

-PAM -PPPOE DNS -CRON

- IP
- - Docker
- - Debian
 - SSH
 - Linux
- -
- - Linux
- - rp-pppoe

- lihao

```
id lihao
```

- lihao /home/lihao

```
adduser lihao
useradd -m -d /opt/username username
```

-

```
ls #
ls -lh #
ls -ls #
ls -a #
ls -la #
ls .. #
ls / #
ls -R #
```

- |ls|

```
[admin@A5 文档]$ ls
321jn.txt 321jr.txt
```

- |ls -lh|

```
[admin@A5 文档]$ ls -lh
total 8.0K
-rw-rw-r-- 1 admin admin 13 Jul 28 07:40 3
-rw-rw-r-- 1 admin admin 13 Jul 28 06:56 3
```

- 1

1							
-	rw-rw-r--	1	admin	admin	13	7.28 07:40	321jn.txt
-	rw-rw-r--	1	admin	admin	13	7.28 06:56	321jr.txt

IP

IP

- 192.168.2.0 - 192.168.2.249
- 192.168.2. 1
- 0 1 2 ... 249 250
- A B C D E F G H I J 10

				IP
A		0~9	0 1 2 3 4 5 6 7 8 9	10
B		10~19	10 11 12 13 14 15 16 17 18 19	10
C		20~29	20 21 22 23 24 25 26 27 28 29	10
D		30~49	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49	20
E		50~69	50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69	20
F		70~89	70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89	20
G	WiFi	90~99	90 91 92 93 94 95 96 97 98 99	10
H		100~129	100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119	30

				IP
I		130~199	132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 912 193 194 195 196 197 198 199	70
J		200~249	200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249	50

-

- $A = [1 \ 2 \ 3 \ 4 \ 5]$
- $E[0 \ 1 \ 2 \ 3 \ 4 \ 5 \ 6 \ 7 \ 8 \ 9]$
- XXX $[0 \ 1 \ 2 \ 3 \dots 249] = IP$

Docker

```
docker ps -q #
```

```
docker start myrunoob # myrunoob  
docker restart myrunoob # myrunoob
```

```
docker stop myrunoob # myrunoob  
docker kill -s KILL mynginx # mynginx
```

```
docker kill $(docker ps -a -q)
```

```
docker rm $(docker ps -a -q)
```

dangling

```
docker rmi $(docker images -q -f dangling=true)
```

id

```
docker rmi <image id>
```

```
docker rmi $(docker images -q)
```

Docker

- [run](#)

- [start/stop/restart](#)
- [kill](#)
- [rm](#)
- [pause/unpause](#)
- [create](#)
- [exec](#)

- [ps](#)
- [inspect](#)
- [top](#)
- [attach](#)
- [events](#)
- [logs](#)
- [wait](#)
- [export](#)
- [port](#)
- [stats](#)

rootfs

- [commit](#)
- [cp](#)
- [diff](#)
- [login](#)
- [pull](#)
- [push](#)
- [search](#)
- [images](#)
- [rmi](#)
- [tag](#)
- [build](#)
- [history](#)
- [save](#)

- [load](#)
- [import](#)

info|version

- [info](#)
- [version](#)

Linux debian docker

Debian

- `eth0` IP

```
cd /etc/sysconfig/  
cat > ifconfig.eth0 << "EOF"  
ONBOOT=yes  
IFACE=eth0  
SERVICE=ipv4-static  
IP=192.168.1.2  
GATEWAY=192.168.1.1  
PREFIX=24  
BROADCAST=192.168.1.255  
EOF
```

IP

-

```
ip link
```

- IP

```
nano /etc/network/interfaces
```

```
# The loopback network interface  
auto lo  
iface lo inet loopback
```

^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^_ Go To Line

- IP dns-nameservers

```
GNU nano 5.4 /etc/network/interfaces *
# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

# The loopback network interface
auto lo
iface lo inet loopback

auto enp0s3
iface enp0s3 inet static
address 192.168.2.2
netmask 255.255.255.0
gateway 192.168.2.2
dns-nameservers 8.8.4.4 8.8.8.8

^G Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location
^X Exit      ^R Read File  ^\ Replace    ^U Paste      ^J Justify    ^_ Go To Line
```

DNS

- DNS `/etc/resolv.conf`

```
cat > /etc/resolv.conf << "EOF"
# Begin /etc/resolv.conf

domain <Your Domain Name>
nameserver <IP address of your primary nameserver>
nameserver <IP address of your secondary nameserver>

# End /etc/resolv.conf
EOF
```

- `/etc/hostname` `<lfs>` Fully Qualified `/etc/hosts` name FQDN

```
echo "<lfs>" > /etc/hostname
```

IP

- `/etc/hosts` `<192.168.1.1>` `<FQDN>` `<HOSTNAME>` / IP

```
cat > /etc/hosts << "EOF"
# Begin /etc/hosts

127.0.0.1 localhost
127.0.1.1 <FQDN> <HOSTNAME>
<192.168.1.1> <FQDN> <HOSTNAME> [alias1] [alias2 ...]
```

```
::1 localhost ip6-localhost ip6-loopback
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters

# End /etc/hosts
EOF
```

- foo

```
apt-get update #
apt-get -y install foo # "foo"
```

- foo

```
apt-get remove foo # "foo"
apt-get -y autoremove foo # Debian 11 "foo"
```

- foo

```
apt-get -y purge foo # "foo"
apt-get -y autoremove --purge foo # "foo"
```

-

```
apt-get upgrade #
apt-get dist-upgrade #
```

-

```
dpkg --get-selections
```

- "foo "


```
apt-cache show foo
```

-

```
nano /etc/yum.repos.d
```

ssh

- 22

```
nano /etc/ssh/sshd_config      # sshd_config
#port 22                      # 1
port 22                       # 2  " #"
```

