

Операционные системы

Командная оболочка Midnight Commander

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Цели и задачи работы

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

Работа с Midnight Commander

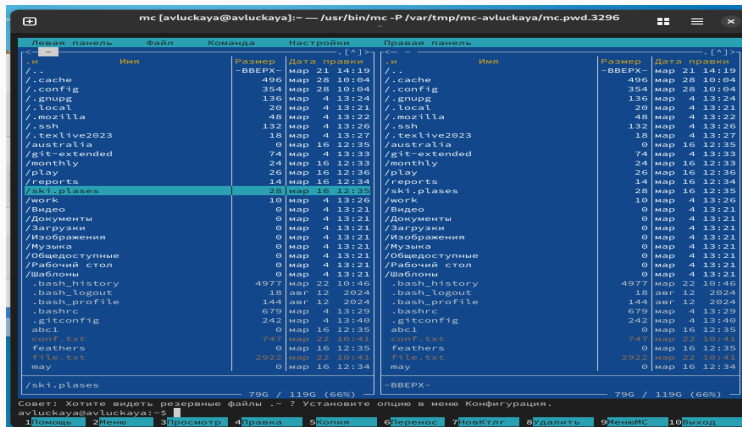


Рис. 1: Запуск mc

Работа с Midnight Commander

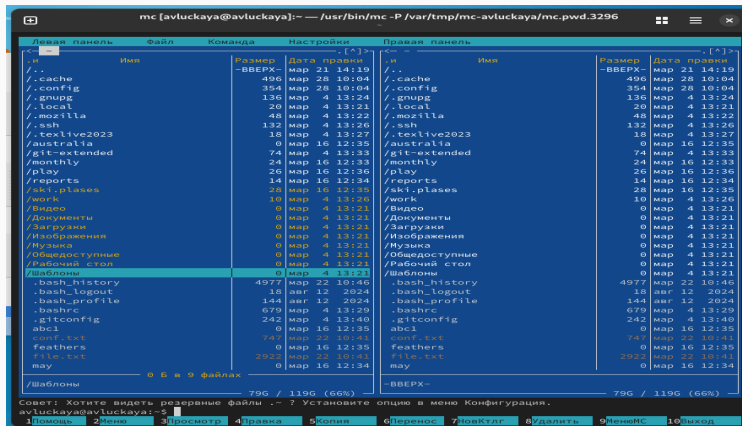


Рис. 2: Выделение

Работа с Midnight Commander

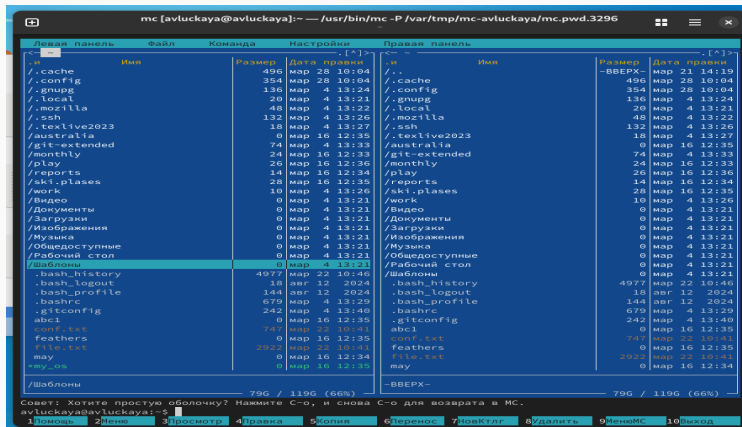


Рис. 3: Отмена

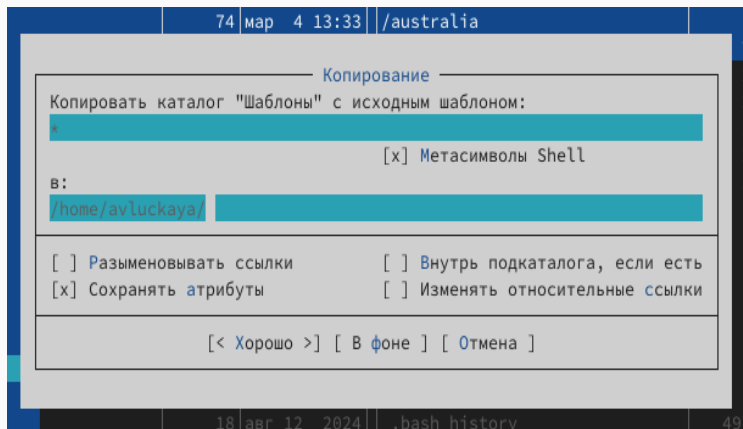


Рис. 4: Копирование

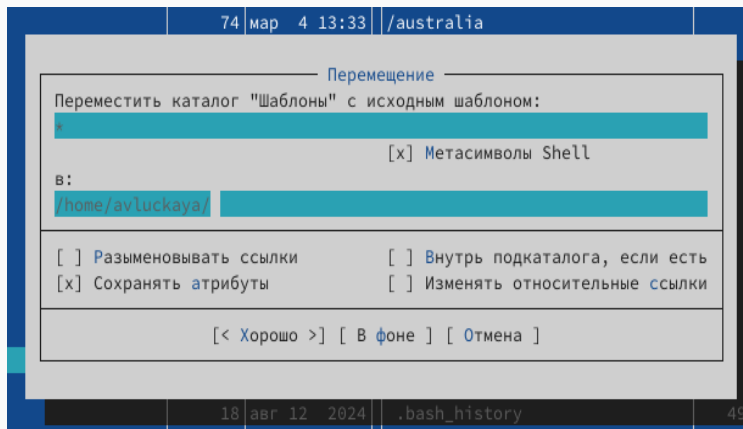


Рис. 5: Перемещение

Работа с Midnight Commander

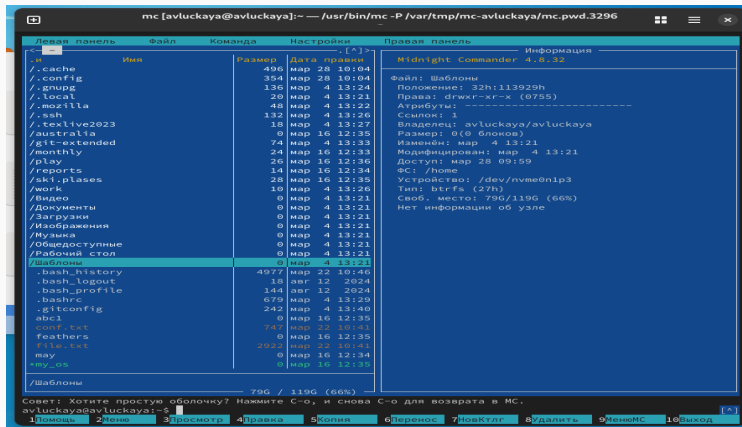


