

# Лабораторная работа №10

## Расширенные настройки SMTP-сервера

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## Вводная часть

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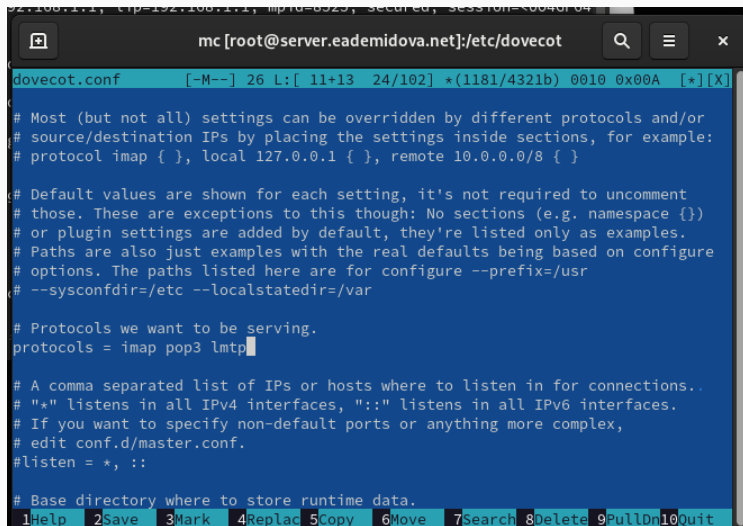
Приобретение практических навыков по конфигурированию SMTP-сервера в части настройки аутентификации.

1. Настройте Dovecot для работы с LMTP.
2. Настройте аутентификацию посредством SASL на SMTP-сервере.
3. Настройте работу SMTP-сервера поверх TLS.
4. Скорректируйте скрипт для Vagrant, фиксирующий действия расширенной настройки SMTP-сервера во внутреннем окружении виртуальной машины server.

## Выполнение лабораторной работы

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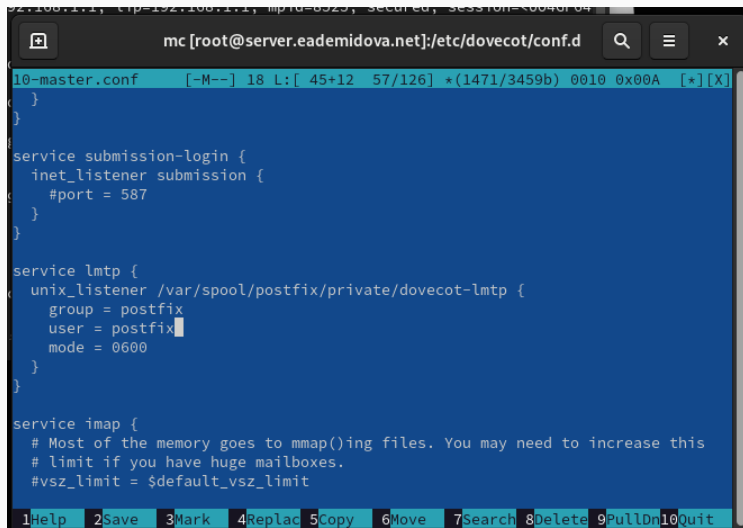
## Настройка LMTP в Dovecot



```
mc [root@server.eadomidova.net]:/etc/dovecot
dovecot.conf [-M--] 26 L:[ 11+13 24/102] *(1181/4321b) 0010 0x00A [*][X]
# Most (but not all) settings can be overridden by different protocols and/or
# source/destination IPs by placing the settings inside sections, for example:
# protocol imap { }, local 127.0.0.1 { }, remote 10.0.0.0/8 { }
# Default values are shown for each setting, it's not required to uncomment
# those. These are exceptions to this though: No sections (e.g. namespace {})
# or plugin settings are added by default, they're listed only as examples.
# Paths are also just examples with the real defaults being based on configure
# options. The paths listed here are for configure --prefix=/usr
# --sysconfdir=/etc --localstatedir=/var
# Protocols we want to be serving.
protocols = imap pop3 lmtp
# A comma separated list of IPs or hosts where to listen in for connections..
# "*" listens in all IPv4 interfaces, "::" listens in all IPv6 interfaces.
# If you want to specify non-default ports or anything more complex,
# edit conf.d/master.conf.
#listen = *, ::
# Base directory where to store runtime data.
1Help 2Save 3Mark 4Replac 5Copy 6Move 7Search 8Delete 9PullDn10Quit
```

