

Лабораторная работа №8

Настройка SMTP-сервера

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Вводная часть

Приобретение практических навыков по установке и конфигурированию SMTP-сервера.

1. Установите на виртуальной машине server SMTP-сервер postfix.
2. Сделайте первоначальную настройку postfix при помощи утилиты postconf, задав отправку писем не на локальный хост, а на сервер в домене.
3. Проверьте отправку почты с сервера и клиента.
4. Сконфигурируйте Postfix для работы в домене. Проверьте отправку почты с сервера и клиента.
5. Напишите скрипт для Vagrant, фиксирующий действия по установке и настройке Postfix во внутреннем окружении виртуальной машины server. Соответствующим образом внесите изменения в Vagrantfile.

Выполнение лабораторной работы

Установка Postfix

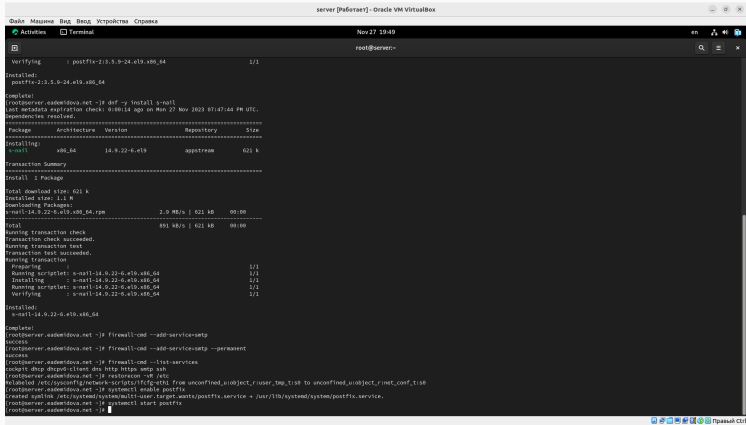
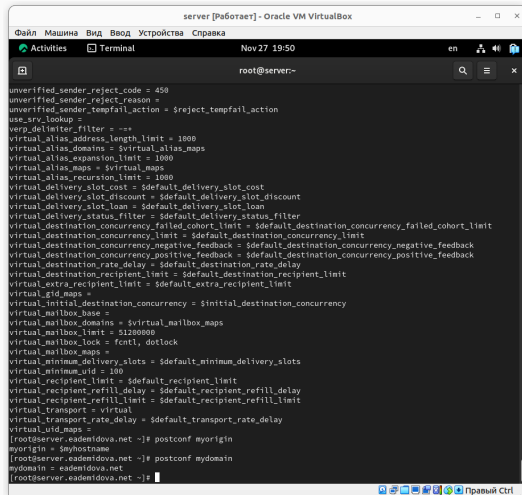


Рис. 1: Запуск Postfix

Изменение параметров Postfix с помощью postconf



```
server [Работаet] - Oracle VM VirtualBox
Файл  Машина  Вид  Ввод  Устройства  Справка
Activities  Terminal  Nov 27 19:50  en  [Icons]
root@server:~
unverified_sender_reject_code = 450
unverified_sender_reject_reason =
unverified_sender_tempfail_action = $reject_tempfail_action
use_srv_lookup =
verp_delimiter_filter = --+
virtual_alias_address_length_limit = 1000
virtual_alias_domains = $virtual_alias_maps
virtual_alias_expansion_limit = 1000
virtual_alias_maps = $virtual_maps
virtual_alias_recursion_limit = 1000
virtual_delivery_slot_cost = $default_delivery_slot_cost
virtual_delivery_slot_discount = $default_delivery_slot_discount
virtual_delivery_slot_loan = $default_delivery_slot_loan
virtual_delivery_status_filter = $default_delivery_status_filter
virtual_destination_concurrency_failed_cohort_limit = $default_destination_concurrency_failed_cohort_limit
virtual_destination_concurrency_limit = $default_destination_concurrency_limit
virtual_destination_concurrency_negative_feedback = $default_destination_concurrency_negative_feedback
virtual_destination_concurrency_positive_feedback = $default_destination_concurrency_positive_feedback
virtual_destination_rate_delay = $default_destination_rate_delay
virtual_destination_recipient_limit = $default_destination_recipient_limit
virtual_extra_recipient_limit = $default_extra_recipient_limit
virtual_gid_maps =
virtual_initial_destination_concurrency = $initial_destination_concurrency
virtual_mailbox_base =
virtual_mailbox_domains = $virtual_mailbox_maps
virtual_mailbox_limit = $1200000
virtual_mailbox_lock = fcntl, dotlock
virtual_mailbox_maps =
virtual_minimum_delivery_slots = $default_minimum_delivery_slots
virtual_minimum_uid = 100
virtual_recipient_limit = $default_recipient_limit
virtual_recipient_refill_delay = $default_recipient_refill_delay
virtual_recipient_refill_limit = $default_recipient_refill_limit
virtual_transport = virtual
virtual_transport_rate_delay = $default_transport_rate_delay
virtual_uid_maps =
[root@server.eadenidova.net ~]# postconf myorigin
myorigin = $myhostname
[root@server.eadenidova.net ~]# postconf mydomain
mydomain = eadenidova.net
[root@server.eadenidova.net ~]#
```

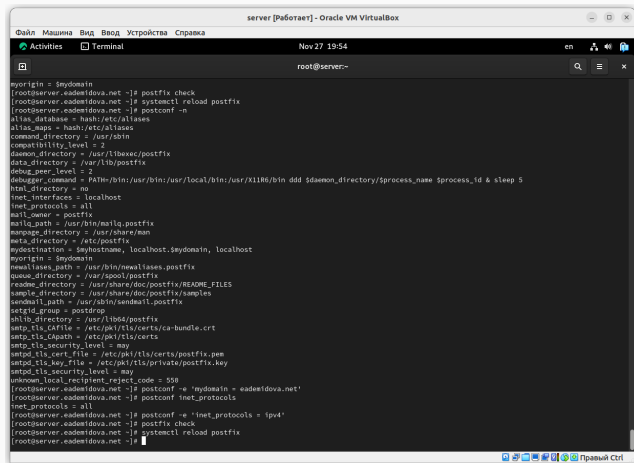
Рис. 2: Посмотр текущих конфигураций Postfix