Рис. 6: Информация

Работа с Midnight Commander

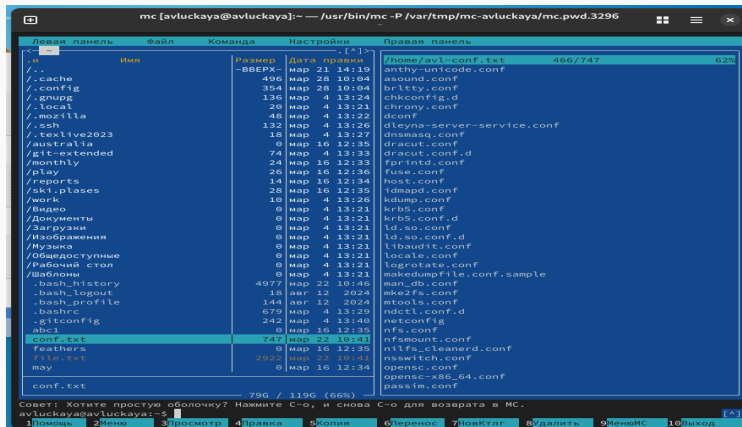


Рис. 7: Быстрый просмотр

Работа с Midnight Commander

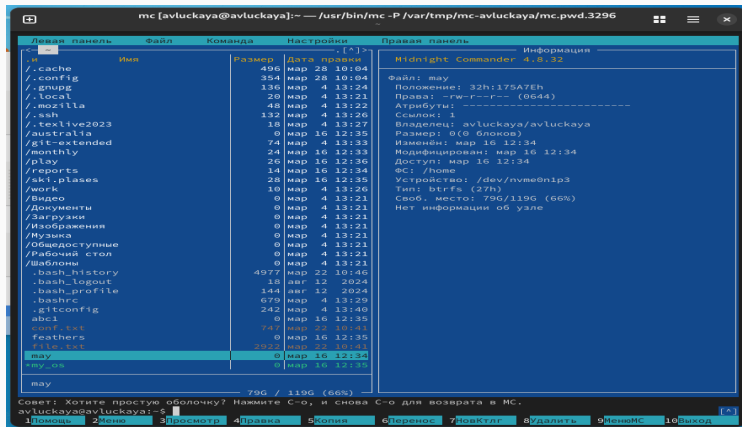


Рис. 8: Информация

Работа с Midnight Commander

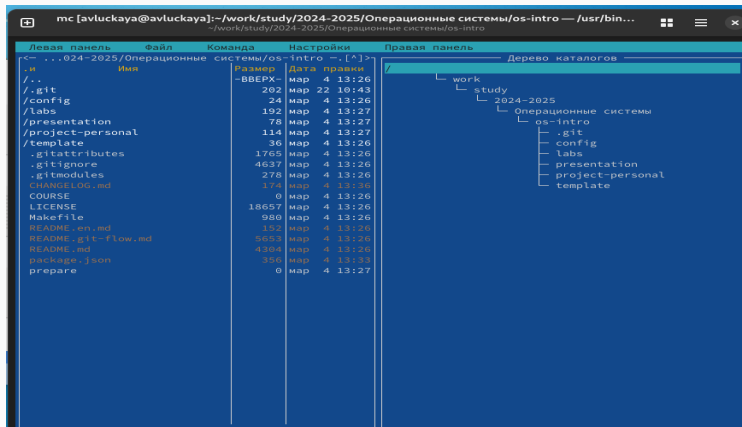
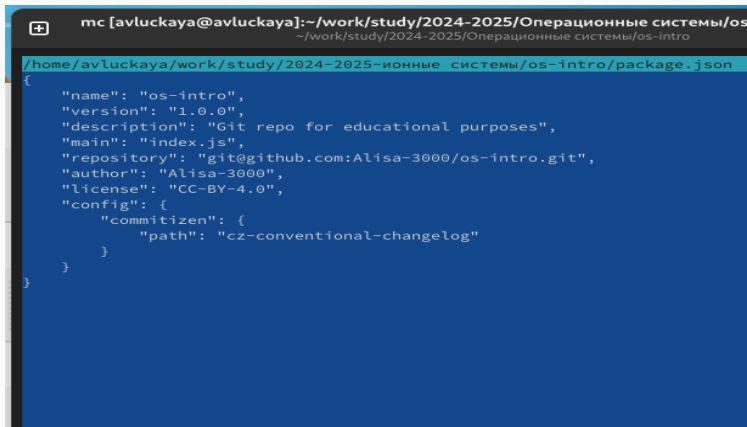


