

成绩	
教师	

福建船政交通职业学院

综合项目实训报告书

课程名称：Linux 综合应用实训

姓名：Zmzaxg

学号：22xxxxx

专业班级：

指导老师：

日期：

集中实训报告书

一、项目实训的目的

实训是教学工作的重要环节，是课堂理论教学的检验和延续，是培养学生实践技能的重要场所。

通过实训，使学生能够完成企业 Linux 服务器的配置、管理与维护。通过实际操作，使学生掌握一定的操作技能，能认真、细致、准确的操作。通过实践过程，培养学生独立思考、独立工作的能力及团队协作精神。

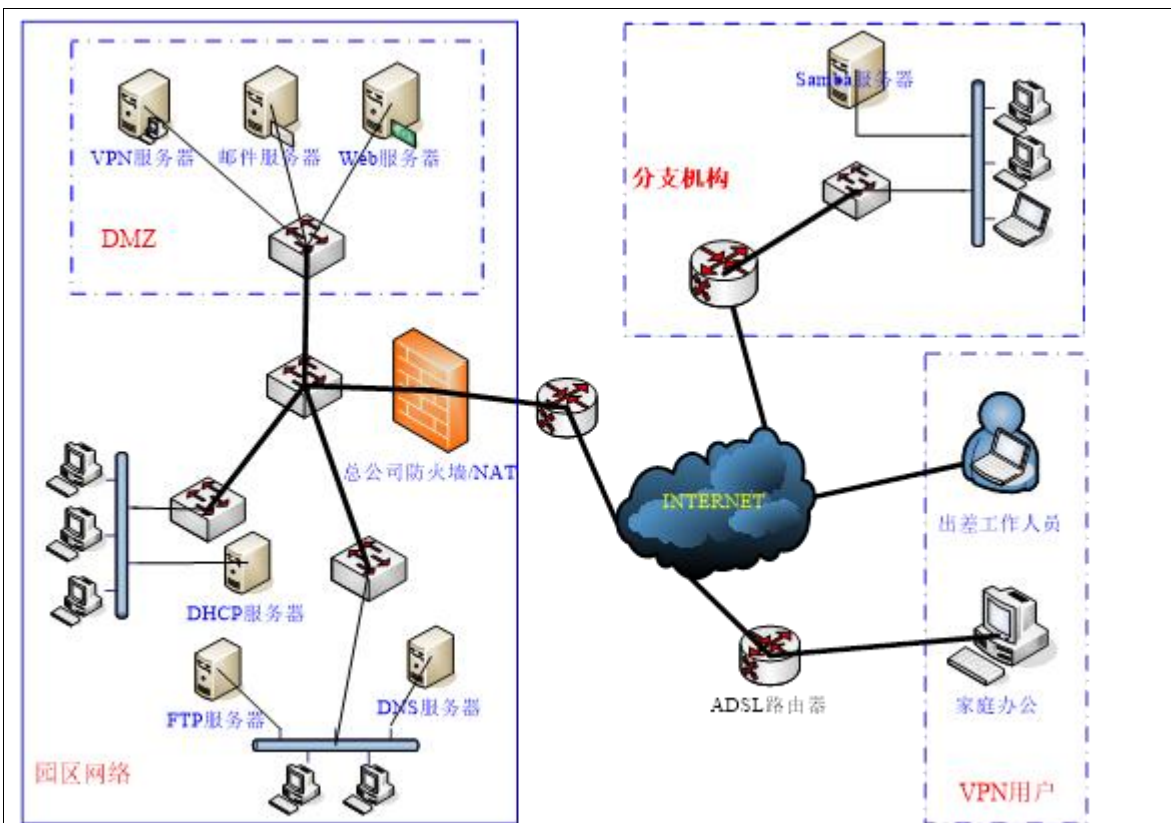
二、项目背景

B 公司包括一个园区网络和一个分支机构，网络拓扑图如下图所示。在园区网络中，大约有 500 名员工，分支机构大约有 100 名员工，此外还有一些 SOHO 员工及出差人员。

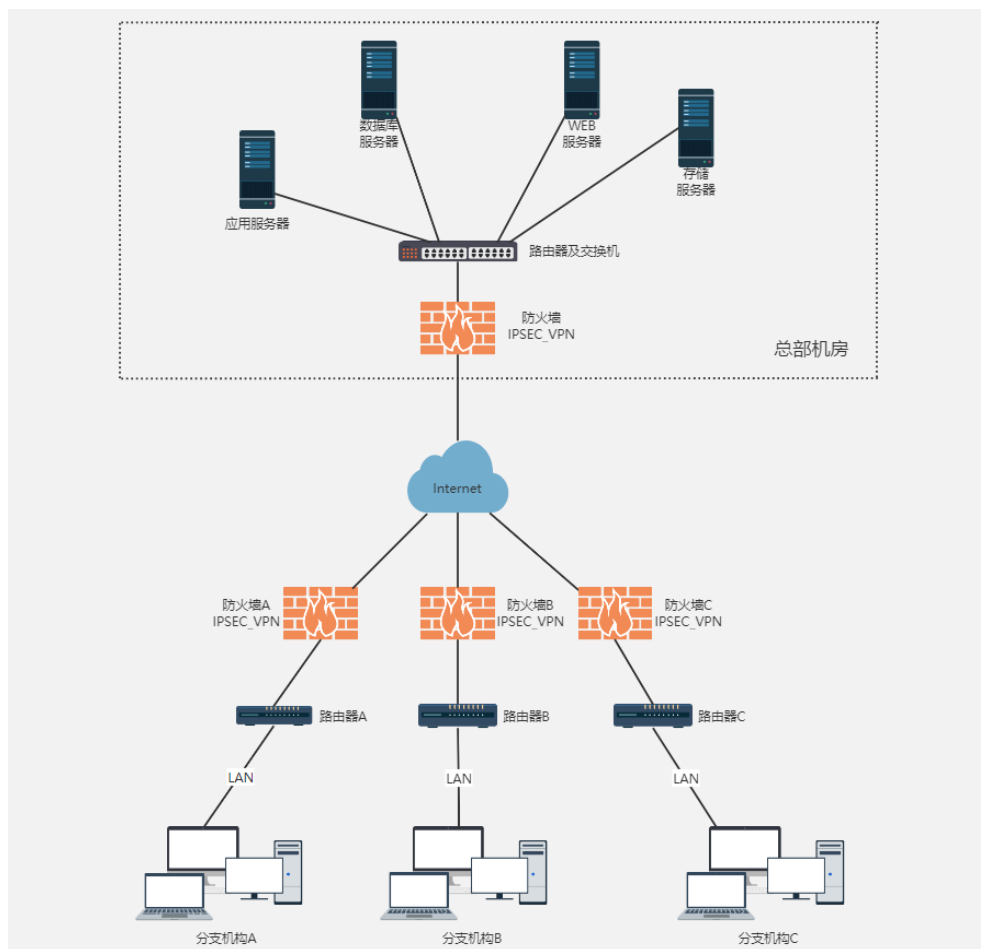
假定你是该公司的网络管理员，现在公司的网络要进行规划和实施。现有条件如下：公司已租借了一个公网的 IP 地址 100.100.100.10，和 ISP 提供的一个公网 DNS 服务器的 IP 地址 100.100.100.200。该公司申请的域名为 king.com。园区网络和分支机构使用 192.168.0.0 网络，并进行必要的子网划分。