- 1

```
Include /etc/ssh/sshd_config.d/*.conf
#Port 22
#AddressFamily any
#ListenAddress 0.0.0.0
#ListenAddress ::
```

- 2

```
Include /etc/ssh/sshd_config.d/*.conf
Port 22
#AddressFamily any
#ListenAddress 0.0.0.0
#ListenAddress ::
```

- root

```
#PermitRootLogin prohibit-password # 3
PermitRootLogin yes                # 4  " #" "yes" "prohibit-password"

#PasswordAuthentication yes        #
PasswordAuthentication yes         #  " #" 5
```

- 3

```
#LoginGraceTime 2m
#PermitRootLogin prohibit-password
#StrictModes yes
```

- 4

```
#LoginGraceTime 2m
PermitRootLogin yes
#StrictModes yes
```

- 5

```
PasswordAuthentication yes
```

- nan Ctrl + X "y" 6 " " 7

- 6

```
GNU nano 5.4 /etc/ssh/sshd_config *
# $OpenBSD: sshd_config,v 1.103 2018/04/09 20:41:22 tj Exp $

# This is the sshd server system-wide configuration file. See
# sshd_config(5) for more information.

# This sshd was compiled with PATH=/usr/bin:/bin:/usr/sbin:/sbin

# The strategy used for options in the default sshd_config shipped with
# OpenSSH is to specify options with their default value where
# possible, but leave them commented. Uncommented options override the
# default value.

Include /etc/ssh/sshd_config.d/*.conf

Port 22
#AddressFamily any
#ListenAddress 0.0.0.0
#ListenAddress ::

#HostKey /etc/ssh/ssh_host_rsa_key
File Name to Write: /etc/ssh/sshd_config
^G Help      M-D DOS Format  M-A Append     M-B Backup File
^C Cancel    M-M Mac Format  M-P Prepend    ^T Browse
```

○ 7

```
root@H101:~# nano /etc/ssh/sshd_config
root@H101:~#
```

- sshd

```
systemctl restart sshd
```

Docker

-

```
curl -fsSL https://get.docker.com | bash -s docker --mirror Aliyun
```

-

```
apt-get purge docker-ce
```

-

```
rm -rf /var/lib/docker
```

SSH

PutTY SSH

Linux

SSH

22

SSH

Linux

SSH

-

```
[root@host ~]$ ssh-keygen <==
Generating public/private rsa key pair.
Enter file in which to save the key (/root/.ssh/id_rsa): <== Enter
Created directory '/root/.ssh'.
Enter passphrase (empty for no passphrase): <== Enter
Enter same passphrase again: <==
Your identification has been saved in /root/.ssh/id_rsa. <==
Your public key has been saved in /root/.ssh/id_rsa.pub. <==
The key fingerprint is:
0f: d3: e7: 1a: 1c: bd: 5c: 03: f1: 19: f1: 22: df: 9b: cc: 08 root@host
```

- root .ssh id_rsa id_rsa.pub

-

```
[root@host ~]$ cd .ssh
[root@host .ssh]$ cat id_rsa.pub >> authorized_keys
```

-

```
[root@host .ssh]$ chmod 600 authorized_keys
[root@host .ssh]$ chmod 700 ~/.ssh
```

SSH

- /etc/ssh/sshd_config

```
RSAAuthentication yes
PubkeyAuthentication yes
```

- root SSH

```
PermitRootLogin yes
```

-

```
PasswordAuthentication no
```

- SSH

```
[root@host .ssh]$ service sshd restart
```

PuTTY

WinSCP SFTP

id_rsa

PuTTYGen

Actions

Load

PuTTYGen

Key comment

Save private key

PuTTY

PuTTY

Connection -> SSH -> Auth

Private key file for authentication:

Linux

```
arch                #          (1)
uname -m            #          (2)
uname -r            #
dmidecode -q        #          - (SMBIOS / DMI)
hdparm -i /dev/hda  #
hdparm -tT /dev/sda #
cat /proc/cpuinfo   # CPU info
cat /proc/interrupts #
cat /proc/meminfo   #
cat /proc/swaps      # swap
cat /proc/version    #
cat /proc/net/dev    #
cat /proc/mounts     #
lspci -tv            # PCI
lsusb -tv            # USB
date                 #
cal 2007              # 2007
date 041217002007.00 # - .
clock -w             # BIOS
```

()

```
shutdown -h now      # (1)
init 0               # (2)
telinit 0            # (3)
shutdown -h hours:minutes & #
shutdown -c          #
shutdown -r now      # (1)
reboot               # (2)
logout               #
```

```

cd /home                #  '/' home'
cd ..                   #
cd ../..                #
cd                      #
cd ~user1               #
cd -                    #
pwd                     #
ls                      #
ls -F                   #
ls -l                   #
ls -a                   #
ls *[0-9]*              #
tree                    #                (1)
lstree                  #                (2)
mkdir dir1              #  'dir1'
mkdir dir1 dir2          #
mkdir -p /tmp/dir1/dir2 #
rm -f file1             #  'file1'
rmdir dir1              #  'dir1'
rm -rf dir1             #  'dir1'
rm -rf dir1 dir2        #
mv dir1 new_dir         #  /
cp file1 file2          #
cp dir/* .              #
cp -a /tmp/dir1 .       #
cp -a dir1 dir2         #
ln -s file1 lnk1        #
ln file1 lnk1           #
touch -t 0712250000 file1 #                - (YYMMDDhhmm)
iconv -l                #

```

```

find / -name file1      #  '/'
find / -user user1      #  'user1'
find /home/user1 -name \*.bin #  '/' home/user1' '.bin'
find /usr/bin -type f -atime +100 #  100
find /usr/bin -type f -mtime -10 #  10
find / -name \*.rpm -exec chmod 755 '{}' \; #  '.rpm'

