

Лабораторная работа №10

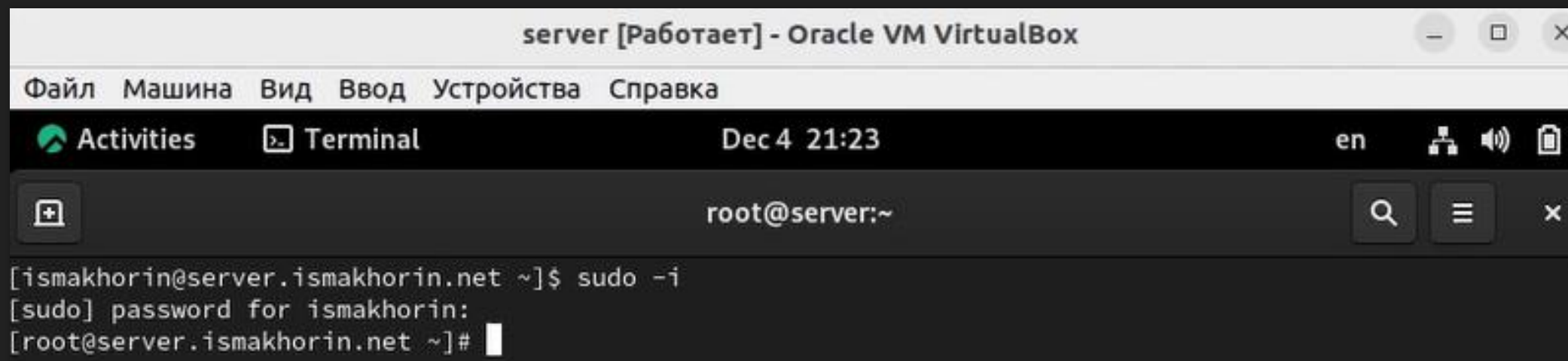
Расширенные настройки SMTP-сервера

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Настройка LMTP в Dovecot

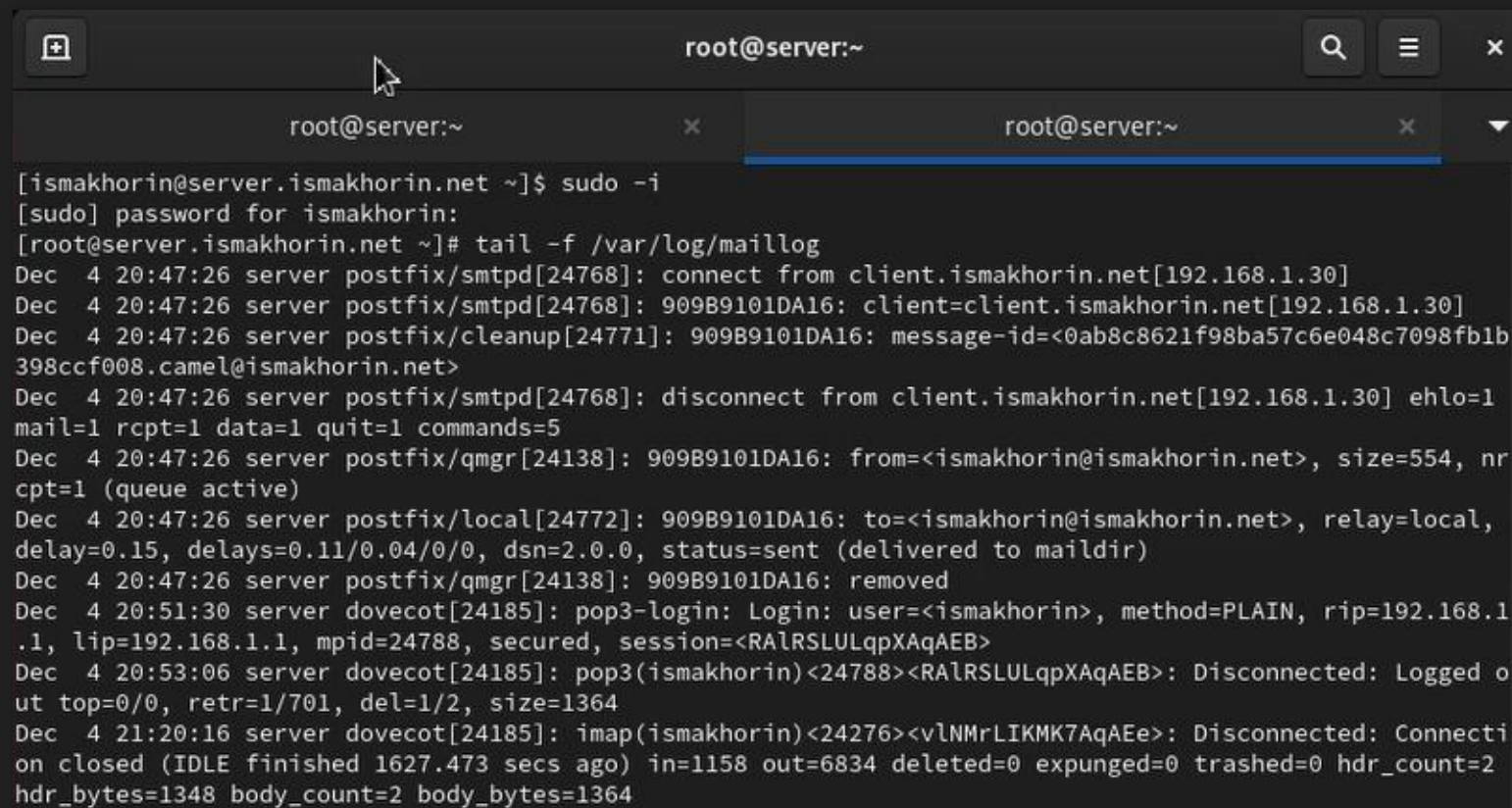


The screenshot shows a terminal window titled "server [Работает] - Oracle VM VirtualBox". The window has a menu bar with "Файл", "Машина", "Вид", "Ввод", "Устройства", and "Справка". Below the menu bar is a status bar with "Activities", "Terminal", "Dec 4 21:23", "en", and icons for network, volume, and power. The terminal prompt is "root@server:~". The command history shows the user "ismakhorin" at "server.ismakhorin.net" running "sudo -i", entering a password, and becoming "root".

```
server [Работает] - Oracle VM VirtualBox
Файл  Машина  Вид  Ввод  Устройства  Справка
Activities  Terminal  Dec 4 21:23  en  [network] [volume] [power]
root@server:~
[ismakhorin@server.ismakhorin.net ~]$ sudo -i
[sudo] password for ismakhorin:
[root@server.ismakhorin.net ~]#
```

Рис. 1.1. Открытие режима суперпользователя на виртуальной машине server.

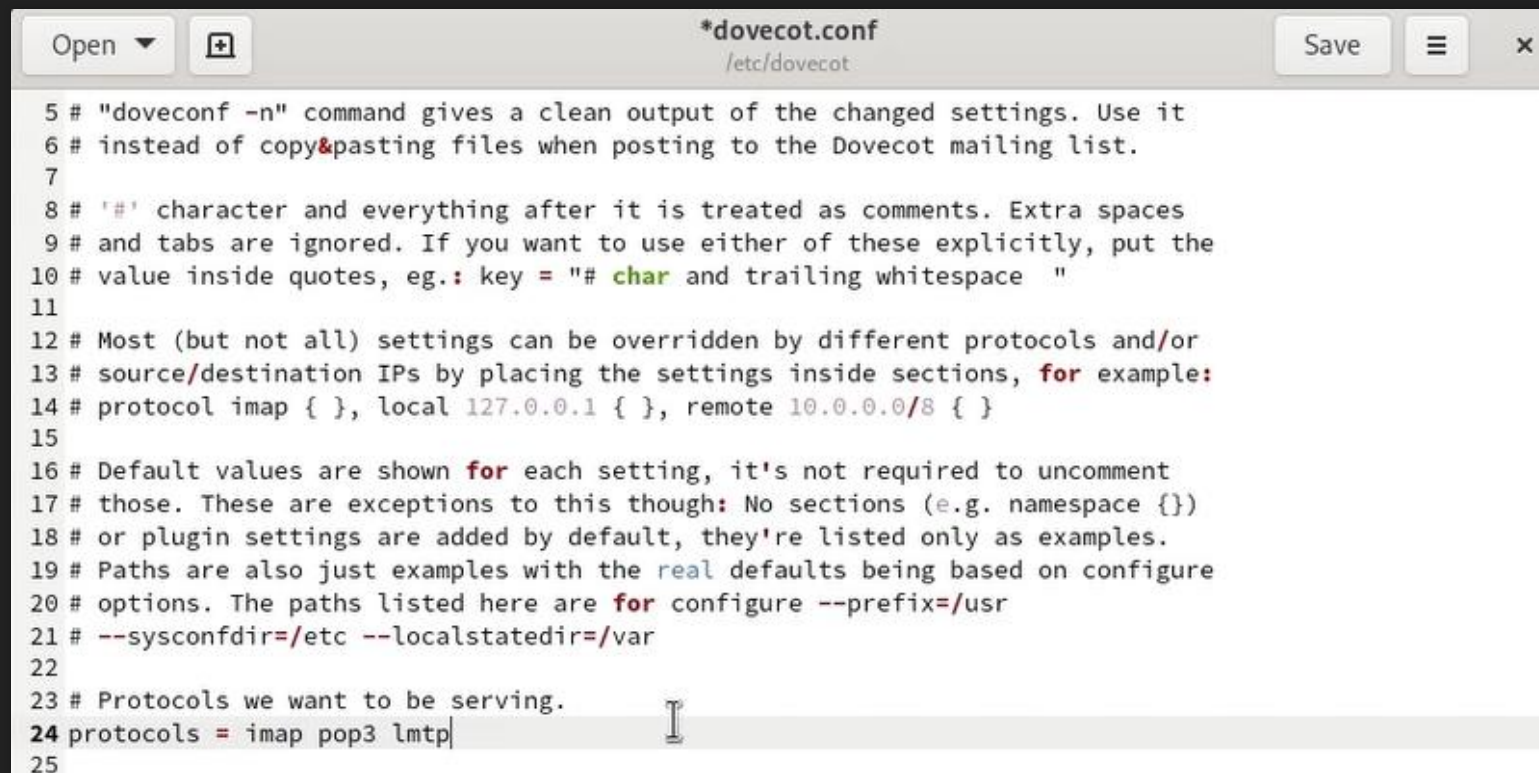
Настройка LMTP в Dovecot

A terminal window titled 'root@server:~' with search, menu, and close icons in the title bar. It contains two tabs, both labeled 'root@server:~'. The active tab shows a shell session where the user 'ismakhorin' runs 'sudo -i' to become root, then runs 'tail -f /var/log/maillog' to monitor the mail log. The log output shows postfix and dovecot activity, including a successful IMAP login for 'ismakhorin' at 20:51:30.

```
[ismakhorin@server.ismakhorin.net ~]$ sudo -i
[sudo] password for ismakhorin:
[root@server.ismakhorin.net ~]# tail -f /var/log/maillog
Dec  4 20:47:26 server postfix/smtpd[24768]: connect from client.ismakhorin.net[192.168.1.30]
Dec  4 20:47:26 server postfix/smtpd[24768]: 909B9101DA16: client=client.ismakhorin.net[192.168.1.30]
Dec  4 20:47:26 server postfix/cleanup[24771]: 909B9101DA16: message-id=<0ab8c8621f98ba57c6e048c7098fb1b398ccf008.camel@ismakhorin.net>
Dec  4 20:47:26 server postfix/smtpd[24768]: disconnect from client.ismakhorin.net[192.168.1.30] ehlo=1
mail=1 rcpt=1 data=1 quit=1 commands=5
Dec  4 20:47:26 server postfix/qmgr[24138]: 909B9101DA16: from=<ismakhorin@ismakhorin.net>, size=554, nr
cpt=1 (queue active)
Dec  4 20:47:26 server postfix/local[24772]: 909B9101DA16: to=<ismakhorin@ismakhorin.net>, relay=local,
delay=0.15, delays=0.11/0.04/0/0, dsn=2.0.0, status=sent (delivered to maildir)
Dec  4 20:47:26 server postfix/qmgr[24138]: 909B9101DA16: removed
Dec  4 20:51:30 server dovecot[24185]: pop3-login: Login: user=<ismakhorin>, method=PLAIN, rip=192.168.1
.1, lip=192.168.1.1, mpid=24788, secured, session=<RA1RSLULqpXAqAEB>
Dec  4 20:53:06 server dovecot[24185]: pop3(ismakhorin)<24788><RA1RSLULqpXAqAEB>: Disconnected: Logged o
ut top=0/0, retri=1/701, del=1/2, size=1364
Dec  4 21:20:16 server dovecot[24185]: imap(ismakhorin)<24276><v1NMrLIKMK7AqAEe>: Disconnected: Connecti
on closed (IDLE finished 1627.473 secs ago) in=1158 out=6834 deleted=0 expunged=0 trashed=0 hdr_count=2
hdr_bytes=1348 body_count=2 body_bytes=1364
```

Рис. 1.2. Запуск в дополнительном терминале мониторинга работы почтовой службы.

