

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

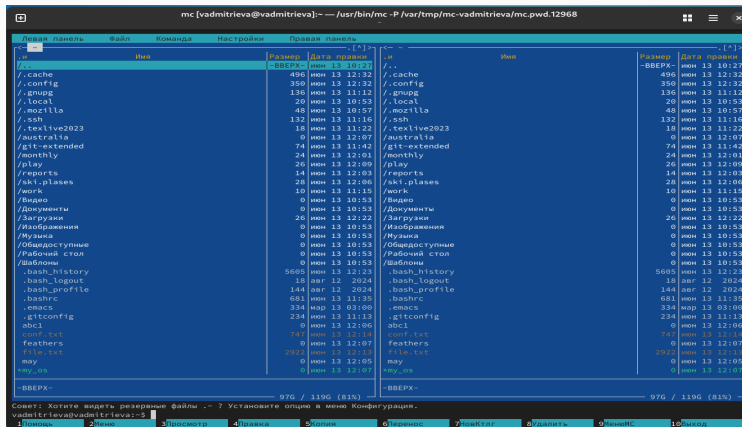


Рис. 1: Запуск mc

Работа с Midnight Commander

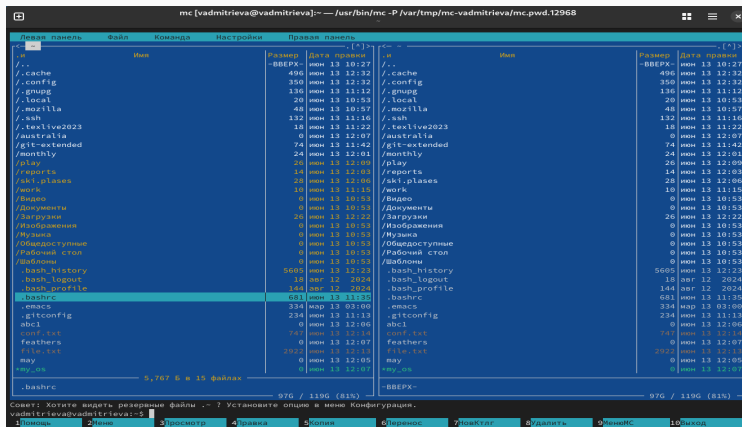


Рис. 2: Выделение

Работа с Midnight Commander

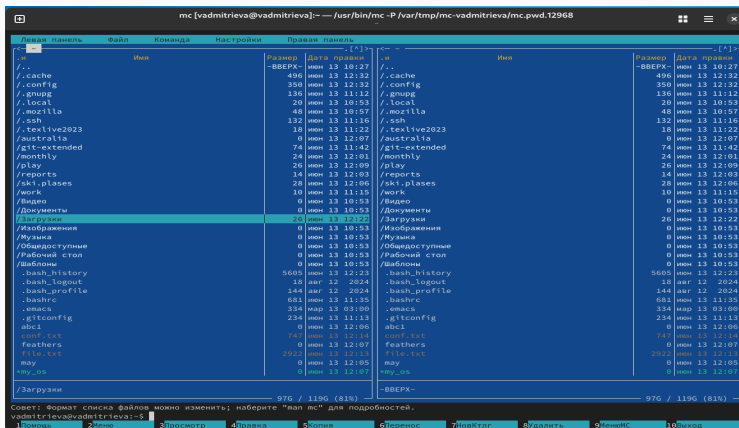


