

Шаблон отчёта по лабораторной работе

Простейший вариант

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1 Цель работы

Получить навыки работы с репозиториями и менеджерами пакетов.

2 Выполнение лабораторной работы

1. В консоли перейдите в режим работы суперпользователя (используйте команду su-). Перейдите в каталог /etc/yum.repos.d и изучите содержание каталога и файлов репозитория: `cd /etc/yum.repos.d ls`

```
[root@chilishelupupa ~]# cd /etc/yum.repos.d
[root@chilishelupupa yum.repos.d]# ls
rocky-addons.repo  rocky-devel.repo  rocky-extras.repo  rocky.repo
```

Рис. 2.1: `cd /etc/yum.repos.d`

2. `cat название_репозитория.repo`

```
[root@chilishelupupa 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=HighAvailability-$releasever-$rltype
#baseurl=http://dl.rockylinux.org/$contentdir/$releasever/HighAvailability/$basearch/os/
gpgcheck=1
enabled=0
countme=1
metadata_expire=6h
gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-Rocky-9

[highavailability-debuginfo]
name=Rocky Linux $releasever - High Availability - Debug
mirrorlist=https://mirrors.rockylinux.org/mirrorlist?arch=$basearch&repo=HighAvailability-$releasever-debug-$rltype
#baseurl=http://dl.rockylinux.org/$contentdir/$releasever/HighAvailability/$basearch/debug/tree/
gpgcheck=1
enabled=0
metadata_expire=6h
gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-Rocky-9

[highavailability-source]
name=Rocky Linux $releasever - High Availability - Source
mirrorlist=https://mirrors.rockylinux.org/mirrorlist?arch=source&repo=HighAvailability-$releasever-source-$rltype
#baseurl=http://dl.rockylinux.org/$contentdir/$releasever/HighAvailability/source/tree/
gpgcheck=1
enabled=0
metadata_expire=6h
gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-Rocky-9

[resilientstorage]
name=Rocky Linux $releasever - Resilient Storage
mirrorlist=https://mirrors.rockylinux.org/mirrorlist?arch=$basearch&repo=ResilientStorage-$releasever-$rltype
#baseurl=http://dl.rockylinux.org/$contentdir/$releasever/ResilientStorage/$basearch/os/
gpgcheck=1
enabled=0
countme=1
```

Рис. 2.2: cat

3. Выведите на экран список репозиторийев: `dnf repolist` и поясните полученную информацию.

```
[root@chilishelupupa yum.repos.d]# dnf repolist
repo id                                repo name
appstream                              Rocky Linux 9 - AppStream
baseos                                 Rocky Linux 9 - BaseOS
extras                                 Rocky Linux 9 - Extras
```

Рис. 2.3: Название рисунка

4. Выведите на экран список пакетов, в названии или описании которых есть слово `user`: `dnf search user` и поясните полученную информацию

```
[root@chileshepupa yum.repos.d]# dnf search user
Last metadata expiration check: 6 days, 23:46:02 ago on Sat 21 Sep 2024 08:09:10 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 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
clutter.x86_64 : Open Source software library for creating rich graphical user interfaces
clutter.i686 : Open Source software library for creating rich graphical user interfaces
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
```

Рис. 2.4: dnf search user

5. Установите nmap, предварительно изучив информацию по имеющимся пакетам: dnf search nmap

```
[root@chileshepupa yum.repos.d]# dnf search nmap
===== Name Exactly Matched: nmap =====
nmap.x86_64 : Network exploration tool and security scanner
===== Name & Summary Matched: nmap =====
nmap-nat.x86_64 : Nmap's Netcat replacement
```

Рис. 2.5: dnf search nmap

6. dnf info nmap

```
[root@chileshepupa yum.repos.d]# dnf info nmap
Rocky Linux 9 - BaseOS                               7.7 kB/s | 4.1 kB  00:00
Rocky Linux 9 - BaseOS                               2.4 MB/s | 2.3 MB  00:00
Rocky Linux 9 - AppStream                             7.8 kB/s | 4.5 kB  00:00
Rocky Linux 9 - AppStream                             5.2 MB/s | 8.0 MB  00:01
Rocky Linux 9 - Extras                               6.3 kB/s | 2.9 kB  00:00
Available Packages
Name      : nmap
Epoch    : 3
Version   : 7.92
Release   : 1.el9
Architecture : x86_64
Size      : 5.4 M
Source    : nmap-7.92-1.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. It supports
            : ping scanning (determine which hosts are up), many port scanning techniques
            : (determine what services the hosts are offering), and TCP/IP fingerprinting
```

