

Лабораторная работа №4

Работа с программными пакетами

Шаханеоядж Хаоладар

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Российский университет дружбы народов, Москва, Россия

Цель работы

Получение навыков работы с репозиториями, пакетным менеджером **dnf** и утилитой **rpm** в Linux.

Ход выполнения работы

```
haoladar@haoladar:~$ su
Password:
root@haoladar:/home/haoladar# cd /etc/yum.repos.d/
root@haoladar:/etc/yum.repos.d# ls
rocky-addons.repo  rocky-devel.repo  rocky-extras.repo  rocky.repo
root@haoladar:/etc/yum.repos.d# cat rocky.repo
# rocky.repo
#
# The mirrorlist system uses the connecting IP address of the client and the
# update status of each mirror to pick current mirrors that are geographically
# close to the client.  You should use this for Rocky updates unless you are
# manually picking other mirrors.
#
# If the mirrorlist does not work for you, you can try the commented out
# baseurl line instead.

[baseos]
name=Rocky Linux $releasever - BaseOS
mirrorlist=https://mirrors.rockylinux.org/mirrorlist?arch=$basearch&repo=BaseOS-$releasever$rltype
#baseurl=http://dl.rockylinux.org/$contentdir/$releasever/BaseOS/$basearch/os/
gpgcheck=1
enabled=1
countme=1
metadata_expire=6h
gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-Rocky-10

[baseos-debuginfo]
name=Rocky Linux $releasever - BaseOS - Debug
mirrorlist=https://mirrors.rockylinux.org/mirrorlist?arch=$basearch&repo=BaseOS-$releasever-debug$rltype
#baseurl=http://dl.rockylinux.org/$contentdir/$releasever/BaseOS/$basearch/debug/tree/
gpgcheck=1
enabled=0
```

Рис. 1: Каталог /etc/yum.repos.d и файл rocky.repo

```
root@haoladar: /etc/yum.repos.d# dnf repolist
repo id                                repo name
appstream                             Rocky Linux 10 - AppStream
baseos                                Rocky Linux 10 - BaseOS
extras                                Rocky Linux 10 - Extras

root@haoladar: /etc/yum.repos.d# dnf search user
Rocky Linux 10 - BaseOS                14 MB/s | 18 MB      00:01
Rocky Linux 10 - AppStream             608 kB/s | 2.1 MB    00:03
Rocky Linux 10 - Extras                3.0 kB/s | 5.1 kB    00:01
===== Name & Summary Matched: user =====
gnome-user-docs.noarch : GNOME User Documentation
libuser.x86_64 : A user and group account administration library
perl-User-pwent.noarch : By-name interface to Perl built-in user name resolver
samba-usershares.x86_64 : Provides support for non-root user shares
usermode.x86_64 : Tools for certain user account management tasks
userspace-rcu.x86_64 : RCU (read-copy-update) implementation in user-space
xdg-user-dirs.x86_64 : Handles user special directories
===== Name Matched: user =====
gnome-shell-extension-user-theme.noarch : Support for custom themes in GNOME Shell
xdg-user-dirs-gtk.x86_64 : Gnome integration of special directories
===== Summary Matched: user =====
NetworkManager.x86_64 : Network connection manager and user applications
PackageKit-command-not-found.x86_64 : Ask the user to install command line programs automatically
accountsservice.x86_64 : D-Bus interfaces for querying and manipulating user account information
anaconda-gui.x86_64 : Graphical user interface for the Anaconda installer
anaconda-tui.x86_64 : Textual user interface for the Anaconda installer
audit.x86_64 : User space tools for kernel auditing
cachefilesd.x86_64 : CacheFiles user-space management daemon
cockpit-machines-search : Cockpit user interface for virtual machines
```