Рис. 3: Отмена

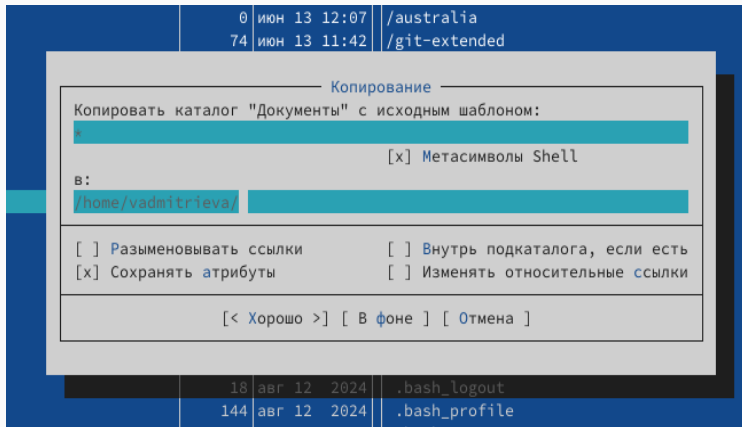


Рис. 4: Копирование

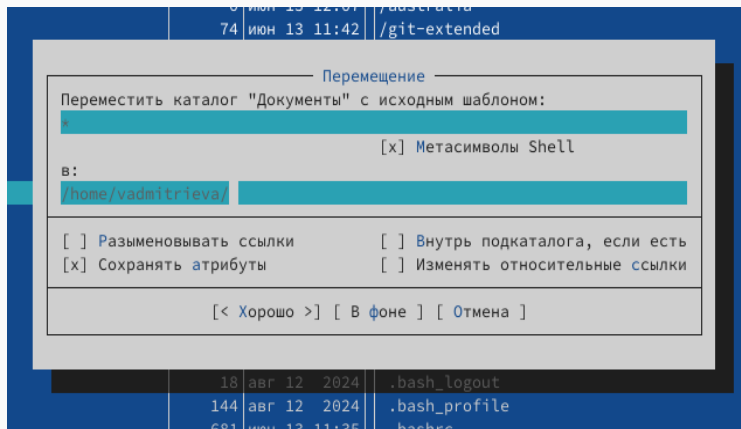


Рис. 5: Перемещение

Работа с Midnight Commander

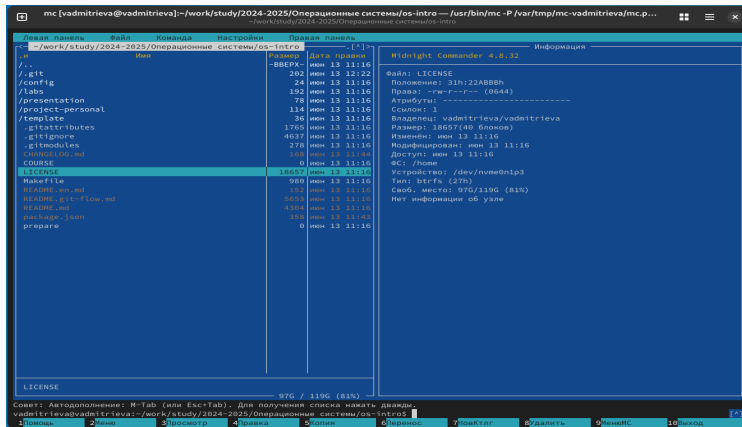


Рис. 6: Информация

Работа с Midnight Commander

