Assignment 6 : MTA(1)

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1   Mail Tranfer Agents

As a MTA I chose Postfix.

1.1   Installing MTA

1.1.a   Deleteing pre installed MTA

I working with ubuntu docker container. To be sure that this system wasn't contain preinstalled MTA I ran following commands:

```
1   $ dpkg --get-selections | grep postfix
2   $ dpkg --get-selections | grep sendmail
3   $ dpkg --get-selections | grep exim
```

1.1.b   Package downloading

Firstly it is needed to download tarball, signature and public key

```
1   $ wget http://mirror.lhsolutions.nl/postfix-release/official/postfix-3.1.2.tar.gz
2   $ wget http://mirror.lhsolutions.nl/postfix-release/official/postfix-3.1.2.tar.gz.gpg2
3   $ wget http://mirror.lhsolutions.nl/postfix-release/wietse.pgp
```

1.1.c   Package verification

We must to verify tarbal.

```
1   $ gpg -v --import wietse.pgp
2   $ gpg --verify postfix-3.1.2.tar.gz.gpg2 postfix-3.1.2.tar.gz
3   gpg: Signature made Sat Aug 27 23:56:24 2016 UTC using DSA key ID 80CA15A7
4   gpg: Good signature from "Wietse Venema <wietse@porcupine.org>"
```

1.1.d   Installation

To install package firstly unpack it. After unpacking we need to configure building.

```
1    $ tar -xzvf postfix-3.1.2.tar.gz
2    $ cd postfix-3.1.2
3    $ make -f Makefile.init makefiles
4    $ make tidy
5    $ make makefiles shared=yes dynamicmaps=yes pie=no
```

Here used three compiling options:

- **shared=yes** to allow Postfix use shared libraries

- **dynamicmaps=yes** improve database-plugin support

- **pie=no** deny Position-Independent Executables, that can be used for ASLR exploit mitigation technique

1.2   DNS Configuration

1.2.a   What are you need to add to you DNS zone

To my zone file I added following lones:

```
                           "/etc/named/st10.os3.su.zone"
1    @              IN      MX      10      mail
2    mail           IN      A               188.130.155.43
```

1.2.b   What extra information should be modified in PTR records for your IP, please provide this information to Azat.

Azat should add this ptr record to his own nameserver:

```
1    188.130.155.43        IN      PTR     st10.os3.su.
```

1.3   MTA Configuration

1.3.a   Add a local account e.sharifullin@st10.os3.su on your experimental machine and make sure that the MTA can deliver mail to it. Show the required configuration.

For the first time postfix requires config file that is stored in /etc/postfix/main.cf and in my case this file contain following data:

```
                           /etc/postfix/main.cf
1    command_directory = /usr/sbin
2    compatibility_level = 2
3    daemon_directory = /usr/libexec/postfix
4    data_directory = /var/lib/postfix
5    debug_peer_level = 2
```

```
6    debugger_command = PATH=/bin:/usr/bin:/usr/local/bin:/usr/X11R6/bin ddd
     ↪  $daemon_directory/$process_name $process_id & sleep 5
7    html_directory = no
8    inet_interfaces = all
9    inet_protocols = ipv4
10   mail_owner = postfix
11   mailq_path = /usr/bin/mailq
12   manpage_directory = /usr/local/man
13   meta_directory = /etc/postfix
14   mydestination = st10.os3.su
15   mydomain = st10.os3.su
16   myhostname = st10.os3.su
17   mynetworks = 172.17.0.0/16, 127.0.0.0/8
18   myorigin = $myhostname
19   queue_directory = /var/spool/postfix
20   relayhost =
21   sample_directory = /etc/postfix
22   sendmail_path = /usr/sbin/sendmail
23   setgid_group = postdrop
24   shlib_directory = no
25   smtputf8_enable = no
26   unknown_local_recipient_reject_code = 550
```

After this I needed to add aliases to /etc/aliases file and then run newaliases

```
1    $ cat /etc/aliases
2    root: postfix
3    e.sharifullin: postfix
4    postmaster: postfix
5    $ newaliases
```

Last step is to run postfix:

```
1    $ postfix start
2    postfix/postfix-script: starting the Postfix mail system
```

1.3.b   Add to your log an email received by this account. Do not forget the full headers!