Рис. 2: Список репозиторияв

```
root@haoladar: /etc/yum.repos.d#  
root@haoladar:/etc/yum.repos.d# dnf search nmap  
Last metadata expiration check: 0:00:41 ago on Mon 22 Sep 2025 07:14:09 PM MSK.  
===== Name Exactly Matched: nmap =====  
nmap.x86_64 : Network exploration tool and security scanner  
===== Name & Summary Matched: nmap =====  
nmap-ncat.x86_64 : Nmap's Netcat replacement  
root@haoladar:/etc/yum.repos.d# dnf info nmap  
Last metadata expiration check: 0:00:48 ago on Mon 22 Sep 2025 07:14:09 PM MSK.  
Available Packages  
Name       : nmap  
Epoch     : 4  
Version    : 7.92  
Release    : 3.el10  
Architecture : x86_64  
Size       : 5.6 M  
Source     : nmap-7.92-3.el10.src.rpm  
Repository : appstream  
Summary    : Network exploration tool and security scanner  
URL        : http://nmap.org/  
License    : LicenseRef-Nmap  
Description : Nmap is a utility for network exploration or security auditing. It supports  
              : ping scanning (determine which hosts are up), many port scanning techniques  
              : (determine what services the hosts are offering), and TCP/IP fingerprinting  
              : (remote host operating system identification). Nmap also offers flexible target  
              : and port specification, decoy scanning, determination of TCP sequence  
              : predictability characteristics, reverse-identd scanning, and more. In addition  
              : to the classic command-line nmap executable, the Nmap suite includes a flexible  
              : data transfer, redirection, and debugging tool (netcat utility ncat), a utility  
              : for comparing scan results (ndiff), and a packet generation and response
```

Рис. 3: Информация о пакете nmap

```
Rocky Linux 10 - AppStream                                1.6 MB/s | 1.6 kB    00:00
Importing GPG key 0x6FEDFC85:
  Userid      : "Release Engineering (Rocky Linux 10) <releng@rockylinux.org>"
  Fingerprint: FC22 6859 C086 0BF0 DDB9 5B08 5B10 6C73 6FED FC85
  From        : /etc/pki/rpm-gpg/RPM-GPG-KEY-Rocky-10
Is this ok [y/N]: y
Key imported successfully
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing      :                                1/1
  Installing     : nmap-4:7.92-3.el10.x86_64      1/1
  Running scriptlet: nmap-4:7.92-3.el10.x86_64      1/1

Installed:
  nmap-4:7.92-3.el10.x86_64

Complete!
root@haoladar:/etc/yum.repos.d# dnf install nmap\*
Last metadata expiration check: 0:01:55 ago on Mon 22 Sep 2025 07:14:09 PM MSK.
Package nmap-4:7.92-3.el10.x86_64 is already installed.
Package nmap-ncat-4:7.92-3.el10.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
root@haoladar:/etc/yum.repos.d#
```

Рис. 4: Установка пакета nmap


```
is this OK [y/N]: y
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing      :                                1/1
  Erasing        : nmap-4:7.92-3.el10.x86_64      1/1
  Running scriptlet: nmap-4:7.92-3.el10.x86_64      1/1

Removed:
  nmap-4:7.92-3.el10.x86_64

Complete!
root@haoladar:/etc/yum.repos.d# dnf remove nmap\*
Dependencies resolved.
=====
Package                Architecture      Version           Repository        Size
=====
Removing:
  nmap-ncat             x86_64           4:7.92-3.el10    @AppStream        470 k
=====

Transaction Summary
=====
Remove 1 Package
```

Рис. 5: Удаление пакета nmap

```
root@haoladar:/etc/yum.repos.d#  
root@haoladar:/etc/yum.repos.d# dnf groups list  
Last metadata expiration check: 0:02:45 ago on Mon 22 Sep 2025 07:14:09 PM MSK.  
Available Environment Groups:  
  Server  
  Minimal Install  
  Workstation  
  Custom Operating System  
  Virtualization Host  
Installed Environment Groups:  
  Server with GUI  
Installed Groups:  
  Container Management  
  Development Tools  
  Headless Management  
Available Groups:  
  Legacy UNIX Compatibility  
  Smart Card Support  
  Console Internet Tools  
  .NET Development  
  Graphical Administration Tools  
  Network Servers  
  RPM Development Tools  
  Scientific Support  
  Security Tools  
  System Tools  
root@haoladar:/etc/yum.repos.d#
```

```
root@haoladar:/etc/yum.repos.d# dnf groups info "RPM Development Tools"
Last metadata expiration check: 0:03:14 ago on Mon 22 Sep 2025 07:14:09 PM MSK.
Group: RPM Development Tools
Description: Tools used for building RPMs, such as rpmbuild.
Mandatory Packages:
  redhat-rpm-config
  rpm-build
Default Packages:
  rpmdevtools
root@haoladar:/etc/yum.repos.d# dnf groupinstall "RPM Development Tools"
Last metadata expiration check: 0:03:26 ago on Mon 22 Sep 2025 07:14:09 PM MSK.
Dependencies resolved.
=====
Package                        Architecture      Version           Repository        Size
=====
Installing group/module packages:
  rpmdevtools                  noarch            9.6-9.el10        appstream         87 k
Installing dependencies:
  python3-argcomplete           noarch            3.2.2-4.el10      appstream         88 k
Installing Groups:
  RPM Development Tools

Transaction Summary
=====
Install 2 Packages

Total download size: 175 k
Installed size: 472 k
Is this ok [y/N]: y
Downloading Packages:
(1/2): python3-argcomplete-3.2.2-4.el10.noarch.rpm                1.6 MB/s | 88 kB    00:00
```