```

```

find / -xdev -name \*.rpm          #   '.rpm'
locate \*.ps                      #   '.ps'      -      'updatedb'
whereis halt                      #               man
which halt                        #

```

```

mount /dev/hda2 /mnt/hda2          #   hda2   -      '/ mnt/hda2'
umount /dev/hda2                  #   hda2   -      '/ mnt/hda2'
fuser -km /mnt/hda2               #
umount -n /mnt/hda2               #           /etc/mtab   -
mount /dev/fd0 /mnt/floppy         #
mount /dev/cdrom /mnt/cdrom        #   cdrom dvdrom
mount /dev/hdc /mnt/cdrecorder     #   cdrw  dvdrom
mount /dev/hdb /mnt/cdrecorder     #   cdrw  dvdrom
mount -o loop file.iso /mnt/cdrom  #   ISO
mount -t vfat /dev/hda5 /mnt/hda5  #   Windows FAT32
mount /dev/sda1 /mnt/usbdisk       #   usb
mount -t smbfs -o username=user,password=pass //WinClient/share /mnt/share #   windows

```

```

df -h                             #
ls -lSr | more                    #
du -sh dir1                       #   'dir1'      '
du -sk * | sort -rn               #
rpm -q -a --qf '%10{SIZE}t%{NAME}n' | sort -k1,1n          #           rpm      (fedora, red
dpkg-query -W -f='${Installed-Size;10}t${Package}n' | sort -k1,1n          #           deb
debian )

```

```

groupadd group_name               #
groupdel group_name               #
groupmod -n new_group_name old_group_name          #
useradd -c "Name Surname " -g admin -d /home/user1 -s /bin/bash user1      #   "admin"
useradd user1
userdel -r user1                  #   ( '-r'      )
usermod -c "User FTP" -g system -d /ftp/user1 -s /bin/nologin user1        #
passwd
passwd user1                      #   ( root )

```

```
chage -E 2005-12-31 user1      #
pwck                          #  '/etc/passwd'
grpck                         #  '/etc/passwd'
newgrp group_name             #
```

- " + " " _ "

```
ls -lh                        #
ls /tmp | pr -T5 -W$COLUMNS  #      5
chmod ugo+rw directory1      #      (u)  (g)  (o)  r   (w)  (x)
chmod go-rwx directory1      #      (g)  (o)
chown user1 file1            #
chown -R user1 directory1    #
chgrp group1 file1           #
chown user1:group1 file1     #
find / -perm -u+s            #          SUID
chmod u+s /bin/file1          #          SUID  -
chmod u-s /bin/file1          #          SUID
chmod g+s /home/public        #      SGID  -   SUID
chmod g-s /home/public        #      SGID
chmod o+t /home/public        #      STIKY  -
chmod o-t /home/public        #      STIKY
```

- " + " " _ "

```
chattr +a file1              #
chattr +c file1              #          /
chattr +d file1              #          dump
chattr +i file1              #
chattr +s file1              #
chattr +S file1              #
chattr +u file1              #
lsattr                       #
```



```

bunzip2 file1.bz2          #      'file1.bz2'
bzip2 file1                #      'file1'
gunzip file1.gz            #      'file1.gz'
gzip file1                 #      'file1'
gzip -9 file1              #
rar a file1.rar test_file  #      'file1.rar'
rar a file1.rar file1 file2 dir1 #    'file1', 'file2'      'dir1'
rar x file1.rar            # rar
unrar x file1.rar          # rar
tar -cvf archive.tar file1 #      tarball
tar -cvf archive.tar file1 file2 dir1 #    'file1', 'file2'      'dir1'
tar -tf archive.tar        #
tar -xvf archive.tar       #
tar -xvf archive.tar -C /tmp #    /tmp
tar -cvfj archive.tar.bz2 dir1 #  bzip2
tar -xvfj archive.tar.bz2    #  bzip2
tar -cvfz archive.tar.gz dir1 #  gzip
tar -xvfz archive.tar.gz     #  gzip
zip file1.zip file1          #  zip
zip -r file1.zip file1 file2 dir1 #      zip
unzip file1.zip              #  zip

```

APT (Debian, Ubuntu)

```

apt-get install package_name # / deb
apt-cdrom install package_name # / deb
apt-get update                #
apt-get upgrade               #
apt-get remove package_name  # deb
apt-get check                 #
apt-get clean                 #
apt-cache search searched-package #