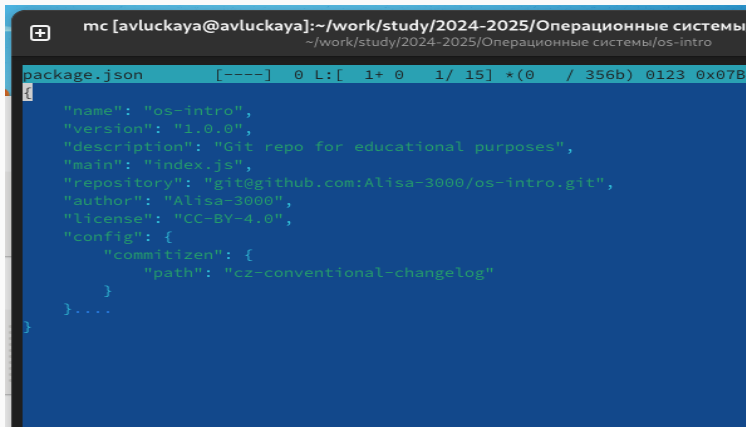
Рис. 9: Дерево каталогов



The image shows a terminal window running Midnight Commander (mc). The title bar indicates the user is 'avluckaya@avluckaya' and the current directory is '~/work/study/2024-2025/Операционные системы/os-intro'. The command prompt shows the user has navigated to the file '/home/avluckaya/work/study/2024-2025-ионные системы/os-intro/package.json'. The file's content is displayed as 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:Alisa-3000/os-intro.git), 'author' (Alisa-3000), 'license' (CC-BY-4.0), and 'config' (a nested object with 'commitizen' settings including a 'path' to 'cz-conventional-changelog').

```
mc [avluckaya@avluckaya]:~/work/study/2024-2025/Операционные системы/os-intro
~/work/study/2024-2025/Операционные системы/os-intro
/home/avluckaya/work/study/2024-2025-ионные системы/os-intro/package.json
{
  "name": "os-intro",
  "version": "1.0.0",
  "description": "Git repo for educational purposes",
  "main": "index.js",
  "repository": "git@github.com:Alisa-3000/os-intro.git",
  "author": "Alisa-3000",
  "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 [avluckaya@avluckaya]:~/work/study/2024-2025/Операционные системы" and the path below it is "~/work/study/2024-2025/Операционные системы/os-intro". The file being edited is "package.json", shown in a light blue header bar. The file content is displayed in a dark blue background with green text. The content is a JSON object for a project named "os-intro".

