

# Лабораторная работа №4

Работа с программными пакетами (DNF и RPM)

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## Цель работы

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Получить практические навыки работы с репозиториями, пакетами и группами пакетов в Linux с использованием менеджеров **dnf** и **rpm**.

## Ход выполнения работы

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# Изучение репозитория

```
-----, ----, -----
root@titukaev:/home/titukaev# cd /etc/yum.repos.d/
root@titukaev:/etc/yum.repos.d# ls
rocky-addons.repo  rocky-devel.repo  rocky-extras.repo  rocky.repo  Rocky-SIG-Core-Common.repo  Rocky-SIG-Core-Infra.repo
root@titukaev:/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
metadata_expire=6h
gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-Rocky-10
```

Рис. 1: Просмотр содержания репозитория

# Просмотр списка репозиториев

```
root@titukaev:/etc/yum.repos.d#  
root@titukaev:/etc/yum.repos.d# dnf repolist  
repo id                                repo name  
appstream                              Rocky Linux 10 - AppStream  
baseos                                 Rocky Linux 10 - BaseOS  
core-common                            Rocky Linux 10 - SIG Core Common  
extras                                 Rocky Linux 10 - Extras  
root@titukaev:/etc/yum.repos.d# dnf search user  
Last metadata expiration check: 0:30:42 ago on Tue 09 Dec 2025 11:39:55 AM MSK.  
===== 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.noarch : Provides support for non-root user shares  
usernode.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.noarch : Cockpit user interface for virtual machines  
cockpit-ostree.noarch : Cockpit user interface for rpm-ostree  
cockpit-packagekit.noarch : Cockpit user interface for packages  
cockpit-storage.noarch : Cockpit user interface for storage, using udisks  
console-login-helper-messages.noarch : Combines motd, issue, profile features to show system information to the user before/on login  
criu.x86_64 : Tool for Checkpoint/Restore in User-space
```

Рис. 2: Список репозиториев

Определение активных репозиториев (AppStream, BaseOS, Extras и др.).

# Поиск пакетов по ключевому слову

```
root@titukaev:/etc/yum.repos.d# dnf search nmap
Last metadata expiration check: 0:32:05 ago on Tue 09 Dec 2025 11:39:55 AM 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@titukaev:/etc/yum.repos.d# dnf info nmap
Last metadata expiration check: 0:32:12 ago on Tue 09 Dec 2025 11:39:55 AM 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
           : analysis tool (nping).
```

```
root@titukaev:/etc/yum.repos.d# █
```

Рис. 3: Поиск пакетов по слову user

# Поиск и просмотр информации о пакете

```
=====
Installing:
  nmap                                x86_64                                4:7.92-3.el10                                appstream                                5.6 M

Transaction Summary
-----
Install 1 Package

Total download size: 5.6 M
Installed size: 24 M
Is this ok [y/N]: y
Downloading Packages:
nmap-7.92-3.el10.x86_64.rpm                                                         15 MB/s | 5.6 MB | 00:00
-----
Total                                                                              6.2 MB/s | 5.6 MB | 00:00
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@titukaev:/etc/yum.repos.d# dnf install nmap
Last metadata expiration check: 0:32:46 ago on Tue 09 Dec 2025 11:39:55 AM 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@titukaev:/etc/yum.repos.d#
```

Рис. 4: Информация о пакете nmap

Получение детальной информации (dnf info nmap).



# Установка и сравнение режимов установки

```
Running transaction test.
Transaction test succeeded.
Running transaction
  Preparing      : 1/1
  Erasing       : 1/1
  Running scriptlet: 1/1

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

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

Transaction Summary
=====
Remove 1 Package

Freed space: 470 k
Is this ok [y/N]: y
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing      : 1/1
  Running scriptlet: nmap-ncat-4:7.92-3.el10.x86_64 1/1
  Erasing       : nmap-ncat-4:7.92-3.el10.x86_64 1/1
  Running scriptlet: nmap-ncat-4:7.92-3.el10.x86_64 1/1

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

Complete!
root@titukaev:/etc/yum.repos.d#
```

Рис. 5: Установка nmap

Сравнение команд `dnf install nmap` и `dnf install nmap*`.