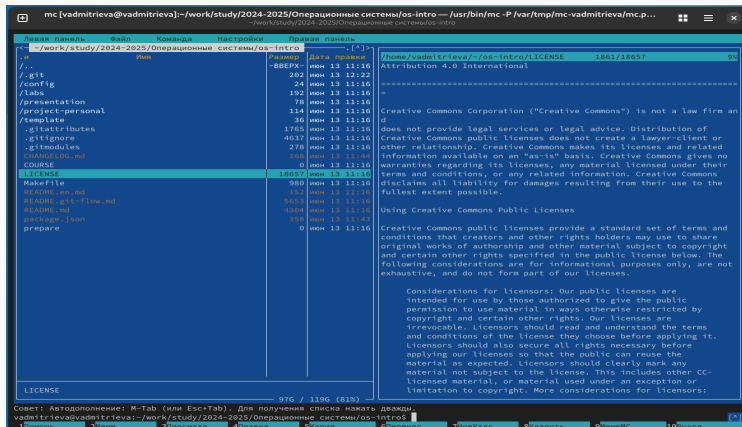


Рис. 7: Быстрый просмотр

Работа с Midnight Commander

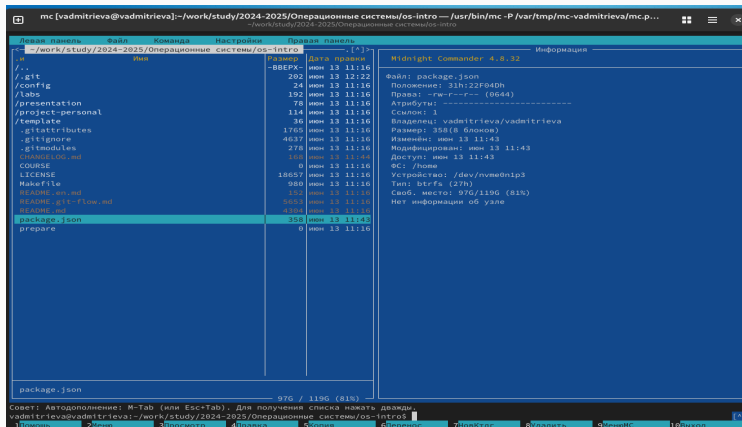


Рис. 8: Информация

Работа с Midnight Commander

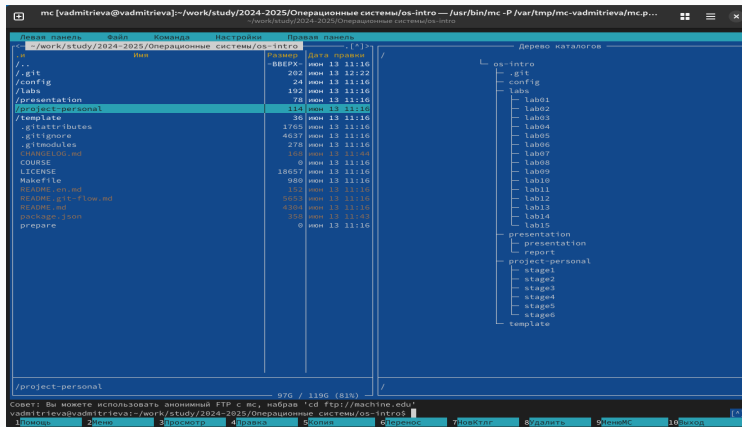
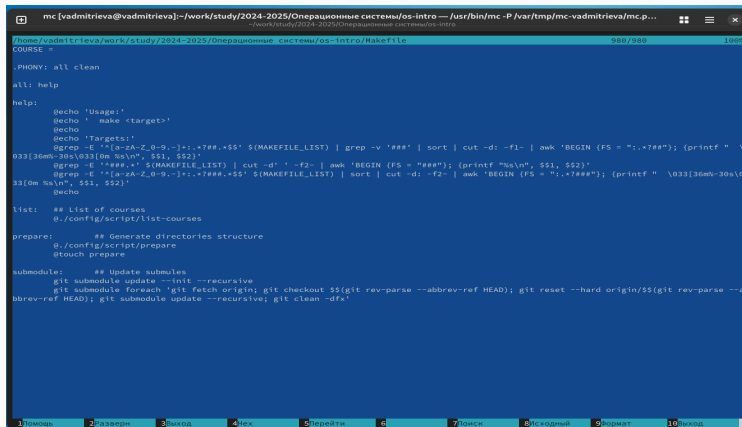