三、拓扑结构

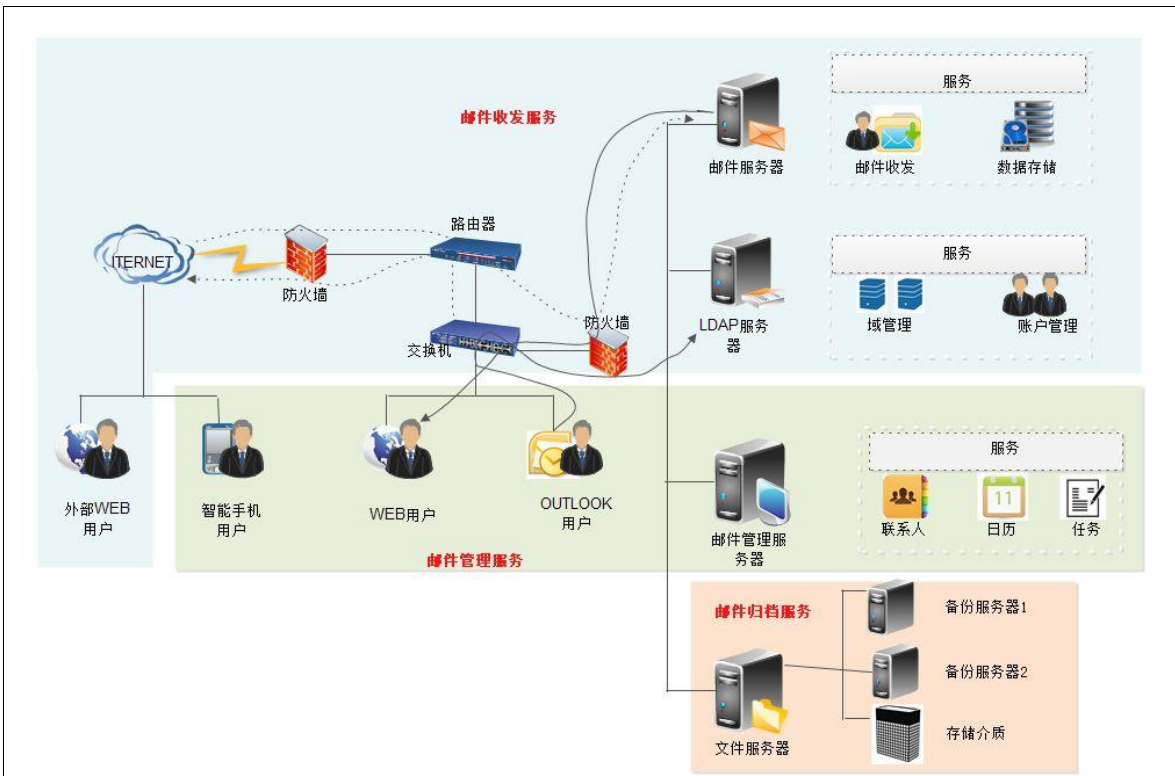
项目总体结构图



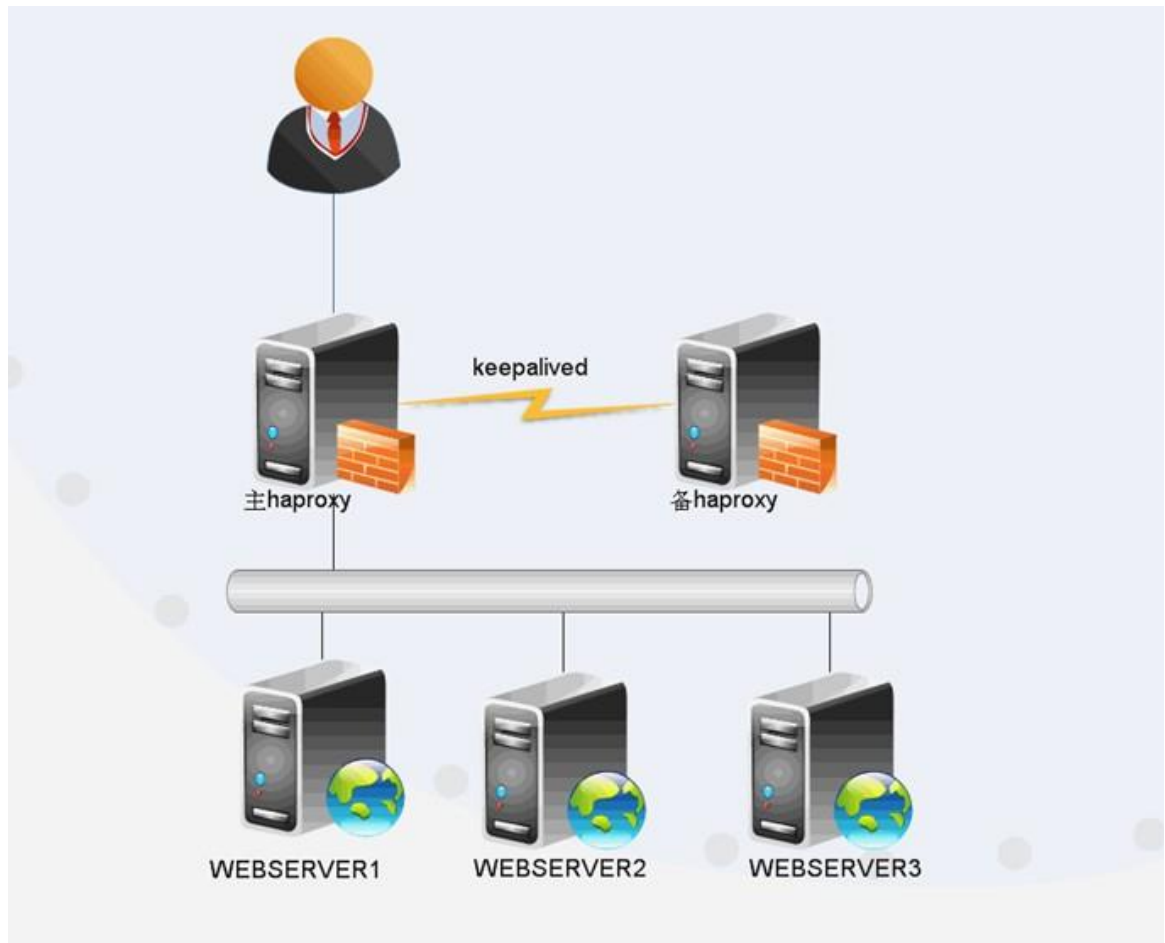
项目 1 搭建 VPN 服务器



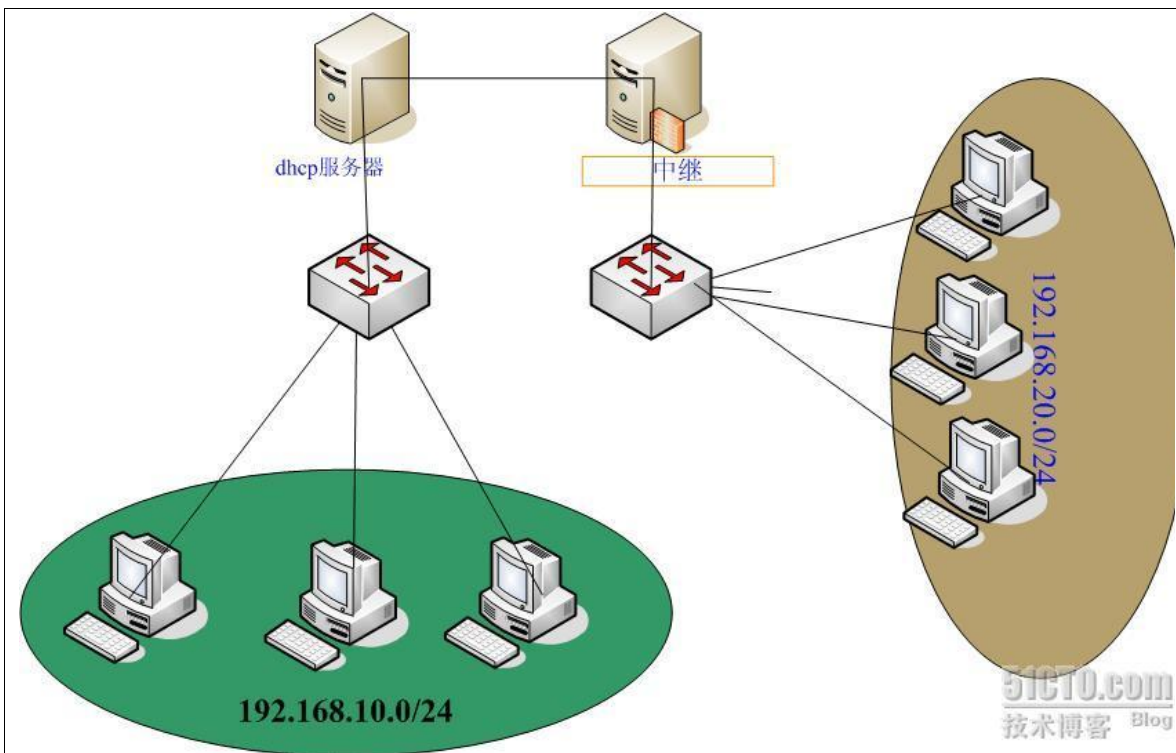
项目 2 搭建邮件服务器



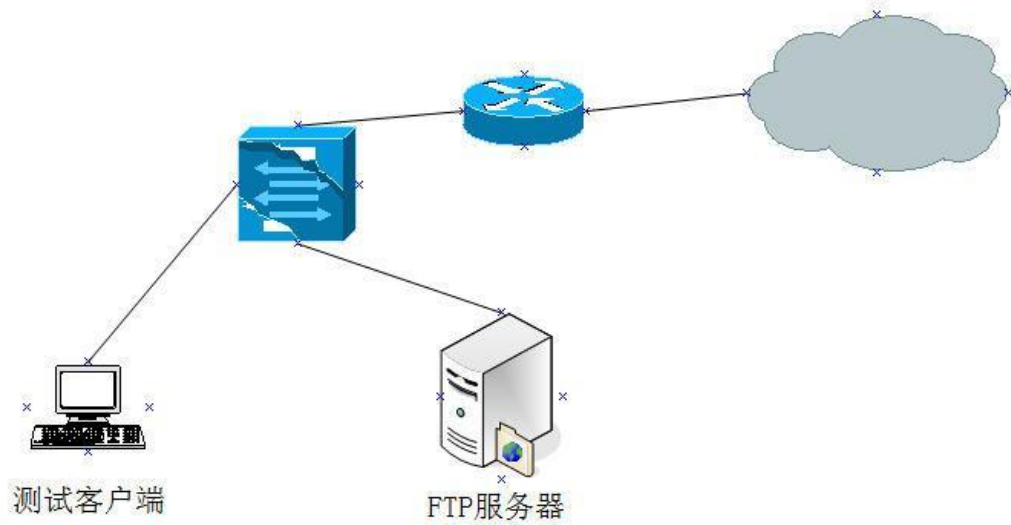
项目 3 搭建 Web 服务器



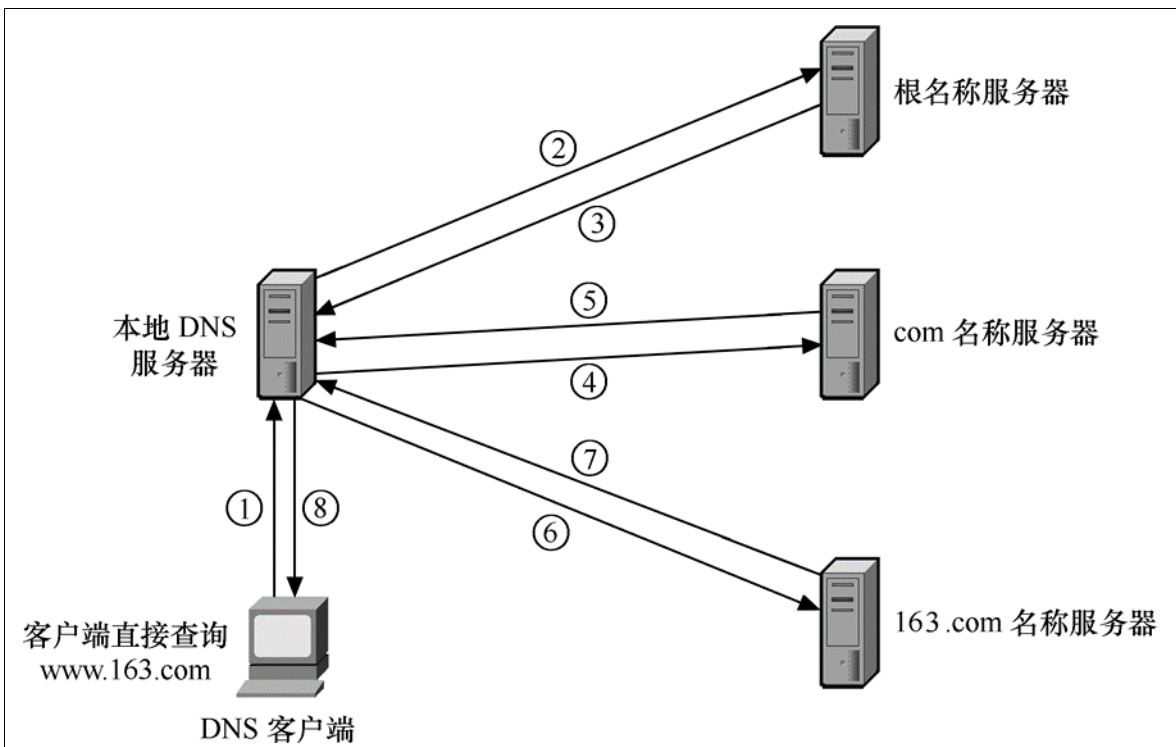
项目 4 搭建 DHCP 服务器



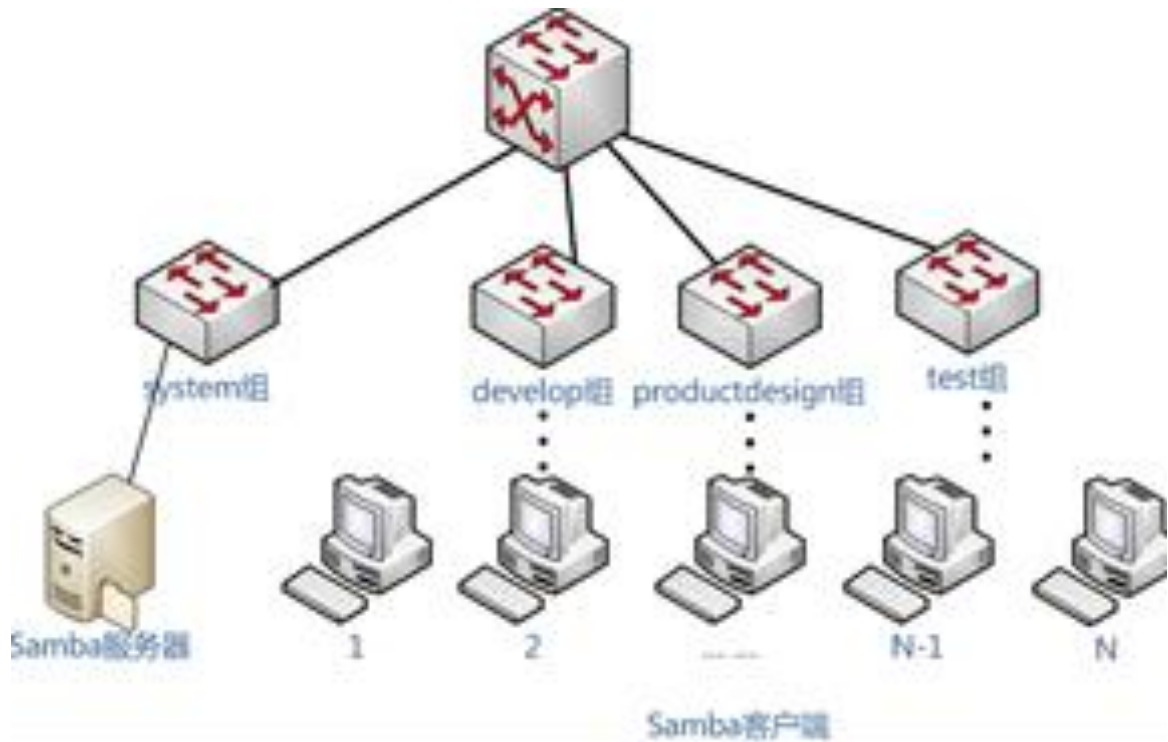
项目 5 搭建 FTP 服务器



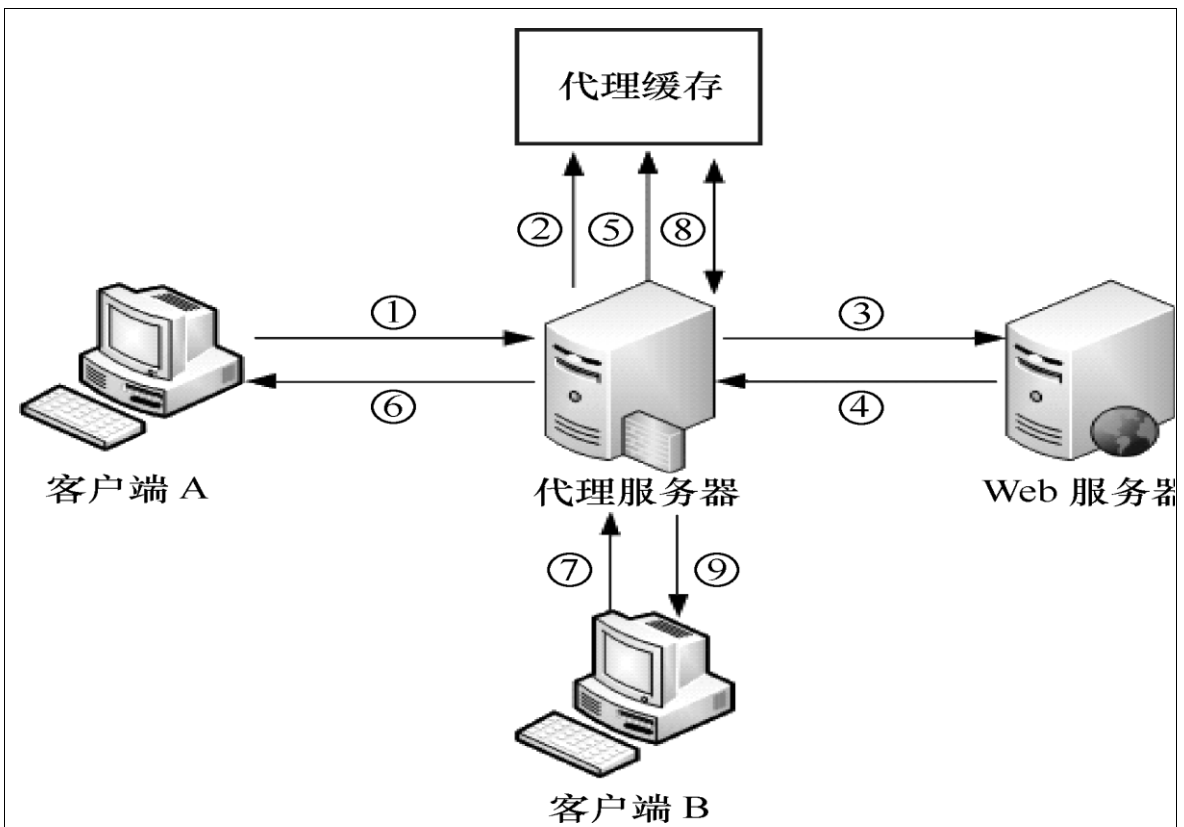
项目 6 搭建 DNS 服务器



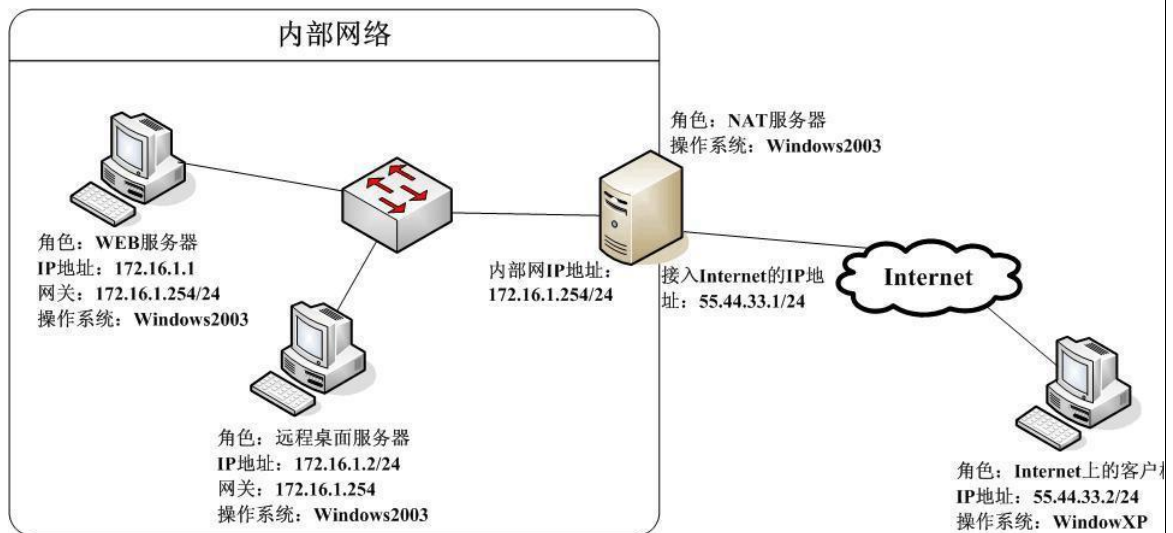
项目 7 搭建 Samba 服务器



项目 8 搭建代理服务器



项目 9. 搭建 NAT 服务器



四、实训的内容

And 4.0. 环境

VM 虚拟机:

搭建 CentOS7 64 位、Windows XP

And 4.1. centos 配置 yum 源

And 4.1.1. 备份系统 yum 文件

备份系统自带的 yum 文件

```
## 进入 yum 源路径
```

```
cd /etc/yum.repos.d/
```

```
## mv 剪切重命名备份一下
```

```
[root@localhost ~]# cd /etc/yum.repos.d/
[root@localhost yum.repos.d]# mv CentOS-Base.repo CentOS-Base.repo.backup
[root@localhost yum.repos.d]# ls
CentOS-Base.repo.backup  CentOS-Media.repo          mysql-community.repo
CentOS-CR.repo           CentOS-Sources.repo        mysql-community-source.
CentOS-Debuginfo.repo   CentOS-Vault.repo
CentOS-fasttrack.repo    CentOS-x86_64-kernel.repo
[root@localhost yum.repos.d]# █
```

And 4.1.2. 下载最新 yum 源配置文件

依上步骤，将文件下载到 yum.repos.d 路径下

这里用的 163 源，如果有缺失，可以使用阿里或者其他源试试

(163 源: mirrors.163.com/.help)



← ↻ 🏠 ⚠ 不安全 | mirrors.163.com/.help/

网易开源镜像使用帮助

简介

mirrors.163.com是网易公司所维护的开源镜像服务器，致力于为国内用户提供稳定快速的镜像源，其前身是cn99镜像。

目前我们所提供的镜像服务包括：[Ubuntu](#)，[Fedora](#)，[Debian](#)，[Arch](#)，[Gentoo](#)，[Slackware](#)，[CentOS](#)等等，具体请参见我们的[首页](#)。

