

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

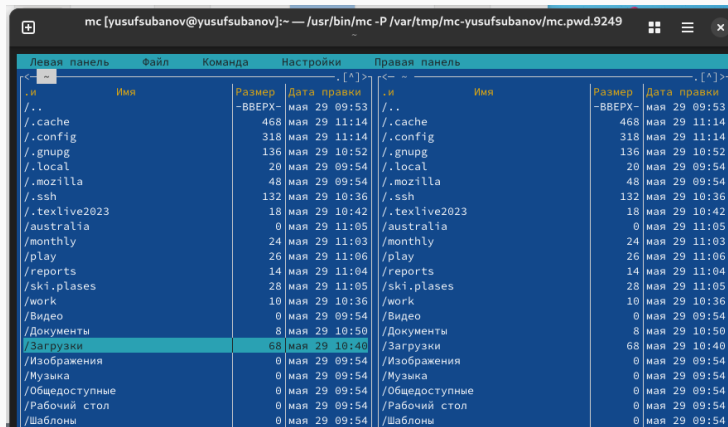


Рис. 1: Запуск mc

Работа с Midnight Commander

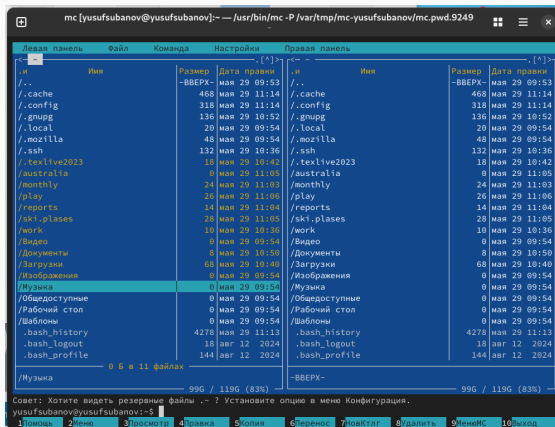


Рис. 2: Выделение

Работа с Midnight Commander

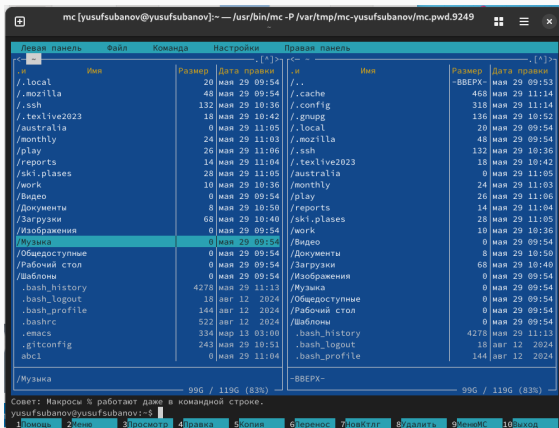


Рис. 3: Отмена

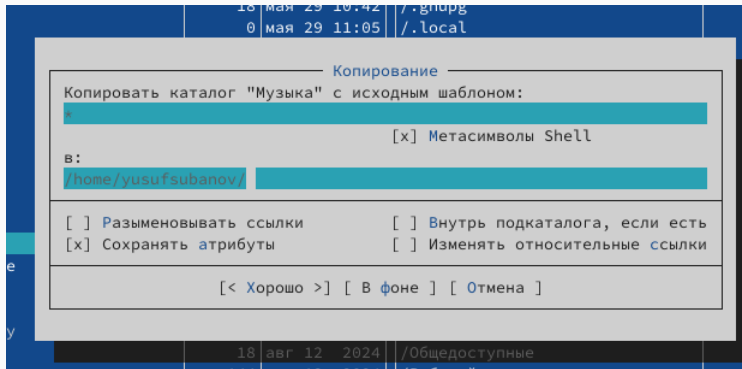


Рис. 4: Копирование

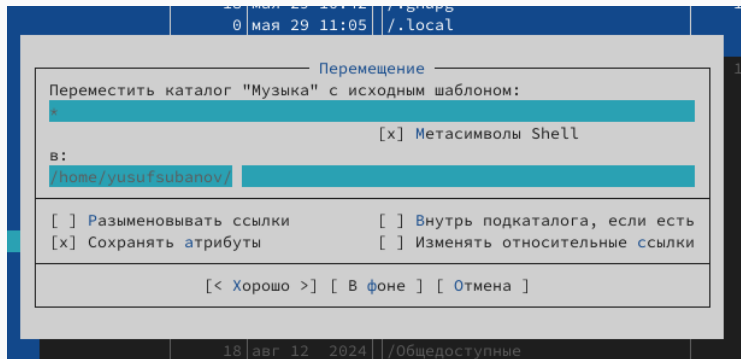


