@

vmmail 2.2

vmfree.org

© Volker Matheis 2021

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1 Features

- Archive mails
- Share folders
- Share calendars
- Encrypt mails with PGP
- Connect to Clients

2 Install vmmail

Install Ubuntu 20.04 LTS Server on your server.
Configure a network connection.
For the installation you need an internet connection.

Before you install vmmail, you need:
- a mail address at a provider.
- the POP3 server name from your provider.
- the STMP server name from your provider.

For the following installation steps I use as an example these parameters:
- mail address: vera.gemini@gmx.net
- password: secret!1234
- POP3 server: pop.gmx.net
- SMTP server: mail.gmx.net

2.2 Run installation

1. Download vmmail: `wget`
   http://www.vmfree.org/vmmail/downloads/vmmail.tar.gz
2. Unpack the file: `tar xvfzp vmmail.tar.gz`
3. Start installation: `sudo vmmail/install.sh`

Enter the domain name:

Installation vmmail
Domain name

gmx.net

< OK > <Cancel>

Enter SMTP server:

Installation vmmail
Relayhost (SMTP server)

mail.gmx.net

< OK > <Cancel>

Enter POP3 server:

```
┌─────────Installation vmmail─────────┐
│ POP3 server                         │
│ ┌─────────────────────────────────┐ │
│ │pop.gmx.net_                     │ │
│ └─────────────────────────────────┘ │
│                                     │
│      <  OK  >      <Cancel>          │
└─────────────────────────────────────┘
```
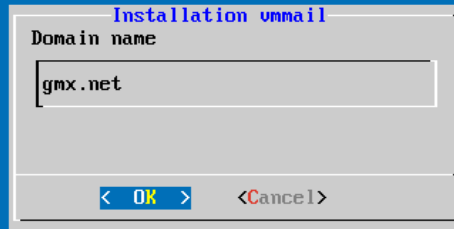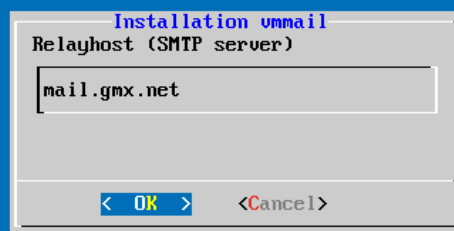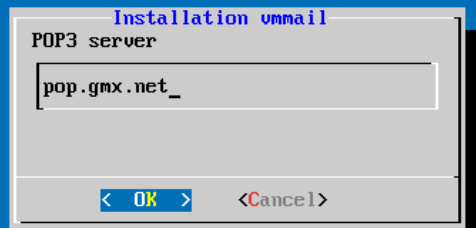
Enter mail adress for SMTP authentication:

```
┌─────────Installation vmmail─────────┐
│ Mail address SMTP                   │
│ ┌─────────────────────────────────┐ │
│ │vera.gemini@gmx.net_             │ │
│ └─────────────────────────────────┘ │
│                                     │
│      <  OK  >      <Cancel>          │
└─────────────────────────────────────┘
```
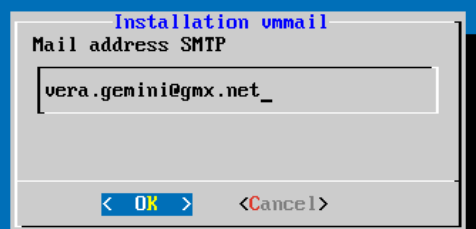
Enter password to mail address for STMP authentication:

```
                    Installation vmmail
         Mail password SMTP

          secret!1234


              <   OK   >     <Cancel>
```