Заменяем значение параметра myorigin на значение параметра mydomain и снова посмотрим значение myorigin:

```
postconf: fatal: missing -u after --set-name=...myorigin
[root@server.eademidova.net ~]# postconf -e 'myorigin = $mydomain'
[root@server.eademidova.net ~]# postconf myorigin
myorigin = $mydomain
[root@server.eademidova.net ~]#
```

Рис. 3: Изменение значения параметра myorigin

Изменение параметров Postfix с помощью postconf



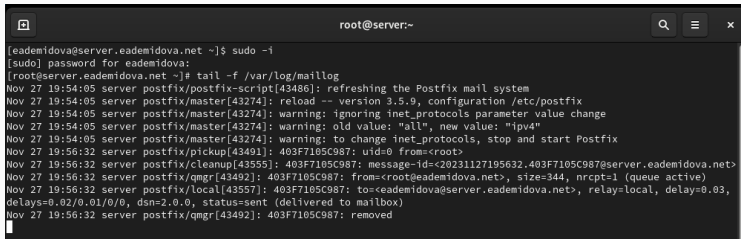
```
server [Работает] - Oracle VM VirtualBox
Файл  Машина  Вид  Ввод  Устройства  Справка
Activities  Terminal  Nov27 19:54  en  [Icons]
root@server:~#
myorigin = $mydomain
[root@server.eadמידova.net ~]# postfix check
[root@server.eadמידova.net ~]# systemctl reload postfix
[root@server.eadמידova.net ~]# postconf -n
alias_database = hash:/etc/aliases
alias_maps = hash:/etc/aliases
command_directory = /usr/sbin
compatibility_level = 2
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
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_CAspath = /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.eadמידova.net ~]# postconf -e 'myorigin = eadמידova.net'
[root@server.eadמידova.net ~]# postconf inet_protocols
inet_protocols = all
[root@server.eadמידova.net ~]# postconf -e 'inet_protocols = ipv4'
[root@server.eadמידova.net ~]# postfix check
[root@server.eadמידova.net ~]# systemctl reload postfix
[root@server.eadמידova.net ~]#
```

Рис. 4: Настройка Postfix

На сервере под учётной записью пользователя отправим себе письмо, используя утилиту mail с помощью команды:

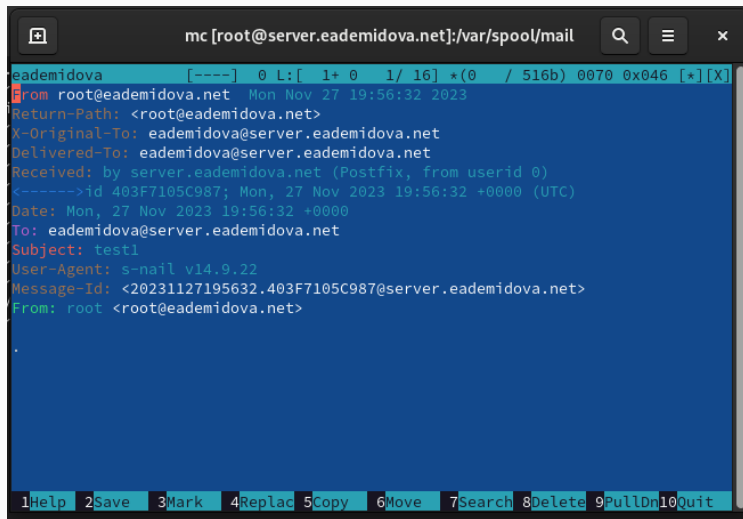
```
echo .| mail -s test1 eademidova@server.eademidova.net
```

Проверка работы Postfix



```
root@server:~  
[eademidova@server.eademidova.net ~]$ sudo -i  
[sudo] password for eademidova:  
[root@server.eademidova.net ~]# tail -f /var/log/maillog  
Nov 27 19:54:05 server postfix/postfix-script[43486]: refreshing the Postfix mail system  
Nov 27 19:54:05 server postfix/master[43274]: reload -- version 3.5.9, configuration /etc/postfix  
Nov 27 19:54:05 server postfix/master[43274]: warning: ignoring inet_protocols parameter value change  
Nov 27 19:54:05 server postfix/master[43274]: warning: old value: "all", new value: "ipv4"  
Nov 27 19:54:05 server postfix/master[43274]: warning: to change inet_protocols, stop and start Postfix  
Nov 27 19:56:32 server postfix/pickup[43491]: 403F7105C987: uid=0 from=<root>  
Nov 27 19:56:32 server postfix/cleanup[43555]: 403F7105C987: message-id=<20231127195632.403F7105C987@server.eademidova.net>  
Nov 27 19:56:32 server postfix/qmgr[43492]: 403F7105C987: from=<root@eademidova.net>, size=344, nrcpt=1 (queue active)  
Nov 27 19:56:32 server postfix/local[43557]: 403F7105C987: to=<eademidova@server.eademidova.net>, relay=local, delay=0.03,  
delays=0.02/0.01/0/0, dsn=2.0.0, status=sent (delivered to mailbox)  
Nov 27 19:56:32 server postfix/qmgr[43492]: 403F7105C987: removed
```

