

Презентация по лабораторной работе №8

Настройка SMTP-сервера

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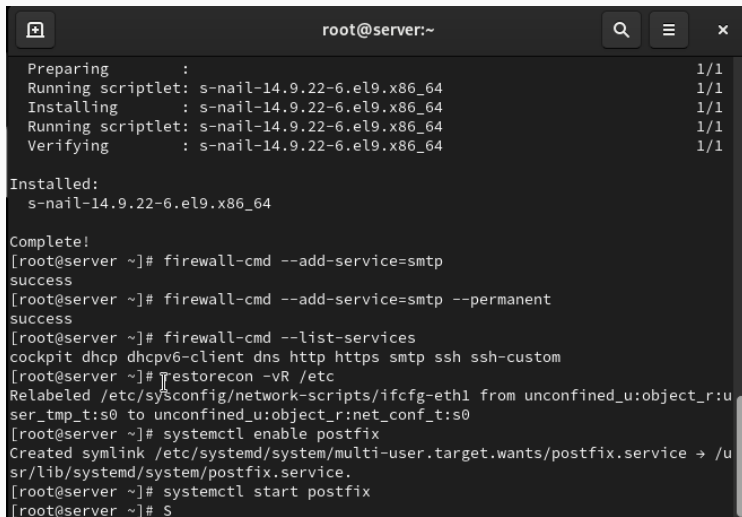
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Приобретение практических навыков по установке и конфигурированию SMTP-сервера.

Установка Postfix

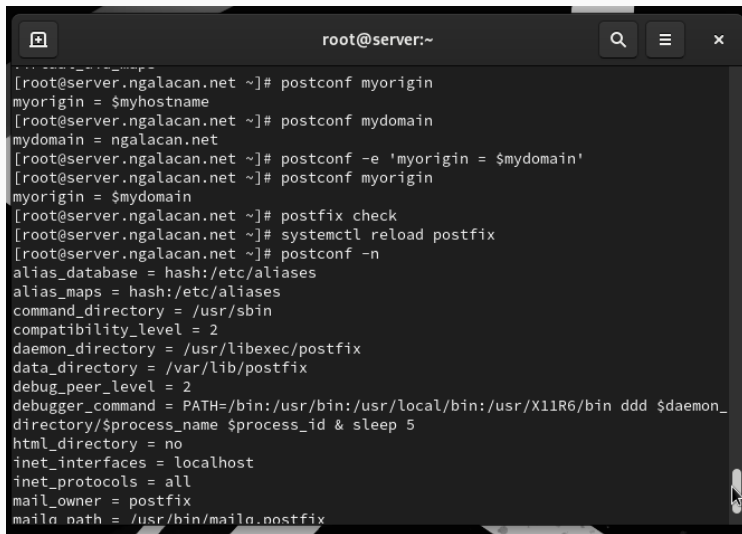
Выполнение лабораторной работы



```
root@server:~  
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@server ~]# firewall-cmd --add-service=smtp  
success  
[root@server ~]# firewall-cmd --add-service=smtp --permanent  
success  
[root@server ~]# firewall-cmd --list-services  
cockpit dhcp dhcpv6-client dns http https smtp ssh ssh-custom  
[root@server ~]# restorecon -vR /etc  
Relabeled /etc/sysconfig/network-scripts/ifcfg-eth1 from unconfined_u:object_r:u  
ser_tmp_t:s0 to unconfined_u:object_r:net_conf_t:s0  
[root@server ~]# systemctl enable postfix  
Created symlink /etc/systemd/system/multi-user.target.wants/postfix.service → /u  
sr/lib/systemd/system/postfix.service.  
[root@server ~]# systemctl start postfix  
[root@server ~]# S
```

Рис. 1: Конфигурация межсетевых экранов, восстановление контекста безопасности, запуск Postfix