Postfix configuration: Choose "Internet with smarthost":

```
Package configuration



                    ┤ Postfix Configuration ├
      Please select the mail server configuration type that best meets your needs.

       No configuration:
        Should be chosen to leave the current configuration unchanged.
       Internet site:
        Mail is sent and received directly using SMTP.
       Internet with smarthost:
        Mail is received directly using SMTP or by running a utility such
        as fetchmail. Outgoing mail is sent using a smarthost.
       Satellite system:
        All mail is sent to another machine, called a 'smarthost', for delivery.
       Local only:
        The only delivered mail is the mail for local users. There is no network.

      General type of mail configuration:

                          No configuration
                          Internet Site
                          Internet with smarthost
                          Satellite system
                          Local only


                  <Ok>                      <Cancel>
```
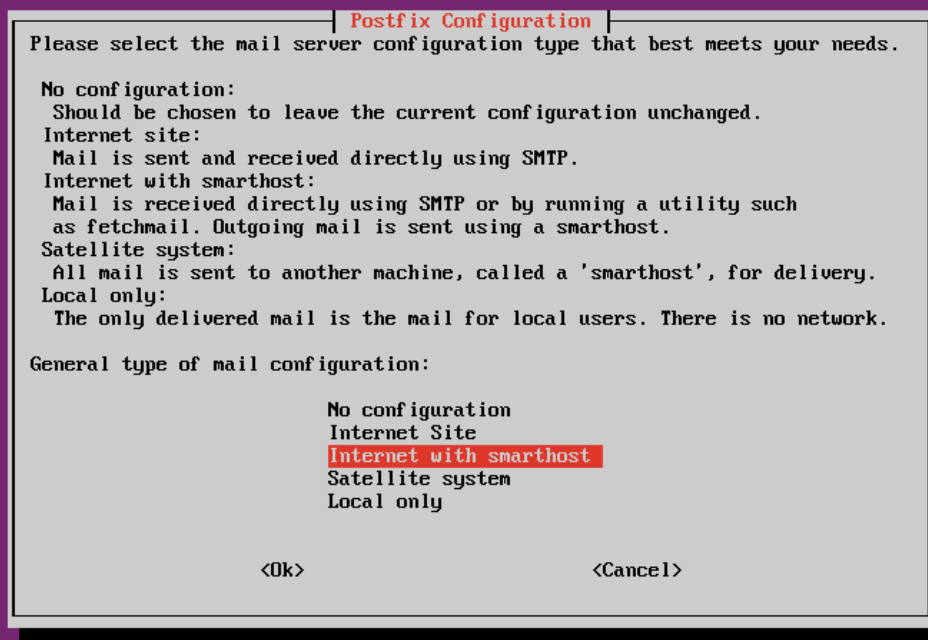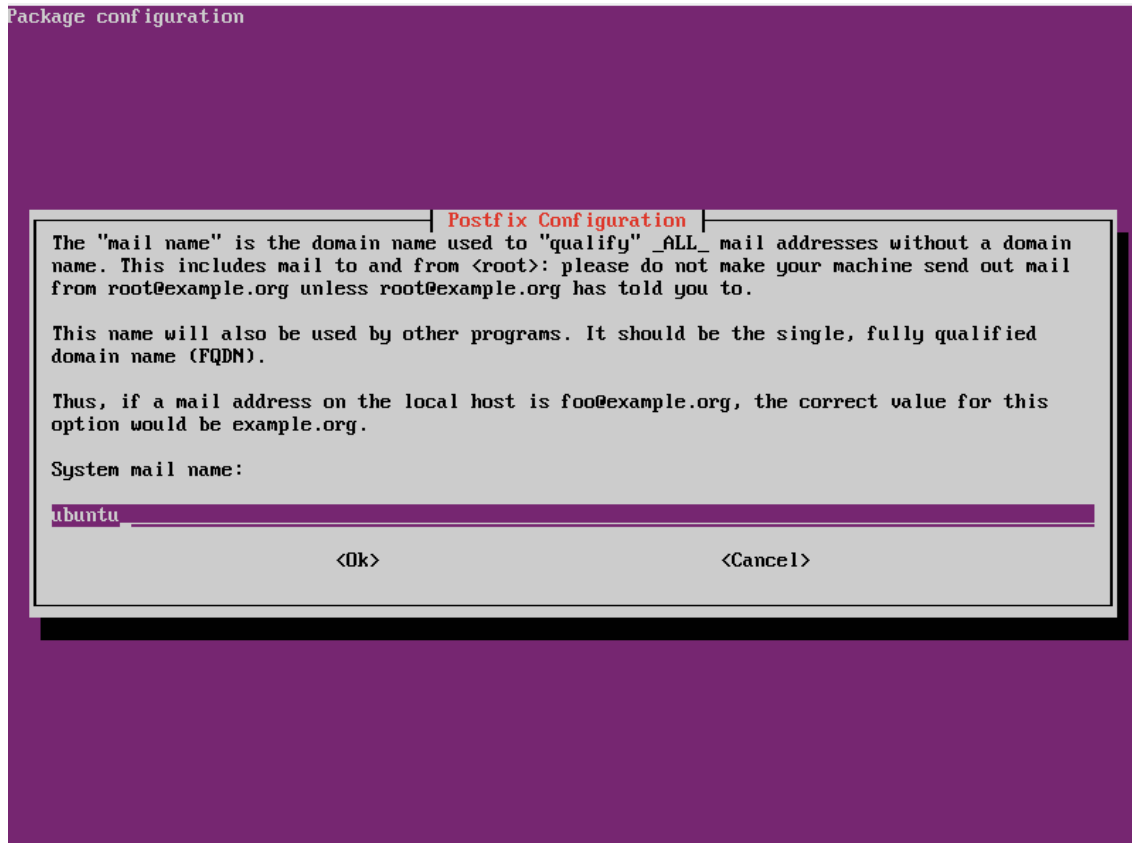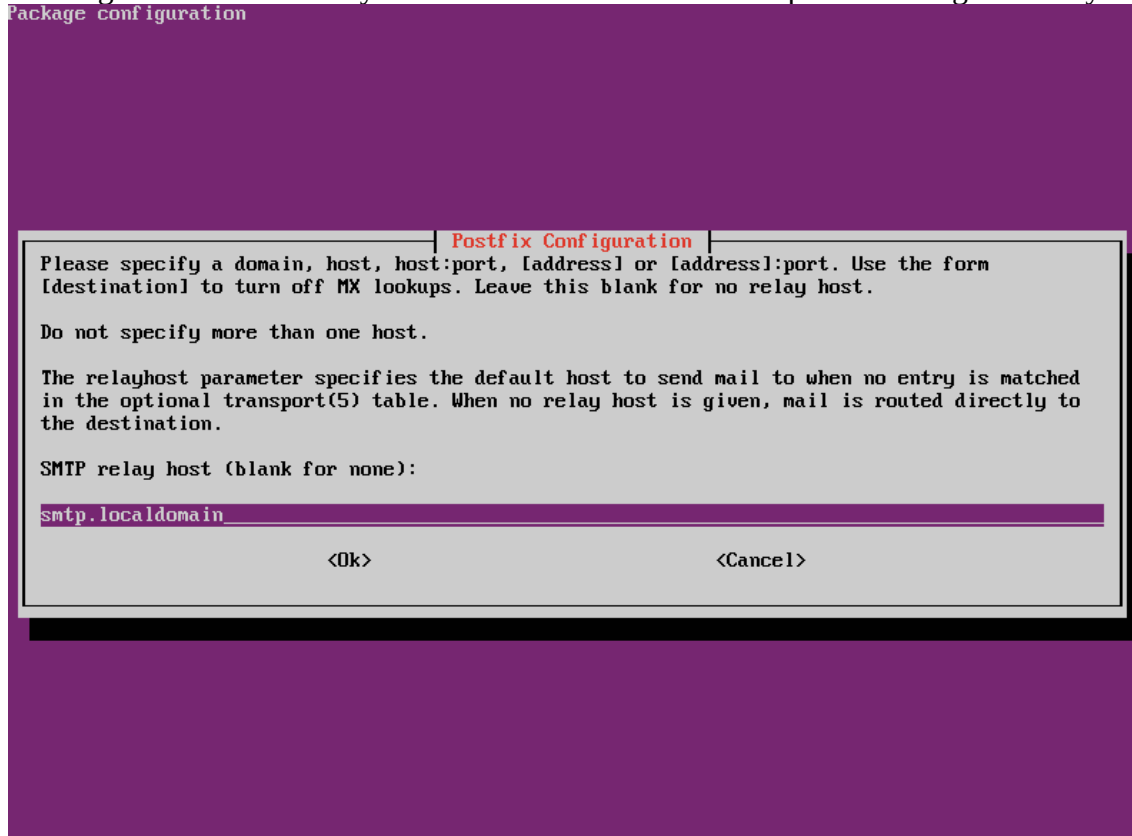
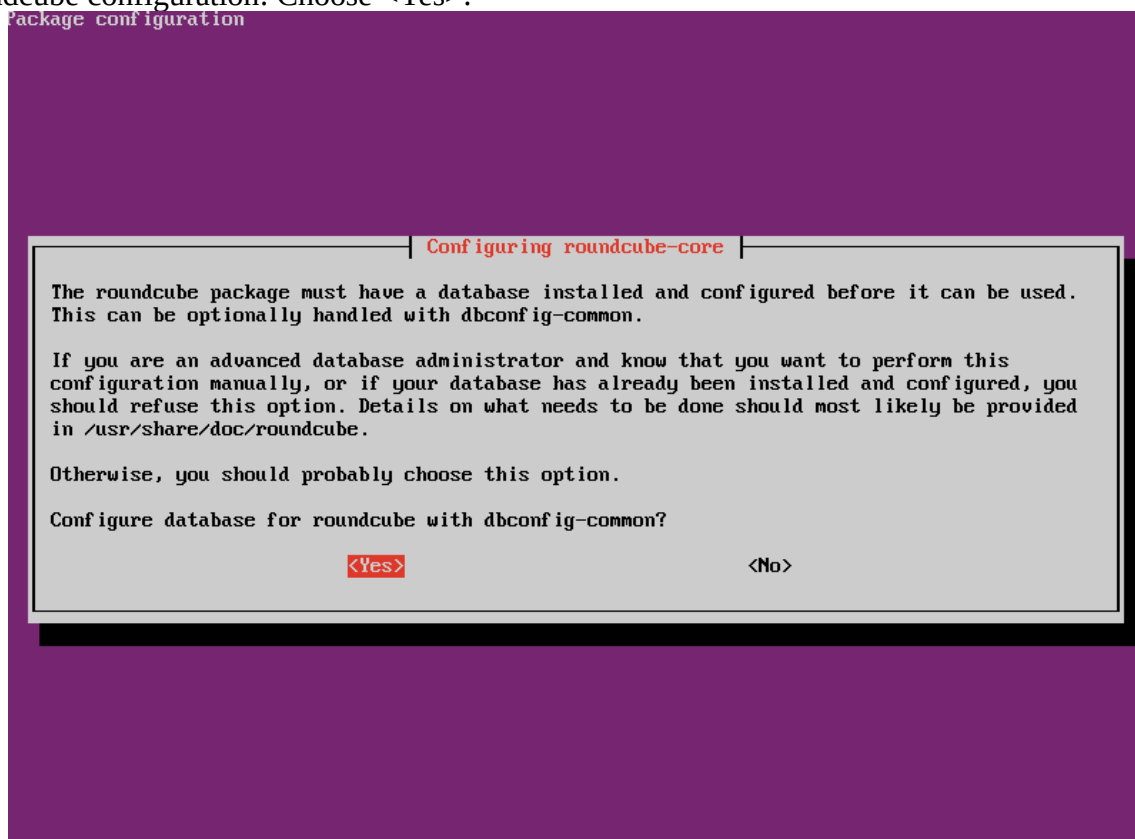Postfix configuration: System mail name. Press <enter>. The install process change the system name.

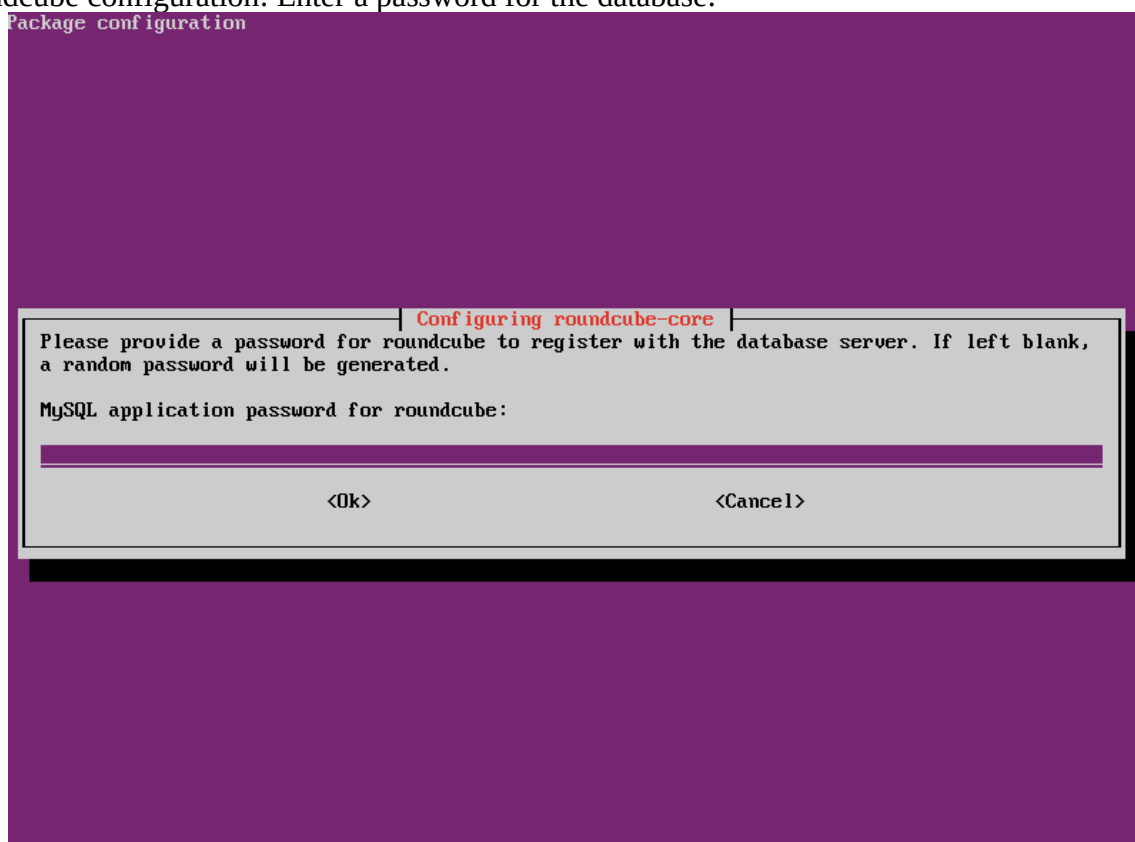Postfix configuration: SMTP relay host. Press <enter>. The install process change the relay host.
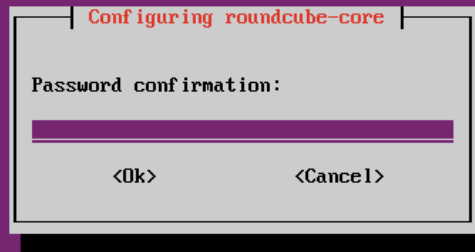
Roundcube configuration: Choose <Yes>:

┤ Configuring roundcube-core ├

The roundcube package must have a database installed and configured before it can be used. This can be optionally handled with dbconfig-common.