Рис. 7: Информация о группе RPM Development Tools

```
root@haoladar:~# dnf groupremove "RPM Development Tools"
Dependencies resolved.
=====
Package                                Architecture      Version           Repository        Size
=====
Removing:
  rpmddevtools                          noarch            9.6-9.el10        @appstream        198 k
Removing unused dependencies:
  python3-argcomplete                   noarch            3.2.2-4.el10      @appstream        274 k
Removing Groups:
  RPM Development Tools

Transaction Summary
=====
Remove 2 Packages

Freed space: 472 k
Is this ok [y/N]: y
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing      :                                1/1
  Erasing       : rpmddevtools-9.6-9.el10.noarch  1/2
  Erasing       : python3-argcomplete-3.2.2-4.el10.noarch  2/2
```

Рис. 8: Удаление группы RPM Development Tools

```
root@haoladar:/etc/yum.repos.d#  
root@haoladar:/etc/yum.repos.d# dnf history
```

ID	Command line	Date and time	Action(s)	Altered
6	groupremove RPM Development Tools	2025-09-22 19:18	Removed	3
5	groupinstall RPM Development Tools	2025-09-22 19:17	Install	3
4	remove nmap*	2025-09-22 19:16	Removed	1
3	remove nmap	2025-09-22 19:16	Removed	1
2	install nmap	2025-09-22 19:15	Install	1 <
1		2025-09-22 18:36	Install	1373 >E

```
root@haoladar:/etc/yum.repos.d# dnf history undo 6  
Last metadata expiration check: 0:05:20 ago on Mon 22 Sep 2025 07:14:09 PM MSK.  
Dependencies resolved.
```

Package	Architecture	Version	Repository	Size
Installing group/module packages:				
rpmdevtools	noarch	9.6-9.el10	appstream	87 k
Installing dependencies:				
python3-argcomplete	noarch	3.2.2-4.el10	appstream	88 k
Installing Groups:				

Рис. 9: История dnf и откат действия

Использование rpm (lynx)

```
root@hao1adar: /etc/yum.repos.d# dnf list lynx
Last metadata expiration check: 0:07:13 ago on Mon 22 Sep 2025 07:14:09 PM MSK.
Available Packages
lynx.x86_64                                2.9.0-6.el10                                appstream
root@hao1adar: /etc/yum.repos.d# dnf install lynx --downloadonly
Last metadata expiration check: 0:07:29 ago on Mon 22 Sep 2025 07:14:09 PM MSK.
Dependencies resolved.
=====
Package                Architecture      Version           Repository        Size
=====
Installing:
lynx                    x86_64            2.9.0-6.el10      appstream         1.6 M
Transaction Summary
=====
Install 1 Package

Total download size: 1.6 M
Installed size: 6.0 M
DNF will only download packages for the transaction.
Is this ok [y/N]: y
Downloading Packages:
lynx-2.9.0-6.el10.x86_64.rpm                810 kB/s | 1.6 MB    00:01
-----
Total                                         653 kB/s | 1.6 MB    00:02
Complete!
The downloaded packages were saved in cache until the next successful transaction.
You can remove cached packages by executing 'dnf clean packages'.
root@hao1adar: /etc/yum.repos.d#
```