Рис. 1: Изменение списка протоколов для работы с Dovecot

## Настройка LMTP в Dovecot



The screenshot shows a nano text editor window titled 'mc [root@server.eademidova.net]:/etc/dovecot/conf.d'. The editor is displaying the configuration file '10-master.conf'. The configuration is for the 'lmtp' service, which is set to use a unix listener at '/var/spool/postfix/private/dovecot-lmtp'. The user and group are set to 'postfix', and the mode is '0600'. The 'imap' service configuration is also visible, showing a comment about memory limits and the 'vsz\_limit' setting.

```
10-master.conf [-M--] 18 L:[ 45+12 57/126] *(1471/3459b) 0010 0x00A [*][X]
}
}
service submission-login {
  inet_listener submission {
    #port = 587
  }
}

service lmtp {
  unix_listener /var/spool/postfix/private/dovecot-lmtp {
    group = postfix
    user = postfix
    mode = 0600
  }
}

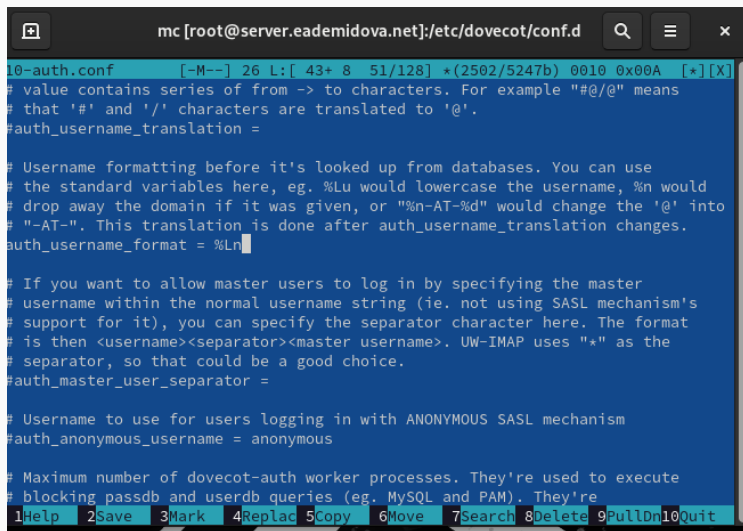
service imap {
  # Most of the memory goes to mmap()ing files. You may need to increase this
  # limit if you have huge mailboxes.
  #vsz_limit = $default_vsz_limit
}
```

Рис. 2: Настройка сервиса lmtp для связи с Postfix

Переопределим в Postfix с помощью `postconf` передачу сообщений не на прямую, а через заданный unix-сокеты с помощью команды:

```
postconf -e 'mailbox_transport = lmtp:unix:private/dovecot-lmtp'
```





```
mc [root@server.eademidova.net]:/etc/dovecot/conf.d
10-auth.conf      [-M--] 26 L:[ 43+ 8 51/128] *(2502/5247b) 0010 0x00A  [*][X]
# value contains series of from -> to characters. For example "#@/@" means
# that '#' and '/' characters are translated to '@'.
#auth_username_translation =

# Username formatting before it's looked up from databases. You can use
# the standard variables here, eg. %Lu would lowercase the username, %n would
# drop away the domain if it was given, or "%n-AT-%d" would change the '@' into
# "-AT-". This translation is done after auth_username_translation changes.
auth_username_format = %Ln

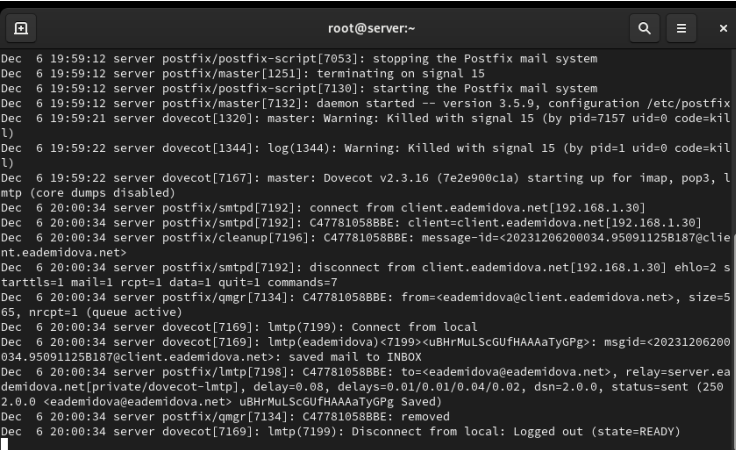
# If you want to allow master users to log in by specifying the master
# username within the normal username string (ie. not using SASL mechanism's
# support for it), you can specify the separator character here. The format
# is then <username><separator><master username>. UW-IMAP uses "*" as the
# separator, so that could be a good choice.
#auth_master_user_separator =

# Username to use for users logging in with ANONYMOUS SASL mechanism
#auth_anonymous_username = anonymous

# Maximum number of dovecot-auth worker processes. They're used to execute
# blocking passdb and userdb queries (eg. MySQL and PAM). They're
1Help 2Save 3Mark 4Replac 5Copy 6Move 7Search 8Delete 9PullDn 10Quit
```

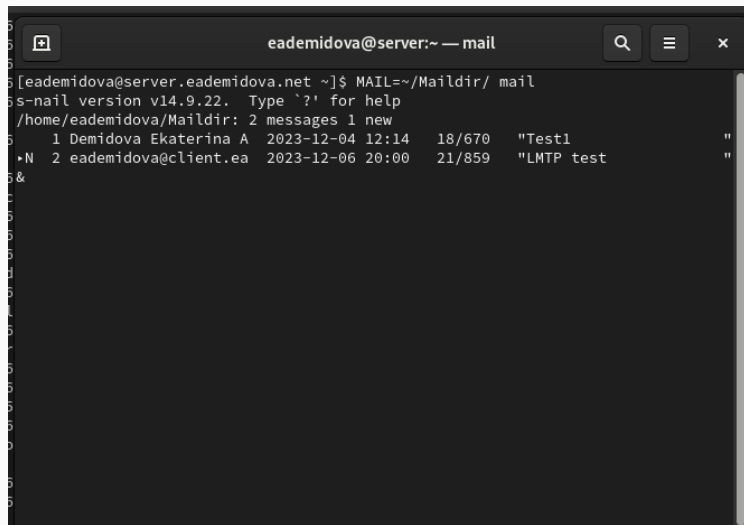
Рис. 3: Задание формата имени пользователя

