

Лабораторная работа №9

Администрирование сетевых подсистем

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Приобретение практических навыков по установке и простейшему конфигурированию POP3/IMAP-сервера.

Выполнение лабораторной работы

```
root@server:~  
[root@server.ioithenko.net ~]# dnf -y install dovecot telnet  
Extra Packages for Enterprise Linux 9 - x86_64 51 kB/s | 34 kB 00:00  
Extra Packages for Enterprise Linux 9 - x86_64 3.0 MB/s | 23 MB 00:07  
Rocky Linux 9 - BaseOS 5.5 kB/s | 4.1 kB 00:00  
Rocky Linux 9 - BaseOS 1.5 MB/s | 2.3 MB 00:01  
Rocky Linux 9 - AppStream 8.8 kB/s | 4.5 kB 00:00  
Rocky Linux 9 - AppStream 3.5 MB/s | 8.0 MB 00:02  
Rocky Linux 9 - Extras 6.0 kB/s | 2.9 kB 00:00  
  
Dependencies resolved.  
=====
```

Package	Arch	Version	Repository	Size
dovecot	x86_64	1:2.3.16-11.el9_4.1	appstream	4.7 M
telnet	x86_64	1:0.17-85.el9	appstream	63 k

```
=====
```

Installing dependencies:

clucene-core	x86_64	2.3.3.4-42.20130812.e8e3d20git.el9	appstream	585 k
libexttextcat	x86_64	3.4.5-11.el9	appstream	209 k

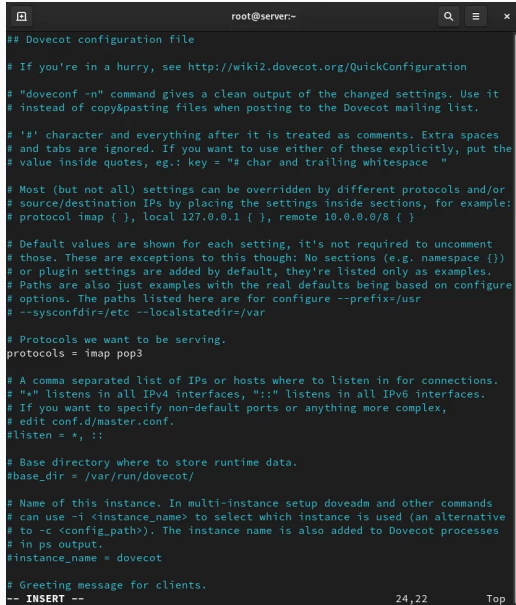
Transaction Summary

```
=====
```

Install 4 Packages

Total download size: 5.6 M
Installed size: 20 M
Downloading Packages:
(1/4): telnet-0.17-85.el9.x86_64.rpm 244 kB/s | 63 kB 00:00

