

Assignment 6 : MTA(1)

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1 Mail Transfer Agents

As a MTA I chose Postfix.

1.1 Installing MTA

1.1.a Deleting pre installed MTA

I'm 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 tarball.

```
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 smtpd8_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/vCfV21bVeCpSj+XkMo
16      SzWz7GnXH2XNy1+r7avkEs1z6TqXidK0s9R4B8FQfs3x0Z67UoLyDeRjCe+sWCUQMe2e
17      YE8mMNx9dCCyQ4BToYccuBTfuUCA6ilYKVPr8fog+anntN9Er9e1eLaa9Jq13x8/EqjQ
18      lRkSY0IP3L+65La2+L4ZLXHHNynZXpZBJ0L9ecS7uQKaLR8zVU61YPEq4m4t9Jq0SW0h
19      uRinZp7InMazvpFFGTdP0jxtsz8RrgoQKd0/1mlV2LS4i0zWzGcHFW12CD9FPg4eHao1
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=Pr4JsT6pOnaIA9S213T8U7mjnF3Rs+3ISbSwl0KEWLzvZF3X6LSmmxNAXnpi7dgGt
27      dTV9jyYSJSk+L8pT9S4Lm1oFZqIq7MNxHu4GyFcuFLyi86+BzqdK+bIK2EG5/POEvFPq
28      eCt7IDxYkjvPsgBV/7A01UYhn4/0vAIH3lyCP4+N8ljCIgxCna5UXPrLGKoVxzXVi30Q
29      qNBiaBzkEvxW0RroF12J3muxVAdXHCEHyQjAiRClz+lRy3SfNeBN46dK6u/b2YJI70ex
30      pWrD6yNsMnQDmiN8M+YxNqOH3A4P2pkqKOCW/WQBS+OLDK/jmkPzNQNjQ41LC17KDbjp
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 <littleleprikon@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-VERFY
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 account 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=zS7KNTVOHyeorkDDGwxB1AV6enuRKzO5rthkhdHIRnY=;
15      b=RG2aXSjXeYyZYMTGWv8KhrHLYdBtAfBBjVPy42dGeHJR51NGhYsY9R6DzEIr/vBGys
16      7bb32poCYaV5FoiDBwjFxTrwodemelDHOxZAnjxiNAgRnjigdkcrtRUtPvpWv4UXynNes
17      JMDFTi9jYyIc9ui9xX4a8IEW2S1vjkALPhVhWjPWOX9KsZ2B4ahSxXQSGR9nX1TibCEc
18      6rO64y+uslCUerC6zrjOYPrdtvfhn7Nt6xdFQIMOCc8avwxOTYARnguR35bX8IfsxEs
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=zS7KNTVOHyeorkDDGwxB1AV6enuRKzO5rthkhdHIRnY=;

```

```

26      b=AX/UQAAdLLcWg7fDlrnzrVuAZJsrug1w+rgqUWYUFGrkE+t++Bx0sRKvw17+fwqAz
27      g0CDuAo4jfs3phlrTUQI8c0a5Q10TluqgrlNUSnrF+Auru0FajfpM9fH5sJ6pIX3vLow
28      gSIYJK5Zz1V8kQyjdjmFSxh9mczE72n61tbkTRmhCQHcS+sgFoQHoIagtSD0nH0itN5qK
29      DZBMVJp06VDAqjpiQHfbMib2IA63d8cbgIlxawSX4lYwJm2qENJpRs/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 <littleleprikon@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: Hello
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.

```

1      /etc/postfix/main.cf
2
3      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 colleagues.