Рис. 5: Получение сообщения



```
mc [root@server.eademidova.net]:/var/spool/mail
eademidova [----] 0 L:[ 1+ 0 1/ 16] *(0 / 516b) 0070 0x046 [*][X]
From root@eademidova.net Mon Nov 27 19:56:32 2023
Return-Path: <root@eademidova.net>
X-Original-To: eademidova@server.eademidova.net
Delivered-To: eademidova@server.eademidova.net
Received: by server.eademidova.net (Postfix, from userid 0)
<----->id 403F7105C987; Mon, 27 Nov 2023 19:56:32 +0000 (UTC)
Date: Mon, 27 Nov 2023 19:56:32 +0000
To: eademidova@server.eademidova.net
Subject: test1
User-Agent: s-nail v14.9.22
Message-Id: <20231127195632.403F7105C987@server.eademidova.net>
From: root <root@eademidova.net>
.

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

Рис. 6: Файл с отправленным письмом

Проверка работы Postfix

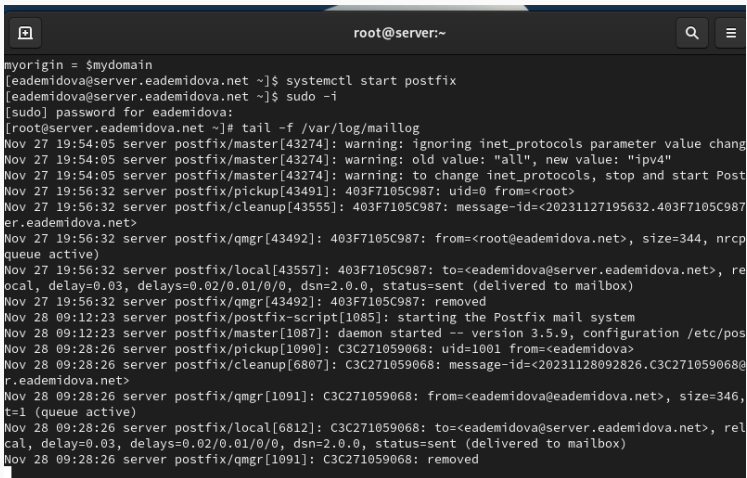
```
client [Работает] - Oracle VM VirtualBox
Файл  Машина  Вид  Ввод  Устройства  Справка
Activities  Terminal  Nov 28 09:32  en  [audio icon] [network icon]
root@client:~

=====
Installing:
s-nail                                x86_64                14.9.22-6.el9                appstream                621 k
=====
Transaction Summary
=====
Install 1 Package

Total download size: 621 k
Installed size: 1.1 M
Downloading Packages:
s-nail-14.9.22-6.el9.x86_64.rpm                2.5 MB/s | 621 kB  00:00
-----
Total                                          1.1 MB/s | 621 kB  00:00
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing                : 1/1
  Running scriptlet: s-nail-14.9.22-6.el9.x86_64 1/1
  Installing          : s-nail-14.9.22-6.el9.x86_64 1/1
  Running scriptlet: s-nail-14.9.22-6.el9.x86_64 1/1
  Verifying            : s-nail-14.9.22-6.el9.x86_64 1/1

Installed:
s-nail-14.9.22-6.el9.x86_64

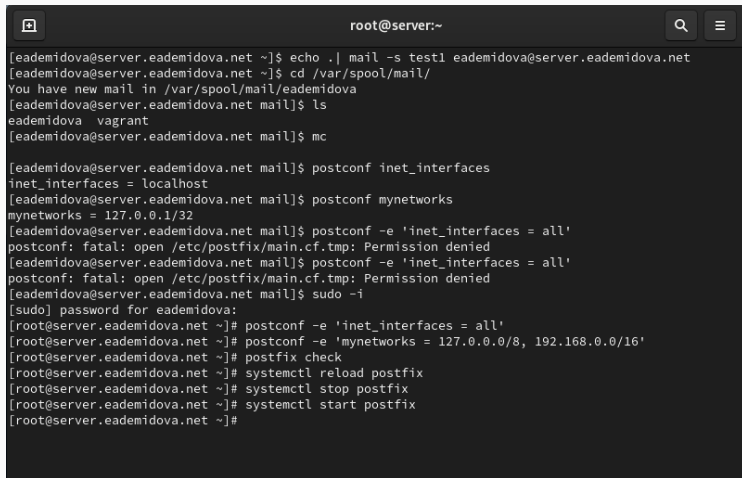
Complete!
[root@client.eademidova.net ~]# postconf inet_protocols
inet_protocols = all
[root@client.eademidova.net ~]# postconf -e 'inet_protocols = ipv4'
[root@client.eademidova.net ~]# systemctl enable postfix
Created symlink /etc/systemd/system/multi-user.target.wants/postfix.service → /usr/lib/systemd/system/postfix.service.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



```
root@server:~  
myorigin = $mydomain  
[eademidova@server.eademidova.net ~]$ systemctl start postfix  
[eademidova@server.eademidova.net ~]$ sudo -i  
[sudo] password for eademidova:  
[root@server.eademidova.net ~]# tail -f /var/log/maillog  
Nov 27 19:54:05 server postfix/master[43274]: warning: ignoring inet_protocols parameter value change  
Nov 27 19:54:05 server postfix/master[43274]: warning: old value: "all", new value: "ipv4"  
Nov 27 19:54:05 server postfix/master[43274]: warning: to change inet_protocols, stop and start Postfix  
Nov 27 19:56:32 server postfix/pickup[43491]: 403F7105C987: uid=0 from=<root>  
Nov 27 19:56:32 server postfix/cleanup[43555]: 403F7105C987: message-id=<20231127195632.403F7105C987@server.eademidova.net>  
Nov 27 19:56:32 server postfix/qmgr[43492]: 403F7105C987: from=<root@eademidova.net>, size=344, nrcp queue active)  
Nov 27 19:56:32 server postfix/local[43557]: 403F7105C987: to=<eademidova@server.eademidova.net>, relay=local, delay=0.03, delays=0.02/0.01/0/0, dsn=2.0.0, status=sent (delivered to mailbox)  
Nov 27 19:56:32 server postfix/qmgr[43492]: 403F7105C987: removed  
Nov 28 09:12:23 server postfix/postfix-script[1085]: starting the Postfix mail system  
Nov 28 09:12:23 server postfix/master[1087]: daemon started -- version 3.5.9, configuration /etc/postfix  
Nov 28 09:28:26 server postfix/pickup[1090]: C3C271059068: uid=1001 from=<eademidova>  
Nov 28 09:28:26 server postfix/cleanup[6807]: C3C271059068: message-id=<20231128092826.C3C271059068@server.eademidova.net>  
Nov 28 09:28:26 server postfix/qmgr[1091]: C3C271059068: from=<eademidova@eademidova.net>, size=346, nrcp queue active)  
Nov 28 09:28:26 server postfix/local[6812]: C3C271059068: to=<eademidova@server.eademidova.net>, relay=local, delay=0.03, delays=0.02/0.01/0/0, dsn=2.0.0, status=sent (delivered to mailbox)  
Nov 28 09:28:26 server postfix/qmgr[1091]: C3C271059068: removed
```