Настройка LMTP в Dovecot



```
5 # "doveconf -n" command gives a clean output of the changed settings. Use it
6 # instead of copy&pasting files when posting to the Dovecot mailing list.
7
8 # '#' character and everything after it is treated as comments. Extra spaces
9 # and tabs are ignored. If you want to use either of these explicitly, put the
10 # value inside quotes, eg.: key = "# char and trailing whitespace "
11
12 # Most (but not all) settings can be overridden by different protocols and/or
13 # source/destination IPs by placing the settings inside sections, for example:
14 # protocol imap { }, local 127.0.0.1 { }, remote 10.0.0.0/8 { }
15
16 # Default values are shown for each setting, it's not required to uncomment
17 # those. These are exceptions to this though: No sections (e.g. namespace {})
18 # or plugin settings are added by default, they're listed only as examples.
19 # Paths are also just examples with the real defaults being based on configure
20 # options. The paths listed here are for configure --prefix=/usr
21 # --sysconfdir=/etc --localstatedir=/var
22
23 # Protocols we want to be serving.
24 protocols = imap pop3 lmtp
25
```

Рис. 1.3. Добавление в список протоколов, с которыми может работать Dovecot, протокола LMTP.

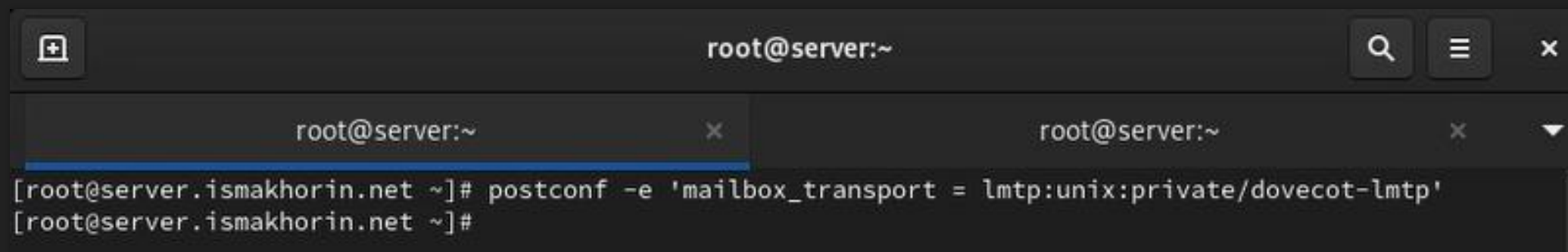
Настройка LMTP в Dovecot

A screenshot of a text editor window titled '*10-master.conf' with the path '/etc/dovecot/conf.d' below it. The window has a toolbar with 'Open', a file icon, 'Save', a menu icon, and a close 'x' button. The editor displays configuration lines for Dovecot, with line numbers 44 through 61 on the left. The configuration includes a block for 'submission-login' and a block for 'lmtp' which is configured to use a unix listener at a specific path with postfix user and group permissions.

```
44  #ssl = yes
45  }
46 }
47
48 service submission-login {
49   inet_listener submission {
50     #port = 587
51   }
52 }
53
54 service lmtp {
55   unix_listener /var/spool/postfix/private/dovecot-lmtp {
56     group = postfix
57     user = postfix
58     mode = 0600
59   }
60 }
61 |
```

Рис. 1.4. Настройка в Dovecot сервиса lmtp для связи с Postfix.

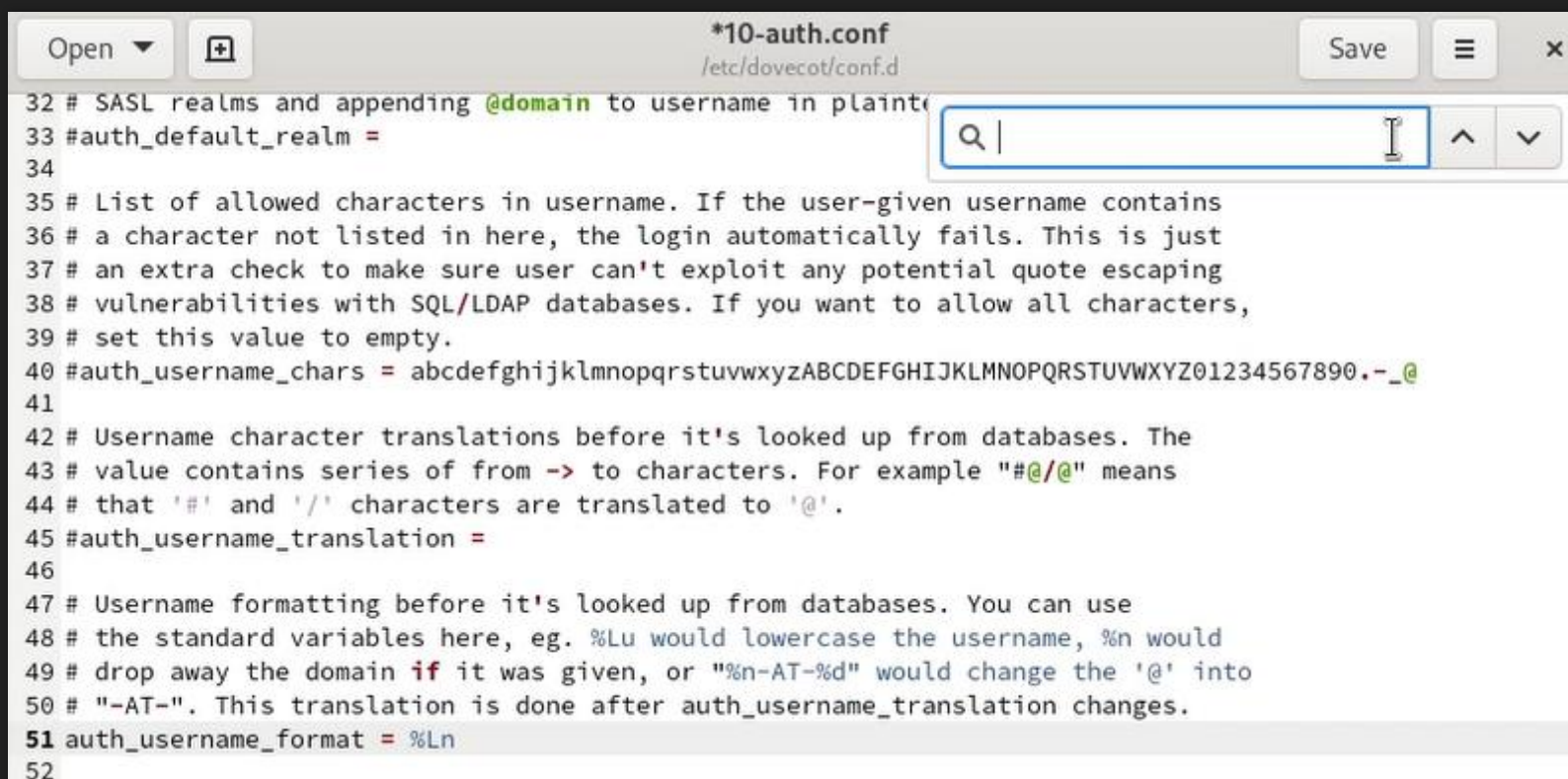
Настройка LMTP в Dovecot



```
root@server:~  
[root@server.ismakhorin.net ~]# postconf -e 'mailbox_transport = lmtp:unix:private/dovecot-lmtp'  
[root@server.ismakhorin.net ~]#
```

Рис. 1.5. Переопределение в Postfix с помощью `postconf` передачи сообщений не на прямую, а через заданный unix-сокеты.

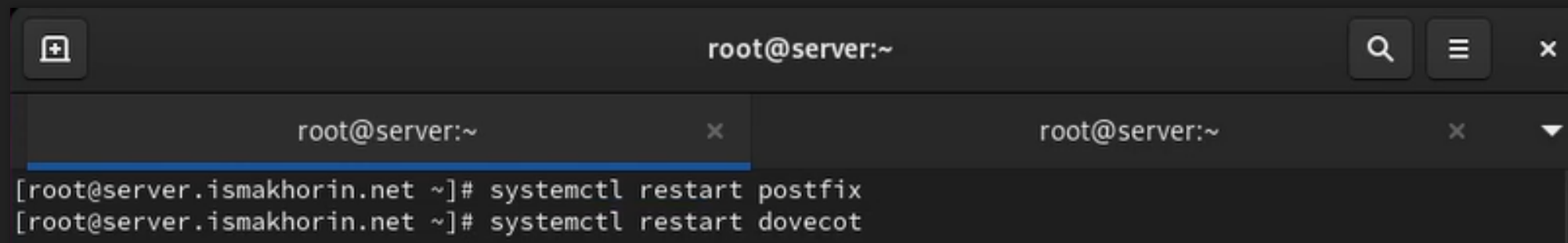
Настройка LMTP в Dovecot



```
32 # SASL realms and appending @domain to username in plaintext
33 #auth_default_realm =
34
35 # List of allowed characters in username. If the user-given username contains
36 # a character not listed in here, the login automatically fails. This is just
37 # an extra check to make sure user can't exploit any potential quote escaping
38 # vulnerabilities with SQL/LDAP databases. If you want to allow all characters,
39 # set this value to empty.
40 #auth_username_chars = abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ01234567890.-_@
41
42 # Username character translations before it's looked up from databases. The
43 # value contains series of from -> to characters. For example "#@/@" means
44 # that '#' and '/' characters are translated to '@'.
45 #auth_username_translation =
46
47 # Username formatting before it's looked up from databases. You can use
48 # the standard variables here, eg. %Lu would lowercase the username, %n would
49 # drop away the domain if it was given, or "%n-AT-%d" would change the '@' into
50 # "-AT-". This translation is done after auth_username_translation changes.
51 auth_username_format = %Ln
52
```

Рис. 1.6. Настройка в файле `/etc/dovecot/conf.d/10-auth.conf` формата имени пользователя для аутентификации в форме логина пользователя без указания домена.