```

```
cat file1
tac file1
more file1
less file1      'more'
head -2 file1
tail -2 file1
tail -f /var/log/messages
```

```
cat file1 file2 ... | command <> file1_in.txt_or_file1_out.txt general syntax for text
manipulation using PIPE, STDIN and STDOUT
cat file1 | command( sed, grep, awk, grep, etc...) > result.txt
cat file1 | command( sed, grep, awk, grep, etc...) >> result.txt
grep Aug /var/log/messages      '/var/log/messages'      "Aug"
grep ^Aug /var/log/messages      '/var/log/messages'      "Aug"
grep [0-9] /var/log/messages      '/var/log/messages'
grep Aug -R /var/log/*          '/var/log'                "Aug"
sed 's/string1/string2/g' example.txt example.txt      "string1"      "string2"
sed '/^$/d' example.txt example.txt
sed '/ *#/d; /^$/d' example.txt example.txt
echo 'esempio' | tr '[:lower:]' '[:upper:]'
sed -e 'ld' result.txt example.txt
sed -n '/string1/p'              "string1"
sed -e 's/ *$//' example.txt
sed -e 's/string1//g' example.txt      "string1"
sed -n '1,5p;5q' example.txt          5
sed -n '5p;5q' example.txt           5
sed -e 's/00*/0/g' example.txt
cat -n file1
cat example.txt | awk 'NR%2==1' example.txt
echo a b c | awk '{print $1}'
echo a b c | awk '{print $1,$3}'
paste file1 file2
paste -d '+' file1 file2              "+"
sort file1 file2
sort file1 file2 | uniq              (          )
sort file1 file2 | uniq -u
sort file1 file2 | uniq -d           (          )
```

```
comm -1 file1 file2          'file1'
comm -2 file1 file2          'file2'
comm -3 file1 file2
```

```
dos2unix filedos.txt fileunix.txt #      MSDOS  UNIX
unix2dos fileunix.txt filedos.txt #      UNIX   MSDOS
recode ..HTML < page.txt > page.html #      html
recode -l | more                #
```

```
badblocks -v /dev/hda1      hda1
fsck /dev/hda1 / hda1 linux
fsck.ext2 /dev/hda1 / hda1 ext2
e2fsck /dev/hda1 / hda1 ext2
e2fsck -j /dev/hda1 / hda1 ext3
fsck.ext3 /dev/hda1 / hda1 ext3
fsck.vfat /dev/hda1 / hda1 fat
fsck.msdos /dev/hda1 / hda1 dos
dosfsck /dev/hda1 / hda1 dos
```

```
mkfs /dev/hda1 hda1
mke2fs /dev/hda1 hda1 linux ext2
mke2fs -j /dev/hda1 hda1 linux ext3( )
mkfs -t vfat 32 -F /dev/hda1 FAT32
fdformat -n /dev/fd0
mkswap /dev/hda3 swap
```

SWAP

```
mkswap /dev/hda3 swap
swapon /dev/hda3 swap
swapon /dev/hda2 /dev/hdb3 swap
```

```

dump -0aj -f /tmp/home0.bak /home      ' /home'
dump -1aj -f /tmp/home0.bak /home      ' /home'
restore -if /tmp/home0.bak
rsync -rogpav --delete /home /tmp
rsync -rogpav -e ssh --delete /home ip_address:/tmp  SSH  rsync
rsync -az -e ssh --delete ip_addr:/home/public /home/local  ssh
rsync -az -e ssh --delete /home/local ip_addr:/home/public  ssh
dd bs=1M if=/dev/hda | gzip | ssh user@ip_addr 'dd of=hda.gz'  ssh
dd if=/dev/sda of=/tmp/file1
tar -Puf backup.tar /home/user          ' /home/user'
( cd /tmp/local/ && tar c . ) | ssh -C user@ip_addr 'cd /home/share/ && tar x -p'  ssh
( tar c /home ) | ssh -C user@ip_addr 'cd /home/backup-home && tar x -p'  ssh
tar cf - . | (cd /tmp/backup ; tar xf - )
find /home/user1 -name '*.txt' | xargs cp -av --target-directory=/home/backup/ --parents
'.txt'
find /var/log -name '*.log' | tar cv --files-from=- | bzip2 > log.tar.bz2      '.log'      b
dd if=/dev/hda of=/dev/fd0 bs=512 count=1      MBR (Master Boot Record)
dd if=/dev/fd0 of=/dev/hda bs=512 count=1      MBR

```

```

cdrecord -v gracetime=2 dev=/dev/cdrom -eject blank=fast -force
mkisofs /dev/cdrom > cd.iso              iso
mkisofs /dev/cdrom | gzip > cd_iso.gz      iso
mkisofs -J -allow-leading-dots -R -V "Label CD" -iso-level 4 -o ./cd.iso data_cd      iso
cdrecord -v dev=/dev/cdrom cd.iso        ISO
gzip -dc cd_iso.gz | cdrecord dev=/dev/cdrom -      ISO
mount -o loop cd.iso /mnt/iso            ISO
cd-paranoia -B      CD      wav
cd-paranoia -- "-3"      CD      wav      -3
cdrecord --scanbus      scsi
dd if=/dev/hdc | md5sum      md5sum      CD

```

- WIFI

```

ifconfig eth0
ifup eth0      'eth0'

```

```
ifdown eth0      'eth0'
ifconfig eth0 192.168.1.1 netmask 255.255.255.0  IP
ifconfig eth0 promisc  'eth0'              (sniffing)
dhclient eth0 dhcp  'eth0'
route -n show routing table
route add -net 0/0 gw IP_Gateway configura default gateway
route add -net 192.168.0.0 netmask 255.255.0.0 gw 192.168.1.1 configure static route to reach
network '192.168.0.0/16'
route del 0/0 gw IP_gateway remove static route
echo "1" > /proc/sys/net/ipv4/ip_forward activate ip routing
hostname show hostname of system
host www.example.com lookup hostname to resolve name to ip address and viceversa(1)
nslookup www.example.com lookup hostname to resolve name to ip address and viceversa(2)
ip link show show link status of all interfaces
mii-tool eth0 show link status of 'eth0'
ethtool eth0 show statistics of network card 'eth0'
netstat -tup show all active network connections and their PID
netstat -tupl show all network services listening on the system and their PID
tcpdump tcp port 80 show all HTTP traffic
iwlist scan show wireless networks
iwconfig eth1 show configuration of a wireless network card
hostname show hostname
host www.example.com lookup hostname to resolve name to ip address and viceversa
nslookup www.example.com lookup hostname to resolve name to ip address and viceversa
whois www.example.com lookup on Whois database
```

Microsoft Windows networks (SAMBA)

```
nbtscan ip_addr netbios name resolution
nmblookup -A ip_addr netbios name resolution
smbclient -L ip_addr/hostname show remote shares of a windows host
smbget -Rr smb://ip_addr/share like wget can download files from a host windows via smb
mount -t smbfs -o username=user,password=pass //WinClient/share /mnt/share mount a windows
network share
```


ulimit

ulimit [-SHaAcdfMnst] [num]

ulimit

-S									
-H									
-a									
-A		1024							
-C			512	0					
-d			1024						
-F			512	0			SIGXFSZ		S
-M		2 GB							
ulimit -M		RACF® OMVS	MEMLIMIT				OMVS shell		
-n									
-s			1024						
-t	CPU	CPU	CPU				SIGXCPU		CPU
num	num	"	"						