## Настройка LMTP в Dovecot



```
root@server:~  
Dec 6 19:59:12 server postfix/postfix-script[7053]: stopping the Postfix mail system  
Dec 6 19:59:12 server postfix/master[1251]: terminating on signal 15  
Dec 6 19:59:12 server postfix/postfix-script[7130]: starting the Postfix mail system  
Dec 6 19:59:12 server postfix/master[7132]: daemon started -- version 3.5.9, configuration /etc/postfix  
Dec 6 19:59:21 server dovecot[1320]: master: Warning: Killed with signal 15 (by pid=7157 uid=0 code=kil  
l)  
Dec 6 19:59:22 server dovecot[1344]: log(1344): Warning: Killed with signal 15 (by pid=1 uid=0 code=kil  
l)  
Dec 6 19:59:22 server dovecot[7167]: master: Dovecot v2.3.16 (7e2e900c1a) starting up for imap, pop3, l  
mtp (core dumps disabled)  
Dec 6 20:00:34 server postfix/smtpd[7192]: connect from client.eademidova.net[192.168.1.30]  
Dec 6 20:00:34 server postfix/smtpd[7192]: C47781058BBE: client=client.eademidova.net[192.168.1.30]  
Dec 6 20:00:34 server postfix/cleanup[7196]: C47781058BBE: message-id=<20231206200034.95091125B187@clie  
nt.eademidova.net>  
Dec 6 20:00:34 server postfix/smtpd[7192]: disconnect from client.eademidova.net[192.168.1.30] ehlo=2 s  
tarttls=1 mail=1 rcpt=1 data=1 quit=1 commands=7  
Dec 6 20:00:34 server postfix/qmgr[7134]: C47781058BBE: from=<eademidova@client.eademidova.net>, size=5  
65, nrcpt=1 (queue active)  
Dec 6 20:00:34 server dovecot[7169]: lmtp(7199): Connect from local  
Dec 6 20:00:34 server dovecot[7169]: lmtp(eademidova)<7199><uBHRMuLScGUfHAAAAyGPG>: msgid=<20231206200  
034.95091125B187@client.eademidova.net>: saved mail to INBOX  
Dec 6 20:00:34 server postfix/lmtp[7198]: C47781058BBE: to=<eademidova@eademidova.net>, relay=server.ea  
demidova.net[private/dovecot-lmtp], delay=0.08, delays=0.01/0.01/0.04/0.02, dsn=2.0.0, status=sent (250  
2.0.0 <eademidova@eademidova.net> uBHRMuLScGUfHAAAAyGPG Saved)  
Dec 6 20:00:34 server postfix/qmgr[7134]: C47781058BBE: removed  
Dec 6 20:00:34 server dovecot[7169]: lmtp(7199): Disconnect from local: Logged out (state=READY)
```

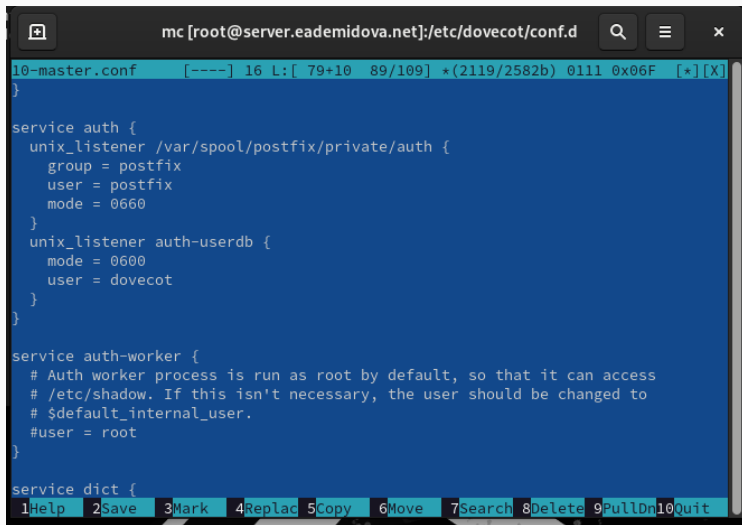
Рис. 4: Просмотр мониторинга почтовой службы

A terminal window titled 'eademidova@server:~ — mail' with search, menu, and close buttons. The terminal shows the execution of the 'mail' command, displaying the version of s-nail and a list of messages in the maildir. The list includes a message from 'Demidova Ekaterina A' and another from 'eademidova@client.ea' with subject 'LMTP test'.

```
eademidova@server:~ — mail
[eademidova@server.eademidova.net ~]$ MAIL=~/.Maildir/ mail
s-nail version v14.9.22. Type '?' for help
/home/eademidova/Maildir: 2 messages 1 new
 1 Demidova Ekaterina A 2023-12-04 12:14 18/670 "Test1"
•N 2 eademidova@client.ea 2023-12-06 20:00 21/859 "LMTP test"
&
```

