

Лабораторная работа

Номер 8

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01 января 1970

Российский университет дружбы народов, Москва, Россия

Информация

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Цель работы

Приобретение практических навыков по установке и конфигурированию
SMTP-сервера

Установка Postfix

```
[root@server.dmmosharov.net ~]# dnf -y install postfix
Extra Packages for Enterprise Linux 10 5.1 kB/s | 38 kB  00:07
Extra Packages for Enterprise Linux 10 2.6 MB/s | 5.6 MB  00:02
Rocky Linux 10 - BaseOS          175 B/s | 4.3 kB  00:25
Rocky Linux 10 - AppStream        14 kB/s | 4.3 kB  00:00
Rocky Linux 10 - CRB              14 kB/s | 4.3 kB  00:00
Rocky Linux 10 - Extras           3.9 kB/s | 3.1 kB  00:00
Dependencies resolved.

=====
Package      Arch    Version       Repository   Size
=====
Installing:
postfix      x86_64  2:3.8.5-8.el10  appstream   1.5 M
Installing dependencies:
postfix-lmdb  x86_64  2:3.8.5-8.el10  appstream   25 k

Transaction Summary
=====
Install 2 Packages

Total download size: 1.5 M
Installed size: 4.5 M
Downloading Packages:
(1/2): postfix-lmdb-3.8.5-8.el10.x86_6 30 kB/s | 25 kB  00:00
(2/2): postfix-3.8.5-8.el10.x86_64.rpm 1.7 MB/s | 1.5 MB  00:00

Total                                         957 kB/s | 1.5 MB  00:01

Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
Preparing :                                                 1/1
Installing : postfix-lmdb-2:3.8.5-8.el10.x86_64          1/2
Running scriptlet: postfix-2:3.8.5-8.el10.x86_64          2/2
Installing : postfix-2:3.8.5-8.el10.x86_64              2/2
Running scriptlet: postfix-2:3.8.5-8.el10.x86_64          2/2

Installed:
postfix-2:3.8.5-8.el10.x86_64  postfix-lmdb-2:3.8.5-8.el10.x86_64
```

Рис. 1: Установка Postfix

Установка s-nail

```
[root@server.dmmosharov.net ~]# dnf -y install s-nail
Last metadata expiration check: 0:00:54 ago on Thu 29 Jan 2026 08:16:13
PM UTC.
Dependencies resolved.
=====
Package      Architecture Version      Repository      Size
=====
Installing:
  s-nail      x86_64        14.9.24-12.el10    appstream     633 k

Transaction Summary
=====
Install 1 Package

Total download size: 633 k
Installed size: 1.2 M
Downloading Packages:
s-nail-14.9.24-12.el10.x86_64.rpm   105 kB/s | 633 kB   00:06
=====
Total                                         73 kB/s | 633 kB   00:08

Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing : 1/1
  Running scriptlet: s-nail-14.9.24-12.el10.x86_64 1/1
  Installing : s-nail-14.9.24-12.el10.x86_64 1/1
  Running scriptlet: s-nail-14.9.24-12.el10.x86_64 1/1

Installed:
  s-nail-14.9.24-12.el10.x86_64

Complete!
[root@server.dmmosharov.net ~]#
```

Рис. 2: Установка s-nail

Предварительная настройка

```
[root@server.dmmosharov.net ~]# firewall-cmd --add-service=smtp  
success  
[root@server.dmmosharov.net ~]# firewall-cmd --add-service=smtp --perma  
nent  
success  
[root@server.dmmosharov.net ~]# firewall-cmd --list-services  
cockpit dhcp dhcpcv6-client dns http https smtp ssh ssh-custom  
[root@server.dmmosharov.net ~]# restorecon -vR /etc  
[root@server.dmmosharov.net ~]# systemctl enable postfix  
Created symlink '/etc/systemd/system/multi-user.target.wants/postfix.se  
rvice' → '/usr/lib/systemd/system/postfix.service'.  
[root@server.dmmosharov.net ~]# systemctl start postfix  
[root@server.dmmosharov.net ~]# █
```

