

Лабораторная работа 3

Ярметов Камран

16 февраля, 2023,, Москва, Россия

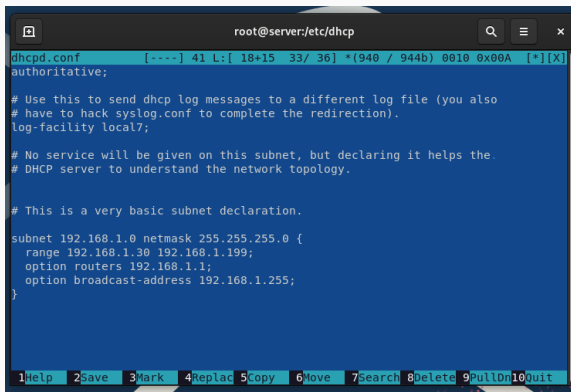
Российский Университет Дружбы Народов

Цель лабораторной работы

Приобретение практических навыков по установке и конфигурированию DHCP-сервера.

Выполнение лабораторной работы

Настройка DHCP-сервера



```
root@server:/etc/dhcp
dhcpd.conf [----] 41 L:[ 18+15 33/ 36] *(940 / 944b) 0010 0x00A [*][X]
authoritative;

# Use this to send dhcp log messages to a different log file (you also
# have to hack syslog.conf to complete the redirection).
log-facility local7;

# No service will be given on this subnet, but declaring it helps the
# DHCP server to understand the network topology.

# This is a very basic subnet declaration.

subnet 192.168.1.0 netmask 255.255.255.0 {
    range 192.168.1.30 192.168.1.199;
    option routers 192.168.1.1;
    option broadcast-address 192.168.1.255;
}

1Help 2Save 3Mark 4Replac 5Copy 6Move 7Search 8Delete 9PullDn 10Quit
```

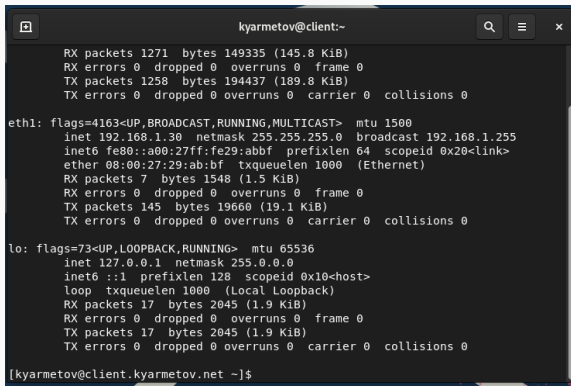
Figure 1: файл dhcpd.conf

Настройка DHCP-сервера

```
[root@server.kyarmetov.net dhcp]#  
[root@server.kyarmetov.net dhcp]# systemctl restart named  
[root@server.kyarmetov.net dhcp]# ping dhcp.kyarmetov.net  
PING dhcp.kyarmetov.net (192.168.1.1) 56(84) bytes of data.  
64 bytes from dhcp.kyarmetov.net (192.168.1.1): icmp_seq=1 ttl=64 time=0.055 ms  
64 bytes from ns.kyarmetov.net (192.168.1.1): icmp_seq=2 ttl=64 time=0.171 ms  
64 bytes from dhcp.kyarmetov.net (192.168.1.1): icmp_seq=3 ttl=64 time=0.155 ms  
64 bytes from ns.kyarmetov.net (192.168.1.1): icmp_seq=4 ttl=64 time=0.049 ms  
^C  
--- dhcp.kyarmetov.net ping statistics ---  
4 packets transmitted, 4 received, 0% packet loss, time 3066ms  
rtt min/avg/max/mdev = 0.049/0.107/0.171/0.055 ms  
[root@server.kyarmetov.net dhcp]#
```

Figure 2: запуск dhcp

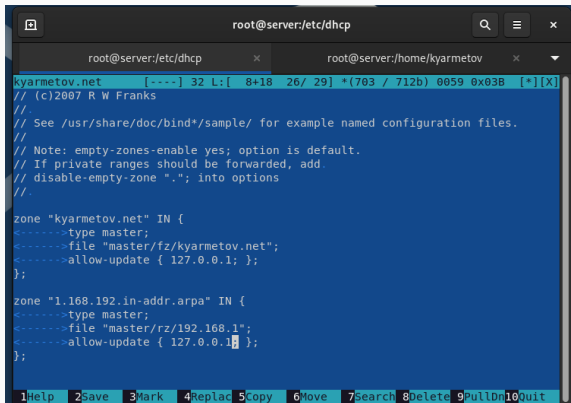
Настройка DHCP-сервера



```
kyarmetov@client:~$  
RX packets 1271 bytes 149335 (145.8 KiB)  
RX errors 0 dropped 0 overruns 0 frame 0  
TX packets 1258 bytes 194437 (189.8 KiB)  
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
  
eth1: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500  
    inet 192.168.1.30 netmask 255.255.255.0 broadcast 192.168.1.255  
    inet6 fe80::a00:27ff:fe29:abbb prefixlen 64 scopeid 0x20<link>  
    ether 08:00:27:29:ab:bf txqueuelen 1000 (Ethernet)  
    RX packets 7 bytes 1548 (1.5 KiB)  
    RX errors 0 dropped 0 overruns 0 frame 0  
    TX packets 145 bytes 19660 (19.1 KiB)  
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
  
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536  
    inet 127.0.0.1 netmask 255.0.0.0  
    inet6 ::1 prefixlen 128 scopeid 0x10<host>  
    loop txqueuelen 1000 (Local Loopback)  
    RX packets 17 bytes 2045 (1.9 KiB)  
    RX errors 0 dropped 0 overruns 0 frame 0  
    TX packets 17 bytes 2045 (1.9 KiB)  
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
  
[kyarmetov@client.kyarmetov.net ~]$
```