I sent e-mail from my gmail account and this is what I received:

```
1    From litleleprikon@gmail.com  Mon Sep 26 15:09:01 2016
2    Return-Path: <litleleprikon@gmail.com>
3    X-Original-To: e.sharifullin@st10.os3.su
4    Delivered-To: e.sharifullin@st10.os3.su
5    Received: from mail-wm0-f68.google.com (mail-wm0-f68.google.com [74.125.82.68])
6        by st10.os3.su (Postfix) with ESMTP id 3ED3689E
7        for <e.sharifullin@st10.os3.su>; Mon, 26 Sep 2016 15:09:01 +0000 (UTC)
8    Received: by mail-wm0-f68.google.com with SMTP id 133so14574992wmq.2
9            for <e.sharifullin@st10.os3.su>; Mon, 26 Sep 2016 08:09:01 -0700 (PDT)
10   DKIM-Signature: v=1; a=rsa-sha256; c=relaxed/relaxed;
```

```
11          d=gmail.com; s=20120113;
12          h=from:content-transfer-encoding:mime-version:subject:message-id:date
13           :to;
14          bh=pasntimjPlgZDfPyc7YFqiYi/UYrI8NHpFJ53+2Ysb8=;
15          b=vi7rK/t4Qpy/hzwWUGMZb/w5tyufJ+IY9TKm5tzEvXE/U/b/vCfV2lbVeCpSj+XkMo
16           SzWz7GnXH2XNy1+r7avkEs1z6TqXidKOs9R4B8FQfs3xOZ67UoLyDeRjCe+sWCUQMe2e
17           YE8mMNx9dCCyQ4BToYccuBTfuUCA6ilYKVPr8fog+anntN9Er9e1eLaa9Jql3x8/EqjQ
18           lRkSYOIP3L+65La2+L4ZLXHHNynZXpZBJOL9ecS7uQKaLR8zVU61YPEq4m4t9Jq0SWOh
19           uRinZp7InMazvpFFGTdPOjxtsz8RrgoQKdO/1mlV2LS4i0zWzGcHFWl2CD9FPg4eHaol
20           cMAw==
21  X-Google-DKIM-Signature: v=1; a=rsa-sha256; c=relaxed/relaxed;
22          d=1e100.net; s=20130820;
23          h=x-gm-message-state:from:content-transfer-encoding:mime-version
24           :subject:message-id:date:to;
25          bh=pasntimjPlgZDfPyc7YFqiYi/UYrI8NHpFJ53+2Ysb8=;
26          b=Pr4JsT6p0naIA9S213T8U7mjnF3Rs+3IStbSwlOKEWLzvZF3X6LSmmxNAXnpi7dgGt
27           dTV9jyYSJSk+L8pT9S4Lm1oFZqIq7MNxHu4GyFcuFLyi86+BzqdK+bIK2EG5/POEvFPq
28           eCt7IDxYkjvPsgBV/7AO1UYhn4/0vAIH3lyCP4+N8ljCIgxCna5UXPrLGKoVkzXVi3OQ
29           qNBiaBzkEvxWORroF12J3muxVAdXHCEHyQjAiRClz+lRy3SfNeBN46dK6u/b2YJI70ex
30           pWrD6yNsMnQDmiN8M+YxNqqOH3A4P2pkqKOCW/WQBS+OLDK/jmkPzNQNjQ41LCl7KDbjp
31           f8mQ==
32  X-Gm-Message-State: AE9vXwMsIdsFcR1VnY1x9TD1ZY3BxFBzeeXo0Gj5zBDGNdtRvNqKPt2j8vyDC/46XkBmWA==
33  X-Received: by 10.194.93.198 with SMTP id cw6mr18665097wjb.212.1474902540632;
34          Mon, 26 Sep 2016 08:09:00 -0700 (PDT)
35  Received: from [10.240.23.110] ([188.130.155.154])
36          by smtp.gmail.com with ESMTPSA id a84sm11791478wme.6.2016.09.26.08.08.59
37          for <e.sharifullin@st10.os3.su>
38          (version=TLS1_2 cipher=ECDHE-RSA-AES128-GCM-SHA256 bits=128/128);
39          Mon, 26 Sep 2016 08:08:59 -0700 (PDT)
40  From: Emil Sharifullin <litleleprikon@gmail.com>
41  Content-Type: text/plain; charset=utf-8
42  Content-Transfer-Encoding: quoted-printable
43  Mime-Version: 1.0 (Mac OS X Mail 10.0 \(3226\))
44  Subject: Hello my dear friend!
45  Message-Id: <5C8E93A4-745A-4944-922B-20E79E11BAD3@gmail.com>
46  Date: Mon, 26 Sep 2016 18:08:58 +0300
47  To: e.sharifullin@st10.os3.su
48  X-Mailer: Apple Mail (2.3226)
49
50  Good morning my dear friend!
51
52  I realised that you didn=E2=80=99t finish MTA(1) assignment. So you are =
53  lazy dude!
54
55  Sincerely yours.
56  Emil A. Sharifullin=
```

