Лабораторная работа №4

Работа с программными пакетами

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2025-09-27

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Информация

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Цели и задачи

- Получить навыки работы с репозиториями и менеджерами пакетов.

1. Изучите, как и в каких файлах подключаются репозитории для установки программного обеспечения; изучите основные возможности (поиск, установка, обновление, удаление пакета, работа с историей действий) команды dnf (см. раздел 4.4.1).
2. Изучите и повторите процесс установки/удаления определённого пакета с использованием возможностей dnf (см. раздел 4.4.1).
3. Изучите и повторите процесс установки/удаления определённого пакета с использованием возможностей rpm (см. раздел 4.4.2).

Материалы и методы

- Linux (дистрибутив Rocky 9.6)
- Linux Fedora Sway (Markdown)
- Oracle VirtualBox

Выполнение лабораторной работы

```
[aeakunaeva@aeakunaeva ~]$ su -
Password:
[root@aeakunaeva ~]# cd /etc/yum.repos.d
[root@aeakunaeva yum.repos.d]# ls
rocky-addons.repo  rocky-devel.repo  rocky-extras.repo  rocky.repo
[root@aeakunaeva yum.repos.d]# cat rocky-addons.repo
# rocky-addons.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.

[highavailability]
name=Rocky Linux $releasever - High Availability
mirrorlist=https://mirrors.rockylinux.org/mirrorlist?arch=$basearch&repo=HighAva
ilability-$releasever$rltype
#baseurl=http://dl.rockylinux.org/$contentdir/$releasever/HighAvailability/$base
arch/os/
gpgcheck=1
```

```
dnf repolist

dnf search user
```

```
[root@aeakunaeva yum.repos.d]# dnf repolist
repo id                          repo name
appstream                        Rocky Linux 9 - AppStream
baseos                           Rocky Linux 9 - BaseOS
extras                           Rocky Linux 9 - Extras
[root@aeakunaeva yum.repos.d]# dnf search user
Last metadata expiration check: 13 days, 23:38:38 ago on Sat 13 Sep 2025 08:37:5
4 PM MSK.
========================= Name & Summary Matched: user =========================
gnome-user-docs.noarch : GNOME User Documentation
libuser.x86_64 : A user and group account administration library
libuser.i686 : 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
usermode-gtk.x86_64 : Graphical tools for certain user account management tasks
userspace-rcu.x86_64 : RCU (read-copy-update) implementation in user-space
userspace-rcu.i686 : RCU (read-copy-update) implementation in user-space
util-linux-user.x86_64 : libuser based util-linux utilities
xdg-user-dirs.x86_64 : Handles user special directories
============================ Name Matched: user ============================
anaconda-user-help.noarch : Content for the Anaconda built-in help system
gnome-shell-extension-user-theme.noarch : Support for custom themes in GNOME
```

```
[root@aeakunaeva yum.repos.d]# dnf search nmap
========================= 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@aeakunaeva yum.repos.d]# dnf info nmap
Rocky Linux 9 - BaseOS                           11 kB/s | 4.1 kB     00:00
Rocky Linux 9 - BaseOS                           3.4 MB/s | 2.5 MB     00:00
Rocky Linux 9 - AppStream                        13 kB/s | 4.5 kB     00:00
Rocky Linux 9 - AppStream                        7.1 MB/s | 9.5 MB     00:01
Rocky Linux 9 - Extras                           96  B/s | 2.9 kB     00:31
Available Packages
Name         : nmap
Epoch        : 3
Version      : 7.92
Release      : 3.el9
Architecture : x86_64
Size         : 5.4 M
Source       : nmap-7.92-3.el9.src.rpm
Repository   : appstream
Summary      : Network exploration tool and security scanner
URL          : http://nmap.org/
License      : Nmap
Description  : Nmap is a utility for network exploration or security auditing.
```

```
[root@aeakunaeva yum.repos.d]# dnf install nmap
Last metadata expiration check: 0:00:34 ago on Sat 27 Sep 2025 08:18:21 PM MSK.
Dependencies resolved.
================================================================================
 Package          Architecture     Version                Repository       Size
================================================================================
Installing:
