

Операционные системы

Командная оболочка Midnight Commander

Анастасия Гончарь

24 марта 2025

Российский университет дружбы народов, Москва, Россия

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

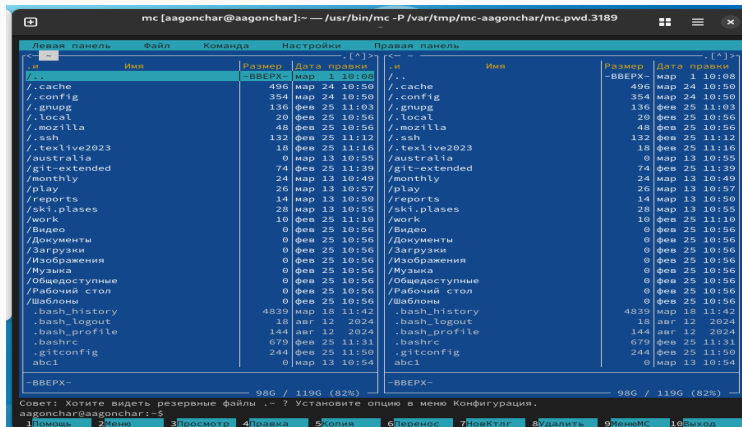


Рис. 1: Запуск mc

Работа с Midnight Commander

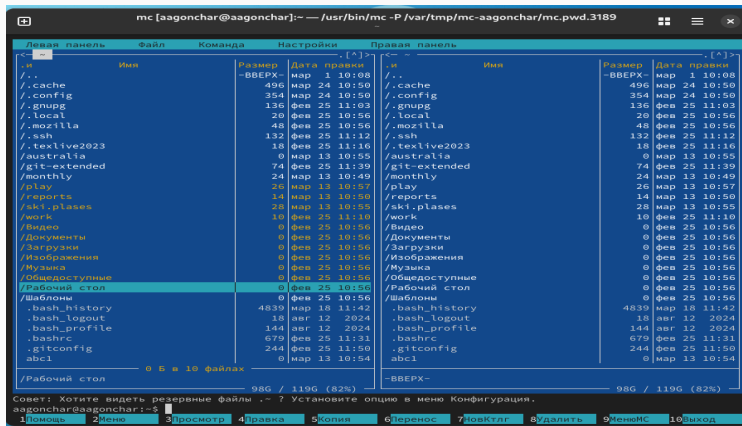


Рис. 2: Выделение

Работа с Midnight Commander

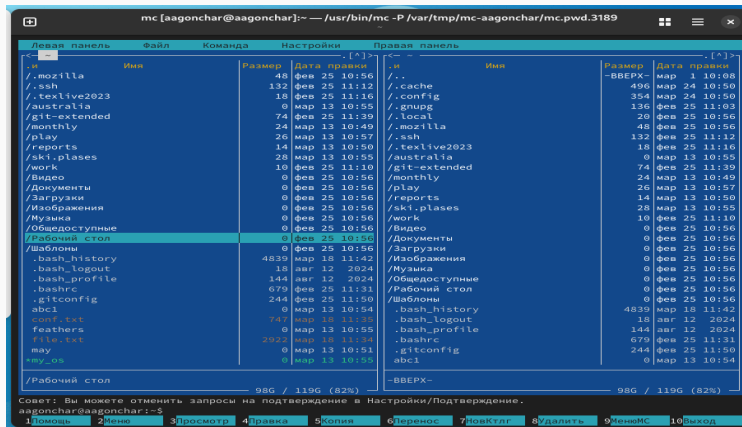


Рис. 3: Отмена

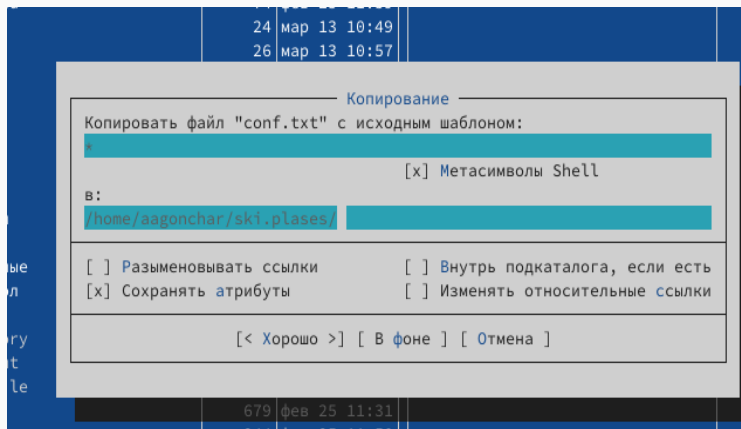


