

源码文件

2.2.2 Ubuntu_LN_1 的配置（配置文件见附录一）

1、软件的更新和安装，进入 root 模式

```
#####安装文件
#更新软件
sudo apt-update
sudo apt-upgrade
#安装 iptables 工具（NAT）
sudo apt install net-tools
#安装 DHCP 配置工具（DHCP）
sudo apt install isc-dhcp-server
#安装 DNS 配置和检测工具
sudo apt install bind9
sudo apt install dnsutils
#安装 SSH 服务端
sudo apt install openssh-server
#安装 ufw 防火墙
sudo apt install ufw
```

2、DHCP 配置相关文件和命令

```
#####DHCP
#接口文件
/etc/netplan/01-network-manager-all.yaml
#DHCP 配置文件
/etc/dhcp/dhcpd.conf
#DHCP 侦听接口文件
/etc/default/isc-dhcp-server
#上面三个文件配置完，执行网络和 DHCP 更新命令

sudo netplan apply
sudo systemctl restart isc-dhcp-server.service
```

3、DNS 配置相关文件和命令

```
#####DNS
#缓存域名服务器配置文件
/etc/bind/named.conf.options
#执行更新命令
sudo systemctl restart bind9.service
#域名解析 local 文件
/etc/bind/named.conf.local
#执行备份正向域名解析文件命令
sudo cp /etc/bind/db.local /etc/bind/db.liningtest.com
#正向域名解析文件
/etc/bind/db.liningtest.com
```

```
#执行备份反向域名解析文件命令
sudo cp /etc/bind/db.local /etc/bind/db.192.168.48
#反向域名解析文件
/etc/bind/db.192.168.48

#执行更新命令
sudo systemctl restart bind9.service
```

4、NAT 配置相关文件和命令

```
#####NAT
#配置控制转发功能文件
/etc/default/ufw
/etc/ufw/sysctl.conf
#配置 NAT 命令
iptables -t nat -A PREROUTING -i ens33 -d 192.168.188.29 -j
DNAT --to 192.168.48.150
iptables -t nat -A POSTROUTING -o ens33 -s 192.168.48.150 -j
SNAT --to 192.168.188.29
#配置网关命令允许 192.168.188.0/24 网段客户端访问
iptables -P INPUT DROP
iptables -t filter -I INPUT -i ens33 -s 192.168.188.0/24 -j ACCEPT
```

2.2.3 Ubuntu_LN_2 的配置（配置文件见附录二）

1、软件的安装，进入 root 模式

```
#####安装文件
#安装 SSH 客户端
sudo apt install openssh-client
```

