

Презентация по лабораторной работе №10

Расширенные настройки SMTP-сервера

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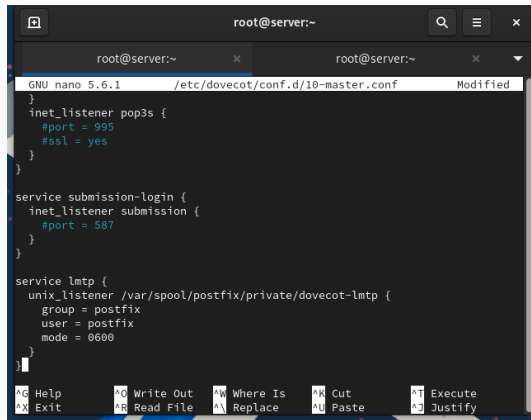
Приобретение практических навыков по конфигурированию SMTP-сервера в части настройки аутентификации.

Настройка LMTP в Dovecot



```
root@server:~  
GNU nano 5.6.1 /etc/dovecot/dovecot.conf Modified  
# value inside quotes, eg.: key = "# char and trailing whitespace "  
  
# 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 configuration  
# options. The paths listed here are for configure --prefix=/usr  
# --sysconfdir=/etc --localstatedir=/var  
  
# Protocols we want to be serving.  
protocols = imap pop3 lmtp
```

Рис. 1: Редактирование файла /etc/dovecot/dovecot.conf



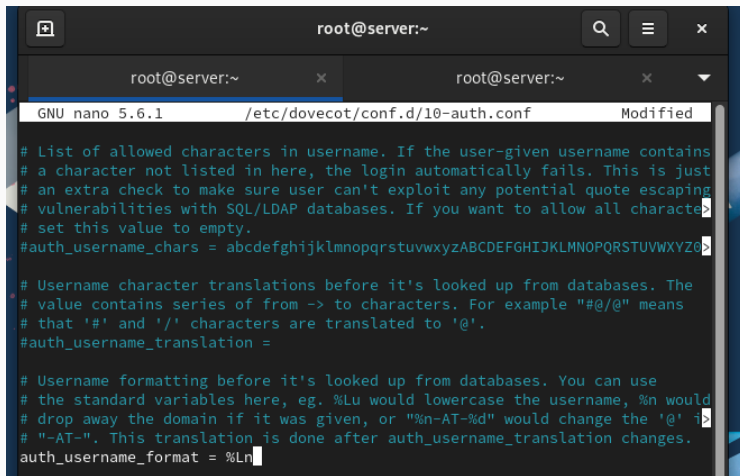
```
root@server:~  
GNU nano 5.6.1 /etc/dovecot/conf.d/10-master.conf Modified  
}  
inet_listener pop3s {  
  #port = 995  
  #ssl = yes  
}  
}  
  
service submission-login {  
  inet_listener submission {  
    #port = 587  
  }  
}  
}  
  
service lmt {  
  unix_listener /var/spool/postfix/private/dovecot-lmt {  
    group = postfix  
    user = postfix  
    mode = 0600  
  }  
}  
}
```

