct special_entry entries[] = {
<----->{
<-----><----->.sec = ".altinstructions",
<-----><----->.group = true,
<-----><----->.size = ALT_ENTRY_SIZE,
<-----><----->.orig = ALT_ORIG_OFFSET,
<-----><----->.orig_len = ALT_ORIG_LEN_OFFSET,
<-----><----->.new = ALT_NEW_OFFSET,
<-----><----->.new_len = ALT_NEW_LEN_OFFSET,
<-----><----->.feature = ALT_FEATURE_OFFSET,
<-----><----->},
<----->{
<-----><----->.sec = ".__jump_table"
<-----><----->.jump_or_nop = true,
<-----><----->.size = JUMP_ENTRY_SIZE,
<-----><----->.orig = JUMP_ORIG_OFFSET,
<-----><----->.new = JUMP_NEW_OFFSET,
<-----><----->.key = JUMP_KEY_OFFSET,
<-----><----->},
<----->{
<-----><----->.sec = ".__ex_table",
<-----><----->.size = EX_ENTRY_SIZE,
<-----><----->.orig = EX_ORIG_OFFSET,
<-----><----->.new = EX_NEW_OFFSET,
<-----><----->},
<----->};
<----->};
```

Рис. 33: Файл с программой

```
struct special_entry {
<----->const char *sec;
<----->bool group, jump_or_nop;
<----->unsigned char size, orig, new;
<----->unsigned char orig_len, new_len; /* group only */
<----->unsigned char feature; /* ALTERNATIVE macro CPU feature */
<----->unsigned char key; /* jump_label key
};

static const struct special_entry entries[]
<----->{
<-----><----->.sec = ".altinstructions",
<-----><----->.group = true,
<-----><----->.size = ALT_ENTRY_SIZE,
<-----><----->.orig = ALT_ORIG_OFFSET,
<-----><----->.orig_len = ALT_ORIG_LEN_OFFSE
<-----><----->.new = ALT_NEW_OFFSET,
<-----><----->.new_len = ALT_NEW_LEN_OFFSE
<-----><----->.feature = ALT_FEATURE_OFFSE
<----->},
<----->{
<-----><----->.sec = "__jump_table",
<-----><----->.jump_or_nop = true,
<-----><----->.size = JUMP_ENTRY_SIZE,
<-----><----->.orig = JUMP_ORIG_OFFSET,
<-----><----->.new = JUMP_NEW_OFFSET,
<-----><----->.key = JUMP_KEY_OFFSET,
<----->},
<----->{
<-----><----->.sec = "__ex_table",
<-----><----->.size = EX_ENTRY_SIZE,
<-----><----->.orig = EX_ORIG_OFFSET,
<-----><----->.new = EX_NEW_OFFSET,
<----->},
};
```

Выбор подсветки синтаксиса

- < Автоматически >
- Перезагрузить текущее цветовыделение
- ASM Program
- ASPX File
- AWK File
- ActionScript Program
- Ada Program
- Arch package build script
- Arch package install script
- B File
- Bind9 configuration
- C Program
- C# Program
- C/C++ Program

Рис. 34: Цветовыделение синтаксиса

## Выводы по проделанной работе

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В данной работе мы ознакомились с инструментами поиска файлов и фильтрации текстовых данных. А также приобрели практические навыки по управлению процессами.