1.3.c Try to send email by the telnet command, please provide the output of your results.

```
1  $ telnet st10.os3.su 25
2  Trying 188.130.155.43...
3  Connected to st10.os3.su.
```

```
 4   Escape character is '^]'.
 5   220 st10.os3.su ESMTP Postfix
 6   ehlo st10.os3.su
 7   250-st10.os3.su
 8   250-PIPELINING
 9   250-SIZE 10240000
10   250-VRFY
11   250-ETRN
12   250-ENHANCEDSTATUSCODES
13   250-8BITMIME
14   250 DSN
15   mail from: litleleprikon@innopolis.ru
16   250 2.1.0 Ok
17   rcpt to: e.sharifullin@st10.os3.su
18   250 2.1.5 Ok
19   data
20   354 End data with <CR><LF>.<CR><LF>
21   Subject: My Telnet Test Email
22
23   Hello my dear friend!)
24
25   .
26   250 2.0.0 Ok: queued as 666A589E
```

1.3.d Also make sure that any email intended for postmaster@st10.os3.su is delivered to this account. Show the full email as delivered to the new ac- count and the required configuration.

```
 1   From litleleprikon@gmail.com  Mon Sep 26 17:27:15 2016
 2   Return-Path: <litleleprikon@gmail.com>
 3   X-Original-To: postmaster@st10.os3.su
 4   Delivered-To: postmaster@st10.os3.su
 5   Received: from mail-lf0-f66.google.com (mail-lf0-f66.google.com [209.85.215.66])
 6       by st10.os3.su (Postfix) with ESMTP id B732589E
 7       for <postmaster@st10.os3.su>; Mon, 26 Sep 2016 17:27:15 +0000 (UTC)
 8   Received: by mail-lf0-f66.google.com with SMTP id b71so9124924lfg.1
 9           for <postmaster@st10.os3.su>; Mon, 26 Sep 2016 10:27:15 -0700 (PDT)
10   DKIM-Signature: v=1; a=rsa-sha256; c=relaxed/relaxed;
11           d=gmail.com; s=20120113;
12           h=from:content-transfer-encoding:mime-version:subject:message-id:date
13            :to;
14           bh=zS7KNTV0HyeorkDDGwxB1AV6enuRKzO5rthkhdHIRnY=;
15           b=RG2aXSjXeYyZYMTGWv8KhrHLYdBtAfBBjVPy42dGeHJR51NGhYsY9R6DzEIr/vBGys
16            7bb32poCYaV5FoiDBwjFxTrwodmelDHOxZAnjxiNAgRnjigdkcrtRUtPvpWv4UXynNes
17            JMDFti9jYyIc9ui9xX4a8IEW2S1vjkALPhVhWjPW0X9KsZ2B4ahSxXQSGR9nX1TibCEc
18            6rO64y+uslCUerC6zrj0YPrdtvfhn7Nt6xdFQIMOCc8avwxOTYARnguR35bX8IfsxqES
19            HdS0m//OCS8hW4EEAuoFAQd3eH9vfZszHI1S8h9jjlJN6FukHR5c2PZMHD3GRuJzuPoe
20            SYJA==
21   X-Google-DKIM-Signature: v=1; a=rsa-sha256; c=relaxed/relaxed;
22           d=1e100.net; s=20130820;
23           h=x-gm-message-state:from:content-transfer-encoding:mime-version
24            :subject:message-id:date:to;
25           bh=zS7KNTV0HyeorkDDGwxB1AV6enuRKzO5rthkhdHIRnY=;
```

```