Help Write Out Where Is Cut Execute
Exit Read File Replace Paste Justify

Рис. 2: Редактирование файла /etc/dovecot/conf.d/10-master.conf

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

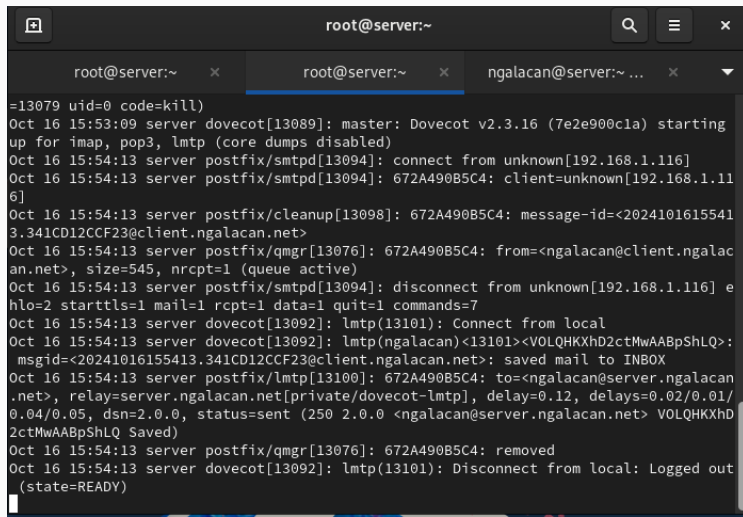
Выполнение лабораторной работы



```
root@server:~  
root@server:~ x root@server:~ x  
GNU nano 5.6.1 /etc/dovecot/conf.d/10-auth.conf Modified  
# List of allowed characters in username. If the user-given username contains  
# a character not listed in here, the login automatically fails. This is just  
# an extra check to make sure user can't exploit any potential quote escaping  
# vulnerabilities with SQL/LDAP databases. If you want to allow all character>  
# set this value to empty.  
#auth_username_chars = abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ0>  
# Username character translations before it's looked up from databases. The  
# 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 '@' i>  
# "-AT-". This translation is done after auth_username_translation changes.  
auth_username_format = %Ln
```

Рис. 3: Редактирование файла /etc/dovecot/conf.d/10-auth.conf


```
echo .| mail -s "LMTP test" ngalacan@ngalacan.net
```



The screenshot shows a terminal window with a dark theme. At the top, there's a title bar with 'root@server:~' and standard window controls. Below it, a tab bar shows three tabs: 'root@server:~', 'root@server:~' (selected), and 'ngalacan@server:~ ...'. The main area displays a log of system events. The logs show Dovecot starting, Postfix receiving a connection from 192.168.1.116, and a message being processed and saved to the INBOX. The message details include a unique ID, sender, recipient, and various status codes. The terminal ends with a 'Disconnected from local: Logged out' message.

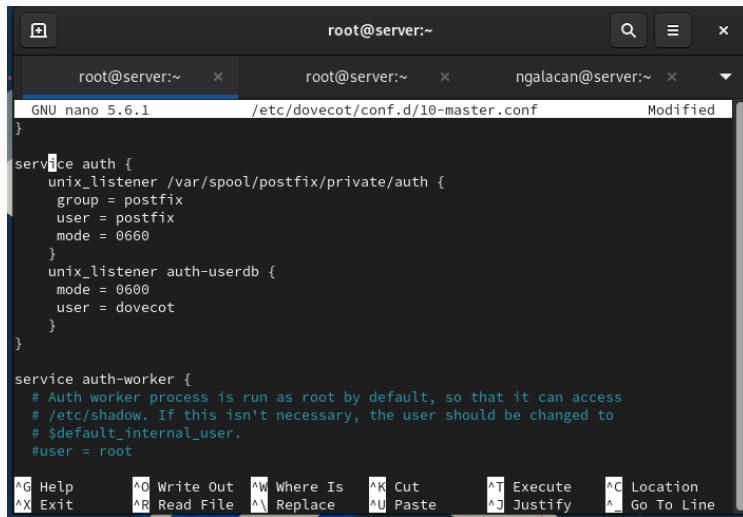
```
root@server:~  
=13079 uid=0 code=kill)  
Oct 16 15:53:09 server dovecot[13089]: master: Dovecot v2.3.16 (7e2e900c1a) starting  
up for imap, pop3, lmtp (core dumps disabled)  
Oct 16 15:54:13 server postfix/smtpd[13094]: connect from unknown[192.168.1.116]  
Oct 16 15:54:13 server postfix/smtpd[13094]: 672A490B5C4: client=unknown[192.168.1.116]  
Oct 16 15:54:13 server postfix/cleanup[13098]: 672A490B5C4: message-id=<20241016155413.341CD12CCF23@client.ngalacan.net>  
Oct 16 15:54:13 server postfix/qmgr[13076]: 672A490B5C4: from=<ngalacan@client.ngalacan.net>, size=545, nrcpt=1 (queue active)  
Oct 16 15:54:13 server postfix/smtpd[13094]: disconnect from unknown[192.168.1.116] ehlo=2 starttls=1 mail=1 rcpt=1 data=1 quit=1 commands=7  
Oct 16 15:54:13 server dovecot[13092]: lmtp(13101): Connect from local  
Oct 16 15:54:13 server dovecot[13092]: lmtp(ngalacan)<13101><VOLQHKXhD2ctMwAABpShLQ>: msgid=<20241016155413.341CD12CCF23@client.ngalacan.net>: saved mail to INBOX  
Oct 16 15:54:13 server postfix/lmtp[13100]: 672A490B5C4: to=<ngalacan@server.ngalacan.net>, relay=server.ngalacan.net[private/dovecot-lmtp], delay=0.12, delays=0.02/0.01/0.04/0.05, dsn=2.0.0, status=sent (250 2.0.0 <ngalacan@server.ngalacan.net> VOLQHKXhD2ctMwAABpShLQ Saved)  
Oct 16 15:54:13 server postfix/qmgr[13076]: 672A490B5C4: removed  
Oct 16 15:54:13 server dovecot[13092]: lmtp(13101): Disconnect from local: Logged out (state=READY)
```