Изменение параметров Postfix с помощью postconf



A terminal window titled 'root@server:~' with search, menu, and close icons in the title bar. The terminal shows a series of commands to configure postfix. The first part sets 'myorigin' and 'mydomain' to the host's name and domain. The second part shows the output of 'postfix check', which lists various configuration parameters and their values.

```
root@server:~  
[root@server.ngalacan.net ~]# postconf myorigin  
myorigin = $myhostname  
[root@server.ngalacan.net ~]# postconf mydomain  
mydomain = ngalacan.net  
[root@server.ngalacan.net ~]# postconf -e 'myorigin = $mydomain'  
[root@server.ngalacan.net ~]# postconf myorigin  
myorigin = $mydomain  
[root@server.ngalacan.net ~]# postfix check  
[root@server.ngalacan.net ~]# systemctl reload postfix  
[root@server.ngalacan.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
```

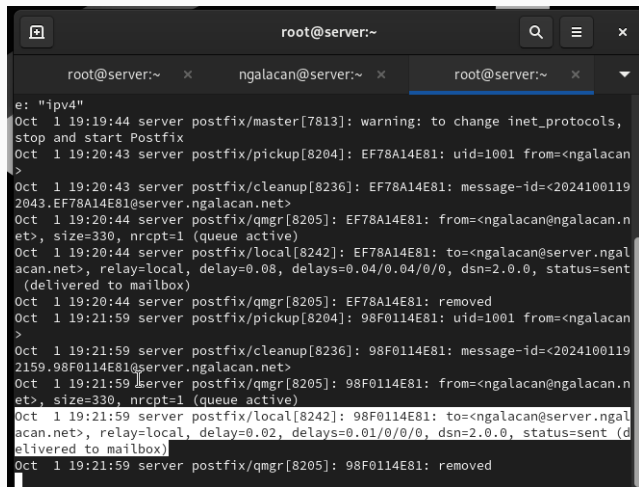
Рис. 2: Изменение параметров с помощью postconf

```
unknown_local_recipient_reject_code = 550  
[root@server.ngalacan.net ~]# postconf -e 'mydomain = ngalacan.net'  
[root@server.ngalacan.net ~]# postconf inet_protocols  
inet_protocols = all  
[root@server.ngalacan.net ~]# postconf -e 'inet_protocols = ipv4'  
[root@server.ngalacan.net ~]# postfix check  
[root@server.ngalacan.net ~]# systemctl reload postfix  
[root@server.ngalacan.net ~]#
```

Рис. 3: Задание домена, изменение списка разрешенных протоколов

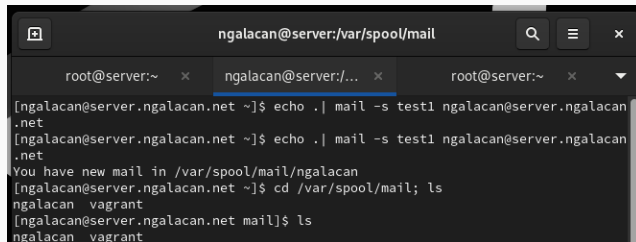
Проверка работы Postfix

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



```
root@server:~  
e: "ipv4"  
Oct 1 19:19:44 server postfix/master[7813]: warning: to change inet_protocols,  
stop and start Postfix  
Oct 1 19:20:43 server postfix/pickup[8204]: EF78A14E81: uid=1001 from=<ngalacan  
>  
Oct 1 19:20:43 server postfix/cleanup[8236]: EF78A14E81: message-id=<2024100119  
2043.EF78A14E81@server.ngalacan.net>  
Oct 1 19:20:44 server postfix/qmgr[8205]: EF78A14E81: from=<ngalacan@ngalacan.n  
et>, size=330, nrcpt=1 (queue active)  
Oct 1 19:20:44 server postfix/local[8242]: EF78A14E81: to=<ngalacan@server.ngal  
acan.net>, relay=local, delay=0.08, delays=0.04/0.04/0/0, dsn=2.0.0, status=sent  
(delivered to mailbox)  
Oct 1 19:20:44 server postfix/qmgr[8205]: EF78A14E81: removed  
Oct 1 19:21:59 server postfix/pickup[8204]: 98F0114E81: uid=1001 from=<ngalacan  
>  
Oct 1 19:21:59 server postfix/cleanup[8236]: 98F0114E81: message-id=<2024100119  
2159.98F0114E81@server.ngalacan.net>  
Oct 1 19:21:59 server postfix/qmgr[8205]: 98F0114E81: from=<ngalacan@ngalacan.n  
et>, size=330, nrcpt=1 (queue active)  
Oct 1 19:21:59 server postfix/local[8242]: 98F0114E81: to=<ngalacan@server.ngal  
acan.net>, relay=local, delay=0.02, delays=0.01/0/0/0, dsn=2.0.0, status=sent (d  
elivered to mailbox)  
Oct 1 19:21:59 server postfix/qmgr[8205]: 98F0114E81: removed
```