2、DHCP 配置相关文件和命令

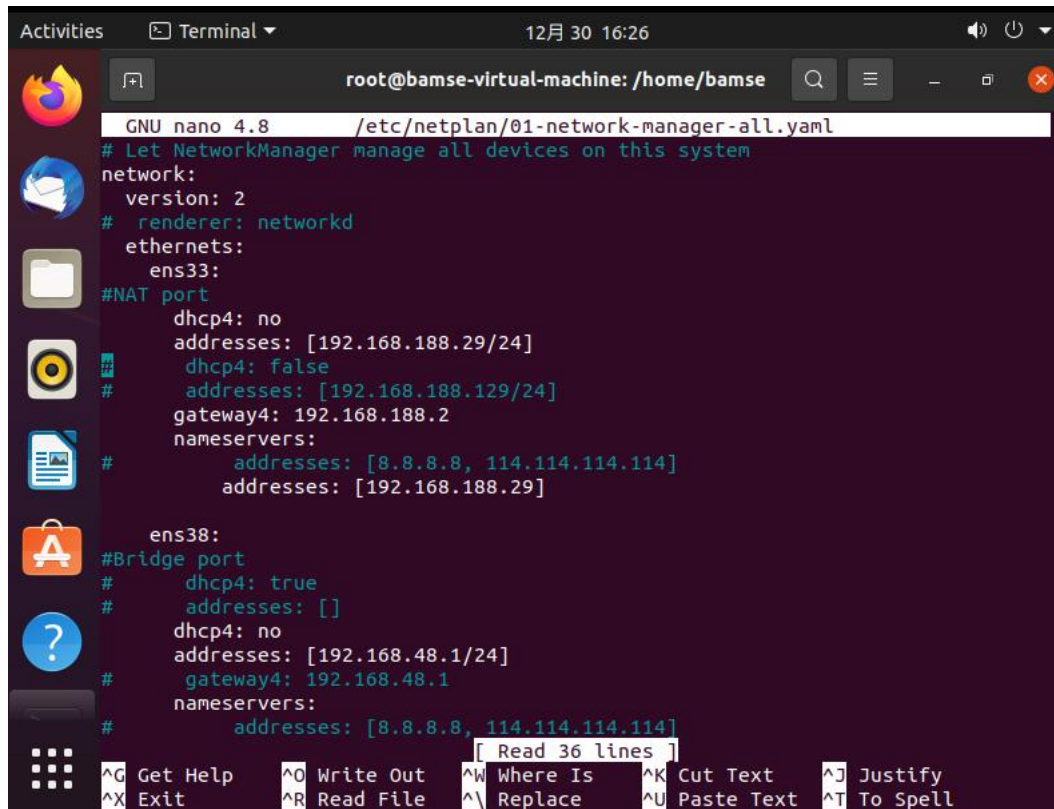
```
#####DHCP
#接口文件
/etc/netplan/01-network-manager-all.yaml
```

3、SSH 配置相关文件和命令

```
#####DHCP
#SSH 连接命令
ssh lnwindows@192.168.188.1
```

附录一：Ubuntu_LN_1 配置文件内容

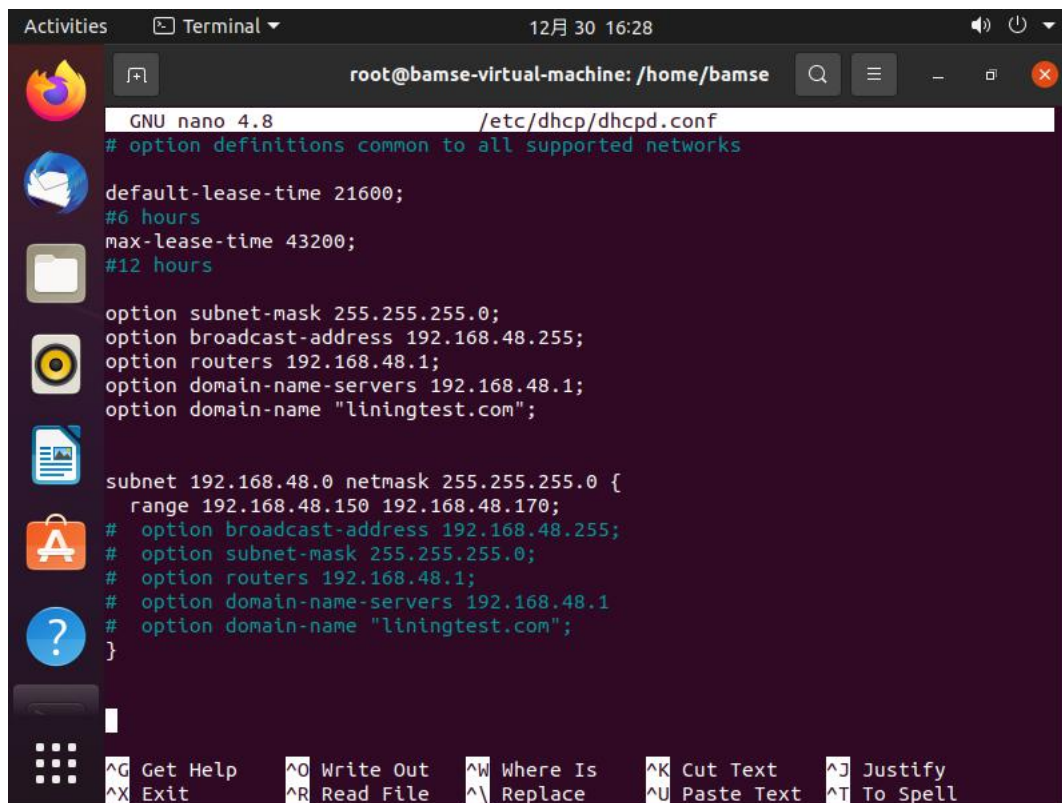
1、/etc/netplan/01-network-manager-all.yaml



```
GNU nano 4.8 /etc/netplan/01-network-manager-all.yaml
# Let NetworkManager manage all devices on this system
network:
  version: 2
  # renderer: networkd
  ethernets:
    ens33:
      #NAT port
      dhcp4: no
      addresses: [192.168.188.29/24]
      dhcp4: false
      #
      addresses: [192.168.188.129/24]
      gateway4: 192.168.188.2
      nameservers:
        #
        addresses: [8.8.8.8, 114.114.114.114]
        addresses: [192.168.188.29]

    ens38:
      #Bridge port
      #
      dhcp4: true
      #
      addresses: []
      dhcp4: no
      addresses: [192.168.48.1/24]
      #
      gateway4: 192.168.48.1
      nameservers:
        #
        addresses: [8.8.8.8, 114.114.114.114]
```