Рис. 5: Перемещение

Работа с Midnight Commander

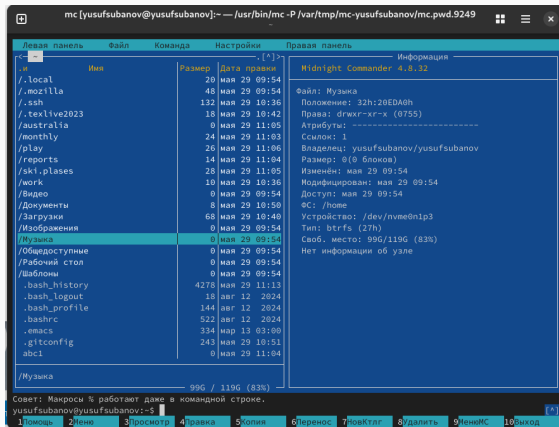


Рис. 6: Информация

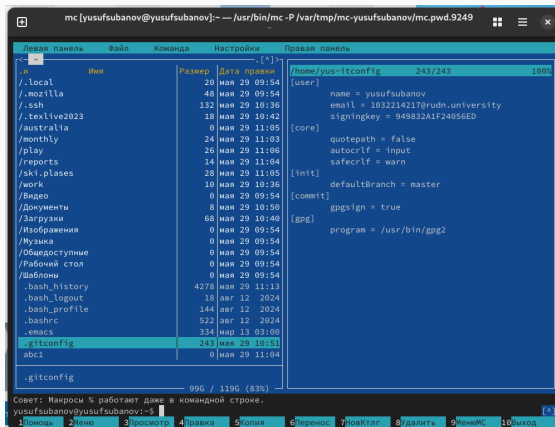


Рис. 7: Быстрый просмотр

Работа с Midnight Commander

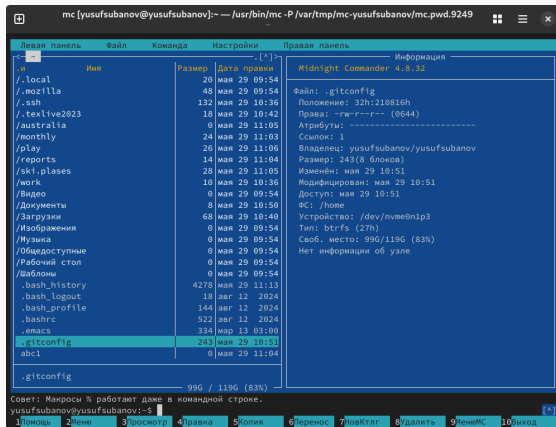


Рис. 8: Информация

Работа с Midnight Commander

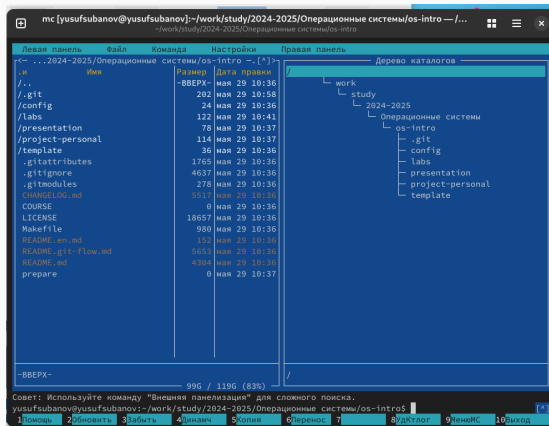
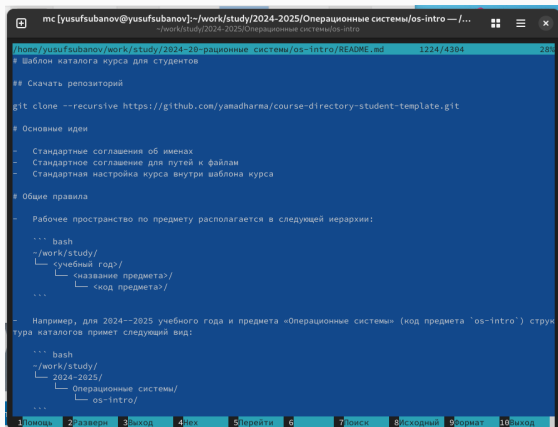