Настройка LMTP в Dovecot

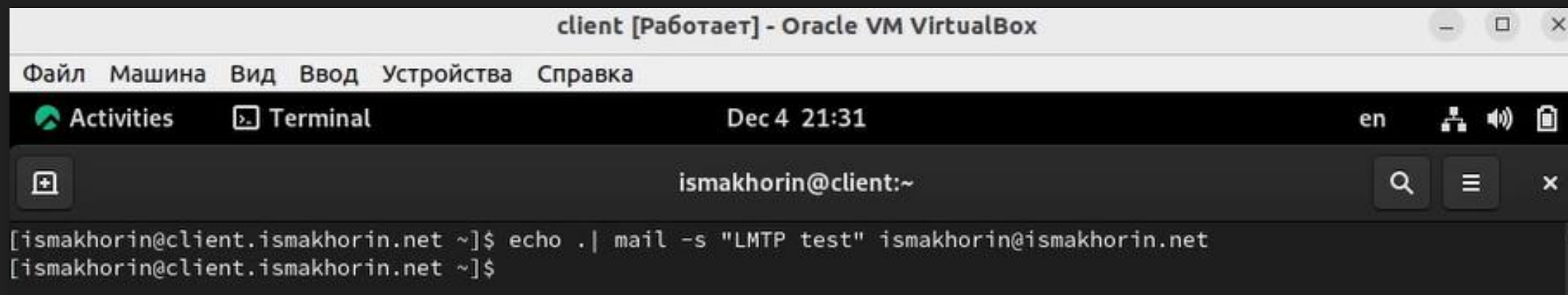


A terminal window with a dark background and light text. The title bar at the top shows 'root@server:~' and includes search, menu, and close icons. Below the title bar, there are two tabs, both labeled 'root@server:~'. The first tab is active and highlighted with a blue underline. The terminal content shows two commands being executed in sequence:

```
[root@server.ismakhorin.net ~]# systemctl restart postfix  
[root@server.ismakhorin.net ~]# systemctl restart dovecot
```

Рис. 1.7. Перезапуск Postfix и Dovecot.

Настройка LMTP в Dovecot

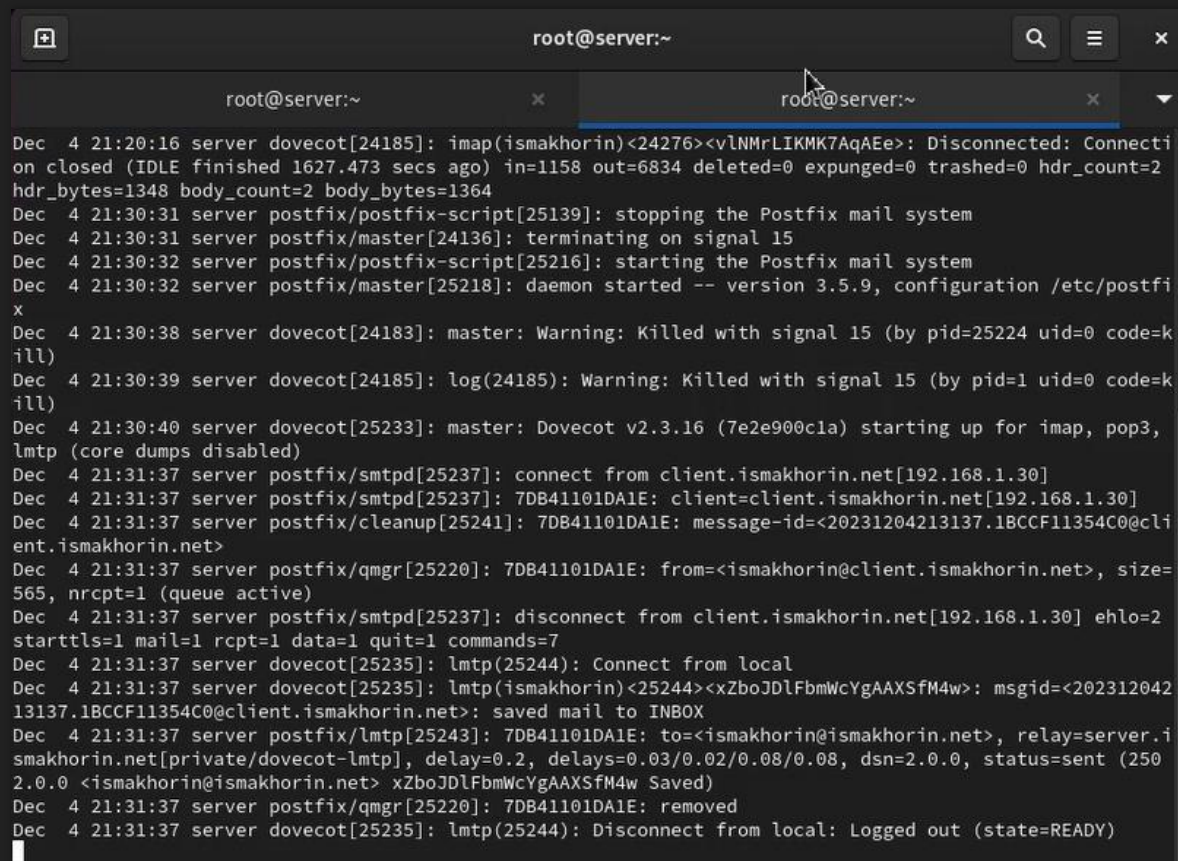


The screenshot shows a terminal window titled "client [Работает] - Oracle VM VirtualBox". The window has a menu bar with "Файл", "Машина", "Вид", "Ввод", "Устройства", and "Справка". Below the menu bar is a status bar with "Activities", "Terminal", "Dec 4 21:31", "en", and icons for network, volume, and power. The terminal prompt is "ismakhorin@client:~". The command being executed is "echo . | mail -s 'LMTP test' ismakhorin@ismakhorin.net". The output of the command is "ismakhorin@client.ismakhorin.net ~\$".

```
client [Работает] - Oracle VM VirtualBox
Файл  Машина  Вид  Ввод  Устройства  Справка
Activities  Terminal  Dec 4 21:31  en  [network] [volume] [power]
ismakhorin@client:~
[ismakhorin@client.ismakhorin.net ~]$ echo . | mail -s "LMTP test" ismakhorin@ismakhorin.net
ismakhorin@client.ismakhorin.net ~$
```

Рис. 1.8. Отправка из-под учётной записи своего пользователя письма с клиента.

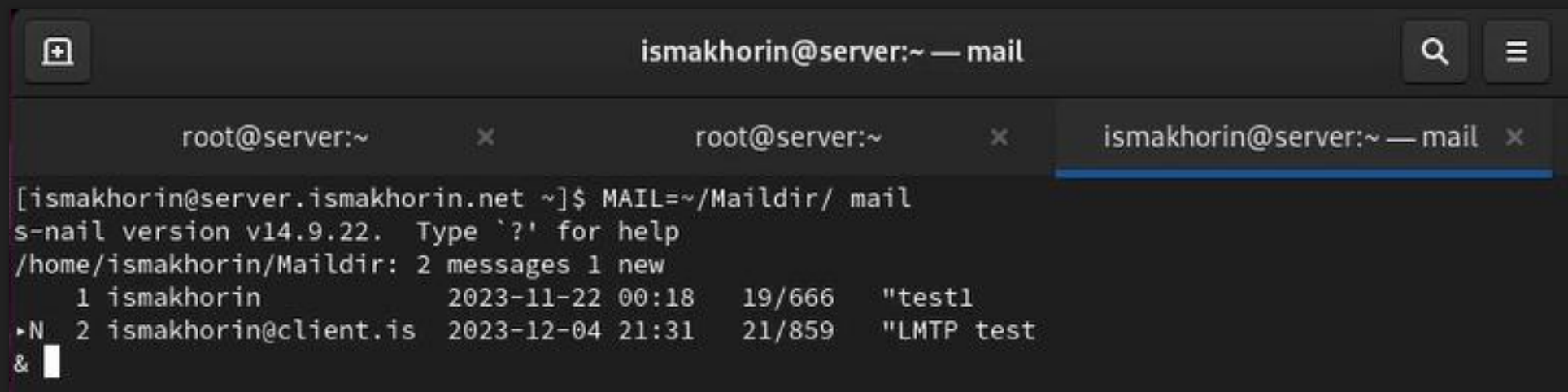
Настройка LMTP в Dovecot



```
root@server:~  
Dec 4 21:20:16 server dovecot[24185]: imap(ismakhorin)<24276><vLNMrLIKMK7AqAEe>: Disconnected: Connecti  
on closed (IDLE finished 1627.473 secs ago) in=1158 out=6834 deleted=0 expunged=0 trashed=0 hdr_count=2  
hdr_bytes=1348 body_count=2 body_bytes=1364  
Dec 4 21:30:31 server postfix/postfix-script[25139]: stopping the Postfix mail system  
Dec 4 21:30:31 server postfix/master[24136]: terminating on signal 15  
Dec 4 21:30:32 server postfix/postfix-script[25216]: starting the Postfix mail system  
Dec 4 21:30:32 server postfix/master[25218]: daemon started -- version 3.5.9, configuration /etc/postfi  
x  
Dec 4 21:30:38 server dovecot[24183]: master: Warning: Killed with signal 15 (by pid=25224 uid=0 code=k  
ill)  
Dec 4 21:30:39 server dovecot[24185]: log(24185): Warning: Killed with signal 15 (by pid=1 uid=0 code=k  
ill)  
Dec 4 21:30:40 server dovecot[25233]: master: Dovecot v2.3.16 (7e2e900c1a) starting up for imap, pop3,  
lmtp (core dumps disabled)  
Dec 4 21:31:37 server postfix/smtpd[25237]: connect from client.ismakhorin.net[192.168.1.30]  
Dec 4 21:31:37 server postfix/smtpd[25237]: 7DB41101DA1E: client=client.ismakhorin.net[192.168.1.30]  
Dec 4 21:31:37 server postfix/cleanup[25241]: 7DB41101DA1E: message-id=<20231204213137.1BCCF11354C0@cli  
ent.ismakhorin.net>  
Dec 4 21:31:37 server postfix/qmgr[25220]: 7DB41101DA1E: from=<ismakhorin@client.ismakhorin.net>, size=  
565, nrcpt=1 (queue active)  
Dec 4 21:31:37 server postfix/smtpd[25237]: disconnect from client.ismakhorin.net[192.168.1.30] ehlo=2  
starttls=1 mail=1 rcpt=1 data=1 quit=1 commands=7  
Dec 4 21:31:37 server dovecot[25235]: lmtp(25244): Connect from local  
Dec 4 21:31:37 server dovecot[25235]: lmtp(ismakhorin)<25244><xZboJDLfBmWcYgAAXSfM4w>: msgid=<202312042  
13137.1BCCF11354C0@client.ismakhorin.net>: saved mail to INBOX  
Dec 4 21:31:37 server postfix/lmtp[25243]: 7DB41101DA1E: to=<ismakhorin@ismakhorin.net>, relay=server.i  
smakhorin.net[private/dovecot-lmtp], delay=0.2, delays=0.03/0.02/0.08/0.08, dsn=2.0.0, status=sent (250  
2.0.0 <ismakhorin@ismakhorin.net> xZboJDLfBmWcYgAAXSfM4w Saved)  
Dec 4 21:31:37 server postfix/qmgr[25220]: 7DB41101DA1E: removed  
Dec 4 21:31:37 server dovecot[25235]: lmtp(25244): Disconnect from local: Logged out (state=READY)
```

Рис. 1.9. Просмотр содержания логов при мониторинге почтовой службы.