Рис. 4: Просмотр мониторинга почтовой службы на сервере

```
[ngalacan@server.ngalacan.net ~]$ MAIL=~/.Maildir/ mail
s-nail version v14.9.22.  Type '?' for help
/home/ngalacan/Maildir: 3 messages 1 new
  1 ngalacan@ngalacan.ne  2024-10-09 17:01   14/444  "test"
  2 ngalacan              2024-10-16 13:49   18/648  "test3"
•N 3 ngalacan@client.ngal 2024-10-16 15:54   21/833  "LMTP-test"
& █
```

Рис. 5: Просмотр почты

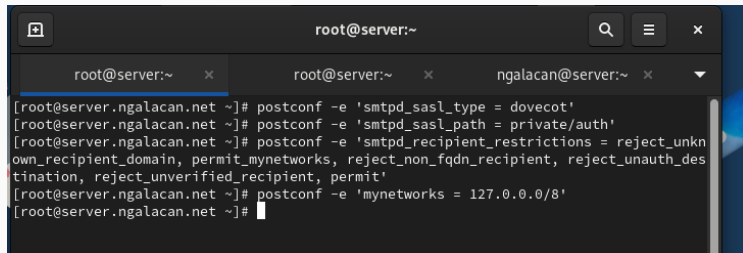
Настройка SMTP-аутентификации



```
root@server:~  
GNU nano 5.6.1 /etc/dovecot/conf.d/10-master.conf Modified  
}  
  
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  
}
```