我们收集整理了这些使用帮助文档，希望能对国内开源软件用户有所帮助。请转载这些使用帮助的时候给出原始链接，否则我们保留追究

如果您有任何建议或疑问，欢迎通过电子邮件联系我们：mirror@service.netease.com。

常见问题及解答

1. 为什么网易镜像没有我用的发行版或者我的机器架构的软件包？

由于服务器磁盘空间有限，我们无法满足所有用户的需求，希望大家能够理解。在未来，如果我们获得了更多的硬件资源，我们会在保证



复制好 yum 配置文件到 centos 的 yum 文件路径下使用 wget 下载保存

```
Wget http://mirrors.163.com/.help/CentOS7-Base-163.repo
```

```
[root@localhost yum.repos.d]# wget http://mirrors.163.com/.help/CentOS7-Base-163.repo
--2023-06-12 05:58:06-- http://mirrors.163.com/.help/CentOS7-Base-163.repo
Resolving mirrors.163.com (mirrors.163.com)... 60.191.80.11
Connecting to mirrors.163.com (mirrors.163.com)|60.191.80.11|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 1572 (1.5K) [application/octet-stream]
Saving to: 'CentOS7-Base-163.repo'

100%[=====] 1,572 ---K/s in 0s

2023-06-12 05:58:07 (113 MB/s) - 'CentOS7-Base-163.repo' saved [1572/1572]

[root@localhost yum.repos.d]#
```

And 4.1.3. yum 配置命令

And 4.1.3.1. 清除缓存

```
yum clean all
```

And 4.1.3.2. 生成缓存

```
yum makecache
```

```

[root@localhost yum.repos.d]# yum makecache
Loaded plugins: fastestmirror, langpacks
Determining fastest mirrors
base | 3.6 kB 00:00:00
extras | 2.9 kB 00:00:00
mysql-connectors-community | 2.6 kB 00:00:00
mysql-tools-community | 2.6 kB 00:00:00
mysql56-community | 2.6 kB 00:00:00
updates | 2.9 kB 00:00:00
(1/19): base/7/x86_64/group_gz | 153 kB 00:00:00
(2/19): base/7/x86_64/primary_db | 6.1 MB 00:00:00
(3/19): extras/7/x86_64/primary_db | 249 kB 00:00:00
(4/19): base/7/x86_64/other_db | 2.6 MB 00:00:00
(5/19): extras/7/x86_64/other_db | 149 kB 00:00:00
(6/19): extras/7/x86_64/filelists_db | 276 kB 00:00:00
(7/19): mysql-connectors-community/x86_64/primary_db | 99 kB 00:00:00
(8/19): mysql-connectors-community/x86_64/other_db | 26 kB 00:00:00
(9/19): mysql-tools-community/x86_64/filelists_db | 500 kB 00:00:01
(10/19): mysql-tools-community/x86_64/other_db | 18 kB 00:00:00
(11/19): mysql56-community/x86_64/primary_db | 297 kB 00:00:00
(12/19): mysql56-community/x86_64/other_db | 83 kB 00:00:00
(13/19): mysql56-community/x86_64/filelists_db | 1.1 MB 00:00:01
(14/19): base/7/x86_64/filelists_db | 7.2 MB 00:00:05
(15/19): mysql-tools-community/x86_64/primary_db | 92 kB 00:00:03
(16/19): updates/7/x86_64/filelists_db | 11 MB 00:00:04
(17/19): updates/7/x86_64/other_db | 1.3 MB 00:00:00
(18/19): updates/7/x86_64/primary_db | 21 MB 00:00:08
(19/19): mysql-connectors-community/x86_64/filelists_db | 41 kB 00:00:16
Metadata Cache Created
[root@localhost yum.repos.d]# ^C
[root@localhost yum.repos.d]# █

```

And 4.1.3.3. 更新本地所有库

这里东西多，可能会比较久。有选项的话都选 y 即可，等待完成...

```

tigervnc-server-minimal.x86_64 0:1.8.0-25.el7_9
tuned.noarch 0:2.11.0-12.el7_9
tzdata.noarch 0:2023c-1.el7
tzdata-java.noarch 0:2023c-1.el7
unzip.x86_64 0:6.0-24.el7_9
util-linux.x86_64 0:2.23.2-65.el7_9.1
vim-common.x86_64 2:7.4.629-8.el7_9
vim-enhanced.x86_64 2:7.4.629-8.el7_9
vim-filesystem.x86_64 2:7.4.629-8.el7_9
vim-minimal.x86_64 2:7.4.629-8.el7_9
virt-what.x86_64 0:1.18-4.el7_9.1
webkitgtk4.x86_64 0:2.28.2-3.el7
webkitgtk4-jsc.x86_64 0:2.28.2-3.el7
wpa_supplicant.x86_64 1:2.6-12.el7_9.2
xfsdump.x86_64 0:3.1.7-3.el7_9
xorg-x11-drv-ati.x86_64 0:19.0.1-3.el7_7
xorg-x11-server-Xorg.x86_64 0:1.20.4-23.el7_9
xorg-x11-server-common.x86_64 0:1.20.4-23.el7_9
xz.x86_64 0:5.2.2-2.el7_9
xz-libs.x86_64 0:5.2.2-2.el7_9
zenity.x86_64 0:3.28.1-2.el7_9

Complete!
[root@localhost yum.repos.d]# █

```

And 4.1.3.4. 关闭防火墙及 SELinux

使用 service 或者 systemctl 关闭防火墙

```
[root@localhost yum.repos.d]# service firewalld stop
```

```
[root@localhost yum.repos.d]# systemctl stop firewalld
```

```
Complete!  
[root@localhost yum.repos.d]# service firewalld stop  
Redirecting to /bin/systemctl stop firewalld.service  
[root@localhost yum.repos.d]# systemctl stop firewalld  
[root@localhost yum.repos.d]# █
```

And 4.1.3.5. 安装 epel 源

```
yum -y install epel-release
```

```
--> Package epel-release.noarch 0:7-11 will be installed  
--> Finished Dependency Resolution  
  
Dependencies Resolved  
  
=====
```

Package	Arch	Version	Repository	Size
Installing: epel-release	noarch	7-11	extras	15 k

```
=====
```

Transaction Summary

```
Install 1 Package  
  
Total download size: 15 k  
Installed size: 24 k  
Downloading packages:  
epel-release-7-11.noarch.rpm | 15 kB 00:00:00  
Running transaction check  
Running transaction test  
Transaction test succeeded  
Running transaction  
  Installing : epel-release-7-11.noarch 1/1  
  Verifying  : epel-release-7-11.noarch 1/1  
  
Installed:  
epel-release.noarch 0:7-11  
  
Complete!  
[root@localhost yum.repos.d]#
```

And 4.2. 任务 1: 搭建 VPN 服务器

And 4.2.1. 安装 ppp 服务与 pptpd 服务

```
yum install -y ppp
```

```
yum install -y pptpd
```

```
Repository centosplus is listed more than once in the configuration  
Loading mirror speeds from cached hostfile  
* base: mirrors.ustc.edu.cn  
* epel: mirror-hnd.yuki.net.uk  
* extras: mirrors.163.com  
* updates: mirrors.163.com  
Package ppp-2.4.5-34.el7_7.x86_64 already installed and latest version  
Nothing to do  
  
Transaction test succeeded  
Running transaction  
  Installing : pptpd-1.4.0-2.el7.x86_64 1/1  
  Verifying  : pptpd-1.4.0-2.el7.x86_64 1/1  
  
Installed:  
pptpd.x86_64 0:1.4.0-2.el7  
  
Complete!  
[root@localhost yum.repos.d]# █
```

And 4.2.2. 配置文件以和用户

And 4.2.2.1. 配置 pptpd 文件

```
vi /etc/pptpd.conf
```

正常这里的文件是有内容的，如果进去没有内容，就需要使用 chmod 给文件权限再重新打开编辑就会有内容。

配置内容是定义虚拟网关，分配好 ip 给客户端使用，保持默认即可
直接定位到 localip 找到下图两行，将前面的“#”号去除，保存退出

```
#
#           be set to the given one. YOU MUST STILL G
#           IP for each simultaneous client.
#
# (Recommended)
localip 192.168.0.1
remoteip 192.168.0.234-238,192.168.0.245
# or
#localip 192.168.0.234-238,192.168.0.245
#remoteip 192.168.1.234-238,192.168.1.245
-- INSERT --
```

And 4.2.2.2. 配置 ppp 文件

```
vi /etc/ppp/options.pptpd
```

同上方一样，都是有默认内容的，如果进去没有内容就先给权限
然后定位到 ms-dns 两行，将前面的‘#’去掉，防止 ping 不通互联网，我
这里将首选 dns 改为 114

```
# addresses to the clients. The first instance of this option
# specifies the primary DNS address; the second instance (if given)
# specifies the secondary DNS address.
ms-dns 114.114.114.114
ms-dns 10.0.0.2

# If pppd is acting as a server for Microsoft Windows or "Samba"
# clients. this option allows pppd to supply one or two WINS (Windows
```

And 4.2.2.3. 配置 sysctl 文件

```
vi /etc/sysctl.conf
```

在文件最后加入一行：

```
net.ipv4.ip_forward = 1
```

让服务器允许 ip 转发内核

```
# name in /etc/sysctl.d/ and put new setting
#
# For more information, see sysctl.conf(5) :
net.ipv4.ip_forward = 1
~
```

终端输入 `sysctl -p` 检查一下配置是否正确

```
[root@localhost yum.repos.d]# sysctl -p
net.ipv4.ip_forward = 1 .. -
```

And 4.2.2.4. 配置客户端用户

```
vi /etc/ppp/chap-secrets
```

```
# Secrets for authentication using CHAP
# client      server  secret          IP addresses
admin         *      123456          *
```

创建一个用户

其中：client==账号 service==服务 secret==密码 IP addresses==分配 ip

And 4.2.3. 启动 VPN 服务

```
systemctl start pptpd  
systemctl enable pptpd  
  
[pos.d]# systemctl start pptpd  
[pos.d]# systemctl enable pptpd  
[pos.d]# █
```

And 4.2.4. 连接 VPN 服务器



添加 VPN 连接

VPN 提供商
Windows (内置) ▾

连接名称
linux综合实训VPN

服务器名称或地址
172.168.1.7 服务器ip

VPN 类型
自动 ▾

登录信息的类型
用户名和密码 ▾

用户名(可选)
admin 配置的用户

密码(可选)
•••••

保存 取消

VPN 连接 添加 VPN

linux综合实训VPN
未连接 连接 ▾

linux综合实训VPN
正在连接 ^

完成连接 取消

linux综合实训VPN
已连接 断开连接 ▾

提示 **已连接** 即可

在 VPN 服务器上使用 ifconfig 可以看到多了一个 ppp0 连接

```
ppp0: flags=4305<UP,POINTOPOINT,RUNNING,NOARP,MULTICAST> mtu 1396
    inet 192.168.0.1 netmask 255.255.255.255 destination 192.168.0.234
    ppp txqueuelen 3 (Point-to-Point Protocol)
    RX packets 257553 bytes 13873590 (13.2 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 8 bytes 104 (104.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

And 4.3. 任务 2: 搭建邮箱服务器

该任务配置前需要先完善 DNS 服务器的配置, 请定位到 [And 4.7. 任务 6](#)

And 4.3.1. 安装 sendmail 服务

```
yum install -y sendmail
Verifying : sendmail-8.14.7-6.el7.
Installed:
  sendmail.x86_64 0:8.14.7-6.el7
Dependency Installed:
  procmail.x86_64 0:3.22-36.el7_4.1
Complete!
[root@localhost ~]#
```

And 4.3.2. 配置发信服务器

```
vi /etc/mail/sendmail.mc
```

查找到下方图片这行, 修改 Addr 为服务器的 ip

```
dn1 #
DAEMON_OPTIONS(`Port=smtp,Addr=172.168.1.7, Name=MTA')dn1
dn1 #
```

查找修改下面图上的 local 地址为 DNS 服务器上配置过的域名

```
dn1 # Also accept email sent to "local"
dn1 #
LOCAL_DOMAIN(`zmzaxg.top')dn1
dn1 #
dn1 # The following example makes mail
```

And 4.3.3. 生成 sendmail 配置文件

这里生成配置文件将使用 m4 来配置生成

```
m4 /etc/mail/sendmail.mc > /etc/mail/sendmail.cf
```

这里出现了报错

```
[root@localhost ~]# m4 /etc/mail/sendmail.mc > /etc/mail/sendmail.cf
m4:/etc/mail/sendmail.mc:10: cannot open `/usr/share/sendmail-cf/m4/cf.m4': No such file or directory
[root@localhost ~]#
```

再使用 yum 安装一下 sendmail-cf

```
yum install -y sendmail-cf
Verifying : sendmail-cf-8.14.7-6.el7.noarch
Installed:
  sendmail-cf.noarch 0:8.14.7-6.el7
Complete!
[root@localhost ~]#
```

安装好后再次使用 m4 来生成配置就可以了:

```
ost ~]# m4 /etc/mail/sendmail.mc > /etc/mail/sendmail.cf
ost ~]#
```

And 4.3.4. 启动 sendmail 服务

```
[root@localhost ~]# systemctl enable sendmail
[root@localhost ~]# systemctl start sendmail
[root@localhost ~]# systemctl status sendmail
```

```
[root@localhost ~]# systemctl enable sendmail
[root@localhost ~]# systemctl start sendmail
[root@localhost ~]# systemctl status sendmail
● sendmail.service - Sendmail Mail Transport Agent
   Loaded: loaded (/usr/lib/systemd/system/sendmail.service; enabled; vendor preset: disabled)
   Active: active (running) since Mon 2023-06-12 12:36:14 PDT; 13s ago
     Process: 29148 ExecStart=/usr/sbin/sendmail -bd $SENDMAIL_OPTS $SENDMAIL_OPTARG (code=exited, status=0/SUCCESS)
     Process: 29143 ExecStartPre=/etc/mail/make aliases (code=exited, status=0/SUCCESS)
     Process: 29141 ExecStartPre=/etc/mail/make (code=exited, status=0/SUCCESS)
    Main PID: 29153 (sendmail)
       Tasks: 1
      CGroup: /system.slice/sendmail.service
             └─29153 sendmail: accepting connections

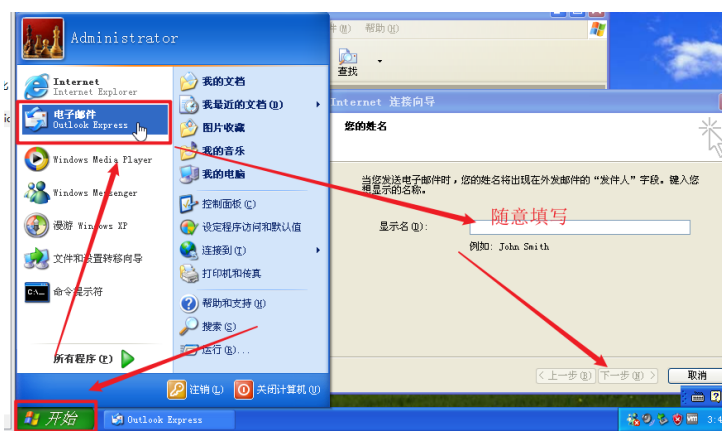
Jun 12 12:36:14 localhost.localdomain systemd[1]: Starting Sendmail Mail T...
Jun 12 12:36:14 localhost.localdomain systemd[1]: Can't open PID file /run...
Jun 12 12:36:14 localhost.localdomain sendmail[29153]: starting daemon (8...
Jun 12 12:36:14 localhost.localdomain systemd[1]: Started Sendmail Mail Tr...
Hint: Some lines were ellipsized, use -l to show in full.
[root@localhost ~]#
```

And 4.3.5. 创建邮箱账户

密码均为用户名