 nmap             x86_64           3:7.92-3.el9           appstream        5.4 M

Transaction Summary
================================================================================
Install  1 Package

Total download size: 5.4 M
Installed size: 24 M
Is this ok [y/N]: y
Downloading Packages:
nmap-7.92-3.el9.x86_64.rpm                      7.2 MB/s | 5.4 MB    00:00
--------------------------------------------------------------------------------
Total                                           4.9 MB/s | 5.4 MB    00:01
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
```

```
[root@aeakunaeva yum.repos.d]# dnf install nmap\*
Last metadata expiration check: 0:00:53 ago on Sat 27 Sep 2025 08:18:21 PM MSK.
Package nmap-3:7.92-3.el9.x86_64 is already installed.
Package nmap-ncat-3:7.92-3.el9.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
[root@aeakunaeva yum.repos.d]# dnf remove nmap
Dependencies resolved.
================================================================================
 Package          Architecture     Version               Repository       Size
================================================================================
Removing:
 nmap             x86_64           3:7.92-3.el9          @appstream        24 M

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

Freed space: 24 M
Is this ok [y/N]: y
Running transaction check
Transaction check succeeded.
```

```
[root@aeakunaeva yum.repos.d]# dnf remove nmap\*
Dependencies resolved.
================================================================
 Package            Architecture   Version            Repository      Size
================================================================
Removing:
 nmap-ncat          x86_64         3:7.92-3.el9       @AppStream      469 k

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

Freed space: 469 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-3:7.92-3.el9.x86_64                  1/1
  Erasing          : nmap-ncat-3:7.92-3.el9.x86_64                  1/1
```

```
[root@aeakunaeva yum.repos.d]# dnf groups list
Last metadata expiration check: 0:02:08 ago on Sat 27 Sep 2025 08:18:21 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
   Console Internet Tools
   .NET Development
   Graphical Administration Tools
   Network Servers
   RPM Development Tools
   Scientific Support
   Security Tools
```

```
[root@aeakunaeva yum.repos.d]# LANG=C dnf groups list
Last metadata expiration check: 0:02:30 ago on Sat Sep 27 20:18:21 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
   Console Internet Tools
   .NET Development
   Graphical Administration Tools
   Network Servers
   RPM Development Tools
   Scientific Support
```

```
[root@aeakunaeva yum.repos.d]# dnf groups info "RPM Development Tools"
Last metadata expiration check: 0:03:02 ago on Sat 27 Sep 2025 08:18:21 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
 Optional Packages:
   rpmlint
[root@aeakunaeva yum.repos.d]# dnf groupinstall "RPM Development Tools"
Last metadata expiration check: 0:03:30 ago on Sat 27 Sep 2025 08:18:21 PM MSK.
Dependencies resolved.
================================================================================
 Package                 Arch         Version             Repository      Size
================================================================================
Installing group/module packages:
 rpmdevtools             noarch       9.5-1.el9           appstream       75 k
Installing dependencies:
 python3-argcomplete     noarch       1.12.0-5.el9        appstream       61 k
Installing Groups:
 RPM Development Tools
```

```
[root@aeakunaeva yum.repos.d]# dnf groupremove "RPM Development Tools"
Dependencies resolved.
================================================================================
 Package                 Arch        Version            Repository     Size
================================================================================
Removing:
 rpmdevtools             noarch      9.5-1.el9          @appstream     195 k
Removing unused dependencies:
 python3-argcomplete     noarch      1.12.0-5.el9       @appstream     219 k
Removing Groups:
 RPM Development Tools

Transaction Summary
================================================================================
