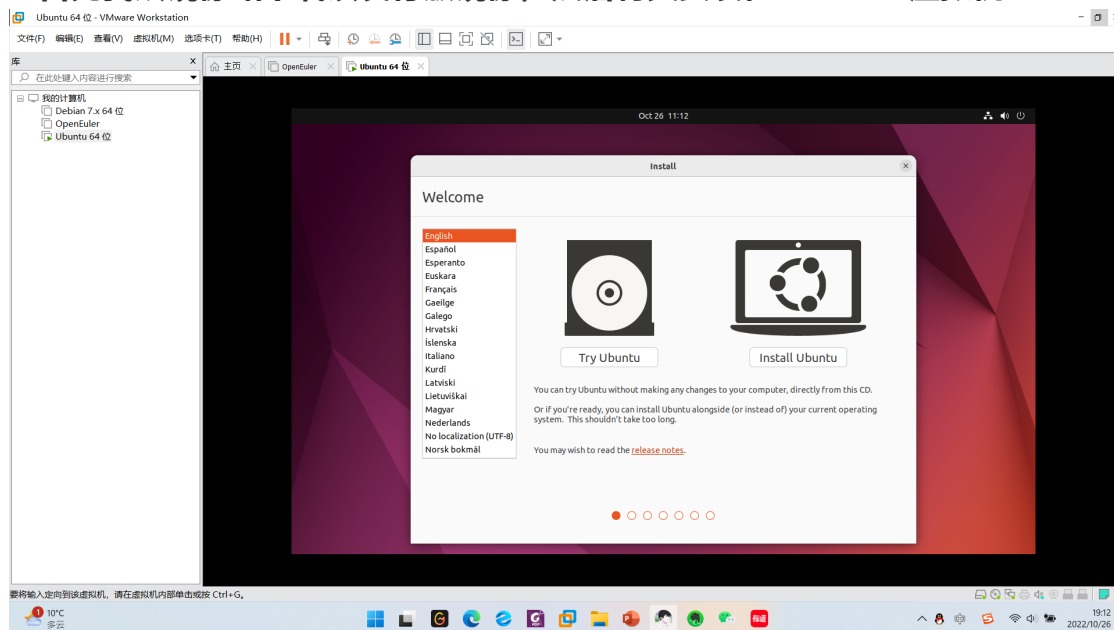# 2022兰州大学开源社区纳新Linux题组解答

21级 数科一班 周忠泉

这次Linux试题组解答我采用的是ubuntu-22.04.1发行版，为了符合试题组要求，我将重新从零开始安装一个新系统并完成试题三： 使用dovecot、 postfix搭建一个邮件服务器（虽然群里说搭建够有bug）。

下面我将从系统安装、系统优化、试题解答三部分展示我对本次纳新题组的解答，过程中会附上命令行代码以及相关截图，最后是期待入社与个人总结。

1.首先我从镜像站下载该发行版镜像，然后将其安装在VMware虚拟机上：

这里我先选择了最小安装，减少安装时间，图形化界面可以后续再进行安装（仅需几行代码），我个人在linux系统学习时使用的是命令行。安装前选择btrfs分区。

2.安装完成后首先优化一下新系统：apt更新一下系统软件，安装openssh-server方便我们使用CMD窗口用ssh访问改linux系统，然后关闭防火墙和selinux：

> sudo apt-get update
> sudo apt-get install openssh-server

> vi /etc/selinux/config
> SELINUX=enforcing

> #sudo ufw disable

3.接下来我们开始安装图形化界面:

> sudo apt-get install ubuntu-desktop
> sudo apt-get install unity
> sudo apt-get install lightdm

可以设置开机默认图形化界面，然后重启系统（这里我还是更习惯命令行）

> sudo systemctl set-default graphical.target
> reboot

4.检查一下系统的分区

活动　◎ 磁盘　10月26日 21：11

磁盘　≡

43 GB Hard Disk
VMware, VMware Virtual S

5.4 GB Hard Disk
VMware, VMware Virtual S

CD/DVD Drive
VMware Virt...　CDRW Drive

43 GB Hard Disk
/dev/sda

型号　VMware, VMware Virtual S (1.0)
大小　43 GB (42,949,672,960 bytes)
分区　GUID Partition Table