Рис. 4: Копирование

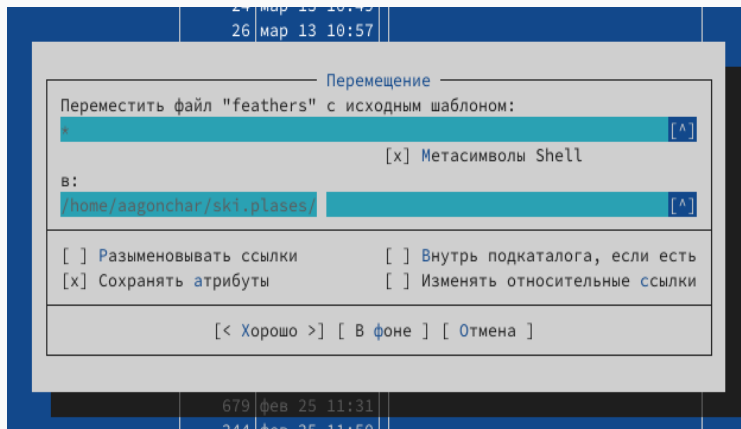


Рис. 5: Перемещение

Работа с Midnight Commander

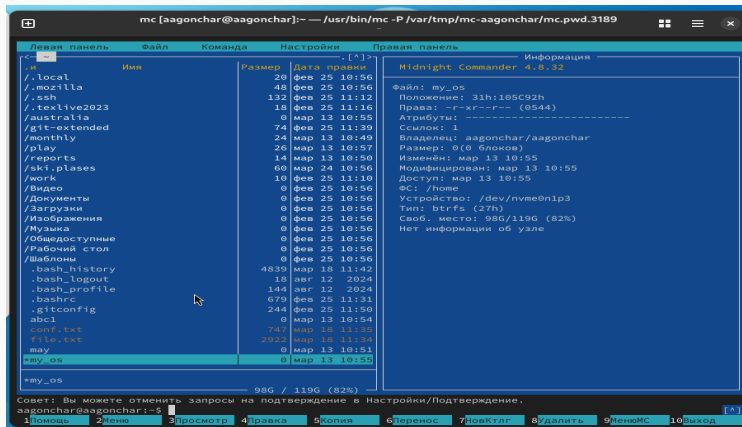


Рис. 6: Информация

Работа с Midnight Commander

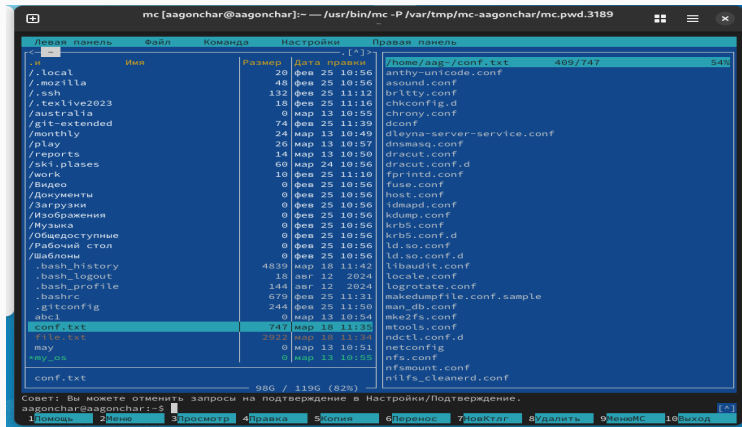


Рис. 7: Быстрый просмотр

Работа с Midnight Commander

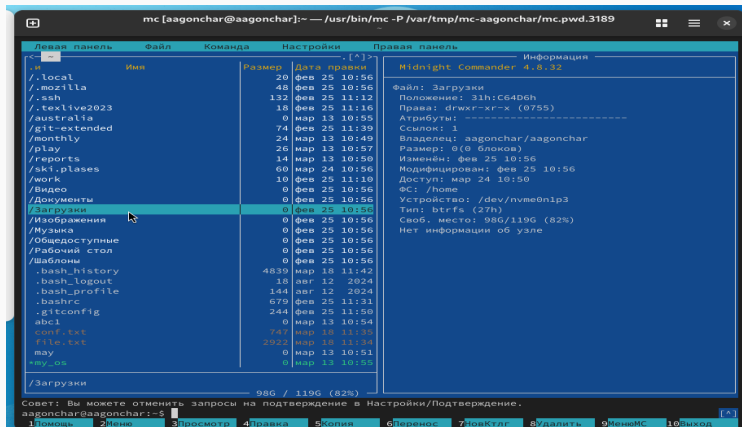


Рис. 8: Информация

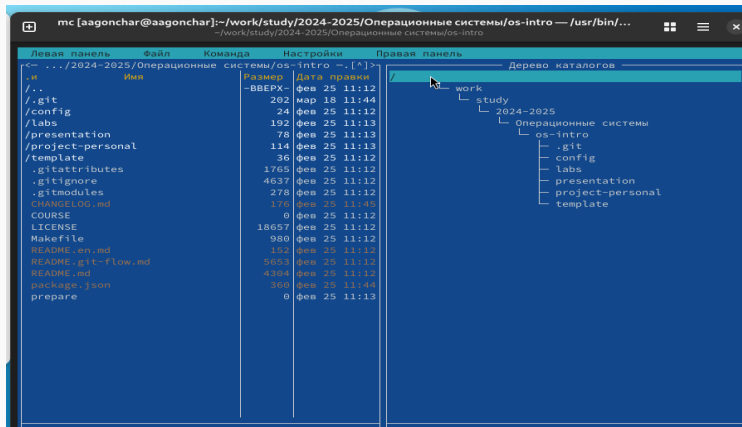
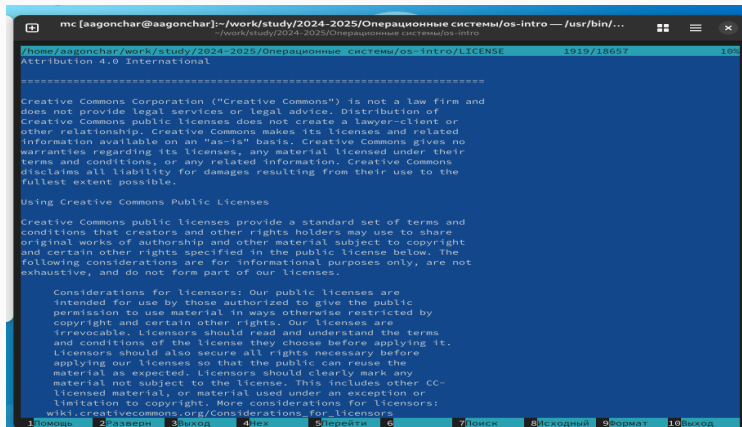