^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^_ Go To Line

Рис. 6: Редактирование файла /etc/dovecot/conf.d/10-master.conf

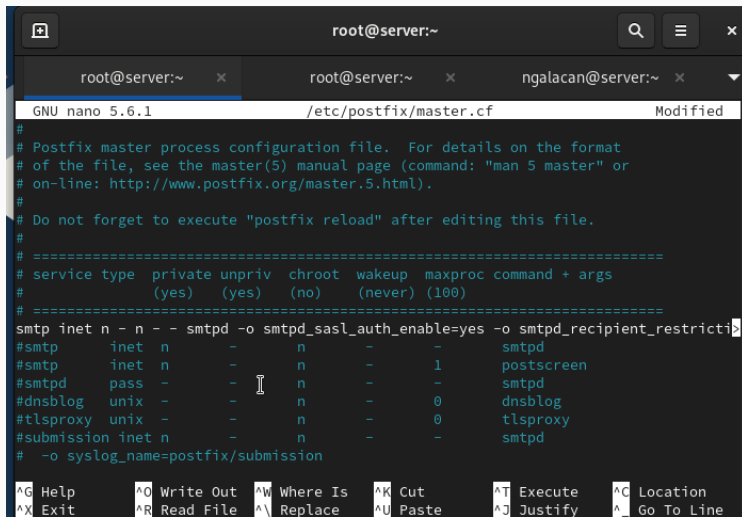


A terminal window titled 'root@server:~' with three tabs: 'root@server:~', 'root@server:~', and 'ngalacan@server:~'. The active tab is 'ngalacan@server:~'. The terminal shows the following commands and output:

```
[root@server.ngalacan.net ~]# postconf -e 'smtpd_sasl_type = dovecot'
[root@server.ngalacan.net ~]# postconf -e 'smtpd_sasl_path = private/auth'
[root@server.ngalacan.net ~]# postconf -e 'smtpd_recipient_restrictions = reject_unkn
own_recipient_domain, permit_mynetworks, reject_non_fqdn_recipient, reject_unauth_des
tination, reject_unverified_recipient, permit'
[root@server.ngalacan.net ~]# postconf -e 'mynetworks = 127.0.0.0/8'
[root@server.ngalacan.net ~]#
```

Рис. 7: Изменение конфигурации Postfix

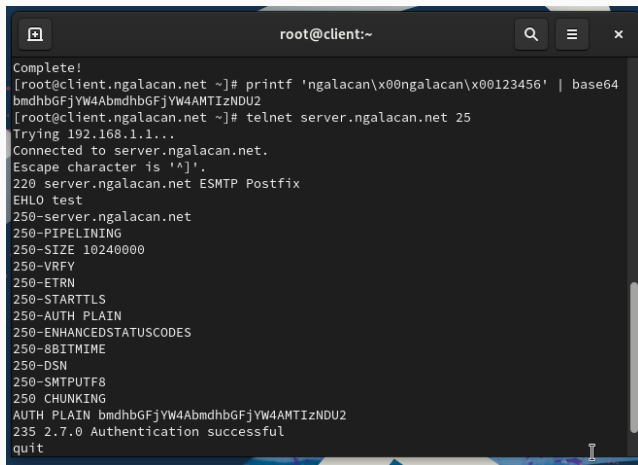
Выполнение лабораторной работы



```
root@server:~  
GNU nano 5.6.1 /etc/postfix/master.cf Modified  
#  
# Postfix master process configuration file. For details on the format  
# of the file, see the master(5) manual page (command: "man 5 master" or  
# on-line: http://www.postfix.org/master.5.html).  
#  
# 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=permit_sasl_authenticated reject_unauth_destination  
#smtp inet n - n - smtpd  
#smtp inet n - n - 1 postscreen  
#smtpd pass - n - smtpd  
#dnsblog unix - n - 0 dnsblog  
#tlsproxy unix - n - 0 tlsproxy  
#submission inet n - n - smtpd  
# -o syslog_name=postfix/submission  
  
^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location  
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^_ Go To Line
```

Рис. 8: Редактирование файла /etc/postfix/master.cf для проверки аутентификации

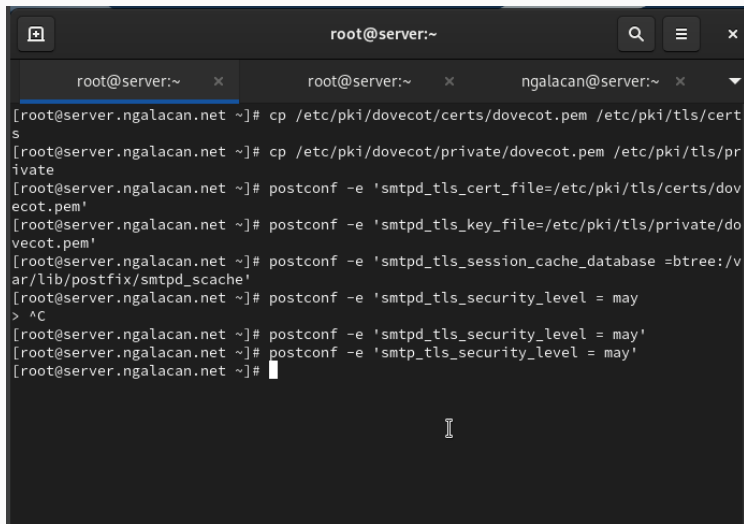
Выполнение лабораторной работы



```
root@client:~  
Complete!  
[root@client.ngalacan.net ~]# printf 'ngalacan\x00ngalacan\x00123456' | base64  
bmdhbgFjYW4AbmdhbgFjYW4AMTlzNDU2  
[root@client.ngalacan.net ~]# telnet server.ngalacan.net 25  
Trying 192.168.1.1...  
Connected to server.ngalacan.net.  
Escape character is '^['.  
220 server.ngalacan.net ESMTP Postfix  
EHLO test  
250-server.ngalacan.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 bmdhbgFjYW4AbmdhbgFjYW4AMTlzNDU2  
235 2.7.0 Authentication successful  
quit
```