Figure 3: подключение клиента

Настройка обновления DNS-зоны



The screenshot shows a terminal window with two tabs: 'root@server:/etc/dhcp' and 'root@server:/home/kyarmetov'. The active tab is 'root@server:/etc/dhcp'. The terminal displays the content of the 'named.conf' file, which is a configuration file for the BIND DNS server. The file is edited in a dark-themed editor. The content includes comments about the file's origin and usage, followed by two zone definitions. The first zone is 'kyarmetov.net' and the second is '1.168.192.in-addr.arpa'. Both zones are configured as master zones with specific file paths and update permissions. At the bottom of the terminal, there is a status bar with various keyboard shortcuts like '1Help', '2Save', '3Mark', etc.

```
root@server:/etc/dhcp
kyarmetov.net [----] 32 L: [ 8+18 26/ 29] *(703 / 712b) 0059 0x03B [*][X]
// (c)2007 R W Franks
//
// See /usr/share/doc/bind*/sample/ for example named configuration files.
//
// Note: empty-zones-enable yes; option is default.
// If private ranges should be forwarded, add
// disable-empty-zone "."; into options
//.

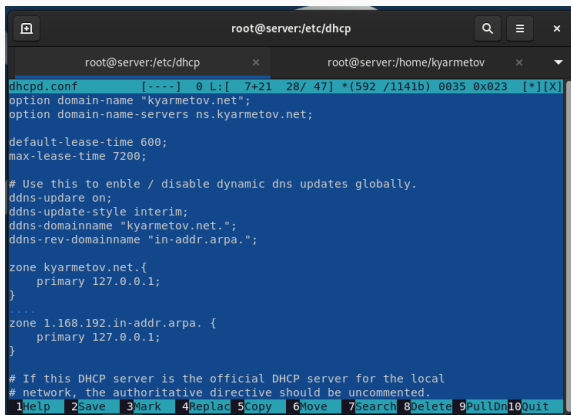
zone "kyarmetov.net" IN {
<----->type master;
<----->file "master/fz/kyarmetov.net";
<----->allow-update { 127.0.0.1; };
};

zone "1.168.192.in-addr.arpa" IN {
<----->type master;
<----->file "master/rz/192.168.1";
<----->allow-update { 127.0.0.1; };
};

1Help 2Save 3Mark 4Replac 5Copy 6Move 7Search 8Delete 9PullDn10Quit
```

Figure 4: файл named.conf

Настройка обновления DNS-зоны



```
root@server:/etc/dhcp
dhcpd.conf [----] 0 L: [ 7+21 28/ 47] *(592 /1141b) 0035 0x023 [*][X]
option domain-name "kyarmetov.net";
option domain-name-servers ns.kyarmetov.net;

default-lease-time 600;
max-lease-time 7200;

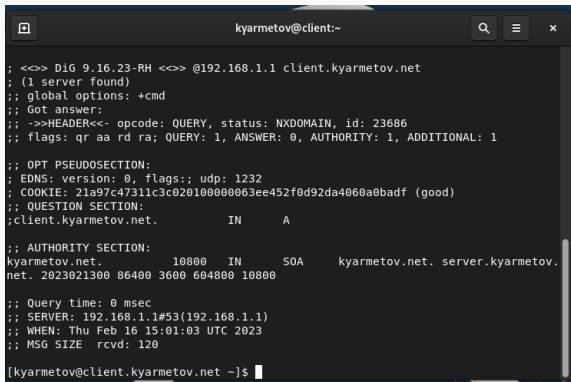
# Use this to enable / disable dynamic dns updates globally.
ddns-update on;
ddns-update-style interim;
ddns-domainname "kyarmetov.net.";
ddns-rev-domainname "in-addr.arpa.";

zone kyarmetov.net.{
    primary 127.0.0.1;
}
....
zone 1.168.192.in-addr.arpa. {
    primary 127.0.0.1;
}

# If this DHCP server is the official DHCP server for the local
# network, the authoritative directive should be uncommented.
1Help 2Save 3Mark 4Replac 5Copy 6Move 7Search 8Delete 9PullDn 10Quit
```

Figure 5: файл dhcpd.conf

Настройка обновления DNS-зоны



```
kyarmetov@client:~  
;  
; <<>> DiG 9.16.23-RH <<>> @192.168.1.1 client.kyarmetov.net  
; (1 server found)  
;; global options: +cmd  
;; Got answer:  
;; ->>HEADER<<- opcode: QUERY, status: NXDOMAIN, id: 23686  
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1  
  
;; OPT PSEUDOSECTION:  
; EDNS: version: 0, flags:: udp: 1232  
; COOKIE: 21a97c47311c3c020100000063ee452f0d92da4060a0badf (good)  
;; QUESTION SECTION:  
;client.kyarmetov.net.          IN      A  
  
;; AUTHORITY SECTION:  
kyarmetov.net.                10800   IN      SOA      kyarmetov.net. server.kyarmetov.  
net. 2023021300 86400 3600 604800 10800  
  
;; Query time: 0 msec  
;; SERVER: 192.168.1.1#53(192.168.1.1)  
;; WHEN: Thu Feb 16 15:01:03 UTC 2023  
;; MSG SIZE rcvd: 120  
  
[kyarmetov@client.kyarmetov.net ~]$
```

Figure 6: Запись о клиенте

Я приобрела практические навыки по установке и конфигурированию DHCP-сервера.