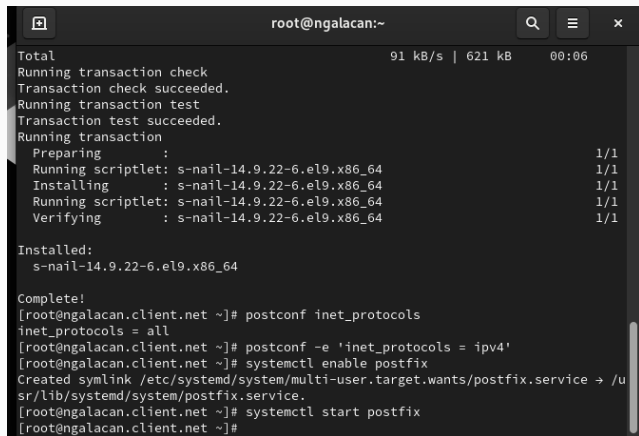
Рис. 4: Мониторинг работы почтовой службы: письмо доставлено



```
ngalacan@server:/var/spool/mail

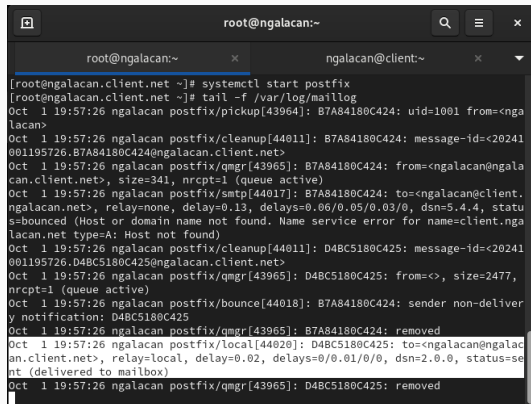
root@server:~ x ngalacan@server:/... x root@server:~ x
[ngalacan@server.ngalacan.net ~]$ echo . | mail -s test1 ngalacan@server.ngalacan.net
[ngalacan@server.ngalacan.net ~]$ echo . | mail -s test1 ngalacan@server.ngalacan.net
You have new mail in /var/spool/mail/ngalacan
[ngalacan@server.ngalacan.net ~]$ cd /var/spool/mail; ls
ngalacan  vagrant
[ngalacan@server.ngalacan.net mail]$ ls
ngalacan  vagrant
```

Рис. 5: Проверка /var/spool/mail



```
root@ngalacan:~  
Total 91 kB/s | 621 kB 00:06  
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@ngalacan.client.net ~]# postconf inet_protocols  
inet_protocols = all  
[root@ngalacan.client.net ~]# postconf -e 'inet_protocols = ipv4'  
[root@ngalacan.client.net ~]# systemctl enable postfix  
Created symlink /etc/systemd/system/multi-user.target.wants/postfix.service → /usr/lib/systemd/system/postfix.service.  
[root@ngalacan.client.net ~]# systemctl start postfix  
[root@ngalacan.client.net ~]#
```

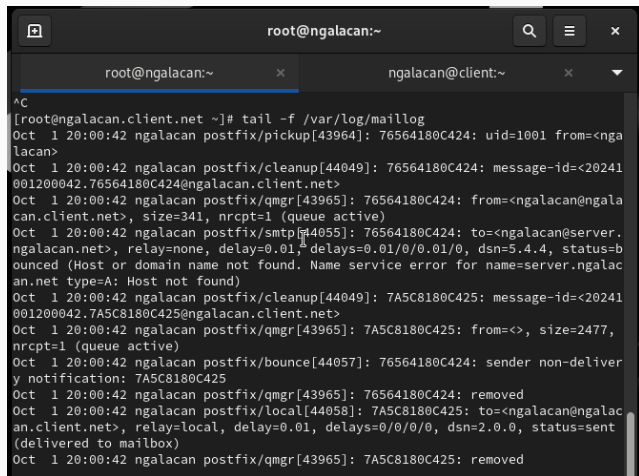
Рис. 6: Установка пакетов, изменение разрешенных в работе протоколов, запуск Postfix на клиенте