Рис. 2.6: dnf info nmap

7. dnf install nmap


```
[root@chilesheupupa yum.repos.d]# dnf install nmap
Last metadata expiration check: 0:00:56 ago on Sat 28 Sep 2024 07:57:18 PM MSK.
Dependencies resolved.
=====
Package                Architecture      Version           Repository        Size
=====
Installing:
nmap                   x86_64            3:7.92-1.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-7.92-1.el9.x86_64.rpm                                3.0 MB/s | 5.4 MB  00:01
-----
Total
Rocky Linux 9 - AppStream                                  2.5 MB/s | 5.4 MB  00:02
Importing GPG key 0x3500275D:
  Userid   : "Rocky Enterprise Software Foundation - Release key 2022 <releng@rockylinux.org>"
  Fingerprint: 21CB 256A E16F C54C 6E65 2949 702D 426D 3500 275D
  From      : /etc/pki/rpm-gpg/RPM-GPG-KEY-Rocky-9
Is this ok [y/N]: y
```

Рис. 2.7: dnf install nmap

8. dnf install nmap*

```
[root@chilesheupupa yum.repos.d]# dnf install nmap\*
Last metadata expiration check: 0:02:11 ago on Sat 28 Sep 2024 07:57:18 PM MSK.
Package nmap-3:7.92-1.el9.x86_64 is already installed.
Package nmap-ncat-3:7.92-1.el9.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
```

Рис. 2.8: dnf install nmap*

9. Удалите nmap: dnf remove nmap

```
[root@chilesheupupa yum.repos.d]# dnf remove nmap
Dependencies resolved.
=====
Package                Architecture      Version           Repository        Size
=====
Removing:
nmap                   x86_64            3:7.92-1.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.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing      : nmap-3:7.92-1.el9.x86_64                                1/1
  Erasing        : nmap-3:7.92-1.el9.x86_64                                1/1
  Running scriptlet: nmap-3:7.92-1.el9.x86_64                                1/1
  Verifying      : nmap-3:7.92-1.el9.x86_64                                1/1
```

Рис. 2.9: dnf remove nmap

10. dnf remove nmap*

```
[root@chilshelupupa yum.repos.d]# dnf remove nmap*
Dependencies resolved.
=====
Package                Architecture      Version           Repository        Size
=====
Removing:
nmap-ncat              x86_64            3:7.92-1.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-3:7.92-1.el9.x86_64 : 1/1
  Erasing             : nmap-ncat-3:7.92-1.el9.x86_64 : 1/1
  Running scriptlet: nmap-ncat-3:7.92-1.el9.x86_64 : 1/1
  Verifying            : nmap-ncat-3:7.92-1.el9.x86_64 : 1/1
```

Рис. 2.10: dnf remove nmap*

11. Получите список имеющихся групп пакетов, затем установите группу пакетов RPM Development Tools: dnf groups list

```
[root@chilshelupupa yum.repos.d]# dnf groups list
Last metadata expiration check: 0:05:27 ago on Sat 28 Sep 2024 07:57:18 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
  Smart Card Support
  System Tools
[root@chilshelupupa yum.repos.d]#
```

Рис. 2.11: dnf groups list

LANG=C dnf groups list dnf groups info “RPM Development Tools”

12. dnf groupinstall “RPM Development Tools”

```
[root@chileshepupa yum.repos.d]# dnf groups info "RPM Development Tools"
Last metadata expiration check: 0:07:01 ago on Sat 28 Sep 2024 07:57:18 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
```