Рис. 9: Получение строки для аутентификации на клиенте, подключение к SMTP-серверу через telnet, проверка аутентификации

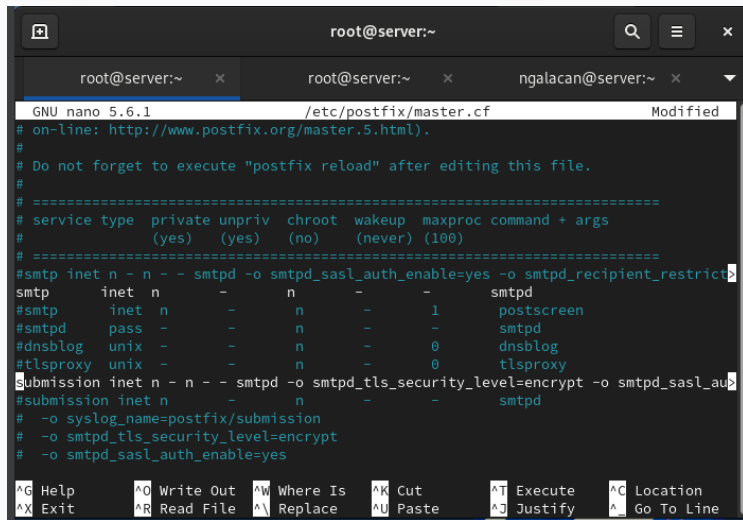
Настройка SMTP over TLS



A terminal window titled 'root@server:~' with three tabs: 'root@server:~', 'root@server:~', and 'ngalacan@server:~'. The active tab is 'ngalacan@server:~'. The terminal shows the following commands and output:

```
[root@server.ngalacan.net ~]# cp /etc/pki/dovecot/certs/dovecot.pem /etc/pki/tls/certs/s
[root@server.ngalacan.net ~]# cp /etc/pki/dovecot/private/dovecot.pem /etc/pki/tls/pr
ivate
[root@server.ngalacan.net ~]# postconf -e 'smtpd_tls_cert_file=/etc/pki/tls/certs/dov
ecot.pem'
[root@server.ngalacan.net ~]# postconf -e 'smtpd_tls_key_file=/etc/pki/tls/private/do
vecot.pem'
[root@server.ngalacan.net ~]# postconf -e 'smtpd_tls_session_cache_database = btree:/v
ar/lib/postfix/smtpd_scache'
[root@server.ngalacan.net ~]# postconf -e 'smtpd_tls_security_level = may
> ^C
[root@server.ngalacan.net ~]# postconf -e 'smtpd_tls_security_level = may'
[root@server.ngalacan.net ~]# postconf -e 'smtp_tls_security_level = may'
[root@server.ngalacan.net ~]#
```