The screenshot shows a terminal window with two tabs. The active tab is 'root@ngalacan:~'. The other tab is 'ngalacan@client:~'. The terminal output shows the following commands and log entries:

```
root@ngalacan:~  
[root@ngalacan.client.net ~]# systemctl start postfix  
[root@ngalacan.client.net ~]# tail -f /var/log/maillog  
Oct 1 19:57:26 ngalacan postfix/pickup[43964]: B7A84180C424: uid=1001 from=<ngalacan>  
Oct 1 19:57:26 ngalacan postfix/cleanup[44011]: B7A84180C424: message-id=<20241001195726.B7A84180C424@ngalacan.client.net>  
Oct 1 19:57:26 ngalacan postfix/qmgr[43965]: B7A84180C424: from=<ngalacan@ngalacan.client.net>, size=341, nrcpt=1 (queue active)  
Oct 1 19:57:26 ngalacan postfix/smtp[44017]: B7A84180C424: to=<ngalacan@client.ngalacan.net>, relay=none, delay=0.13, delays=0.06/0.05/0.03/0, dsn=5.4.4, status=bounced (Host or domain name not found. Name service error for name=client.ngalacan.net type=A: Host not found)  
Oct 1 19:57:26 ngalacan postfix/cleanup[44011]: D4BC5180C425: message-id=<20241001195726.D4BC5180C425@ngalacan.client.net>  
Oct 1 19:57:26 ngalacan postfix/qmgr[43965]: D4BC5180C425: from=<>, size=2477, nrcpt=1 (queue active)  
Oct 1 19:57:26 ngalacan postfix/bounce[44018]: B7A84180C424: sender non-delivery notification: D4BC5180C425  
Oct 1 19:57:26 ngalacan postfix/qmgr[43965]: B7A84180C424: removed  
Oct 1 19:57:26 ngalacan postfix/local[44020]: D4BC5180C425: to=<ngalacan@ngalacan.client.net>, relay=local, delay=0.02, delays=0/0.01/0/0, dsn=2.0.0, status=sent (delivered to mailbox)  
Oct 1 19:57:26 ngalacan postfix/qmgr[43965]: D4BC5180C425: removed
```

Рис. 7: Мониторинг работы почтовой службы через клиент



The image shows a terminal window with a dark background. At the top, there are two tabs: 'root@ngalacan:~' and 'ngalacan@client:~'. The active tab is 'root@ngalacan:~'. The terminal content shows a user typing '^C' followed by the command '[root@ngalacan.client.net ~]# tail -f /var/log/maillog'. The output is a series of log entries from Postfix, including pickup, cleanup, qmgr, smtp, and bounce processes, with timestamps and message details.