Remove  2 Packages

Freed space: 414 k
Is this ok [y/N]: y
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
```

```
[root@aeakunaeva yum.repos.d]# dnf history
ID     | Command line               | Date and time     | Action(s)   | Altered
-------------------------------------------------------------------------------
     7 | groupremove RPM Developme  | 2025-09-27 20:22  | Removed     |    3
     6 | groupinstall RPM Developm  | 2025-09-27 20:21  | Install     |    3
     5 | remove nmap*               | 2025-09-27 20:20  | Removed     |    1
     4 | remove nmap                | 2025-09-27 20:19  | Removed     |    1
     3 | install nmap               | 2025-09-27 20:19  | Install     |    1
     2 | install mc                 | 2025-09-13 20:06  | Install     |    1   <
     1 |                            | 2025-09-13 19:36  | Install     | 1308 >E
[root@aeakunaeva yum.repos.d]# dnf history undo 6
Last metadata expiration check: 0:04:38 ago on Sat 27 Sep 2025 08:18:21 PM MSK.
Dependencies resolved.
Nothing to do.
Complete!
Warning, the following problems occurred while running a transaction:
  Package nevra "python3-argcomplete-1.12.0-5.el9.noarch" not installed for acti
on "Removed".
  Package nevra "rpmdevtools-9.5-1.el9.noarch" not installed for action "Removed
".
  Group id 'rpm-development-tools' is not installed.
```

```
[root@aeakunaeva yum.repos.d]# dnf list lynx
Last metadata expiration check: 0:12:26 ago on Sat 27 Sep 2025 08:18:21 PM MSK.
Available Packages
lynx.x86_64                      2.8.9-20.el9                      appstream
[root@aeakunaeva yum.repos.d]# dnf install lynx --downloadonly
Last metadata expiration check: 0:12:45 ago on Sat 27 Sep 2025 08:18:21 PM MSK.
Dependencies resolved.
================================================================================
 Package         Architecture   Version                Repository         Size
================================================================================
Installing:
 lynx            x86_64         2.8.9-20.el9           appstream          1.5 M

Transaction Summary
================================================================================
Install  1 Package

Total download size: 1.5 M
Installed size: 6.1 M
DNF will only download packages for the transaction.
Is this ok [y/N]: y
Downloading Packages:
lynx-2.8.9-20.el9.x86_64.rpm                    4.9 MB/s | 1.5 MB      00:00
```

```
[root@aeakunaeva yum.repos.d]# find /var/cache/dnf/ -name lynx*
/var/cache/dnf/appstream-25485261a76941d3/packages/lynx-2.8.9-20.el9.x86_64.rpm
[root@aeakunaeva yum.repos.d]# cd /var/cache/dnf/appstream-25485261a76941d3/pack
ages
[root@aeakunaeva packages]# rpm -Uhv lynx-2.8.9-20.el9.x86_64.rpm
Verifying...                    ################################# [100%]
Preparing...                    ################################# [100%]
Updating / installing...
   1:lynx-2.8.9-20.el9          ################################# [100%]
[root@aeakunaeva packages]# which lynx
/usr/bin/lynx
[root@aeakunaeva packages]# rpm -qf $(which lynx)
lynx-2.8.9-20.el9.x86_64
[root@aeakunaeva packages]# rpm -qi lynx
Name        : lynx
Version     : 2.8.9
Release     : 20.el9
Architecture: x86_64
Install Date: Sat 27 Sep 2025 08:35:09 PM MSK
Group       : Unspecified
Size        : 6356615
License     : GPLv2
Signature   : RSA/SHA256, Tue 16 Apr 2024 02:13:04 AM MSK, Key ID 702d426d350d27
```

```
[root@aeakunaeva 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/5a
/usr/lib/.build-id/5a/06d3c4e1a8f4e4a2a1a5305737084bab728b85
/usr/share/doc/lynx
/usr/share/doc/lynx/INSTALLATION
/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
```

```
[root@aeakunaeva packages]# rpm -qd lynx
/usr/share/doc/lynx/INSTALLATION
/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
```

```
[root@aeakunaeva packages]# man lynx
[root@aeakunaeva packages]# rpm -qc lynx
/etc/lynx-site.cfg
/etc/lynx.cfg
/etc/lynx.lss
[root@aeakunaeva packages]# rpm -q --scripts lynx
[root@aeakunaeva packages]# rpm -e lynx
[root@aeakunaeva packages]# ls
lynx-2.8.9-20.el9.x86_64.rpm
[root@aeakunaeva packages]# rpm -e lynx*
error: package lynx-2.8.9-20.el9.x86_64.rpm is not installed
```