If you are an advanced database administrator and know that you want to perform this configuration manually, or if your database has already been installed and configured, you should refuse this option. Details on what needs to be done should most likely be provided in /usr/share/doc/roundcube.

Otherwise, you should probably choose this option.

Configure database for roundcube with dbconfig-common?

<Yes>   <No>

Roundcube configuration: Enter a password for the database:

┤ Configuring roundcube-core ├

Please provide a password for roundcube to register with the database server. If left blank, a random password will be generated.

MySQL application password for roundcube:

<Ok>   <Cancel>

Roundcube configuration: Repeat the input of the database password:

```
┤ Configuring roundcube-core ├

Password confirmation:

┌──────────────────────────────────────┐
│                                      │
└──────────────────────────────────────┘

        <Ok>              <Cancel>
```

After these entries vmmail will be installed.
After the installation, reboot the server: shutdown -r now
After booting, vmmail is available.

3 Configure vmmail

To explain the configuration, I use the mail adresses vera.gemini@gmx.net.

Add new user
To add a new user, use the command `madduser` on a shell.
The parameters for the `madduser` command are:

```
-u <User name>
-p <User password for roundcube>
-e <Mail address without domain>
-i <Password for local IMAP connection with a Mail client>
-a <Password for the archive user>
```

Note:
- Do not forget the simple apostrophe for the passwords.
- Structure password: The password must have a length of 10 characters, with a capital letter, a number and a special character.

Example:
```
sudo madduser -u vera -p 'Secret.123' -e vera.gemini -o 'secret!1234' -i
'Secret.123' -a 'Secret.123'
```

The output is:
```
** vera **
* create user
* set password
* create IMAP user
* set password IMAP
* change group
* create archive user
* set password archiv
* change groud
* add /etc/fetchmailrc
* add /etc/postix/bcc_maps
* add /etc/aliases
* change /etc/passwd
```

# 4 Configure Roundcube

Roundcube is a free software for webmail.

For more information, read here: https://github.com/roundcube/roundcubemail/wiki/Online-Help

Start a browser und enter these address: https://<IP address from your vmmail server>/roundcube
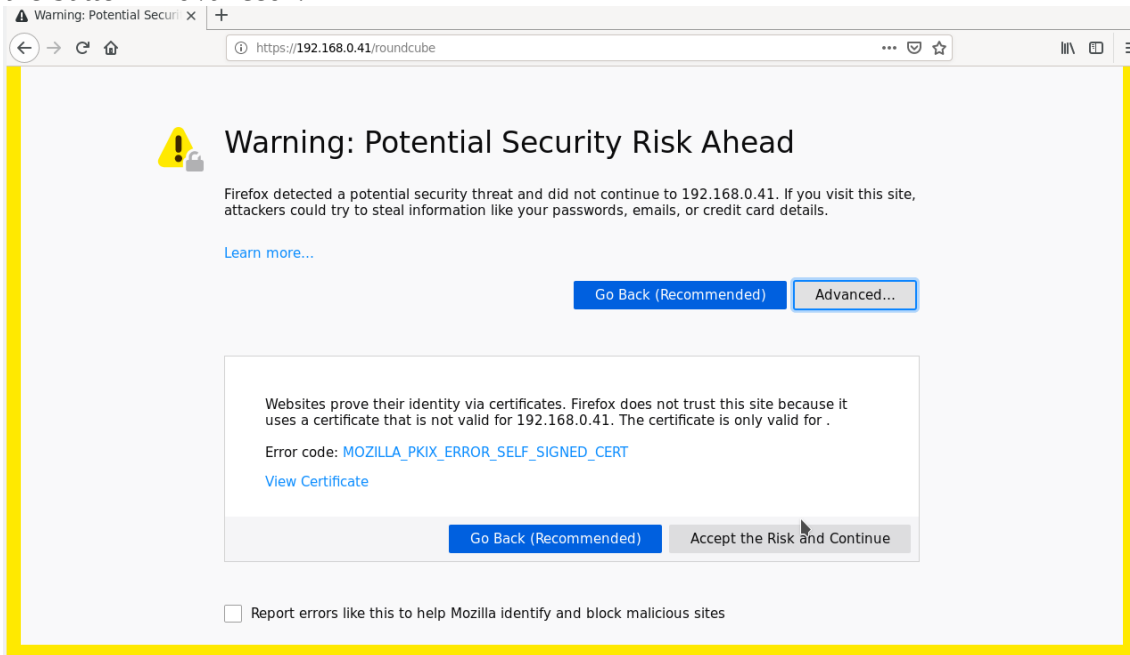After this input this display appears:
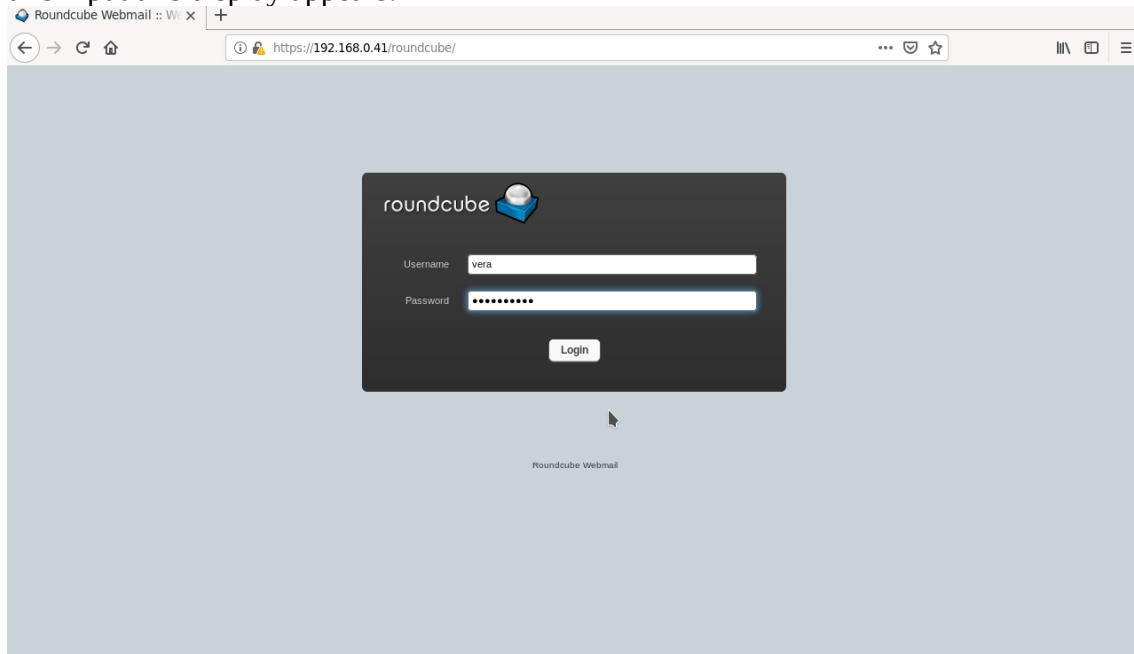
Enter the Username and Password. In our example the user name is "vera" an the password is "Secret.123".