Рис. 1: Установка Dovecot

A terminal window titled 'root@server:~' with search, menu, and close icons in the title bar. The window displays the content of the Dovecot configuration file, with the line '-- INSERT --' highlighted in red. The configuration text includes comments about quick configuration, command-line options, comment syntax, protocol overrides, default values, and specific settings for protocols, listen addresses, base directory, instance name, and greeting message. The bottom right of the terminal shows '24,22' and a 'Top' link.

```
## Dovecot configuration file

# If you're in a hurry, see http://wiki2.dovecot.org/QuickConfiguration

# "doveconf -n" command gives a clean output of the changed settings. Use it
# instead of copy&pasting files when posting to the Dovecot mailing list.

# '#' character and everything after it is treated as comments. Extra spaces
# and tabs are ignored. If you want to use either of these explicitly, put the
# 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 configure
# options. The paths listed here are for configure --prefix=/usr
# --sysconfdir=/etc --localstatedir=/var

# Protocols we want to be serving.
protocols = imap pop3

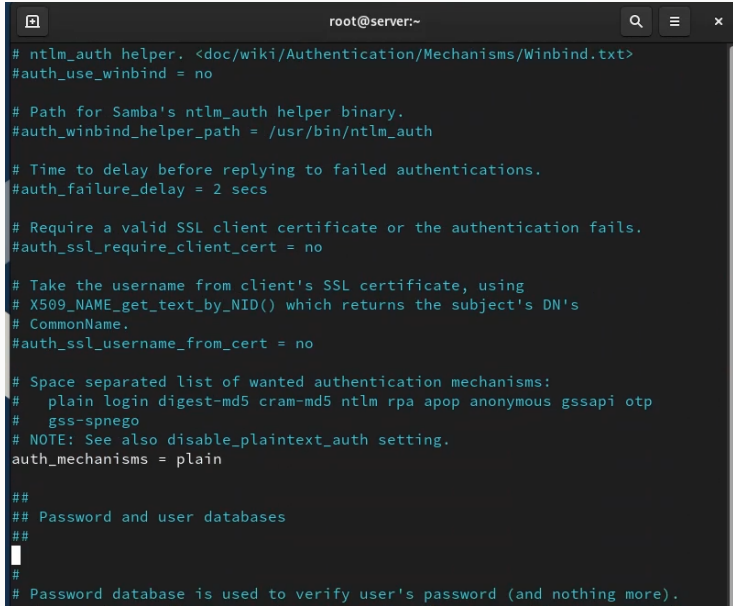
# A comma separated list of IPs or hosts where to listen in for connections.
# "*" listens in all IPv4 interfaces, ":::" listens in all IPv6 interfaces.
# If you want to specify non-default ports or anything more complex,
# edit conf.d/master.conf.
#listen = *, ::

# Base directory where to store runtime data.
#base_dir = /var/run/dovecot/

# Name of this instance. In multi-instance setup dovecadm and other commands
# can use -i <instance_name> to select which instance is used (an alternative
# to -c <config_path>). The instance name is also added to Dovecot processes
# in ps output.
#instance_name = dovecot

# Greeting message for clients.
-- INSERT --
```

Рис. 2: Редактирование файла /etc/dovecot/dovecot.conf

A terminal window titled 'root@server:~' with search, menu, and close icons in the title bar. The terminal displays the configuration file /etc/dovecot/conf.d/10-auth.conf. The content includes comments for ntlm_auth helper, Samba's ntlm_auth binary path, authentication failure delay, SSL requirements, and authentication mechanisms. The 'auth_mechanisms' is set to 'plain'.

```
root@server:~  
# ntlm_auth helper. <doc/wiki/Authentication/Mechanisms/Winbind.txt>  
#auth_use_winbind = no  
  
# Path for Samba's ntlm_auth helper binary.  
#auth_winbind_helper_path = /usr/bin/ntlm_auth  
  
# Time to delay before replying to failed authentications.  
#auth_failure_delay = 2 secs  
  
# Require a valid SSL client certificate or the authentication fails.  
#auth_ssl_require_client_cert = no  
  
# Take the username from client's SSL certificate, using  
# X509_NAME_get_text_by_NID() which returns the subject's DN's  
# CommonName.  
#auth_ssl_username_from_cert = no  
  
# Space separated list of wanted authentication mechanisms:  
#   plain login digest-md5 cram-md5 ntlm rpa apop anonymous gssapi otp  
#   gss-spnego  
# NOTE: See also disable_plaintext_auth setting.  
auth_mechanisms = plain  
  
##  
## Password and user databases  
##  
#  
# Password database is used to verify user's password (and nothing more).
```