卷(V)

分区 1
1.0 MB Unk…

文件系统
分区 2：EFI S…
538 MB FAT

文件系统
分区 3
42 GB Ext4

大小　42 GB — 30 GB 可用（已用 28.6%）
内容　Ext4 (version 1.0) — 已挂载到 文件系统根目录
设备　/dev/sda3
UUID　3f771aa4-c07b-4fa8-80cc-03f081338c7b
分区类型　Linux Swap

活动　◎ 磁盘　10月26日 21：10

磁盘　≡

43 GB Hard Disk
VMware, VMware Virtual S

5.4 GB Hard Disk
VMware, VMware Virtual S

CD/DVD Drive
VMware Virt...　CDRW Drive

43 GB Hard Disk
/dev/sda

型号　VMware, VMware Virtual S (1.0)
大小　43 GB (42,949,672,960 bytes)
分区　GUID Partition Table

卷(V)

分区 1
1.0 MB Unk…

文件系统
分区 2：EFI S…
538 MB FAT

文件系统
分区 3
42 GB Ext4

大小　538 MB — 531 MB 可用（已用 1.2%）
内容　FAT (32-bit version) — 已挂载到 /boot/efi
设备　/dev/sda2
UUID　6733-0BDA
分区类型　EFI System

```
root@zzq-virtual-machine:~# fdisk -1 /dev/sd*
Disk /dev/sda: 40 GiB, 42949672960 bytes, 83886080 sectors
Disk model: VMware Virtual S
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: gpt
Disk identifier: B7E3BB8D-8FA6-4800-8E61-94C6F9D41209

Device         Start      End   Sectors  Size Type
/dev/sda1       2048     4095      2048    1M BIOS boot
/dev/sda2       4096  1054719   1050624  513M EFI System
/dev/sda3    1054720 83884031  82829312 39.5G Linux swap
```

5.搭建邮件邮件服务器

首先我们先用mysql搭建一个数据库:

```
mysql -u root -p
create database mailserver character set utf8;
create user mailserver@'localhost' identified by 'mailserver123';
grant all on mailserver.* to mailserver@'localhost' identified by 'mailserver123';
exit;
mysql -u mailserver -p
use mailserver;
```

下面是建表的sql语句:

```
CREATE TABLE virtual_domains (
  id int(11) NOT NULL auto_increment,
  name varchar(50) NOT NULL,
  PRIMARY KEY (id))
  ENGINE=InnoDB DEFAULT CHARSET=utf8;

CREATE TABLE virtual_users (
  id int(11) NOT NULL auto_increment,
  domain_id int(11) NOT NULL,
  password varchar(106) NOT NULL,
  email varchar(100) NOT NULL,
  PRIMARY KEY (id),
  UNIQUE KEY email (email),
  FOREIGN KEY (domain_id) REFERENCES virtual_domains(id) ON DELETE CASCADE)
  ENGINE=InnoDB DEFAULT CHARSET=utf8;

CREATE TABLE virtual_aliases (
  id int(11) NOT NULL auto_increment,
```