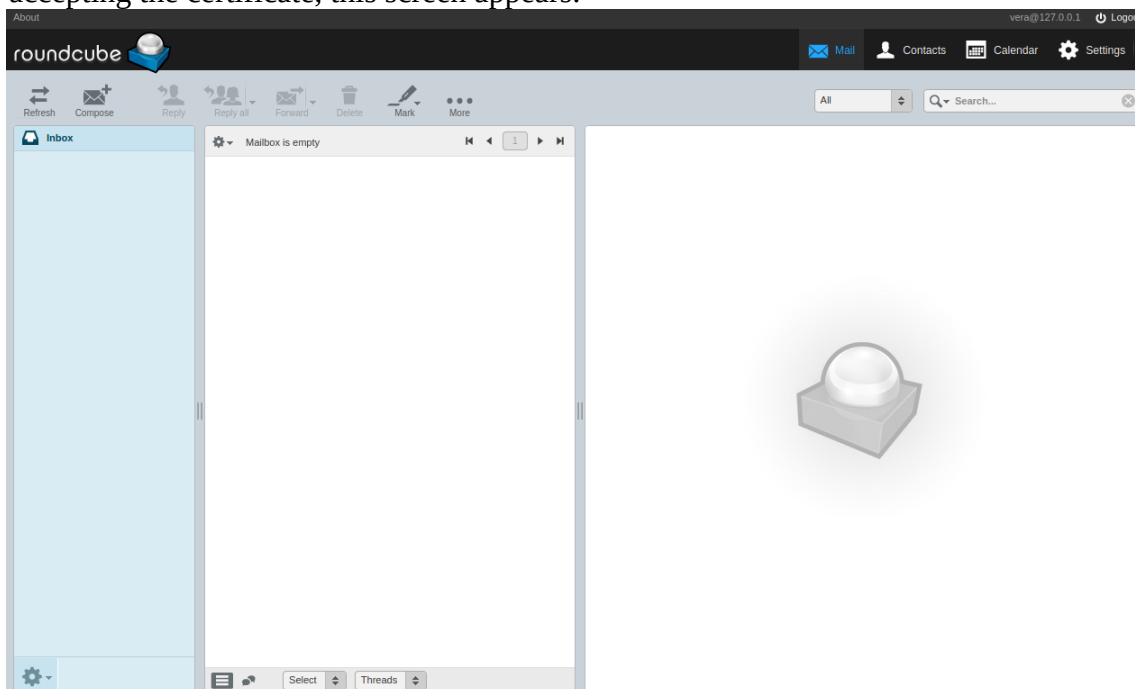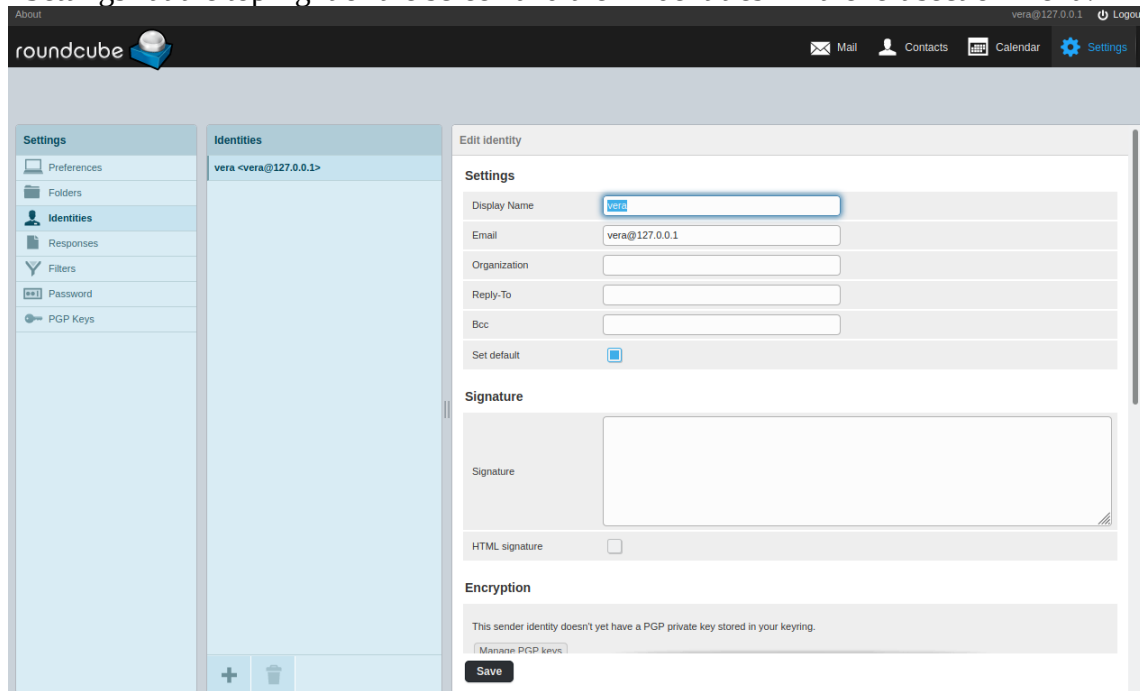If you log in first, you will receive a security request for the certificate:
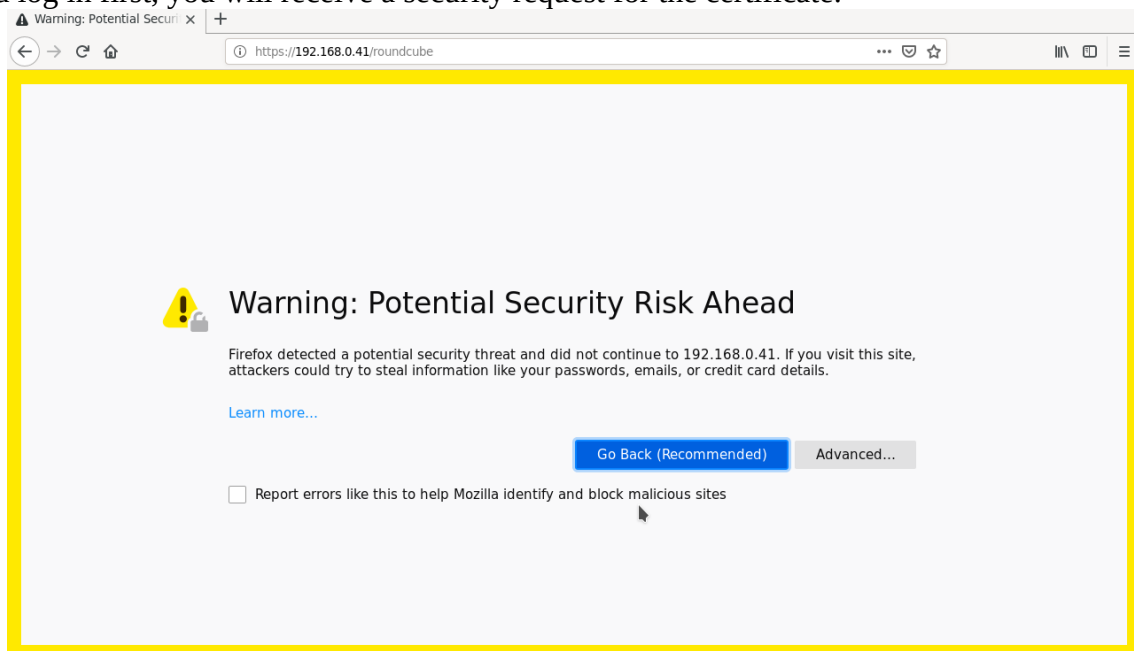
Press the button "Advanced":

Press the button "Accept the Risk and Continue".
The reason is that vmmail uses a custom certificate.

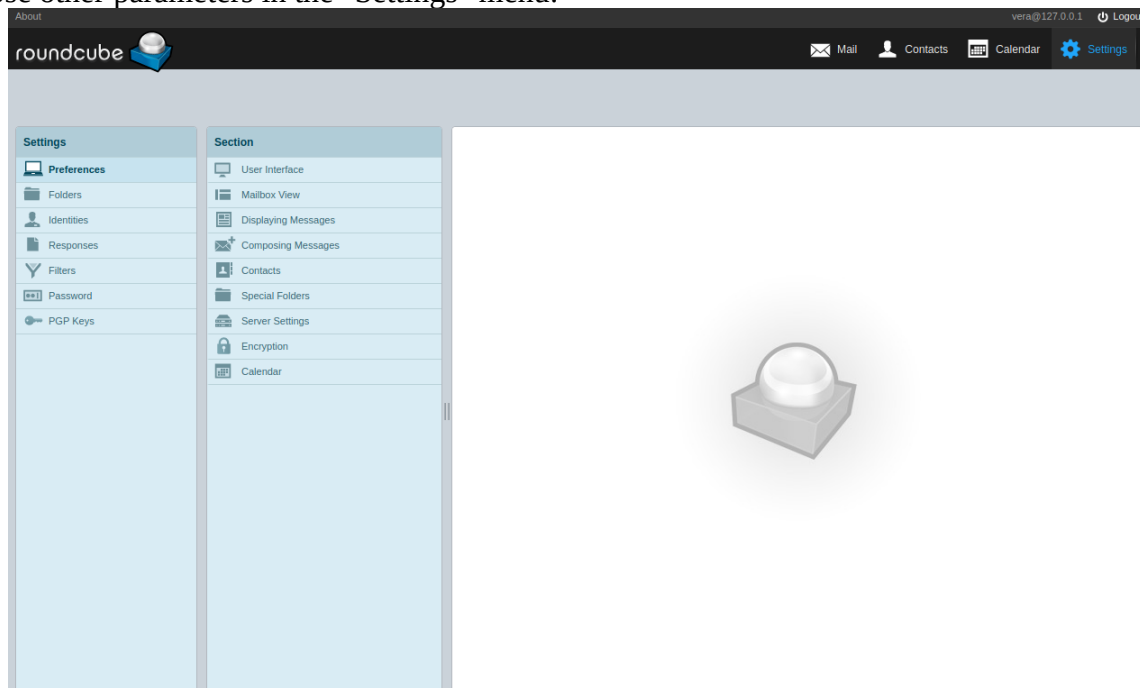After accepting the certificate, this screen appears:

Press "Settings" at the top right of the screen and then "Identities" in the left section menu:

Enter the Display name and the Email address and press "Save".
In our example the Display name is "Vera Gemini" an the Email address is "vera.gemini@gmx.net"

Choose other parameters in the "Settings" menu:

4.1 Share folders

Roundcube allows one user to access multiple mail accounts.