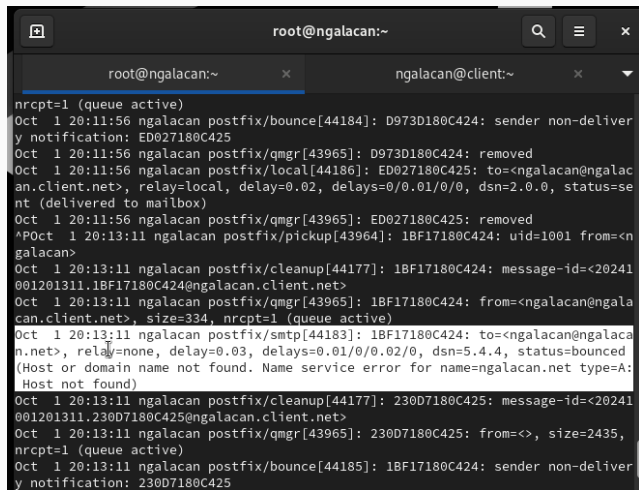
```
root@ngalacan:~
[root@ngalacan.client.net ~]# tail -f /var/log/maillog
Oct 1 20:00:42 ngalacan postfix/pickup[43964]: 76564180C424: uid=1001 from=<ngalacan>
Oct 1 20:00:42 ngalacan postfix/cleanup[44049]: 76564180C424: message-id=<20241001200042.76564180C424@ngalacan.client.net>
Oct 1 20:00:42 ngalacan postfix/qmgr[43965]: 76564180C424: from=<ngalacan@ngalacan.client.net>, size=341, nrcpt=1 (queue active)
Oct 1 20:00:42 ngalacan postfix/smtp[44055]: 76564180C424: to=<ngalacan@server.ngalacan.net>, relay=none, delay=0.01, delays=0.01/0/0.01/0, dsn=5.4.4, status=bounced (Host or domain name not found. Name service error for name=server.ngalacan.net type=A: Host not found)
Oct 1 20:00:42 ngalacan postfix/cleanup[44049]: 7A5C8180C425: message-id=<20241001200042.7A5C8180C425@ngalacan.client.net>
Oct 1 20:00:42 ngalacan postfix/qmgr[43965]: 7A5C8180C425: from=<>, size=2477, nrcpt=1 (queue active)
Oct 1 20:00:42 ngalacan postfix/bounce[44057]: 76564180C424: sender non-delivery notification: 7A5C8180C425
Oct 1 20:00:42 ngalacan postfix/qmgr[43965]: 76564180C424: removed
Oct 1 20:00:42 ngalacan postfix/local[44058]: 7A5C8180C425: to=<ngalacan@ngalacan.client.net>, relay=local, delay=0.01, delays=0/0/0/0, dsn=2.0.0, status=sent (delivered to mailbox)
Oct 1 20:00:42 ngalacan postfix/qmgr[43965]: 7A5C8180C425: removed
```

Рис. 8: Мониторинг работы почтовой службы после изменения конфигурации Postfix

Конфигурация Postfix для домена

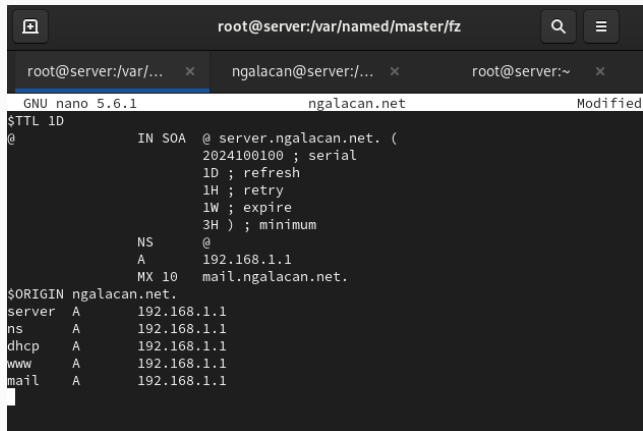
```
echo .| mail -s test2 ngalacan@ngalacan.net
```

Выполнение лабораторной работы



```
root@ngalacan:~
nrcpt=1 (queue active)
Oct 1 20:11:56 ngalacan postfix/bounce[44184]: D973D180C424: sender non-deliver
y notification: ED027180C425
Oct 1 20:11:56 ngalacan postfix/qmgr[43965]: D973D180C424: removed
Oct 1 20:11:56 ngalacan postfix/local[44186]: ED027180C425: to=<ngalacan@ngalac
an.client.net>, relay=local, delay=0.02, delays=0/0.01/0/0, dsn=2.0.0, status=se
nt (delivered to mailbox)
Oct 1 20:11:56 ngalacan postfix/qmgr[43965]: ED027180C425: removed
^POct 1 20:13:11 ngalacan postfix/pickup[43964]: 1BF17180C424: uid=1001 from=<n
galacan>
Oct 1 20:13:11 ngalacan postfix/cleanup[44177]: 1BF17180C424: message-id=<20241
001201311.1BF17180C424@ngalacan.client.net>
Oct 1 20:13:11 ngalacan postfix/qmgr[43965]: 1BF17180C424: from=<ngalacan@ngala
can.client.net>, size=334, nrcpt=1 (queue active)
Oct 1 20:13:11 ngalacan postfix/smtp[44183]: 1BF17180C424: to=<ngalacan@ngalaca
n.net>, relay=none, delay=0.03, delays=0.01/0/0.02/0, dsn=5.4.4, status=bounced
(Host or domain name not found. Name service error for name=ngalacan.net type=A:
Host not found)
Oct 1 20:13:11 ngalacan postfix/cleanup[44177]: 230D7180C425: message-id=<20241
001201311.230D7180C425@ngalacan.client.net>
Oct 1 20:13:11 ngalacan postfix/qmgr[43965]: 230D7180C425: from=<>, size=2435,
nrcpt=1 (queue active)
Oct 1 20:13:11 ngalacan postfix/bounce[44185]: 1BF17180C424: sender non-deliver
y notification: 230D7180C425
```