Рис. 9: Дерево каталогов

Работа с Midnight Commander



The screenshot shows the Midnight Commander interface. The title bar indicates the user is 'mc [aagonchar@aagonchar]:~/work/study/2024-2025/Операционные системы/os-intro'. The current directory is '/home/aagonchar/work/study/2024-2025/Операционные системы/os-intro/LICENSE'. The file size is 1919/18657 bytes, and the progress bar is at 10%. The main pane displays the text of the Creative Commons Attribution 4.0 International license. The text includes a disclaimer from Creative Commons Corporation, a section on 'Using Creative Commons Public Licenses', and 'Considerations for licensors'. At the bottom, there is a navigation bar with buttons: 1Помощь, 2Назад, 3Выход, 4Неч, 5Перейти, 6, 7Поиск, 8Исходный, 9Формат, 10Выход.

```
mc [aagonchar@aagonchar]:~/work/study/2024-2025/Операционные системы/os-intro — /usr/bin/...
~/work/study/2024-2025/Операционные системы/os-intro

/home/aagonchar/work/study/2024-2025/Операционные системы/os-intro/LICENSE 1919/18657 10%
Attribution 4.0 International

=====

Creative Commons Corporation ("Creative Commons") is not a law firm and
does not provide legal services or legal advice. Distribution of
Creative Commons public licenses does not create a lawyer-client or
other relationship. Creative Commons makes its licenses and related
information available on an "as-is" basis. Creative Commons gives no
warranties regarding its licenses, any material licensed under their
terms and conditions, or any related information. Creative Commons
disclaims all liability for damages resulting from their use to the
fullest extent possible.

Using Creative Commons Public Licenses

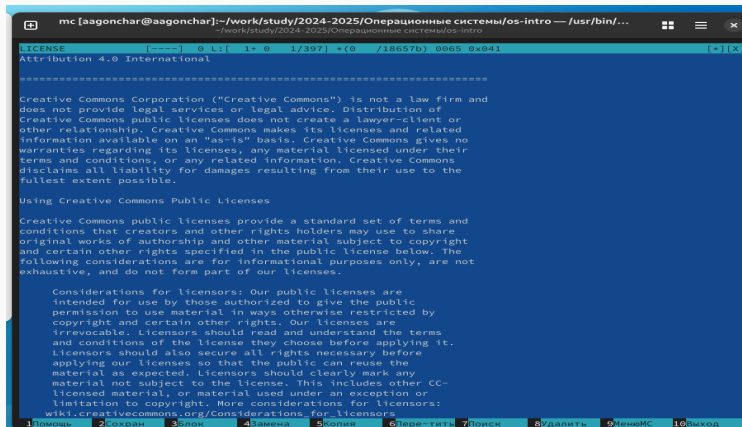
Creative Commons public licenses provide a standard set of terms and
conditions that creators and other rights holders may use to share
original works of authorship and other material subject to copyright
and certain other rights specified in the public license below. The
following considerations are for informational purposes only, are not
exhaustive, and do not form part of our licenses.

    Considerations for licensors: Our public licenses are
    intended for use by those authorized to give the public
    permission to use material in ways otherwise restricted by
    copyright and certain other rights. Our licenses are
    irrevocable. Licensors should read and understand the terms
    and conditions of the license they choose before applying it.
    Licensors should also secure all rights necessary before
    applying our licenses so that the public can reuse the
    material as expected. Licensors should clearly mark any
    material not subject to the license. This includes other CC-
    licensed material, or material used under an exception or
    limitation to copyright. More considerations for licensors:
    wiki.creativecommons.org/Considerations_for_licensors

1Помощь 2Назад 3Выход 4Неч 5Перейти 6 7Поиск 8Исходный 9Формат 10Выход
```