26        b=AX/UQAAdLLcwG7fDlrnzzrVuAZJsrug1w+rgqUWYUFGrkE+t++Bx0sRKvw17+fwqAz
27         g0CDuAo4jfS3phlrTUQI8c0a5Ql0TluqgrlNUSnrF+AuruOFajfpM9fH5sJ6pIX3vLow
28         gSIYJK5Zz1V8kQydjmFSxh9mczE72n61tbkTRmhCQHcS+sgFoQHoIagtSD0nH0itN5qK
29         DZBMVJpO6VDAqjpiQHfbMib2IA63d8cbgIlxawSX4lYwJm2qENJpRs/mNAFwX6MYvHP7
30         9egfWinxe45i+XMu9JAcTdNUzNorEk88YWiorGalSNJAbcaccitRapCzg0cPJgvSBGo4
31         p5yA==
32    X-Gm-Message-State: AE9vXwN7oZwIoRKqpJDluYHJWfVHDdHdd09/jV31mJRk8P7J8SZ5lrsdJgfGlv2lcmWPFQ==
33    X-Received: by 10.194.122.137 with SMTP id ls9mr24014921wjb.29.1474910835123;
34         Mon, 26 Sep 2016 10:27:15 -0700 (PDT)
35    Received: from [10.240.23.110] ([188.130.155.154])
36         by smtp.gmail.com with ESMTPSA id vh6sm23448898wjb.0.2016.09.26.10.27.14
37         for <postmaster@st10.os3.su>
38         (version=TLS1_2 cipher=ECDHE-RSA-AES128-GCM-SHA256 bits=128/128);
39         Mon, 26 Sep 2016 10:27:14 -0700 (PDT)
40    From: Emil Sharifullin <litleleprikon@gmail.com>
41    Content-Type: text/plain; charset=us-ascii
42    Content-Transfer-Encoding: 7bit
43    Mime-Version: 1.0 (Mac OS X Mail 10.0 \(3226\))
44    Subject: Helo
45    Message-Id: <EAA44DA4-5204-4CD6-8632-196BAEA6BDC1@gmail.com>
46    Date: Mon, 26 Sep 2016 20:27:13 +0300
47    To: postmaster@st10.os3.su
48    X-Mailer: Apple Mail (2.3226)
49
50    hello
```

2   Mail Backup

2.4   First, describe you have done on your own server to create two backup MTAs for your domain. Do not describe how you made your server fallback for the other domains at the same time, that is the next question. This makes grading easier for the lab teachers.

To enable backup MTA's for my server I added to my zone file two MX records. This records must have higher preference value than my primary MX record.

```
                              /etc/named/at10.os3.su.zone
1    @      IN  MX  10  mail
2    @      IN  MX  20  mail.st11.os3.su.
3    @      IN  MX  30  mail.st14.os3.su.
```

2.5   Afterwards, describe what you have done on your own server to make it act as a backup for the two otherdomains.

To make my MTA to work as a backup server for my colleagues I added following string in my mail config.

```
                                     /etc/postfix/main.cf
1   relay_domains = st11.os3.su, st14.os3.su
```

2.6 Shut down your MTA, send a mail to your domain and show

2.6.a The email is delivered to one of your colleaques.

I shot down my postfix server and sent mail to it.