Рис. 5: Просмотр почтового ящика пользователя

## Настройка SMTP-аутентификации



The image shows a terminal window with a dark background. The title bar at the top reads 'mc [root@server.eadimidova.net]:/etc/dovecot/conf.d'. The terminal content shows the configuration for the '10-master.conf' file. It defines two services: 'auth' and 'auth-worker'. The 'auth' service has two 'unix\_listener' entries: one for '/var/spool/postfix/private/auth' with group 'postfix', user 'postfix', and mode '0660'; and another for 'auth-userdb' with mode '0600' and user 'dovecot'. The 'auth-worker' service is configured to run as root by default, with a comment explaining that it can access '/etc/shadow' and a '#user = root' line. At the bottom, a menu bar is visible with options: 1Help, 2Save, 3Mark, 4Replac, 5Copy, 6Move, 7Search, 8Delete, 9PullDn, 10Quit.

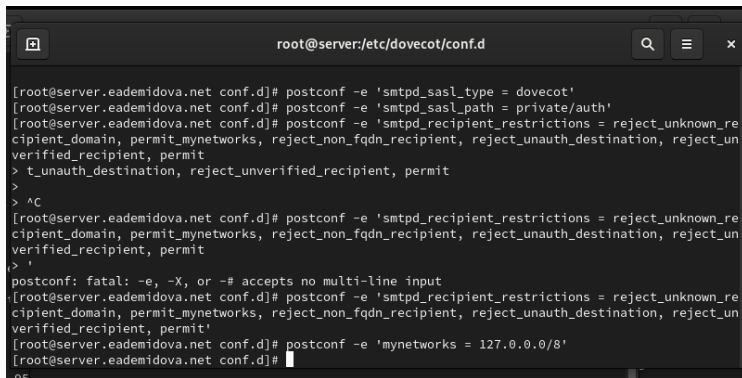
```
mc [root@server.eadimidova.net]:/etc/dovecot/conf.d
10-master.conf [----] 16 L:[ 79+10 89/109] *(2119/2582b) 0111 0x06F [*][X]
}

service auth {
    unix_listener /var/spool/postfix/private/auth {
        group = postfix
        user = postfix
        mode = 0660
    }
    unix_listener auth-userdb {
        mode = 0600
        user = dovecot
    }
}

service auth-worker {
    # Auth worker process is run as root by default, so that it can access
    # /etc/shadow. If this isn't necessary, the user should be changed to
    # $default_internal_user.
    #user = root
}

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

Рис. 6: Определение службы аутентификации пользователей

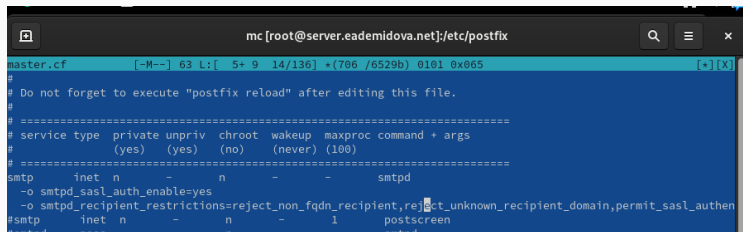


The screenshot shows a terminal window titled 'root@server:/etc/dovecot/conf.d'. The user is configuring Postfix using the 'postconf' command. The commands and their outputs are as follows:

```
[root@server.eademidova.net conf.d]# postconf -e 'smtpd_sasl_type = dovecot'
[root@server.eademidova.net conf.d]# postconf -e 'smtpd_sasl_path = private/auth'
[root@server.eademidova.net conf.d]# postconf -e 'smtpd_recipient_restrictions = reject_unknown_recipient_domain, permit_mynetworks, reject_non_fqdn_recipient, reject_unauth_destination, reject_unverified_recipient, permit'
> t_unauth_destination, reject_unverified_recipient, permit
>
> ^C
[root@server.eademidova.net conf.d]# postconf -e 'smtpd_recipient_restrictions = reject_unknown_recipient_domain, permit_mynetworks, reject_non_fqdn_recipient, reject_unauth_destination, reject_unverified_recipient, permit'
> '
postconf: fatal: -e, -X, or -# accepts no multi-line input
[root@server.eademidova.net conf.d]# postconf -e 'smtpd_recipient_restrictions = reject_unknown_recipient_domain, permit_mynetworks, reject_non_fqdn_recipient, reject_unauth_destination, reject_unverified_recipient, permit'
[root@server.eademidova.net conf.d]# postconf -e 'mynetworks = 127.0.0.0/8'
[root@server.eademidova.net conf.d]#
```

Рис. 7: Конфигурации Postfix

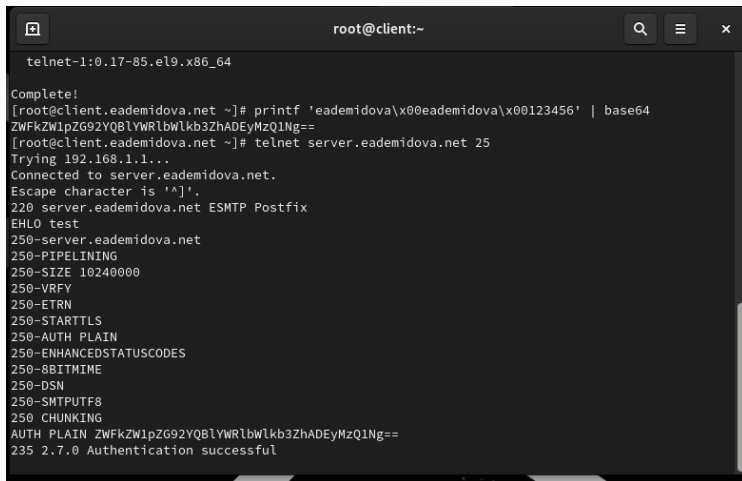
# Настройка SMTP-аутентификации