1. ulimit
- shell
- tcsh shell
2.

```
uname -a          #  
uname --m         #   32 /64  
lsb_release -a    #
```

```
root@H101:~# lsb_release -a  
No LSB modules are available.  
Distributor ID: Ubuntu  
Description:    Ubuntu 20.04.4 LTS  
Release:        20.04  
Codename:       focal
```

Distributor ID	Ubuntu	ubuntu
Description	Ubuntu 20.04.2 LTS	
Release	20.04	
Codename	focal	ubuntu

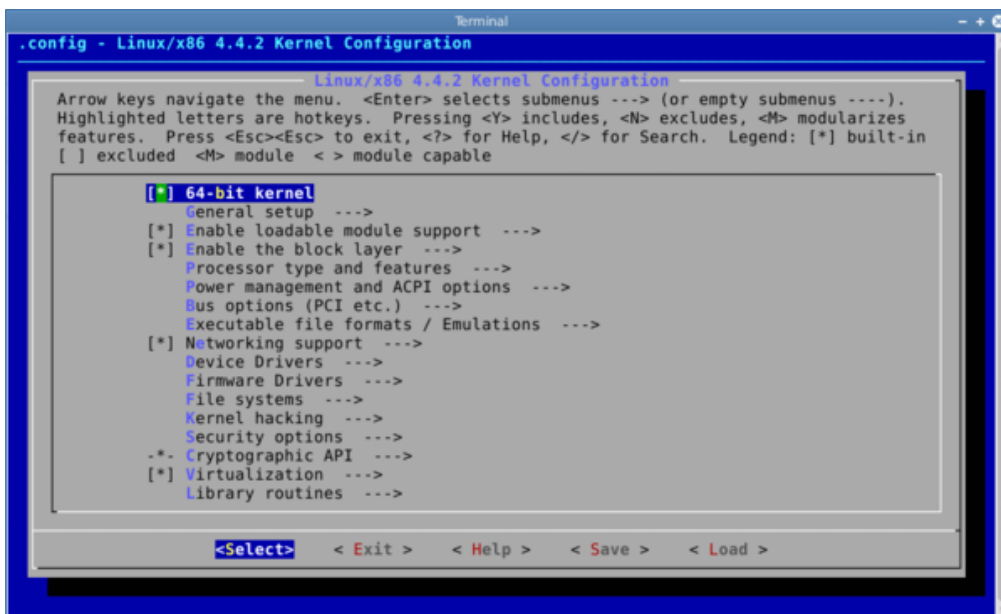
```
uname --s         #  
uname --r         #  
uname --n         #  
uname --p         #cpu
```

```
sudo apt-get install git fakeroot build-essential ncurses-dev xz-utils libssl-dev bc flex  
libelf-dev bison
```

```
wget https://mirrors.tuna.tsinghua.edu.cn/kernel/v5.x/linux-5.5.9.tar.xz
```

```
tar xf linux-5.5.9.tar.xz
```

```
cd linux-5.5.9
```

NOTE:

:

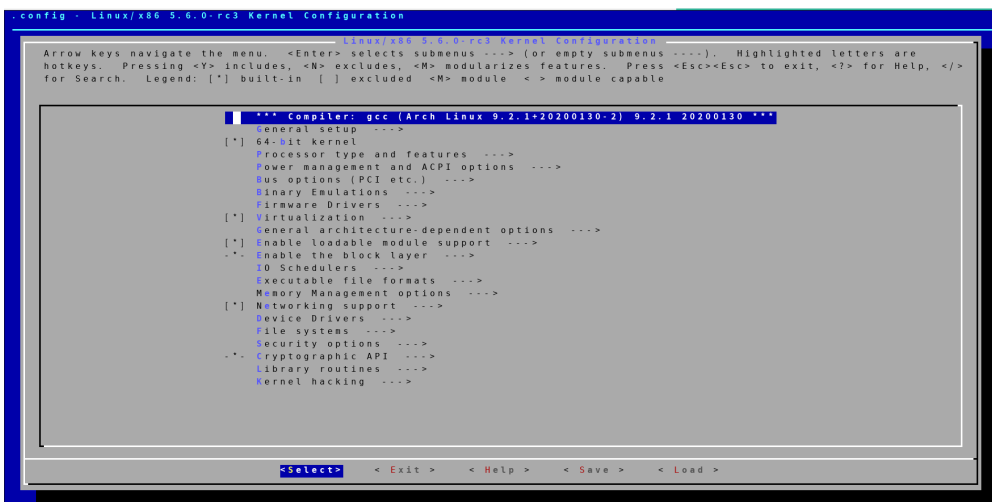
Linux

```
make menuconfig# Update current config utilising a menu based program
make xconfig# Update current config utilising a Qt based front-end
make gconfig# Update current config utilising a GTK+ based front-end
```