Рис. 9: Дерево каталогов

Работа с Midnight Commander



The screenshot shows the Midnight Commander (mc) interface. The top bar displays the user 'yusufsubanov@yusufsubanov' and the current directory path: '~/.work/study/2024-2025/Операционные системы/os-intro'. The main window shows the contents of the file 'README.md' located at '/home/yusufsubanov/work/study/2024-2025/Операционные системы/os-intro/README.md'. The file size is 1224/4304 bytes. The content of the file is as follows:

```
# Шаблон каталога курса для студентов

## Скачать репозиторий

git clone --recursive https://github.com/yamadharma/course-directory-student-template.git

# Основные идеи

- Стандартные соглашения об именах
- Стандартное соглашение для путей к файлам
- Стандартная настройка курса внутри шаблона курса

# Общие правила

- Рабочее пространство по предмету располагается в следующей иерархии:

''' bash
~/work/study/
├── <учебный год>/
│   ├── <название предмета>/
│   └── <код предмета>/
...

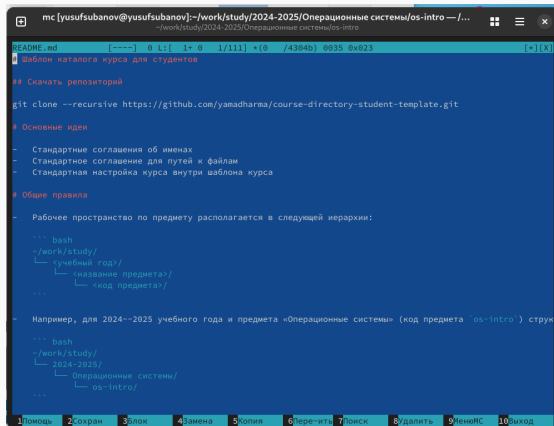
- Например, для 2024--2025 учебного года и предмета «Операционные системы» (код предмета 'os-intro') структура каталогов примет следующий вид:

''' bash
~/work/study/
├── 2024-2025/
│   ├── Операционные системы/
│   └── os-intro/
...

1.Помощь 2.Разверн 3.Выход 4.Лех 5.Перейти 6 7.Поиск 8.Исходный 9.Формат 10.Выход
```

Рис. 10: Просмотр содержимого текстового файла

Работа с Midnight Commander



The screenshot shows the Midnight Commander (MC) interface. The title bar indicates the user is 'yusufsubanov' and the current directory is '~/work/study/2024-2025/Операционные системы/os-intro'. The main window displays the content of the 'README.md' file. The text includes instructions on how to clone a repository, a list of conventions, and a directory tree example. At the bottom, there is a toolbar with icons for various file operations.

```
mc [yusufsubanov@yusufsubanov]:~/work/study/2024-2025/Операционные системы/os-intro — /...
~/work/study/2024-2025/Операционные системы/os-intro
README.md  [-----]  0 L: [ 1+ 0 1/111] *(0 /4304b) 0035 0x023 [ * ] [X]
# шаблон каталога курса для студентов

## Скачать репозиторий

git clone --recursive https://github.com/yamadharma/course-directory-student-template.git

## Основные идеи

- Стандартные соглашения об именах
- Стандартное соглашение для путей к файлам
- Стандартная настройка курса внутри шаблона курса

## Общие правила

- Рабочее пространство по предмету располагается в следующей иерархии:

''' bash
~/work/study/
├── <учебный год>/
│   ├── <название предмета>/
│   │   └── <код предмета>/
│   └── ...
└── ...

- Например, для 2024--2025 учебного года и предмета «Операционные системы» (код предмета 'os-intro') структура будет:

''' bash
~/work/study/
├── 2024-2025/
│   ├── Операционные системы/
│   │   └── os-intro/
│   └── ...
└── ...

1.Помощь 2.Сохран 3.Закл 4.Вставка 5.Копия 6.Переместить 7.Поиск 8.Удалить 9.Меню 10.Выход
```