```
[root@localhost ~]# useradd user01
[root@localhost ~]# passwd user01
Changing password for user user01.
New password:
BAD PASSWORD: The password is shorter than 7 characters
Retype new password:
passwd: all authentication tokens updated successfully.
[root@localhost ~]# useradd user02
[root@localhost ~]# passwd user02
Changing password for user user02.
New password:
BAD PASSWORD: The password is shorter than 7 characters
Retype new password:
passwd: all authentication tokens updated successfully.
```

And 4.3.6. 发信测试



Internet 连接向导

Internet 电子邮件地址

您的电子邮件地址是别人用来给您发送电子邮件的地址。

电子邮件地址 (E):

例如: someone@microsoft.com

< 上一步 (P) 下一步 (N) > 取消

其他的邮箱以及收发信服务器均依照配置的 mail.zmzaxg.top 填写

Internet 连接向导

电子邮件服务器名

我的邮件接收服务器是 (S) 服务器。

接收邮件 (POP3, IMAP 或 HTTP) 服务器 (I):

SMTP 服务器是您用来发送邮件的服务器。

发送邮件服务器 (SMTP) (Q):

< 上一步 (P) 下一步 (N) > 取消

Internet 连接向导

Internet Mail 登录

键入 Internet 服务提供商给您的帐户名称和密码。

帐户名 (A):

密码 (P):

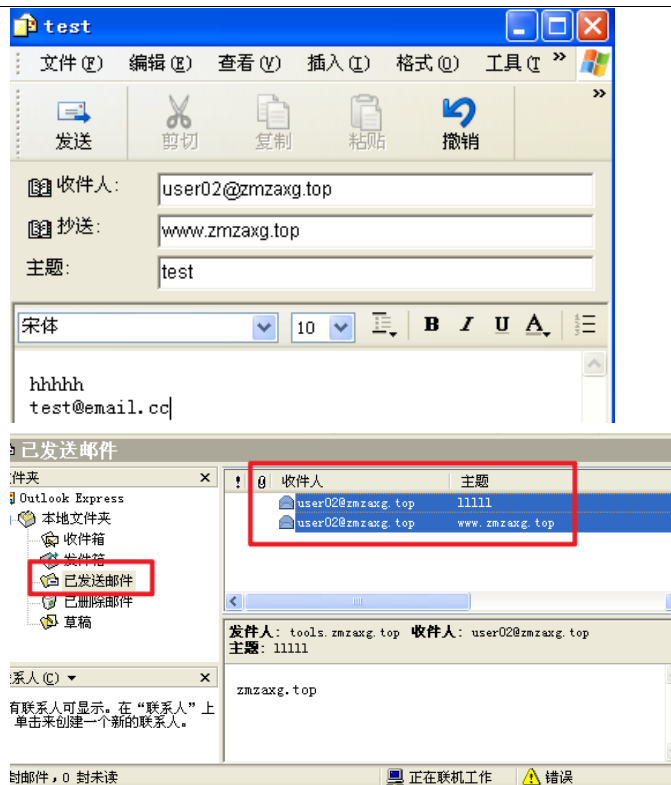
记住密码 (M)

如果 Internet 服务提供商要求您使用“安全密码验证 (SPA)”来访问电子邮件帐户, 请选择“使用安全密码验证 (SPA) 登录”选项。

使用安全密码验证登录 (SPA) (S)

< 上一步 (P) 下一步 (N) > 取消

然后我们发送一封邮件试试看



And 4.3.7. 安装 mailx

在服务器上安装 mailx 查看接收的邮件

```
yum -y install mailx
```

```
updates. mirrors.usc.edu.cn
epel | 4.7 kB 00:
(1/2): epel/x86_64/updateinfo | 1.0 MB 00:
(2/2): epel/x86_64/primary db | 7.0 MB 00:
Package mailx-12.5-19.el7.x86_64 already installed and latest version
Nothing to do
```

安装好了之后使用命令查看接收到的邮件

```
mail -u user02
```

```
[root@localhost ~]# mail -u user02
Heirloom Mail version 12.5 7/5/10. Type ? for help.
"/var/mail/user02": 2 messages 2 new
>N 1 tools.zmxaxg.top Mon Jun 12 12:52 41/1473 "11111"
 N 2 tools.zmxaxg.top Mon Jun 12 12:55 42/1551 "www.zmxaxg.top"
&
```

可以看到刚刚已发送列表的两封邮件

And 4.3.8. 安装 dovecot

```
yum install -y dovecot
```

```
Verifying : glucene-core-0:2.3.3.4-11.el7
Installed:
dovecot.x86_64 1:2.2.36-8.el7

Dependency Installed:
glucene-core.x86_64 0:2.3.3.4-11.el7 po
Complete!
[root@localhost ~]#
```

And 4.3.9. 修改配置文件

And 4.3.9.1. 修改主配置文件

```
vi /etc/dovecot/dovecot.conf
```

进入编辑文件,找到下图这行,去掉前面的注释,让服务器支持 pop 以及 imap

```
# Protocols we want to be serving
protocols = imap pop3 lmtp
```

And 4.3.9.2. 修改认证文件

```
vi /etc/dovecot/conf.d/10-auth.conf
```

编辑文件,找到下面图片这行,去掉注释, yes 改 no, 配置开启认证

```
disable plaintext auth = no
```

And 4.3.9.3. 修改加密配置

```
vi /etc/dovecot/conf.d/10-ssl.conf
```

进入将 ssl 修改为 no 不进行加密

```
isid # plain imap and pop.
#ssl = required
ssl = no
# PEM encoded X.509
```

And 4.3.9.4. 修改邮箱文件配置

```
vi /etc/dovecot/conf.d/10-mail.conf
```

修改下图这行路径为想要保存的位置,我这里保存默认

```
# mail_location = maildir:~/Maildir
mail_location = mbox:~/mail:INBOX=/var/mail/%u
# mail_location = mbox:/var/mail/%d/%n/%n:IN
```

And 4.3.9.5. 创建邮箱路径

```
mkdir -p /var/mail/.imap/INBOX
```

```
[root@localhost ~]# mkdir -p /var/mail/.imap/INBOX
[root@localhost ~]# cd /var/mail/
[root@localhost mail]# ll
total 4
-rw-rw----. 1 rpc      mail      0 May 17 06:55 rpc
-rw-rw----. 1 user01  mail      0 Jun 12 12:39 user01
-rw-rw----. 1 user02  mail 3024 Jun 12 12:55 user02
-rw-rw----. 1 zmxaxg  mail      0 May 17 07:06 zmxaxg
[root@localhost mail]# ls -a
.  ..  .imap  rpc  user01  user02  zmxaxg
[root@localhost mail]#
```

And 4.3.10. 启动 dovecot

```
[root@localhost mail]# systemctl start dovecot
```

```
[root@localhost mail]# systemctl enable dovecot
```

```
[root@localhost mail]# systemctl enable dovecot  
Created symlink from /etc/systemd/system/multi-user.target.wants/dovecot.service to /usr/lib/systemd/system/dovecot.service.  
[root@localhost mail]#
```

And 4.3.11. 测试

在 xp 系统使用 cmd 终端

```
telnet mail.zmzaxg.top 110
```

```
+OK Dovecot ready.  
user user02  
+OK  
pass user0  
-ERR [AUTH] Authentication failed.  
pass user02  
-ERR No username given.  
user user02  
-ERR Unknown command.  
  
-ERR Unknown command.  
user user02  
+OK  
pass user02  
+OK Logged in.
```

And 4.4. 任务3: 搭建 Web 服务器

And 4.4.1. 安装 httpd

```
yum install -y httpd
```

```
mysql56-community | 2.6 kB 00:00  
mysql56-community | 2.6 kB 00:00  
updates | 2.9 kB 00:00  
Package httpd-2.4.6-99.el7.centos.1.x86_64 already installed and latest version  
Nothing to do  
[root@localhost mail]#
```

And 4.4.2. 启动 Apache 服务

```
[root@localhost mail]# systemctl start httpd
```

```
[root@localhost mail]# systemctl enable httpd
```

```
[root@localhost mail]# systemctl start httpd  
[root@localhost mail]# systemctl enable httpd  
Created symlink from /etc/systemd/system/multi-user.target.wants/httpd.service to /usr/lib/systemd/system/httpd.service.  
[root@localhost mail]#
```

And 4.4.3. 创建 Web 站点目录和文件

```
mkdir /var/www/web01
```

```
mkdir /var/www/web02
```

```
echo "内容" >> /var/www/web01/index.html
```

```
[root@localhost mail]# mkdir /var/www/web01
[root@localhost mail]# echo "Web01" >> /var/www/web01/index.html
[root@localhost mail]# echo "<br><a href='//zmzaxg.top'>https://zmzaxg.to
>" >> /var/www/web01/index.html
[root@localhost mail]# mkdir /var/www/web02
[root@localhost mail]# echo "web02<br><a href='//zmzaxg.top'>https://zmza
op</a>" >> /var/www/web01/index.html
[root@localhost mail]# █
```

And 4.4.4. 修改配置设置站点

```
vi /etc/httpd/conf/httpd.conf
```

进入文件，找到 Require all denied（拒绝所有主机访问）改为 Require all granted（允许所有主机访问）

```
"
<Directory />
    AllowOverride none
    #Require all denied
    Require all granted
</Directory>
```

在后面编辑站点配置

```
<VirtualHost 172.168.1.7>
    DocumentRoot /var/www/web01
    ServerName web01.zmzaxg.top
</VirtualHost>
<VirtualHost 172.168.1.8>
    DocumentRoot /var/www/web02
    ServerName web02.zmzaxg.top
</VirtualHost>
    AllowOverride none
    Require all granted
</Directory>
<VirtualHost 172.168.1.7>
    DocumentRoot /var/www/web01
    ServerName web01.zmzaxg.top
</VirtualHost>
<VirtualHost 172.168.1.8>
    DocumentRoot /var/www/web02
    ServerName web02.zmzaxg.top
</VirtualHost>
```

保存完成切换目录

```
cd /etc/httpd/conf.d
```

```
[root@localhost conf.d]# pwd
/etc/httpd/conf.d
```

编辑创建文件

```
vi virtual.conf
```

内容与上方 VirtualHost 相同：

```
[root@localhost conf.d]# cat virtual.conf
<VirtualHost 172.168.1.7>
    DocumentRoot /var/www/web01
    Servername web01.zmazxg.top
</VirtualHost>

<VirtualHost 172.168.1.8>
    DocumentRoot /var/www/web02
    Servername web02.zmazxg.top
</VirtualHost>
[root@localhost conf.d]# █
```

And 4.4.5. 编辑网卡

这里使用图形化编辑，如下图：

Cancel **Wired** Apply

Details Identity **IPv4** IPv6 Security

IPv4 Method

Automatic (DHCP) Link-Local Only

Manual Disable

Addresses

Address	Netmask	Gateway	
172.168.1.7	16	172.168.1.1	✕
172.168.1.8	16		✕
			✕

如果编辑网卡配置文件，需要进入到 `/etc/sysconfig/network-scripts/` 目录内打开在用的网卡文件，配置可以参照如下：

```
TYPE=Ethernet
PROXY_METHOD=none
BROWSER_ONLY=no
BOOTPROTO=none
DEFROUTE=yes
IPV4_FAILURE_FATAL=no
IPV6INIT=yes
IPV6_AUTOCONF=yes
IPV6_DEFROUTE=yes
IPV6_FAILURE_FATAL=no
IPV6_ADDR_GEN_MODE=stable-privacy
NAME=ens33
UUID=bd5feb49-fc6c-4e0f-ae04-07589e30d0af
DEVICE=ens33
ONBOOT=yes
IPADDR=172.168.1.7
PREFIX=16
IPADDR1=172.168.1.8
PREFIX1=16
GATEWAY=172.168.1.1
```

子网 16 可以使用 255.255.0.0

对网卡配置修改后重启一下 network:

```
service network restart
```

```
[root@localhost ~]# service network restart
Restarting network (via systemctl): [ OK ]
[root@localhost ~]# █
```

配置好网卡到实体主机的 cmd 终端 ping 一下两个 ip, 保证均可通行

```

C:\Users\zmzax>ping 172.168.1.7

Pinging 172.168.1.7 with 32 bytes of data:
Reply from 172.168.1.7: bytes=32 time<1ms TTL=64
Reply from 172.168.1.7: bytes=32 time<1ms TTL=64
Reply from 172.168.1.7: bytes=32 time<1ms TTL=64
Reply from 172.168.1.7: bytes=32 time<1ms TTL=64

Ping statistics for 172.168.1.7:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\zmzax>ping 172.168.1.8

Pinging 172.168.1.8 with 32 bytes of data:
Reply from 172.168.1.8: bytes=32 time<1ms TTL=64
Reply from 172.168.1.8: bytes=32 time<1ms TTL=64
Reply from 172.168.1.8: bytes=32 time<1ms TTL=64
Reply from 172.168.1.8: bytes=32 time<1ms TTL=64

Ping statistics for 172.168.1.8:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

```

再服务器上也可以使用 ip address 来查看：

```

[root@localhost ~]# ip address
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc no
1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: ens33: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu
fault qlen 1000
    link/ether 00:0c:29:52:96:f5 brd ff:ff:ff:ff
    inet 172.168.1.7/16 brd 172.168.255.255 scop
    inet 172.168.1.8/16 brd 172.168.255.255 scop

```

这里如果有问题可以修改配置文件的默认选项，在后面加个“0”：

```

IPADDR0=172.168.1.7
PREFIX0=16
IPADDR1=172.168.1.8
PREFIX1=16
GATEWAY0=172.168.1.1

```

添加完重启再试试，正常是可以直接成功应用

And 4.4.6. 重启 httpd 服务与测试


```
systemctl restart httpd
```

```
[root@localhost conf.d]# systemctl restart httpd  
[root@localhost conf.d]# █
```

确保服务器的 dns 服务开启，关闭防火墙
到前面的 win xp 系统打开



到此，Web 服务器以及完善，后面我们去修改 dns 服务器的域名正反向解析，
就可以实现域名访问：

```
vi named.zmzaxg.top
```

```
$TTL 1D
zmzaxg.top.      IN SOA  dns.zmzaxg.top. root.zmzaxg.top. (
                                0      ; serial
                                1D     ; refresh
                                1H     ; retry
                                1W     ; expire
                                3H )   ; minimum

                NS      dns.zmzaxg.top.
@               MX      10     mail.zmzaxg.top.
dns             A       172.168.1.7
mail           A       172.168.1.7
web01          A       172.168.1.7
web02          A       172.168.1.8
```

```
vi named.172.168.1
```

```
$TTL 1D
@               IN SOA  dns.zmzaxg.top. root.zmzaxg.top. (
                                0      ; serial
                                1D     ; refresh
                                1H     ; retry
                                1W     ; expire
                                3H )   ; minimum

                NS      dns.zmzaxg.top.
7               PTR     dns.zmzaxg.top.
8               PTR     web02.zmzaxg.top.
7               PTR     web01.zmzaxg.top.
@               MX      10     mail.zmzaxg.top.
7               PTR     mail.zmzaxg.top.
```

配置完成后再重新启动 DNS 服务器

```
systemctl restart named
```

```
[root@localhost named]# systemctl restart named
[root@localhost named]#
```

在连接了 DNS 服务器的 xp 系统上就能通过域名访问：



And 4.5. 任务 4: 搭建 DHCP 服务器

And 4.5.1. 安装 DHCP 包