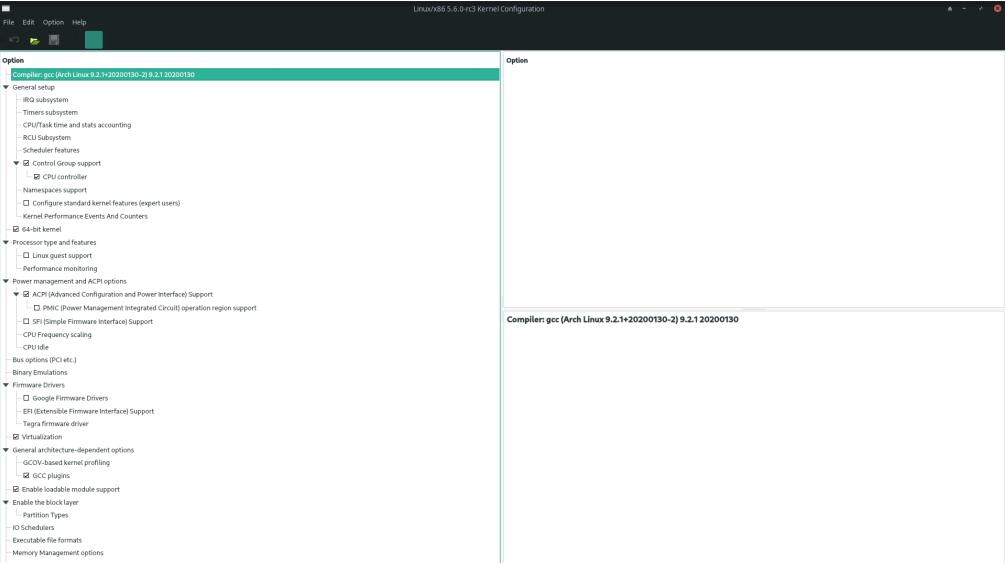
`make help`

Make

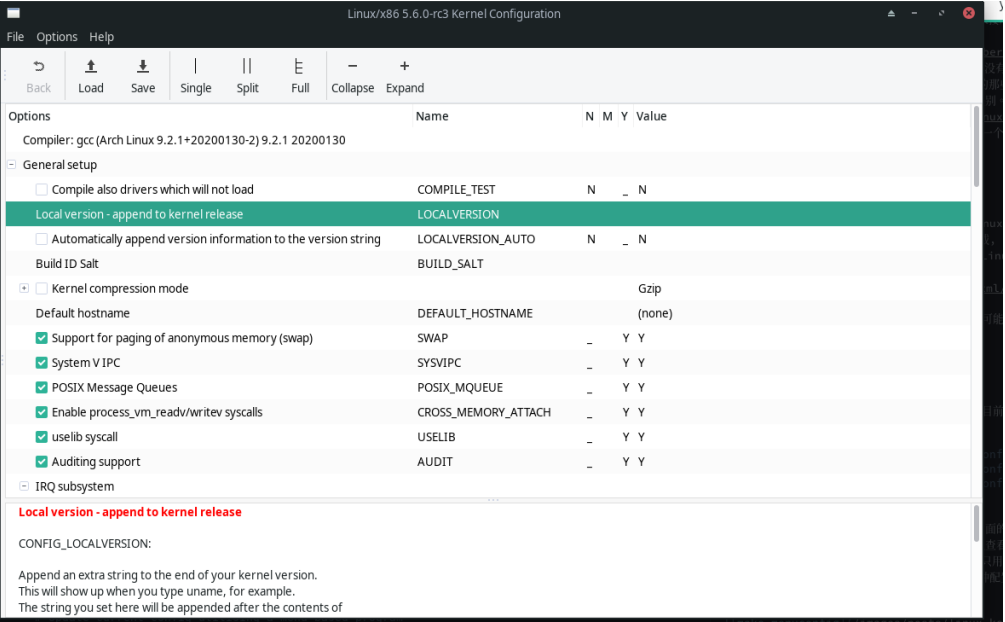
- `make menuconfig`



- `make xconfig`



• `make gconfig`



`.config`

- Y –
- N –
- M –

`make` `-j`

`make -j 4` # 4 2 CPU Core

`make -j $(nproc)` # nproc

`M`

```
make modules
```

Linux Makefile

```
make modules_install[]#  
make htmldocs[][]    #   html
```

.....

Linux

200GB

GNU C	5.1	gcc -v
Clang/LLVM (optional)	11.0.0	clang --version
GNU make	3.81	make --version
bash	4.2	bash --version
binutils	2.23	ld -v
flex	2.5.35	flex --version
bison	2.0	bison --version
pahole	1.16	pahole --version
util-linux	2.10o	fdformat --version
kmod	13	depmod -V
e2fsprogs	1.41.4	e2fsck -V
jfsutils	1.1.3	fsck.jfs -V
reiserfsprogs	3.6.3	reiserfsck -V
xfsprogs	2.6.0	xfs_db -V
squashfs-tools	4.0	mksquashfs --version
btrfs-progs	0.18	btrfsck
pcmciautils	004	pccardctl -V
quota-tools	3.09	quota -V
PPP	2.4.0	pppd --version
nfs-utils	1.0.5	showmount --version
procps	3.2.0	ps --version
udev	081	udevadm --version
grub	0.93	grub --version grub-install --version
mcelog	0.6	mcelog --version
iptables	1.4.2	iptables -V
openssl & libcrypto	1.0.0	openssl version

bc	1.06.95	bc -version
Sphinx1	1.7	sphinx-build -version
cpio	any	cpio -version

Sphinx

GCC

gcc CPU

Clang/LLVM ()

clang LLVM release.llvClang/LLVM Linux

Make

GNU make 3.81

Bash

bash Bash 4.2

Binutils

Binutils 2.23

pkg-config

4.18 pkg-config kconfig ‘make {g,x}config’ pkg-config

Flex

Linux 4.16 flex 2.5.35

Bison

Linux 4.16

bison 2.0

pahole

Linux 5.2

CONFIG_DEBUG_INFO_BTF

vmlinux

DWARF

BTF BPF

'dwarves' 'pahole' <https://fedorapeople.org/~acme/dwarves/>

Perl

perGetopt::Long, Getopt::Std, File::Basename, and File::Find

BC

bc

3.10

OpenSSL

OpenSSL

openssl

3.7

openssl

4.3

DevFS <http://www.kernel.org/pub/linux/utils/kernel/hotplug/>)

32 UID

Linux

/ ReST

PostScript HTML

Util-linux

util-lfdisk

2.4

fdformat

Ksymoops

Mkinitrd

/lib/modules

mkinitrd

E2fsprogs

e2fsprogs

fsck

debugfs

JFSutils

jfsutils

- fsck.jfs

 - JFS
- mkfs.jfs

 - JFS
-

Reiserfsprogs

reiserfsprogs

reiserfs-3.6.x Linux

mkreiserfs

.

i3

resize_reiserfs

debugreiserfs

reiserfsck

Xfsprogs

xfsprogs

contains

mkfs.xfs

xfs_db

xfs_repair

XFS

2.0.0

XFS

PCMCIAutils

PCMCIAutils

pcmcia-cs.