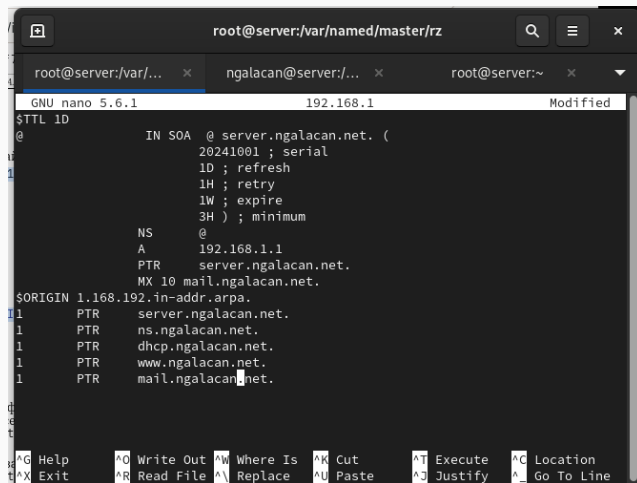
Рис. 9: Мониторинг работы почтовой службы: сообщение не доставлено



```
root@server:/var/named/master/fz
root@server:/var/... x ngalacan@server:/... x root@server:~ x
GNU nano 5.6.1 ngalacan.net Modified
$TTL 1D
@           IN SOA  @ server.ngalacan.net. (
                2024100100 ; serial
                1D ; refresh
                1H ; retry
                1W ; expire
                3H ) ; minimum
                NS      @
                A       192.168.1.1
                MX 10   mail.ngalacan.net.
$ORIGIN ngalacan.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. 10: Изменение файла прямой DNS-зоны

Выполнение лабораторной работы

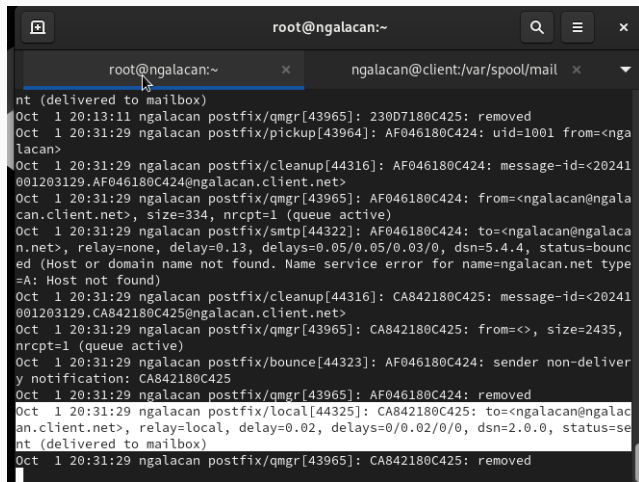


```
root@server:/var/named/master/rz
GNU nano 5.6.1 192.168.1 Modified
$TTL 1D
@           IN SOA  @ server.ngalacan.net. (
                20241001 ; serial
                1D ; refresh
                1H ; retry
                1W ; expire
                3H ) ; minimum
NS          @
A           192.168.1.1
PTR         server.ngalacan.net.
MX 10 mail.ngalacan.net.
$ORIGIN 1.168.192.in-addr.arpa.
1 PTR      server.ngalacan.net.
1 PTR      ns.ngalacan.net.
1 PTR      dhcp.ngalacan.net.
1 PTR      www.ngalacan.net.
1 PTR      mail.ngalacan.net.