2、/etc/dhcp/dhcpd.conf



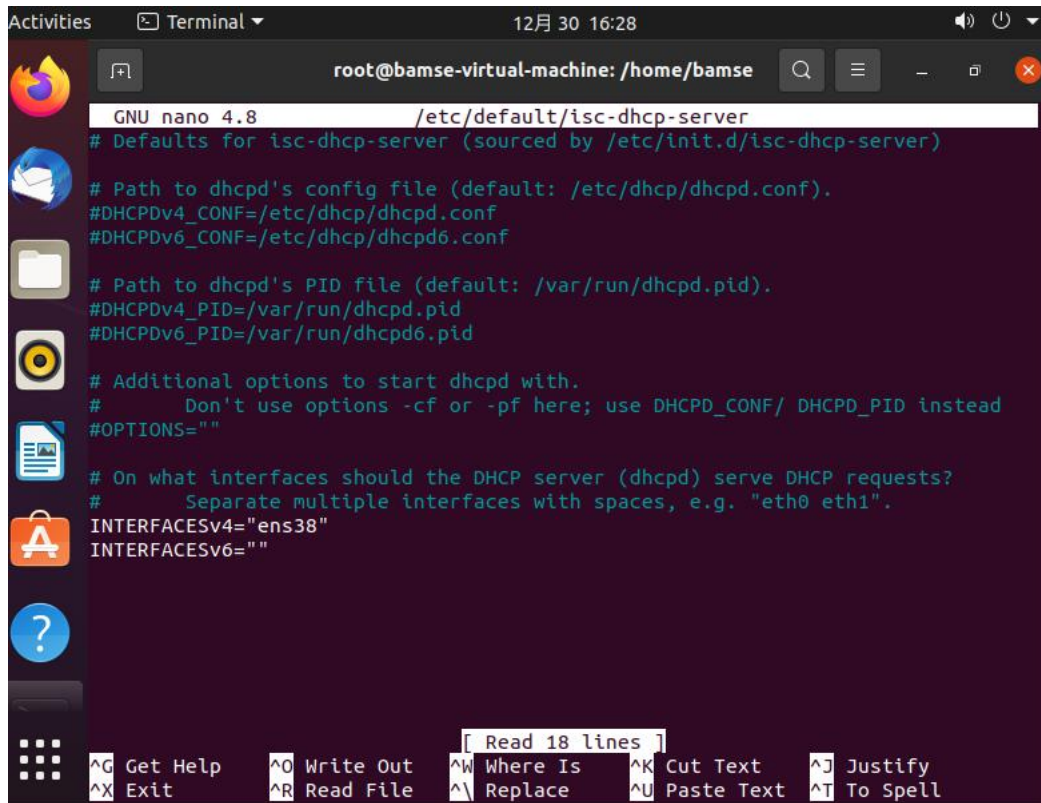
```
GNU nano 4.8 /etc/dhcp/dhcpd.conf
# option definitions common to all supported networks

default-lease-time 21600;
#6 hours
max-lease-time 43200;
#12 hours

option subnet-mask 255.255.255.0;
option broadcast-address 192.168.48.255;
option routers 192.168.48.1;
option domain-name-servers 192.168.48.1;
option domain-name "liningtest.com";

subnet 192.168.48.0 netmask 255.255.255.0 {
  range 192.168.48.150 192.168.48.170;
  #
  # option broadcast-address 192.168.48.255;
  #
  # option subnet-mask 255.255.255.0;
  #
  # option routers 192.168.48.1;
  #
  # option domain-name-servers 192.168.48.1
  #
  # option domain-name "liningtest.com";
}
```