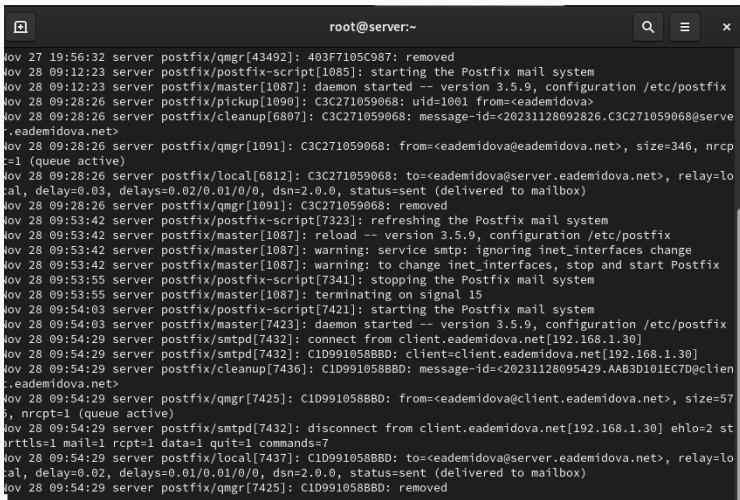
Рис. 8: Результат мониторинга почтовой службы при отправке сообщения с клиента

Проверка работы Postfix

A terminal window titled 'root@server:~' with search and menu icons in the top right. The terminal shows a sequence of commands and outputs for testing and configuring Postfix. It starts with a mail test, then checks the mail directory. Next, it uses 'postconf' to view and modify 'inet_interfaces' and 'mynetworks'. Initial attempts to change these settings fail with 'Permission denied'. The user then runs 'sudo -i' to become root. As root, the 'postconf' commands succeed, and the user runs 'postfix check', 'systemctl reload postfix', 'systemctl stop postfix', and 'systemctl start postfix' to apply the changes.

```
root@server:~  
[eademidova@server.eademidova.net ~]$ echo .| mail -s test1 eademidova@server.eademidova.net  
[eademidova@server.eademidova.net ~]$ cd /var/spool/mail/  
You have new mail in /var/spool/mail/eademidova  
[eademidova@server.eademidova.net mail]$ ls  
eademidova  vagrant  
[eademidova@server.eademidova.net mail]$ mc  
  
[eademidova@server.eademidova.net mail]$ postconf inet_interfaces  
inet_interfaces = localhost  
[eademidova@server.eademidova.net mail]$ postconf mynetworks  
mynetworks = 127.0.0.1/32  
[eademidova@server.eademidova.net mail]$ postconf -e 'inet_interfaces = all'  
postconf: fatal: open /etc/postfix/main.cf.tmp: Permission denied  
[eademidova@server.eademidova.net mail]$ postconf -e 'inet_interfaces = all'  
postconf: fatal: open /etc/postfix/main.cf.tmp: Permission denied  
[eademidova@server.eademidova.net mail]$ sudo -i  
[sudo] password for eademidova:  
[root@server.eademidova.net ~]# postconf -e 'inet_interfaces = all'  
[root@server.eademidova.net ~]# postconf -e 'mynetworks = 127.0.0.0/8, 192.168.0.0/16'  
[root@server.eademidova.net ~]# postfix check  
[root@server.eademidova.net ~]# systemctl reload postfix  
[root@server.eademidova.net ~]# systemctl stop postfix  
[root@server.eademidova.net ~]# systemctl start postfix  
[root@server.eademidova.net ~]#
```

Рис. 9: Изменение конфигураций Postfix

A terminal window titled 'root@server:~' with search, menu, and close icons in the top right. It displays a series of log messages from the Postfix mail system. The logs show the removal of a message, the starting of the Postfix mail system, a daemon started with version 3.5.9, a pickup process handling a message from 'eademidova', a cleanup process, a queue manager processing a message, a local delivery to a mailbox, and a reload of the system. It also shows a warning about a change in inet_interfaces, a stop of the system, and a restart. Finally, it shows a client connection from '192.168.1.30', a disconnect, and a local delivery of a message.

```
Nov 27 19:56:32 server postfix/qmgr[43492]: 403F7105C987: removed
Nov 28 09:12:23 server postfix/postfix-script[1085]: starting the Postfix mail system
Nov 28 09:12:23 server postfix/master[1087]: daemon started -- version 3.5.9, configuration /etc/postfix
Nov 28 09:28:26 server postfix/pickup[1090]: C3C271059068: uid=1001 from=<eademidova>
Nov 28 09:28:26 server postfix/cleanup[6807]: C3C271059068: message-id=<20231128092826.C3C271059068@server.eademidova.net>
Nov 28 09:28:26 server postfix/qmgr[1091]: C3C271059068: from=<eademidova@eademidova.net>, size=346, nrcpt=1 (queue active)
Nov 28 09:28:26 server postfix/local[6812]: C3C271059068: to=<eademidova@server.eademidova.net>, relay=local, delay=0.03, delays=0.02/0.01/0/0, dsn=2.0.0, status=sent (delivered to mailbox)
Nov 28 09:28:26 server postfix/qmgr[1091]: C3C271059068: removed
Nov 28 09:53:42 server postfix/postfix-script[7323]: refreshing the Postfix mail system
Nov 28 09:53:42 server postfix/master[1087]: reload -- version 3.5.9, configuration /etc/postfix
Nov 28 09:53:42 server postfix/master[1087]: warning: service smtp: ignoring inet_interfaces change
Nov 28 09:53:42 server postfix/master[1087]: warning: to change inet_interfaces, stop and start Postfix
Nov 28 09:53:55 server postfix/postfix-script[7341]: stopping the Postfix mail system
Nov 28 09:53:55 server postfix/master[1087]: terminating on signal 15
Nov 28 09:54:03 server postfix/postfix-script[7421]: starting the Postfix mail system
Nov 28 09:54:03 server postfix/master[7423]: daemon started -- version 3.5.9, configuration /etc/postfix
Nov 28 09:54:29 server postfix/smtpd[7432]: connect from client.eademidova.net[192.168.1.30]
Nov 28 09:54:29 server postfix/smtpd[7432]: C1D991058BBD: client=client.eademidova.net[192.168.1.30]
Nov 28 09:54:29 server postfix/cleanup[7436]: C1D991058BBD: message-id=<20231128095429.AAB3D101EC7D@client.eademidova.net>
Nov 28 09:54:29 server postfix/qmgr[7425]: C1D991058BBD: from=<eademidova@client.eademidova.net>, size=576, nrcpt=1 (queue active)
Nov 28 09:54:29 server postfix/smtpd[7432]: disconnect from client.eademidova.net[192.168.1.30] ehlo=2 starttls=1 mail=1 rcpt=1 data=1 quit=1 commands=7
Nov 28 09:54:29 server postfix/local[7437]: C1D991058BBD: to=<eademidova@server.eademidova.net>, relay=local, delay=0.02, delays=0.01/0.01/0/0, dsn=2.0.0, status=sent (delivered to mailbox)
Nov 28 09:54:29 server postfix/qmgr[7425]: C1D991058BBD: removed
```