```
mc [root@server.eadimidova.net]:/etc/postfix
master.cf [-M--] 63 L:[ 5+ 9 14/136] *(706 /6529b) 0101 0x065 [*][X]
#
# Do not forget to execute "postfix reload" after editing this file.
#
# =====
# service type private unpriv chroot wakeup maxproc command + args
#          (yes)  (yes)   (no)   (never) (100)
# =====
smtp      inet  n       -       n       -       -       smtpd
  -o smtpd_sasl_auth_enable=yes
  -o smtpd_recipient_restrictions=reject_non_fqdn_recipient, reject_unknown_recipient_domain, permit_sasl_authen
#smtp     inet  n       -       n       -       1       postscreen
#smtpd    pass  s       s       n       -       -       smtpd
```

Рис. 8: Временный запуск SMTP-сервера

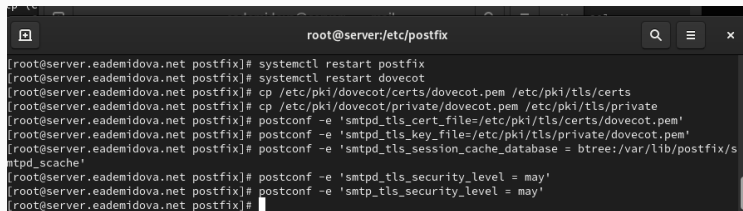
## Настройка SMTP-аутентификации

A terminal window titled 'root@client:~' with search, menu, and close icons in the top right. The terminal shows a telnet session to 'telnet-1:0.17-85.el9.x86\_64'. The user enters 'Complete!' and then a base64 encoded string. They then connect to 'server.eademidova.net' on port 25. The server responds with SMTP banners and capabilities. Finally, the user provides the same base64 string, and the server responds with '235 2.7.0 Authentication successful'.

```
telnet-1:0.17-85.el9.x86_64

Complete!
[root@client.eademidova.net ~]# printf 'eademidova\x00eademidova\x00123456' | base64
ZWfkZWlpZG92YQBlYWRLbWlkb3ZhADEyMzQ1Ng==
[root@client.eademidova.net ~]# telnet server.eademidova.net 25
Trying 192.168.1.1...
Connected to server.eademidova.net.
Escape character is '^]'.
220 server.eademidova.net ESMTP Postfix
EHLO test
250-server.eademidova.net
250-PIPELINING
250-SIZE 10240000
250-VERFY
250-ETRN
250-STARTTLS
250-AUTH PLAIN
250-ENHANCEDSTATUSCODES
250-8BITMIME
250-DSN
250-SMTPUTF8
250 CHUNKING
AUTH PLAIN ZWfkZWlpZG92YQBlYWRLbWlkb3ZhADEyMzQ1Ng==
235 2.7.0 Authentication successful
```

Рис. 9: Получение строки для аутентификация и проверка посредством telnet

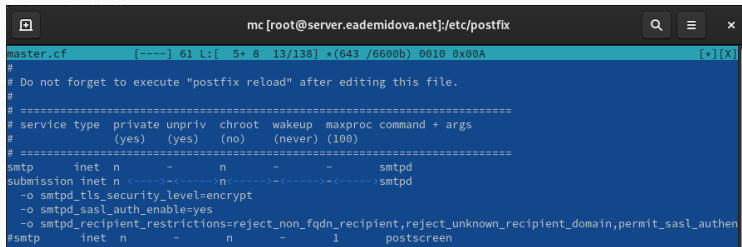