```
yum -y install dhcp
```

```
Installing : dhcp-4.2.5-83.el7.centos.1.x86_64
Verifying  : 12:dhcp-4.2.5-83.el7.centos.1.x86_64
Installed:
  dhcp.x86_64 12:4.2.5-83.el7.centos.1
Complete!
[root@localhost named]#
```

And 4.5.2. 修改配置文件

```
vi /etc/dhcp/dhcpd.conf
```

内容可以参照下方:

```
subnet 172.168.0.0 netmask 255.255.0.0 {
    # 此 DHCP 服务分配的 IP 地址范围
    range 172.168.1.100 172.168.1.200;
    # DHCP 服务器 IP
```

```

option domain-name-servers 172.168.1.7;
# 指定默认网关
option routers 172.168.1.1;
# 默认租约时间
default-lease-time 600;
# 指定最大租用周期
max-lease-time 7200;
}

#
# DHCP Server Configuration file.
# see /usr/share/doc/dhcp*/dhcpd.conf.example
# see dhcpd.conf(5) man page
#
# 指定接收 DHCP 请求的网卡的子网地址,即上级网络配置
subnet 172.168.0.0 netmask 255.255.0.0 {
# 此 DHCP 服务分配的 IP 地址范围
range 172.168.1.100 172.168.1.200;
# DHCP服务器 IP
option domain-name-servers 172.168.1.7;
# 指定默认网关
option routers 172.168.1.1;
# 默认租约时间
default-lease-time 600;
# 指定最大租用周期
max-lease-time 7200;
}

```

其中虚拟机的 NAT 网络配置如下:

```

NAT 设置

网络:      vmnet8
子网IP:    172.168.0.0
子网掩码:  255.255.0.0
网关 IP(G): 172.168.1.1

```

And 4.5.3. 启动 DHCP 服务与测试

启动

```

[root@localhost named]# systemctl start dhcpd
[root@localhost named]# systemctl enable dhcpd

```

```

[root@localhost named]# systemctl start dhcpd
[root@localhost named]# systemctl enable dhcpd
Created symlink from /etc/systemd/system/multi-user.target.wants/dhcpd.service to /usr/lib/systemd/system/dhcpd.service.
[root@localhost named]#

```

测试

到 xp 系统 cmd 查看未更新的 ip

```
C:\Documents and Settings\Administrator>ipconfig

Windows IP Configuration

Ethernet adapter Bluetooth 网络连接:

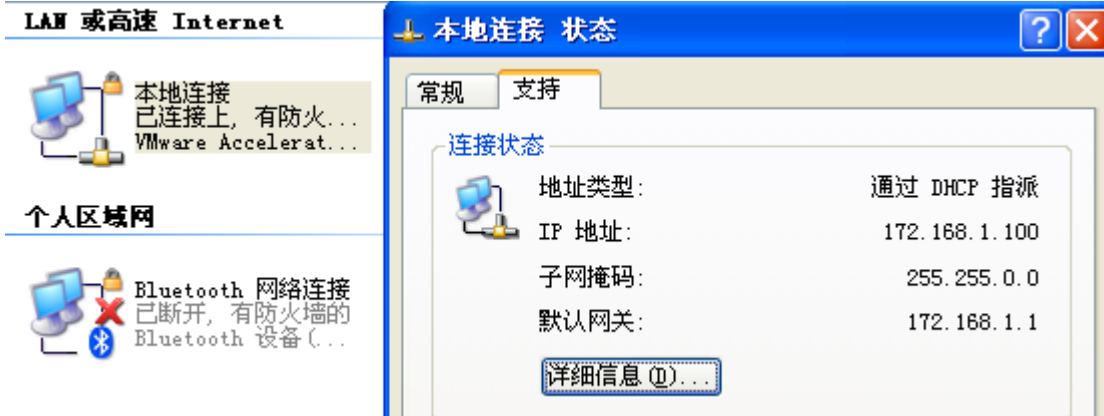
    Media State . . . . . : Media disconnected

Ethernet adapter 本地连接:

    Connection-specific DNS Suffix . : localdomain
    IP Address. . . . . : 172.168.1.9
    Subnet Mask . . . . . : 255.255.0.0
    Default Gateway . . . . . : 172.168.1.1

C:\Documents and Settings\Administrator>
```

之前分配的 ip 是 172.168.1.9，我们重新连接一下网卡，让它自带获取：



成功经 DHCP 服务器分配到 ip，然后 ping 一下 baidu.com 看看：

```
C:\Documents and Settings\Administrator>ping baidu.com

Pinging baidu.com [39.156.66.10] with 32 bytes of data:

Reply from 39.156.66.10: bytes=32 time=45ms TTL=128
Reply from 39.156.66.10: bytes=32 time=45ms TTL=128
Reply from 39.156.66.10: bytes=32 time=45ms TTL=128
Reply from 39.156.66.10: bytes=32 time=46ms TTL=128

Ping statistics for 39.156.66.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 45ms, Maximum = 46ms, Average = 45ms

C:\Documents and Settings\Administrator>
```

And 4.6. 任务 5：搭建 FTP 服务器

And 4.6.1. 安装 vsftpd

```
yum install -y vsftpd
```

```
Verifying : vsftpd-3.0.2-29.el7_9.x86_64 1/1
Installed:
vsftpd.x86_64 0:3.0.2-29.el7_9
Complete!
```

And 4.6.2. 创建用户和目录

上面搭建邮件服务器时候已创建过两个测试账号了，如果你需要添加可以再加入新的用户：

```
useradd [用户名]
```

```
passwd [用户名]##设置密码
```

创建 ftp 目录

```
[root@localhost named]# mkdir -p /data/ftp_data /data/ftp_data/anon
```

```
[root@localhost named]# chmod o+w /data/ftp_data/
```

```
[root@localhost named]# mkdir -p /data/ftp_data /data/ftp_data/anon
```

```
[root@localhost named]# chmod o+w /data/ftp_data/
```

```
[root@localhost named]# cd /data/ftp_data/
```

```
[root@localhost ftp_data]# ll
```

```
total 0
```

```
drwxr-xr-x. 2 root root 6 Jun 13 11:03 anon
```

```
[root@localhost ftp_data]#
```

```
[root@localhost data]# ls -ld /data/ftp_data/
```

```
drwxr-xrwx. 3 root root 18 Jun 13 11:03 /data/ftp_data/
```

```
[root@localhost data]# ls -ld /data/ftp_data/anon/
```

```
drwxr-xr-x. 2 root root 6 Jun 13 11:03 /data/ftp_data/anon/
```

```
[root@localhost data]#
```

And 4.6.3. 修改配置文件

```
vi /etc/vsftpd/vsftpd.conf
```

配置文件有大量注释行，如果很乱的话可以先用 mv 备份配置文件，再使用 grep -v "#" vsftpd.conf.bak > vsftpd.conf，将注释清除。直接编辑也是可行的：

```
[root@localhost data]# mv /etc/vsftpd/vsftpd.conf /etc/vsftpd/vsftpd.conf.bak
```

```
[root@localhost data]# grep -v "#" /etc/vsftpd/vsftpd.conf.bak > /etc/vsftpd/vsftpd.conf
```

```
[root@localhost data]#
```

```
[root@localhost data]# mv /etc/vsftpd/vsftpd.conf /etc/vsftpd/vsftpd.conf.bak
```

```
[root@localhost data]# grep -V "#" /etc/vsftpd/vsftpd.conf.bak > /etc/vsftpd/vsftpd.conf
```

```
[root@localhost data]#
```

完成后进入编辑就不会一堆注释行了

```
vi /etc/vsftpd/vsftpd.conf
```

在配置文件中加入：

```
#####
```

```
anon_root=/data/ftp_data/anon
```

```

anon_upload_enable=YES
anon_mkdir_write_enable=YES

local_root=/data/ftp_data
chroot_local_user=YES
allow_writeable_chroot=YES
#####
anonymous_enable=YES
local_enable=YES
write_enable=YES
local_umask=022
#####
anon_root=/data/ftp_data/anon
anon_upload_enable=YES
anon_mkdir_write_enable=YES

local_root=/data/ftp_data
chroot_local_user=YES
allow_writeable_chroot=YES
#####
dirmessage_enable=YES
xferlog_enable=YES
connect_from_port_20=YES
xferlog_std_format=YES
listen=NO
listen_ipv6=YES

pam_service_name=vsftpd
userlist_enable=YES
tcp_wrappers=YES
~

```

然后再到/etc/selinux/config 查看 SELINUX 配置是否为 disable, 不是的话需要修改保存, 重载一下文件或者重启服务器

```

vi /etc/selinux/config
#       permissive - SELinux
#       disabled - No SELinux
#SELINUX=enforcing
SELINUX=disable
# SELINUXTYPE= can take on
#       targeted - Targeted

```

And 4.6.4. 重启和测试

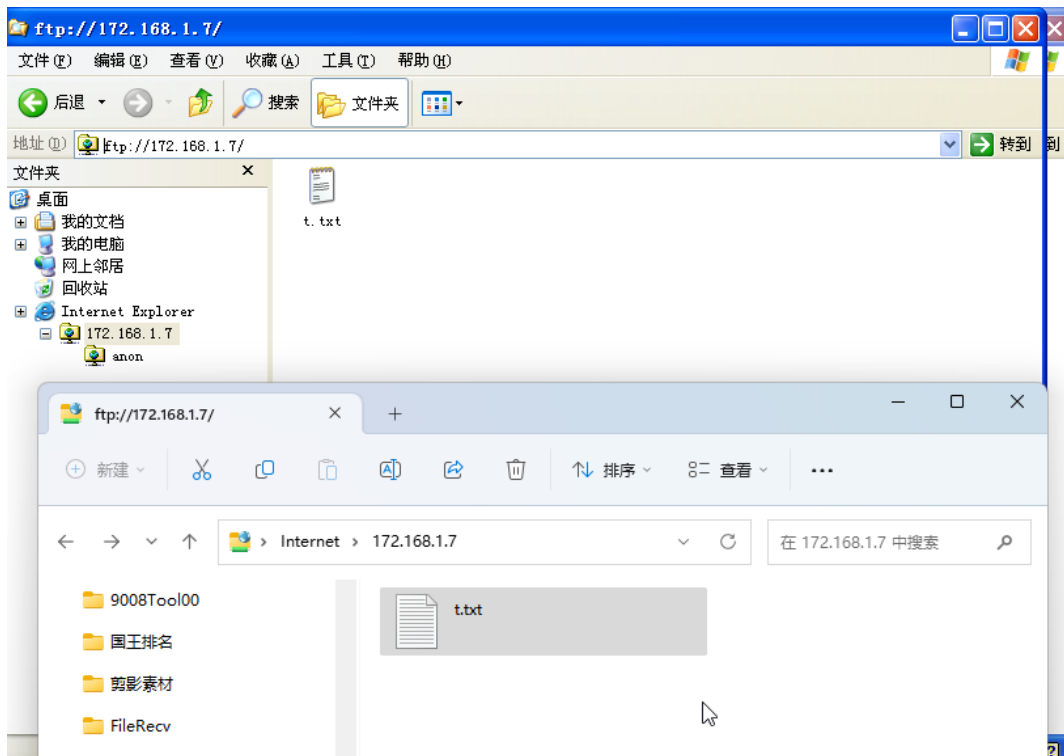
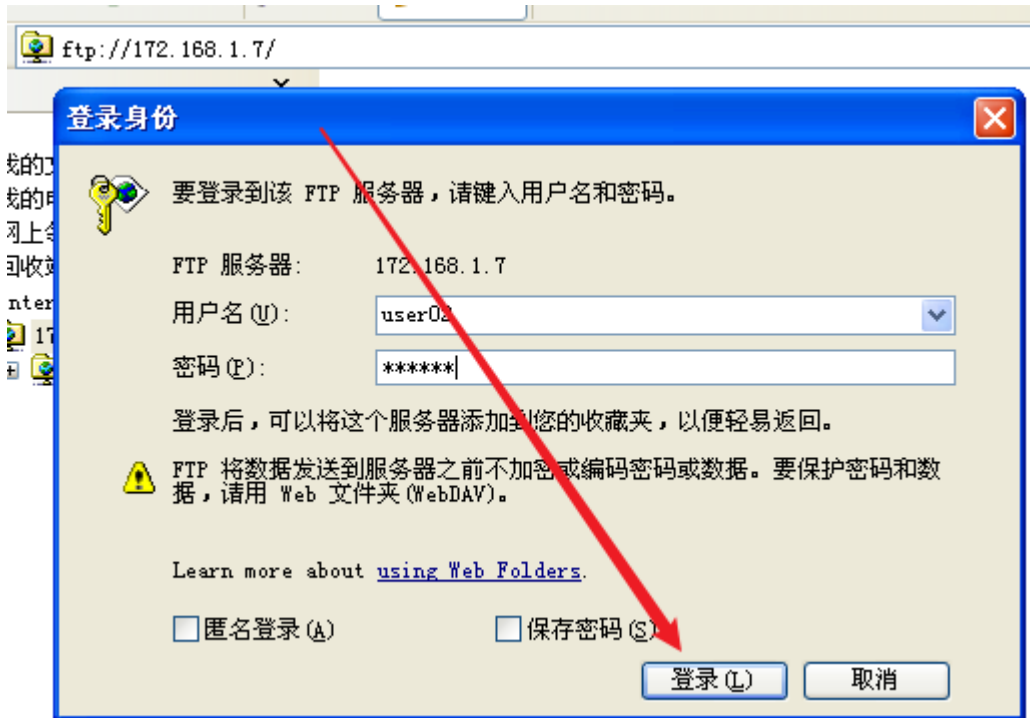
```

[root@dns ~]# systemctl restart vsftpd
[root@dns ~]# systemctl enable vsftpd
[... Stopped ...]
[root@dns ~]# systemctl restart vsftpd
[root@dns ~]# systemctl enable vsftpd
Created symlink from /etc/systemd/system/multi-user.target.wants/vsftpd.service to /usr/lib/systemd/system/vsftpd.service.

```

测试

可以到实体主机或者 xp 虚拟机上的文件资源管理器中的目录栏输入 ftp://[服务器 ip]:



And 4.7. 任务 6: 搭建 DNS 服务器

And 4.7.1. 安装 bind 服务


```
yum install -y bind
```

```
Running transaction test
Transaction test succeeded
Running transaction
  Installing : 32:bind-9.11.4-26.P2.el7_9.13.x86_64      1/1
  Verifying  : 32:bind-9.11.4-26.P2.el7_9.13.x86_64      1/1

Installed:
  bind.x86_64 32:9.11.4-26.P2.el7_9.13

Complete!
[root@localhost ~]# yum repoc d1#
```

And 4.7.2. 配置文件

And 4.7.2.1. DNS 主配置

```
vi /etc/named.conf
```

进入配置文件，将下图的 listen-on 处的 ip 修改成服务器 ip 或者 any
Allow-query 的 locla 修改成 any

```
// See the BIND Administrator's Reference Manual (ARM) for details about
// configuration located in /usr/share/doc/bind-{version}/Bv9ARM.html

options {
    listen-on port 53 { 172.168.1.7; };
    listen-on-v6 port 53 { :::1; };
    directory      "/var/named";
    dump-file       "/var/named/data/cache_dump.db";
    statistics-file "/var/named/data/named_stats.txt";
    memstatistics-file "/var/named/data/named_mem_stats.txt";
    recursing-file  "/var/named/data/named.recursing";
    secroots-file   "/var/named/data/named.secroots";
    allow-query     { any; };
}
```

And 4.7.2.2. 域配置