To access another email account, proceed as follows.
1. Select Identities under Settings.
2. Click +
3. Enter the name and email address of the email account you want to access under Edit Identity.
4. Click on Enabled for Plugin ident_switch and enter these parameters:
   - Label: desired name
   - Server host name: localhost
   - Port: 143
   - Username: Name of the desired email account
   - Password: Password of the desired email account
   - Folder hierarchy delimiter: .
5. For "SMTP" enter these parameters:
   - Server host name: localhost
   - Port: 25
   - Authorization: As IMAP
6. The connection is established by pressing the "Save" button.
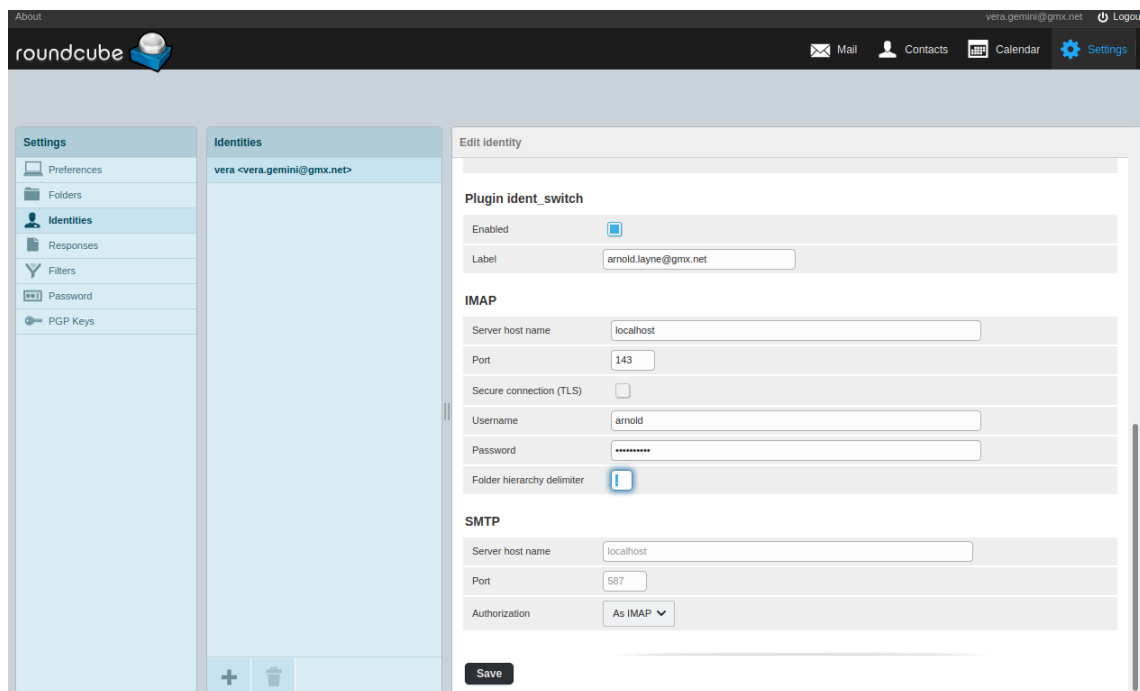
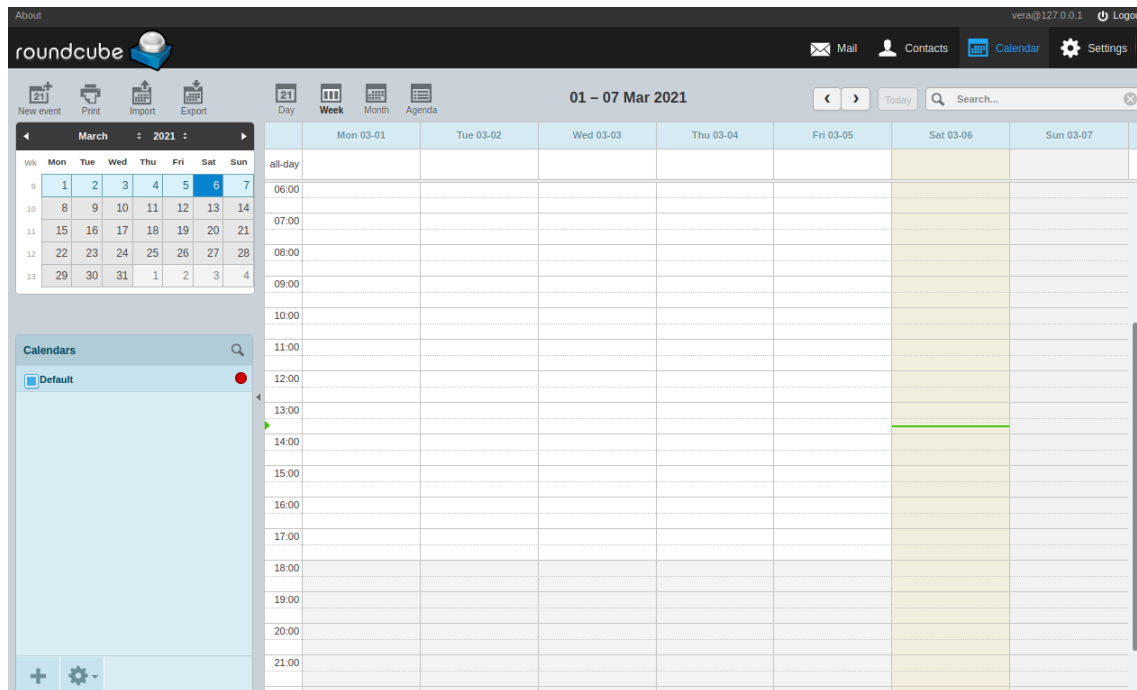In the email overview there is then a combo box to select the user or their folder:
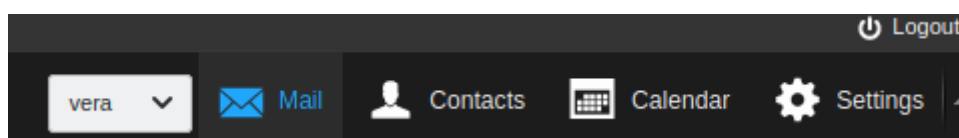
4.2 Calendar

A calendar has been added in roundcube:

4.2.1 Share calendar

You can also create calendars that can be used by multiple users. To do this, create a new calendar for each user (with "+" in the calendar plugin). The name of the calendar must be unique. The calendar must then be shared with the users. This is done in the terminal of the server with the command `msharecalendar.`

Procedure:
1. Create a calendar with the same name for all users who should share a calendar.
2. Execute this command in the terminal for each user:
   ```
   sudo msharecalendar -e '<email address>' -c <calendar name> -a
   ```
   `<email address>` is the email address of the user who should also have access to this calendar. For the email address, use the name from "Email" under "Settings" / "Identities". `<calendar name>` is the name of the calendar to be shared.

msharecalendar has these parameters:
```
-e <email address>
-c <calendar name the user is allowed to access>
-a add calendar to user
-d Remove calendar from user
```

Example:
For the user "vera" we create a calendar with the name "Holidays". Then, for the users "arnold" and "bob", we also create a calendar with the name "Holidays".

So that both users can access this calendar, we must give the users "arnold" (email address arnold@gmx.net) and "bob" (email address bob@gmx.net) the right to access the calendar of "vera". For this we enter in the terminal

```
sudo msharecalendar -e 'arnold@gmx.net' -c Holidays -a
sudo msharecalendar -e 'bob@gmx.net' -c Holidays -a
```

Note: For the user "vera" we don't need to run `msharecalendar` because "vera" is the owner of the calendar (for "vera" we created the calendar first).

4.3 Encrypt emails with PGP

In roundcube the plugin enigma is installed to encrypt emails. You can manage keys via "Settings" and "PGP Keys":
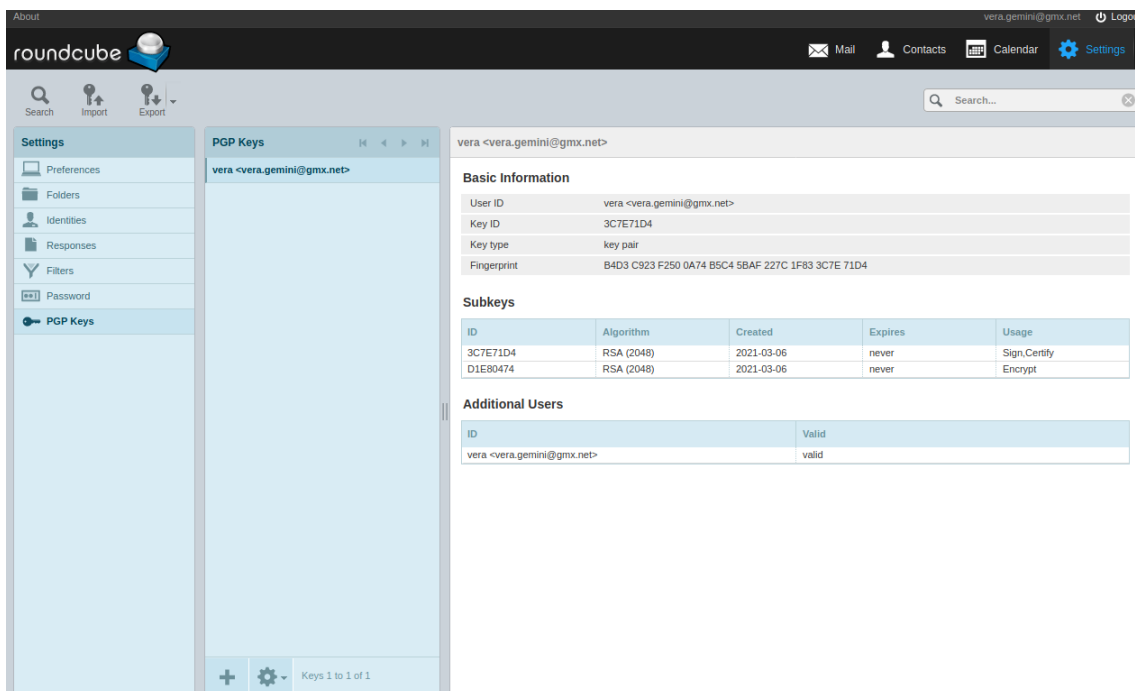
With "+" a new key can be created.