Рис. 10: Отправка сообщения с клиента после изменения конфигураций Postfix

Конфигурация Postfix для домена

```
Nov 28 09:57:57 client postfix/qmgr[43108]: 20231128100209.D731C101EC71: removed
Nov 28 10:01:17 client postfix/scache[43601]: statistics: start interval Nov 28 09:57:57
Nov 28 10:01:17 client postfix/scache[43601]: statistics: domain lookup hits=0 miss=1 success=0%
Nov 28 10:01:17 client postfix/scache[43601]: statistics: address lookup hits=0 miss=1 success=0%
Nov 28 10:02:09 client postfix/pickup[43107]: D731C101EC71: uid=1001 from=<eademidova>
Nov 28 10:02:09 client postfix/cleanup[43679]: D731C101EC71: message-id=<20231128100209.D731C101EC71@client.eademidova.net>
Nov 28 10:02:09 client postfix/qmgr[43108]: D731C101EC71: from=<eademidova@client.eademidova.net>, size=346, nrcpt=1 (queue active)
Nov 28 10:02:09 client postfix/smtp[43685]: D731C101EC71: to=<eademidova@eademidova.net>, relay=eademidova.net[192.168.1.1]:25, delay=0.12, delays=0.03/0.03/0.04/0.01, dsn=2.0.0, status=sent (250 2.0.0 Ok: queued as EF3CD1058BBD)
Nov 28 10:02:09 client postfix/qmgr[43108]: D731C101EC71: removed
Nov 28 10:02:57 client postfix/qmgr[43108]: F15E8101EC73: from=<root@client.eademidova.net>, size=351, nrcpt=1 (queue active)
Nov 28 10:02:57 client postfix/smtp[43685]: F15E8101EC73: to=<eademidova@server.eademidova.net>, relay=server.eademidova.net[192.168.1.1]:25, delay=1032, delays=1032/0/0.02/0.01, dsn=2.0.0, status=sent (250 2.0.0 Ok: queued as 0DCCE1058BBD)
Nov 28 10:02:57 client postfix/qmgr[43108]: F15E8101EC73: removed
```

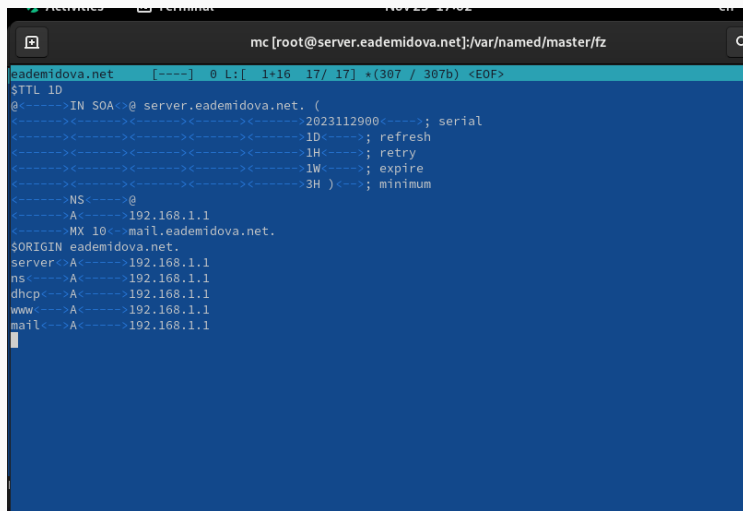
Рис. 11: Отправка сообщения с клиента на доменный адрес

```
[eademidova@client.eademidova.net ~]$ echo .| mail -s test2 eademidova@eademidova.net
[eademidova@client.eademidova.net ~]$ postqueue -p
-Queue ID- --Size-- ----Arrival Time---- -Sender/Recipient-----
BA2E4101F700      346 Tue Nov 28 09:35:31 eademidova@client.eademidova.net
                    (connect to eademidova.net[192.168.1.1]:25: Connection refused)
                    eademidova@eademidova.net

-- 0 Kbytes in 1 Request.
[eademidova@client.eademidova.net ~]$
```

Рис. 12: Отправка сообщения с клиента на доменный адрес

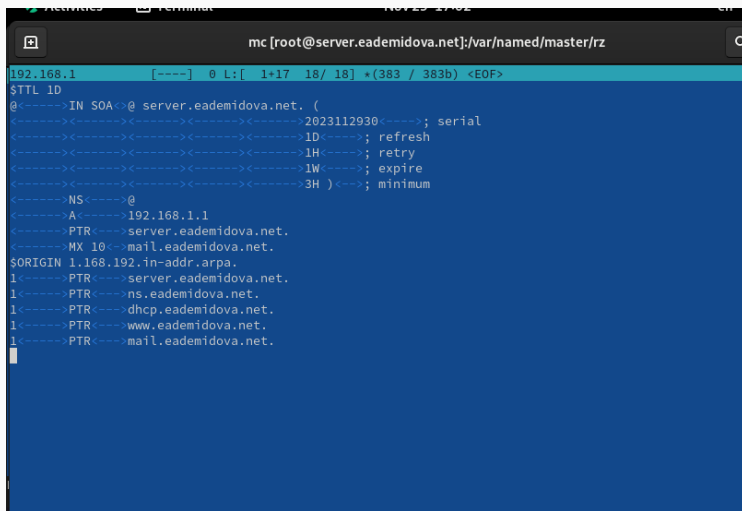
Конфигурация Postfix для домена



```
mc [root@server.eademidova.net]:/var/named/master/fz
eademidova.net  [----] 0 L:[ 1+16 17/ 17] *(307 / 307b) <EOF>
$TTL 1D
@<----->IN SOA<-->@ server.eademidova.net. (
<-----><-----><-----><-----><----->2023112900<----->; serial
<-----><-----><-----><-----><----->1D<----->; refresh
<-----><-----><-----><-----><----->1H<----->; retry
<-----><-----><-----><-----><----->1W<----->; expire
<-----><-----><-----><-----><----->3H )<-->; minimum
<----->NS<----->@
<----->A<----->192.168.1.1
<----->MX 10<-->mail.eademidova.net.
$ORIGIN eademidova.net.
server<-->A<----->192.168.1.1
ns<----->A<----->192.168.1.1
dhcp<-->A<----->192.168.1.1
www<----->A<----->192.168.1.1
mail<-->A<----->192.168.1.1
```