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

```
root@server:~
# Authentication for system users. Included from 10-auth.conf.
#
# <doc/wiki/PasswordDatabase.txt>
# <doc/wiki/UserDatabase.txt>

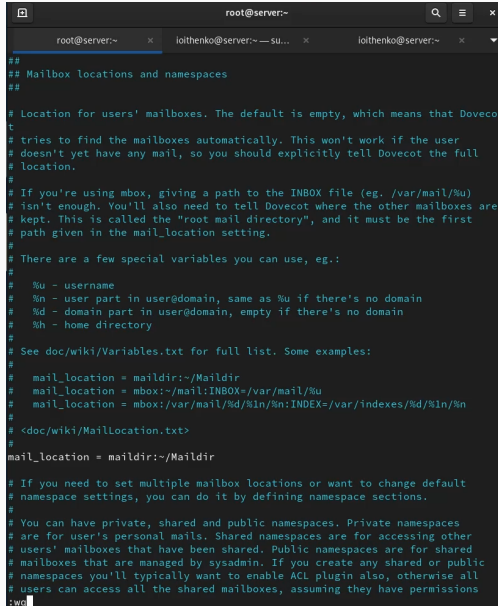
# PAM authentication. Preferred nowadays by most systems.
# PAM is typically used with either userdb passwd or userdb static.
# REMEMBER: You'll need /etc/pam.d/dovecot file created for PAM
# authentication to actually work. <doc/wiki/PasswordDatabase.PAM.txt>
passdb {
    driver = pam
    # [session=yes] [setcred=yes] [failure_show_msg=yes] [max_requests=<n>]
    # [cache_key=<key>] [<service name>]
    #args = dovecot
}

# System users (NSS, /etc/passwd, or similar).
# In many systems nowadays this uses Name Service Switch, which is
# configured in /etc/nsswitch.conf. <doc/wiki/AuthDatabase.Passwd.txt>
#passdb {
#    #driver = passwd
#    # [blocking=no]
#    #args =
#}

# Shadow passwords for system users (NSS, /etc/shadow or similar).
# Deprecated by PAM nowadays.
# <doc/wiki/PasswordDatabase.Shadow.txt>
#passdb {
#    #driver = shadow
#    # [blocking=no]
#    #args =
#}

# PAM-like authentication for OpenBSD.
# <doc/wiki/PasswordDatabase.BSDAuth.txt>
#passdb {
#    #driver = bsdauth
#    # [blocking=no] [cache_key=<key>]
#    #args =
#}
</dovecot/conf.d/auth-system.conf.ext" 74L, 2182B 1,1 Top
```

Рис. 4: Просмотр файла /etc/dovecot/conf.d/auth-system.conf.ext



```
##
## Mailbox locations and namespaces
##

# Location for users' mailboxes. The default is empty, which means that Dovecot
# tries to find the mailboxes automatically. This won't work if the user
# doesn't yet have any mail, so you should explicitly tell Dovecot the full
# location.
#
# If you're using mbox, giving a path to the INBOX file (eg. /var/mail/%u)
# isn't enough. You'll also need to tell Dovecot where the other mailboxes are
# kept. This is called the "root mail directory", and it must be the first
# path given in the mail_location setting.
#
# There are a few special variables you can use, eg.:
#
# %u - username
# %n - user part in user@domain, same as %u if there's no domain
# %d - domain part in user@domain, empty if there's no domain
# %h - home directory
#
# See doc/wiki/Variables.txt for full list. Some examples:
#
# mail_location = maildir:~/Maildir
# mail_location = mbox:~/mail:INBOX=/var/mail/%u
# mail_location = mbox:/var/mail/%d/%n/INDEX=/var/indexes/%d/%n/%n
#
# <doc/wiki/MailLocation.txt>
#
mail_location = maildir:~/Maildir

# If you need to set multiple mailbox locations or want to change default
# namespace settings, you can do it by defining namespace sections.
#
# You can have private, shared and public namespaces. Private namespaces
# are for user's personal mails. Shared namespaces are for accessing other
# users' mailboxes that have been shared. Public namespaces are for shared
# mailboxes that are managed by sysadmin. If you create any shared or public
# namespaces you'll typically want to enable ACL plugin also, otherwise all
# users can access all the shared mailboxes, assuming they have permissions
:wc
```

Рис. 5: Редактирование файла /etc/dovecot/conf.d/10-mail.conf


```
[root@server.ioithenko.net ~]# vi /etc/dovecot/confid/10_mail.conf  
[root@server.ioithenko.net ~]# postconf -e 'home_mailbox = Maildir/'  
[root@server.ioithenko.net ~]# postconf home_mailbox  
home_mailbox = Maildir/  
[root@server.ioithenko.net ~]# firewall-cmd --get-services
```