3、/etc/default/isc-dhcp-server



```
GNU nano 4.8 /etc/default/isc-dhcp-server
# Defaults for isc-dhcp-server (sourced by /etc/init.d/isc-dhcp-server)

# Path to dhcpd's config file (default: /etc/dhcp/dhcpd.conf).
#DHCPDv4_CONF=/etc/dhcp/dhcpd.conf
#DHCPDv6_CONF=/etc/dhcp/dhcpd6.conf

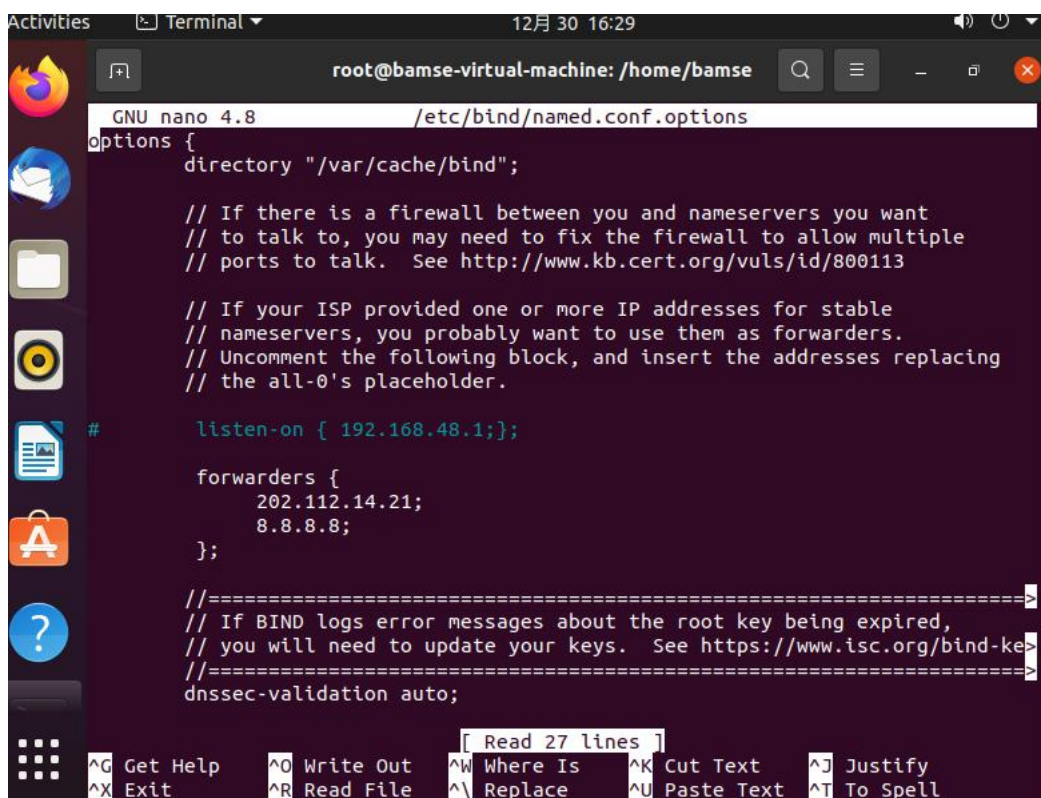
# Path to dhcpd's PID file (default: /var/run/dhcpd.pid).
#DHCPDv4_PID=/var/run/dhcpd.pid
#DHCPDv6_PID=/var/run/dhcpd6.pid

# Additional options to start dhcpd with.
# Don't use options -cf or -pf here; use DHCPD_CONF/ DHCPD_PID instead
#OPTIONS=""

# On what interfaces should the DHCP server (dhcpd) serve DHCP requests?
# Separate multiple interfaces with spaces, e.g. "eth0 eth1".
INTERFACESv4="ens38"
INTERFACESv6=""

[ Read 18 lines ]
^G Get Help      ^O Write Out    ^W Where Is    ^K Cut Text    ^J Justify
^X Exit          ^R Read File    ^_ Replace     ^U Paste Text  ^T To Spell
```