At my backup server I saw following:

```
1    $ mailq
2    MSP Queue status...
3    /var/spool/mqueue-client is empty
4      Total requests: 0
5    MTA Queue status...
6      /var/spool/mqueue (1 request)
7    -----Q-ID----- --Size-- -----Q-Time----- ------------Sender/Recipient-----------
8    u8QICEod010646      137 Mon Sep 26 21:12 <litleleprikon@gmail.com>
9                    (Deferred: Connection refused by mail.st10.os3.su.)
10         <postmaster@st10.os3.su>
11     Total requests: 1
```

```
1    /var/spool/mqueue# cat dfu8QICEod010646 qfu8QICEod010646
2    This message I sent to my fallen postfix
3    > On 26 Sep 2016, at 8:27 PM, Emil Sharifullin <litleleprikon@gmail.com> =
4    wrote:
5    >=20
6    > hello
7
8    V8
9    T1474913537
10   K1474914194
11   N3
12   P302668
13   I8/2/24775594
14   MDeferred: Connection refused by mail.st10.os3.su.
15   Fbs
16   $_mail-qk0-f178.google.com [209.85.220.178]
17   $rESMTPS
18   $smail-qk0-f178.google.com
19   ${daemon_flags}
20   ${if_addr}188.130.155.44
21   S<litleleprikon@gmail.com>
22   rRFC822; postmaster@st10.os3.su
23   RPFD:<postmaster@st10.os3.su>
24   H?P?Return-Path: <g>
25   H??Received: from mail-qk0-f178.google.com (mail-qk0-f178.google.com [209.85.220.178])
26     by st11.os3.su (8.15.2/8.15.2/Debian-3) with ESMTPS id u8QICEod010646
27     (version=TLSv1.2 cipher=ECDHE-RSA-AES128-GCM-SHA256 bits=128 verify=NOT)
28     for <postmaster@st10.os3.su>; Mon, 26 Sep 2016 21:12:17 +0300
29   H??Received: by mail-qk0-f178.google.com with SMTP id g67so113687365qkd.0
```

```
30          for <postmaster@st10.os3.su>; Mon, 26 Sep 2016 11:12:16 -0700 (PDT)
31   H??DKIM-Signature: v=1; a=rsa-sha256; c=relaxed/relaxed;
32          d=gmail.com; s=20120113;
33          h=from:content-transfer-encoding:mime-version:subject:date:references
34           :to:in-reply-to:message-id;
35          bh=f5phrF/Y9HZfh2owf2aX3je+k97QtVgi+1DQQkyGaac=;
36          b=z3I8lEQYqQrdDIwGc/jex2pafMnpeCokl8GXeYSlCJIZHJ2SekLmgecHHjeIFkcTHF
37           cnRR9j/DKXlQ+SgB5AS7YT59Swu8isyHCbKUTYkNTAIeCLRWFopPgAmApXzDAciSDNqb
38           FCn9ahFKZrkH2R+0YTH29lAzrPxhwe1RyER+bkbgfuST+MWkkJwjE5dZUzBCAIE5+Yag
39           kVWqU04wAnpT/3W0N/XOSMpNsY/L8UgI52RA/jCJ1bCve6SyiRk15rsWZyDLtCgBx88V
40           3DugW3IS7VBnS2OhNVTgjtMUoHy0xT2nNKO4zRLXjnY5gLCmEZBkRwrwlauxR1lA3yMJ
41          Ps/w==
42   H??X-Google-DKIM-Signature: v=1; a=rsa-sha256; c=relaxed/relaxed;
43          d=1e100.net; s=20130820;
44          h=x-gm-message-state:from:content-transfer-encoding:mime-version
45           :subject:date:references:to:in-reply-to:message-id;
46          bh=f5phrF/Y9HZfh2owf2aX3je+k97QtVgi+1DQQkyGaac=;
47          b=GHpSqphFOHg8J2Cqia2ro1F4KQtY8CaENBgxWF0SnwgO+0QJf6XBCb1lbYjgV7mP3q
48           8EhlhbtfY2iHIvBlDRUQJ41CWIIHvj4qbSbseuVOiH8vb85Gx46fhupoSS4iIJ1UuD3i
49           Ub9mCTfiH21zKBcheW9aJfSHQ7/bRYenyZKtYUAyIgIcK7UK4M3oolpgIprR9R6u4vJJ
50           9T43YICA7kOvpF7r+eoOJlDdUvjrwrZlpDHvoRQDwl8kcCVOXsIitKF8Yb67X0Zbw8VI
51           HqEDpktC01DNDM7vfT7uzNPMXF7zj7q3yaaVCPOAPdSxlUmfXh5+7Gal5nY5gkXcqnfu
52          pIPA==
53   H??X-Gm-Message-State: AA6/9RnUgWsKmywFPdUHWy69HA1d+9TKedr04TvwqRerfF84WGkNRoKIXldUy+vX1fdxsQ==
54   H??X-Received: by 10.194.148.99 with SMTP id tr3mr22347424wjb.173.1474913526908;
55          Mon, 26 Sep 2016 11:12:06 -0700 (PDT)
56   HReturn-Path: <litleleprikon@gmail.com>
57   HReceived: from [10.240.23.110] ([188.130.155.154])
58          by smtp.gmail.com with ESMTPSA id bl3sm23545237wjc.26.2016.09.26.11.12.05
59          for <postmaster@st10.os3.su>
60          (version=TLS1_2 cipher=ECDHE-RSA-AES128-GCM-SHA256 bits=128/128);
61          Mon, 26 Sep 2016 11:12:06 -0700 (PDT)
62   H??From: Emil Sharifullin <litleleprikon@gmail.com>
63   H??Content-Type: text/plain; charset=us-ascii
64   H??Content-Transfer-Encoding: quoted-printable
65   H??Mime-Version: 1.0 (Mac OS X Mail 10.0 \(3226\))
66   H??Subject: Re: Helo
67   H??Date: Mon, 26 Sep 2016 21:12:05 +0300
68   H??References: <EAA44DA4-5204-4CD6-8632-196BAEA6BDC1@gmail.com>
69   H??To: postmaster@st10.os3.su
70   H??In-Reply-To: <EAA44DA4-5204-4CD6-8632-196BAEA6BDC1@gmail.com>
71   H??Message-Id: <EB3AA98E-65B2-4750-8CC3-B08D2E0D6A68@gmail.com>
72   H??X-Mailer: Apple Mail (2.3226)
73   .
```