Рис. 6: Конфигурация Postfix

```
rsyncing-relay synergy syslog syslog-tls telnet tentacle tftp tile38 tinc to
r-socks transmission-client upnp-client vdsm vnc-server warpinator wbem-http w
bem-https wireguard ws-discovery ws-discovery-client ws-discovery-tcp ws-disco
very-udp wsmans xdmcp xmpp-bosh xmpp-client xmpp-local xmpp-server zabbi
x-agent zabbix-server zerotier
[root@server.ioithenko.net ~]# firewall-cmd --add-service=pop3 --permanent
success
[root@server.ioithenko.net ~]# firewall-cmd --add-service=pop3s --permanent
success
[root@server.ioithenko.net ~]# firewall-cmd --add-service=imap --permanent
success
[root@server.ioithenko.net ~]# firewall-cmd --add-service=imaps --permanent
success
[root@server.ioithenko.net ~]# firewall-cmd --reload
success
[root@server.ioithenko.net ~]# firewall-cmd --list-services
cockpit dhcp dhcpv6-client dns http https imap imaps pop3 pop3s smtp ssh ssh-c
ustom
[root@server.ioithenko.net ~]# restorecon -vR /etc
Relabeled /etc/sysconfig/network-scripts/ifcfg-eth1 from unconfined_u:object_r
:user_tmp_t:s0 to unconfined_u:object_r:net_conf_t:s0
[root@server.ioithenko.net ~]# systemctl restart postfix
[root@server.ioithenko.net ~]# systemctl enable dovecot
Created symlink /etc/systemd/system/multi-user.target.wants/dovecot.service →
/usr/lib/systemd/system/dovecot.service.
[root@server.ioithenko.net ~]# systemctl start dovecot
[root@server.ioithenko.net ~]#
```

Рис. 7: Конфигурация межсетевого экрана для работы с POP3 и IMAP и запуск Dovecot

```
[ioithenko@server.ioithenko.net ~]$ MAIL=~/Maildir mail  
s-nail: No mail for ioithenko at /home/ioithenko/Maildir  
s-nail: /home/ioithenko/Maildir: No such entry, file or directory  
[ioithenko@server.ioithenko.net ~]$
```

Рис. 8: Просмотр почты

```
[root@server.ioithenko.net ~]# doveadm mailbox list -u ioithenko
INBOX
[root@server.ioithenko.net ~]#
```

Рис. 9: Просмотр mailbox

Identity

×

Welcome

Restore from Backup

Identity

Receiving Email

Sending Email

Account Summary

Done

Please enter your name and email address below. The "optional" fields below do not need to be filled in, unless you wish to include this information in email you send.

Required Information

Full Name:

Email Address:

Optional Information

Reply-To:

Organization:

Aliases:

Add

Edit

Remove

☒ Look up mail server details based on the entered e-mail address

Cancel

Back

Next

Рис. 10: Настройка учетной записи почтового клиента

Receiving Email

Welcome

Restore from Backup

Identity

Receiving Email

Receiving Options

Sending Email

Account Summary

Done

Server Type: IMAP

Description: For reading and storing mail on IMAP servers.

Configuration

Server: mail.ioithenko.net Port: 143

Username: ioithenko

Security

Encryption method: STARTTLS after connecting

Authentication

Check for Supported Types Password

Cancel Back Next

Рис. 11: Настройка IMAP-сервера для входящих сообщений

Sending Email x

Welcome
Restore from Backup
Identity
Receiving Email
Receiving Options
Sending Email
Account Summary
Done

Server Type: SMTP ▼

Description: For delivering mail by connecting to a remote mailhub using SMTP.