```
{
  "name": "os-intro",
  "version": "1.0.0",
  "description": "Git repo for educational purposes",
  "main": "index.js",
  "repository": "git@github.com:Alisa-3000/os-intro.git",
  "author": "Alisa-3000",
  "license": "CC-BY-4.0",
  "config": {
    "commitizen": {
      "path": "cz-conventional-changelog"
    }
  }
}
```

Рис. 11: Отредактируем содержимое текстового файла без сохранения результатов

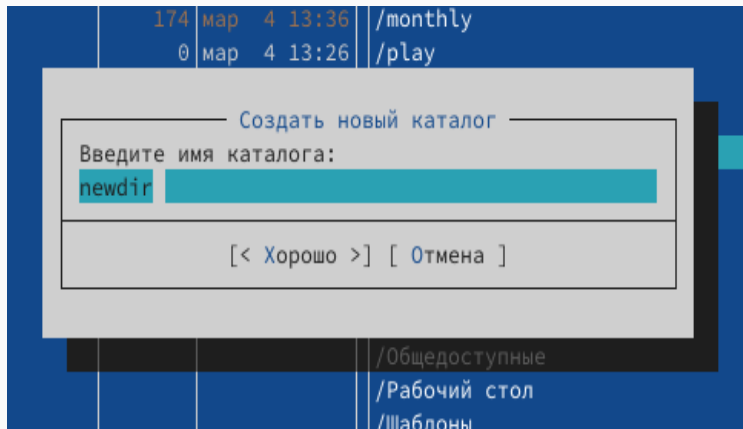


Рис. 12: Создание каталога

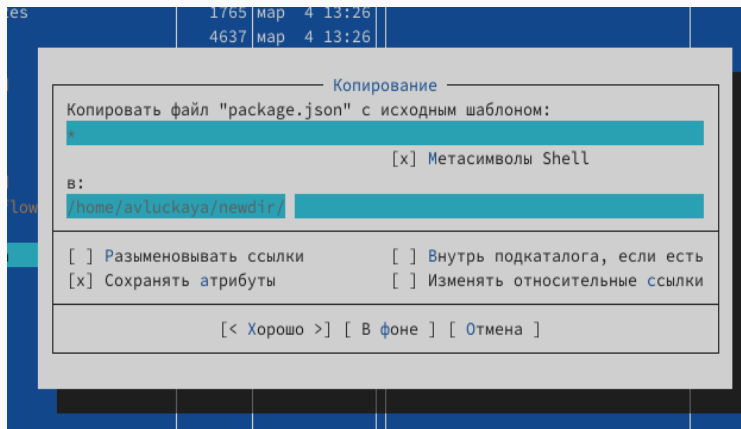


Рис. 13: Копирование в файлов в созданный каталог

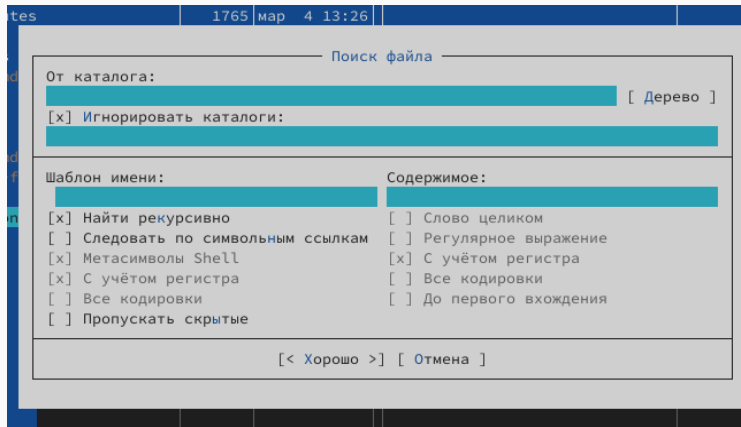


Рис. 14: Поиск файлов

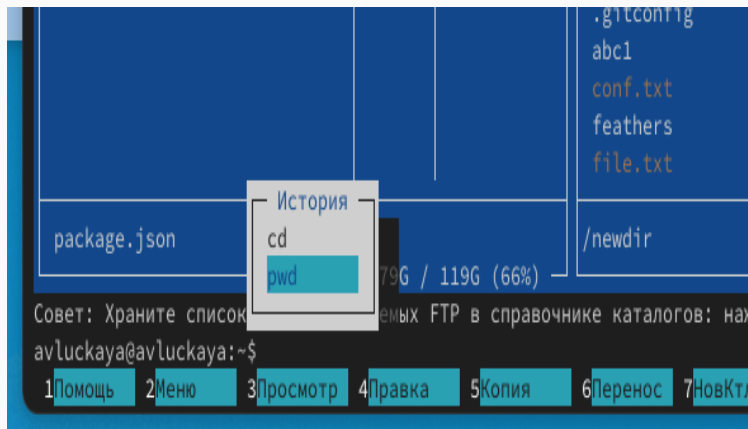


Рис. 15: История команд

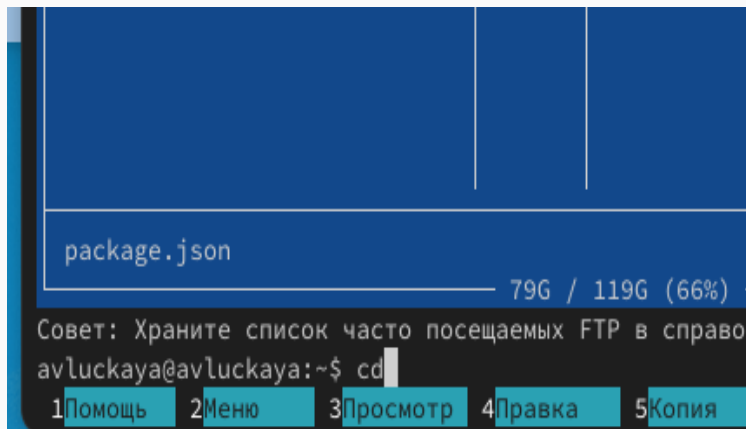


Рис. 16: Переход в домашний каталог