4.4 Customize roundcube

The file `/etc/roundcube/config.inc.php` is the default configuration file for roundcube.
See here for more information:
https://docs.kolab.org/administrator-guide/roundcube-settings-reference.html

Here is an example how to secure roundcube. Add this line at the end of `/etc/roundcube/config.inc.php`:

```
$config['product_name'] = 'vmmail';
$config['default_charset'] = 'UTF-8';
$rcmail_config['dont_override'][] = 'default_charset';
$rcmail_config['identities_level'] = 4;
$rcmail_config['dont_override'][] = 'skin';
$config['mail_pagesize'] = 50;
```

```
$config['addressbook_pagesize'] = 50;
$rcmail_config['prefer_html'] = true;
$rcmail_config['dont_override'][] = 'prefer_html';
$config['show_images'] = 0;
$rcmail_config['dont_override'][] = 'show_images';
$config['htmleditor'] = 4;
$rcmail_config['dont_override'][] = 'htmleditor';
$config['prettydate'] = false;
$rcmail_config['dont_override'][] = 'prettydate';
$config['draft_autosave'] = 60;
$rcmail_config['dont_override'][] = 'draft_autosave';
$rcmail_config['preview_pane'] = true;
//$rcmail_config['dont_override'][] = 'preview_pane';
$rcmail_config['inline_images'] = false;
$rcmail_config['dont_override'][] = 'inline_images';
$rcmail_config['check_all_folders'] = false;
$rcmail_config['dont_override'][] = 'check_all_folders';

// Country specific adjustments
$config['timezone'] = 'Europe/Berlin';
$rcmail_config['dont_override'][] = 'timezone';
$config['language'] = 'de_DE';
$rcmail_config['dont_override'][] = 'language';
$rcmail_config['locale_string'] = 'de-DE';

$rcmail_config['dont_override'][] = 'locale_string';
$config['message_extwin'] = true;
$config['compose_extwin'] = true;
$config['reply_mode'] = 1;
$rcmail_config['dont_override'][] = 'reply_mode';
$config['show_sig'] = 1;
$rcmail_config['dont_override'][] = 'show_sig';
$config['sig_separator'] = false;
$rcmail_config['dont_override'][] = 'sig_separator';
$config['dsn_default'] = 0;
$rcmail_config['dont_override'][] = 'dsn_default';
$config['mdn_default'] = 0;
$rcmail_config['dont_override'][] = 'mdn_default';
$config['mdn_requests'] = 2;
$rcmail_config['dont_override'][] = 'mdn_requests';
$config['display_product_info'] = 0;
$config['date_format'] = 'Y-m-d';
$rcmail_config['dont_override'][] = 'date_format';
$config['time_format'] = 'H:i';
$rcmail_config['dont_override'][] = 'time_format';
$config['min_refresh_interval'] = 60;
$rcmail_config['dont_override'][] = 'min_refresh_interval';
$config['forward_attachment'] = false;
$rcmail_config['dont_override'][] = 'forward_attachment';
$config['default_font'] = 'Verdana';
$rcmail_config['dont_override'][] = 'default_font';
$config['default_font_size'] = '10pt';
$rcmail_config['dont_override'][] = 'default_font_size';
$config['message_show_email'] = true;
$rcmail_config['dont_override'][] = 'message_show_email';
$config['reply_all_mode'] = 0;
$rcmail_config['dont_override'][] = 'reply_all_mode';
$config['reply_same_folder'] = false;
$rcmail_config['dont_override'][] = 'reply_same_folder';
$config['enable_spellcheck'] = true;
$rcmail_config['dont_override'][] = 'enable_spellcheck';
$config['refresh_interval'] = 60;
$rcmail_config['dont_override'][] = 'refresh_interval';
```

```php
$config['standard_windows'] = true;
$rcmail_config['dont_override'][] = 'standard_windows';
$config['mail_read_time'] = 0;
$rcmail_config['dont_override'][] = 'mail_read_time';
$config['mime_param_folding'] = 1;
$rcmail_config['dont_override'][] = 'mime_param_folding';
$config['display_next'] = true;
$rcmail_config['dont_override'][] = 'display_next';
$config['default_list_mode'] = 'list';
$config['autoexpand_threads'] = 0;
$rcmail_config['dont_override'][] = 'autoexpand_threads';
$config['strip_existing_sig'] = false;
$rcmail_config['dont_override'][] = 'strip_existing_sig';
$config['sig_below'] = false;
$rcmail_config['dont_override'][] = 'sig_below';
$config['read_when_deleted'] = true;
$rcmail_config['dont_override'][] = 'read_when_deleted';
$config['force_7bit'] = false;
$config['compose_save_localstorage'] = true;
$rcmail_config['dont_override'][] = 'compose_save_localstorage';
$config['show_real_foldernames'] = false;
$rcmail_config['dont_override'][] = 'show_real_foldernames';
$config['drafts_mbox'] = 'Drafts';
$rcmail_config['dont_override'][] = 'drafts_mbox';
$config['junk_mbox'] = 'Spam';
$rcmail_config['dont_override'][] = 'junk_mbox';
$config['sent_mbox'] = 'Sent';
$rcmail_config['dont_override'][] = 'sent_mbox';
$config['trash_mbox'] = 'Trash';
$rcmail_config['dont_override'][] = 'trash_mbox';
$config['archive_mbox'] = 'Archives';
$rcmail_config['dont_override'][] = 'archive_mbox';
$config['create_default_folders'] = true;
$rcmail_config['dont_override'][] = 'create_default_folders';
$config['protect_default_folders'] = true;
$rcmail_config['dont_override'][] = 'protect_default_folders';
$config['logout_purge'] = false;
$rcmail_config['dont_override'][] = 'logout_purge';
```

# 5 Connect a mail client to vmmail

In this example, I'll show you how to connect thunderbird to vmmail and imap.

1. Start Thunderbird and choose in the Menu "Edit" "Account settings" and in the dialog chose "Add mail account".

2. Enter your mail address and password. In our example the mail adresse is "vera.gemini@gmx.net". The password is the IMAP password from the command madduser (parameter -i):
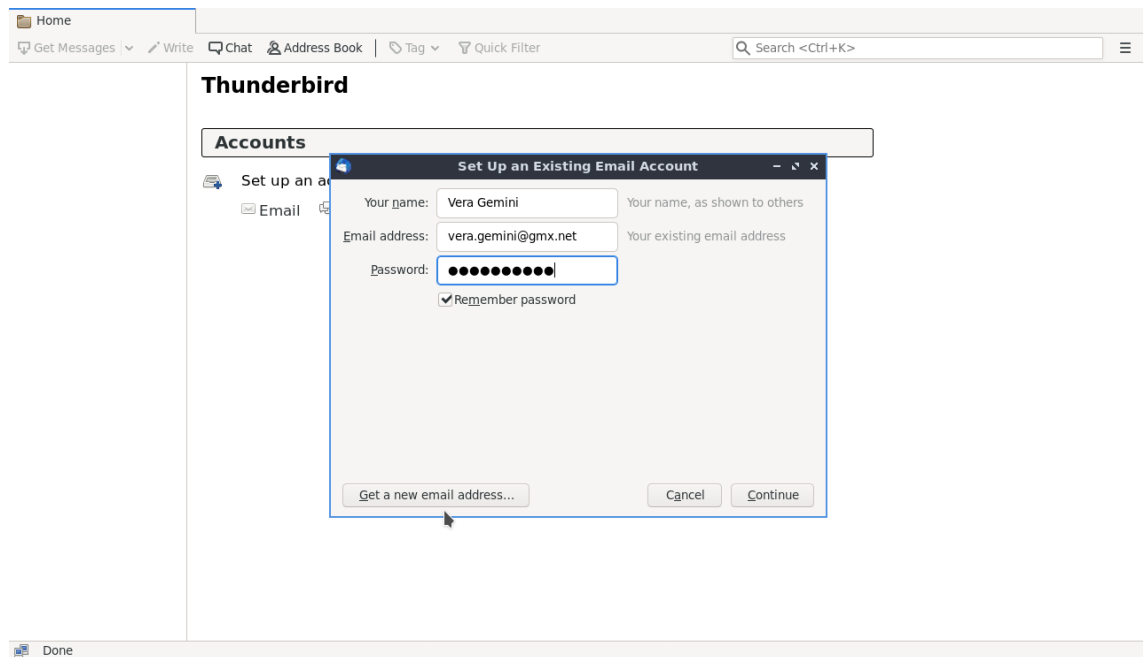
   Press the button "Continue" and then press the button "Manual config".