```
root@server:/etc/postfix

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

Рис. 10: Конфигарции Postfix для настройки TLS

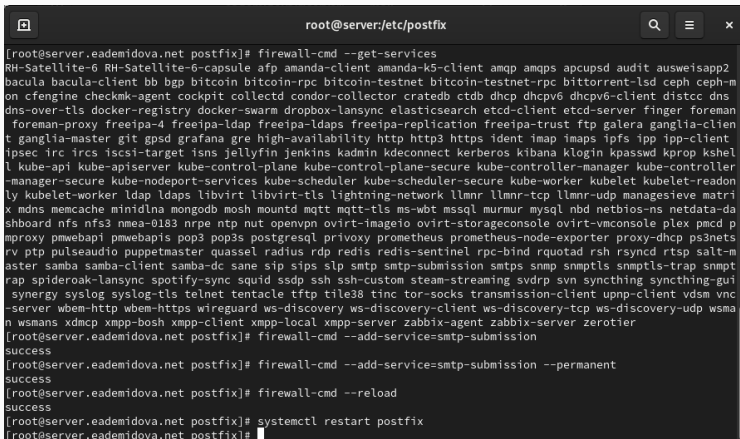




```
mc [root@server.eademidova.net]:/etc/postfix
master.cf [----] 61 L:[ 5+ 8 13/138] *(643 /6600b) 0010 0x00A [*][X]
#
# Do not forget to execute "postfix reload" after editing this file.
#
# =====
# service type private unpriv chroot wakeup maxproc command + args
# (yes) (yes) (no) (never) (100)
# =====
smtp inet n - n - smtpd
submission inet n - - - smtpd
-o smtpd_tls_security_level=encrypt
-o smtpd_sasl_auth_enable=yes
-o smtpd_recipient_restrictions=reject_non_fqdn_recipient,reject_unknown_recipient_domain,permit_sasl_authen
#smtp inet n - n - 1 postscreen
```

Рис. 11: Изменение конфигураций для запуска SMTP-сервера на 587-порту

## Настройка SMTP over TLS



```
root@server:/etc/postfix

[root@server.eademidova.net postfix]# firewall-cmd --get-services
RH-Satellite-6 RH-Satellite-6-capsule afp amanda-client amanda-k5-client amqp amqps apcupsd audit ausweisapp2
bacula bacula-client bb bgp bitcoin bitcoin-rpc bitcoin-testnet bitcoin-testnet-rpc bittorrent-lsd ceph-ceph-m
on 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 etcd-server finger foreman
foreman-proxy freeipa-4 freeipa-ldap freeipa-ldaps freeipa-replication freeipa-trust ftp galera ganglia-clien
t ganglia-master git gpsd grafana gre high-availability http http3 https ident imap imaps ipfs ipp ipp-client
ipsec irc ircs iscsi-target isns jellyfin jenkins kadmin kdeconnect kerberos kibana klogin kpasswd kprop kshel
l kube-api kube-apiserver kube-control-plane kube-control-plane-secure kube-controller-manager kube-controller
-manager-secure kube-nodeport-services kube-scheduler kube-scheduler-secure kube-worker kubelet kubelet-readon
ly kubelet-worker ldap ldaps libvirt libvirt-tls lightning-network llmnr llmnr-tcp llmnr-udp managesieve matri
x mdns memcache minidlna mongodb mosh mountd mqtt mqtt-tls ms-wbt mssql murmur mysql nbd netbios-ns netdata-da
shboard nfs nfs3 nmea-0183 nrpe ntp nut openvpn ovirt-imageio ovirt-storageconsole ovirt-vmconsole plex pmcd p
mproxy pmwebapi pmwebapis pop3 pop3s postgresql proxoxy prometheus prometheus-node-exporter proxy-dhcp ps3nets
rv ptp pulseaudio puppetmaster quassel radius rdp redis redis-sentinel rpc-bind rquotad rsh rsyncd rtsp salt-m
aster samba samba-client samba-dc sane sip sips slp smtp smtp-submission smtps snmp snmptls snmptls-trap snmpt
rap 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
-server wdem-http wdem-https wireguard ws-discovery ws-discovery-client ws-discovery-tcp ws-discovery-udp wsm
n wsmans xdmcp xmpp-bosh xmpp-client xmpp-local xmpp-server zabbix-agent zabbix-server zerotier

[root@server.eademidova.net postfix]# firewall-cmd --add-service=smtp-submission
success

[root@server.eademidova.net postfix]# firewall-cmd --add-service=smtp-submission --permanent
success

[root@server.eademidova.net postfix]# firewall-cmd --reload
success

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

Рис. 12: Настройка межсетевого экрана для работы службы smtp-submission

## Настройка SMTP over TLS

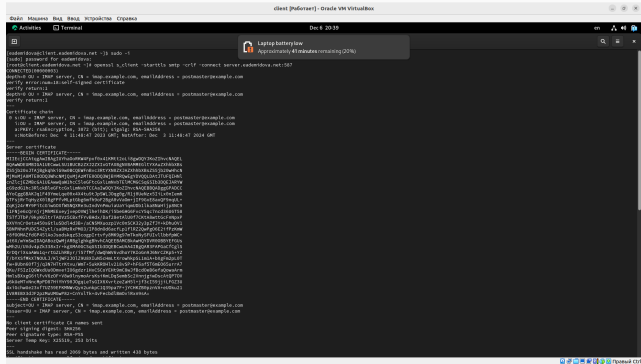
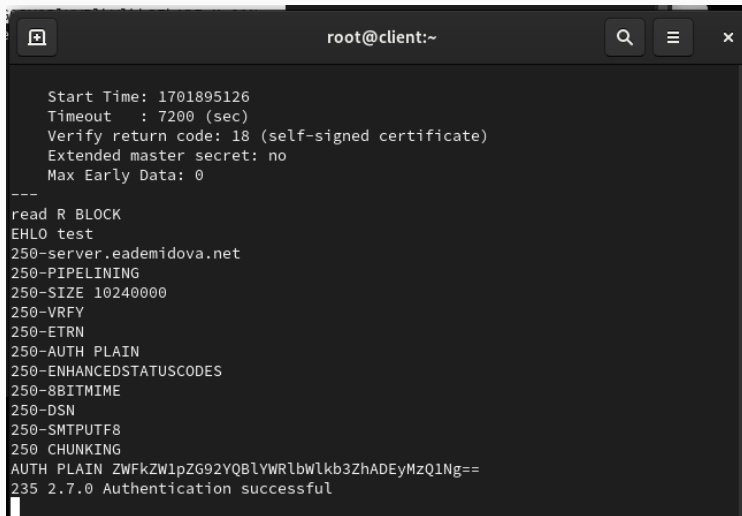


Рис. 13: Подключение через openssl к SMTP-серверу

A terminal window titled 'root@client:~' with search, menu, and close icons. It displays the output of a telnet session to an SMTP server. The output shows connection details like start time, timeout, and certificate verification, followed by a list of SMTP capabilities and a successful authentication response.