Рис. 11: Отредактируем содержимое текстового файла без сохранения результатов

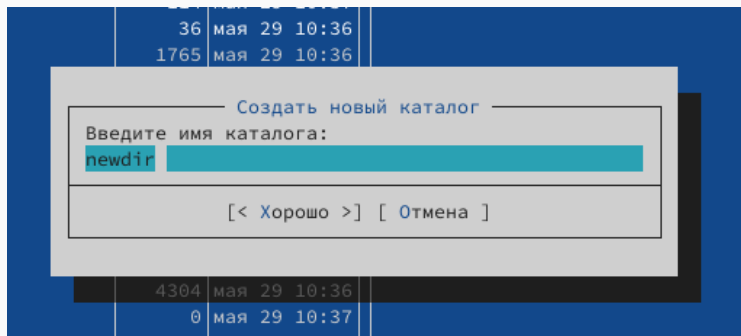


Рис. 12: Создание каталога

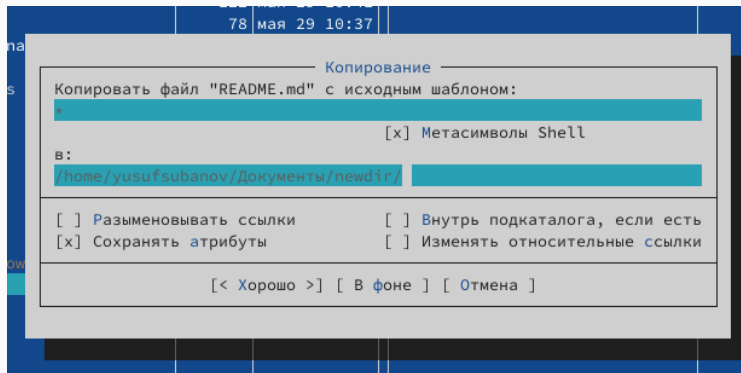


Рис. 13: Копирование в файлов в созданный каталог

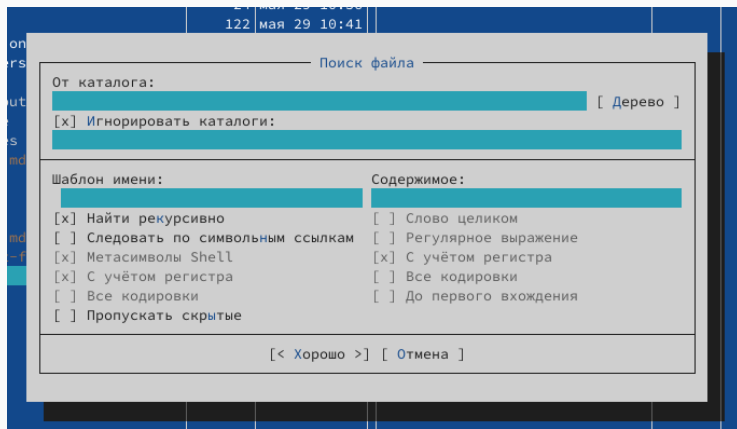


Рис. 14: Поиск файлов

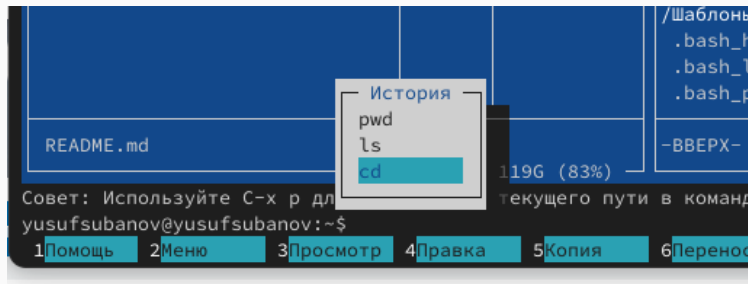


Рис. 15: История команд

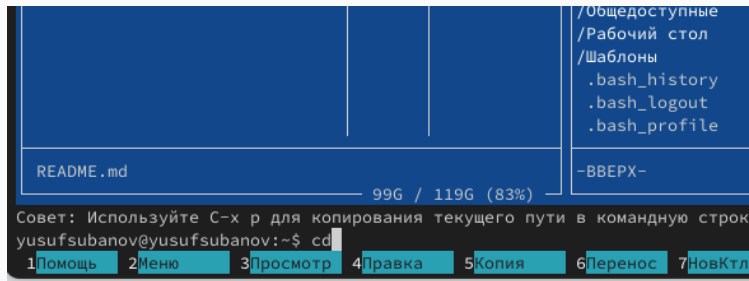
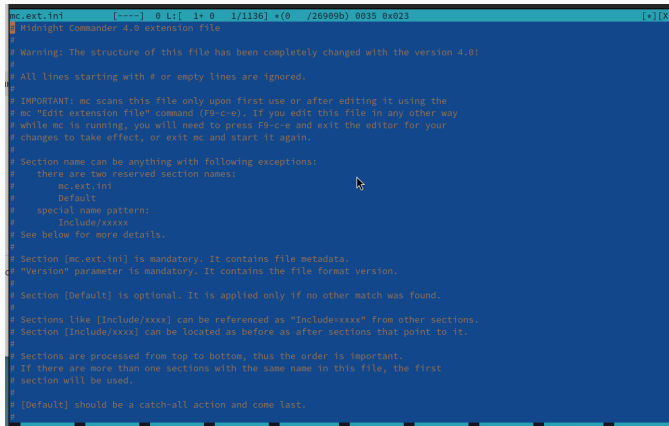


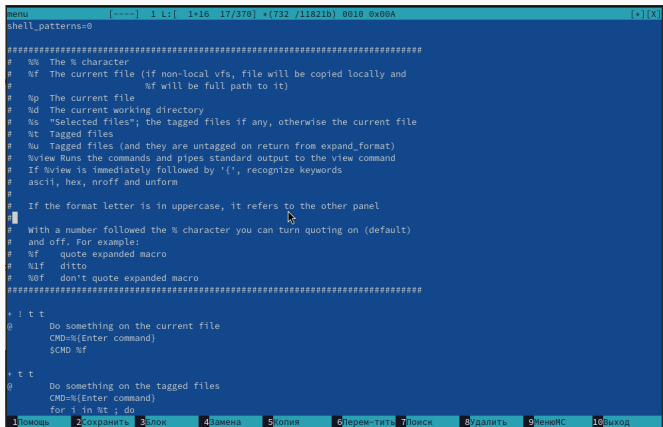
Рис. 16: Переход в домашний каталог



```
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/xxxx
# 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 title is 'menu' with standard window controls. The menu is open, showing a list of options. At the top, it says 'shell_patterns=0'. The menu items are: a separator line, a list of format characters (% character, %f, %p, %d, %s, %t, %u, %view) with their descriptions, another separator line, '+ ! 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', and a bottom bar with 10 numbered shortcuts: 1Помощь, 2Сохранить, 3Блок, 4Замена, 5Копия, 6Перем-тить, 7Поиск, 8/удалить, 9МенюМС, 10Выход.

```
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 uniform
#
#  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
#  %lf 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