Рис. 10: Загрузка пакета lynx

```
root@haoladar:/etc/yum.repos.d# find /var/cache/dnf -name lynx*
/var/cache/dnf/appstream-8f18e4146890fdcf/packages/lynx-2.9.0-6.el10.x86_64.rpm
root@haoladar:/etc/yum.repos.d# cd /var/cache/dnf/appstream-8f18e4146890fdcf/packages/
root@haoladar:/var/cache/dnf/appstream-8f18e4146890fdcf/packages# rpm -Uvh lynx-2.9.0-6.el10.x86_64.rpm
Verifying...                               ##### [100%]
Preparing...                               ##### [100%]
Updating / installing...
 1:lynx-2.9.0-6.el10                        ##### [100%]
root@haoladar:/var/cache/dnf/appstream-8f18e4146890fdcf/packages# which lynx
/usr/bin/lynx
root@haoladar:/var/cache/dnf/appstream-8f18e4146890fdcf/packages# rpm -qf $(which lynx)
lynx-2.9.0-6.el10.x86_64
root@haoladar:/var/cache/dnf/appstream-8f18e4146890fdcf/packages# █
```

Рис. 11: Поиск и установка lynx

Использование rpm (lynx)

```
root@haoladar:/var/cache/dnf/appstream-8f18e4146890fd9c/packages# rpm -qi lynx
Name       : lynx
Version    : 2.9.0
Release    : 6.el10
Architecture: x86_64
Install Date: Mon 22 Sep 2025 07:22:48 PM MSK
Group      : Unspecified
Size       : 6283241
License    : GPL-2.0-only
Signature  : RSA/SHA256, Thu 22 May 2025 11:34:29 PM MSK, Key ID 5b106c736fedfc85
Source RPM : lynx-2.9.0-6.el10.src.rpm
Build Date : Fri 01 Nov 2024 01:03:33 PM MSK
Build Host  : pb-913aa2bb-e2a2-4928-a48c-b613e15933c9-b-x86-64
Packager    : Rocky Linux Build System (Peridot) <releng@rockylinux.org>
Vendor      : Rocky Enterprise Software Foundation
URL         : https://lynx.invisible-island.net/
Summary     : A text-based Web browser
Description :
Lynx is a text-based Web browser. Lynx does not display any images,
but it does support frames, tables, and most other HTML tags. One
advantage Lynx has over graphical browsers is speed; Lynx starts and
exits quickly and swiftly displays web pages.
root@haoladar:/var/cache/dnf/appstream-8f18e4146890fd9c/packages#
```

Рис. 12: Информация о пакете lynx

Использование rpm (lynx)

```
root@haoladar: /var/cache/dnf/appstream-8f18e4146890fd9c/packages# rpm -ql lynx
/etc/lynx-site.cfg
/etc/lynx.cfg
/etc/lynx.lss
/usr/bin/lynx
/usr/lib/.build-id
/usr/lib/.build-id/69
/usr/lib/.build-id/69/febb96205311acd4b77a65d52b8e6f7eea76c3
/usr/share/doc/lynx
/usr/share/doc/lynx/README
/usr/share/doc/lynx/docs
/usr/share/doc/lynx/docs/CHANGES2.3
/usr/share/doc/lynx/docs/CHANGES2.4
/usr/share/doc/lynx/docs/CHANGES2.5
/usr/share/doc/lynx/docs/CHANGES2.6
/usr/share/doc/lynx/docs/CHANGES2.7
/usr/share/doc/lynx/docs/CHANGES2.8
/usr/share/doc/lynx/docs/CRAWL.announce
/usr/share/doc/lynx/docs/FM.announce
/usr/share/doc/lynx/docs/IBMPC-charsets.announce
/usr/share/doc/lynx/docs/README.TRST
/usr/share/doc/lynx/docs/README.chartrans
/usr/share/doc/lynx/docs/README.cookies
```