domain_id int(11) NOT NULL,
source varchar(100) NOT NULL,
destination varchar(100) NOT NULL,
PRIMARY KEY (id),
FOREIGN KEY (domain_id) REFERENCES virtual_domains(id) ON DELETE CASCADE)
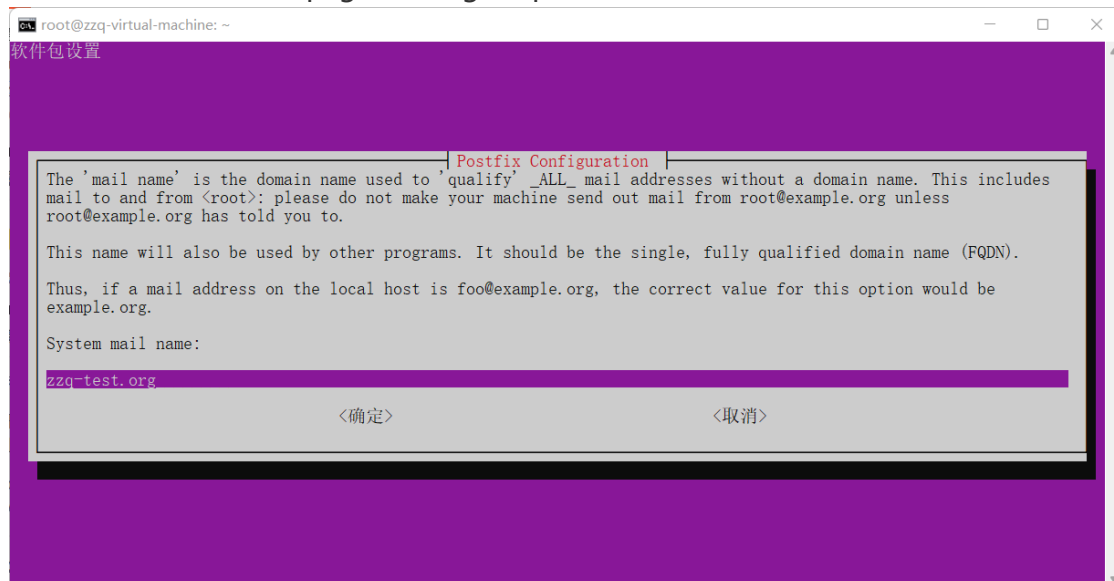ENGINE=InnoDB DEFAULT CHARSET=utf8

下面开始安装postfix

apt install postfix postfix-mysql

打开/etc/postfix/main.cf文件，进行配置：

```
# appending .domain is the MUA's job.
append_dot_mydomain = no

# Uncomment the next line to generate "delayed mail" warnings
#delay_warning_time = 4h

readme_directory = no

# See http://www.postfix.org/COMPATIBILITY_README.html -- default to 3.6 on
# fresh installs.
compatibility_level = 3.6



# TLS parameters
smtpd_tls_cert_file=/etc/ssl/certs/ssl-cert-snakeoil.pem
smtpd_tls_key_file=/etc/ssl/private/ssl-cert-snakeoil.key
smtpd_tls_security_level=may

smtp_tls_CApath=/etc/ssl/certs
smtp_tls_security_level=may
smtp_tls_session_cache_database = btree:${data_directory}/smtp_scache


smtpd_relay_restrictions = permit_mynetworks permit_sasl_authenticated defer_unauth_destination
myhostname = zzq-virtual-machine.localdomain
alias_maps = hash:/etc/aliases
alias_database = hash:/etc/aliases
mydestination = $myhostname, zzq-virtual-machine, localhost.localdomain, , localhost
relayhost =
mynetworks = 127.0.0.0/8 [::ffff:127.0.0.0]/104 [::1]/128
mailbox_size_limit = 0
```

也可以使用命令 sudo dpkg-reconfigure postfix 进行初始配置

```
软件包设置
                          ┤ Postfix Configuration ├
  The 'mail name' is the domain name used to 'qualify' _ALL_ mail addresses without a domain name. This includes
  mail to and from <root>: please do not make your machine send out mail from root@example.org unless
  root@example.org has told you to.

  This name will also be used by other programs. It should be the single, fully qualified domain name (FQDN).

  Thus, if a mail address on the local host is foo@example.org, the correct value for this option would be
  example.org.

  System mail name:

  zzq-test.org

              <确定>                                                    <取消>
```