Рис. 9: Дерево каталогов



The screenshot shows the Midnight Commander (MC) interface. The title bar indicates the current directory is `~/work/study/2024-2025/Операционные системы/os-intro` and the file being viewed is `Makefile`. The status bar at the top shows `980/980` lines and `100%` zoom. The main window displays the content of the `Makefile` file, which includes comments and shell commands for building a project. The bottom status bar shows navigation shortcuts: 1.Помощь, 2.Разверн, 3.Выход, 4.Чех, 5.Перейти, 6, 7.Поиск, 8.Исходный, 9.Формат, 10.Выход.

```
mc [vadmitrieva@vadmitrieva]:~/work/study/2024-2025/Операционные системы/os-intro — /usr/bin/mc -P /var/tmp/mc-vadmitrieva/mc.p...
~/work/study/2024-2025/Операционные системы/os-intro
/home/vadmitrieva/work/study/2024-2025/Операционные системы/os-intro/Makefile 980/980 100%
COURSE =

.PHONY: all clean

all: help

help:
    @echo 'Usage:'
    @echo '  make <target>'
    @echo
    @echo 'Targets:'
    @grep -E '^[a-zA-Z_0-9-]+:.*?##.*$$' $(MAKEFILE_LIST) | grep -v '###' | sort | cut -d: -f1- | awk 'BEGIN {FS = ".*?##"}; {printf "  \
033[36m%-30s%033[0m %s\n", $$1, $$2}'
    @grep -E '###.*' $(MAKEFILE_LIST) | cut -d' ' -f2- | awk 'BEGIN {FS = "###"}; {printf "%s\n", $$1, $$2}'
    @grep -E '^[a-zA-Z_0-9-]+:.*?##.*$$' $(MAKEFILE_LIST) | sort | cut -d: -f2- | awk 'BEGIN {FS = ".*?##"}; {printf "  \033[36m%-30s\0
33[0m %s\n", $$1, $$2}'
    @echo

list: ## List of courses
    @./config/script/list-courses

prepare: ## Generate directories structure
    @./config/script/prepare
    @touch prepare

submodule: ## Update submodules
    git submodule update --init --recursive
    git submodule foreach 'git fetch origin; git checkout $$ (git rev-parse --abbrev-ref HEAD); git reset --hard origin/$(git rev-parse --a
bbrev-ref HEAD); git submodule update --recursive; git clean -dfx'
```

Рис. 10: Просмотр содержимого текстового файла

Работа с Midnight Commander

```
mc [vadmitrieva@vadmitrieva]:~/work/study/2024-2025/Операционные системы/os-intro — /usr/bin/mc -P /var/tmp/mc-vadmitrieva/mc.p...
~work/study/2024-2025/Операционные системы/os-intro

Makefile  [----]  0 L: [ 1+ 0 1/ 27] *{0 / 980b} 0067 0x043 [X] [X]
COURSE =

.PHONY: all clean

all: help

help:
-----@echo 'Usage:'
-----@echo '  make <target>'
-----@echo
-----@echo 'Targets:'
-----@grep -E '^[a-zA-Z_0-9-]+:.*?##.*$$' $(MAKEFILE_LIST) | grep -v '##' | sort | cut -d: -f1- | awk 'BEGIN {FS = ".*?##"}; {printf " \
-----@grep -E '^[a-zA-Z_0-9-]+:.*?##.*$$' $(MAKEFILE_LIST) | cut -d: -f2- | awk 'BEGIN {FS = "##"}; {printf "%s\n", $$1, $$2}'
-----@grep -E '^[a-zA-Z_0-9-]+:.*?##.*$$' $(MAKEFILE_LIST) | sort | cut -d: -f2- | awk 'BEGIN {FS = ".*?##"}; {printf " \033[36m%-30s\0
-----@echo

list:--## List of courses
-----@./config/script/list-courses

prepare:-----## Generate directories structure
-----@./config/script/prepare
-----@touch prepare

submodule:-----## Update submodules
-----git submodule update --init --recursive
-----git submodule foreach 'git fetch origin; git checkout $$git rev-parse --abbrev-ref HEAD; git reset --hard origin/$$git rev-parse --a
```