Рис. 3: Предварительная настройка

postconf

```
[root@server dmosharov.net ~]# postconf
2bounce_notice_recipient = postmaster
access_map_defer_code = 450
access_map_reject_code = 554
address_verify_cache_cleanup_interval = 12h
address_verify_default_transport = $default_transport
address_verify_local_transport = $local_transport
address_verify_map = btree:$data_directory/verify_cache
address_verify_negative_cache = yes
address_verify_negative_expire_time = 3d
address_verify_negative_refresh_time = 3h
address_verify_pending_request_limit = 5000
address_verify_poll_count = ${stress?1:[3]}
address_verify_poll_delay = 3s
address_verify_positive_expire_time = 31d
address_verify_positive_refresh_time = 7d
address_verify_relay_transport = $relay_transport
address_verify_relayhost = $relayhost
address_verify_sender = $double_bounce_sender
address_verify_sender_dependent_default_transport_maps = $sender_dependent_default_transport_maps
address_verify_sender_dependent_relayhost_maps = $sender_dependent_relayhost_maps
address_verify_sender_ttl = @s
address_verify_service_name = verify
address_verify_transport_maps = $transport_maps
address_verify_virtual_transport = $virtual_transport
alias_database = lmdb:/etc/aliases
alias_maps = lmdb:/etc/aliases
allow_mail_to_commands = alias, forward
allow_mail_to_files = alias, forward
allow_min_user = no
allow_percent_hack = yes
allow_srv_lookup_fallback = no
allow_untrusted_routing = no
alternate_config_directories =
always_add_missing_headers = no
always_bcc =
anvil_rate_time_unit = 60s
anvil_status_update_time = 600s
append_at_myorigin = yes
```

Рис. 4: postconf

Обновление конфигурации postfix

```
[root@server.dmmosharov.net ~]# postconf myorigin
myorigin = $myhostname
[root@server.dmmosharov.net ~]# postconf mydomain
mydomain = dmmosharov.net
[root@server.dmmosharov.net ~]# postconf -e 'myorigin = $mydomain'
> ^C
[root@server.dmmosharov.net ~]# postconf -e 'myorigin = $mydomain'
postconf: fatal: missing '=' after attribute name: "???myorigin"
[root@server.dmmosharov.net ~]# postconf -e 'myorigin = $mydomain'
[root@server.dmmosharov.net ~]# postconf myorigin
myorigin = $mydomain
[root@server.dmmosharov.net ~]# postfix check
[root@server.dmmosharov.net ~]# systemctl reload postfix
[root@server.dmmosharov.net ~]# █
```

Рис. 5: Обновление конфигурации postfix

postfix -n

```
[root@server dmosharov.net ~]# postconf -n
alias_database = lmdb:/etc/aliases
alias_maps = lmdb:/etc/aliases
command_directory = /usr/sbin
compatibility_level = 3.8
daemon_directory = /usr/libexec/postfix
data_directory = /var/lib/postfix
debug_peer_level = 2
debugger_command = PATH=/bin:/usr/bin:/usr/local/bin:/usr/X11R6/bin ddd
$daemon_directory/$process_name $process_id & sleep 5
default_database_type = lmdb
html_directory = no
inet_interfaces = localhost
inet_protocols = all
mail_owner = postfix
mailq_path = /usr/bin/mailq.postfix
manpage_directory = /usr/share/man
meta_directory = /etc/postfix
mydestination = $myhostname, localhost.$mydomain, localhost
myorigin = $mydomain
newaliases_path = /usr/bin/newaliases.postfix
queue_directory = /var/spool/postfix
readme_directory = /usr/share/doc/postfix/README_FILES
sample_directory = /usr/share/doc/postfix/samples
sendmail_path = /usr/sbin/sendmail.postfix
setgid_group = postdrop
shlib_directory = /usr/lib64/postfix
smtp_tls_CAfile = /etc/pki/tls/certs/ca-bundle.crt
smtp_tls_CApth = /etc/pki/tls/certs
smtp_tls_security_level = may
smtpd_tls_cert_file = /etc/pki/tls/certs/postfix.pem
smtpd_tls_key_file = /etc/pki/tls/private/postfix.key
smtpd_tls_security_level = may
unknown_local_recipient_reject_code = 550
[root@server dmosharov.net ~]#
```