Рис. 2.12: dnf groupinstall

13. Для удаления группы пакетов RPM Development Tools можно воспользоваться командой dnf groupremove “RPM Development Tools”

```
[root@chileshepupa yum.repos.d]# dnf groupinstall "RPM Development Tools"
Last metadata expiration check: 0:07:52 ago on Sat 28 Sep 2024 07:57:18 PM MSK.
Dependencies resolved.
=====
Package                Architecture    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

Transaction Summary
=====
Install 2 Packages
```

Рис. 2.13: dnf groupremove

14. Посмотрите историю использования команды dnf: dnf history

```
[root@chileshepupa yum.repos.d]# dnf history
ID | Command line | Date and time | Action(s) | Altered
---|---|---|---|---
6 | groupremove RPM Development Tools | 2024-09-28 20:06 | Removed | 3
5 | groupinstall RPM Development Tools | 2024-09-28 20:05 | Install | 3
4 | remove nmap | 2024-09-28 20:01 | Removed | 1
3 | remove nmap | 2024-09-28 20:00 | Removed | 1
2 | install nmap | 2024-09-28 19:58 | Install | 1 <
1 | | 2024-09-09 22:54 | Install | 1293 >E
```

Рис. 2.14: dnf history

15. и отмените последнее, например шестое по счёту, действие: dnf history undo

```
[root@chileshelepupa yum.repos.d]# dnf history undo 6
Last metadata expiration check: 0:11:03 ago on Sat 28 Sep 2024 07:57:18 PM MSK.
Dependencies resolved.
=====
Package                        Architecture      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
Transaction Summary
=====
Install 2 Packages

Total download size: 135 k
Installed size: 414 k
Is this ok [y/N]: y
Downloading Packages:
(1/2): rpmdevtools-9.5-1.el9.noarch.rpm                327 kB/s | 75 kB  00:00
(2/2): python3-argcomplete-1.12.0-5.el9.noarch.rpm      261 kB/s | 61 kB  00:00
=====
```

Рис. 2.15: dnf history undo 6

2.1 Предположим, что требуется установить текстовый браузер lynx из rpm-пакета.

1. Скачайте rpm-пакет lynx: `dnf list lynx dnf install lynx --downloadonly`

```
[root@chileshelepupa yum.repos.d]# dnf list lynx
Last metadata expiration check: 0:13:51 ago on Sat 28 Sep 2024 07:57:18 PM MSK.
Available Packages
lynx.x86_64                                2.8.9-20.el9         appstream
[root@chileshelepupa yum.repos.d]# dnf install lynx --downloadonly
Last metadata expiration check: 0:14:04 ago on Sat 28 Sep 2024 07:57:18 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                5.1 MB/s | 1.5 MB  00:00
Total                                       2.5 MB/s | 1.5 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'.
```

Рис. 2.16: dnf list lynx

2. Найдите каталог, в который был помещён пакет после загрузки: `find /var/cache/dnf/ -name lynx*`

```
[root@chileshelepupa yum.repos.d]# find /var/cache/dnf/ -name lynx*
/var/cache/dnf/appstream-25485261a76941d3/packages/lynx-2.8.9-20.el9.x86_64.rpm
```

Рис. 2.17: find

3. Перейдите в этот каталог и затем установите rpm-пакет: `rpm -Uhv lynx-2.8.9-20.el9.x86_64.rpm`

```
[root@chileshelepupa 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%]
```

Рис. 2.18: rpm

4. Определите расположение исполняемого файла: `which lynx`

```
[root@chileshelepupa packages]# which lynx
/usr/bin/lynx
```

Рис. 2.19: which lynx

5. Используя rpm, определите по имени файла, к какому пакету принадлежит lynx: `rpm -qf $(which lynx)` и получите дополнительную информацию о содержимом пакета, введя: `rpm -qi lynx`

```
[root@chileshelepupa packages]# rpm -qf $(which lynx)
lynx-2.8.9-20.el9.x86_64
[root@chileshelepupa packages]# rpm -qi lynx
Name       : lynx
Version    : 2.8.9
Release    : 20.el9
Architecture: x86_64
Install Date: Sat 28 Sep 2024 08:14:49 PM MSK
Group      : Unspecified
Size       : 6356615
License    : GPLv2
Signature  : RSA/SHA256, Tue 16 Apr 2024 02:13:04 AM MSK, Key ID 702d426d350d275d
Source RPM : lynx-2.8.9-20.el9.src.rpm
Build Date : Tue 16 Apr 2024 02:10:31 AM MSK
Build Host : pb-abd37acc-ala8-4064-a86c-09fcc75626b8-b-x86-64
Packager   : Rocky Linux Build System (Peridot) <releng@rockylinux.org>
Vendor     : Rocky Enterprise Software Foundation
URL        : http://lynx.browser.org/
Summary    : A text-based Web browser
Description:
```