Рис. 11: Отредактируем содержимое текстового файла без сохранения результатов

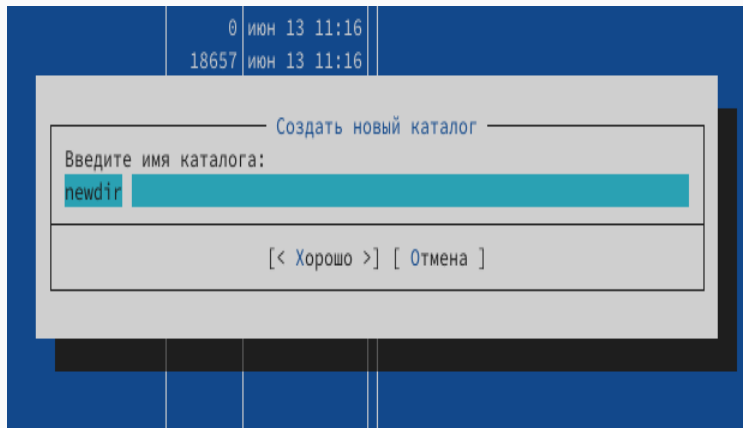


Рис. 12: Создание каталога

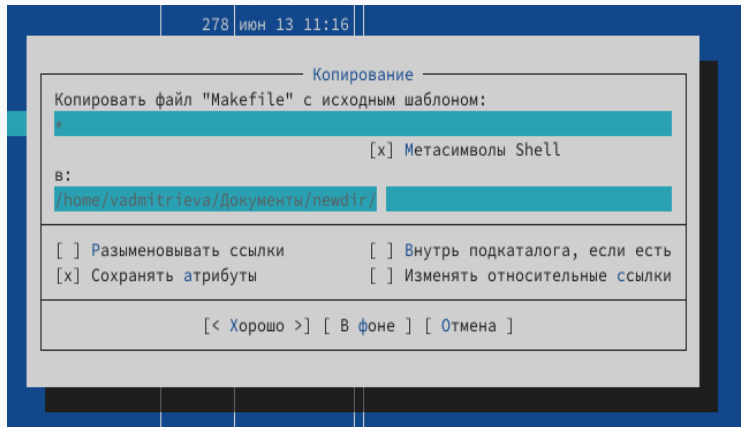


Рис. 13: Копирование в файлов в созданный каталог

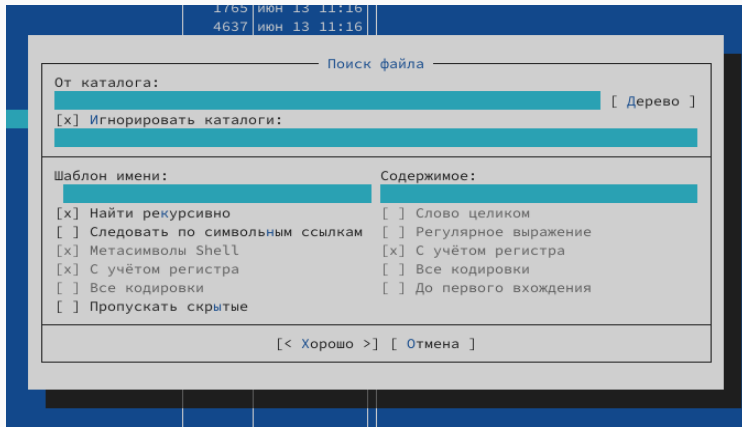


Рис. 14: Поиск файлов

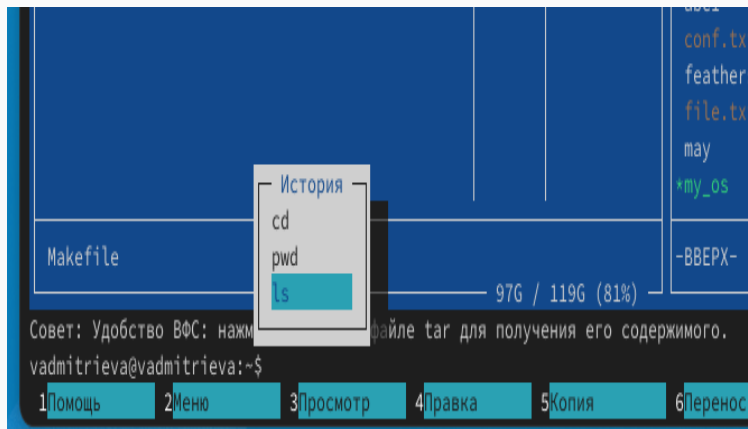


Рис. 15: История команд

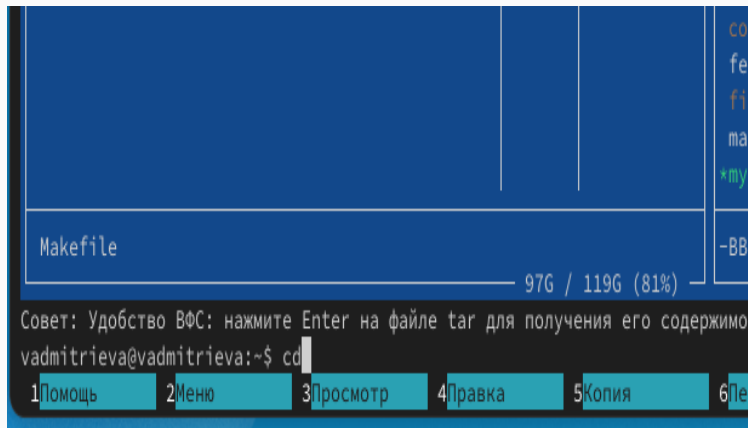


Рис. 16: Переход в домашний каталог



```
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 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 include: a separator line, a list of macros starting with # (e.g., # %% The % character, # %f The current file), another separator line, a list of commands starting with + (e.g., + ! t t Do something on the current file), and a final separator line. At the bottom, a status bar displays ten numbered menu shortcuts: 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