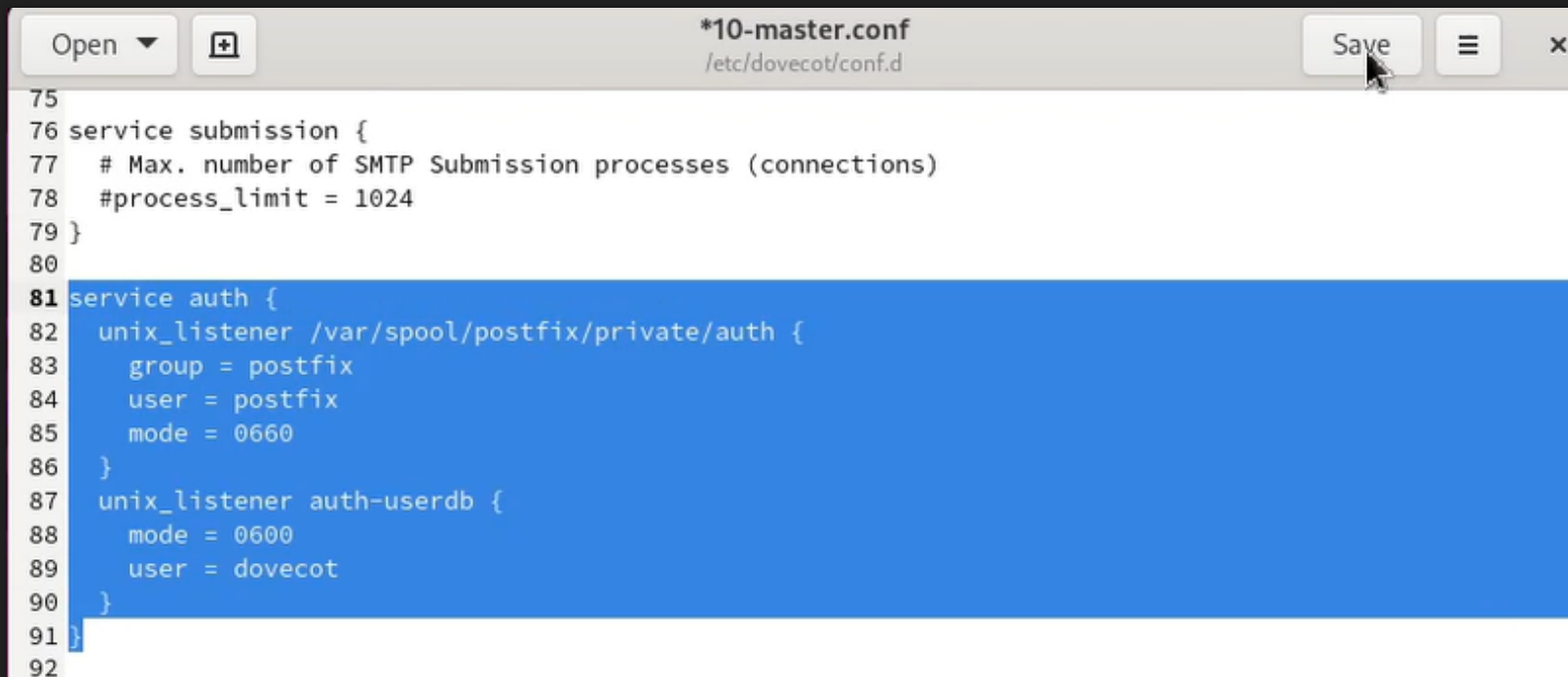
Настройка LMTP в Dovecot

A terminal window titled 'ismakhorin@server:~ — mail' with a search icon and a menu icon in the top right. The terminal shows the execution of the 'mail' command with the environment variable 'MAIL=~/.Maildir/'. The output displays the s-nail version (v14.9.22) and a list of two messages in the user's mailbox. The first message is from 'ismakhorin' dated '2023-11-22 00:18' with subject 'test1'. The second message is from 'ismakhorin@client.is' dated '2023-12-04 21:31' with subject 'LMTP test'. The cursor is positioned at the end of the second line of the message list.

```
[ismakhorin@server.ismakhorin.net ~]$ MAIL=~/.Maildir/ mail
s-nail version v14.9.22.  Type '?' for help
/home/ismakhorin/Maildir: 2 messages 1 new
  1 ismakhorin                2023-11-22 00:18   19/666   "test1
>N 2 ismakhorin@client.is     2023-12-04 21:31   21/859   "LMTP test
& █
```

Рис. 1.10. Просмотр на сервере почтового ящика пользователя.

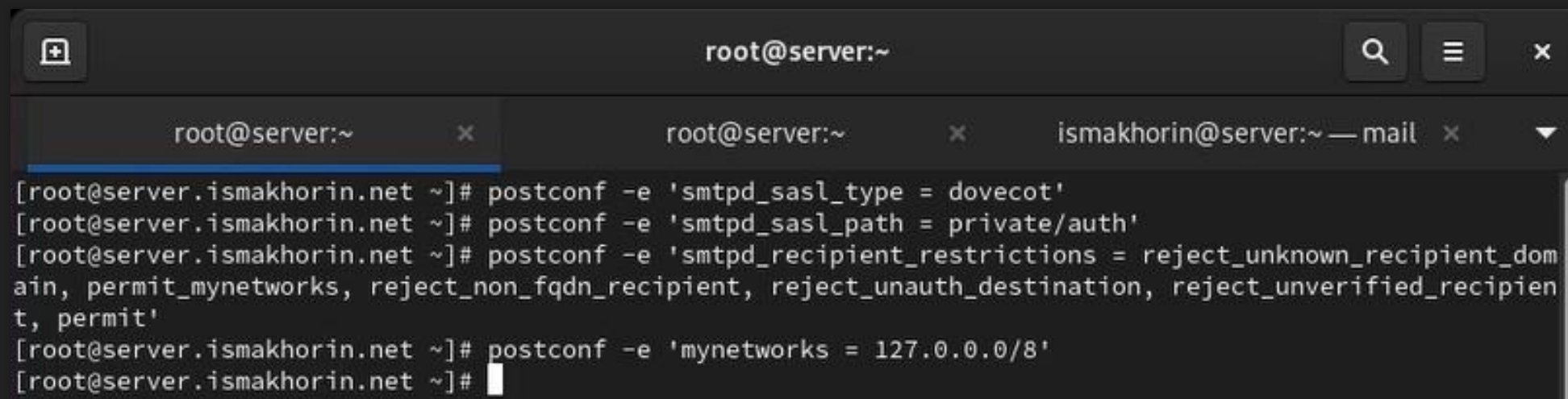
Настройка SMTP-аутентификации



```
75
76 service submission {
77     # Max. number of SMTP Submission processes (connections)
78     #process_limit = 1024
79 }
80
81 service auth {
82     unix_listener /var/spool/postfix/private/auth {
83         group = postfix
84         user = postfix
85         mode = 0660
86     }
87     unix_listener auth-userdb {
88         mode = 0600
89         user = dovecot
90     }
91 }
92
```

Рис. 2.1. Определение в файле `/etc/dovecot/conf.d/10-master.conf` службы аутентификации пользователей.

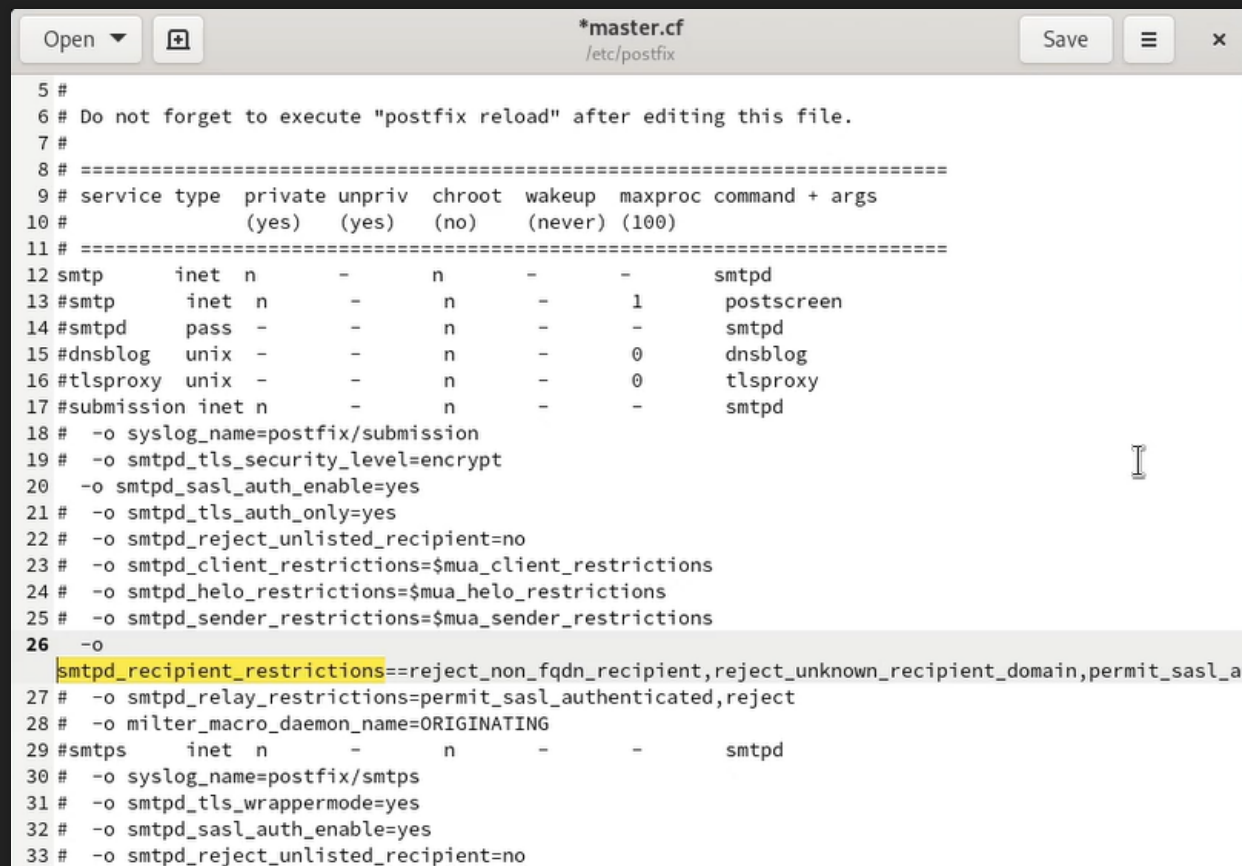
Настройка SMTP-аутентификации



```
root@server:~  
[root@server.ismakhorin.net ~]# postconf -e 'smtpd_sasl_type = dovecot'  
[root@server.ismakhorin.net ~]# postconf -e 'smtpd_sasl_path = private/auth'  
[root@server.ismakhorin.net ~]# postconf -e 'smtpd_recipient_restrictions = reject_unknown_recipient_domain, permit_mynetworks, reject_non_fqdn_recipient, reject_unauth_destination, reject_unverified_recipient, permit'  
[root@server.ismakhorin.net ~]# postconf -e 'mynetworks = 127.0.0.0/8'  
[root@server.ismakhorin.net ~]#
```

Рис. 2.2. Настройка для Postfix типа аутентификации SASL для smtpd и пути к соответствующему unix-сокету, настройка Postfix для приёма почты из Интернета только для обслуживаемых нашим сервером пользователей или для произвольных пользователей локальной машины, ограничение в настройках Postfix приёма почты только локальным адресом SMTP-сервера сети.