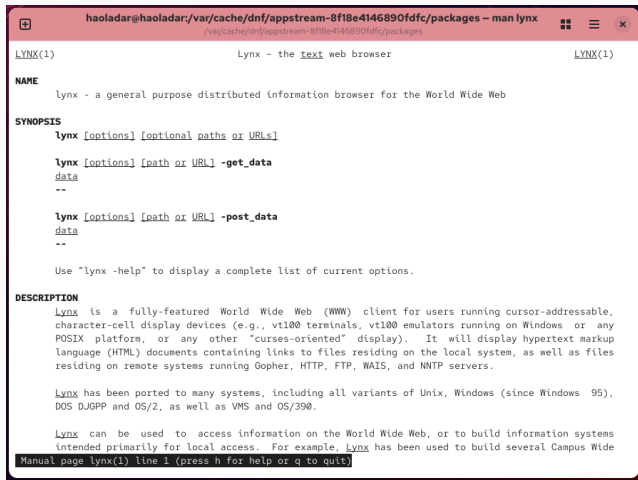
Рис. 13: Документация lynx

Использование rpm (lynx)

```
root@haoladar: /var/cache/dnf/appstream-8f18e4146890fdcf/packages# rpm -qd lynx
/usr/share/doc/lynx/README
/usr/share/doc/lynx/docs/CHANGES2.3
/usr/share/doc/lynx/docs/CHANGES2.4
/usr/share/doc/lynx/docs/CHANGES2.5
/usr/share/doc/lynx/docs/CHANGES2.6
/usr/share/doc/lynx/docs/CHANGES2.7
/usr/share/doc/lynx/docs/CHANGES2.8
/usr/share/doc/lynx/docs/CRAWL.announce
/usr/share/doc/lynx/docs/FM.announce
/usr/share/doc/lynx/docs/IBMPC-charsets.announce
/usr/share/doc/lynx/docs/README.TRST
/usr/share/doc/lynx/docs/README.chartrans
/usr/share/doc/lynx/docs/README.cookies
/usr/share/doc/lynx/docs/README.defines
/usr/share/doc/lynx/docs/README.metrics
/usr/share/doc/lynx/docs/README.options
/usr/share/doc/lynx/docs/README.release
/usr/share/doc/lynx/docs/README.rootcerts
/usr/share/doc/lynx/docs/README.ssl
/usr/share/doc/lynx/docs/README.sslcerts
/usr/share/doc/lynx/docs/SOCKETSHR.announce
/usr/share/doc/lynx/docs/TCPWARE.announce
/usr/share/doc/lynx/docs/VMSWAIS.announce
/usr/share/doc/lynx/docs/digpp.key
```

Рис. 14: Руководство man lynx

Использование rpm (lynx)



```
haoladar@haoladar:/var/cache/dnf/appstream-8f18e4146890fdc/packages -- man lynx
/var/cache/dnf/appstream-8f18e4146890fdc/packages

LYNX(1)                                Lynx - the text web browser                                LYNX(1)

NAME
    lynx - a general purpose distributed information browser for the World Wide Web

SYNOPSIS
    lynx [options] [optional paths or URLs]

    lynx [options] [path or URL] -get_data
    data
    --

    lynx [options] [path or URL] -post_data
    data
    --

    Use "lynx -help" to display a complete list of current options.

DESCRIPTION
    Lynx is a fully-featured World Wide Web (WWW) client for users running cursor-addressable,
    character-cell display devices (e.g., vt100 terminals, vt100 emulators running on Windows or any
    POSIX platform, or any other "curses-oriented" display). It will display hypertext markup
    language (HTML) documents containing links to files residing on the local system, as well as files
    residing on remote systems running Gopher, HTTP, FTP, WAIS, and NNTP servers.

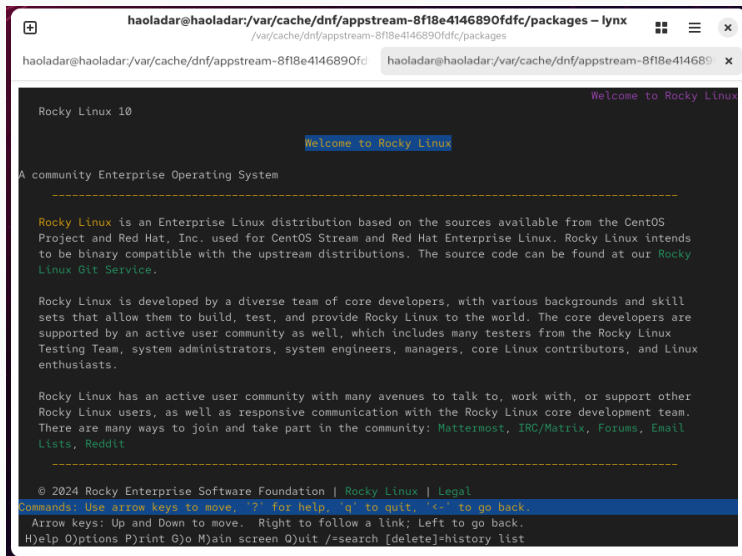
    Lynx has been ported to many systems, including all variants of Unix, Windows (since Windows 95),
    DOS DJGPP and OS/2, as well as VMS and OS/390.

    Lynx can be used to access information on the World Wide Web, or to build information systems
    intended primarily for local access. For example, Lynx has been used to build several Campus Wide

Manual page lynx(1) line 1 (press h for help or q to quit)
```