Рис. 6: postfix -n

Обновление настроек протоколов

```
[root@server.dmmosharov.net ~]# postconf -e 'mydomain = dmmosharov.net'
[root@server.dmmosharov.net ~]# postconf inet_protocols
inet_protocols = all
[root@server.dmmosharov.net ~]# postconf -e 'inet_protocols = ipv4'
[root@server.dmmosharov.net ~]# postfix check
[root@server.dmmosharov.net ~]# systemctl reload postfix
[root@server.dmmosharov.net ~]# █
```

Рис. 7: Обновление настроек протоколов

Отправка письма

```
[dmmosharov@server.dmmosharov.net ~]$ echo .| mail -s test1 dmmosharov@  
server.dmmosharov.net  
[dmmosharov@server.dmmosharov.net ~]$ █
```

Рис. 8: Отправка письма

Лог почты

```
[dmmosharov@server.dmmosharov.net ~]$ sudo -i  
[sudo] password for dmmosharov:  
[root@server.dmmosharov.net ~]# tail -f /var/log/maillog  
Jan 29 20:24:44 server postfix/postfix-script[158765]: refreshing the Postfix mail system  
Jan 29 20:24:44 server postfix/master[157834]: reload -- version 3.8.5, configuration /etc/postfix  
Jan 29 20:24:44 server postfix/master[157834]: warning: ignoring inet_protocols parameter value change  
Jan 29 20:24:44 server postfix/master[157834]: warning: old value: "all", new value: "ipv4"  
Jan 29 20:24:44 server postfix/master[157834]: warning: to change inet_protocols, stop and start Postfix  
Jan 29 20:25:34 server postfix/pickup[158771]: CE5D823B7826: uid=1001 from=<dmmosharov>  
Jan 29 20:25:34 server postfix/cleanup[158914]: CE5D823B7826: message-id=<2026012902534.CE5D823B7826@server.dmmosharov.net>  
Jan 29 20:25:34 server postfix/qmgr[158772]: CE5D823B7826: from=<dmmosharov@dmmosharov.net>, size=346, nrcpt=1 (queue active)  
Jan 29 20:25:34 server postfix/local[158917]: CE5D823B7826: to=<dmmosharov@server.dmmosharov.net>, relay=local, delay=0.02, delays=0.02/0.01/0/0, dsn=2.0.0, status=sent (delivered to mailbox)  
Jan 29 20:25:34 server postfix/qmgr[158772]: CE5D823B7826: removed
```

Рис. 9: Лог почты

/var/spool/mail

```
[dmmosharov@server.dmmosharov.net ~]$ sudo ls /var/spool/mail
[sudo] password for dmmosharov:
dmmosharov  vagrant
You have new mail in /var/spool/mail/dmmosharov
[dmmosharov@server.dmmosharov.net ~]$ █
```