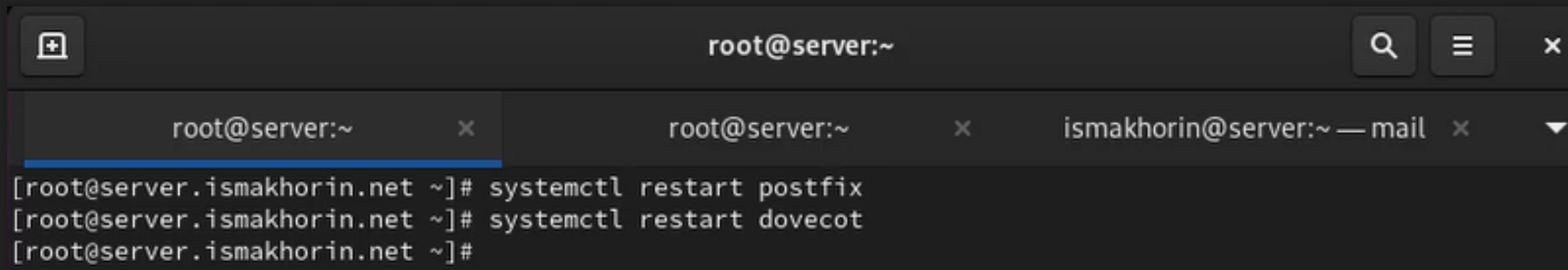
Настройка SMTP-аутентификации



```
5 #
6 # Do not forget to execute "postfix reload" after editing this file.
7 #
8 # =====
9 # service type private unpriv chroot wakeup maxproc command + args
10 # (yes) (yes) (no) (never) (100)
11 # =====
12 smtp inet n - n - - smtpd
13 #smtp inet n - n - 1 postscreen
14 #smtpd pass - - n - - smtpd
15 #dnsblog unix - - n - 0 dnsblog
16 #tlsproxy unix - - n - 0 tlsproxy
17 #submission inet n - n - - smtpd
18 # -o syslog_name=postfix/submission
19 # -o smtpd_tls_security_level=encrypt
20 # -o smtpd_sasl_auth_enable=yes
21 # -o smtpd_tls_auth_only=yes
22 # -o smtpd_reject_unlisted_recipient=no
23 # -o smtpd_client_restrictions=$mua_client_restrictions
24 # -o smtpd_helo_restrictions=$mua_helo_restrictions
25 # -o smtpd_sender_restrictions=$mua_sender_restrictions
26 # -o
27 # -o smtpd_recipient_restrictions=reject_non_fqdn_recipient, reject_unknown_recipient_domain, permit_sasl_authenticated, reject
28 # -o smtpd_relay_restrictions=permit_sasl_authenticated, reject
29 # -o milter_macro_daemon_name=ORIGINATING
30 #smtps inet n - n - - smtpd
31 # -o syslog_name=postfix/smtps
32 # -o smtpd_tls_wrappermode=yes
33 # -o smtpd_sasl_auth_enable=yes
34 # -o smtpd_reject_unlisted_recipient=no
```

Рис. 2.3. Временный запуск для проверки работы аутентификации SMTP-сервера (порт 25) с возможностью аутентификации.

Настройка SMTP-аутентификации



A terminal window with a dark background and light gray text. The window title bar shows 'root@server:~' and search, menu, and close icons. The terminal content shows three lines of commands and their prompts, executed as root on a server named ismakhorin.net. The first two lines successfully restart the postfix and dovecot services. The third line shows the prompt without a command.

```
root@server:~  
[root@server.ismakhorin.net ~]# systemctl restart postfix  
[root@server.ismakhorin.net ~]# systemctl restart dovecot  
[root@server.ismakhorin.net ~]#
```

Рис. 2.4. Перезапуск Postfix и Dovecot.

Настройка SMTP-аутентификации

```
root@client:~  
[ismakhorin@client.ismakhorin.net ~]$ sudo -i  
[sudo] password for ismakhorin:  
[root@client.ismakhorin.net ~]# dnf -y install telnet  
Extra Packages for Enterprise Linux 9 - x86_64          29 kB/s | 35 kB    00:01  
Extra Packages for Enterprise Linux 9 - x86_64          5.4 MB/s | 20 MB   00:03  
Rocky Linux 9 - BaseOS                                  2.5 kB/s | 4.1 kB   00:01  
Rocky Linux 9 - AppStream                               3.5 kB/s | 4.5 kB   00:01  
Rocky Linux 9 - AppStream                               3.4 MB/s | 7.4 MB   00:02  
Rocky Linux 9 - Extras                                  2.3 kB/s | 2.9 kB   00:01  
Rocky Linux 9 - Extras                                  18 kB/s | 14 kB    00:00  
Dependencies resolved.  
=====
```

Package	Architecture	Version	Repository	Size
Installing:				
telnet	x86_64	1:0.17-85.el9	appstream	63

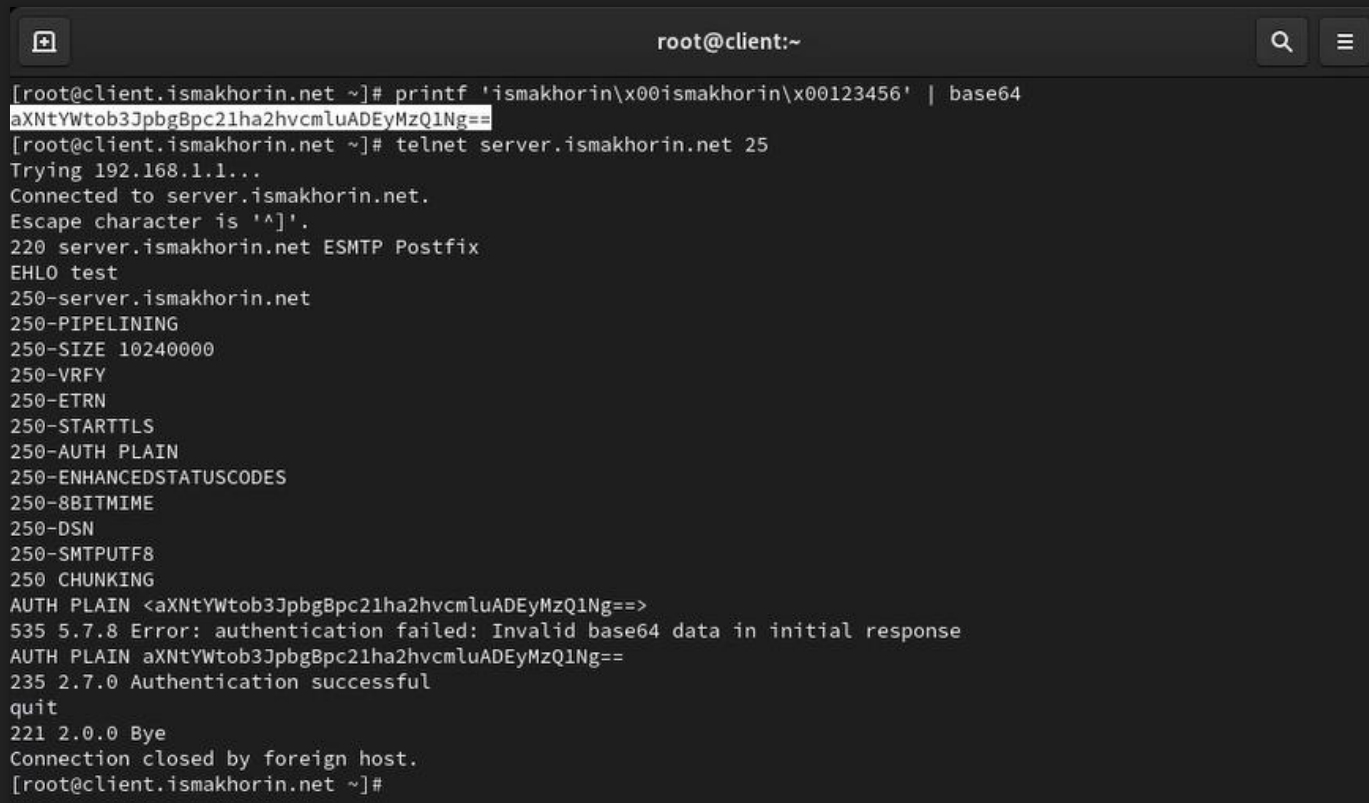
```
Transaction Summary  
=====
```

Transaction Summary	
Install	1 Package

```
Total download size: 63 k  
Installed size: 121 k  
Downloading Packages:  
telnet-0.17-85.el9.x86_64.rpm 0% [ ] --- B/s | 0 B --:-- E
```

Рис. 2.5. Установка на клиенте telnet.

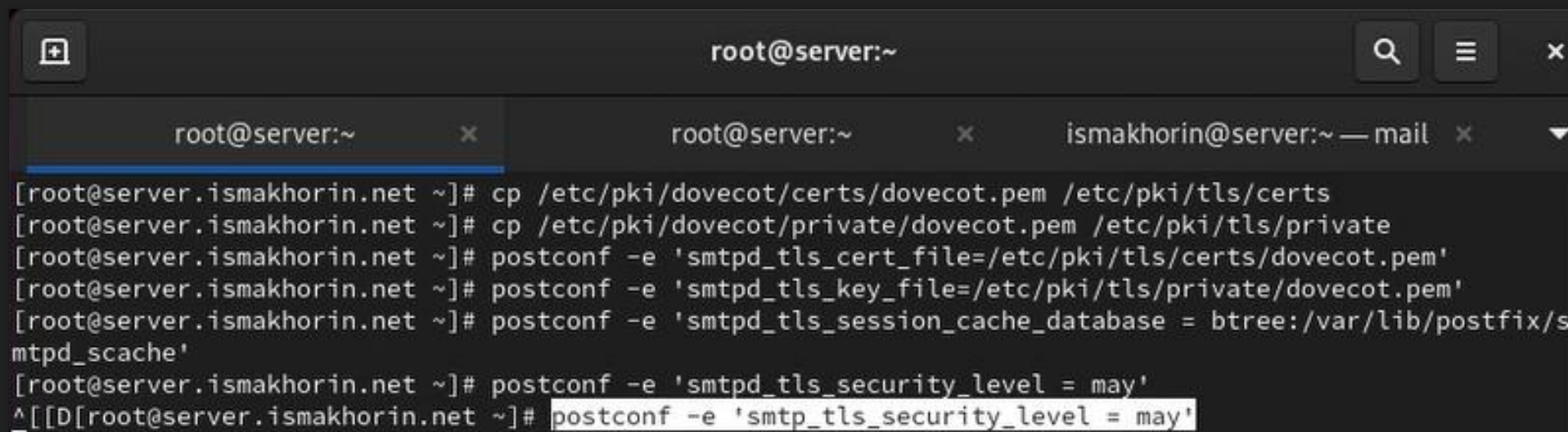
Настройка SMTP-аутентификации

A terminal window titled 'root@client:~' with search and menu icons in the top right. The terminal shows a series of commands and their outputs for testing SMTP authentication. The first command generates a base64-encoded string. The second command uses telnet to connect to an SMTP server. The output shows the server's capabilities and a successful authentication response after providing the correct credentials.

```
root@client:~  
[root@client.ismakhorin.net ~]# printf 'ismakhorin\x00ismakhorin\x00123456' | base64  
aXNtYWtob3JpbG8pc21ha2hvcmluADEyMzQ1Ng==  
[root@client.ismakhorin.net ~]# telnet server.ismakhorin.net 25  
Trying 192.168.1.1...  
Connected to server.ismakhorin.net.  
Escape character is '^]'.  
220 server.ismakhorin.net ESMTP Postfix  
EHLO test  
250-server.ismakhorin.net  
250-PIPELINING  
250-SIZE 10240000  
250-VRFY  
250-ETRN  
250-STARTTLS  
250-AUTH PLAIN  
250-ENHANCEDSTATUSCODES  
250-8BITMIME  
250-DSN  
250-SMTPUTF8  
250 CHUNKING  
AUTH PLAIN <aXNtYWtob3JpbG8pc21ha2hvcmluADEyMzQ1Ng==>  
535 5.7.8 Error: authentication failed: Invalid base64 data in initial response  
AUTH PLAIN aXNtYWtob3JpbG8pc21ha2hvcmluADEyMzQ1Ng==  
235 2.7.0 Authentication successful  
quit  
221 2.0.0 Bye  
Connection closed by foreign host.  
[root@client.ismakhorin.net ~]#
```

Рис. 2.6. Получение на клиенте строки для аутентификации, подключение на клиенте к SMTP-серверу посредством telnet, тестирование соединения, проверка авторизации и завершение сессии telnet на клиенте.