Рис. 15: Запуск lynx

Использование rpm (lynx)



The screenshot shows a terminal window with a Lynx web browser interface. The title bar reads "haoladar@haoladar:/var/cache/dnf/appstream-8f18e4146890dfd/packages - lynx". The address bar shows the path "/var/cache/dnf/appstream-8f18e4146890dfd/packages". The browser displays the "Welcome to Rocky Linux" page for Rocky Linux 10. The page content includes a welcome message, a description of Rocky Linux as an Enterprise Linux distribution, and information about the community and support resources. The footer contains copyright information and navigation instructions.

```
haoladar@haoladar:/var/cache/dnf/appstream-8f18e4146890dfd/packages - lynx
/var/cache/dnf/appstream-8f18e4146890dfd/packages

haoladar@haoladar:/var/cache/dnf/appstream-8f18e4146890dfd  haoladar@haoladar:/var/cache/dnf/appstream-8f18e4146890 x

Rocky Linux 10                                     Welcome to Rocky Linux

Welcome to Rocky Linux

A community Enterprise Operating System

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Rocky Linux is an Enterprise Linux distribution based on the sources available from the CentOS
Project and Red Hat, Inc. used for CentOS Stream and Red Hat Enterprise Linux. Rocky Linux intends
to be binary compatible with the upstream distributions. The source code can be found at our Rocky
Linux Git Service.

Rocky Linux is developed by a diverse team of core developers, with various backgrounds and skill
sets that allow them to build, test, and provide Rocky Linux to the world. The core developers are
supported by an active user community as well, which includes many testers from the Rocky Linux
Testing Team, system administrators, system engineers, managers, core Linux contributors, and Linux
enthusiasts.

Rocky Linux has an active user community with many avenues to talk to, work with, or support other
Rocky Linux users, as well as responsive communication with the Rocky Linux core development team.
There are many ways to join and take part in the community: Mattermost, IRC/Matrix, Forums, Email
Lists, Reddit

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Commands: Use arrow keys to move, '?' for help, 'q' to quit, '<-' to go back.
Arrow keys: Up and Down to move. Right to follow a link; Left to go back.
H)elp O)ptions P)rint G)o M)ain screen Q)uit /=search [delete]=history list
```

```
root@haoladar: /var/cache/dnf/appstream-8f18e4146890fdcf/packages#  
root@haoladar: /var/cache/dnf/appstream-8f18e4146890fdcf/packages# man lynx  
root@haoladar: /var/cache/dnf/appstream-8f18e4146890fdcf/packages#  
root@haoladar: /var/cache/dnf/appstream-8f18e4146890fdcf/packages# rpm -qc lynx  
/etc/lynx-site.cfg  
/etc/lynx.cfg  
/etc/lynx.lss  
root@haoladar: /var/cache/dnf/appstream-8f18e4146890fdcf/packages# rpm -q --scripts lynx  
root@haoladar: /var/cache/dnf/appstream-8f18e4146890fdcf/packages# rpm -e lynx  
root@haoladar: /var/cache/dnf/appstream-8f18e4146890fdcf/packages# ls  
lynx-2.9.0-6.el10.x86_64.rpm  
root@haoladar: /var/cache/dnf/appstream-8f18e4146890fdcf/packages#
```