Рис. 10: Просмотр содержимого текстового файла

Работа с Midnight Commander



```
ms [aagongchar@aagongchar]:~/work/study/2024-2025/Операционные системы/os-intro — /usr/bin/...
~/.work/study/2024-2025/Операционные системы/os-intro
LICENSE [----] 0 L: [ 1+ 0 1/397] *(0 /18657b) 0065 0x041 [.*][X]
Attribution 4.0 International

*****

Creative Commons Corporation ("Creative Commons") is not a law firm and
does not provide legal services or legal advice. Distribution of
Creative Commons public licenses does not create a lawyer-client or
other relationship. Creative Commons makes its licenses and related
information available on an "as-is" basis. Creative Commons gives no
warranties regarding its licenses, any material licensed under their
terms and conditions, or any related information. Creative Commons
disclaims all liability for damages resulting from their use to the
fullest extent possible.

Using Creative Commons Public Licenses

Creative Commons public licenses provide a standard set of terms and
conditions that creators and other rights holders may use to share
original works of authorship and other material subject to copyright
and certain other rights specified in the public license below. The
following considerations are for informational purposes only, are not
exhaustive, and do not form part of our licenses.

Considerations for licensors: Our public licenses are
intended for use by those authorized to give the public
permission to use material in ways otherwise restricted by
copyright and certain other rights. Our licenses are
irrevocable. Licensors should read and understand the terms
and conditions of the license they choose before applying it.
Licensors should also secure all rights necessary before
applying our licenses so that the public can reuse the
material as expected. Licensors should clearly mark any
material not subject to the license. This includes other CC-
licensed material, or material used under an exception or
limitation to copyright. More considerations for licensors:
wiki.creativecommons.org/Considerations_for_licensors

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

Рис. 11: Отредактируем содержимое текстового файла без сохранения результатов

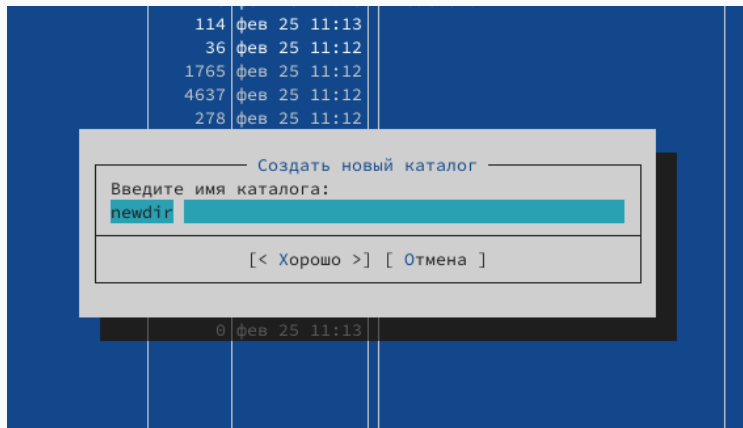


Рис. 12: Создание каталога

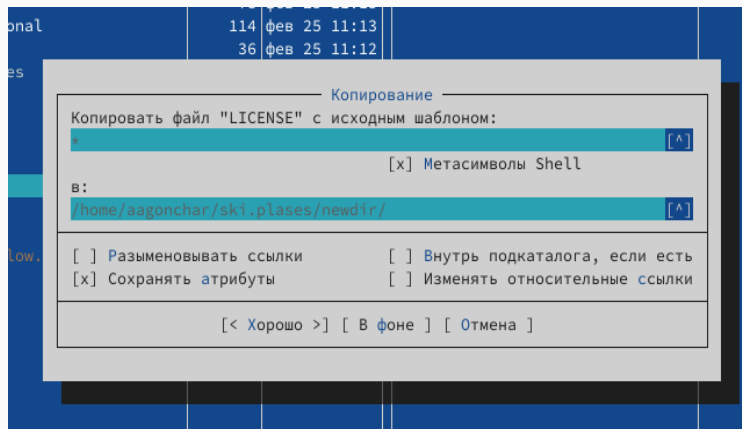


Рис. 13: Копирование в файлов в созданный каталог

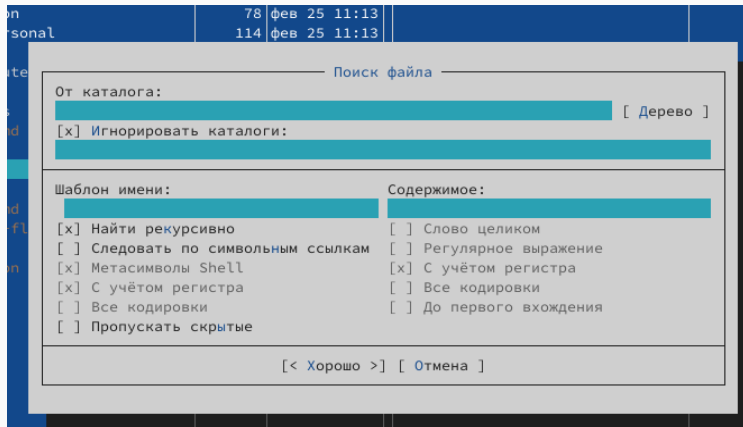


Рис. 14: Поиск файлов

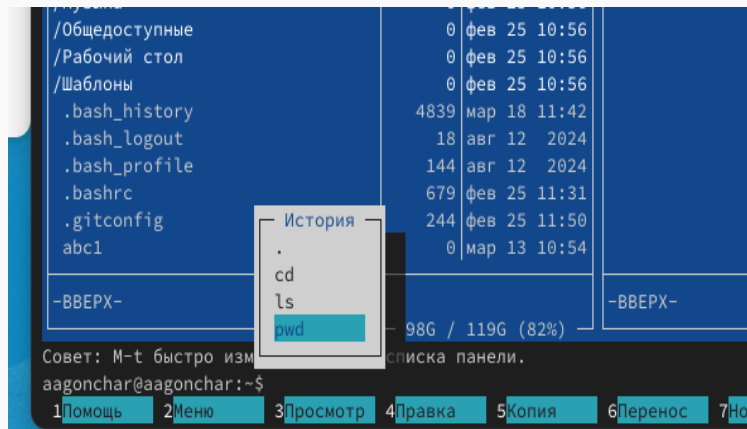


Рис. 15: История команд

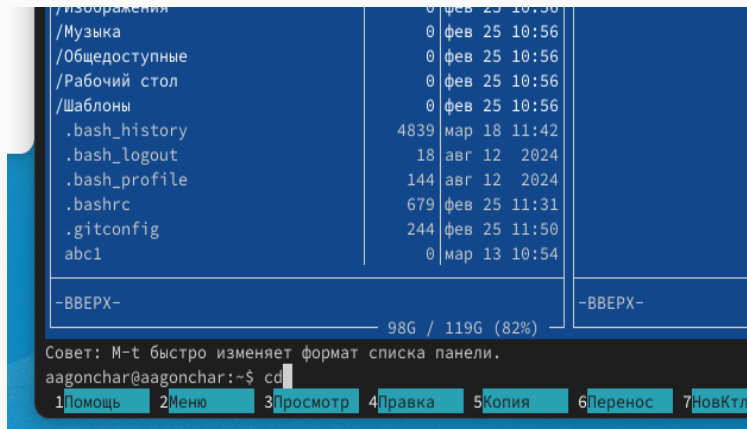


Рис. 16: Переход в домашний каталог