Рис. 10: Конфигурации Postfix для настройки TLS



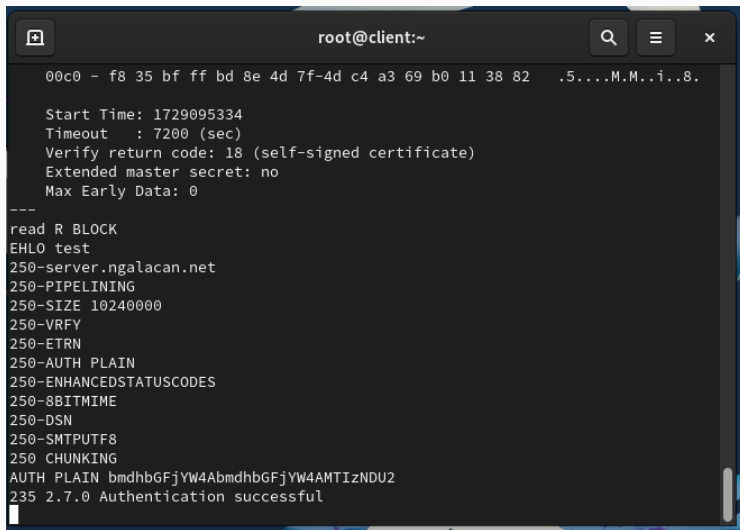
```
root@server:~  
GNU nano 5.6.1 /etc/postfix/master.cf Modified  
# on-line: http://www.postfix.org/master.5.html.  
#  
# Do not forget to execute "postfix reload" after editing this file.  
#  
# =====  
# service type private unpriv chroot wakeup maxproc command + args  
# (yes) (yes) (no) (never) (100)  
# =====  
#smtp inet n - n - - smtpd  
smtp inet n - n - - smtpd  
#smtp inet n - n - 1 postscreen  
#smtpd pass - - n - - smtpd  
#dnsblog unix - - n - 0 dnsblog  
#tlsproxy unix - - n - 0 tlsproxy  
submission inet n - n - - smtpd -o smtpd_tls_security_level=encrypt -o smtpd_sasl_auth_enable=yes  
#submission inet n - n - - smtpd  
# -o syslog_name=postfix/submission  
# -o smtpd_tls_security_level=encrypt  
# -o smtpd_sasl_auth_enable=yes  
  
^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location  
^X Exit ^R Read File ^_ Replace ^U Paste ^J Justify ^_ Go To Line
```

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

```
[root@server.ngalacan.net ~]# firewall-cmd --add-service=smtp-submission
success
[root@server.ngalacan.net ~]# firewall-cmd --add-service=smtp-submission --permanent
success
[root@server.ngalacan.net ~]# firewall-cmd --reload
success
[root@server.ngalacan.net ~]# systmctl restart postfix
bash: systmctl: command not found...
[root@server.ngalacan.net ~]# systemctl restart postfix
[root@server.ngalacan.net ~]#
```

Рис. 12: Настройка межсетевого экрана и перезапуск Postfix

```
openssl s_client -starttls smtp -crlf -connect server.ngalacan.net:587
```



```
root@client:~  
00c0 - f8 35 bf ff bd 8e 4d 7f-4d c4 a3 69 b0 11 38 82 .5....M.M..i..8.  
  
Start Time: 1729095334  
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.ngalacan.net  
250-PIPELINING  
250-SIZE 10240000  
250-VERFY  
250-ETRN  
250-AUTH PLAIN  
250-ENHANCEDSTATUSCODES  
250-8BITMIME  
250-DSN  
250-SMTPUTF8  
250 CHUNKING  
AUTH PLAIN bmdhbgfjYW4AbmdhbgfjYW4AMTIZNDU2  
235 2.7.0 Authentication successful
```

