

ОТЧЕТ ЛАБОРАТОРНОЙ РАБОТЫ 2

ДИСЦИПЛИНА:
АДМИНИСТРИРОВАНИЕ СЕТЕВЫХ
ПОДСИСТЕМ

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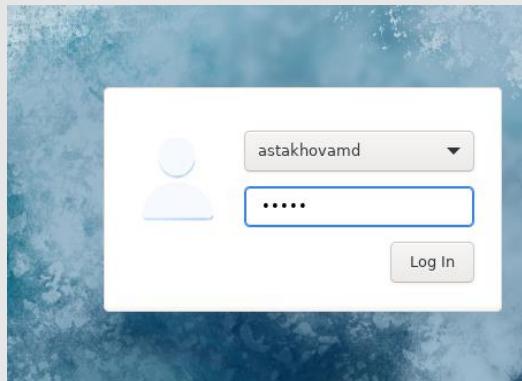
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ТЕМА: НАСТРОЙКА DNS-СЕРВЕРА

Цель работы.

Приобретение практических навыков по установке и конфигурированию DNS сервера, усвоение **принципов работы системы доменных имён.**

УСТАНОВКА DNS-СЕРВЕРА



```
[sudo] password for astakhovamd:
[root@localhost.user.net ~]# dnf -y install bind bind-utils
Last metadata expiration check: 0:17:20 ago on Wed 12 Nov 2025 08:42:46 PM UTC.
Package bind-utils-32:9.16.23-18.el9_4.1.x86_64 is already installed.
Dependencies resolved.
=====
 Package          Arch      Version       Repository      Size
=====
 Installing:
  bind            x86_64    32:9.16.23-31.el9_6   appstream     488 k
 Upgrading:
  bind-libs        x86_64    32:9.16.23-31.el9_6   appstream     1.2 M
  bind-license     noarch    32:9.16.23-31.el9_6   appstream     12 k
  bind-utils       x86_64    32:9.16.23-31.el9_6   appstream     199 k
 Installing dependencies:
  bind-dnssec-doc  noarch    32:9.16.23-31.el9_6   appstream     45 k
  python3-bind     noarch    32:9.16.23-31.el9_6   appstream     60 k
  python3-ply      noarch    3.11-14.el9.0.1      baseos       103 k
 Installing weak dependencies:
  bind-dnssec-utils x86_64    32:9.16.23-31.el9_6   appstream     112 k
 Transaction Summary
=====
 Install 5 Packages
```

```
[root@localhost.user.net ~]# dig www.yandex.ru
; <>> DiG 9.16.23-RH <>> www.yandex.ru
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 64645
;; flags: qr rd ra; QUERY: 1, ANSWER: 3, AUTHORITY: 0, ADDITIONAL: 1
;;
;; OPT PSEUDOSECTION:
;; EDNS: version: 0, flags:; udp: 512
;; QUESTION SECTION:
;www.yandex.ru.           IN      A
;;
;; ANSWER SECTION:
www.yandex.ru.      537    IN      A      77.88.55.88
www.yandex.ru.      537    IN      A      77.88.44.55
www.yandex.ru.      537    IN      A      5.255.255.77
;;
Query time: 72 msec
;; SERVER: 192.168.100.1#53(192.168.100.1)
;; WHEN: Wed Nov 12 21:00:55 UTC 2025
;; MSG SIZE rcvd: 90

[root@localhost.user.net ~]#
```

КОНФИГУРИРОВАНИЕ КЭШИРУЮЩЕГО DNS-СЕРВЕРА

```
[root@localhost.user.net ~]# nmcli connection edit eth0
==| nmcli interactive connection editor |==

Editing existing '802-3-ethernet' connection: 'eth0'

Type 'help' or '?' for available commands.
Type 'print' to show all the connection properties.
Type 'describe [<setting>.<prop>]' for detailed property description.

You may edit the following settings: connection, 802-3-ethernet (ethernet), 802-
1x, dcb, sriov, ethtool, match, ipv4, ipv6, hostname, link, tc, proxy
nmcli> remove ipv4.dns
nmcli> set ipv4.ignore-auto-dns yes
nmcli> set ipv4.dns 127.0.0.1
nmcli> save
Connection 'eth0' (52b757e4-3833-4753-b0eb-de0af7f26f57) successfully updated.
nmcli> quit
[root@localhost.user.net ~]#
```

```
[root@localhost.user.net ~]# systemctl start named
[root@localhost.user.net ~]# systemctl enable named
Created symlink /etc/systemd/system/multi-user.target.wants/named.service → /usr
/lib/systemd/system/named.service.
[root@localhost.user.net ~]#
```

```
nmcli> save
Connection 'eth0' (52b757e4-3833-4753-b0eb-de0af7f26f57) successfully updated.
nmcli> quit
[root@localhost.user.net ~]# systemctl restart NetworkManager
[root@localhost.user.net ~]#
```

```
//                                              .NAME
// named.conf                                     .SYNOPSIS
//                                              .DESCRIPTION
// Provided by Red Hat bind package to configure the ISC BIND named(8) DNS
// server as a caching only nameserver (as a localhost DNS resolver only).
//
// See /usr/share/doc/bind*/sample/ for example named configuration files.
//

options {
    listen-on port 53 { 127.0.0.1; any; };
    listen-on-v6 port 53 { ::1; };
    directory "/var/named";
    dump-file "/var/named/data/cache_dump.db";
    statistics-file "/var/named/data/named_stats.txt";
    memstatistics-file "/var/named/data/named_mem_stats.txt";
    secroots-file "/var/named/data/named.secroots";
    recursing-file "/var/named/data/named.recurising";
    allow-query { localhost; 192.168.0.0/16; };
```