```
vi /etc/named.rfc1912.zones
```

进入配置文件，在文件的最后方加入自定义的配置

```
#####
zone "zmzaxg.top" IN {
    type master;
    file "named.zmzaxg.top";
    allow-update { none; };
};

zone "1.168.172.in-addr.arpa" IN {
    type master;
    file "named.172.168.1";
    allow-update { none; };
};
```

```

};

zone "0.in-addr.arpa" IN {
    type master;
    file "named.empty";
    allow-update { none; };
};

#####
zone "zmzaxg.top" IN {
    type master;
    file "named.zmzaxg.top";
    allow-update { none; };
};
zone "1.168.172.in-addr.arpa" IN {
    type master;
    file "named.172.168.1";
    allow-update { none; };
};

-- INSERT --

```

And 4.7.2.3. 配置正/反向解析

```

## cd 进入 named 目录， 拷贝两个新的配置文件
cd /var/named/

[root@localhost named]# cp -p named.localhost named.zmzaxg.top

[root@localhost named]# cp -p named.localhost named.172.168.1

[root@localhost yum.repos.d]# cd /var/named/
[root@localhost named]# cp -p named.localhost namad.zmzaxg.top
[root@localhost named]# cp -p named.localhost namad.172.168.1
[root@localhost named]# █

```

编辑配置文件

```
vi named.zmzaxg.top
```

```

$TTL 1D
@      IN SOA  @ dns.zmzaxg.top. root.zmzaxg.top. (
                                0      ; serial
                                1D     ; refresh
                                1H     ; retry
                                1W     ; expire
                                3H )   ; minimum

      NS     dns.zmzaxg.top.
@      MX    10     mail.zmzaxg.top.
dns    A     172.168.1.7
mail   A     172.168.1.8
www    A     172.168.1.8

```

```
vi named.172.168.1
```

```

$TTL 1D
5@      IN SOA  @ dns.zmzaxg.top. root.zmzaxg.top. (
2                                0      ; serial
2                                1D     ; refresh
1                                1H     ; retry
1                                1W     ; expire
                                3H )   ; minimum

7      NS     dns.zmzaxg.top.
8      PTR    dns.zmzaxg.top.
8      PTR    www.zmzaxg.top.
@      MX    10     mail.zmzaxg.top.
7      PTR    mail.zmzaxg.top.█

```

注！！上方图片配置中的 SOA 后面的“@”需要去除，属于错误配置，如果有

其他错误，可以使用“vim”编辑配置可方便查找错误。

And 4.7.3. 启动和测试

And 4.7.3.1. 启动

注！！如果你在启动命令后提示如下图，表示正反向配置文件配置内容存在问题，请检查！

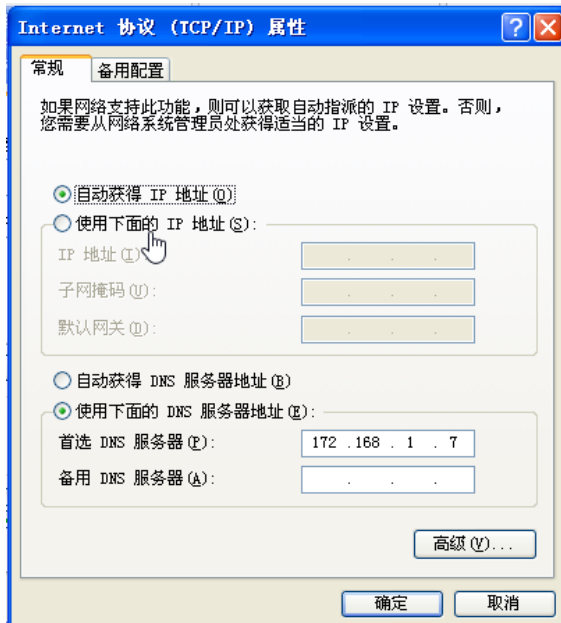
```
display all 255 possibilities: (y or n)
[root@localhost named]# systemctl start named
Job for named.service failed because the control process exited with error code. See "systemctl status named.service" and "journalctl -xe" for details.
```

启动后如下：

```
redirecting to /bin/systemctl stop firewalld
[root@localhost ~]# systemctl start named
[root@localhost ~]# systemctl enable named
[root@localhost ~]# █
```

And 4.7.3.2. 测试

在 VM 虚拟机安装好 win xp，在网络属性的 tcp/ip 中配置 dns 为上面的 dns 服务器 ip



打开 xp 系统的 cmd 终端，输入 nslookup 查看输出结果可以看到是 dns 服务器的 dns.zmzaxg.top

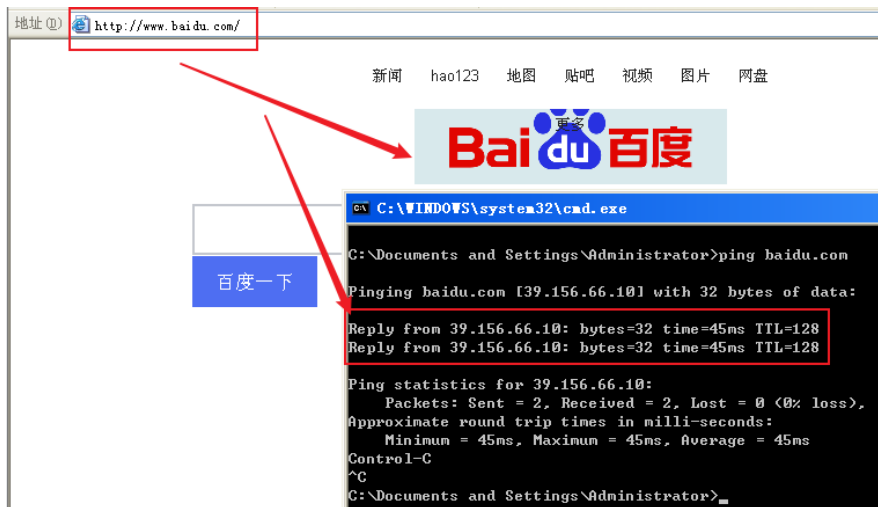
然后在 nslookup 的“>”后面继续输入 set type=mx zmzaxg.top nslookup 就会在 zmzaxg.top 域上查找关于 MX 的 DNS 服务器解析：

```
C:\Documents and Settings\Administrator>nslookup
Default Server: dns.zmzaxyg.top
Address: 172.168.1.7

> set type=mx
> zmzaxyg.top
Server: dns.zmzaxyg.top
Address: 172.168.1.7

DNS request timed out.
timeout was 2 seconds.
zmzaxyg.top MX preference = 10, mail exchanger = mail.zmzaxyg.top
zmzaxyg.top nameserver = dns.zmzaxyg.top
mail.zmzaxyg.top internet address = 172.168.1.7
dns.zmzaxyg.top internet address = 172.168.1.7
>
```

使用 ping 命令以及浏览器访问一下百度确保正常访问即可



And 4.8. 任务 7：搭建 samba 服务器

And 4.8.1. 安装 samba

```
yum install -y samba
```

```
Verifying : pytalloc-2.1.16-1.el7.x86_64 5/6
Verifying : python-tdb-1.3.18-1.el7.x86_64 6/6

Installed:
samba.x86_64 0:4.10.16-24.el7_9

Dependency Installed:
pyldb.x86_64 0:1.5.4-2.el7          pytalloc.x86_64 0:2.1.16-1.el7          python-tdb.x86_64 0:1.3.18-1.el7
samba-common-tools.x86_64 0:4.10.16-24.el7_9  samba-libs.x86_64 0:4.10.16-24.el7_9

Complete!
[root@mail ~]#
```

And 4.8.2. 启动 samba 服务

```
systemctl start smb
```

```
systemctl status smb
```

```
systemctl enable smb
```

```

[root@mail ~]# systemctl start smb
[root@mail ~]# systemctl status smb
● smb.service - Samba SMB Daemon
   Loaded: loaded (/usr/lib/systemd/system/smb.service; disabled; vendor preset: disabled)
   Active: active (running) since Tue 2023-06-13 17:31:22 PDT; 30s ago
     Docs: man:smbd(8)
           man:samba(7)
           man:smb.conf(5)
  Main PID: 23779 (smbd)
    Status: "smbd: ready to serve connections..."
      Tasks: 4
   CGroup: /system.slice/smb.service
           └─23779 /usr/sbin/smbd --foreground --no-process-group
             └─23787 /usr/sbin/smbd --foreground --no-process-group
               └─23788 /usr/sbin/smbd --foreground --no-process-group
                 └─23789 /usr/sbin/smbd --foreground --no-process-group

Jun 13 17:31:21 mail.zmzaxg.top systemd[1]: Starting Samba SMB Daemon...
Jun 13 17:31:22 mail.zmzaxg.top smbd[23779]: [2023/06/13 17:31:22.922807, 0] ../../lib/util/become_daemon.c:13..eady)
Jun 13 17:31:22 mail.zmzaxg.top systemd[1]: Started Samba SMB Daemon.
Jun 13 17:31:22 mail.zmzaxg.top smbd[23779]: daemon_ready: daemon 'smbd' finished starting up and ready to se...tions
Hint: Some lines were ellipsized, use -l to show in full.
[root@mail ~]# systemctl enable smb
Created symlink from /etc/systemd/system/multi-user.target.wants/smb.service to /usr/lib/systemd/system/smb.service.
[root@mail ~]#

```

And 4.8.3. 创建目录共享

```
[root@mail opt]# mkdir manager market factory
```

```
[root@mail opt]# touch manager/ market/ factory/
```

```
[root@mail opt]# chmod -R 777 *
```

```

[root@mail ~]# cd /opt/
[root@mail opt]# mkdir manager market factory
[root@mail opt]# touch manager/ market/ factory/
[root@mail opt]# chmod -R 777 *
[root@mail opt]# ll
total 0
drwxrwxrwx. 2 root root 6 Jun 13 17:39 factory
drwxrwxrwx. 2 root root 6 Jun 13 17:39 manager
drwxrwxrwx. 2 root root 6 Jun 13 17:39 market
drwxrwxrwx. 2 root root 6 Oct 30 2018 rh
[root@mail opt]#

```

And 4.8.4. 创建用户组和用户

创建用户

```
[root@mail opt]# useradd tolll
```

```
[root@mail opt]# useradd mike
```

```
[root@mail opt]# useradd admin
```

```
[root@mail opt]# useradd cali
```

创建用户组

```
[root@mail opt]# groupadd market
```

```
[root@mail opt]# groupadd factory
```

```

[root@mail opt]# useradd tolll
[root@mail opt]# useradd mike
[root@mail opt]# useradd admin
[root@mail opt]# useradd cali
[root@mail opt]# groupadd market
[root@mail opt]# groupadd factory

```

将用户分别加入到用户组：

```
[root@mail opt]# gpasswd -a toolll market
```

```
[root@mail opt]# gpasswd -a cali market
```

```
[root@mail opt]# gpasswd -a mike factory
```

```
[root@mail opt]# gpasswd -a admin factory
```

```
[root@mail opt]# gpasswd -a toolll market
Adding user toolll to group market
[root@mail opt]# gpasswd -a cali market
Adding user cali to group market
[root@mail opt]# gpasswd -a mike factory
Adding user mike to group factory
[root@mail opt]# gpasswd -a admin factory
Adding user admin to group factory
[root@mail opt]#
```

And 4.8.5. 本地用户转 SMB 用户

```
[root@mail opt]# smbpasswd -a zmzaxg
```

```
[root@mail opt]# smbpasswd -a toolll
```

```
[root@mail opt]# smbpasswd -a mike
```

```
[root@mail opt]# smbpasswd -a admin
```

```
[root@mail opt]# smbpasswd -a cali
```

```
[root@mail opt]#
[root@mail opt]# smbpasswd -a zmzaxg
New SMB password:
Retype new SMB password:
Added user zmzaxg.
[root@mail opt]# smbpasswd -a toolll
New SMB password:
Retype new SMB password:
Added user toolll.
[root@mail opt]# smbpasswd -a mike
New SMB password:
Retype new SMB password:
Added user mike.
[root@mail opt]# smbpasswd -a admin
New SMB password:
Retype new SMB password:
Added user admin.
[root@mail opt]# smbpasswd -a cali
New SMB password:
Retype new SMB password:
Added user cali.
[root@mail opt]#
```

And 4.8.6. 修改配置文件

```
[root@mail opt]# vi /etc/samba/smb.conf
```

在配置最后加入:

```
#####  
#####  
[manager] # SMB 服务器共享文件夹的名  
comment = manager document # 描述  
path = /opt/manager # 共享目录路径  
valid users = admin,zmzaxg # 可访问用户/用户组  
writable = yes # 可读写权限  
  
[market] # SMB 服务器共享文件  
夹的名  
comment = market staff document # 描述  
path = /opt/market # 共享目录路径  
valid users = @market,zmzaxg,admin # 可访问用户/用户组  
writable = no # 可读写权限  
write list = @market,zmzaxg # 限制其用户可读写,  
其外用户只可读  
[factory] # SMB 服务器共享文件  
夹的名  
comment = factory staff document # 描述  
path = /opt/factory # 共享目录路径  
valid users = @factory,admin,zmzaxg # 可访问用户/用户组  
writable = no # 可读写权限  
write list = @factory,admin # 限制其外用户只可读  
#####  
#####
```

```
#####
[manager]                                # SMB服务器共享文件夹的名
      comment = manager document        # 描述
      path = /opt/manager                # 共享目录路径
      valid users = admin,zmxaxg        # 可访问用户/用户组
      writable = yes                    # 可读写权限

[market]                                  # SMB服务器共享文件夹的名
      comment = market staff document   # 描述
      path = /opt/market                 # 共享目录路径
      valid users = @market,zmxaxg,admin # 可访问用户/用户组
      writable = no                     # 可读写权限
      write list = @market,zmxaxg       # 限制其用户可读写, 其外用户只可读

[factory]                                  # SMB服务器共享文件夹的名
      comment = factory staff document   # 描述
      path = /opt/factory                # 共享目录路径
      valid users = @factory,admin,zmxaxg # 可访问用户/用户组
      writable = no                     # 可读写权限
      write list = @factory,admin        # 限制其外用户只可读
#####
-- INSERT --
```

编辑配置文件时要把注释去除掉，否则配置会不可用：

```
#####
[manager]
      comment = manager document
      path = /opt/manager
      valid users = admin,zmxaxg
      writable = yes

[market]
      comment = market staff document
      path = /opt/market
      valid users = @market,zmxaxg,admin
      writable = no
      write list = @market,zmxaxg

[factory]
      comment = factory staff document
      path = /opt/factory
      valid users = @factory,admin,zmxaxg
      writable = no
      write list = @factory,admin
#####
```

And 4.8.7. 重启 SMB 服务与测试

And 4.8.7.1. 重启 SMB