Configuration

Server: mail.ioithenko.net Port: 25 ▼

☐ Server requires authentication

Security

Encryption method: No encryption ▼

Authentication

Type: Check for Supported Types PLAIN ▼

Username: ioithenko

Cancel Finish Back Next

Рис. 12: Настройка SMTP-сервера для исходящих сообщений

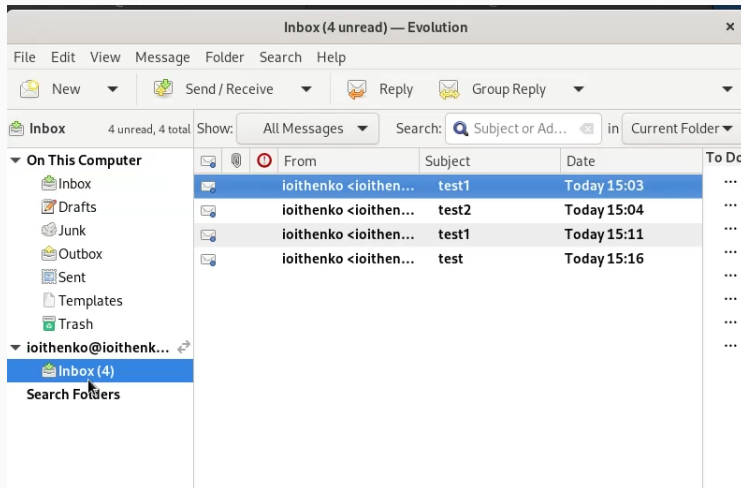


Рис. 13: Проверка получения писем на почтовом клиенте


```
ioithenko@server:~ — sudo tail -f /var/log/maillog
root@server:~ x ioithenko@serve... x ioithenko@serve... x ioithenko@serve... x
Oct 30 15:23:15 server postfix/cleanup[10803]: A2D1939E5: message-id=<c245a14e698c314f4293dfed9e1bc8b88947e8ae.camel@ioithenko.net>
Oct 30 15:23:15 server postfix/qmgr[10503]: A2D1939E5: from=<ioithenko@ioithenko.net>, size=540, nrcpt=1 (queue active)
Oct 30 15:23:15 server postfix/local[10804]: A2D1939E5: to=<ioithenko@ioithenko.net>, relay=local, delay=0.06, delays=0.06/0/0/0, dsn=2.0.0, status=sent (delivered to maildir)
Oct 30 15:23:15 server postfix/qmgr[10503]: A2D1939E5: removed
Oct 30 15:23:15 server postfix/smtpd[10797]: disconnect from client.ioithenko.net[192.168.1.30] ehlo=1 mail=1 rcpt=1 data=1 quit=1 commands=5
Oct 30 15:23:15 server postfix/smtpd[10797]: connect from client.ioithenko.net[192.168.1.30]
Oct 30 15:23:15 server postfix/smtpd[10797]: C8DEB39E5: client=client.ioithenko.net[192.168.1.30]
Oct 30 15:23:15 server postfix/cleanup[10803]: C8DEB39E5: message-id=<e784c336db58aca6719b8ec39511b213d6ea4b30.camel@ioithenko.net>
Oct 30 15:23:15 server postfix/qmgr[10503]: C8DEB39E5: from=<ioithenko@ioithenko.net>, size=541, nrcpt=1 (queue active)
Oct 30 15:23:15 server postfix/local[10804]: C8DEB39E5: to=<ioithenko@ioithenko.net>, relay=local, delay=0.06, delays=0.05/0/0/0, dsn=2.0.0, status=sent (delivered to maildir)
Oct 30 15:23:15 server postfix/qmgr[10503]: C8DEB39E5: removed
Oct 30 15:23:15 server postfix/smtpd[10797]: disconnect from client.ioithenko.net[192.168.1.30] ehlo=1 mail=1 rcpt=1 data=1 quit=1 commands=5
Oct 30 15:23:15 server postfix/smtpd[10797]: connect from client.ioithenko.net[192.168.1.30]
Oct 30 15:23:15 server postfix/smtpd[10797]: E165E39E5: client=client.ioithenko.net[192.168.1.30]
Oct 30 15:23:15 server postfix/cleanup[10803]: E165E39E5: message-id=<63d348449e7260bb7fb20bd6eaa5816288ae539f.camel@ioithenko.net>
Oct 30 15:23:15 server postfix/qmgr[10503]: E165E39E5: from=<ioithenko@ioithenko.net>, size=541, nrcpt=1 (queue active)
Oct 30 15:23:15 server postfix/local[10804]: E165E39E5: to=<ioithenko@ioithenko.net>, relay=local, delay=0.06, delays=0.05/0/0/0, dsn=2.0.0, status=sent (delivered to maildir)
Oct 30 15:23:15 server postfix/qmgr[10503]: E165E39E5: removed
Oct 30 15:23:15 server postfix/smtpd[10797]: disconnect from client.ioithenko.net[192.168.1.30] ehlo=1 mail=1 rcpt=1 data=1 quit=1 commands=5
Oct 30 15:24:16 server dovecot[10649]: imap-login: Login: user=<ioithenko>, method=PLAIN, rip=192.168.1.30, lip=192.168.1.1, mpid=10810, TLS, session=<RfB+S7ML0sbAqAEe>
```