^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 файла обратной DNS-зоны

Выполнение лабораторной работы

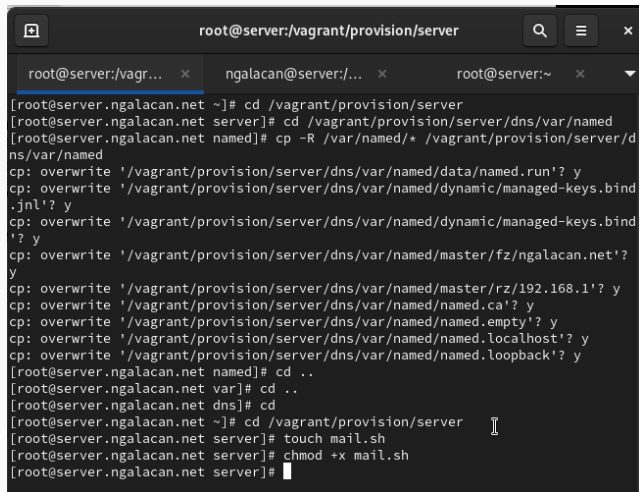


The screenshot shows a terminal window with a dark background. The title bar at the top reads "root@ngalacan:~". Below the title bar, there are two tabs: "root@ngalacan:~" (active) and "ngalacan@client:/var/spool/mail". The terminal displays a series of log entries for postfix mail processing. The entries show messages being removed, picked up, cleaned up, and bounced. The final entry shows a message being delivered to the mailbox.

```
root@ngalacan:~  
nt (delivered to mailbox)  
Oct 1 20:13:11 ngalacan postfix/qmgr[43965]: 230D7180C425: removed  
Oct 1 20:31:29 ngalacan postfix/pickup[43964]: AF046180C424: uid=1001 from=<ngalacan>  
Oct 1 20:31:29 ngalacan postfix/cleanup[44316]: AF046180C424: message-id=<20241001203129.AF046180C424@ngalacan.client.net>  
Oct 1 20:31:29 ngalacan postfix/qmgr[43965]: AF046180C424: from=<ngalacan@ngalacan.client.net>, size=334, nrcpt=1 (queue active)  
Oct 1 20:31:29 ngalacan postfix/smtp[44322]: AF046180C424: to=<ngalacan@ngalacan.net>, relay=none, delay=0.13, delays=0.05/0.05/0.03/0, dsn=5.4.4, status=bounced (Host or domain name not found. Name service error for name=ngalacan.net type=A: Host not found)  
Oct 1 20:31:29 ngalacan postfix/cleanup[44316]: CA842180C425: message-id=<20241001203129.CA842180C425@ngalacan.client.net>  
Oct 1 20:31:29 ngalacan postfix/qmgr[43965]: CA842180C425: from=<>, size=2435, nrcpt=1 (queue active)  
Oct 1 20:31:29 ngalacan postfix/bounce[44323]: AF046180C424: sender non-delivery notification: CA842180C425  
Oct 1 20:31:29 ngalacan postfix/qmgr[43965]: AF046180C424: removed  
Oct 1 20:31:29 ngalacan postfix/local[44325]: CA842180C425: to=<ngalacan@ngalacan.client.net>, relay=local, delay=0.02, delays=0/0.02/0/0, dsn=2.0.0, status=sent (delivered to mailbox)  
Oct 1 20:31:29 ngalacan postfix/qmgr[43965]: CA842180C425: removed
```

Рис. 12: Мониторинг работы почтовой службы: сообщение на доменный адрес доставлено

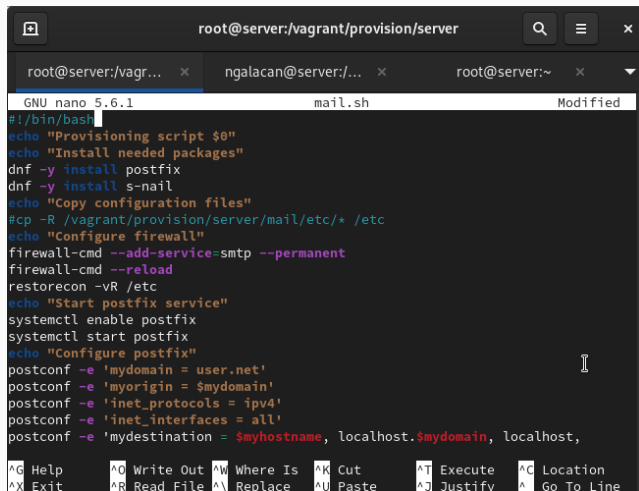
Внесение изменений в настройки внутреннего окружения виртуальной машины