```
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 the text "menu" and a standard window control icon. The main area is a blue terminal window displaying the menu options. At the top, it shows "shell_patterns=0". The menu is divided into two sections by a line of asterisks. The first section lists various macros like %%, %f, %p, %d, %s, %t, %u, %view, and %f, each with a brief description. The second section contains two options: "+ ! t t" and "+ t t", each followed by a description and a command prompt. At the bottom, there is a status bar with ten numbered buttons: 1.Помощь, 2.Сохранить, 3.Блок, 4.Замена, 5.Копия, 6.Перем-тить, 7.Поиск, 8.Удалить, 9.МенюМС, and 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

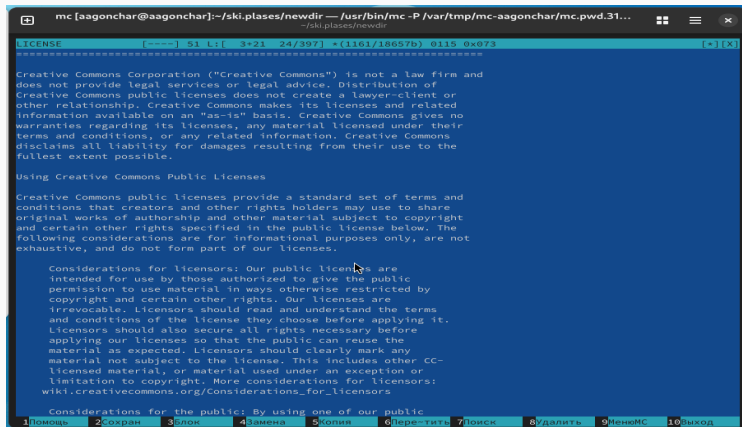


Рис. 24: Кодировка символов



Рис. 25: Распознавание клавиш

Работа с редактором Midnight Commander



The screenshot shows the Midnight Commander (MC) interface. The title bar at the top reads: `mc [aagongchar@aagongchar]:~/ski.plases/newdir — /usr/bin/mc -P /var/tmp/mc-aagongchar/mc.pwd.31...`. The status bar at the bottom displays: `1Помощь 2Сохран 3Блок 4Замена 5Солия 6Пере-тить 7Поиск 8Удалить 9МенюМС 10Выход`.

The main editing area shows the contents of a file named `LICENSE`. The text is as follows:

```
=====
Creative Commons Corporation ("Creative Commons") is not a law firm and
does not provide legal services or legal advice. Distribution of
Creative Commons public licenses does not create a lawyer-client or
other relationship. Creative Commons makes its licenses and related
information available on an "as-is" basis. Creative Commons gives no
warranties regarding its licenses, any material licensed under their
terms and conditions, or any related information. Creative Commons
disclaims all liability for damages resulting from their use to the
fullest extent possible.

Using Creative Commons Public Licenses

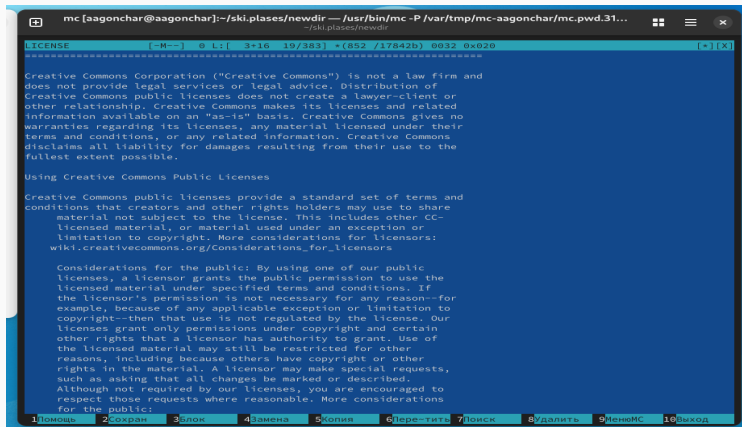
Creative Commons public licenses provide a standard set of terms and
conditions that creators and other rights holders may use to share
original works of authorship and other material subject to copyright
and certain other rights specified in the public license below. The
following considerations are for informational purposes only, are not
exhaustive, and do not form part of our licenses.

  Considerations for licensors: Our public licenses are
  intended for use by those authorized to give the public
  permission to use material in ways otherwise restricted by
  copyright and certain other rights. Our licenses are
  irrevocable. Licensors should read and understand the terms
  and conditions of the license they choose before applying it.
  Licensors should also secure all rights necessary before
  applying our licenses so that the public can reuse the
  material as expected. Licensors should clearly mark any
  material not subject to the license. This includes other CC-
  licensed material, or material used under an exception or
  limitation to copyright. More considerations for licensors:
  wiki.creativecommons.org/Considerations_for_licensors

  Considerations for the public: By using one of our public
```

Рис. 26: Файл с текстом

Работа с редактором Midnight Commander



The screenshot shows the Midnight Commander (MC) interface. The title bar indicates the current directory is `~/ski.plases/newdir` and the file being edited is `mc.pwd.31...`. The status bar at the bottom shows various file operations: 1Помощь, 2Сохран, 3Блок, 4Замена, 5Копия, 6Пере-тить, 7Поиск, 8Удалить, 9МенюМС, 10Выход.

```
LICENSE      [-M--]  0 L: [ 3+16  19/383] *(852 /17842b) 0032 0x020  [+][X]
```

=====

Creative Commons Corporation ("Creative Commons") is not a law firm and does not provide legal services or legal advice. Distribution of Creative Commons public licenses does not create a lawyer-client or other relationship. Creative Commons makes its licenses and related information available on an "as-is" basis. Creative Commons gives no warranties regarding its licenses, any material licensed under their terms and conditions, or any related information. Creative Commons disclaims all liability for damages resulting from their use to the fullest extent possible.