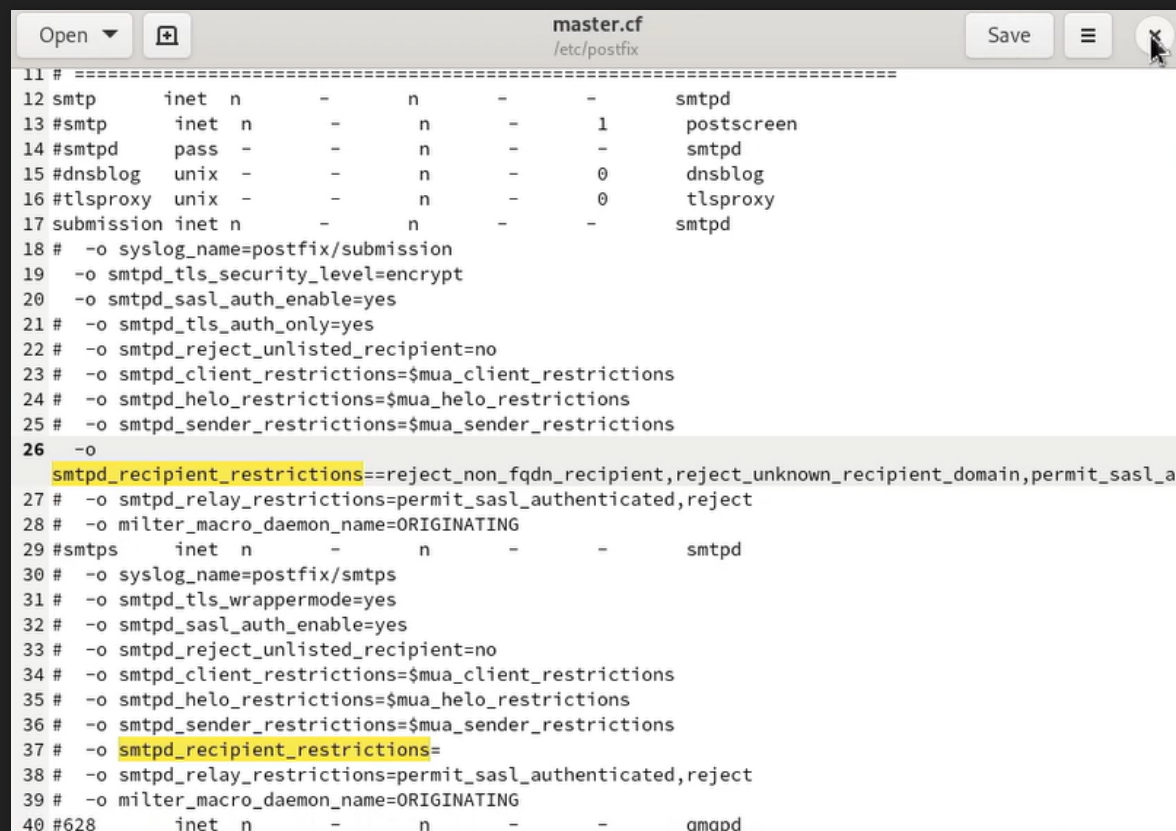
Настройка SMTP over TLS



```
root@server:~  
[root@server.ismakhorin.net ~]# cp /etc/pki/dovecot/certs/dovecot.pem /etc/pki/tls/certs  
[root@server.ismakhorin.net ~]# cp /etc/pki/dovecot/private/dovecot.pem /etc/pki/tls/private  
[root@server.ismakhorin.net ~]# postconf -e 'smtpd_tls_cert_file=/etc/pki/tls/certs/dovecot.pem'  
[root@server.ismakhorin.net ~]# postconf -e 'smtpd_tls_key_file=/etc/pki/tls/private/dovecot.pem'  
[root@server.ismakhorin.net ~]# postconf -e 'smtpd_tls_session_cache_database = btree:/var/lib/postfix/s  
mtpd_scache'  
[root@server.ismakhorin.net ~]# postconf -e 'smtpd_tls_security_level = may'  
^[[D[root@server.ismakhorin.net ~]# postconf -e 'smtp_tls_security_level = may'
```

Рис. 3.1. Настройка на сервере TLS и предварительное копирование необходимых файлов сертификата и ключа из каталога `/etc/pki/dovecot` в каталог `/etc/pki/tls/` в соответствующие подкаталоги. Настройка конфигурации Postfix.

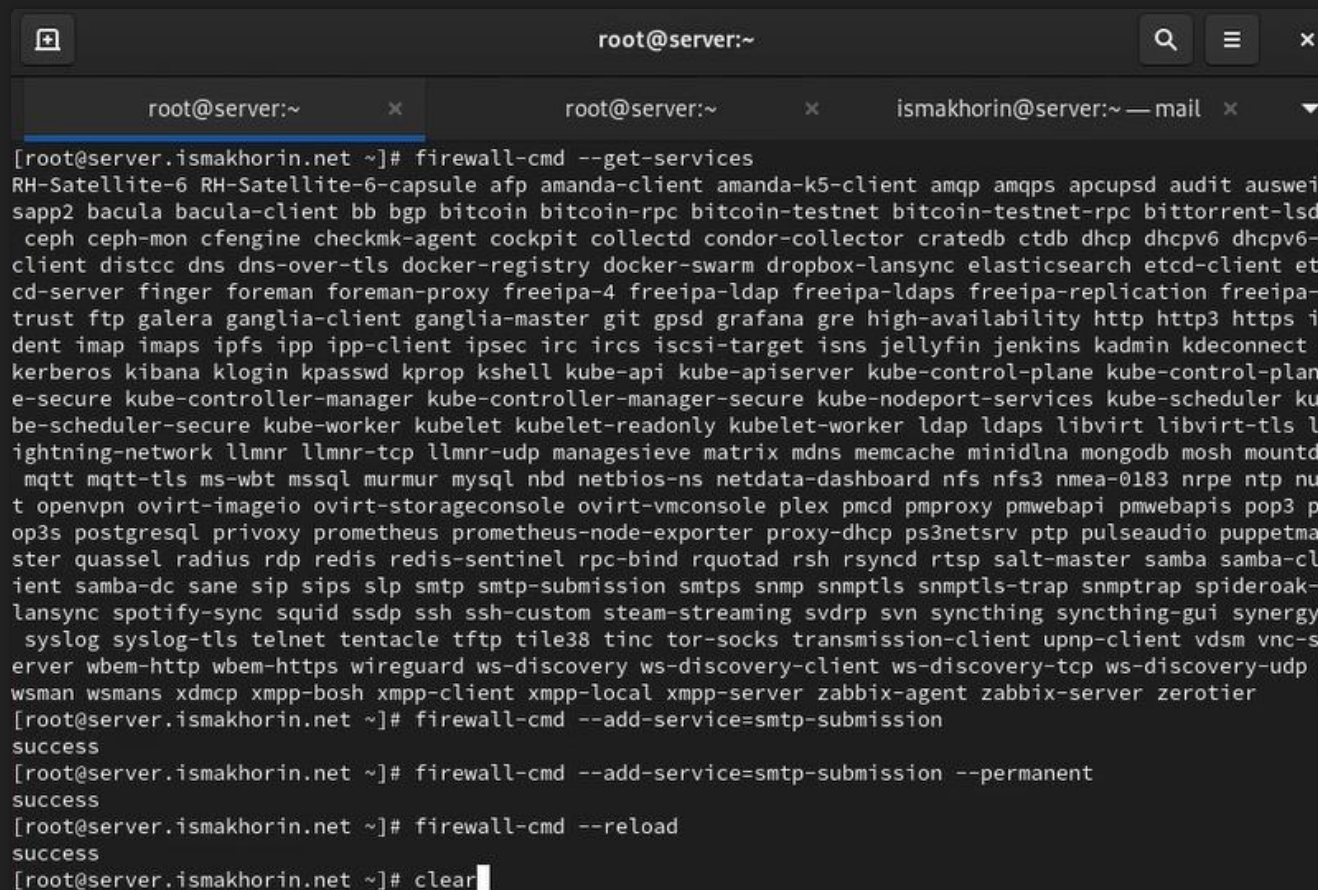
Настройка SMTP over TLS



```
11 # =====
12 smtp      inet  n       -       n       -       smtpd
13 #smtp      inet  n       -       n       -       1       postscreen
14 #smtpd     pass  -       -       n       -       -       smtpd
15 #dnsblog   unix  -       -       n       -       0       dnsblog
16 #tlsproxy  unix  -       -       n       -       0       tlsproxy
17 submission inet  n       -       n       -       -       smtpd
18 # -o syslog_name=postfix/submission
19 # -o smtpd_tls_security_level=encrypt
20 # -o smtpd_sasl_auth_enable=yes
21 # -o smtpd_tls_auth_only=yes
22 # -o smtpd_reject_unlisted_recipient=no
23 # -o smtpd_client_restrictions=$mua_client_restrictions
24 # -o smtpd_helo_restrictions=$mua_helo_restrictions
25 # -o smtpd_sender_restrictions=$mua_sender_restrictions
26 # -o
27 # -o smtpd_recipient_restrictions=reject_non_fqdn_recipient,reject_unknown_recipient_domain,permit_sasl_authenticated,reject
28 # -o smtpd_relay_restrictions=permit_sasl_authenticated,reject
29 # -o milter_macro_daemon_name=ORIGINATING
30 #smtps     inet  n       -       n       -       -       smtpd
31 # -o syslog_name=postfix/smtps
32 # -o smtpd_tls_wrappermode=yes
33 # -o smtpd_sasl_auth_enable=yes
34 # -o smtpd_reject_unlisted_recipient=no
35 # -o smtpd_client_restrictions=$mua_client_restrictions
36 # -o smtpd_helo_restrictions=$mua_helo_restrictions
37 # -o smtpd_sender_restrictions=$mua_sender_restrictions
38 # -o smtpd_recipient_restrictions=
39 # -o smtpd_relay_restrictions=permit_sasl_authenticated,reject
40 # -o milter_macro_daemon_name=ORIGINATING
41 #628       inet  n       -       n       -       -       qmqpd
```

Рис. 3.2. Замена строк в файле `/etc/postfix/master.cf` для того чтобы запустить SMTP-сервер на 587-м порту.