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

root@server:/vagr... x  ngalacan@server:/... x  root@server:~ x
[root@server.ngalacan.net ~]# cd /vagrant/provision/server
[root@server.ngalacan.net server]# cd /vagrant/provision/server/dns/var/named
[root@server.ngalacan.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.jnl'? y
cp: overwrite '/vagrant/provision/server/dns/var/named/dynamic/managed-keys.bind'? y
cp: overwrite '/vagrant/provision/server/dns/var/named/master/fz/ngalacan.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.ngalacan.net named]# cd ..
[root@server.ngalacan.net var]# cd ..
[root@server.ngalacan.net dns]# cd
[root@server.ngalacan.net ~]# cd /vagrant/provision/server
[root@server.ngalacan.net server]# touch mail.sh
[root@server.ngalacan.net server]# chmod +x mail.sh
[root@server.ngalacan.net server]#
```

Рис. 13: Замена конф. файлов DNS-сервера, создание mail.sh

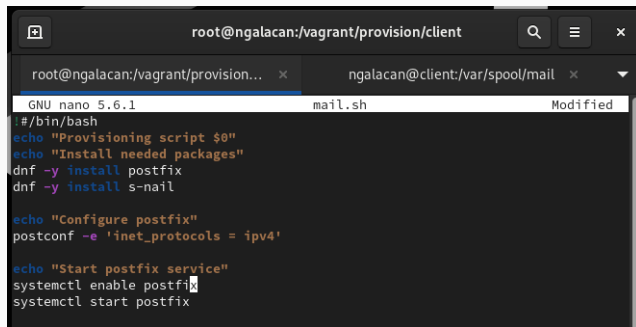


The screenshot shows a terminal window with the title bar "root@server:/vagrant/provision/server". The terminal has three tabs: "root@server:/vagr...", "ngalacan@server:/...", and "root@server:~". The active tab is "root@server:/vagr...", which is displaying the GNU nano 5.6.1 editor. The editor is editing a file named "mail.sh", which is marked as "Modified". The script content is as follows:

```
#!/bin/bash
echo "Provisioning script $0"
echo "Install needed packages"
dnf -y install postfix
dnf -y install s-nail
echo "Copy configuration files"
#cp -R /vagrant/provision/server/mail/etc/* /etc
echo "Configure firewall"
firewall-cmd --add-service=smtp --permanent
firewall-cmd --reload
restorecon -vR /etc
echo "Start postfix service"
systemctl enable postfix
systemctl start postfix
echo "Configure postfix"
postconf -e 'mydomain = user.net'
postconf -e 'myorigin = $mydomain'
postconf -e 'inet_protocols = ipv4'
postconf -e 'inet_interfaces = all'
postconf -e 'mydestination = $myhostname, localhost.$mydomain, localhost,
```

At the bottom of the terminal, there is a status bar with keyboard shortcuts: ^G Help, ^O Write Out, ^W Where Is, ^K Cut, ^T Execute, ^C Location, ^X Exit, ^R Read File, ^\ Replace, ^U Paste, ^J Justify, and ^_ Go To Line.

Рис. 14: Создание скрипта mail.sh на сервере



The screenshot shows a terminal window with a dark theme. The title bar indicates the user is root@ngalacan in the directory /vagrant/provision/client. There are two tabs open: 'root@ngalacan:/vagrant/provision...' and 'ngalacan@client:/var/spool/mail'. The active tab shows a nano editor editing a file named 'mail.sh'. The editor's status bar at the top indicates 'GNU nano 5.6.1', the filename 'mail.sh', and the state 'Modified'. The script content is as follows:

```
#!/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. 15: Создание скрипта mail.sh на клиенте

```
server.vm.provision "server mail",  
    type: "shell",  
    preserve_order: true,  
    path: "provision/server/mail.sh"
```

```
client.vm.provision "client mail",  
    type: "shell",  
    preserve_order: true,  
    path: "provision/client/mail.sh"
```

Выводы

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