1Помощь  2Сохранить  3Блок  4Замена  5Копия  6Перем-тить  7Поиск  8/удалить  9МенюМС  10Выход
```

Рис. 18: Просмотр файла меню

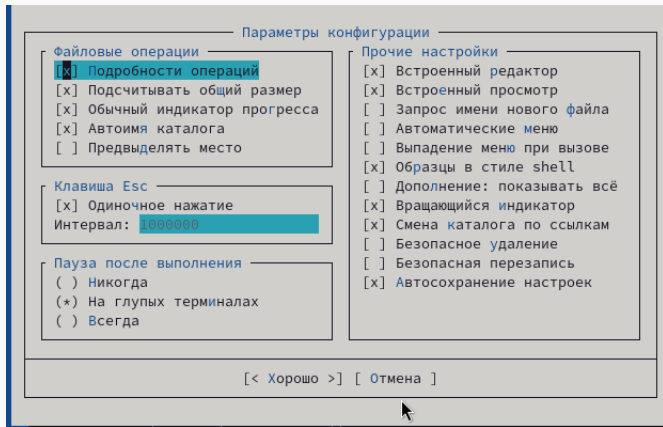


Рис. 19: Конфигурация

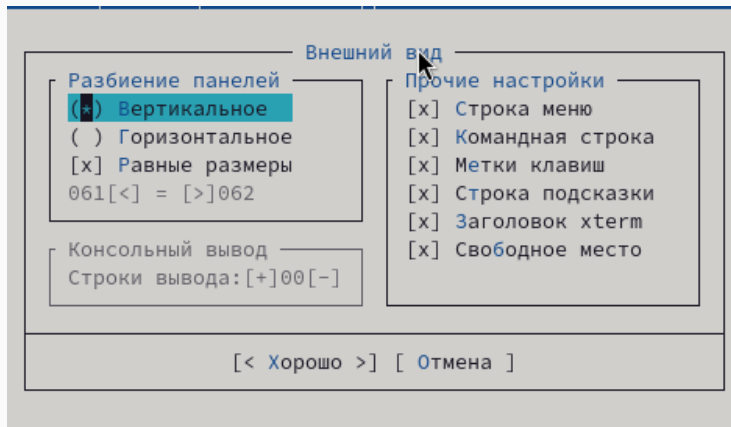


Рис. 20: Внешний вид

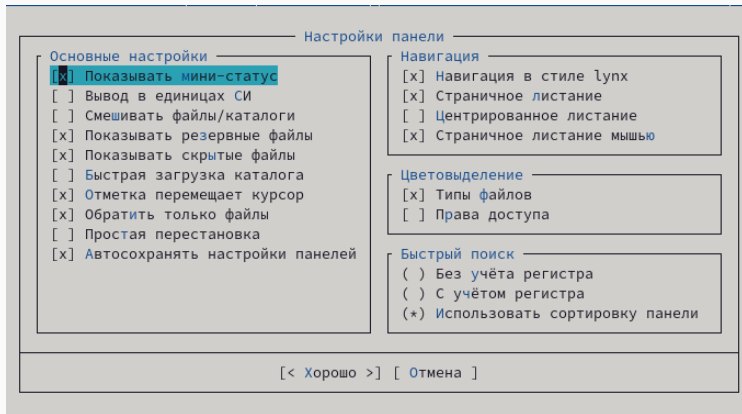


Рис. 21: Настройки панелей

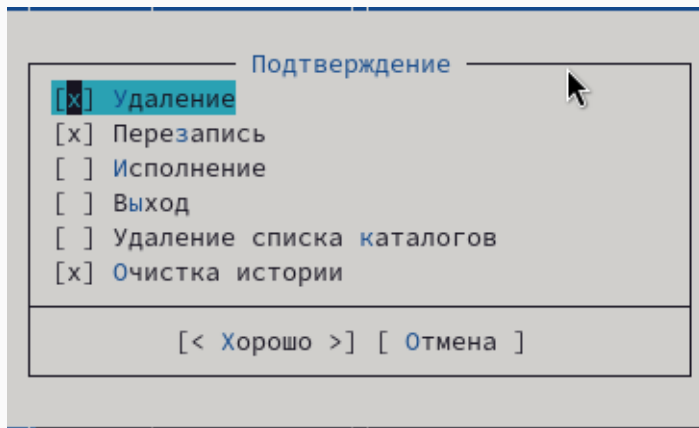


Рис. 22: Подтверждение

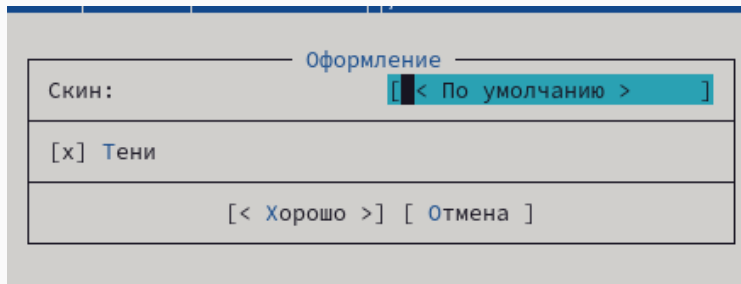


Рис. 23: Оформление

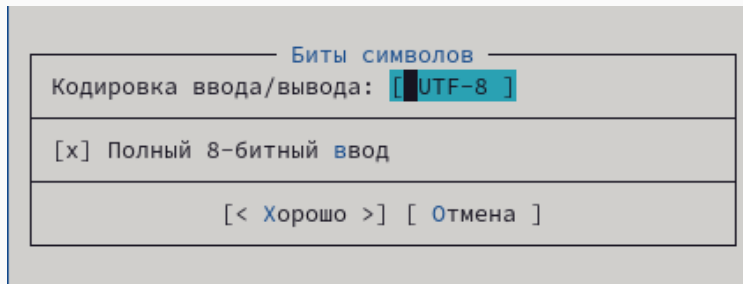