```
[root@mail opt]# systemctl restart smb
[root@mail opt]# systemctl restart smb
[root@mail opt]# |
[root@mail opt]# systemctl status smb
```



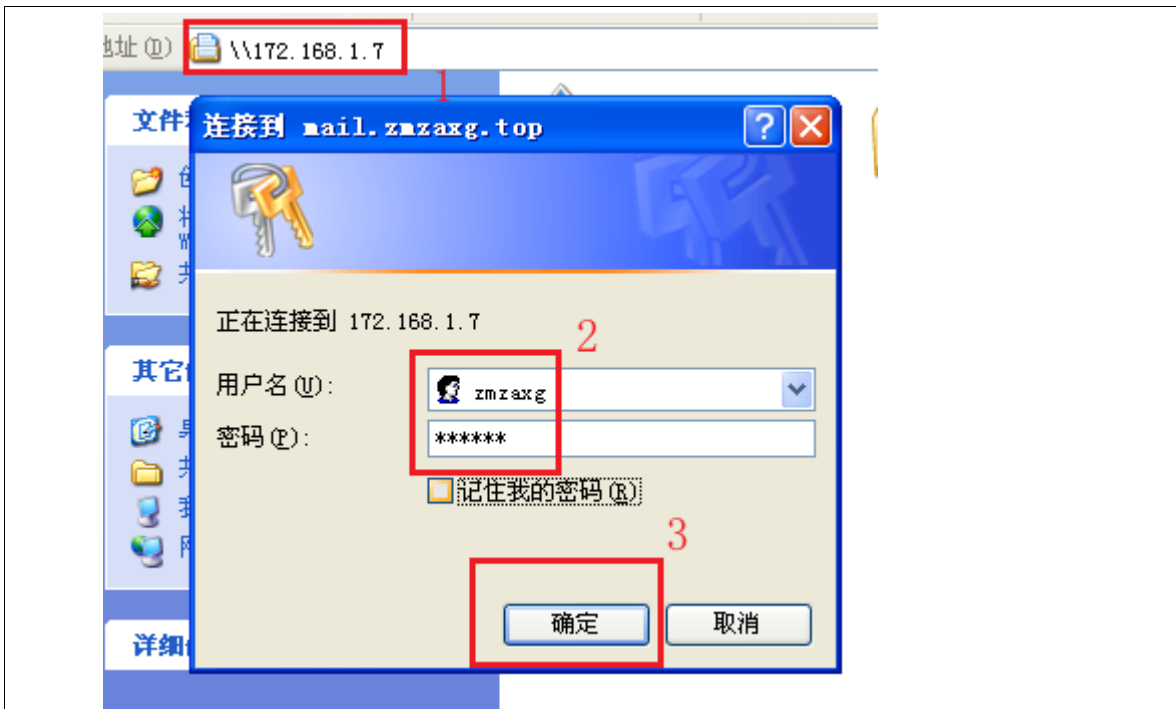
```
[root@mail opt]# systemctl status smb
● smb.service - Samba SMB Daemon
   Loaded: loaded (/usr/lib/systemd/system/smb.service; enabled; vendor preset: disabled)
   Active: active (running) since Tue 2023-06-13 18:31:21 PDT; 1min 21s ago
     Docs: man:smbd(8)
           man:samba(7)
           man:smb.conf(5)
   Main PID: 38632 (smbd)
   Status: "smbd: ready to serve connections..."
     Tasks: 4
   CGroup: /system.slice/smb.service
           └─38632 /usr/sbin/smbd --foreground --no-process-group
             └─38634 /usr/sbin/smbd --foreground --no-process-group
               └─38635 /usr/sbin/smbd --foreground --no-process-group
                 └─38636 /usr/sbin/smbd --foreground --no-process-group

Jun 13 18:31:21 mail.zmzaxg.top systemd[1]: Stopped Samba SMB Daemon.
Jun 13 18:31:21 mail.zmzaxg.top systemd[1]: Starting Samba SMB Daemon...
Jun 13 18:31:21 mail.zmzaxg.top smbd[38632]: [2023/06/13 18:31:21.522785, 0] ../../lib/util/become_daemon.c:...eady)
Jun 13 18:31:21 mail.zmzaxg.top systemd[1]: Started Samba SMB Daemon.
Jun 13 18:31:21 mail.zmzaxg.top smbd[38632]: daemon_ready: daemon 'smbd' finished starting up and ready to ...tions
Hint: Some lines were ellipsized, use -l to show in full.
[root@mail opt]#
```

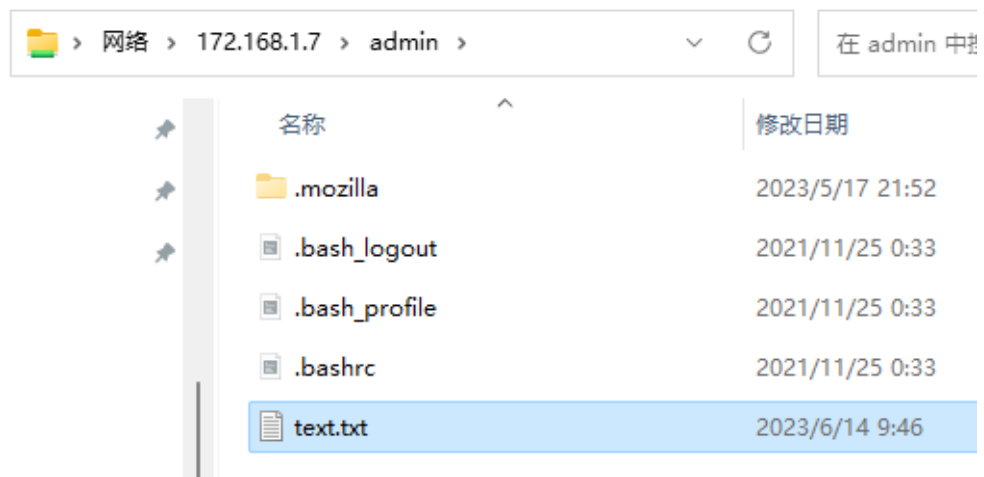
And 4.8.7.2. 测试

打开物理主机或者 xp 虚拟机的文件管理器





连接后如下图：



And 4.9. 任务 8：搭建代理服务器

And 4.9.1. 安装 squid

```
[root@mail ~]# yum -y install squid
```

```
Verifying : 7:squid-migration-script.x86_64 17:07/29:07.x86_64 4/5
Verifying : 7:squid-3.5.20-17.el7_9.8.x86_64 5/5

Installed:
  squid.x86_64 7:3.5.20-17.el7_9.8

Dependency Installed:
  libcap.x86_64 0:1.0.0-1.el7          perl-Digest.noarch 0:1.17-245.el7
  perl-Digest-MD5.x86_64 0:2.52-3.el7  squid-migration-script.x86_64 7:3.5.20-17.el7_9.8

Complete!
[root@mail ~]#
```

And 4.9.2. 修改配置

```
vi /etc/squid/squid.conf
```

进入配置文件编辑定位到 `http_access deny all`, 修改为: `http_access allow all`

```
# And finally deny all other access to this proxy
#http_access deny all #允许所有访问
http_access allow all #拒绝所有访问

# Squid normally listens to port 3128
-- INSERT --
```

(配置行后的注释要去除, 防止出错)

在配置最后面加入:

```
#####
#缓存相对的用户
cache_effective_user squid
#缓存相对的组
cache_effective_group squid
#缓存 64M 的内容
cache_mem 64 MB
#禁止下载的超过 10MB 的文件
reply_body_max_size 10 MB
#超过 4MB 的文件不进行缓存
maximum_object_size 4096 KB
#####
```

```
#####
cache_effective_user squid
cache_effective_group squid
cache_mem 64 MB
reply_body_max_size 10 MB
maximum_object_size 4096 KB
#####
~
```

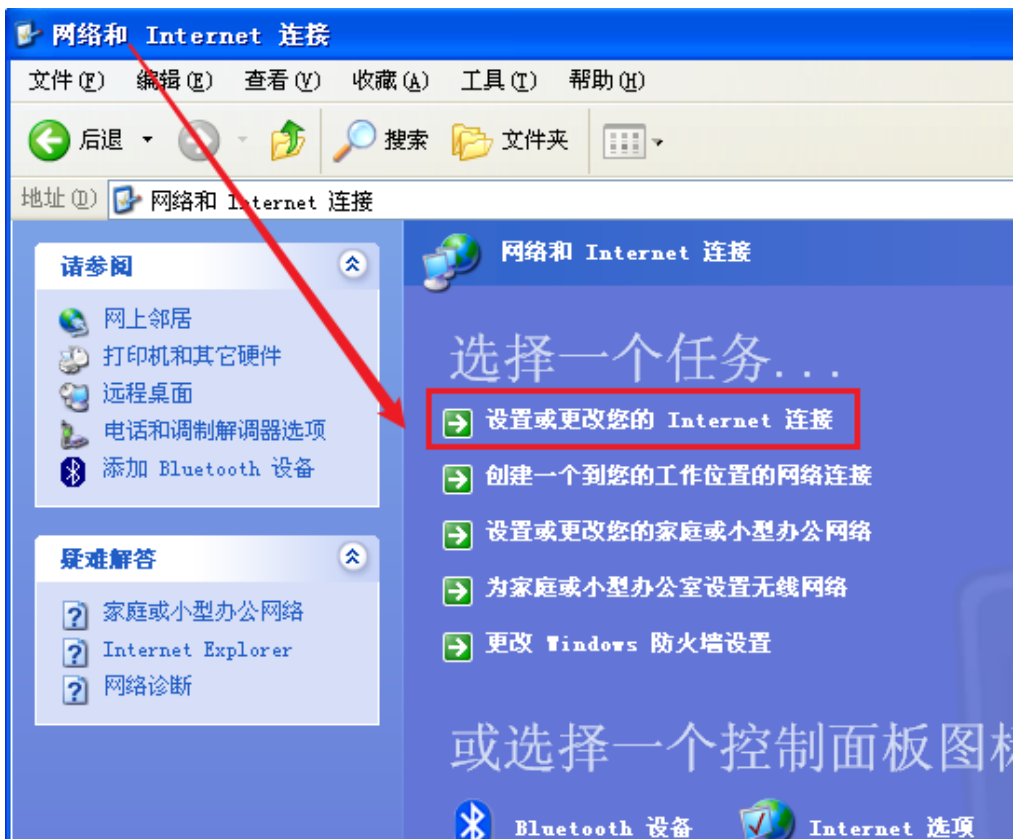
And 4.9.3. 启动代理服务器

```
[root@mail ~]# squid
[root@mail ~]# systemctl enable squid
[root@mail ~]# squid
[root@mail ~]# systemctl enable squid
Created symlink from /etc/systemd/system/multi-user.target.wants/squid.service to /usr/lib/systemd/system/squid.service.
[root@mail ~]# |
```

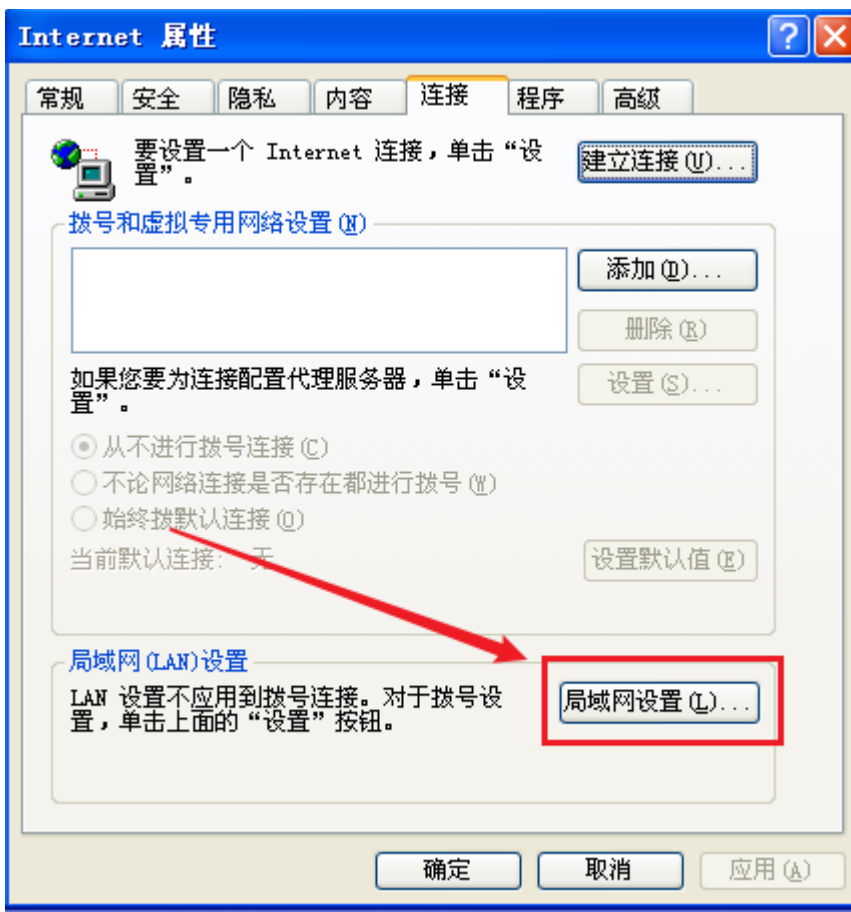
And 4.9.4. 配置代理客户端

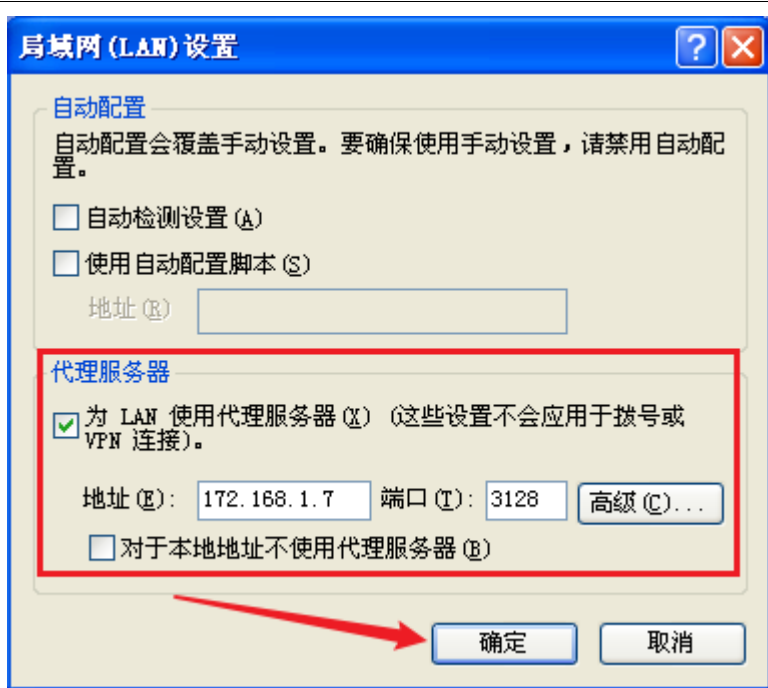
这里用 xp 虚拟机来配置

先进入到控制面板, 点开网络



选择局域网设置





打开代理服务器选项，填写好服务器配置保存即可

Ping 百度看看

```
C:\Documents and Settings\Administrator>ping baidu.com

Pinging baidu.com [39.156.66.10] with 32 bytes of data:

Reply from 39.156.66.10: bytes=32 time=39ms TTL=128
Reply from 39.156.66.10: bytes=32 time=39ms TTL=128
Reply from 39.156.66.10: bytes=32 time=39ms TTL=128
Reply from 39.156.66.10: bytes=32 time=39ms TTL=128

Ping statistics for 39.156.66.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 39ms, Maximum = 39ms, Average = 39ms

C:\Documents and Settings\Administrator>
```

And 4.10. 任务 9: 搭建 NAT 服务器

And 4.10.1. 载入模块