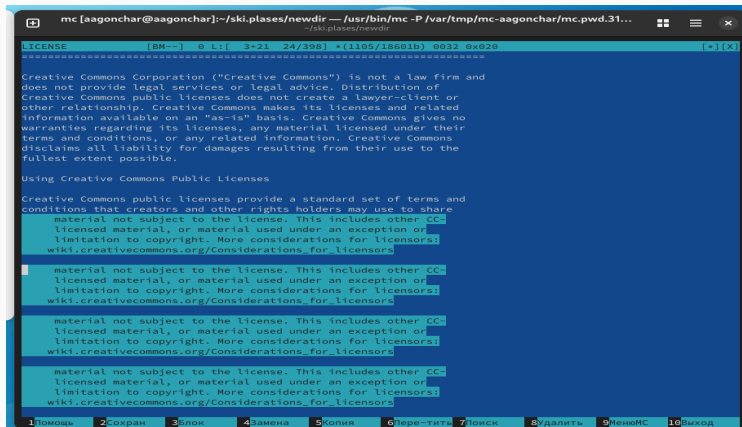
Using Creative Commons Public Licenses

Creative Commons public licenses provide a standard set of terms and conditions that creators and other rights holders may use to share material not subject to the license. This includes other CC-licensed material, or material used under an exception or limitation to copyright. More considerations for licensors: wiki.creativecommons.org/Considerations_for_licensors

Considerations for the public: By using one of our public licenses, a licensor grants the public permission to use the licensed material under specified terms and conditions. If the licensor's permission is not necessary for any reason—for example, because of any applicable exception or limitation to copyright—then that use is not regulated by the license. Our licenses grant only permissions under copyright and certain other rights that a licensor has authority to grant. Use of the licensed material may still be restricted for other reasons, including because others have copyright or other rights in the material. A licensor may make special requests, such as asking that all changes be marked or described. Although not required by our licenses, you are encouraged to respect those requests where reasonable. More considerations for the public:

Рис. 27: Файл с текстом

Работа с редактором Midnight Commander



```
mc [aagonchar@aagonchar]:~/ski.plases/newdir — /usr/bin/mc -P /var/tmp/mc-aagonchar/mc.pwd.31...
~/ski.plases/newdir

LICENSE [BM--] 0 L:[ 3+21 24/398] *(1105/18601b) 0032 0x020 [*][X]
=====
Creative Commons Corporation ("Creative Commons") is not a law firm and
does not provide legal services or legal advice. Distribution of
Creative Commons public licenses does not create a lawyer-client or
other relationship. Creative Commons makes its licenses and related
information available on an "as-is" basis. Creative Commons gives no
warranties regarding its licenses, any material licensed under their
terms and conditions, or any related information. Creative Commons
disclaims all liability for damages resulting from their use to the
fullest extent possible.

Using Creative Commons Public Licenses

Creative Commons public licenses provide a standard set of terms and
conditions that creators and other rights holders may use to share
material not subject to the license. This includes other CC-
licensed material, or material used under an exception or
limitation to copyright. More considerations for licensors:
wiki.creativecommons.org/Considerations_for_licensors

material not subject to the license. This includes other CC-
licensed material, or material used under an exception or
limitation to copyright. More considerations for licensors:
wiki.creativecommons.org/Considerations_for_licensors

material not subject to the license. This includes other CC-
licensed material, or material used under an exception or
limitation to copyright. More considerations for licensors:
wiki.creativecommons.org/Considerations_for_licensors

material not subject to the license. This includes other CC-
licensed material, or material used under an exception or
limitation to copyright. More considerations for licensors:
wiki.creativecommons.org/Considerations_for_licensors

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

Рис. 28: Копирование фрагмента

Работа с редактором Midnight Commander

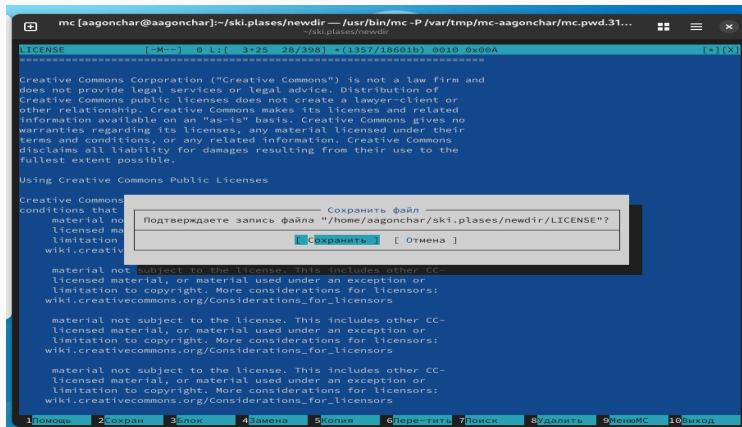
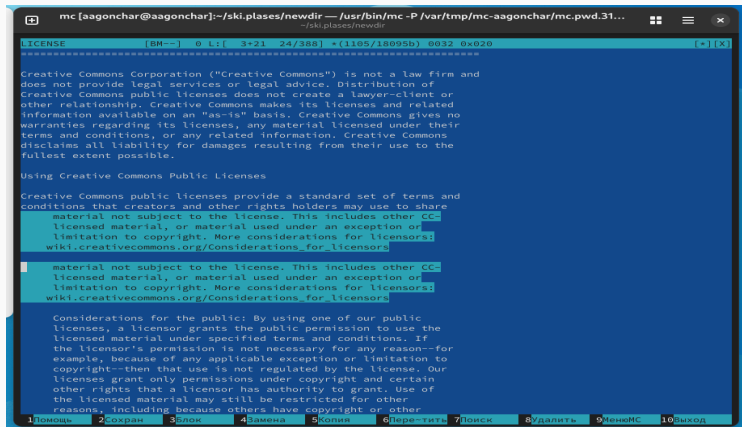


Рис. 29: Сохранение

Работа с редактором Midnight Commander



The screenshot shows the Midnight Commander (MC) interface. The title bar indicates the user is 'mc [aagonchar@aagonchar]:~/ski.plases/newdir' and the current directory is '/usr/bin/mc -P /var/tmp/mc-aagonchar/mc.pwd.31...'. The main window displays the 'LICENSE' file, which contains the Creative Commons public license text. The text is as follows:

```
=====
Creative Commons Corporation ("Creative Commons") is not a law firm and
does not provide legal services or legal advice. Distribution of
Creative Commons public licenses does not create a lawyer-client or
other relationship. Creative Commons makes its licenses and related
information available on an "as-is" basis. Creative Commons gives no
warranties regarding its licenses, any material licensed under their
terms and conditions, or any related information. Creative Commons
disclaims all liability for damages resulting from their use to the
fullest extent possible.

Using Creative Commons Public Licenses

Creative Commons public licenses provide a standard set of terms and
conditions that creators and other rights holders may use to share
material not subject to the license. This includes other CC-
licensed material, or material used under an exception or
limitation to copyright. More considerations for licensors:
wiki.creativecommons.org/Considerations_for_licensors

material not subject to the license. This includes other CC-
licensed material, or material used under an exception or
limitation to copyright. More considerations for licensors:
wiki.creativecommons.org/Considerations_for_licensors

Considerations for the public: By using one of our public
licenses, a licensor grants the public permission to use the
licensed material under specified terms and conditions. If
the licensor's permission is not necessary for any reason—for
example, because of any applicable exception or limitation to
copyright--then that use is not regulated by the license. Our
licenses grant only permissions under copyright and certain
other rights that a licensor has authority to grant. Use of
the licensed material may still be restricted for other
reasons, including because others have copyright or other
```

At the bottom of the window, there is a status bar with the following menu items: 1 Помощь, 2 Сохран, 3 Блок, 4 Замена, 5 Копия, 6 Пере-тить, 7 Поиск, 8 Удалить, 9 МенюМС, 10 Выход.

Рис. 30: Отмена

Работа с редактором Midnight Commander

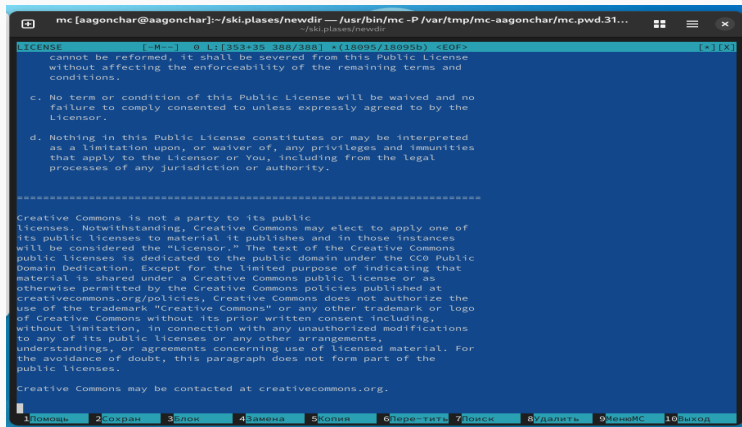
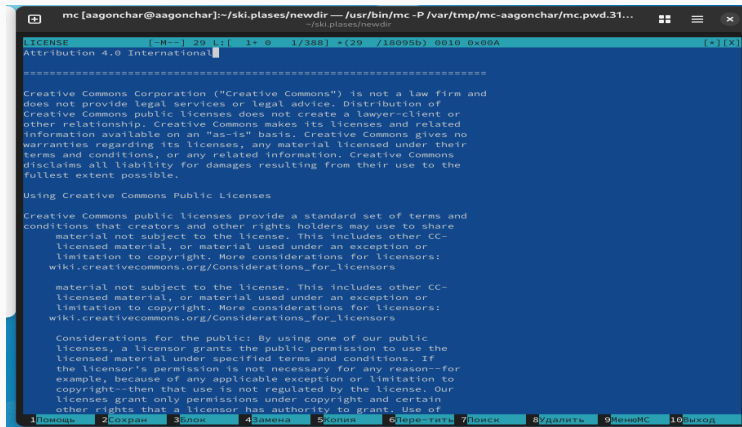


Рис. 31: Переход в конец файла

Работа с редактором Midnight Commander



```
mc [aagonchar@aagonchar]:~/ski.plases/newdir — /usr/bin/mc -P /var/tmp/mc-aagonchar/mc.pwd.31...
~/ski.plases/newdir

LICENSE  [-M--] 29 L: 1+ 0 1/388] *(29 /18095b) 0010 0x00A (*) [X]
Attribution 4.0 International

=====

Creative Commons Corporation ("Creative Commons") is not a law firm and
does not provide legal services or legal advice. Distribution of
Creative Commons public licenses does not create a lawyer-client or
other relationship. Creative Commons makes its licenses and related
information available on an "as-is" basis. Creative Commons gives no
warranties regarding its licenses, any material licensed under their
terms and conditions, or any related information. Creative Commons
disclaims all liability for damages resulting from their use to the
fullest extent possible.