```
Start Time: 1701895126
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.eademidova.net
250-PIPELINING
250-SIZE 10240000
250-VRFY
250-ETRN
250-AUTH PLAIN
250-ENHANCEDSTATUSCODES
250-8BITMIME
250-DSN
250-SMTPUTF8
250 CHUNKING
AUTH PLAIN ZWfkZW1pZG92YQBlyWRlbWlkb3ZhADEyMzQ1Ng==
235 2.7.0 Authentication successful
```

Рис. 14: Проверка подключения и аутентфикации по telnet

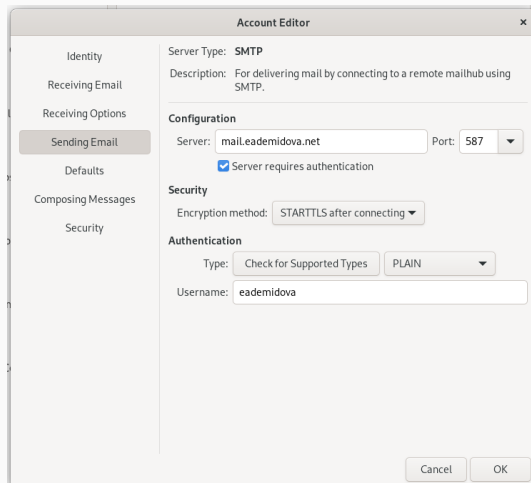


Рис. 15: Изменение настроек учетной записи Evolution

# Настройка SMTP over TLS

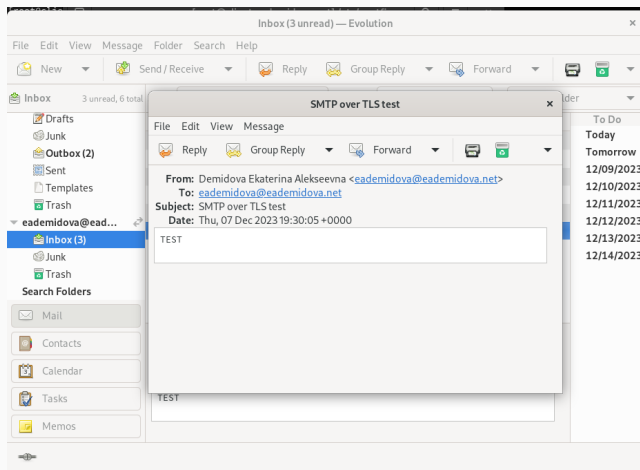
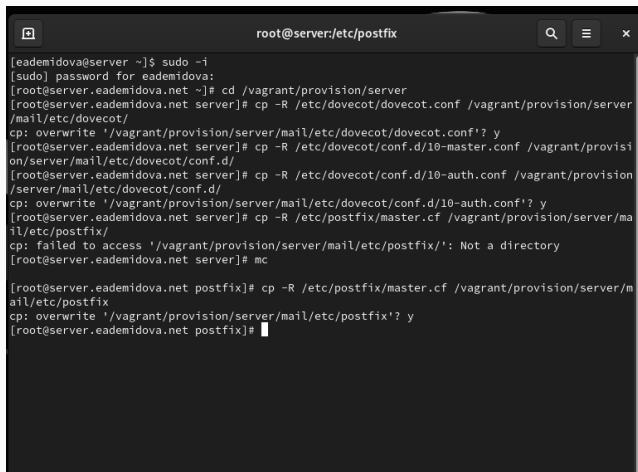


Рис. 16: Проверка корректности отправки почтовых сообщений с помощью Evolution

# Внесение изменений в настройки внутреннего окружения виртуальной машины



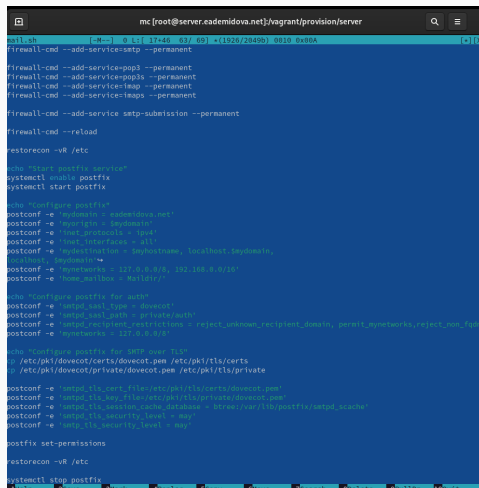
```
root@server:/etc/postfix