## Удаление пакета nmap

```
root@titukaev:/etc/yum.repos.d# LANG=C dnf groups list
Last metadata expiration check: 0:36:07 ago on Tue Dec 9 11:39:55 2025.
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@titukaev:/etc/yum.repos.d#
root@titukaev:/etc/yum.repos.d# dnf groups info "RPM Development Tools"
Last metadata expiration check: 0:36:42 ago on Tue 09 Dec 2025 11:39:55 AM 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@titukaev:/etc/yum.repos.d#
```

```
Cleanup      : rpm-plugin-selinux-4.19.1.1-12.el10.x86_64      38/37
Cleanup      : redhat-rpm-config-289-1.el10.0.1.noarch        31/37
Cleanup      : rpm-4.19.1.1-12.el10.x86_64                   32/37
Cleanup      : rpm-libs-4.19.1.1-12.el10.x86_64                33/37
Cleanup      : rpm-sequoia-1.6.0-6.el10.x86_64                34/37
Cleanup      : openssl-libs-1:3.2.2-16.el10.0.4.x86_64        35/37
Cleanup      : crypto-policies-20250214-1.gitf9b9b9.el10.0.1.noarch 36/37
Cleanup      : rpm-plugin-audit-4.19.1.1-12.el10.x86_64       37/37
Running scriptlet: rpm-4.19.1.1-20.el10.x86_64                37/37
Running scriptlet: crypto-policies-scripts-20250905-2.gitc7eb7b2.el10.noarch 37/37
Running scriptlet: rpm-plugin-audit-4.19.1.1-12.el10.x86_64   37/37

Jpgraded:
crypto-policies-20250905-2.gitc7eb7b2.el10.noarch  crypto-policies-scripts-20250905-2.gitc7eb7b2.el10.noarch  openssl-1:3.5.1-4.el10.1.x86_64  openssl-devel-1:3.5.1-4.el10.1.x86_64
openssl-libs-1:3.5.1-4.el10.1.x86_64                python3-rpm-4.19.1.1-20.el10.x86_64                redhat-rpm-config-293-1.el10.noarch  rpm-4.19.1.1-20.el10.x86_64
rpm-build-4.19.1.1-20.el10.x86_64                    rpm-build-libs-4.19.1.1-20.el10.x86_64                rpm-libs-4.19.1.1-20.el10.x86_64  rpm-plugin-audit-4.19.1.1-20.el10.x86_64
rpm-plugin-selinux-4.19.1.1-20.el10.x86_64            rpm-plugin-systemd-inhibit-4.19.1.1-20.el10.x86_64    rpm-sequoia-1.9.0-3-1.el10.1.x86_64  rpm-sign-4.19.1.1-20.el10.x86_64
rpm-sign-libs-4.19.1.1-20.el10.x86_64

Installed:
openssl-fips-provider-1:3.5.1-4.el10.1.x86_64          python3-argcomplete-3.2.2-4.el10.noarch          rpdevtools-9.6-9.el10.noarch

Complete!
root@titukaev:/etc/yum/repos.d#
```

Рис. 7: Список групп пакетов

Определение и установка группы *RPM Development Tools*.

# Удаление групп пакетов

```
root@titukaev:~/etc/yum.repos.d# dnf groupremove "RPM Development Tools"
Dependencies resolved.
=====
Package                                Architecture      Version           Repository        Size
=====
Removing:
  rpdevtools                                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       : rpdevtools-9.6-9.el10.noarch    1/2
  Erasing       : python3-argcomplete-3.2.2-4.el10.noarch 2/2
  Running scriptlet: python3-argcomplete-3.2.2-4.el10.noarch 2/2

Removed:
  python3-argcomplete-3.2.2-4.el10.noarch                rpdevtools-9.6-9.el10.noarch

Complete!
root@titukaev:~/etc/yum.repos.d#
```

Рис. 8: Удаление группы RPM Development Tools

Использование `dnf groupremove`.

# Просмотр и откат операций

```
root@titukaev:/etc/yum.repos.d#
root@titukaev:/etc/yum.repos.d# dnf history
ID      | Command line                                     | Date and time | Action(s) | Altered
-----|-----|-----|-----|-----
13 | groupremove RPM Development Tools               | 2025-12-09 12:17 | Removed   | 3
12 | groupinstall RPM Development Tools              | 2025-12-09 12:17 | I, U      | 21
11 | remove nmap*                                    | 2025-12-09 12:15 | Removed   | 1
10 | remove nmap*                                    | 2025-12-09 12:15 | Removed   | 1
9 | install nmap*                                    | 2025-12-09 12:12 | Install   | 1
8 | install --enablerepo=core-infra gdisk -y        | 2025-11-11 10:41 | Install   | 1 <
7 | install rocky-release-core -y                  | 2025-11-11 10:41 | Install   | 1 >
6 |                                                    | 2025-10-29 11:30 | Install   | 2
5 | upgrade --refresh                               | 2025-10-18 12:06 | I, U      | 237 EE
4 | -y install lynx                                 | 2025-10-14 11:58 | Install   | 1
3 |                                                    | 2025-10-09 14:22 | Install   | 1
2 | -y install httpd                                | 2025-10-09 14:20 | Install   | 11 <
1 |                                                    | 2025-10-09 13:35 | Install   | 1373 >E

root@titukaev:/etc/yum.repos.d# dnf history ubd0 13
No transaction which manipulates package 'ubd0' was found.
ID      | Command line                                     | Date and time | Action(s) | Altered
-----|-----|-----|-----|-----
13 | groupremove RPM Development Tools               | 2025-12-09 12:17 | Removed   | 3

root@titukaev:/etc/yum.repos.d# dnf history undo 13
Last metadata expiration check: 0:38:28 ago on Tue 09 Dec 2025 11:39:55 AM MSK.
Dependencies resolved.
=====
Package                               Architecture      Version           Repository        Size
-----
Installing group/module packages:
zsh-develtools                               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
=====
Total: 150 Packages
```