2.6.b The email is delivered to your MTA when you turn it back on.

When I started my I got following message

```
1   From litleleprikon@gmail.com  Mon Sep 26 18:33:14 2016
2   Return-Path: <litleleprikon@gmail.com>
3   X-Original-To: postmaster@st10.os3.su
4   Delivered-To: postmaster@st10.os3.su
5   Received: from st11.os3.su (mail.st11.os3.su [188.130.155.44])
```

```
 6         by st10.os3.su (Postfix) with ESMTP id CB21E899
 7         for <postmaster@st10.os3.su>; Mon, 26 Sep 2016 18:33:14 +0000 (UTC)
 8     Received: from mail-qk0-f178.google.com (mail-qk0-f178.google.com [209.85.220.178])
 9         by st11.os3.su (8.15.2/8.15.2/Debian-3) with ESMTPS id u8QICEod010646
10         (version=TLSv1.2 cipher=ECDHE-RSA-AES128-GCM-SHA256 bits=128 verify=NOT)
11         for <postmaster@st10.os3.su>; Mon, 26 Sep 2016 21:12:17 +0300
12     Received: by mail-qk0-f178.google.com with SMTP id g67so113687365qkd.0
13         for <postmaster@st10.os3.su>; Mon, 26 Sep 2016 11:12:16 -0700 (PDT)
14     DKIM-Signature: v=1; a=rsa-sha256; c=relaxed/relaxed;
15         d=gmail.com; s=20120113;
16         h=from:content-transfer-encoding:mime-version:subject:date:references
17          :to:in-reply-to:message-id;
18         bh=f5phrF/Y9HZfh2owf2aX3je+k97QtVgi+1DQQkyGaac=;
19         b=z3I8lEQYqQrdDIwGc/jex2pafMnpeCokl8GXeYSlCJIZHJ2SekLmgecHHjeIFkcTHF
20          cnRR9j/DKXlQ+SgB5AS7YT59Swu8isyHCbKUTYkNTAIeCLRWFopPgAmApXzDAciSDNqb
21          FCn9ahFKZrkH2R+0YTH29lAzrPxhwe1RyER+bkbgfuST+MWkkJwjE5dZUzBCAIE5+Yag
22          kVWqU04wAnpT/3WON/XOSMpNsY/L8UgI52RA/jCJ1bCve6SyiRk15rsWZyDLtCgBx88V
23          3DugW3IS7VBnS2OhNVTgjtMUoHy0xT2nNK04zRLXjnY5gLCmEZBkRwrwlauxR1lA3yMJ
24          Ps/w==
25     X-Google-DKIM-Signature: v=1; a=rsa-sha256; c=relaxed/relaxed;
26         d=1e100.net; s=20130820;
27         h=x-gm-message-state:from:content-transfer-encoding:mime-version
28          :subject:date:references:to:in-reply-to:message-id;
29         bh=f5phrF/Y9HZfh2owf2aX3je+k97QtVgi+1DQQkyGaac=;
30         b=GHpSqphFOHg8J2Cqia2ro1F4KQtY8CaENBgxWFOSnwgO+0QJf6XBCb1lbYjgV7mP3q
31          8EhlhbtfY2iHIvBlDRUQJ41CWIIHvj4qbSbseuVOiH8vb85Gx46fhupoSS4iIJ1UuD3i
32          Ub9mCTfiH21zKBcheW9aJfSHQ7/bRYenyZKtYUAyIgIcK7UK4M3oolpgIprR9R6u4vJJ
33          9T43YICA7kOvpF7r+eo0JlDdUvjrwrZlpDHvoRQDwl8kcCV0XsIitKF8Yb67X0Zbw8VI
34          HqEDpktCO1DNDM7vfT7uzNPMXF7zj7q3yaaVCP0APdSxlUmfXh5+7Gal5nY5gkXcqnfu
35          pIPA==