#   %!f  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

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

Рис. 18: Просмотр файла меню



Рис. 19: Конфигурация



Рис. 20: Внешний вид



Рис. 21: Настройки панелей



Рис. 22: Подтверждение



Рис. 23: Оформление

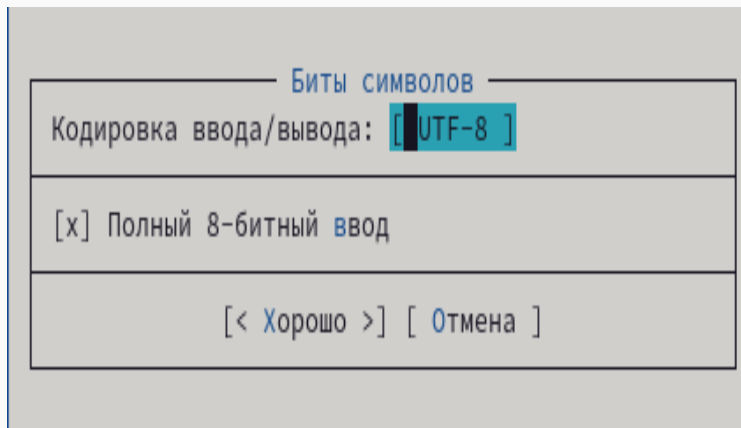


Рис. 24: Кодировка символов



Рис. 25: Распознавание клавиш



```
LICENSE [----] 46 L:[ 1+18 19/397] *(898 /18657b) 0108 0x06C [*] [X]
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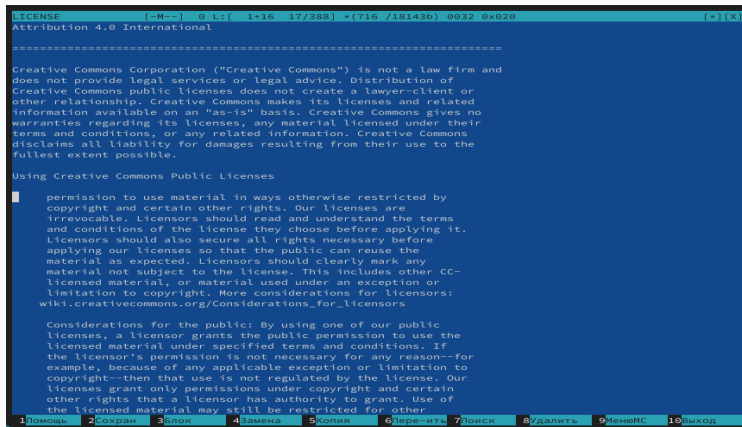
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1 Помощь 2 Сохран 3 Блок 4 Замена 5 Копия 6 Пере-ить 7 Поиск 8 Удалить 9 МенюМС 10 Выход
```

Рис. 26: Файл с текстом

Работа с редактором Midnight Commander



```
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



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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```

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

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.