Рис. 14: Просмотр мониторинга почтовой службы на сервере

```
[ioithenko@server.ioithenko.net ~]$ MAIL=~/.Maildir mail
s-nail version v14.9.22.  Type '?' for help
/home/ioithenko/.Maildir: 4 messages 4 unread
•U 1 ioithenko      2024-10-30 15:03   18/641   "test1      "
  U 2 ioithenko      2024-10-30 15:16   18/641   "test      "
  U 3 ioithenko      2024-10-30 15:04   18/642   "test2      "
  U 4 ioithenko      2024-10-30 15:11   18/642   "test1      "
& 1
[-- Message 1 -- 18 lines, 641 bytes --]:
Message-ID: <15268a306f5b506786f519798cde99142d9c4011.camel@ioithenko.net>
Subject: test1
From: ioithenko <ioithenko@ioithenko.net>
To: ioithenko@ioithenko.net
Date: Wed, 30 Oct 2024 15:03:54 +0000

& 
```

Рис. 15: Просмотр информации о почтовой службе с помощью mail

```
[root@server.ioithenko.net ~]# dovecadm mailbox list -u ioithenko  
INBOX  
[root@server.ioithenko.net ~]#
```

Рис. 16: Просмотр информации о почтовой службе с помощью dovecadm

```
[root@server.ioithenko.net ~]# telnet mail.ioithenko.net 110
Trying 192.168.1.1...
Connected to mail.ioithenko.net.
Escape character is '^J'.
+OK Dovecot ready.
user ioithenko
+OK
pass 123456
+OK Logged in.
list
+OK 4 messages:
1 659
2 659
3 660
4 660
.
retr 1
+OK 659 octets
Return-Path: <ioithenko@ioithenko.net>
X-Original-To: ioithenko@ioithenko.net
Delivered-To: ioithenko@ioithenko.net
Received: from client.ioithenko.net (client.ioithenko.net [192.168.1.30])
        by server.ioithenko.net (Postfix) with ESMTP id 7CD0139E5
        for <ioithenko@ioithenko.net>; Wed, 30 Oct 2024 15:23:15 +0000 (UTC)
Message-ID: <15268a306f5b506786f519798cde99142d9c4011.camel@ioithenko.net>
Subject: test1
From: ioithenko <ioithenko@ioithenko.net>
To: ioithenko@ioithenko.net
Content-Type: text/plain
MIME-Version: 1.0
Date: Wed, 30 Oct 2024 15:03:54 +0000
User-Agent: Evolution 3.40.4 (3.40.4-10.el9)
Content-Transfer-Encoding: 7bit
.
dele 2
+OK Marked to be deleted.
list
+OK 3 messages:
1 659
3 660
4 660
.
quit
+OK Logging out, messages deleted.
Connection closed by foreign host.
[root@server.ioithenko.net ~]#
```

Рис. 17: Проверка почтовой службы с помощью протокола Telnet

```
[root@server.ioithenko.net ~]# cd /vagrant/provision/server
[root@server.ioithenko.net server]# mkdir -p /vagrant/provision/server/mail/etc/dovecot/conf.d
[root@server.ioithenko.net server]# cp -R /etc/dovecot/dovecot.conf /vagrant/provision/server/mail/etc/dovecot/
[root@server.ioithenko.net server]# cp -R /etc/dovecot/conf.d/10-auth.conf /vagrant/provision/server/mail/etc/dovecot/conf.d/
[root@server.ioithenko.net server]# cp -R /etc/dovecot/conf.d/auth-system.conf.ext /vagrant/provision/server/mail/etc/dovecot/conf.d/
[root@server.ioithenko.net server]# cp -R /etc/dovecot/conf.d/10-mail.conf /vagrant/provision/server/mail/etc/dovecot/conf.d/
[root@server.ioithenko.net server]#
```

Рис. 18: Создание окружения для внесения изменений в настройки окружающей среды

В ходе лабораторной работы я приобрела практические навыки по установке и простейшему конфигурированию POP3/IMAP-сервера.