4、/etc/bind/named.conf.options



```
GNU nano 4.8 /etc/bind/named.conf.options
options {
    directory "/var/cache/bind";

    // If there is a firewall between you and nameservers you want
    // to talk to, you may need to fix the firewall to allow multiple
    // ports to talk.  See http://www.kb.cert.org/vuls/id/800113

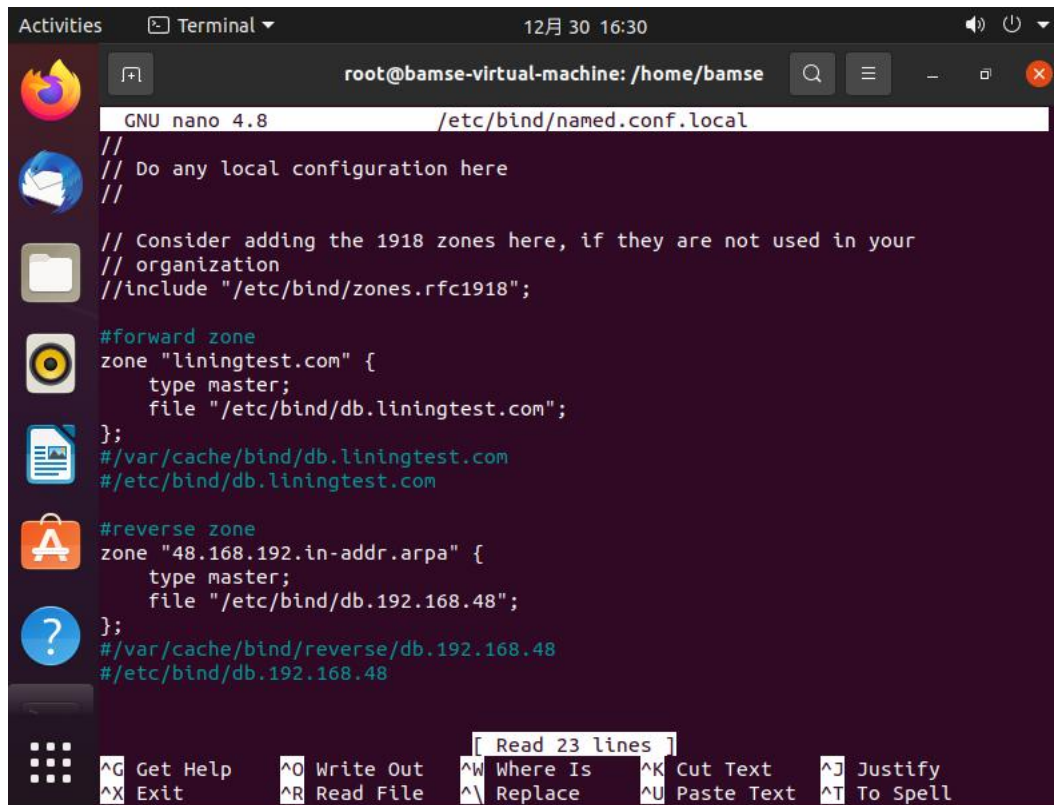
    // If your ISP provided one or more IP addresses for stable
    // nameservers, you probably want to use them as forwarders.
    // Uncomment the following block, and insert the addresses replacing
    // the all-0's placeholder.

#    listen-on { 192.168.48.1;};

    forwarders {
        202.112.14.21;
        8.8.8.8;
    };

    //=====
    // If BIND logs error messages about the root key being expired,
    // you will need to update your keys.  See https://www.isc.org/bind-ke>
    //=====
    dnssec-validation auto;
}
```