Рис. 13: Добавление MX записи в файл прямой DNS-зоны

Конфигурация Postfix для домена



```
mc [root@server.eademidova.net]:/var/named/master/rz
192.168.1 [----] 0 L:[ 1+17 18/ 18] *(383 / 383b) <EOF>
$TTL 1D
@<----->IN SOA<-->@ server.eademidova.net. (
<-----><-----><-----><-----><----->2023112930<----->; serial
<-----><-----><-----><-----><----->1D<----->; refresh
<-----><-----><-----><-----><----->1H<----->; retry
<-----><-----><-----><-----><----->1W<----->; expire
<-----><-----><-----><-----><----->3H )<-->; minimum
<----->NS<----->@
<----->A<----->192.168.1.1
<----->PTR<----->server.eademidova.net.
<----->MX 10<-->mail.eademidova.net.
$ORIGIN 1.168.192.in-addr.arpa.
1<----->PTR<----->server.eademidova.net.
1<----->PTR<----->ns.eademidova.net.
1<----->PTR<----->dhcp.eademidova.net.
1<----->PTR<----->www.eademidova.net.
1<----->PTR<----->mail.eademidova.net.
```

Рис. 14: Добавление MX записи в файл обратной DNS-зоны

В конфигурации Postfix добавим домен в список элементов сети, для которых данный сервер является конечной точкой доставки почты с помощью команды:

```
postconf -e 'mydestination = $myhostname, localhost.$mydomain,  
localhost, $mydomain'
```

А затем перезагрузим конфигурацию Postfix, восстановим контекст безопасности в SELinux и перезапустим DNS:

```
postfix check
```

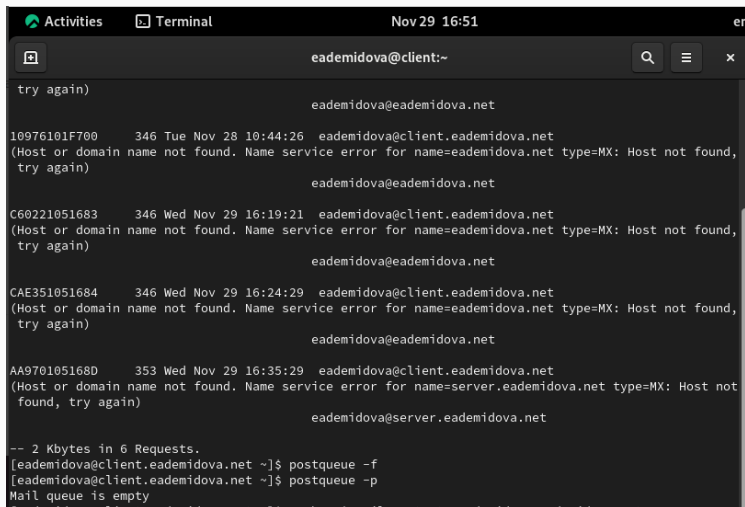
```
systemctl reload postfix
```

```
restorecon -vR /etc
```

```
restorecon -vR /var/named
```

```
systemctl restart named
```

Конфигурация Postfix для домена



The screenshot shows a terminal window titled "Nov 29 16:51" with the user "eademidova@client:~". The terminal output displays the status of the mail queue, showing three messages that failed to be sent to "eademidova@eademidova.net" due to a "Host not found" error. The messages are identified by IDs 10976101F700, C60221051683, and CAE351051684. A fourth message, AA970105168D, is shown as being sent to "eademidova@server.eademidova.net". The queue is currently empty, and the user has entered the commands "postqueue -f" and "postqueue -p".

```
try again)
                                eademidova@eademidova.net

10976101F700      346 Tue Nov 28 10:44:26 eademidova@client.eademidova.net
(Host or domain name not found. Name service error for name=eademidova.net type=MX: Host not found,
try again)
                                eademidova@eademidova.net

C60221051683     346 Wed Nov 29 16:19:21 eademidova@client.eademidova.net
(Host or domain name not found. Name service error for name=eademidova.net type=MX: Host not found,
try again)
                                eademidova@eademidova.net

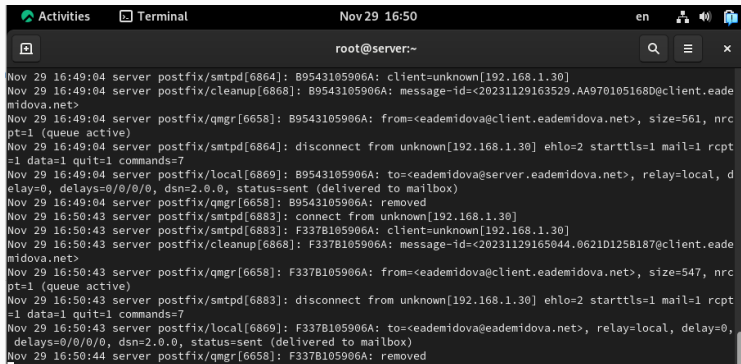
CAE351051684     346 Wed Nov 29 16:24:29 eademidova@client.eademidova.net
(Host or domain name not found. Name service error for name=eademidova.net type=MX: Host not found,
try again)
                                eademidova@eademidova.net

AA970105168D     353 Wed Nov 29 16:35:29 eademidova@client.eademidova.net
(Host or domain name not found. Name service error for name=server.eademidova.net type=MX: Host not
found, try again)
                                eademidova@server.eademidova.net

-- 2 Kbytes in 6 Requests.
[eademidova@client.eademidova.net ~]$ postqueue -f
[eademidova@client.eademidova.net ~]$ postqueue -p
Mail queue is empty
[eademidova@client.eademidova.net ~]$ cat /dev/null > /etc/postfix/maildir/active
```