3. To connect to vmmail, complete the entries:
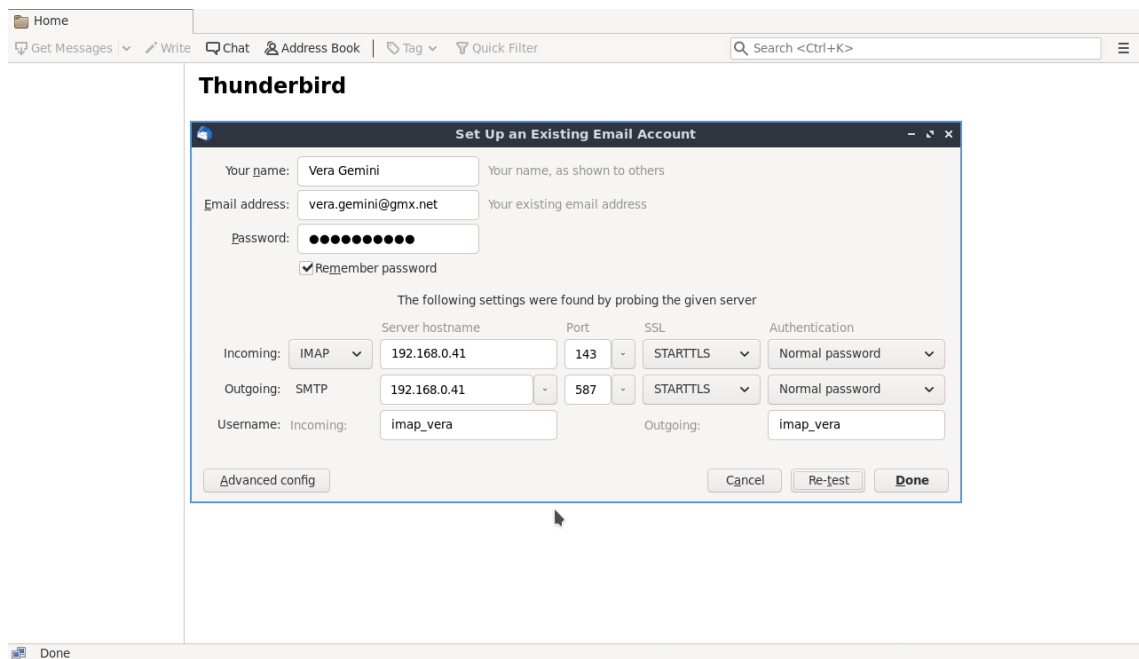
   Enter Server hostname. In our example the vmmail server has the IP address 192.168.0.41.

For incoming connection choose IMAP, Port 143, authentication type STARTLS with "Normal password".
For outgoing connection choose SMTP, Port 587, authentication type STARTLS with "Normal password".
This means that the communication between thunderbird and vmmail takes place encrypted.
The Username for incoming and outgoing connection is "imap_vera".
Press "Done" to establish the connection.

4. After setting up the connection, thunderbird notes that the certificate is not public, because the certificate is own signed:
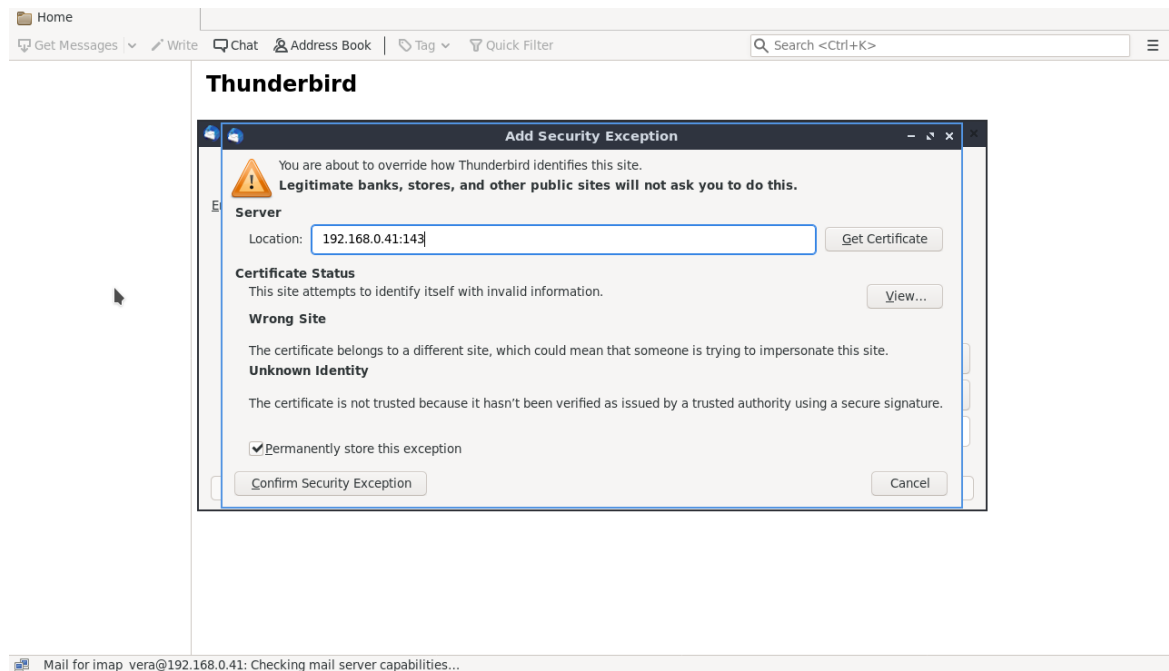
Press "Confirm Security Execption".

6 Backup Server

You can create a second mail server. This is then a backup server in case the mail server fails. For this purpose the mails and the roundcube data are copied periodically to the spare server.
There are several scripts for this in the folder `/mailserver/util`:

`roundcube-export.sh`
This script creates a dump of the database for roundcube. This script is executed on the mail server.

`roundcube-import.sh`
This script imports a dump of the roundcube database. This script is executed on the backup server.

`crontab_mailserver`
Crontab file that can be used for backup mails.

6.1 Config backup server

1. Create a second mail server with vmmail.
2. Name the server `mailbackup.`
3. **Important:** Turn off fetchmail: `systemctl disable fetchmail`
4. Create the users that you also have on the mail server.
5. Add the following to the `/etc/hosts` file:
   `<IP address mailserver>        mailserver`

6.2 Set up backup on the mail server

The replication of dovecot is used to synchronize the mails. The user `vmail` is used for replication.
This was already created during the installation. See `/mailserver/replication.sh` and `/etc/dovecot/conf.d/17-replication.conf`.

1. Add to the `/etc/hosts` file:
   `<IP address mailbackup server>      mailbackup`
2. Activate the crontab: `sudo /mailserver/crontab_mailserver`

Now the mails and the roundcube data will be copied periodically to the backup server.

6.2.1 Check replication

You can use the command
   `sudo doveadm replicator dsync-status '*'`
to get an overview of what replication is currently dealing with.

You can use the command
   `sudo doveadm replicator status '*'`
to display the current state of the system and how many entries are currently waiting to be processed in the replication queue.

`Mit`

6.3 Archive mails

By default, emails are copied to an archive directory on the mail server.

With the command `madduser` a new user is created. After that there are two new user:

`username` and `archiv_username`.

All inbound and outbound mails store copies in user `archiv_username`. You can access the archived mails by logging into roundcube with the username "archiv_<username>" and the password that you created with `madduser` and the parameter -a.

In our example, you can login in roundcube with the Username "archiv_vera" and the password "Secret.123".
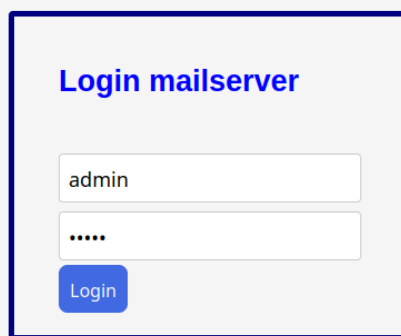
7 Web configuration

vmmail can be configured with a browser. Note: texts with a green background are displayed. These show you which entries are allowed or which changes are made to the system.

7.1 Login

Enter in the browser: *https://<name or IP of the mail server>/login*
Enter "admin" as user name and "admin" as password.

Login mailserver

admin

•••••

Login

After successful login, all email users will be displayed.
Now you can register a new user (button "New user") or change a user. To do this, click on the desired user name.

Mailserver

User   SMTP   POP   Domain   Restart   Log   Calendar   Settings   Logout

Manage user

User name	UID	Mail address	Enabled
arnold	1002	arnold.layne@gmx.net	✓
vera	1001	vera.gemini@gmx.net	✓

New User

7.2 Create new user

Enter the necessary information. The user name may only contain lower case letters or numbers. If you want the user to have a specific User ID, fill in the UID field. The email address must be entered without the domain.
To save, click the Save button.

Mailserver

New user

Password: 10 characters long, 1 uppercase, 1 lowercase, 1 digit, 1 special character

User name

buck

UID

User password

zmBoC.oTF2021

Email address (without domain)

buck.dharma

POP3 password

xmBaoC.!TF202

IMAP password

kmoWC1.=34

Archiv password

uUzA!134abc#

Save

7.3 Change user

You can change the email address and passwords of a user here.

Mailserver

User   SMTP   POP   Domain   Restart   Log   Calendar   Settings   Logout

Edit user

Password: 10 characters long, 1 uppercase, 1 lowercase, 1 digit, 1 special character

User name

arnold

User ID

1002

Enabled ☑

User password

Email address (without domain)

arnold.layne

POP3 password

IMAP password

Archiv password

Save

7.4 Change SMTP

SMTP is used to send emails to the email server. You can change here the SMTP server of your provider as well as the email address and the password for the SMTP access.

Mailserver

| User | SMTP | POP | Domain | Restart | Log | Calendar | Settings | Logout |

Edit SMTP

change:
/etc/postfix/sasl_passwd
/etc/postfix/main.cf: relayhost

after edit: restart postfix

SMTP server

smtp.gmx.net

Mail address

info@gmx.net

Password

DftRe1976!

Save

7.5 Change POP3 Server

Here you can change the POP3 server. The POP3 server is needed to fetch emails from the provider.