Рис. 13: Проверка подключения и аутентификации по telnet на клиенте

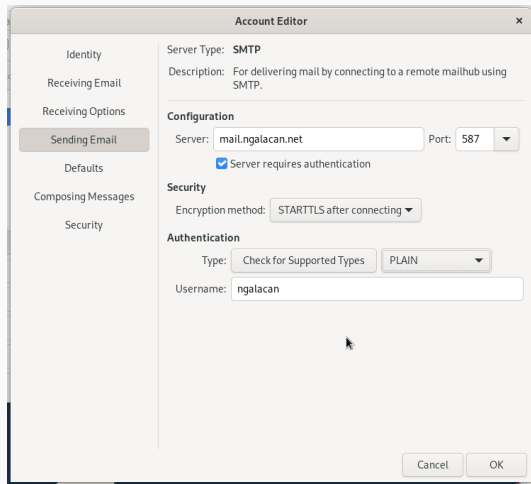


Рис. 14: Изменение настроек учетной записи в Evolution

Выполнение лабораторной работы

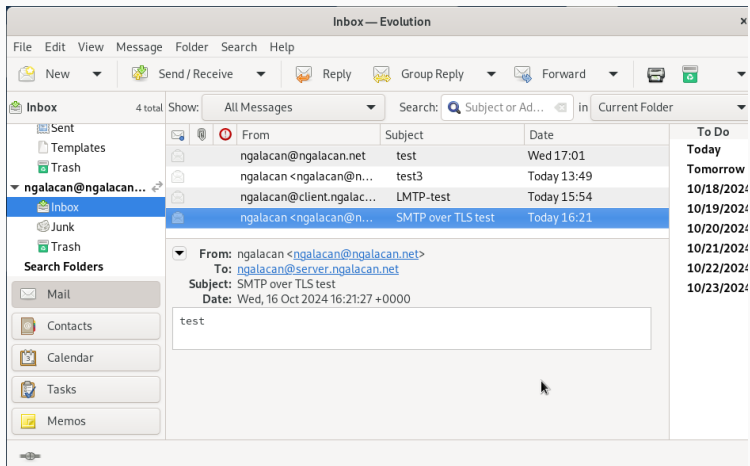
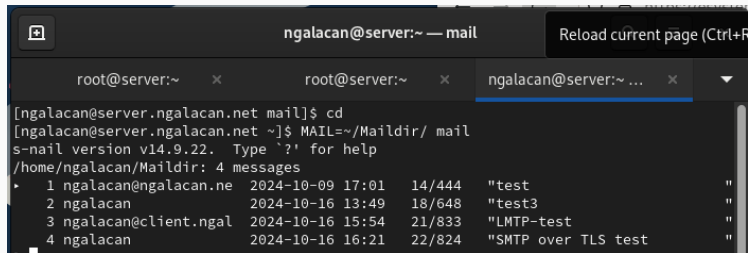


Рис. 15: Проверка доставки письма в Evolution



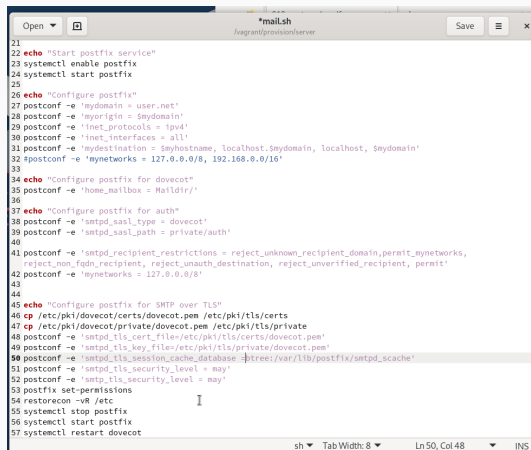
The screenshot shows a terminal window with the title bar "ngalacan@server:~ — mail". The terminal content shows the execution of the "mail" command, displaying the version and a list of 4 messages in the mailbox.

```
[ngalacan@server.ngalacan.net mail]$ cd  
[ngalacan@server.ngalacan.net ~]$ MAIL=~/.Maildir/ mail  
s-nail version v14.9.22. Type '?' for help  
/home/ngalacan/Maildir: 4 messages  
1 ngalacan@ngalacan.net 2024-10-09 17:01 14/444 "test"  
2 ngalacan 2024-10-16 13:49 18/648 "test3"  
3 ngalacan@client.ngal 2024-10-16 15:54 21/833 "LMTP-test"  
4 ngalacan 2024-10-16 16:21 22/824 "SMTP over TLS test"
```