```
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 menu. The window title is "menu" with standard window controls. The menu content is displayed on a blue background with white text. It starts with "shell_patterns=0" and a list of macros: %%, %f, %p, %d, %s, %t, %u, %view, and %I. Each macro is followed by a description of its function. For example, "%f" is described as "The current file (if non-local vfs, file will be copied locally and %f will be full path to it)". Below the macros, there are two sections: "+ ! t t" and "+ t t", each followed by a description and a command prompt "CMD=%{Enter command}". The bottom of the window features a menu bar with 10 numbered items: 1.Помощь, 2.Сохранить, 3.Блок, 4.Замена, 5.Копия, 6.Перем-тить, 7.Поиск, 8.Удалить, 9.МенюМС, 10.Выход.

```
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
# %If 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



```
LICENSE      [----] 46 L:[ 1+18 19/397] *(898 /18657b) 0108 0x06C      [*] [X]
Attribution 4.0 International

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1 Помощь  2 Сохран  3 Блок  4 Замена  5 Копия  6 Пере-ить  7 Поиск  8 Удалить  9 МенюМС  10 Выход
```

Рис. 26: Файл с текстом



```
LICENSE      [-M--]  0 L:[ 1+16 17/388] *(716 /18143b) 0032 0x020      [*][X]
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1Помощь 2Сохран 3Блок 4Замена 5Копия 6Пере-ить 7Поиск 8Удалить 9МенюМС 10Выход
```

Рис. 27: Файл с текстом

Работа с редактором Midnight Commander



Рис. 28: Копирование фрагмента



Рис. 29: Сохранение

```
LICENSE [BM--] 0 L:[ 1+20 21/392] *(970 /18397b) 0032 0x020 [*]
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```

Рис. 30: Отмена

Работа с редактором Midnight Commander



```
LICENSE      [-M--]  0 L:[355+36 391/391] *(18396/18396b) <EOF>      [*][X]
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  cannot be reformed, it shall be severed from this Public License
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1Помощь 2Сохран 3Блок 4Замена 5Копия 6Пере-ить 7Поиск 8Удалить 9МенюМС 10Выход
```

Рис. 31: Переход в конец файла

Работа с редактором Midnight Commander



```
LICENSE      [-M--] 29 L:[ 1+ 0  1/391] *(29 /18396b) 0010 0x00A      [*] [X]
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1Помощь  2Сохран  3Блок  4Замена  5Копия  6Пере-ить  7Поиск  8Удалить  9МенюМС  10Выход
```

Рис. 32: Переход в начало файла

Работа с редактором Midnight Commander



```
orc_dump.c [----] 0 L:[ 13+ 0 13/161] *(272 /3240b) 0105 0x069 [*][X]
int orc_dump(const char *_objname)
{
    ----->int fd, nr_entries, i, *orc_ip = NULL, orc_size = 0;
    ----->struct orc_entry *orc = NULL;
    ----->char *name;
    ----->size_t nr_sections;
    ----->Elf64_Addr orc_ip_addr = 0;
    ----->size_t shstrtab_idx, strtab_idx = 0;
    ----->Elf *elf;
    ----->Elf_Scn *scn;
    ----->GElf_Shdr sh;
    ----->GElf_Rela rela;
    ----->GElf_Sym sym;
    ----->Elf_Data *data, *symtab = NULL, *rela_orc_ip = NULL;
    ----->struct elf dummy_elf = {};

    ----->objname = _objname;

    ----->elf_version(EV_CURRENT);

    ----->fd = open(objname, O_RDONLY);
    ----->if (fd == -1) {
    -----><----->perror("open");
    -----><----->return -1;
    ----->}

    ----->elf = elf_begin(fd, ELF_C_READ_MMAP, NULL);
    ----->if (!elf) {
    -----><----->WARN_ELF("elf_begin");
    -----><----->return -1;
    ----->}

    ----->if (!elf64_getehdr(elf)) {
    -----><----->WARN_ELF("elf64_getehdr");
    -----><----->return -1;
    ----->}

1Помощь 2Сохран 3Блок 4Замена 5Копия 6Пере-ить 7Поиск 8Удалить 9МенюМС 10Выход
```

Рис. 33: Файл с программой



Рис. 34: Цветовыделение синтаксиса

Выводы по проделанной работе

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