配置完文件大致如下：


```
smtpd_banner = $myhostname ESMTP $mail_name (Ubuntu)
biff = no

# appending .domain is the MUA's job.
append_dot_mydomain = no

# Uncomment the next line to generate "delayed mail" warnings
#delay_warning_time = 4h

readme_directory = no

# See http://www.postfix.org/COMPATIBILITY_README.html -- default to 3.6 on
# fresh installs.
compatibility_level = 3.6



# TLS parameters
smtpd_tls_cert_file=/etc/ssl/certs/ssl-cert-snakeoil.pem
smtpd_tls_key_file=/etc/ssl/private/ssl-cert-snakeoil.key
smtpd_tls_security_level=may

smtp_tls_CApath=/etc/ssl/certs
smtp_tls_security_level=may
smtp_tls_session_cache_database = btree:${data_directory}/smtp_scache


smtpd_relay_restrictions = permit_mynetworks permit_sasl_authenticated defer_unauth_destination
myhostname = zzq-virtual-machine.localdomain
alias_maps = hash:/etc/aliases
alias_database = hash:/etc/aliases
mydestination = zzq-virtual-machine.localdomain, zzq-virtual-machine, localhost.localdomain, , loc
alhost
relayhost =
mynetworks = 127.0.0.0/8 [::ffff:127.0.0.0]/104 [::1]/128
mailbox_size_limit = 0
recipient_delimiter = +
inet_interfaces = all
```

安装dovecot

apt-get install dovecot-core dovecot-imapd dovecot-pop3d dovecot-lmtpd dovecot-mysql

编辑dovecot.conf
需要修改的配置文件有：

/etc/dovecot/dovecot.conf Dovecot的主配置文件
/etc/dovecot/conf.d/10-mail.conf Dovecot将要操作的磁盘路径相关配置信息
/etc/dovecot/conf.d/10-auth.conf 用户验证相关配置信息
/etc/dovecot/conf.d/auth-sql.conf.ext SQL-Type验证相关配置信息
/etc/dovecot/dovecot-sql.conf.ext Dovecot与数据库连接相关配置信息
/etc/dovecot/conf.d/10-master.conf Dovecot本地socket相关配置信息
/etc/dovecot/conf.d/10-ssl.conf 关于SSL的相关配置信息

vi /etc/dovecot/dovecot.conf

!include conf.d/*.conf
Enable installed protocols
  !include_try /usr/share/dovecot/protocols.d/*.protocol
protocols = imap pop3 lmtp

下面修改/etc/dovecot/conf.d/10-mail.conf文件

```
mail_location = maildir:/var/mail/vhosts/%d/%n
mail_privileged_group = mail
```

修改/etc/dovecot/conf.d/10-auth.conf文件

```
disable_plaintext_auth = yes
auth_mechanisms = plain login
```

开启Dovecot的MySQL支持，取消!include auth-sql.conf.ext的注释符号

修改/etc/dovecot/conf.d/auth-sql.conf.ext文件，加入以下内容：

```
passdb {
driver = sql
args = /etc/dovecot/dovecot-sql.conf.ext
}
userdb {
driver = static
args = uid=vmail gid=vmail home=/var/mail/vhosts/%d/%n
}
修改/etc/dovecot/dovecot-sql.conf.ext文件
driver = mysql
connedefault_pass_scheme = SHA512-
CRYPTct = host=127.0.0.1 dbname=mailserver user=mailserver password=mailserver123
password_query = SELECT email as user, password FROM virtual_users WHERE email='%u';
```

修改/etc/dovecot/conf.d/10-master.conf文件：

```
service lmtp {
  unix_listener /var/spool/postfix/private/dovecot-lmtp {
  mode = 0600
  user = postfix
  group = postfix
 }

 # Create inet listener only if you can't use the above UNIX socket
 #inet_listener lmtp {
  #Avoid making LMTP visible for the entire internet
  #address =
  #port =
  #}
 }
```

```
service auth {
# auth_socket_path points to this userdb socket by default. It's typically
# used by dovecot-lda, doveadm, possibly imap process, etc. Its default
```

```
# permissions make it readable only by root, but you may need to relax these
# permissions. Users that have access to this socket are able to get a list
# of all usernames and get results of everyone's userdb lookups.

unix_listener /var/spool/postfix/private/auth {
mode = 0666
user = postfix
group = postfix
}

unix_listener auth-userdb {
mode = 0600
user = vmail
#group =
}

# Postfix smtp-auth
#unix_listener /var/spool/postfix/private/auth {
#   mode = 0666
#}

# Auth process is run as this user.
user = dovecot
}

service auth-worker {
# Auth worker process is run as root by default, so that it can access
# /etc/shadow. If this isn't necessary, the user should be changed to
# $default_internal_user.
user = vmail
}
```