```
[root@mail ~]# iptables -t filter -F
```

```
[root@mail ~]# iptables -t nat -F
```

```
[root@mail ~]# iptables -t mangle -F
```

```
[root@mail ~]# iptables -t filter -F
```

```
[root@mail ~]# iptables -t nat -F
```

```
[root@mail ~]# iptables -t mangle -F
```

And 4.10.2. 设置 Web 服务器

```
[root@mail ~]# iptables -A FORWARD -i eth0 -p udp --dport 80 -j ACCEPT
[root@mail ~]# iptables -t nat -A POSTROUTING -o eth0 -p tcp --dport
80 -j SNAT --to-source 202.112.113.112
[root@mail ~]# iptables -t nat -A POSTROUTING -o eth0 -p udp --dport
80 -j SNAT --to-source 202.112.113.112
[root@mail ~]# iptables -A FORWARD -i eth0 -p udp --dport 80 -j ACCEPT
[root@mail ~]# iptables -t nat -A POSTROUTING -o eth0 -p tcp --dport 80 -j SNAT --to-source 202.112.113.112
[root@mail ~]# iptables -t nat -A POSTROUTING -o eth0 -p udp --dport 80 -j SNAT --to-source 202.112.113.112
[root@mail ~]#
```

And 4.10.3. 设置 DNS 服务器

```
[root@mail ~]# iptables -A FORWARD -i eth0 -p tcp --dport 53 -j ACCEPT
[root@mail ~]# iptables -A FORWARD -i eth0 -p udp --dport 53 -j ACCEPT
[root@mail ~]# iptables -A FORWARD -i eth0 -p tcp --dport 53 -j ACCEPT
[root@mail ~]# iptables -A FORWARD -i eth0 -p udp --dport 53 -j ACCEPT
[root@mail ~]#
```

And 4.10.4. 设置邮件服务器

```
[root@mail ~]# iptables -A FORWARD -i eth0 -p tcp --dport 25 -j ACCEPT
[root@mail ~]# iptables -A FORWARD -i eth0 -p udp --dport 25 -j ACCEPT
[root@mail ~]# iptables -A FORWARD -i eth0 -p udp --dport 110 -j
ACCEPT
[root@mail ~]# iptables -A FORWARD -i eth0 -p tcp --dport 110 -j
ACCEPT
[root@mail ~]# iptables -A FORWARD -i eth0 -p tcp --dport 25 -j ACCEPT
[root@mail ~]# iptables -A FORWARD -i eth0 -p udp --dport 25 -j ACCEPT
[root@mail ~]# iptables -A FORWARD -i eth0 -p udp --dport 110 -j ACCEPT
[root@mail ~]# iptables -A FORWARD -i eth0 -p tcp --dport 110 -j ACCEPT
[root@mail ~]#
```

And 4.10.5. 设置不回应 ICMP 封包

```
[root@mail ~]# iptables -t filter -A INPUT -p icmp --icmp-type 8 -j
DROP
[root@mail ~]# iptables -t filter -A OUTPUT -p icmp --icmp-type 0 -j
DROP
[root@mail ~]# iptables -t filter -A FORWARD -p icmp --icmp-type 8 -
j DROP
[root@mail ~]# iptables -t filter -A FORWARD -p icmp --icmp-type 0 -
j DROP
[root@mail ~]# iptables -t filter -A INPUT -p icmp --icmp-type 8 -j DROP
[root@mail ~]# iptables -t filter -A OUTPUT -p icmp --icmp-type 0 -j DROP
[root@mail ~]# iptables -t filter -A FORWARD -p icmp --icmp-type 8 -j DROP
[root@mail ~]# iptables -t filter -A FORWARD -p icmp --icmp-type 0 -j DROP
[root@mail ~]#
```

And 4.10.6. 防止网络扫描

```
[root@mail ~]# iptables -t filter -A INPUT -p tcp --tcp-flags ALL ALL
-j DROP
[root@mail ~]# iptables -t filter -A FORWARD -p tcp --tcp-flags ALL
ALL -j DROP
[root@mail ~]# iptables -t filter -A INPUT -p tcp --tcp-flags ALL
NONE -j DROP
[root@mail ~]# iptables -t filter -A FORWARD -p tcp --tcp-flags ALL
NONE -j DROP
[root@mail ~]# iptables -t filter -A FORWARD -p tcp --tcp-flags ALL
FIN,URG,PSH -j DROP
[root@mail ~]# iptables -t filter -A INPUT -p tcp --tcp-flags SYN,RST
SYN,RST -j DROP
[root@mail ~]# iptables -t filter -A FORWARD -p tcp --tcp-flags
SYN,RST SYN,RST -j DROP
[root@mail ~]# iptables -t filter -A INPUT -p tcp --tcp-flags ALL ALL -j DROP
[root@mail ~]# iptables -t filter -A FORWARD -p tcp --tcp-flags ALL ALL -j DROP
[root@mail ~]# iptables -t filter -A INPUT -p tcp --tcp-flags ALL NONE -j DROP
[root@mail ~]# iptables -t filter -A FORWARD -p tcp --tcp-flags ALL NONE -j DROP
[root@mail ~]# iptables -t filter -A FORWARD -p tcp --tcp-flags ALL FIN,URG,PSH -j DROP
[root@mail ~]# iptables -t filter -A INPUT -p tcp --tcp-flags SYN,RST SYN,RST -j DROP
[root@mail ~]# iptables -t filter -A FORWARD -p tcp --tcp-flags SYN,RST SYN,RST -j DROP
[root@mail ~]#
```

And 4.10.7. 允许管理员以 SSH 方式连接到防火墙修改设定

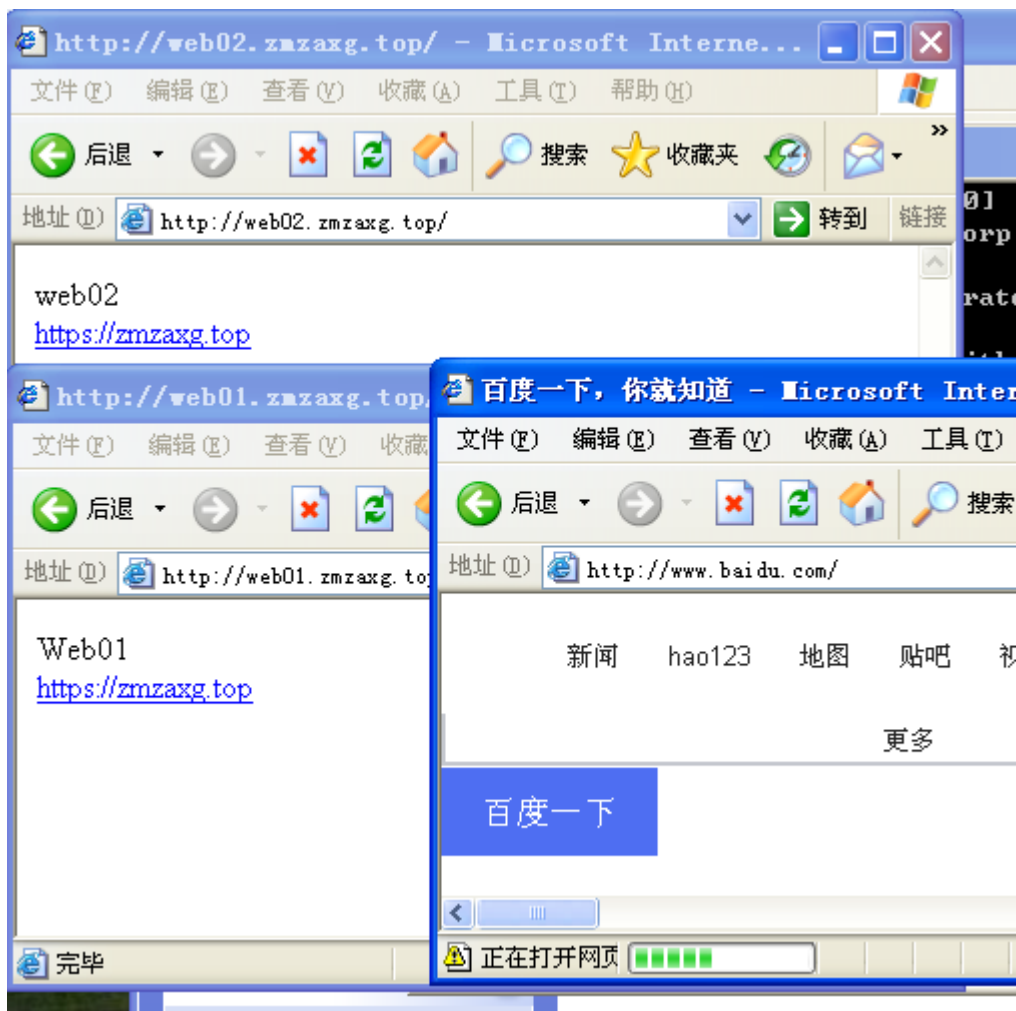
```
[root@mail ~]# iptables -t filter -A INPUT -p tcp --dport 22 -j ACCEPT
[root@mail ~]# iptables -t filter -A INPUT -p udp --dport 22 -j ACCEPT
[root@mail ~]# iptables -t filter -A INPUT -p tcp --dport 22 -j ACCEPT
[root@mail ~]# iptables -t filter -A INPUT -p udp --dport 22 -j ACCEPT
[root@mail ~]#
```

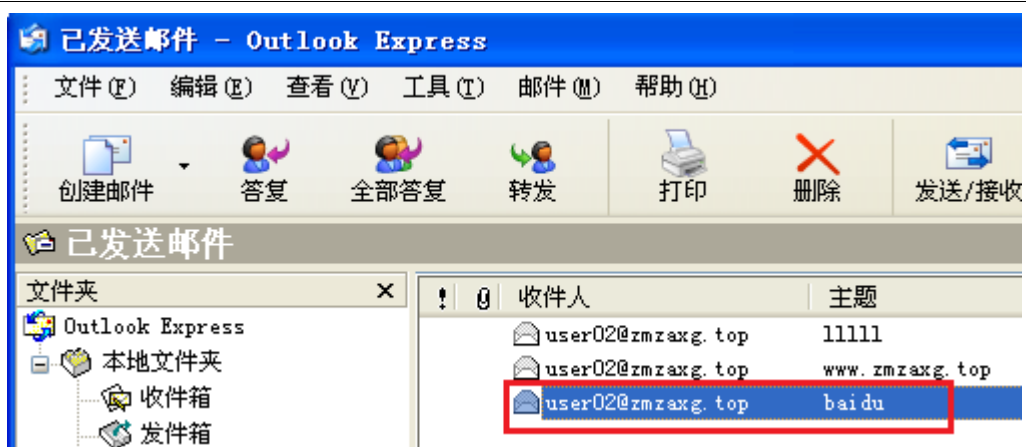
And 4.10.8. 检测是否连接成功

```
[root@mail ~]# ping baidu.com
检查 ping 通外网
```

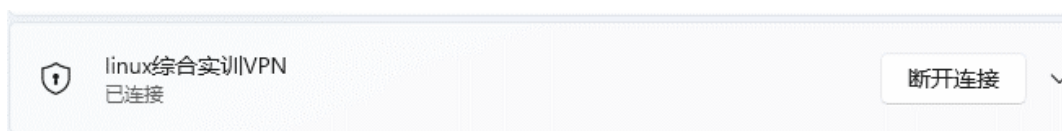
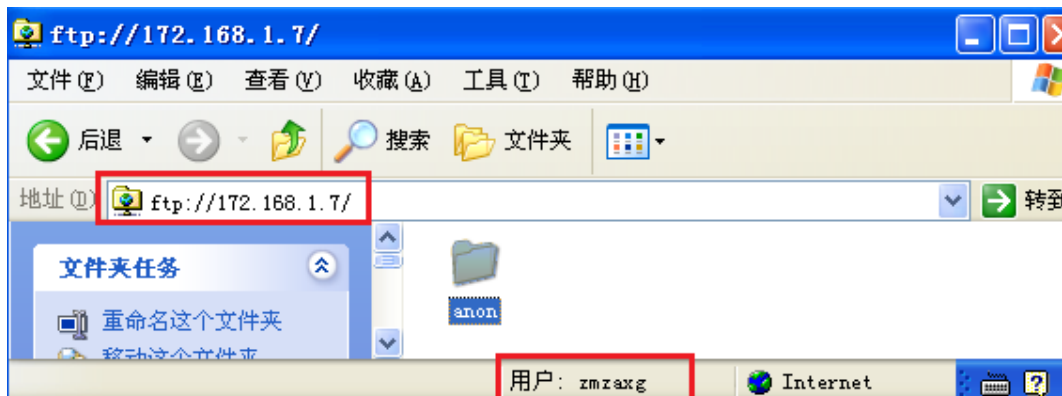
```
[root@mail ~]# iptables -F -t filter -A INPUT -p udp --sport 22 -j ACCEPT
[root@mail ~]#
[root@mail ~]#
[root@mail ~]# ping baidu.com
PING baidu.com (110.242.68.66) 56(84) bytes of data:
64 bytes from 110.242.68.66 (110.242.68.66): icmp_seq=1 ttl=128 time=41.5 ms
64 bytes from 110.242.68.66 (110.242.68.66): icmp_seq=2 ttl=128 time=41.5 ms
64 bytes from 110.242.68.66 (110.242.68.66): icmp_seq=3 ttl=128 time=42.5 ms
64 bytes from 110.242.68.66 (110.242.68.66): icmp_seq=4 ttl=128 time=42.1 ms
64 bytes from 110.242.68.66 (110.242.68.66): icmp_seq=5 ttl=128 time=42.5 ms
64 bytes from 110.242.68.66 (110.242.68.66): icmp_seq=6 ttl=128 time=44.9 ms
64 bytes from 110.242.68.66 (110.242.68.66): icmp_seq=7 ttl=128 time=41.4 ms
64 bytes from 110.242.68.66 (110.242.68.66): icmp_seq=8 ttl=128 time=43.1 ms
^C
--- baidu.com ping statistics ---
8 packets transmitted, 8 received, 0% packet loss, time 7003ms
rtt min/avg/max/mdev = 41.437/42.489/44.997/1.111 ms
[root@mail ~]#
```

检查 VPN 服务器，邮箱服务器以及 Web 服务器还有 SMB 服务器、ftp 服务器及其他应用服务器是否正常





```
[root@mail ~]# mail -u user02
Heirloom Mail version 12.5 7/5/10. Type ? for help.
"/var/mail/user02": 3 messages 3 new
>N 1 tools.zmzaxg.top      Mon Jun 12 12:52  41/1473  "11111"
  N 2 tools.zmzaxg.top      Mon Jun 12 12:55  42/1551  "www.zmzaxg.top"
  N 3 tools.zmzaxg.top      Tue Jun 13 19:56  41/1451  "baidu"
```



五、问题汇总

1. 在配置环境中会出现 yum 源的软件源失效或者不存在，需要切换有对应软件源的 yum 源重新生成缓存才能够安装。
2. 搭建 FTP 服务器时 windows 登录上了账户但没有显示文件，需要修改服务器

的/etc/selinux/config 配置中的 SELINUX=enforcing 为 disable, 保存修改后需要重载一下配置文件重启 ftp 服务器才可以生效

3. DNS 服务器配置需要认真详阅, 是一个很容易出现配置问题的存在。

六、收获和体会。

在本次的实训周中学习了 Linux 搭建服务的方法和在面对遇到各种报错都应去面对查找各种相关资料去一一解决问题成功搭建服务。

在信息时代, 不断学习是获得进步的动力。作为一名青年学子更应把学习作为主要目标。

七、参考资料。

[zmzaxg | blog 社区 - zmzaxg 官方](#)

[Linux 环境下配置 DHCP 服务器 linux 修改 dhcp 配置文件 mldl 的博客-CSDN 博客](#)

[sendmail 配置错误: Cannot open /usr/share/sendmail-cf/m4/cf.m4 解决办法_lsfw 的博客-CSDN 博客](#)

学生（签名）_____XXX