Рис. 10: /var/spool/mail

Установка Postfix

```
root@client: # dnf -y install postfix
Extra Packages for Enterprise Linux 10 - x86_64
Extra Packages for Enterprise Linux 10 - x86_64
Rocky Linux 10 - BaseOS
Rocky Linux 10 - AppStream
Rocky Linux 10 - CRB
Rocky Linux 10 - Extras
Dependencies resolved.
=====
Package           Architecture Version      Repository    Size
=====
Installing:
  postfix          x86_64      2:3.8.5-8.el10   appstream   1.5 M
Installing dependencies:
  postfix-lmdb     x86_64      2:3.8.5-8.el10   appstream   25 k
Transaction Summary
=====
Install 2 Packages

Total download size: 1.5 M
Installed size: 4.5 M
Downloading Packages:
(1/2): postfix-lmdb-3.8.5-8.el10.x86_64.rpm      161 kB/s | 25 kB   00:00
(2/2): postfix-3.8.5-8.el10.x86_64.rpm            5.3 MB/s | 1.5 MB   00:00
=====
Total                                         2.7 MB/s | 1.5 MB   00:00

Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing      :                                                 1/1
  Installing    : postfix-lmdb-2:3.8.5-8.el10.x86_64          1/2
  Running scriptlet: postfix-2:3.8.5-8.el10.x86_64          2/2
  Installing    : postfix-2:3.8.5-8.el10.x86_64            2/2
  Running scriptlet: postfix-2:3.8.5-8.el10.x86_64          2/2

Installed:
  postfix-2:3.8.5-8.el10.x86_64                  postfix-lmdb-2:3.8.5-8.el10.x86_64

Complete!
```

Рис. 11: Установка Postfix

установка s-nail

```
root@client:~# dnf -y install s-nail
Last metadata expiration check: 0:00:55 ago on Thu 29 Jan 2026 08:31:50 PM UTC.
Dependencies resolved.
=====
Transaction Summary
=====
Install 1 Package

Total download size: 633 k
Installed size: 1.2 M
Downloading Packages:
s-nail-14.9.24-12.el10.x86_64.rpm           2.2 MB/s | 633 kB   00:00
Total                                         1.1 MB/s | 633 kB   00:00
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
Preparing :                                                 1/1
  Running scriptlet: s-nail-14.9.24-12.el10.x86_64      1/1
Installing  : s-nail-14.9.24-12.el10.x86_64            1/1
  Running scriptlet: s-nail-14.9.24-12.el10.x86_64      1/1

Installed:
  s-nail-14.9.24-12.el10.x86_64

Complete!
root@client:~#
```

Рис. 12: установка s-nail

Настройка протоколов на клиенте

```
root@client:~# postconf inet_protocols
inet_protocols = all
root@client:~# postconf -e 'inet_protocols = ipv4'
root@client:~# systemctl enable postfix
Created symlink '/etc/systemd/system/multi-user.target.wants/postfix.service' → '/usr/lib/systemd/system/
postfix.service'.
root@client:~# systemctl start postfix
root@client:~#
```

Рис. 13: Настройка протоколов на клиенте

Отправка письма

```
vagrant@client:~$ echo . | mail -s test1 dmmosharov@server.dmmosharov.net  
vagrant@client:~$
```

Рис. 14: Отправка письма

Логи почты

```
[dmmosharov@server.dmmosharov.net ~]$ tail -f /var/log/maillog
tail: cannot open '/var/log/maillog' for reading: Permission denied
tail: no files remaining
[dmmosharov@server.dmmosharov.net ~]$ sudo -i
[sudo] password for dmmosharov:
[root@server.dmmosharov.net ~]# tail -f /var/log/maillog
Jan 29 20:24:44 server postfix/postfix-script[158765]: refreshing the P
ostfix mail system
Jan 29 20:24:44 server postfix/master[157834]: reload -- version 3.8.5,
configuration /etc/postfix
Jan 29 20:24:44 server postfix/master[157834]: warning: ignoring inet_p
rotocols parameter value change
Jan 29 20:24:44 server postfix/master[157834]: warning: old value: "all"
, new value: "ipv4"
Jan 29 20:24:44 server postfix/master[157834]: warning: to change inet_
protocols, stop and start Postfix
Jan 29 20:25:34 server postfix/pickup[158771]: CE5D823B7826: uid=1001 f
rom=<dmmosharov>
Jan 29 20:25:34 server postfix/cleanup[158914]: CE5D823B7826: message-i
d=<20260129202534.CE5D823B7826@server.dmmosharov.net>
Jan 29 20:25:34 server postfix/qmgr[158772]: CE5D823B7826: from=<dmmosh
arov@dmmosharov.net>, size=346, nrcpt=1 (queue active)
Jan 29 20:25:34 server postfix/local[158917]: CE5D823B7826: to=<dmmosh
arov@server.dmmosharov.net>, relay=local, delay=0.02, delays=0.02/0.01/0
/0, dsn=2.0.0, status=sent (delivered to mailbox)
Jan 29 20:25:34 server postfix/qmgr[158772]: CE5D823B7826: removed
```