36     X-Gm-Message-State: AA6/9RnUgWsKmywFPdUHWy69HA1d+9TKedr04TvwqRerfF84WGkNRoKIXldUy+vX1fdxsQ==
37     X-Received: by 10.194.148.99 with SMTP id tr3mr22347424wjb.173.1474913526908;
38         Mon, 26 Sep 2016 11:12:06 -0700 (PDT)
39     Received: from [10.240.23.110] ([188.130.155.154])
40         by smtp.gmail.com with ESMTPSA id bl3sm23545237wjc.26.2016.09.26.11.12.05
41         for <postmaster@st10.os3.su>
42         (version=TLS1_2 cipher=ECDHE-RSA-AES128-GCM-SHA256 bits=128/128);
43         Mon, 26 Sep 2016 11:12:06 -0700 (PDT)
44     From: Emil Sharifullin <litleleprikon@gmail.com>
45     Content-Type: text/plain; charset=us-ascii
46     Content-Transfer-Encoding: quoted-printable
47     Mime-Version: 1.0 (Mac OS X Mail 10.0 \(3226\))
48     Subject: Re: Helo
49     Date: Mon, 26 Sep 2016 21:12:05 +0300
50     References: <EAA44DA4-5204-4CD6-8632-196BAEA6BDC1@gmail.com>
51     To: postmaster@st10.os3.su
52     In-Reply-To: <EAA44DA4-5204-4CD6-8632-196BAEA6BDC1@gmail.com>
53     Message-Id: <EB3AA98E-65B2-4750-8CC3-B08D2E0D6A68@gmail.com>
54     X-Mailer: Apple Mail (2.3226)
55
56     This message I sent to my fallen postfix
57     > On 26 Sep 2016, at 8:27 PM, Emil Sharifullin <litleleprikon@gmail.com> =
58     wrote:
59     >=20
60     > hello
```

3 Client Access and MTA Internals

3.7 Choose a console mail client that is available in the Ubuntu repositories, install it and configure it to read mail for the account added before

I installed mutt mail client.

3.7.a Where does the client store read emails?

Mutt by default store it in /home/user/mail/received

3.7.b In what format?

By deafult mutt store all mesages in MBOX format. An mbox folder is a plain text file. Each message starts with a "From " line (note the trailing space).

3.8 Briefly explain

3.8.a What mail queues your mail server uses?

Postfix uses sendmail's mail queue.

3.8.b What is their purpose?

MTA sends all incoming mails to queue and with this queue can work huge variety of other software for example spam filters.

3.8.c Where are they located on your machine?

At my machine mail queue is located at /var/spool/postfix/

3.8.d How can you interact with them?

Postfix gets you postqueue-tool that allows you to interract with message queue, but also you can work with mailq. Postqueue allows you to:

- Flush the queue

- Produce a queue listing in JSON format

- Produce a traditional sendmail-style queue listing

- Schedule immediate delivery of all mail that is queued for the named site