Рис. 17: Удаление lynx

Использование rpm (dnsmasq)

```
root@haoladar: /var/cache/dnf/appstream-8f18e4146890fd9c/packages#  
root@haoladar: /var/cache/dnf/appstream-8f18e4146890fd9c/packages# dnf list dnsmasq  
Last metadata expiration check: 0:13:54 ago on Mon 22 Sep 2025 07:14:09 PM MSK.  
Installed Packages  
dnsmasq.x86_64                                2.90-4.el10                                @AppStream  
root@haoladar: /var/cache/dnf/appstream-8f18e4146890fd9c/packages# dnf install dnsmasq  
Last metadata expiration check: 0:14:04 ago on Mon 22 Sep 2025 07:14:09 PM MSK.  
Package dnsmasq-2.90-4.el10.x86_64 is already installed.  
Dependencies resolved.  
Nothing to do.  
Complete!  
root@haoladar: /var/cache/dnf/appstream-8f18e4146890fd9c/packages# which dnsmasq  
/usr/sbin/dnsmasq  
root@haoladar: /var/cache/dnf/appstream-8f18e4146890fd9c/packages# rpm -qf $(which dnsmasq)  
dnsmasq-2.90-4.el10.x86_64
```

Рис. 18: Установка dnsmasq

Использование rpm (dnsmasq)

```
root@haoladar:/var/cache/dnf/appstream-8f18e4146890fdcf/packages# rpm -qi dnsmasq
Name       : dnsmasq
Version    : 2.90
Release    : 4.el10
Architecture: x86_64
Install Date: Mon 22 Sep 2025 06:38:39 PM MSK
Group      : Unspecified
Size       : 794976
License    : GPL-2.0-only OR GPL-3.0-only
Signature  : RSA/SHA256, Thu 22 May 2025 03:17:11 AM MSK, Key ID 5b106c736fedfc85
Source RPM : dnsmasq-2.90-4.el10.src.rpm
Build Date : Thu 31 Oct 2024 02:46:28 PM MSK
Build Host : pb-6df20f45-04b4-477b-bded-5a041ce1b59d-b-x86-64
Packager   : Rocky Linux Build System (Peridot) <releng@rockylinux.org>
Vendor     : Rocky Enterprise Software Foundation
VCS        : git:git://thekelleys.org.uk/dnsmasq.git
URL        : http://www.thekelleys.org.uk/dnsmasq/
Summary    : A lightweight DHCP/caching DNS server
Description:
Dnsmasq is lightweight, easy to configure DNS forwarder and DHCP server.
It is designed to provide DNS and, optionally, DHCP, to a small network.
It can serve the names of local machines which are not in the global
DNS. The DHCP server integrates with the DNS server and allows machines
with DHCP-allocated addresses to appear in the DNS with names configured
either in each host or in a central configuration file. Dnsmasq supports
static and dynamic DHCP leases and BOOTP for network booting of disk-less
machines.
root@haoladar:/var/cache/dnf/appstream-8f18e4146890fdcf/packages# _
```

Рис. 19: Информация о пакете dnsmasq

Использование rpm (dnsmasq)

```
root@haoladar:/var/cache/dnf/appstream-8f18e4146890fdcf/packages# rpm -ql dnsmasq
/etc/dbus-1/system.d/dnsmasq.conf
/etc/dnsmasq.conf
/etc/dnsmasq.d
/usr/lib/.build-id
/usr/lib/.build-id/c9
/usr/lib/.build-id/c9/a4bb4576977dbef150b40955510f869d246b34
/usr/lib/systemd/system/dnsmasq.service
/usr/lib/sysusers.d/dnsmasq.conf
/usr/sbin/dnsmasq
/usr/share/dnsmasq
/usr/share/dnsmasq/trust-anchors.conf
/usr/share/doc/dnsmasq
/usr/share/doc/dnsmasq/CHANGELOG
/usr/share/doc/dnsmasq/DBus-interface
/usr/share/doc/dnsmasq/FAQ
/usr/share/doc/dnsmasq/doc.html
/usr/share/doc/dnsmasq/setup.html
/usr/share/licenses/dnsmasq
/usr/share/licenses/dnsmasq/COPYING
/usr/share/licenses/dnsmasq/COPYING-v3
/usr/share/man/man8/dnsmasq.8.gz
/var/lib/dnsmasq
root@haoladar:/var/cache/dnf/appstream-8f18e4146890fdcf/packages# rpm -qd dnsmasq
/usr/share/doc/dnsmasq/CHANGELOG
/usr/share/doc/dnsmasq/DBus-interface
/usr/share/doc/dnsmasq/FAQ
/usr/share/doc/dnsmasq/doc.html
/usr/share/doc/dnsmasq/setup.html
/usr/share/man/man8/dnsmasq.8.gz
root@haoladar:/var/cache/dnf/appstream-8f18e4146890fdcf/packages#
```