Using Creative Commons Public Licenses

Creative Commons public licenses provide a standard set of terms and
conditions that creators and other rights holders may use to share
material not subject to the license. This includes other CC-
licensed material, or material used under an exception or
limitation to copyright. More considerations for licensors:
wiki.creativecommons.org/Considerations_for_licensors

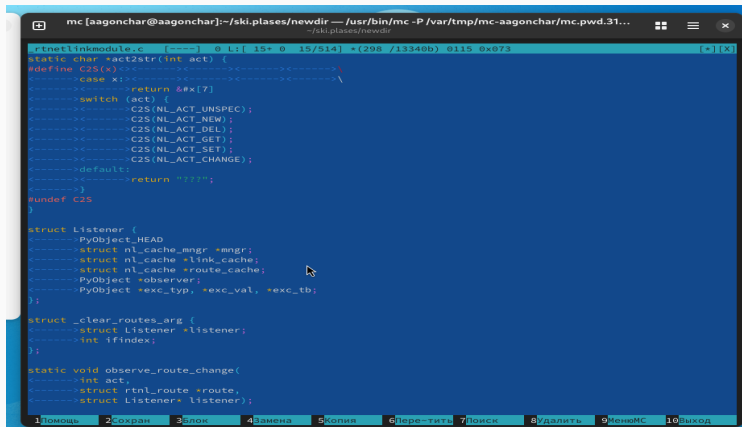
material not subject to the license. This includes other CC-
licensed material, or material used under an exception or
limitation to copyright. More considerations for licensors:
wiki.creativecommons.org/Considerations_for_licensors

Considerations for the public: By using one of our public
licenses, a licensor grants the public permission to use the
licensed material under specified terms and conditions. If
the licensor's permission is not necessary for any reason--for
example, because of any applicable exception or limitation to
copyright--then that use is not regulated by the license. Our
licenses grant only permissions under copyright and certain
other rights that a licensor has authority to grant. Use of
```

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

Рис. 32: Переход в начало файла

Работа с редактором Midnight Commander



```
mc [aagonchar@aagonchar]:~/ski.plases/newdir — /usr/bin/mc -P /var/tmp/mc-aagonchar/mc.pwd.31...
~/ski.plases/newdir

rtnetlinkmodule.c  [----]  0 L: [ 15+ 0 15/514]  *(298 /13340b)  0115  0x073  [*] [X]

static char *act2str(int act) {
#define C2S(x) <-----> <-----> <-----> <-----> \
<-----> case x: <-----> <-----> <-----> <-----> \
<-----> <-----> return &#x[7]
<-----> switch (act) {
<-----> <-----> C2S(NL_ACT_UNSPEC);
<-----> <-----> C2S(NL_ACT_NEW);
<-----> <-----> C2S(NL_ACT_DEL);
<-----> <-----> C2S(NL_ACT_GET);
<-----> <-----> C2S(NL_ACT_SET);
<-----> <-----> C2S(NL_ACT_CHANGE);
<-----> default:
<-----> <-----> return "???" ;
<-----> }
#undef C2S
}

struct Listener {
<-----> PyObject_HEAD
<-----> struct nl_cache_mgr *mgr;
<-----> struct nl_cache *link_cache;
<-----> struct nl_cache *route_cache;
<-----> PyObject *observer;
<-----> PyObject *exc_tpy, *exc_val, *exc_tb;
};

struct _clear_routes_arg {
<-----> struct Listener *listener;
<-----> int ifindex;
};

static void observe_route_change(
<-----> int act,
<-----> struct rtnl_route *route,
<-----> struct Listener *listener);

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

Рис. 33: Файл с программой

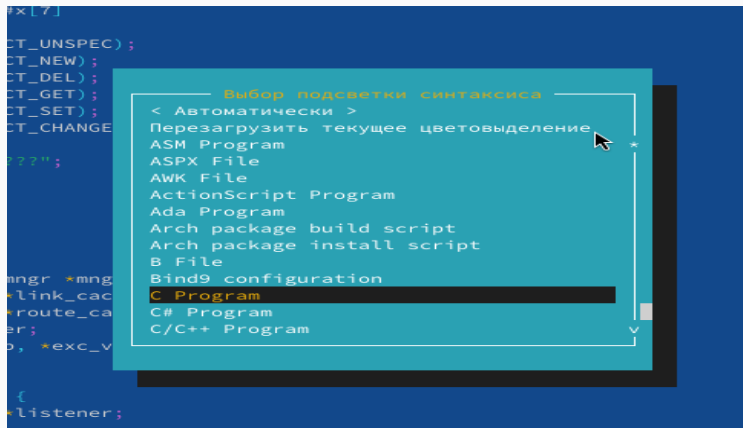


Рис. 34: Цветовыделение синтаксиса

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.