Рис. 16: Проверка почтового ящика на сервере

Внесение изменений в настройки
внутреннего окружения
виртуальной машины

Выполнение лабораторной работы

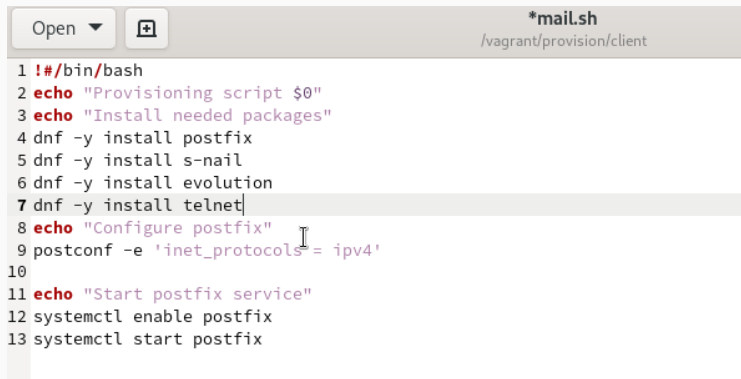


The screenshot shows a terminal window titled '*mail.sh' with the path '/vagrant/provision/server'. The window contains a series of shell commands for configuring Postfix and Dovecot. The commands are as follows:

```
21
22 echo "Start postfix service"
23 systemctl enable postfix
24 systemctl start postfix
25
26 echo "Configure postfix"
27 postconf -e 'mydomain = user.net'
28 postconf -e 'myorigin = $mydomain'
29 postconf -e 'inet_protocols = ipv4'
30 postconf -e 'inet_interfaces = all'
31 postconf -e 'mydestination = $myhostname, localhost.$mydomain, localhost, $mydomain'
32 postconf -e 'mynetworks = 127.0.0.0/8, 192.168.0.0/16'
33
34 echo "Configure postfix for dovecot"
35 postconf -e 'home_mailbox = Maildir/'
36
37 echo "Configure postfix for auth"
38 postconf -e 'smtpd_sasl_type = dovecot'
39 postconf -e 'smtpd_sasl_path = private/auth'
40
41 postconf -e 'smtpd_recipient_restrictions = reject_unknown_recipient_domain, permit_mynetworks,
    reject_non_fqdn_recipient, reject_unauth_destination, reject_unverified_recipient, permit'
42 postconf -e 'mynetworks = 127.0.0.0/8'
43
44
45 echo "Configure postfix for SMTP over TLS"
46 cp /etc/pki/dovecot/certs/dovecot.pem /etc/pki/tls/certs
47 cp /etc/pki/dovecot/private/dovecot.pem /etc/pki/tls/private
48 postconf -e 'smtpd_tls_cert_file=/etc/pki/tls/certs/dovecot.pem'
49 postconf -e 'smtpd_tls_key_file=/etc/pki/tls/private/dovecot.pem'
50 postconf -e 'smtpd_tls_session_cache_database = btree:/var/lib/postfix/smtpd_scache'
51 postconf -e 'smtpd_tls_security_level = may'
52 postconf -e 'smtp_tls_security_level = may'
53 postfix set-permissions
54 restorecon -vR /etc
55 systemctl stop postfix
56 systemctl start postfix
57 systemctl restart dovecot
```

The status bar at the bottom of the terminal shows 'sh', 'Tab Width: 8', 'Ln 50, Col 48', and 'INS'.

Рис. 17: Редактирование mail.sh на сервере



The screenshot shows a Vagrant terminal window with a title bar. On the left, there is an 'Open' button with a dropdown arrow and a file icon button. On the right, the file name '*mail.sh' is displayed in bold, with the path '/vagrant/provision/client' below it. The terminal content shows a shell script being edited. Line 7, 'dnf -y install telnet', is highlighted with a light gray background. A cursor is positioned at the end of line 8, 'echo "Configure postfix"'. The script includes commands for installing postfix, s-nail, evolution, and telnet, and for enabling and starting the postfix service.

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

Рис. 18: Редактирование mail.sh на клиенте

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