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 <litteleprikon@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 <litteleprikon@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 $smaile-qk0-f178.google.com
19 ${daemon_flags}
20 ${if_addr}188.130.155.44
21 S<litteleprikon@gmail.com>
22 rRFC822; postmaster@st10.os3.su
23 RPPD:<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=z3I81EQYqQrdDIwGc/jex2pafMnpeCokl8GXeYS1CJIZHJ2SekLmgecHHjeIFkcTHF
37              cnRR9j/DKXlQ+SgB5AS7YT59Swu8isyHCbKUTYkNTAIECLRWFopPgAmApXzDAciSDNqb
38              FCn9ahFKZrkH2R+OYTH29lAzrPxhwe1RyER+bkbfguST+MWkkJwjE5dZUZBCAIE5+Yag
39              kVWqU04wAnpT/3WON/XOSMpNsY/L8UgI52RA/jCJ1bCve6SyiRk15rsWZyDLtCgBx88V
40              3DugW3IS7VBnS20hNVTgjtMUoHy0xT2nNK04zRLXjnY5gLcMEZBkRwrwlauxR1lA3yMJ
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=GHpSqphFOHg8J2Cqia2ro1F4KQtY8CaENBgxWF0Snwg0+0QJf6XBCb1lbYjgV7mP3q
48              8EhlhbtY2iHlVBlDRUQJ41CWIHvj4qbSbseuV0iH8vb85Gx46fhupoSS4iI1UuD3i
49              Ub9mCTfiH21zKBcheW9aJfSHQ7/bRYenyZKtYUAYIgIcK7UK4M3oolpgIprR9R6u4vJJ
50              9T43YICA7k0vpF7r+eo0JlDdUvjrwZlpDHvORQDw18kcCV0XsIitKF8Yb67X0Zbw8VI
51              HqEDpktC01DNDM7vfT7uzNPMXF7zj7q3yaaVCP0APdSx1UmfXh5+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: <littleleprikon@gmail.com>
57      HReceived: from [10.240.23.110] ([188.130.155.154])
58          by smtp.gmail.com with ESMTPSA id b13sm23545237wjc.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 <littleleprikon@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 littleleprikon@gmail.com Mon Sep 26 18:33:14 2016
2      Return-Path: <littleleprikon@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=z3I81EQYqQrdDIwGc/jex2pafMnpeCokl8GXeYS1CJIZHJ2SekLmgecHHjeIFkcTHF
20     cnRR9j/DKX1Q+SgB5AS7YT59Swu8isyHCbKUTYkNTAIECLRWFopPgAmApXzDAciSDNqb
21     FCn9ahFKZrkH2R+OYTH291AzrPxhwe1RyER+bkbguST+MWkkJwjE5dZUzBCAIE5+Yag
22     kVWUQ04wAnpT/3WON/XOSMpNsY/L8UgI52RA/jCJ1bCve6SyiRk15rsWZyDLtCgBx88V
23     3DugW3IS7VBnS20hNVTgjtMUoHy0xT2nNK04zRLXjnY5gLcmEZBkRwrwlauxR11A3yMJ
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=GHpSqphFOHg8J2Cqia2ro1F4KQtY8CaENBgxWFOsnw0+0QJf6XBCb1lbYjgV7mP3q
31     8EhlhbtFY2iHIvB1DRUQJ41CWIIHvj4qbSbseuV0iH8vb85Gx46fhupoSS4iIJ1UuD3i
32     Ub9mCtfiH21zKBcheW9aJfSHQ7/bRYenyZKtYUAYIgIcK7UK4M3oolpgIprR9R6u4vJJ
33     9T43YICA7k0vpF7r+eo0JlDdUvjrrwZlpDHvORQDw18kcCV0XsIitKF8Yb67X0Zbw8VI
34     HqEDpktC01DNDM7vfT7uzNPMXF7zj7q3yaaVCP0APdSx1UmfXh5+7Gal5nY5gkXcqnfu
35     pIPA==
36  X-Gm-Message-State: AA6/9RnUgWsKmyWFPdUHWy69HA1d+9TKedr04TvwqRerfF84WGkNRoKIX1dUy+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 b13sm23545237wjc.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: Hello
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 default mutt store all messages 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 interact 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