Рис. 15: Логи почты

Включение получения писем из локальной сети

```
[root@server.dmmosharov.net ~]# postconf inet_interfaces
inet_interfaces = localhost
[root@server.dmmosharov.net ~]# postconf mynetworks
mynetworks = 127.0.0.1/32
[root@server.dmmosharov.net ~]# postconf -e 'inet_interfaces = all'
[root@server.dmmosharov.net ~]# postconf -e 'mynetworks = 127.0.0.0/8,
192.168.0.0/16'
[root@server.dmmosharov.net ~]# postfix check
[root@server.dmmosharov.net ~]# systemctl reload postfix
[root@server.dmmosharov.net ~]# systemctl stop postfix
[root@server.dmmosharov.net ~]# systemctl start postfix
[root@server.dmmosharov.net ~]# █
```

Рис. 16: Включение получения писем из локальной сети

Повторная отправка письма

```
vagrant@client:~$ echo . | mail -s test1 dmmosharov@server.dmmosharov.net  
vagrant@client:~$
```

Рис. 17: Повторная отправка письма

Успешная отправка письма согласно логам

```
Jan 29 20:38:32 server postfix/master[157834]: warning: to change inet_
interfaces, stop and start Postfix
Jan 29 20:38:38 server postfix/postfix-script[160741]: stopping the Pos
tfix mail system
Jan 29 20:38:38 server postfix/master[157834]: terminating on signal 15
Jan 29 20:38:44 server postfix/postfix-script[160841]: starting the Pos
tfix mail system
Jan 29 20:38:44 server postfix/master[160843]: daemon started -- versio
n 3.8.5, configuration /etc/postfix
Jan 29 20:39:11 server postfix/smtpd[160902]: warning: run-time library
' vs. compile-time header version mismatch: OpenSSL 3.5.0 may not be com
patible with OpenSSL 3.2.0
Jan 29 20:39:11 server postfix/smtpd[160902]: connect from unknown[192.
168.1.30]
Jan 29 20:39:12 server postfix/smtpd[160902]: 005F023B81DD: client=unkn
own[192.168.1.30]
Jan 29 20:39:12 server postfix/cleanup[160906]: 005F023B81DD: message-i
d<20260129203911.DE4249071E@client.dmmosharov.net>
Jan 29 20:39:12 server postfix/smtpd[160902]: disconnect from unknown[1
92.168.1.30] ehlo=2 starttls=1 mail=1 rcpt=1 data=1 quit=1 commands=7
Jan 29 20:39:12 server postfix/qmgr[160845]: 005F023B81DD: from=<vagran
t@client.dmmosharov.net>, size=554, nrcpt=1 (queue active)
Jan 29 20:39:12 server postfix/local[160907]: 005F023B81DD: to=<dmmosha
rov@server.dmmosharov.net>, relay=local, delay=0.01, delays=0.01/0.01/0
/0, dsn=2.0.0, status=sent (delivered to mailbox)
Jan 29 20:39:12 server postfix/qmgr[160845]: 005F023B81DD: removed
S
```

Рис. 18: Успешная отправка письма согласно логам

Отправка письма пользователю

```
vagrant@client:~$ echo . | mail -s test2 dmmosharov@dmmosharov.net  
vagrant@client:~$ █
```