Рис. 20: Список файлов и документация dnsmasq

Использование rpm (dnsmasq)

```
haoladar@haoladar:/var/cache/dnf/appstream-8f18e4146890fdc/packages -- man dnsmasq
/var/cache/dnf/appstream-8f18e4146890fdc/packages

DNMSMQ(8)                                     System Manager's Manual                       DNMSMQ(8)

NAME
  dnsmasq - A lightweight DHCP and caching DNS server.

SYNOPSIS
  dnsmasq [OPTION]...

DESCRIPTION
  dnsmasq is a lightweight DNS, TFTP, PXE, router advertisement and DHCP server. It is intended to
  provide coupled DNS and DHCP service to a LAN.

  Dnsmasq accepts DNS queries and either answers them from a small, local, cache or forwards them to
  a real, recursive, DNS server. It loads the contents of /etc/hosts so that local hostnames which
  do not appear in the global DNS can be resolved and also answers DNS queries for DHCP configured
  hosts. It can also act as the authoritative DNS server for one or more domains, allowing local
  names to appear in the global DNS. It can be configured to do DNSSEC validation.

  The dnsmasq DHCP server supports static address assignments and multiple networks. It automati-
  cally sends a sensible default set of DHCP options, and can be configured to send any desired set
  of DHCP options, including vendor-encapsulated options. It includes a secure, read-only, TFTP
  server to allow net/PXE boot of DHCP hosts and also supports BOOTP. The PXE support is full fea-
  tured, and includes a proxy mode which supplies PXE information to clients whilst DHCP address al-
  location is done by another server.

  The dnsmasq DHCPv6 server provides the same set of features as the DHCPv4 server, and in addition,
  it includes router advertisements and a neat feature which allows naming for clients which use
  DHCPv4 and stateless autoconfiguration only for IPv6 configuration. There is support for doing ad-
  dress allocation (both DHCPv6 and RA) from subnets which are dynamically delegated via DHCPv6 pre-
  fix delegation.

Manual page dnsmasq(8) line 1 (press h for help or q to quit)
```

Использование rpm (dnsmasq)

```
root@haoladar: /var/cache/dnf/appstream-8f18e4146890fd9c/packages#
root@haoladar: /var/cache/dnf/appstream-8f18e4146890fd9c/packages# rpm -qc dnsmasq
/etc/dbus-1/system.d/dnsmasq.conf
/etc/dnsmasq.conf
root@haoladar: /var/cache/dnf/appstream-8f18e4146890fd9c/packages# rpm -q --scripts dnsmasq
preinstall scriptlet (using /bin/sh):
#precreate users so that rpm can install files owned by that user

# generated from dnsmasq-systemd-sysusers.conf
getent group 'dnsmasq' >/dev/null || groupadd -r 'dnsmasq' || :
getent passwd 'dnsmasq' >/dev/null || \
    useradd -r -g 'dnsmasq' -d '/var/lib/dnsmasq' -s '/usr/sbin/nologin' -c 'Dnsmasq DHCP and DNS server' 'dnsmasq' || :
postinstall scriptlet (using /bin/sh):

if [ $1 -eq 1 ] && [ -x "/usr/lib/systemd/systemd-update-helper" ]; then
    # Initial installation
    /usr/lib/systemd/systemd-update-helper install-system-units dnsmasq.service || :
fi
preuninstall scriptlet (using /bin/sh):

if [ $1 -eq 0 ] && [ -x "/usr/lib/systemd/systemd-update-helper" ]; then
    # Package removal, not upgrade
    /usr/lib/systemd/systemd-update-helper remove-system-units dnsmasq.service || :
fi
postuninstall scriptlet (using /bin/sh):
```

Рис. 22: Конфигурационные файлы dnsmasq

Итоги работы

- Изучена работа с репозиториями, установкой и удалением пакетов через **dnf**
- Получены навыки работы с группами пакетов
- Освоены приёмы установки, анализа и удаления пакетов через **rpm**
- Сформированы практические умения администрирования ПО в Linux