配置完毕后reload一下postfix和dovecot,然后检查一下配置：


```
root@zzq-virtual-machine:~# root@zzq-virtual-machine:~# sudo mv /etc/dovecot/dovecot.conf /etc/dov
ecot/dovecot-oldconf
root@zzq-virtual-machine:~# vi /etc/dovecot/dovecot.conf
root@zzq-virtual-machine:~# root@zzq-virtual-machine:~# sudo postfix reload
postfix/postfix-script: refreshing the Postfix mail system
root@zzq-virtual-machine:~# sudo dovecot reload
root@zzq-virtual-machine:~# postconf -n
alias_database = hash:/etc/aliases
alias_maps = hash:/etc/aliases
append_dot_mydomain = no
biff = no
compatibility_level = 3.6
home_mailbox = Maildir/
inet_interfaces = all
inet_protocols = all
mailbox_size_limit = 0
mydestination = zzq-virtual-machine.localdomain, zzq-virtual-machine, localhost.localdomain, , loc
alhost
myhostname = zzq-virtual-machine.localdomain
mynetworks = 127.0.0.0/8 [::ffff:127.0.0.0]/104 [::1]/128
myorigin = /etc/mailname
readme_directory = no
recipient_delimiter = +
relayhost =
smtp_tls_CApath = /etc/ssl/certs
smtp_tls_security_level = may
smtp_tls_session_cache_database = btree:${data_directory}/smtp_scache
smtpd_banner = $myhostname ESMTP $mail_name (Ubuntu)
smtpd_relay_restrictions = permit_mynetworks permit_sasl_authenticated defer_unauth_destination
smtpd_tls_cert_file = /etc/ssl/certs/ssl-cert-snakeoil.pem
```

然后我们重启一下postfix和dovecot，这里dovecot一直提不起来，估计是前面在配置时文件出现了问题


```
root@zzq-virtual-machine:~# dovecot
doveconf: Fatal: Error in configuration file /etc/dovecot/dovecot.conf line 1: Invalid boolean
ue: no mail_location = maildir:~/.Mail namespace inbox {   inbox = yes   mailbox Drafts {   s
ial_use = \Drafts   }   mailbox Sent {   special_use = \Sent   }   mailbox Trash {   specia
se = \Trash   } } passdb {   driver = pam } protocols = " imap pop3" ssl = no userdb {   driver
passwd } (use yes or no)
root@zzq-virtual-machine:~# service dovecot restart
Job for dovecot.service failed because the control process exited with error code.
See "systemctl status dovecot.service" and "journalctl -xeu dovecot.service" for details.
root@zzq-virtual-machine:~#
```

继续调试

    非常遗憾，经过一上午的调试，也没能找出问题所在，估计需要重置一下虚拟机，重装系统然后再按照我上面的流程再走一遍了。最终我对本题的解答没能做到特别完整，最后也没能测试出来这个邮件服务器能否正常工作，但是基本流程我已经执行了一遍，虽然当时开源社区群中提到这个邮件服务器可能会出现bug，但是在搭建过程中我还是学到了很多东西，同时在完成本题组时我也巩固了linux操作技能。以上就是我对2022纳新linux试题组的解答，下面是我的个人总结。

总结

    经过大概一周左右的学习和实操，我对本题组的解答过程总结完毕。其实在此之前，我就通过linux系统搭建过DIscuz论坛完成过计算与信息学设计的大作业，具体实现过程发布在的CSDN的博客中；并且在今年暑假中也动手实现了使用nginx和nginx-rmtp搭建流媒体服务器、实现nginx负载均衡、搭建nfs文件服务器、搭建wordpress个人博客（当时

使用的是openeuler，也是装在的虚拟机上），并用word文档进行了简单的过程记录，具体文件放在了我个人的Bitbucket上。

下面附上连接：https://blog.csdn.net/zhouzhq2021?spm=1000.2115.3001.5343
https://bitbucket.org/zhouzhq2021/linux_learning/src/main/

在linux学习上我还只算得上入门，还有很多东西需要去学习，所以非常期待能够加入兰州大学开源社区，继续学习linux，并为社区做出自己的一份贡献！