[eademidova@server ~]$ sudo -i
[sudo] password for eademidova:
[root@server.eademidova.net ~]# cd /vagrant/provision/server
[root@server.eademidova.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.eademidova.net server]# cp -R /etc/dovecot/conf.d/10-master.conf /vagrant/provision/server/mail/etc/dovecot/conf.d/
[root@server.eademidova.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.eademidova.net server]# cp -R /etc/postfix/master.cf /vagrant/provision/server/mail/etc/postfix/
cp: failed to access '/vagrant/provision/server/mail/etc/postfix/': Not a directory
[root@server.eademidova.net server]# mc

[root@server.eademidova.net postfix]# cp -R /etc/postfix/master.cf /vagrant/provision/server/mail/etc/postfix
cp: overwrite '/vagrant/provision/server/mail/etc/postfix'? y
[root@server.eademidova.net postfix]#
```

Рис. 17: Создание окружения для внесения изменений в настройки окружающей среды

# Внесение изменений в настройки внутреннего окружения виртуальной машины

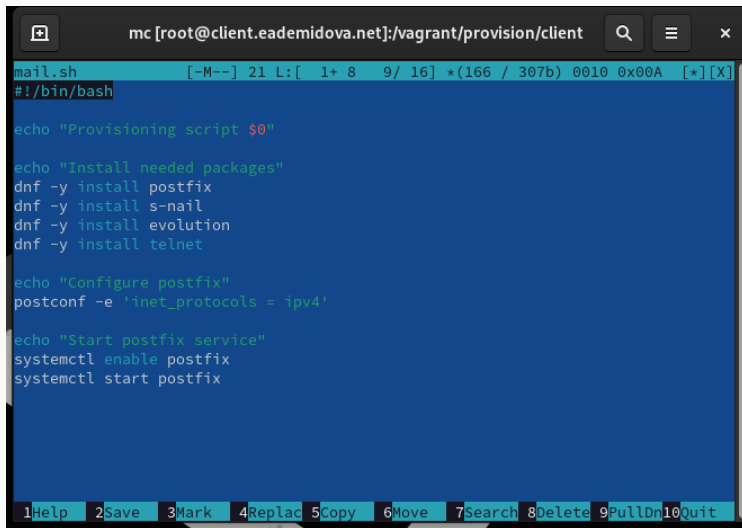


```
mc [root@server.eademidova.net]:/vagrant/provision/server
mail.sh 0 Ls 1746 63/ 69) +(1926/2049b) 0010 0x00A
firewall-cmd --add-service=smtp --permanent
firewall-cmd --add-service=pop3 --permanent
firewall-cmd --add-service=pop3s --permanent
firewall-cmd --add-service=imap --permanent
firewall-cmd --add-service=imaps --permanent
firewall-cmd --add-service=smtp-submission --permanent
firewall-cmd --reload
restorecon -vR /etc
echo "Start postfix service"
systemctl enable postfix
systemctl start postfix
echo "Configure postfix"
postconf -e 'mydomain = eademidova.net'
postconf -e 'myorigin = $mydomain'
postconf -e 'inet_protocols = ipv4'
postconf -e 'inet_interfaces = all'
postconf -e 'mydestination = $myhostname, localhost.$mydomain,
local postfix.$mydomain'
postconf -e 'mynetworks = 127.0.0.0/8, 192.168.0.0/16'
postconf -e 'home_mailbox = Maildir/'
echo "Configure postfix for auth"
postconf -e 'smtpd_sasl_type = dovecot'
postconf -e 'smtpd_sasl_auth = private/auth'
postconf -e 'smtpd_recipient_restrictions = reject_unknown_recipient_domain, permit_mynetworks, reject_non_fqdn'
postconf -e 'mynetworks = 127.0.0.0/8'
echo "Configure postfix for SMTP over TLS"
cp /etc/pki/dovecot/certs/dovecot.pem /etc/pki/tls/certs
cp /etc/pki/dovecot/private/dovecot.pem /etc/pki/tls/private
postconf -e 'smtpd_tls_cert_files=/etc/pki/tls/certs/dovecot.pem'
postconf -e 'smtpd_tls_key_files=/etc/pki/tls/private/dovecot.pem'
postconf -e 'smtpd_tls_session_cache_database = btree:/var/lib/postfix/smtpd_scache'
postconf -e 'smtpd_tls_security_level = may'
postconf -e 'smtp_tls_security_level = may'
postfix set-permissions
restorecon -vR /etc
systemctl stop postfix
```

Рис. 18: Изменение файла /vagrant/provision/server/mail.sh



## Внесение изменений в настройки внутреннего окружения виртуальной машины



```
mc [root@client.eademidova.net]:/vagrant/provision/client
mail.sh [-M--] 21 L: [ 1+ 8 9/ 16] *(166 / 307b) 0010 0x00A [*] [X]
#!/bin/bash

echo "Provisioning script $0"

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

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

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

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

Рис. 19: Изменение файла /vagrant/provision/client/mail.sh

## Заключение

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