Рис. 15: Отправка сообщений из очереди

Конфигурация Postfix для домена



```
Nov 29 16:49:04 server postfix/smtpd[6864]: B9543105906A: client=unknown[192.168.1.30]
Nov 29 16:49:04 server postfix/cleanup[6868]: B9543105906A: message-id=<20231129163529.AA970105168D@client.eademidova.net>
Nov 29 16:49:04 server postfix/qmgr[6658]: B9543105906A: from=<eademidova@client.eademidova.net>, size=561, nrcpt=1 (queue active)
Nov 29 16:49:04 server postfix/smtpd[6864]: disconnect from unknown[192.168.1.30] ehlo=2 starttls=1 mail=1 rcpt=1 data=1 quit=1 commands=7
Nov 29 16:49:04 server postfix/local[6869]: B9543105906A: to=<eademidova@server.eademidova.net>, relay=local, delay=0, delays=0/0/0/0, dsn=2.0.0, status=sent (delivered to mailbox)
Nov 29 16:49:04 server postfix/qmgr[6658]: B9543105906A: removed
Nov 29 16:50:43 server postfix/smtpd[6883]: connect from unknown[192.168.1.30]
Nov 29 16:50:43 server postfix/smtpd[6883]: F337B105906A: client=unknown[192.168.1.30]
Nov 29 16:50:43 server postfix/cleanup[6868]: F337B105906A: message-id=<20231129165044.0621D125B187@client.eademidova.net>
Nov 29 16:50:43 server postfix/qmgr[6658]: F337B105906A: from=<eademidova@client.eademidova.net>, size=547, nrcpt=1 (queue active)
Nov 29 16:50:43 server postfix/smtpd[6883]: disconnect from unknown[192.168.1.30] ehlo=2 starttls=1 mail=1 rcpt=1 data=1 quit=1 commands=7
Nov 29 16:50:43 server postfix/local[6869]: F337B105906A: to=<eademidova@eademidova.net>, relay=local, delay=0, delays=0/0/0/0, dsn=2.0.0, status=sent (delivered to mailbox)
Nov 29 16:50:44 server postfix/qmgr[6658]: F337B105906A: removed
```

Рис. 16: Отправка письма с клиента на доменный адрес

Внесение изменений в настройки внутреннего окружения виртуальной машины

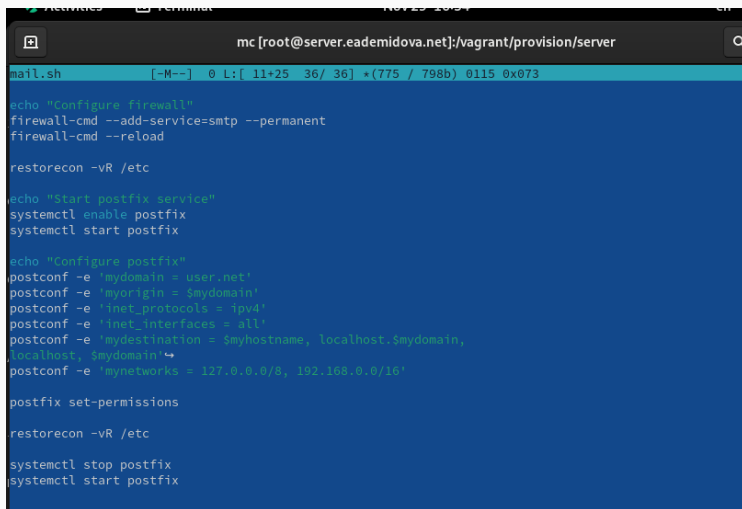
```
[root@server.eademidova.net named]# cd /vagrant/provision/server/dns/var/named
[root@server.eademidova.net named]# cp -R /var/named/* /vagrant/provision/server/dns/var/named
cp: overwrite '/vagrant/provision/server/dns/var/named/data/named.run'? y
cp: overwrite '/vagrant/provision/server/dns/var/named/dynamic/managed-keys.bind'? 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/eademidova.net'? 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.eademidova.net named]# cd /vagrant/provision/server
[root@server.eademidova.net server]# touch mail.sh
[root@server.eademidova.net server]# chmod +x mail.sh
[root@server.eademidova.net server]# mc

[root@server.eademidova.net server]# cd /va
vagrant/ var/
[root@server.eademidova.net server]# cd /var/named/master/
[root@server.eademidova.net master]# mc

[root@server.eademidova.net rz]# █
```

Рис. 17: Изменение конфигуционных файлов на виртуальной машине server

Внесение изменений в настройки внутреннего окружения виртуальной машины

A screenshot of a terminal window with a dark background. The title bar shows 'Activities', 'Terminal', and 'Nov 25 16:54'. The terminal prompt is 'mc [root@server.eademidova.net]:/vagrant/provision/server'. The script content is as follows:

```
mail.sh [-M--] 0 L:[ 11+25 36/ 36] *(775 / 798b) 0115 0x073

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

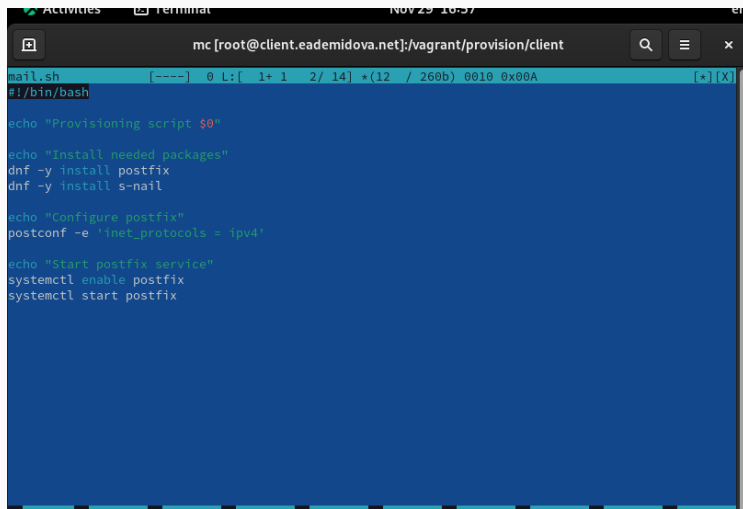
systemctl stop postfix
systemctl start postfix
```