Рис. 19: Отправка письма пользователю

Неуспешная доставка письма

```
Jan 29 20:39:12 server postfix/qmgr[160845]: 005F023B81DD: removed
Jan 29 20:41:22 server postfix/smtpd[161170]: warning: run-time library vs. compile-time header version mismatch: OpenSSL 3.5.0 may not be compatible with OpenSSL 3.2.0
Jan 29 20:41:22 server postfix/smtpd[161170]: connect from unknown[192.168.1.30]
Jan 29 20:41:22 server postfix/smtpd[161170]: 654D123B81DD: client=unknown[192.168.1.30]
Jan 29 20:41:22 server postfix/cleanup[161173]: 654D123B81DD: message-id=<20260129204122.550819071@client.dmmosharov.net>
Jan 29 20:41:22 server postfix/smtpd[161170]: disconnect from unknown[192.168.1.30] ehlo=2 starttls=1 mail= rcpt=1 data=1 quit=1 commands=7
Jan 29 20:41:22 server postfix/qmgr[160845]: 654D123B81DD: from=<vagrant@client.dmmosharov.net>, size=540, nrcpt=1 (queue active)
Jan 29 20:41:22 server postfix/smtp[161174]: warning: run-time library vs. compile-time header version mismatch: OpenSSL 3.5.0 may not be compatible with OpenSSL 3.2.0
Jan 29 20:41:22 server postfix/smtp[161174]: 654D123B81DD: to=<dmmosharov@dmmosharov.net>, relay=none, delay=0.03, delays=0.01/0.02/0/0, dsn=5.4.6, status=bounced (mail for dmmosharov.net loops back to myself)
Jan 29 20:41:22 server postfix/cleanup[161173]: 6055223B8F64: message-id=<20260129204122.6055223B8F64@server.dmmosharov.net>
Jan 29 20:41:22 server postfix/bounce[161175]: 654D123B81DD: sender non-delivery notification: 6055223B8F64
Jan 29 20:41:22 server postfix/qmgr[160845]: 6055223B8F64: from=<>, size=2559, nrcpt=1 (queue active)
Jan 29 20:41:22 server postfix/qmgr[160845]: 654D123B81DD: removed
Jan 29 20:41:22 server postfix/smtp[161174]: 6055223B8F64: to=<vagrant@client.dmmosharov.net>, relay=none, delay=0, delays=0/0/0/0, dsn=5.4.4, status=bounced (Host or domain name not found. Name service error for name=client.dmmosharov.net type=A: Host not found)
Jan 29 20:41:22 server postfix/qmgr[160845]: 6055223B8F64: removed
```

Рис. 20: Неуспешная доставка письма

postqueue -p

```
[root@server.dmmosharov.net ~]# postqueue -p
Mail queue is empty
[root@server.dmmosharov.net ~]# █
```

Рис. 21: postqueue -p

Файл прямой зоны

```
GNU nano 8.1      /var/named/master/fz/dmmosharov.net      Modified
$TTL 1D
@ IN SOA @ server.dmmosharov.net. (
    2026012702 ; serial
    1D ; refresh
    1H ; retry
    1W ; expire
    3H ) ; minimum
    NS @
        A 192.168.1.1
$ORIGIN dmmosharov.net.
server A 192.168.1.1
ns A 192.168.1.1
www A 192.168.1.1
mail A 192.168.1.1
```

Рис. 22: Файл прямой зоны

Файл обратной зоны

```
GNU nano 8.1          /var/named/master/rz/192.168.1
$TTL 1D
@ IN SOA @ server.dmmosharov.net. (
    2026012703 ; serial
    1D ; refresh
    1H ; retry
    1W ; expire
    3H ) ; minimum
    NS @
    A 192.168.1.1
    IN PTR server.dmmosharov.net.
$ORIGIN 1.168.192.in-addr.arpa.
1 IN PTR server.dmmosharov.net.
1 IN PTR ns.dmmosharov.net.
1 IN PTR www.dmmosharov.net.
1 IN PTR mail.dmmosharov.net.
```