Текстовый браузер lynx

```
[root@aeakunaeva packages]# dnf list dnsmasq
Last metadata expiration check: 0:24:06 ago on Sat 27 Sep 2025 08:18:21 PM MSK.
Installed Packages
dnsmasq.x86_64                        2.85-16.el9_4                        @AppStream
Available Packages
dnsmasq.x86_64                        2.85-17.el9_6                        appstream
[root@aeakunaeva packages]# dnf install dnsmasq
Last metadata expiration check: 0:24:13 ago on Sat 27 Sep 2025 08:18:21 PM MSK.
Package dnsmasq-2.85-16.el9_4.x86_64 is already installed.
Dependencies resolved.
================================================================================
 Package          Architecture    Version              Repository        Size
================================================================================
Upgrading:
 dnsmasq          x86_64          2.85-17.el9_6         appstream        325 k

Transaction Summary
================================================================================
Upgrade  1 Package

Total download size: 325 k
Is this ok [y/N]: y
Downloading Packages:
dnsmasq-2.85-17.el9_6.x86_64.rpm                   2.6 MB/s | 325 kB    00:00
```

```
[root@aeakunaeva packages]# which dnsmasq
/usr/sbin/dnsmasq
[root@aeakunaeva packages]# rpm -qf $(which dnsmasq)
dnsmasq-2.85-17.el9_6.x86_64
[root@aeakunaeva packages]# rpm -qi dnsmasq
Name        : dnsmasq
Version     : 2.85
Release     : 17.el9_6
Architecture: x86_64
Install Date: Sat 27 Sep 2025 08:42:37 PM MSK
Group       : Unspecified
Size        : 718655
License     : GPLv2 or GPLv3
Signature   : RSA/SHA256, Tue 16 Sep 2025 07:25:38 PM MSK, Key ID 702d426d350d275
d
Source RPM  : dnsmasq-2.85-17.el9_6.src.rpm
Build Date  : Tue 16 Sep 2025 07:24:01 PM MSK
Build Host  : pb-852acc29-a7d0-4436-82a9-1e2488a61ea0-b-x86_64
Packager    : Rocky Linux Build System (Peridot) <releng@rockylinux.org>
Vendor      : Rocky Enterprise Software Foundation
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.
```

```
[root@aeakunaeva 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/ce
/usr/lib/.build-id/ce/799e47c2ea70d5796b2fad02ee9f6aa1aca3c0
/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@aeakunaeva 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@aeakunaeva packages]# man dnsmasq
[root@aeakunaeva packages]# rpm -qc dnsmasq
/etc/dbus-1/system.d/dnsmasq.conf
/etc/dnsmasq.conf
[root@aeakunaeva packages]# rpm -q --scripts dnfmasq
package dnfmasq is not installed
[root@aeakunaeva packages]# rpm -q --scripts dnsmasq
preinstall scriptlet (using /bin/sh):
#precreate users so that rpm can install files owned by that user
                               I
# 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 'Dnsm
asq DHCP and DNS server' 'dnsmasq' || :
postinstall scriptlet (using /bin/sh):
```

```
    /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.serv
ice || :
fi
[root@aeakunaeva packages]# rpm -e dnsmask
error: package dnsmask is not installed
[root@aeakunaeva packages]# rpm -e dnsmasq
[root@aeakunaeva packages]# ls
[root@aeakunaeva packages]#
```

Выводы

Я получила навыки работы с репозиториями и менеджерами пакетов.