Рис. 9: История dnf и отмена транзакции

Анализ выполненных операций и использование `dnf history undo`.

# Загрузка и установка rpm-пакета

```
root@titukaev:/etc/yum.repos.d# dnf list lynx
Last metadata expiration check: 0:39:25 ago on Tue 09 Dec 2025 11:39:55 AM MSK.
Available Packages
lynx.x86_64                                         2.9.0-6.el10                                appstream

root@titukaev:/etc/yum.repos.d# dnf install lynx --downloadonly
Last metadata expiration check: 0:39:46 ago on Tue 09 Dec 2025 11:39:55 AM 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                        25 MB/s | 1.6 MB   00:00
-----
Total                                           4.8 MB/s | 1.6 MB   00:00
Complete!
The downloaded packages were saved in cache until the next successful transaction.
You can remove cached packages by executing 'dnf clean packages'.
root@titukaev:/etc/yum.repos.d# find /var/cache/dnf -name lynx*
/var/cache/dnf/appstream-8f18e4146890dfdc/packages/lynx-2.9.0-6.el10.x86_64.rpm
root@titukaev:/etc/yum.repos.d# cd /var/cache/dnf/appstream-8f18e4146890dfdc/packages/
root@titukaev:/var/cache/dnf/appstream-8f18e4146890dfdc/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@titukaev:/var/cache/dnf/appstream-8f18e4146890dfdc/packages#
```

Рис. 10: Загрузка пакета lynx

Установка через **rpm** -Uvh после загрузки через **dnf**.

## Информация о пакете

```
root@titukaev: /var/cache/dnf/appstream-8f18e4146890fdcf/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
/usr/share/doc/lynx/docs/README.defines
```

Рис. 11: Информация о пакете lynx

## Просмотр содержимого пакета

```
root@titukaev: /var/cache/dnf/appstream-8f18e4146890fd9c/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/SHR.announce
/usr/share/doc/lynx/docs/TCPWARE.announce
```

Рис. 12: Список файлов lynx



# Просмотр документации man



```
titukaev@titukaev:/var/cache/dfn/appstream-8f18e4146890dfc/packages - man lynx
Lynx(1)                                Lynx - the lex 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 "cursor-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 Information Systems (CRIS). In addition, Lynx can be used to build systems isolated within a single LAN.

OPTIONS
  At start up, Lynx will load any local file or remote URL specified at the command line. For help with URLs, press "?" or "H" while running Lynx. Then follow the link titled, "Help on URLs."

  If more than one local file or remote URL is listed on the command line, Lynx will open only the last interactively. All of the names (local files and remote URLs) are added to the oject history.

  Lynx uses only long option names. Option names can begin with double dash "--" as well, underscores and dashes can be intermixed in option names (in the reference below, options are shown with one dash "-" before them, and with underscores "_").

  Lynx provides many command-line options. Some options require a value (string, number or keyword). These are noted in the reference below. The other options set boolean values in the program. There are three types of boolean options: set, unset and toggle. If no option value is given, these have the obvious meaning: set (to true), unset (to false), or

Manual page Lynx(1) line 2 (press h for help or q to quit)
```

Рис. 13: man lynx

Открытие справочной страницы.