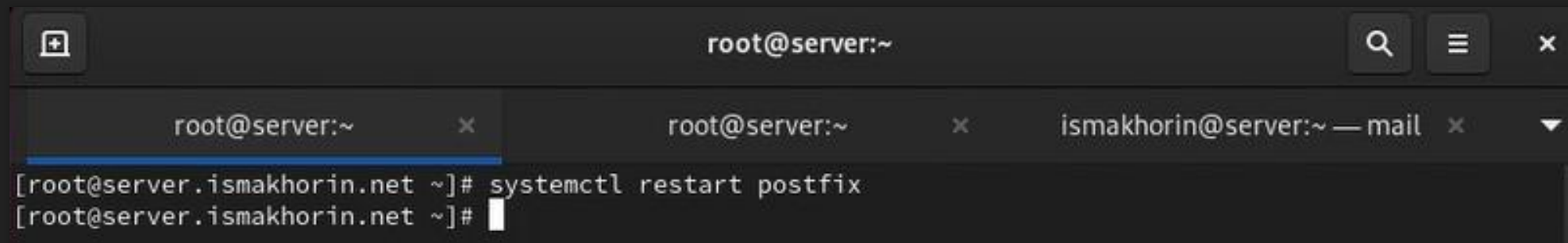
Настройка SMTP over TLS



```
root@server:~  
[root@server.ismakhorin.net ~]# firewall-cmd --get-services  
RH-Satellite-6 RH-Satellite-6-capsule afp amanda-client amanda-k5-client amqp amqps apcupsd audit auswei  
sapp2 bacula bacula-client bb bgp bitcoin bitcoin-rpc bitcoin-testnet bitcoin-testnet-rpc bittorrent-lsd  
ceph ceph-mon cfengine checkmk-agent cockpit collectd condor-collector cratedb ctdb dhcp dhcpv6 dhcpv6-  
client distcc dns dns-over-tls docker-registry docker-swarm dropbox-lansync elasticsearch etcd-client et  
cd-server finger foreman foreman-proxy freeipa-4 freeipa-ldap freeipa-ldaps freeipa-replication freeipa-  
trust ftp galera ganglia-client ganglia-master git gpsd grafana gre high-availability http http3 https i  
dent imap imaps ipfs ipp ipp-client ipsec irc ircs iscsi-target isns jellyfin jenkins kadmin kdeconnect  
kerberos kibana klogin kpasswd kprop kshell kube-api kube-apiserver kube-control-plane kube-control-plan  
e-secure kube-controller-manager kube-controller-manager-secure kube-nodeport-services kube-scheduler ku  
be-scheduler-secure kube-worker kubelet kubelet-readonly kubelet-worker ldap ldaps libvirt libvirt-tls l  
ightning-network llmnr llmnr-tcp llmnr-udp managesieve matrix mdns memcache minidlna mongodb mosh mountd  
mqtt mqtt-tls ms-wbt mssql murmur mysql nbd netbios-ns netdata-dashboard nfs nfs3 nmea-0183 nrpe ntp nu  
t openvpn ovirt-imageio ovirt-storageconsole ovirt-vmconsole plex pmcd pmproxy pmwebapi pmwebapis pop3 p  
op3s postgresql privoxy prometheus prometheus-node-exporter proxy-dhcp ps3netsrv ptp pulseaudio puppetma  
ster quassel radius rdp redis redis-sentinel rpc-bind rquotad rsh rsyncd rtsp salt-master samba samba-cl  
ient samba-dc sane sip sips slp smtp smtp-submission smtps snmp snmptls snmptls-trap snmptrap spideroak-  
lansync spotify-sync squid ssdp ssh ssh-custom steam-streaming svdrp svn syncthing syncthing-gui synergy  
syslog syslog-tls telnet tentacle tftp tile38 tinc tor-socks transmission-client upnp-client vdsms vnc-s  
erver wbem-http wbem-https wireguard ws-discovery ws-discovery-client ws-discovery-tcp ws-discovery-udp  
wsman wsmans xdmcp xmpp-bosh xmpp-client xmpp-local xmpp-server zabbix-agent zabbix-server zerotier  
[root@server.ismakhorin.net ~]# firewall-cmd --add-service=smtp-submission  
success  
[root@server.ismakhorin.net ~]# firewall-cmd --add-service=smtp-submission --permanent  
success  
[root@server.ismakhorin.net ~]# firewall-cmd --reload  
success  
[root@server.ismakhorin.net ~]# clear
```

Рис. 3.3. Настройка межсетевого экрана, разрешив работать службе smtp-submission.

Настройка SMTP over TLS



A terminal window with a dark background and light text. The title bar at the top shows 'root@server:~' and includes search, menu, and close icons. Below the title bar, there are three tabs: 'root@server:~', 'root@server:~', and 'ismakhorin@server:~ — mail'. The first tab is selected. The terminal content shows the command 'systemctl restart postfix' being entered at the prompt '[root@server.ismakhorin.net ~]#'. The cursor is at the end of the command line.

```
[root@server.ismakhorin.net ~]# systemctl restart postfix
[root@server.ismakhorin.net ~]#
```

Рис. 3.4. Перезапуск Postfix.

Настройка SMTP over TLS

```
root@client:~  
0050 - 23 96 58 58 2e e4 5c 4a-81 61 d8 45 85 d0 e6 60 #.XX...\J.a.E...`  
0060 - f2 40 95 01 d0 f8 f7 7e-c5 2b b7 38 3f b1 49 d0 .@.....~+.8?.I.  
0070 - eb d2 d4 03 63 09 23 9a-bd b1 a1 76 b6 dd 52 54 ....c.#....v...RT  
0080 - f6 0c f4 af 2d 40 8a a8-33 ac 87 c3 51 ec 16 6b ....-@..3...Q..k  
0090 - e2 23 f3 f5 fd c7 b5 76-c4 bf 7d 5c 96 58 8e 5f .#.....v...}\.X._  
00a0 - f0 e2 b1 07 a4 74 d5 bc-ab 3e 39 dd 3d cb a0 da .....t...>9.=...  
00b0 - 82 77 6e a9 42 65 3f 5c-f4 de bd c3 77 8f 94 ac .wn.Be?\....w...  
00c0 - 94 bf 37 b5 59 ff 12 e7-f6 02 07 16 5d 14 53 34 ..7.Y.....].S4  
  
Start Time: 1701727007  
Timeout : 7200 (sec)  
Verify return code: 18 (self-signed certificate)  
Extended master secret: no  
Max Early Data: 0  
---  
read R BLOCK  
EHLO test  
250-server.ismakhorin.net  
250-PIPELINING  
250-SIZE 10240000  
250-VERFY  
250-ETRN  
250-AUTH PLAIN  
250-ENHANCEDSTATUSCODES  
250-8BITIME  
250-DSN  
250-SMTPUTF8  
250 CHUNKING  
AUTH PLAIN aXNtYWtob3JpbG8pc2lha2hvcmluADEyMzQ1Ng==  
235 2.7.0 Authentication successful  
quit  
221 2.0.0 Bye  
closed  
[root@client.ismakhorin.net ~]#
```

Рис. 3.5. Подключение на клиенте к SMTP-серверу через 587-й порт посредством openssl, тестирование подключения по telnet и проверка аутентификации.

Настройка SMTP over TLS

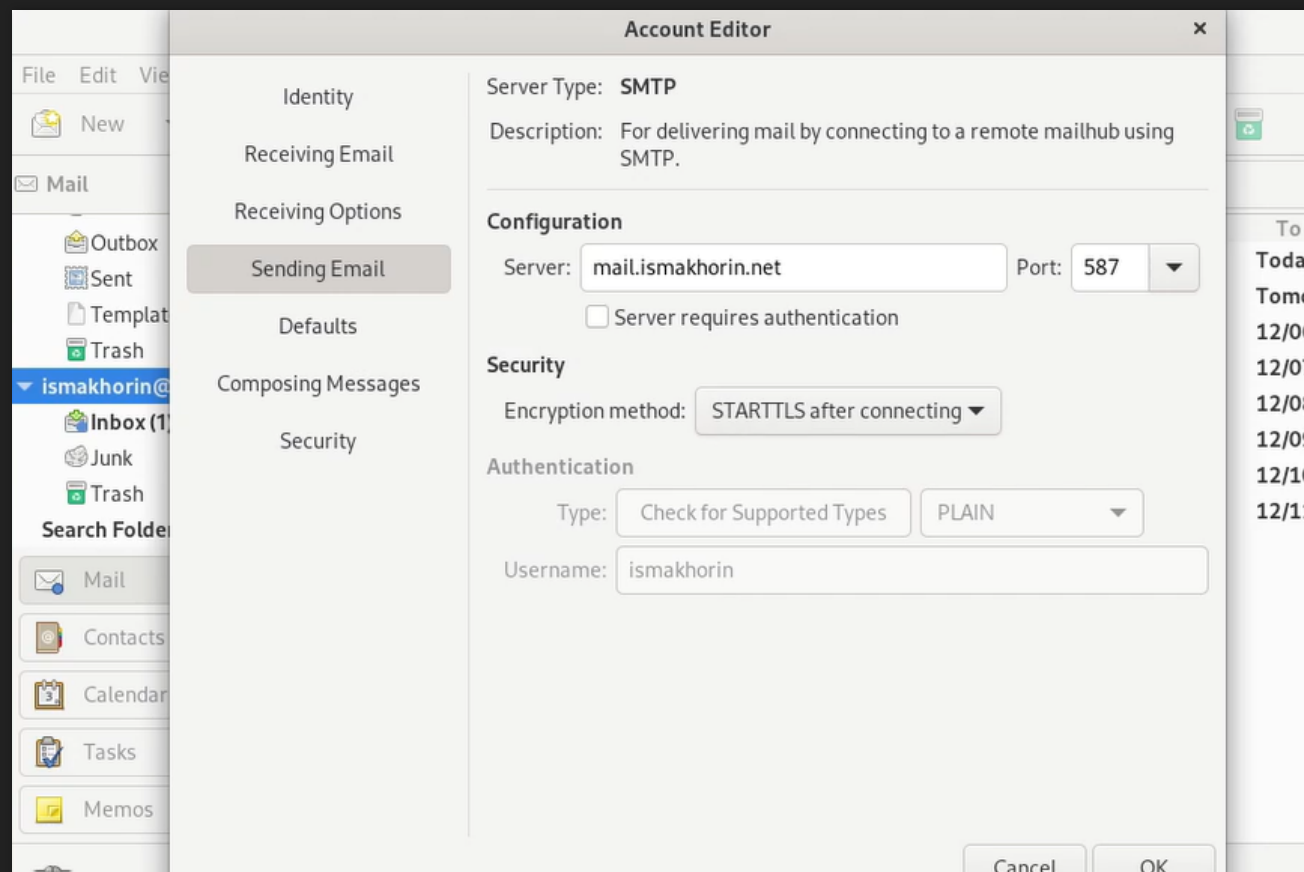
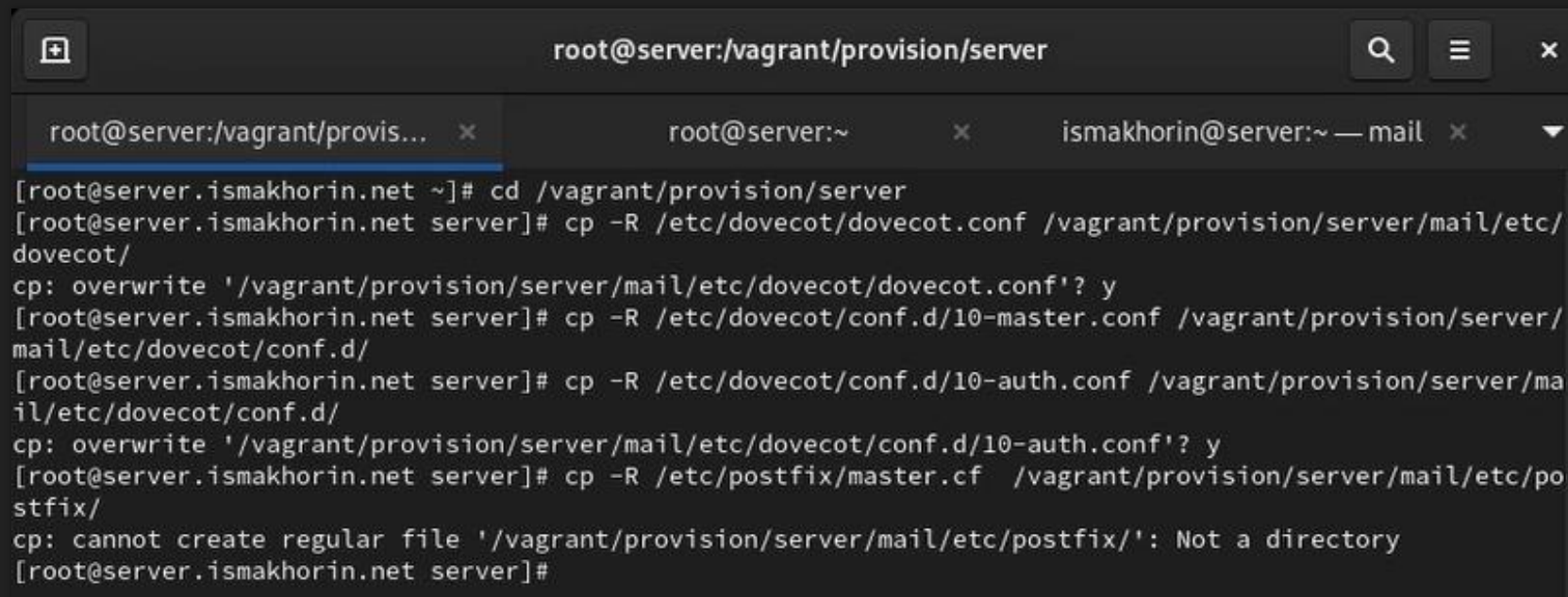


Рис. 3.6. Корректирование настроек почтового клиента Evolution.