5、/etc/bind/named.conf.local



```
Activities Terminal 12月 30 16:30
root@bamse-virtual-machine: /home/bamse

GNU nano 4.8 /etc/bind/named.conf.local

//
// Do any local configuration here
//

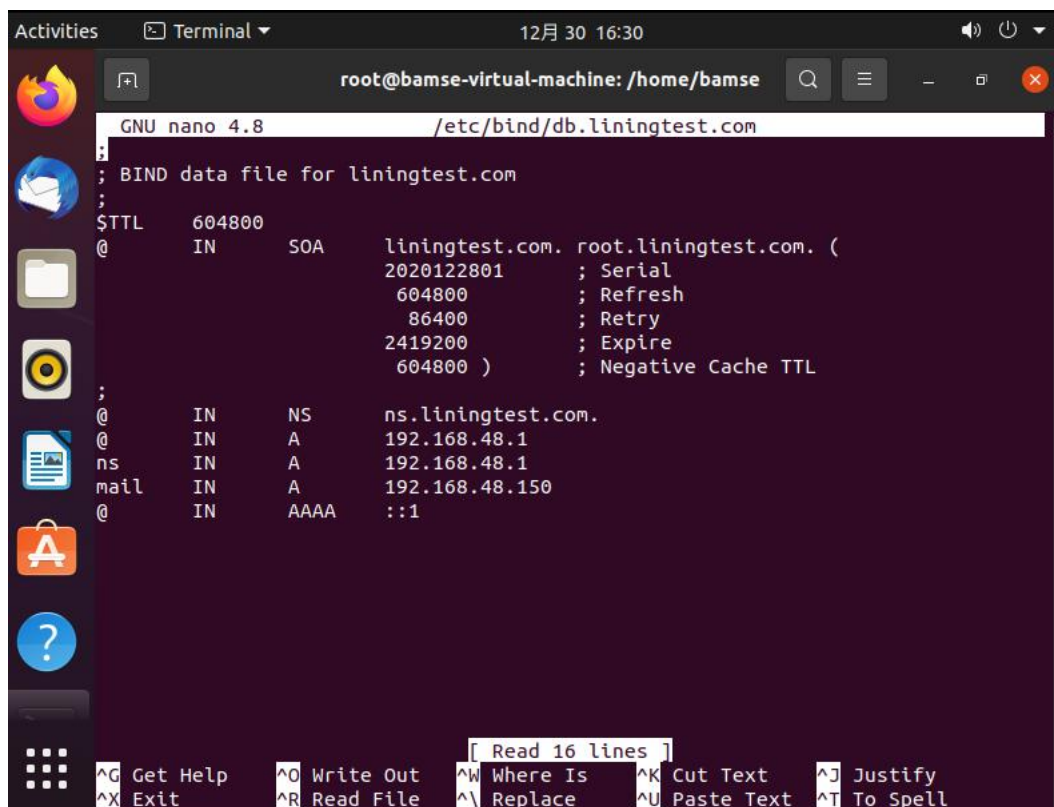
// Consider adding the 1918 zones here, if they are not used in your
// organization
//include "/etc/bind/zones.rfc1918";

#forward zone
zone "liningtest.com" {
    type master;
    file "/etc/bind/db.liningtest.com";
};
#/var/cache/bind/db.liningtest.com
#/etc/bind/db.liningtest.com

#reverse zone
zone "48.168.192.in-addr.arpa" {
    type master;
    file "/etc/bind/db.192.168.48";
};
#/var/cache/bind/reverse/db.192.168.48
#/etc/bind/db.192.168.48

[ Read 23 lines ]
^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify
^X Exit ^R Read File ^\ Replace ^U Paste Text ^T To Spell
```