Рис. 18: Содержание mail.sh на виртуальной машине server

```
[root@client.eademidova.net ~]# cd /vagrant/provision/client/  
[root@client.eademidova.net client]# chmod +x mail.sh  
chmod: cannot access 'mail.sh': No such file or directory  
[root@client.eademidova.net client]# touch mail.sh  
[root@client.eademidova.net client]# chmod +x mail.sh  
[root@client.eademidova.net client]# mc
```

Рис. 19: Изменение конфигурационных файлов на виртуальной машине client

Внесение изменений в настройки внутреннего окружения виртуальной машины



The image shows a terminal window titled "mc [root@client.eademidova.net]:/vagrant/provision/client". The terminal displays the content of a file named "mail.sh". The script contains the following commands:

```
#!/bin/bash

echo "Provisioning script $0"

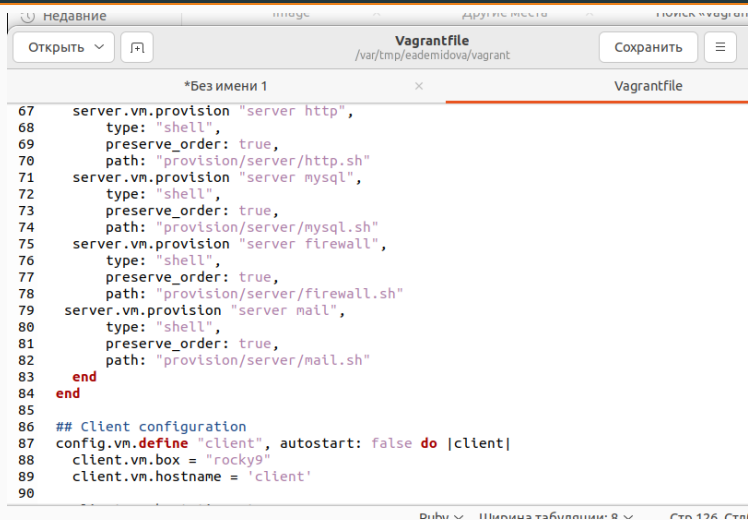
echo "Install needed packages"
dnf -y install postfix
dnf -y install s-nail

echo "Configure postfix"
postconf -e 'inet_protocols = ipv4'

echo "Start postfix service"
systemctl enable postfix
systemctl start postfix
```

Рис. 20: Содержание mail.sh на виртуальной машине client

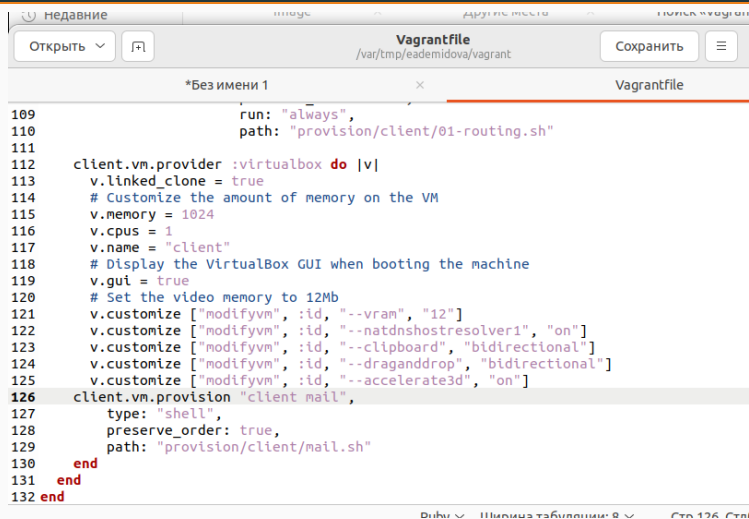
Внесение изменений в настройки внутреннего окружения виртуальной машины



```
67  server.vm.provision "server http",
68      type: "shell",
69      preserve_order: true,
70      path: "provision/server/http.sh"
71  server.vm.provision "server mysql",
72      type: "shell",
73      preserve_order: true,
74      path: "provision/server/mysql.sh"
75  server.vm.provision "server firewall",
76      type: "shell",
77      preserve_order: true,
78      path: "provision/server/firewall.sh"
79  server.vm.provision "server mail",
80      type: "shell",
81      preserve_order: true,
82      path: "provision/server/mail.sh"
83  end
84 end
85
86 ## Client configuration
87 config.vm.define "client", autostart: false do |client|
88     client.vm.box = "rocky9"
89     client.vm.hostname = 'client'
90
```

Рис. 21: Изменение файла Vagrantfile в разделе конфигураций для сервера

Внесение изменений в настройки внутреннего окружения виртуальной машины



```
109         run: "always",
110         path: "provision/client/01-routing.sh"
111
112     client.vm.provider :virtualbox do |v|
113       v.linked_clone = true
114       # Customize the amount of memory on the VM
115       v.memory = 1024
116       v.cpus = 1
117       v.name = "client"
118       # Display the VirtualBox GUI when booting the machine
119       v.gui = true
120       # Set the video memory to 12Mb
121       v.customize ["modifyvm", :id, "--vram", "12"]
122       v.customize ["modifyvm", :id, "--natdnshostresolver1", "on"]
123       v.customize ["modifyvm", :id, "--clipboard", "bidirectional"]
124       v.customize ["modifyvm", :id, "--draganddrop", "bidirectional"]
125       v.customize ["modifyvm", :id, "--accelerate3d", "on"]
126     client.vm.provision "client mail",
127       type: "shell",
128       preserve_order: true,
129       path: "provision/client/mail.sh"
130   end
131 end
132 end
```

Рис. 22: Изменение файла Vagrantfile в разделе конфигураций для клиента

Заключение

В результате выполнения данной работы были приобретены практические навыки по установке и конфигурированию SMTP-сервера.