Mailserver

| User | SMTP | POP | Domain | Restart | Log | Calendar | Settings | Logout |

Edit POP3

change: /etc/fetchmailrc

POP3 server

pop.gmx.net

Save

7.6 Domain

The domain name can be changed here.

Mailserver

| User | SMTP | POP | Domain | Restart | Log | Calendar | Settings | Logout |

Edit Domain

change:
/etc/postfix/main.cf: mydomain
/etc/fetchmailrc
/etc/postfix/bcc_maps

after edit: restart postfix

Domain

gmx.net

Save

7.7 Restart

Here the services Postfix and Fetchmail can be started or stopped. The current state is displayed to the left of the buttons.
The results of starting or stopping a service are displayed in the lower text area.
You can also shut down the system here ("Shutdown system" button) or restart it ("Restart system" button). To do this, the login password must be entered beforehand.

7.8 Log

Click on the "Mail" or "Fetchmail" button to see the current log files of these services. The last 1000 lines of these log files are displayed.

7.9 Share calendar

Roundcube has a calendar. A calendar can normally only be managed by one user. With "Share calendar" you can make a calendar available to multiple users. All users who own a calendar are displayed in the table. The default calendar is not displayed. If the same entry appears more than once in the "ID" column, a calendar is used by several users.
In the "Calendar name" and "Mail address" fields, enter the name of the calendar and the user who is to share a calendar.
You can also remove an email address from a calendar. For this purpose the "Remove mail address from calendar" checkbox must be active.

Mailserver

| User | SMTP | POP | Domain | Restart | Log | Calendar | Settings | Logout |

Share calendar

First: Create a calendar in roundcube for all users who should share this calendar

Mail address	Calendar name	ID
vera@gmx.net	holiday	2
arnold@gmx.net	holiday	4

Calendar name

holiday

Mail address

vera@gmx.net

Remove mail address from calendar ☐

Save

7.10 Settings

You can change the login name and password here. The changes are written to the file
`/mailserver/mailadmin.ini.`

8 Inside vmmail

vmmail uses standard components:
- postfix (to end mails)
- dovecot (IMAP server)
- roundcube (Webmail)
- fetchmail (get mails)
- imapsync (copies emails from one server to the other)

8.1 Start and stop services

Postfix: `service stop/start/restart postfix`
Dovecot: `service stop/start/restart dovecot`
Fetchmail: `service stop/start/restart fetchmail`
Apache: `service stop/start/restart apache2`
Show Status: `systemctl status <service>`

8.2 Create another certificate

The communication between roundcube and the browser is encrypted ssl. vmmail comes with own signed certificate. The certifcates are in the folder `/mailserver/cert`.
To create another certificate, you can use the script `/mailserver/util/certificate.sh`

8.3 Archive

With the command `madduser` a new user is created. After that there are two new user: `username` and `archiv_username`.
All inbound and outbound mails store copies in user `archiv_username`. You can access the archived mails by logging into roundcube with the username "archiv_<username>" and the password that you created with `madduser` and the parameter -a.
In our example, you can login in roundcube with the Username "archiv_vera" and the password "Secret.123".

To archive mails, the file `/etc/postfix/bcc_maps` must be present in postfix. The structure of the file is: `<mail address> <archive mail adress>`
Example: `vera.gemini@gmx.net archiv_vera@gmx.net`

The file `/etc/postfix/bcc_maps` is automatically supplemented when creating a user with the command `madduser`.
If you change this file, you must then execute the command `postmap /etc/postfix/bcc_maps`.

8.4 Repair mailbox index

To repair an mailbox use the command: `doveadm -v index -u <Username> <Mailbox>`
Example: Repair the inbox from user vera: `doveadm -v index -u vera INBOX`

8.5 Place of the Mails

The emails are stored in the home directory of a user . The folder is called `Maildir`. A file is created per email.

8.6 Get mails

Emails are picked up by fetchmail from the provider. The configuration file is called `/etc/fetchmailrc`. Structure of the file `/etc/fetchmailrc` to pick up emails for a user:

        user <email> there with password <password> ssl is <username>

Example: `user vera.gemini@gmx.net there with password 'secret!1234' ssl is vera`
Get all files of the email address `vera.gemini@gmx.net` from the provider with ssl encryption and password `secret!1234` and send them to the user `vera`.

8.7 Change the pickup times

fetchmail picks up the mails from the provider.
Edit the configuration file `/etc/fetchmailrc` and change the entry "set daemon 600". 600 means that the mails are picked up every 600 seconds.
Restart fetchmail: `service fetchmail restart`

8.8 Important files

`/var/log/mail.log:`   Log files from postfix
`/var/log/fetchmail.log:` Log files from fetchmail
`/mailserver/mailadmin.ini:` Login name and Password for Web administration
`/mailserver/cert:`   Certificates

9 Configuration

These changes have been made to customize vmmail. The following actions are automatically performed during the installation.

9.1 New user

Changes in file `/etc/skel`:

```
maildirname.dovecot /etc/skel
maildirname.dovecot /etc/skel/Maildir/.Drafts
maildirname.dovecot /etc/skel/Maildir/.Sent
maildirname.dovecot /etc/skel/Maildir/.Spam
maildirname.dovecot /etc/skel/Maildir/.Trash
maildirname.dovecot /etc/skel/Maildir/.Templates
```

9.2 Postfix

Extensions in file `/etc/postfix`:

These changes are for user authentication or come from a privileged network:

```
smtpd_recipient_restrictions = permit_sasl_authenticated permit_mynetworks
reject_unauth_destination
smtpd_helo_required = yes
smtpd_helo_restrictions = permit_mynetworks permit_sasl_authenticated
reject_invalid_helo_hostname reject_non_fqdn_helo_hostname
reject_unknown_helo_hostname
```

Store mails in directory Maildir:

```
home_mailbox = Maildir
```

Dovecot sends emails:

```
mailbox_command = /usr/lib/dovecot/dovecot-lda -f "$SENDER" -a
"$RECIPIENT"
```

Activate SASL:

```
smtpd_sasl_type = dovecot
smtpd_sasl_path = private/auth
smtpd_sasl_auth_enable = yes
```

Ativate port 587 for sending mails with TLS encryption:

```
submission inet n         -       y       -       -       smtpd
  -o syslog_name=postfix/submission
  -o smtpd_tls_security_level=encrypt
  -o smtpd_sasl_auth_enable=yes
  -o smtpd_reject_unlisted_recipient=no
  -o smtpd_client_restrictions=$mua_client_restrictions
  -o smtpd_helo_restrictions=$mua_helo_restrictions
  -o smtpd_sender_restrictions=$mua_sender_restrictions
```

```
      -o smtpd_recipient_restrictions=
      -o smtpd_relay_restrictions=permit_sasl_authenticated,reject
      -o milter_macro_daemon_name=ORIGINATING
```

9.3 Dovecot

Changes in file `/etc/dovecot/conf.d/10-mail.conf`:
```
      mail_location = maildir:~/Maildir
```

Activate SASL. Edit file `/etc/dovecot.conf.d/10-master.conf`:
```
      service auth {
        unix_listener /var/spool/postfix/private/auth {
          mode = 0660
          user = postfix
          group = postfix
        }
```

Disable plaintext authentication. Edit `/etc/dovecot/conf.d/10-auth.conf`:
```
      disable_plaintext_auth = no
```

Use only TLS communication. Edit file `/etc/dovecot.conf.d/10-master.conf`:
```
      service imap-login {
        inet_listener imaps {
          port = 993
          ssl = yes
        }
      }
```

Activate sieve for filter mails. Edit `/etc/dovecot/conf.d/20-managesieve.conf`:
```
      protocols = $protocols sieve
      service managesieve-login {
        inet_listener sieve {
          port = 4190
        }
```

Path for sieve. Edit `/etc/dovecot/conf.d/90-sieve.conf`:
```
      sieve = ~/.dovecot.sieve
       sieve_global_path = /var/lib/dovecot/sieve/default.sieve
       sieve_dir = ~/sieve
       sieve_global_dir = /var/lib/dovecot/sieve/
```

Mail plugin for sieve. Edit `/etc/dovecot/cond.f/15-lda.conf`:
```
      protocol lda {
        # Space separated list of plugins to load (default is global
mail_plugins).
        mail_plugins = $mail_plugins sieve
      }
```

Edit `/etc/dovecot/dovecot.conf`:
```
      managesieve_notify_capability = mailto
```

```
    managesieve_sieve_capability = fileinto reject envelope encodec-character
vacation    subaddress comparator-i;ascii-numeric relational regex imap4flags
copy include    variables body enotify environment mailbox date
```

9.4 Roundcube

Only localhost is the roundcube server. Edit `/etc/roundcube/config.inc.php`:
```
    $config['default_host'] = '127.0.0.1';
```

Activate plugins. Edit `/etc/roundcube/config.inc.php`:
```
    $config['plugins'] = array(
        'archive',
        'zipdownload',
        'managesieve',
        'password',
        'newmail_notifier',
    );
```

9.5 Apache

Apache is a web server and is needed for roundcube.

Activate SSL. Edit `/etc/apache2/sites-available/default-ssl.conf`:
```
    SSLCertificateFile    /mailserver/cert/cert.pem
    SSLCertificateKeyFile /mailserver/cert/key.pem
```

Activate SSL modul:
```
    a2enmod ssl
    a2ensite default-ssl.conf
    systemctl restart apache2
```