PCMCIA

16

PCMCIA

Quota-tools

2

32

uid

gid

Quota-tools 3.07

Intel IA32 microcode

IA32

udev


```
mkdir /dev/cpu
mknod /dev/cpu/microcode c 10 184
chmod 0644 /dev/cpu/microcode
```

root microcode_ctl

udev

udev/devudev devfs

FUSE

libfuse 2.4.0 direct_iokernel_cache

Networking

General changes

ip-route2

Packet Filter / NAT /NAT

NAT 2.4.x (iptables) 2.2.x ipchains 2.0.x ipfwadm

PPP

PPP PPP pppd 2.4.0

udev /dev/ppp

```
mknod /dev/ppp c 108 0
```

NFS-utils

2.4 mountdexportfs /var/lib/nfs/rmtab.

rmtab rmtab

rmtab

mountd mountd

```
mount -t nfsd nfsd /proc/fs/nfsd
```

exportfs mountd

NFS

Internet

mcelog

x86

CONFIG_X86_MCE

CPU

Kernel documentation

Sphinx

Sphinx [Documentation/doc-guide/sphinx.rst](#) Sphinx

Getting updated software

Kernel compilation

gcc

- [<ftp://ftp.gnu.org/gnu/gcc/>](ftp://ftp.gnu.org/gnu/gcc/)

Clang/LLVM

- [Getting LLVM.](#)

Make

- [<ftp://ftp.gnu.org/gnu/make/>](ftp://ftp.gnu.org/gnu/make/)

Bash

- [<ftp://ftp.gnu.org/gnu/bash/>](ftp://ftp.gnu.org/gnu/bash/)

Binutils

- [<https://www.kernel.org/pub/linux/devel/binutils/>](https://www.kernel.org/pub/linux/devel/binutils/)

Flex

- [<https://github.com/westes/flex/releases>](https://github.com/westes/flex/releases)

Bison

- [<ftp://ftp.gnu.org/gnu/bison/>](ftp://ftp.gnu.org/gnu/bison/)

OpenSSL

- [<https://www.openssl.org/>](https://www.openssl.org/)

System utilities

Util-linux

- [<https://www.kernel.org/pub/linux/utils/util-linux/>](https://www.kernel.org/pub/linux/utils/util-linux/)

Kmod

- [<https://www.kernel.org/pub/linux/utils/kernel/kmod/>](https://www.kernel.org/pub/linux/utils/kernel/kmod/)
- [<https://git.kernel.org/pub/scm/utils/kernel/kmod/kmod.git>](https://git.kernel.org/pub/scm/utils/kernel/kmod/kmod.git)

Ksymoops

- <<https://www.kernel.org/pub/linux/utils/kernel/ksymoops/v2.4/>>

Mkinitrd

- <<https://code.launchpad.net/initrd-tools/main>>

E2fsprogs

- <<https://www.kernel.org/pub/linux/kernel/people/tytso/e2fsprogs/>>
- <<https://git.kernel.org/pub/scm/fs/ext2/e2fsprogs.git/>>

JFSutils

- <<http://jfs.sourceforge.net/>>

Reiserfsprogs

- <<https://git.kernel.org/pub/scm/linux/kernel/git/jeffm/reiserfsprogs.git/>>

Xfsprogs

- <<https://git.kernel.org/pub/scm/fs/xfs/xfsprogs-dev.git>>
- <<https://www.kernel.org/pub/linux/utils/fs/xfs/xfsprogs/>>

Pcmciautils

- <<https://www.kernel.org/pub/linux/utils/kernel/pcmcia/>>

Quota-tools

- <<http://sourceforge.net/projects/linuxquota/>>

Intel P6 microcode

- <<https://downloadcenter.intel.com/>>

udev

- <<https://www.freedesktop.org/software/systemd/man/udev.html>>

FUSE

- <<https://github.com/libfuse/libfuse/releases>>

mcelog

- <<http://www.mcelog.org/>>

cpio

- <<https://www.gnu.org/software/cpio/>>

Networking

PPP

- <<https://download.samba.org/pub/ppp/>>
- <<https://git.ozlabs.org/?p=ppp.git>>
- <<https://github.com/paulusmack/ppp/>>