Внесение изменений в настройки внутреннего окружения виртуальной машины

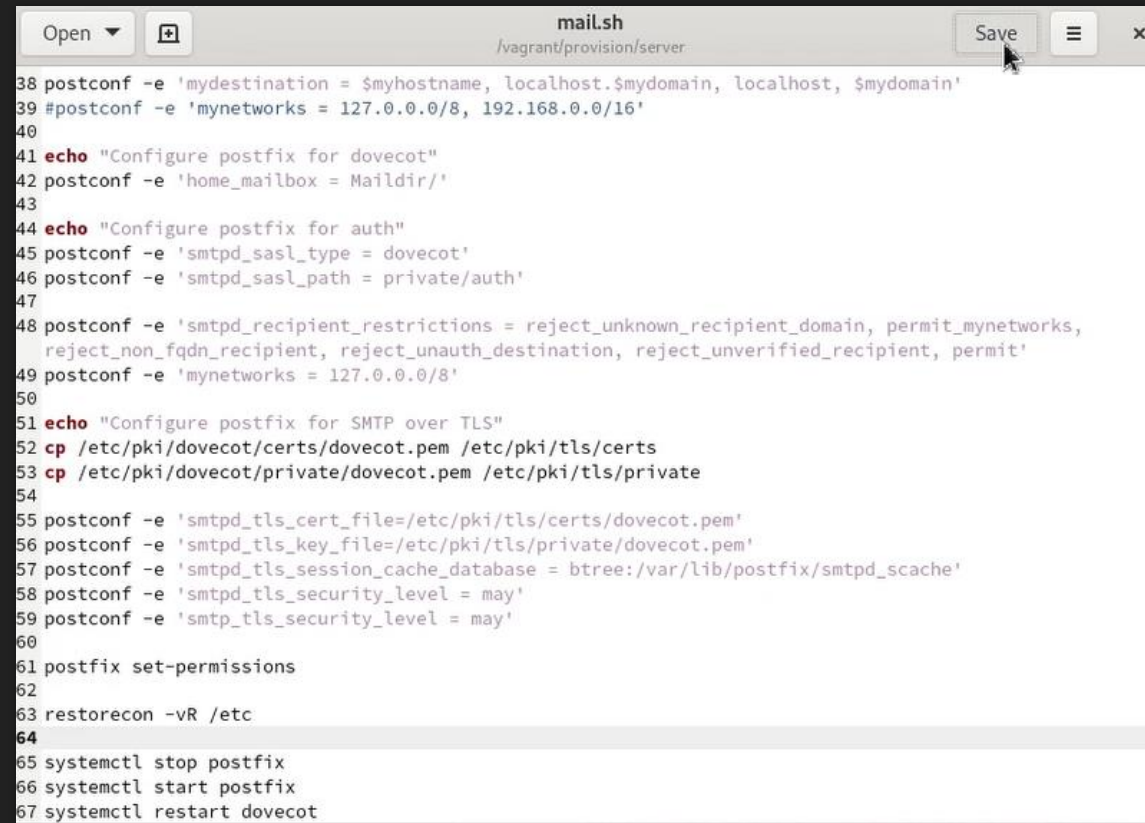


```
root@server:/vagrant/provision/server

[root@server.ismakhorin.net ~]# cd /vagrant/provision/server
[root@server.ismakhorin.net server]# cp -R /etc/dovecot/dovecot.conf /vagrant/provision/server/mail/etc/dovecot/
cp: overwrite '/vagrant/provision/server/mail/etc/dovecot/dovecot.conf'? y
[root@server.ismakhorin.net server]# cp -R /etc/dovecot/conf.d/10-master.conf /vagrant/provision/server/mail/etc/dovecot/conf.d/
[root@server.ismakhorin.net server]# cp -R /etc/dovecot/conf.d/10-auth.conf /vagrant/provision/server/mail/etc/dovecot/conf.d/
cp: overwrite '/vagrant/provision/server/mail/etc/dovecot/conf.d/10-auth.conf'? y
[root@server.ismakhorin.net server]# cp -R /etc/postfix/master.cf /vagrant/provision/server/mail/etc/postfix/
cp: cannot create regular file '/vagrant/provision/server/mail/etc/postfix/': Not a directory
[root@server.ismakhorin.net server]#
```

Рис. 4.1. Переход в каталог на виртуальной машине server для внесения изменений в настройки внутреннего окружения `/vagrant/provision/server/` и помещение в соответствующие подкаталоги конфигурационных файлов Dovecot и Postfix.

Внесение изменений в настройки внутреннего окружения виртуальной машины

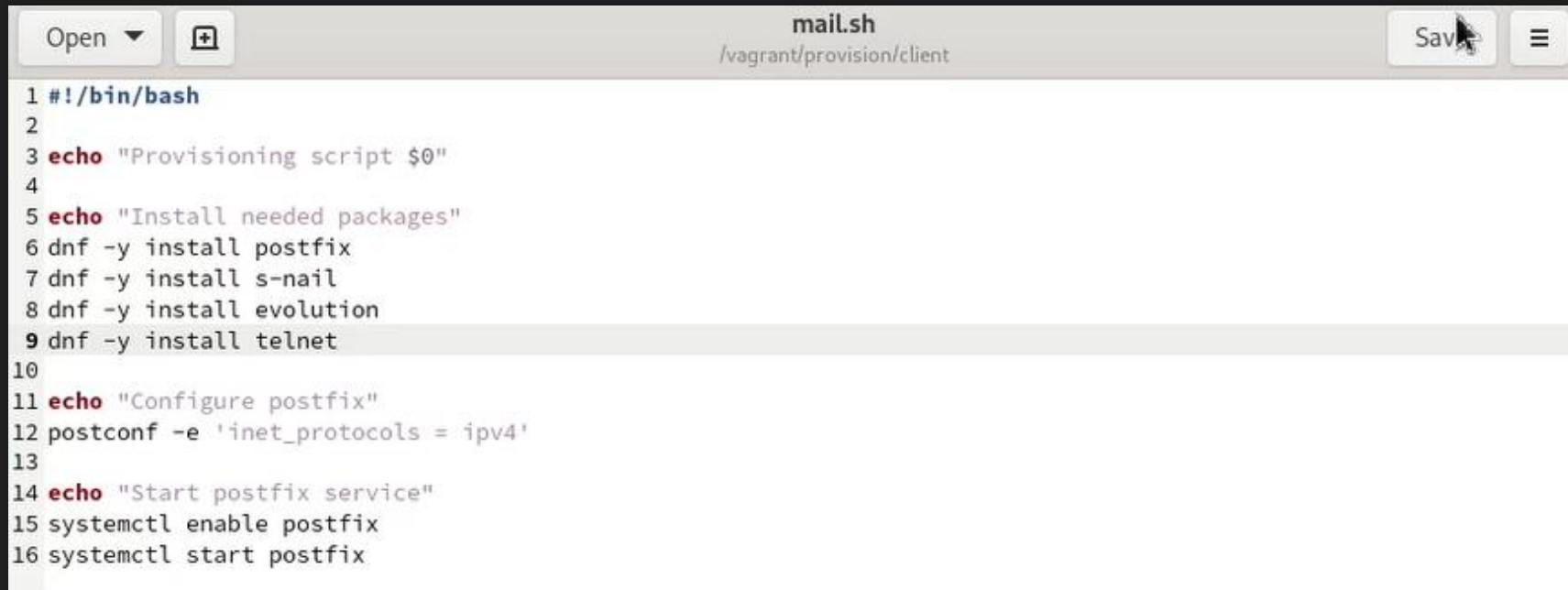


```
mail.sh
/vagrant/provision/server

38 postconf -e 'mydestination = $myhostname, localhost.$mydomain, localhost, $mydomain'
39 #postconf -e 'mynetworks = 127.0.0.0/8, 192.168.0.0/16'
40
41 echo "Configure postfix for dovecot"
42 postconf -e 'home_mailbox = Maildir/'
43
44 echo "Configure postfix for auth"
45 postconf -e 'smtpd_sasl_type = dovecot'
46 postconf -e 'smtpd_sasl_path = private/auth'
47
48 postconf -e 'smtpd_recipient_restrictions = reject_unknown_recipient_domain, permit_mynetworks,
    reject_non_fqdn_recipient, reject_unauth_destination, reject_unverified_recipient, permit'
49 postconf -e 'mynetworks = 127.0.0.0/8'
50
51 echo "Configure postfix for SMTP over TLS"
52 cp /etc/pki/dovecot/certs/dovecot.pem /etc/pki/tls/certs
53 cp /etc/pki/dovecot/private/dovecot.pem /etc/pki/tls/private
54
55 postconf -e 'smtpd_tls_cert_file=/etc/pki/tls/certs/dovecot.pem'
56 postconf -e 'smtpd_tls_key_file=/etc/pki/tls/private/dovecot.pem'
57 postconf -e 'smtpd_tls_session_cache_database = btree:/var/lib/postfix/smtpd_scache'
58 postconf -e 'smtpd_tls_security_level = may'
59 postconf -e 'smtp_tls_security_level = may'
60
61 postfix set-permissions
62
63 restorecon -vR /etc
64
65 systemctl stop postfix
66 systemctl start postfix
67 systemctl restart dovecot
```

Рис. 4.2. Внесение соответствующих изменений по расширенной конфигурации SMTP-сервера в файл `/vagrant/provision/server/mail.sh`.

Внесение изменений в настройки внутреннего окружения виртуальной машины



```
1 #!/bin/bash
2
3 echo "Provisioning script $0"
4
5 echo "Install needed packages"
6 dnf -y install postfix
7 dnf -y install s-nail
8 dnf -y install evolution
9 dnf -y install telnet
10
11 echo "Configure postfix"
12 postconf -e 'inet_protocols = ipv4'
13
14 echo "Start postfix service"
15 systemctl enable postfix
16 systemctl start postfix
```

Рис. 4.3. Внесение изменения в файл `/vagrant/provision/client/mail.sh`.

ВЫВОД

- В ходе выполнения лабораторной работы были приобретены практические навыки по конфигурированию SMTP-сервера в части настройки аутентификации.

Спасибо за внимание!