Рис. 23: Файл обратной зоны

Обновление списков назначения почты

```
[root@server.dmmosharov.net ~]# postconf -e 'mydestination = $myhostname, localhost.$mydomain, localhost, $mydomain'  
[root@server.dmmosharov.net ~]# postfix check  
[root@server.dmmosharov.net ~]# systemctl reload postfix  
[root@server.dmmosharov.net ~]# restorecon -vR /etc  
[root@server.dmmosharov.net ~]# restorecon -vR /var/named  
[root@server.dmmosharov.net ~]# systemctl restart named  
[root@server.dmmosharov.net ~]# postqueue -f  
[root@server.dmmosharov.net ~]# █
```

Рис. 24: Обновление списков назначения почты

Лог об успешно доставленом письме

```
Jan 29 20:54:26 server postfix/smtpd[163127]: warning: run-time library  
vs. compile-time header version mismatch: OpenSSL 3.5.0 may not be com  
patible with OpenSSL 3.2.0  
Jan 29 20:54:26 server postfix/smtpd[163127]: connect from unknown[192.  
168.1.30]  
Jan 29 20:54:26 server postfix/smtpd[163127]: C2F4223CFFB8: client=unkn  
own[192.168.1.30]  
Jan 29 20:54:26 server postfix/cleanup[163131]: C2F4223CFFB8: message-i  
d=<20260129205426.B00129071B@client.dmmosharov.net>  
Jan 29 20:54:26 server postfix/smtpd[163127]: disconnect from unknown[1  
92.168.1.30] ehlo=2 starttls=1 mail=1 rcpt=1 data=1 quit=1 commands=7  
Jan 29 20:54:26 server postfix/qmgr[162971]: C2F4223CFFB8: from=<vagran  
t@client.dmmosharov.net>, size=540, nrcpt=1 (queue active)  
Jan 29 20:54:26 server postfix/local[163132]: C2F4223CFFB8: to=<dmmosha  
rov@dmmosharov.net>, relay=local, delay=0.02, delays=0.01/0.01/0/0, dsn  
=2.0.0, status=sent (delivered to mailbox)  
Jan 29 20:54:26 server postfix/qmgr[162971]: C2F4223CFFB8: removed
```

Рис. 25: Лог об успешно доставленом письме

Сохранение конфигурации

```
[root@server.dmmosharov.net ~]# cd /vagrant/provision/server/dns/var/named  
[root@server.dmmosharov.net named]# cp -R /var/named/* /vagrant/provision/server/dns/var/named  
cp: overwrite '/vagrant/provision/server/dns/var/named/data/named.run-20251215'? y  
cp: overwrite '/vagrant/provision/server/dns/var/named/data/named.run-20251215'?  
y  
cp: overwrite '/vagrant/provision/server/dns/var/named/data/named.run-20260120'? y  
cp: overwrite '/vagrant/provision/server/dns/var/named/data/named.run-20260127'? y  
cp: overwrite '/vagrant/provision/server/dns/var/named/dynamic/managed-keys.bind'? y  
cp: overwrite '/vagrant/provision/server/dns/var/named/dynamic/managed-keys.bind.jnl'? y  
cp: overwrite '/vagrant/provision/server/dns/var/named/master/fz/dmmosharov.net'? y  
cp: overwrite '/vagrant/provision/server/dns/var/named/master/fz/user.net'? y  
cp: overwrite '/vagrant/provision/server/dns/var/named/master/rz/192.168.1.backup'? y  
cp: overwrite '/vagrant/provision/server/dns/var/named/master/rz/192.168.1'? y  
cp: overwrite '/vagrant/provision/server/dns/var/named/named.ca'? y  
cp: overwrite '/vagrant/provision/server/dns/var/named/named.empty'? y  
cp: overwrite '/vagrant/provision/server/dns/var/named/named.localhost'? y  
cp: overwrite '/vagrant/provision/server/dns/var/named/named.loopback'? y  
[root@server.dmmosharov.net named]# cd /vagrant/provision/server  
[root@server.dmmosharov.net server]# touch mail.sh  
[root@server.dmmosharov.net server]# chmod +x mail.sh  
[root@server.dmmosharov.net server]# nano mail.sh
```