^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^_ Go To Line

КОНФИГУРИРОВАНИЕ КЭШИРУЮЩЕГО DNS СЕРВЕРА ПРИ НАЛИЧИИ ФИЛЬТРАЦИИ DNS-ЗАПРОСОВ МАРШРУТИЗАТОРАМИ

```
/* server as a caching-only nameserver (as a localhost) */
/*
// See /usr/share/doc/bind*/sample/ for example named configuration files
// */

options {
    forwarders {192.168.1.10;192.168.100.1;};
    forward first;
    listen-on port 53 { 127.0.0.1;192.168.1.10; };
    /* listen on port 53 for IPv6 */
}

zone "astakhovamd.net" IN {
    type master;
    file "master/fz/astakhovamd.net";
    allow-update { none; };
};

zone "1.168.192.in-addr.arpa" IN {
    type master;
    file "master/rz/192.168.1";
    allow-update { none; };
};
```

```
GNU nano 5.6.1                                         192.168.1
$TTL 1D
@       IN SOA      @ server.astakhovamd.net. (
                                2024072700 ; serial
                                1D          ; refresh
                                1H          ; retry
                                1W          ; expire
                                3H )        ; minimum
NS      @
A       192.168.1.1
PTR     server.astakhovamd.net.
$ORIGIN 1.168.192.in-addr.arpa.
1      PTR      server.astakhovamd.net.
1      PTR      ns.astakhovamd.net.
```

КОНФИГУРИРОВАНИЕ ПЕРВИЧНОГО DNS-СЕРВЕРА

```
[root@localhost.user.net etc]# cp /etc/named.rfc1912.zones /etc/named/  
[root@localhost.user.net etc]# cd /etc/named  
[root@localhost.user.net named]#  
mv /etc/named/named.rfc1912.zones /etc/named/astakhovamd.net  
mv: overwrite '/etc/named/astakhovamd.net'? Y  
[root@localhost.user.net named]#
```

```
include "/etc/named/astakhovamd.net";  
include "/etc/named.rfc1912.zones";  
include "/etc/named.root.key";  
include "/etc/named/keys/dhcp_updater.key";
```

```
//  
zone "astakhovamd.net" IN {  
    type master;  
    file "master/fz/astakhovamd.net";  
    allow-update { none; };  
};  
zone "1.168.192.in-addr.arpa" IN {  
    type master;  
    file "master/rz/192.168.1";  
    allow-update { none; };  
};
```

```
bash: cd: /named: No such file or directory  
[root@localhost.user.net etc]# cd /etc/named  
[root@localhost.user.net named]# sudo nano astakhovamd.net  
[root@localhost.user.net named]# cd /var/named  
[root@localhost.user.net named]# mkdir -p /var/named/master/fz  
[root@localhost.user.net named]# mkdir -p /var/named/master/rz  
[root@localhost.user.net named]#
```

АНАЛИЗ РАБОТЫ DNS-СЕРВЕРА

```
root@localhost:~                                     root@localhost:/var/named
GNU nano 5.6.1                                         named.astakhovamd.net.z
TTL 1D
    IN      SOA    server.astakhovamd.net. admin.astakhovamd.net. (
                      2023111302 ;
                      3H
                      1H
                      1W
                      1D )

    IN      NS     server.astakhovamd.net.

server  IN      A      192.168.1.1
client  IN      A      192.168.1.2
www     IN      A      192.168.1.1
hcp     IN      A      192.168.1.3 ;
```

ВНЕСЕНИЕ ИЗМЕНЕНИЙ В НАСТРОЙКИ ВНУТРЕННЕГО ОКРУЖЕНИЯ ВИРТУАЛЬНОЙ МАШИНЫ

```

Файл Правка Формат Вид Справка
# -*- mode: ruby -*-
# vi: set ft=ruby :

# All Vagrant configuration is done below. The "2" in Vagrant.configure
# configures the configuration version (we support older styles for
# backwards compatibility). Please don't change it unless you know what
# you're doing.
Vagrant.configure("2") do |config|
  # The most common configuration options are documented and commented below.
  # For a complete reference, please see the online documentation at
  # https://docs.vagrantup.com.

  server.vm.provision "server dns",
    type: "shell",
    preserve_order: true,
    path: "provision/server/dns.sh"

  # Every Vagrant development environment requires a box. You can search for
  # boxes at https://vagrantcloud.com/search.
  config.vm.box = "ubuntu/trusty64"

```

```

root@localhost:/vagrant/provision/server
GNU nano 5.6.1 dns.sh
Nov 12 22:18

dnf -y install bind bind-utils
echo "Copy configuration files"
cp -R /vagrant/provision/server/dns/etc/* /etc
cp -R /vagrant/provision/server/dns/var/named/* /var/named
chown -R named:named /etc/named
chown -R named:named /var/named
restorecon -vR /etc
restorecon -vR /var/named
echo "Configure firewall"
firewall-cmd --add-service=dns
firewall-cmd --add-service=dns --permanent
echo "Tuning SELinux"
setsebool named_write_master_zones 1
setsebool -P named_write_master_zones 1
echo "Change dns server address"
nmcli connection edit "System eth0" <<EOF
remove ipv4.dns
set ipv4.ignore-auto-dns yes

```

ИТОГ РАБОТЫ

Были приобретены практические навыки по установке и конфигурированию DNS сервера.