NFS-utils

- <http://sourceforge.net/project/showfiles.php?group_id=14>

Iptables

- <<https://netfilter.org/projects/iptables/index.html>>

Ip-route2

- <<https://www.kernel.org/pub/linux/utils/net/iproute2/>>

OProfile

- <<http://oprofile.sf.net/download/>>

NFS-Utills

- <<http://nfs.sourceforge.net/>>

Kernel documentation

Sphinx

- <<https://www.sphinx-doc.org/>>

4

1. CPU

3. /

4. SCI

Web

Linux

Linux From Scratch

<https://lctt.github.io/LFS-BOOK/lfs-systemd/index.html>

$$1 \quad + \quad + \quad 2 \quad 3$$

rp-pppoe

- /rp-pppoe/configs/pppoe.conf
 - 69 CONNECT_TIMEOUT=0

```
64 # 如果您在物理上无法访问的主机上使用 rp-pppoe，请设置
65 # CONNECT_TIMEOUT 为 0。这确保机器不断尝试
66 # 在调用 pppoe-start 后永久连接。否则会
67 # 在 CONNECT_TIMEOUT 秒后发出并且不会尝试
68 # 再次连接，使其无法访问。
69 CONNECT_TIMEOUT=30
```

```
#####
#
# pppoe.conf
#
# Configuration file for rp-pppoe.  Edit as appropriate and install in
# /etc/ppp/pppoe.conf
#
# NOTE: This file is used by the pppoe-start, pppoe-stop, pppoe-connect and
#       pppoe-status shell scripts.  It is *not* used in any way by the
#       "pppoe" executable.
#
# Copyright (C) 2000 Roaring Penguin Software Inc.
#
# This file may be distributed under the terms of the GNU General
# Public License.
#
# LIC: GPL
# $Id$
#####

# When you configure a variable, DO NOT leave spaces around the "=" sign.

# Ethernet card connected to DSL modem
ETH=eth0

# PPPoE user name.  You may have to supply "@provider.com"  Sympatico
# users in Canada do need to include "@sympatico.ca"
```

```
# Sympatico uses PAP authentication.  Make sure /etc/ppp/pap-secrets
# contains the right username/password combination.
# For Magma, use xxyyzz@magma.ca
USER=02368109376

# Bring link up on demand?  Default is to leave link up all the time.
# If you want the link to come up on demand, set DEMAND to a number indicating
# the idle time after which the link is brought down.
DEMAND=no
#DEMAND=300

# DNS type: SERVER=obtain from server; SPECIFY=use DNS1 and DNS2;
# NOCHANGE=do not adjust.
DNSTYPE=SERVER

# Obtain DNS server addresses from the peer (recent versions of pppd only)
# In old config files, this used to be called USEPEERDNS.  Changed to
# PEERDNS for better Red Hat compatibility
PEERDNS=no

DNS1=
DNS2=

# Make the PPPoE connection your default route.  Set to
# DEFAULTROUTE=no if you don't want this.
DEFAULTROUTE=no

### ONLY TOUCH THE FOLLOWING SETTINGS IF YOU' RE AN EXPERT

# How long pppoe-start waits for a new PPP interface to appear before
# concluding something went wrong.  If you use 0, then pppoe-start
# exits immediately with a successful status and does not wait for the
# link to come up.  Time is in seconds.
#
# WARNING WARNING WARNING:
#
# If you are using rp-pppoe on a physically-inaccessible host, set
# CONNECT_TIMEOUT to 0.  This makes SURE that the machine keeps trying
# to connect forever after pppoe-start is called.  Otherwise, it will
# give out after CONNECT_TIMEOUT seconds and will not attempt to
# connect again, making it impossible to reach.
```

```
CONNECT_TIMEOUT=30
```

```
# How often in seconds pppoe-start polls to check if link is up
```

```
CONNECT_POLL=2
```

```
# Specific desired AC Name
```

```
ACNAME=
```

```
# Specific desired service name
```

```
SERVICENAME=
```

```
# Character to echo at each poll. Use PING="" if you don't want
```

```
# anything echoed
```

```
PING="."
```

```
# File where the pppoe-connect script writes its process-ID.
```

```
# Three files are actually used:
```

```
# $PIDFILE contains PID of pppoe-connect script
```

```
# $PIDFILE.pppoe contains PID of pppoe process
```

```
# $PIDFILE.pppd contains PID of pppd process
```

```
CF_BASE=`basename $CONFIG`
```

```
PIDFILE="/var/run/$CF_BASE-pppoe.pid"
```

```
# Do you want to use synchronous PPP? "yes" or "no". "yes" is much
```

```
# easier on CPU usage, but may not work for you. It is safer to use
```

```
# "no", but you may want to experiment with "yes". "yes" is generally
```

```
# safe on Linux machines with the n_hdlc line discipline; unsafe on others.
```

```
SYNCHRONOUS=no
```

```
# Do you want to clamp the MSS? Here's how to decide:
```

```
# - If you have only a SINGLE computer connected to the DSL modem, choose
```

```
# "no".
```

```
# - If you have a computer acting as a gateway for a LAN, choose "1412".
```

```
# The setting of 1412 is safe for either setup, but uses slightly more
```

```
# CPU power.
```

```
CLAMP MSS=1412
```

```
#CLAMP MSS=no
```

```
# LCP echo interval and failure count.
```

```
LCP_INTERVAL=20
```

```
LCP_FAILURE=3
```

```
# PPPOE_TIMEOUT should be about 4*LCP_INTERVAL
PPPOE_TIMEOUT=80

# Firewalling: One of NONE, STANDALONE or MASQUERADE
FIREWALL=NONE

# Linux kernel-mode plugin for pppd.  If you want to try the kernel-mode
# plugin, use LINUX_PLUGIN=/etc/ppp/plugins/rp-pppoe.so
LINUX_PLUGIN=

# Any extra arguments to pass to pppoe.  Normally, use a blank string
# like this:
PPPOE_EXTRA=""

# Rumour has it that "Citizen's Communications" with a 3Com
# HomeConnect DSL Modem DualLink requires these extra options:
# PPPOE_EXTRA="-f 3c12:3c13 -S ISP"

# Any extra arguments to pass to pppd.  Normally, use a blank string
# like this:
PPPD_EXTRA=""

##### DON' T CHANGE BELOW UNLESS YOU KNOW WHAT YOU ARE DOING
# If you wish to COMPLETELY override the pppd invocation:
# Example:
# OVERRIDE_PPPD_COMMAND="pppd call dsl"

# If you want pppoe-connect to exit when connection drops:
# RETRY_ON_FAILURE=no
```