# Установка dnsmasq

```
root@titukaev: /var/cache/dnf/appstream-8f18e4146898f4dc/packages#  
root@titukaev: /var/cache/dnf/appstream-8f18e4146898f4dc/packages# dnf list dnsmasq  
Last metadata expiration check: 0:48:05 ago on Tue 09 Dec 2025 11:39:55 AM MSK.  
Available Packages  
dnsmasq.x86_64                                2.90-4.el10                                appstream  
root@titukaev: /var/cache/dnf/appstream-8f18e4146898f4dc/packages# dnf install dnsmasq  
Last metadata expiration check: 0:48:13 ago on Tue 09 Dec 2025 11:39:55 AM MSK.  
Dependencies resolved.  
=====
```

Package	Architecture	Version	Repository	Size
Installing:				
dnsmasq	x86_64	2.90-4.el10	appstream	364 k
Installing dependencies:				
nettle	x86_64	3.10.1-1.el10	baseos	558 k

```
=====
```

Transaction Summary

=====

Install 2 Packages

Total download size: 922 k  
Installed size: 1.9 M  
Is this ok [y/N]: y  
Downloading Packages:  
(1/2): dnsmasq-2.90-4.el10.x86\_64.rpm 6.9 MB/s | 364 kB 00:00  
(2/2): nettle-3.10.1-1.el10.x86\_64.rpm 2.2 MB/s | 558 kB 00:00  
=====

Total	1.2 MB/s   922 kB	00:00
-------	-------------------	-------

```
=====
```

Running transaction check  
Transaction check succeeded.

Рис. 14: Установка dnsmasq

Установка сервера DNS/DHCP/TFTP.

# Информация о dnsmasq

```
-----
root@titukaev:/var/cache/dnf/appstream-8f18e4146890fdcf/packages# which dnsmasq
/usr/sbin/dnsmasq
root@titukaev:/var/cache/dnf/appstream-8f18e4146890fdcf/packages# rpm -qf $(which dnsmasq)
dnsmasq-2.90-4.el10.x86_64
root@titukaev:/var/cache/dnf/appstream-8f18e4146890fdcf/packages# rpm -qi dnsmasq
Name       : dnsmasq
Version    : 2.90
Release    : 4.el10
Architecture: x86_64
Install Date: Tue 09 Dec 2025 12:28:12 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@titukaev:/var/cache/dnf/appstream-8f18e4146890fdcf/packages#
```

## Просмотр файлов и документации

```
root@titukaev: /var/cache/dnf/appstream-8f18e4146890fd9c/packages#  
root@titukaev: /var/cache/dnf/appstream-8f18e4146890fd9c/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@titukaev: /var/cache/dnf/appstream-8f18e4146890fd9c/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@titukaev: /var/cache/dnf/appstream-8f18e4146890fd9c/packages#
```

# Просмотр ман-страницы dnsmasq

```
DNMASQ(8)                                     System Manager's Manual                               DNMASQ(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 automatically 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 featured, and includes a proxy mode which supplies PXE information to clients whilst DHCP address allocation 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 address allocation (both DHCPv6 and RA) from subnets which are dynamically delegated via DHCPv6 prefix delegation.

  Dnsmasq is coded with small embedded systems in mind. It aims for the smallest possible memory footprint compatible with the supported functions, and allows unneeded functions to be omitted from the compiled binary.

OPTIONS
  Note that in general missing parameters are allowed and switch off functions, for instance "--pid-file" disables writing a PID file. On BSD, unless the GNU getopt library is linked, the long form of the options does not work on the command line; it is still recognised in the configuration file.

  --test Read and syntax check configuration file(s). Exit with code 0 if all is OK, or a non-zero code otherwise. Do not start up dnsmasq.

  -s, --help
    Display all command-line options. --help dhcp will display known DHCPv4 configuration options, and --help dhcp6 will display DHCPv6 options.

  -h, --no-hosts
    Don't read the hostnames in /etc/hosts.

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

Рис. 17: man dnsmasq

# Конфигурационные файлы

```
root@titukaev:/var/cache/dnf/appstream-8f18e4146890fdcf/packages# rpm -qc dnsmasq
/etc/dbus-1/system.d/dnsmasq.conf
/etc/dnsmasq.conf
root@titukaev:/var/cache/dnf/appstream-8f18e4146890fdcf/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):

if [ $1 -ge 1 ] && [ -x "/usr/lib/systemd/systemd-update-helper" ]; then
    # Package upgrade, not uninstall
    /usr/lib/systemd/systemd-update-helper mark-restart-system-units dnsmasq.service || :
fi
root@titukaev:/var/cache/dnf/appstream-8f18e4146890fdcf/packages# rpm -e dnsmasq
root@titukaev:/var/cache/dnf/appstream-8f18e4146890fdcf/packages#
```

Рис. 18: Конфигурационные файлы dnsmasq

## Заключение

---

Освоены операции установки, удаления, анализа и аудита пакетов с использованием **dnf** и **rpm**.

Изучены:

- репозитории и группы пакетов;
- установка и удаление пакетов;
- работа с rpm-файлами, документами и конфигурациями;
- служебные скрипты rpm;
- история транзакций.