Рис. 24: Кодировка символов

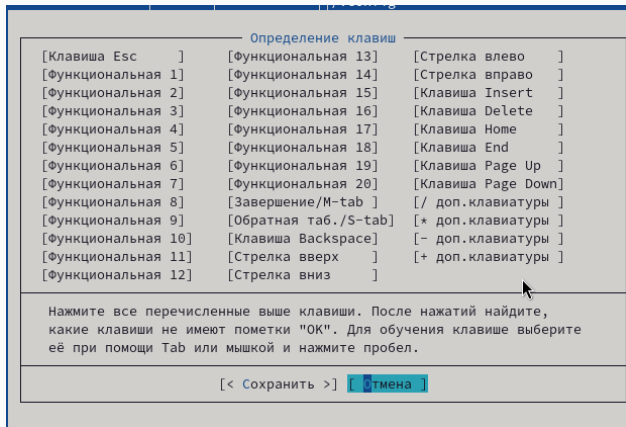
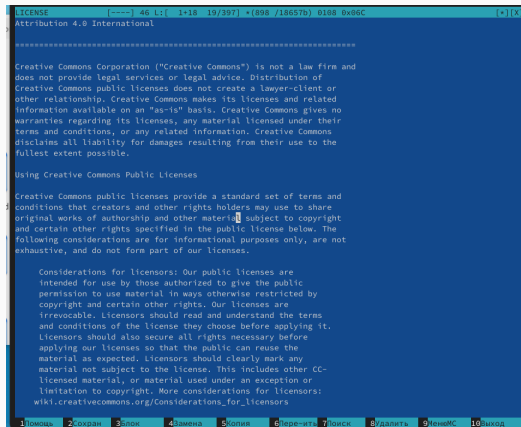


Рис. 25: Распознавание клавиш

Работа с редактором Midnight Commander



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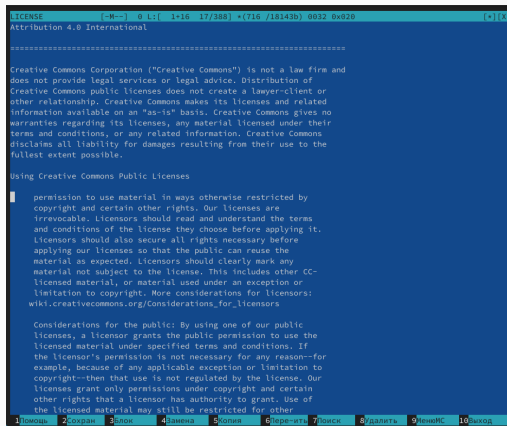
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```

1 Помощь 2 Охран 3 Поиск 4 Замена 5 Копия 6 Пере-ит 7 Поиск 8 Удалить 9 Меню 10 Выход

Рис. 26: Файл с текстом

Работа с редактором Midnight Commander