Рис. 26: Сохранение конфигурации

mail.sh

```
GNU nano 8.1          mail.sh
#!/bin/bash
echo "Provisioning script $0"
echo "Install needed packages"
dnf -y install postfix
dnf -y install s-nail
echo "Copy configuration files"
#cp -R /vagrant/provision/server/mail/etc/* /etc
echo "Configure firewall"
firewall-cmd --add-service=smtp --permanent
firewall-cmd --reload
restorecon -vR /etc
echo "Start postfix service"
systemctl enable postfix
systemctl start postfix
echo "Configure postfix"
postconf -e 'mydomain = user.net'
postconf -e 'myorigin = $mydomain'
postconf -e 'inet_protocols = ipv4'
postconf -e 'inet_interfaces = all'
postconf -e 'mydestination = $myhostname, localhost.$mydomain, localhost.$mydomain'
postconf -e 'mynetworks = 127.0.0.0/8, 192.168.0.0/16'
postfix set-permissions
restorecon -vR /etc
systemctl stop postfix
systemctl start postfix
[ Wrote 26 lines ]
```

Рис. 27: mail.sh

Создание скрипта mail.sh для клиента

```
root@client:~# cd /vagrant/provision/client
root@client:/vagrant/provision/client# touch mail.sh
root@client:/vagrant/provision/client# chmod +x mail.sh
root@client:/vagrant/provision/client# nano mail.sh
```

Рис. 28: Создание скрипта mail.sh для клиента

mail.sh для клиента

```
GNU nano 8.1                                     mail.sh
#!/bin/bash
echo "Provisioning script $0"
echo "Install needed packages"
dnf -y install postfix
dnf -y install s-nail
echo "Configure postfix"
postconf -e 'inet_protocols = ipv4'
echo "Start postfix service"
systemctl enable postfix
systemctl start postfix
```

Рис. 29: mail.sh для клиента

vagrantfile

```
188     server.vm.provision "server mail",
189         type: "shell",
190         preserve_order: true,
191         path: "provision/server/mail.sh"
192
193     end
194
195
196 ## Client configuration
197 config.vm.define "client", autostart: false do |client|
198     client.vm.box = "rockylinux9"
199     client.vm.hostname = "client"
200
201     client.vm.boot_timeout = 3440
202
203     client.ssh.insert_key = false
204     client.ssh.username = "vagrant"
205     client.ssh.password = "vagrant"
206
207     client.vm.network "private_network",
208         type: "dhcp",
209         virtualbox__intnet: true
210
211     client.vm.provider :virtualbox do |virtualbox|
212         virtualbox.customize ["modifyvm", :id, "--vrde", "on"]
213         virtualbox.customize ["modifyvm", :id, "--vrdeport", "3392"]
214     end
215
216
217     client.vm.provision "client dummy",
218         type: "shell",
219         preserve_order: true,
220         path: "provision/client/01-dummy.sh"
221
222     client.vm.provision "client routing",
223         type: "shell",
224         preserve_order: true,
225         run: "always",
226         path: "provision/client/01-routing.sh"
227
228     client.vm.provision "client mail",
229         type: "shell",
230         preserve_order: true,
231         path: "provision/client/mail.sh"
232
233     end
234
235 end
```

Рис. 30: vagrantfile

Выводы

В результате выполнения лабораторной работы были получены навыки настройки smtp сервера