Рис. 2.20: rpm -qi lynx

6. Получите список всех файлов в пакете, используя: `rpm -ql lynx`

```
[root@chilishelupupa 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/f0
/usr/lib/.build-id/f0/9a26532944eaa77f523aeea8b091bbb7c5ae67
/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
```

Рис. 2.21: `rpm -ql lynx`

7. Выведите на экран перечень и месторасположение конфигурационных файлов пакета: `rpm -qc lynx`

```
[root@chilishelupupa packages]# rpm -qc lynx
/etc/lynx-site.cfg
/etc/lynx.cfg
/etc/lynx.lss
```

Рис. 2.22: `rpm -qc lynx`

8. Выведите на экран расположение и содержание скриптов, выполняемых при установке пакета: `rpm -q --scripts lynx`

```
[root@chilishelupupa packages]# rpm -q --scripts lynx
[root@chilishelupupa packages]#
```

Рис. 2.23: `rpm -q --scripts lynx`

9. В отдельном терминале под своей учётной записью запустите текстовый браузер lynx, чтобы проверить корректность установки пакета.
10. Вернитесь в терминал с учётной записью root и удалите пакет: `rpm -e lynx`

```
[root@chilishelupupa packages]# rpm -q --scripts lynx
[root@chilishelupupa packages]# rpm -e lynx
[root@chilishelupupa packages]# ls
lynx-2.8.9-20.el9.x86_64.rpm
[root@chilishelupupa packages]#
```

Рис. 2.24: `rpm -e lynx`

2.2 Предположим, что требуется из rpm-пакетов установить dnsmasq (DNS-, DHCP- и TFTP-сервер).

1. Установите пакет dnsmasq: `dnf list dnsmasq` `dnf install dnsmasq`

```
[root@chilishelupupa packages]# dnf list dnsmasq
Last metadata expiration check: 0:26:07 ago on Sat
Installed Packages
dnsmasq.x86_64
[root@chilishelupupa packages]# dnf install dnsmasq
Last metadata expiration check: 0:26:22 ago on Sat
Package dnsmasq-2.85-16.el9_4.x86_64 is already installed
Dependencies resolved.
Nothing to do.
Complete!
```

и определите расположение исполняемого файла: `which dnsmasq`

```
[root@chilishelupupa packages]# which dnsmasq
/usr/sbin/dnsmasq
[root@chilishelupupa packages]#
```

Рис. 2.25: `which dnsmasq`

2. Определите по имени файла, к какому пакету принадлежит dnsmasq: `rpm -qf $(which dnsmasq)`

```
[root@chilishelupupa packages]# rpm -qf $(which dnsmasq)
dnsmasq-2.85-16.el9_4.x86_64
[root@chilishelupupa packages]#
```

Рис. 2.26: `rpm -qf`

и получите дополнительную информацию о содержимом пакета: `rpm -qi dnsmasq`

```
[root@chilishelupupa packages]# rpm -qi $(which dnsmasq)
dnsmasq-2.85-16.el9_4.x86_64
[root@chilishelupupa packages]#
```

Рис. 2.27: `rpm -qi dnsmasq`

3. Получите список всех файлов в пакете: `rpm -ql dnsmasq` а также выведите перечень файлов с документацией пакета: `rpm -qd dnsmasq`

```
[root@chilishelupupa 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/f0
/usr/lib/.build-id/f0/9a26532944eaa77f523aeea8b091bbb7c5ae67
/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
```

Рис. 2.28: `rpm -qd dnsmasq`