```
.LICENSE      [-M--]  0 L:[ 1-16 17/388] *(716 /18143b) 0032 0x020  [~][X]
Attribution 4.0 International

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```

1Помощь 2Сохран 3Блок 4Вставка 5Копия 6Переместить 7Просмотр 8Удалить 9Меню 10Выход

Рис. 27: Файл с текстом

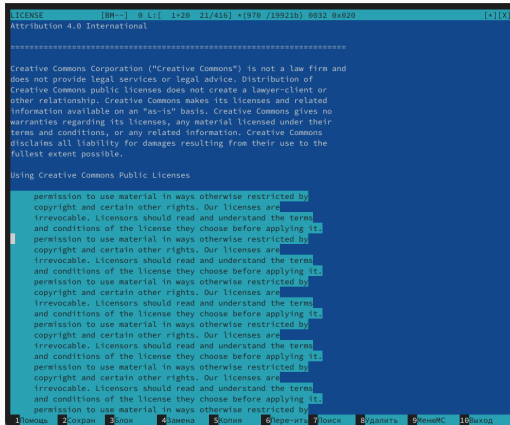


Рис. 28: Копирование фрагмента

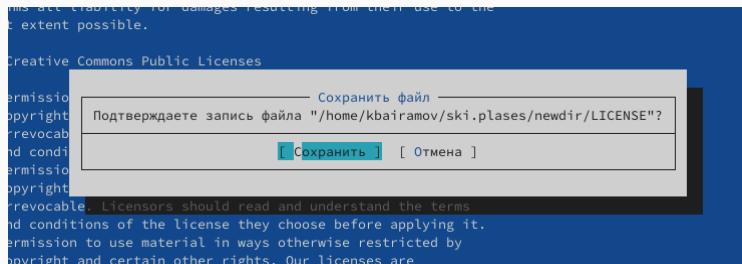
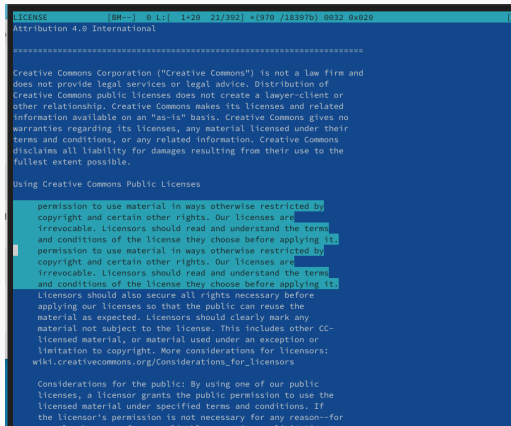


Рис. 29: Сохранение

Работа с редактором Midnight Commander



```
LICENSE [BM--] 0 L:[ 1+20 21/392] *(970 /18397b) @032 0x020 [
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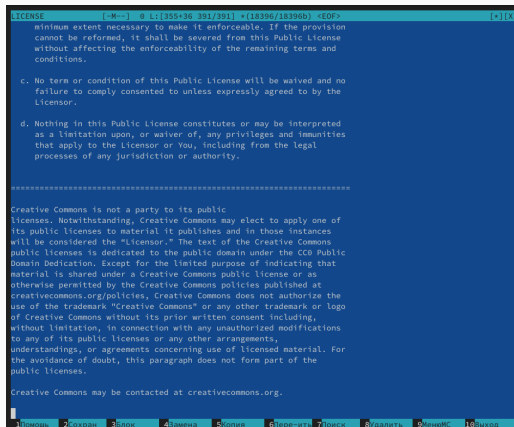
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```

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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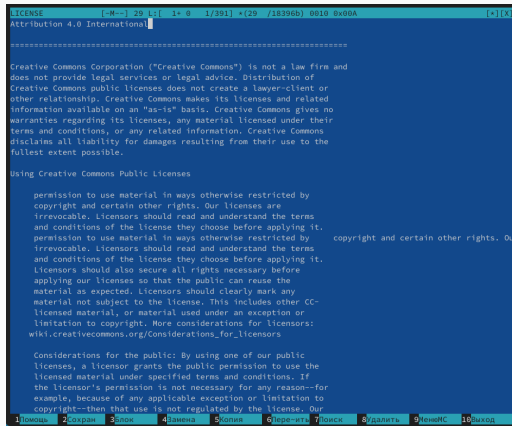
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```

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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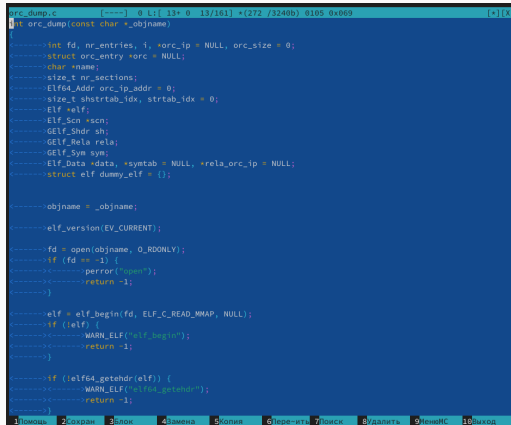
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```

Рис. 32: Переход в начало файла

Работа с редактором Midnight Commander



```
orc_dump.c [-----] 0 L: [ 13+ 0 13/161] *(272 /3240b) 0105 0x009 [X] [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;
    <----->}
```

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Рис. 33: Файл с программой

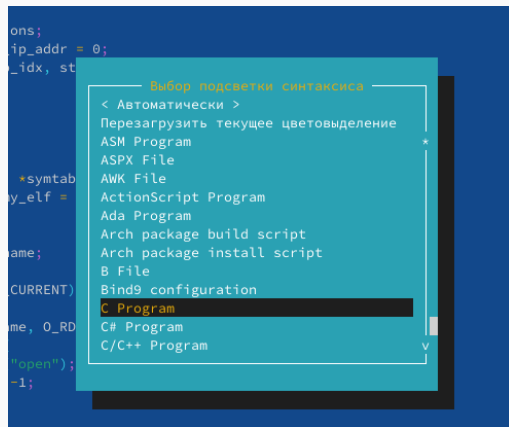


Рис. 34: Цветовыделение синтаксиса

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.