6、/etc/bind/db.liningtest.com



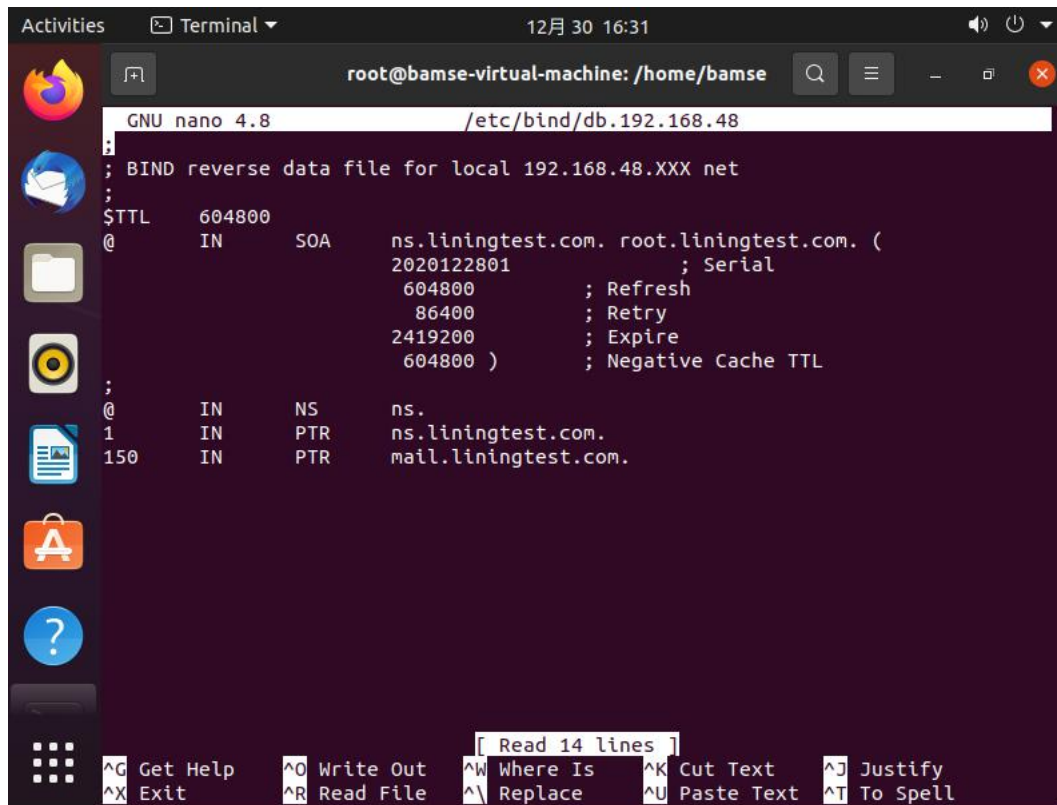
```
Activities Terminal 12月 30 16:30
root@bamse-virtual-machine: /home/bamse

GNU nano 4.8 /etc/bind/db.liningtest.com

;
; BIND data file for liningtest.com
;
$TTL      604800
@         IN      SOA      liningtest.com. root.liningtest.com. (
                                2020122801      ; Serial
                                604800           ; Refresh
                                86400            ; Retry
                                2419200          ; Expire
                                604800 )         ; Negative Cache TTL
;
@         IN      NS       ns.liningtest.com.
@         IN      A        192.168.48.1
ns        IN      A        192.168.48.1
mail      IN      A        192.168.48.150
@         IN      AAAA     ::1

[ Read 16 lines ]
^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify
^X Exit ^R Read File ^\ Replace ^U Paste Text ^T To Spell
```

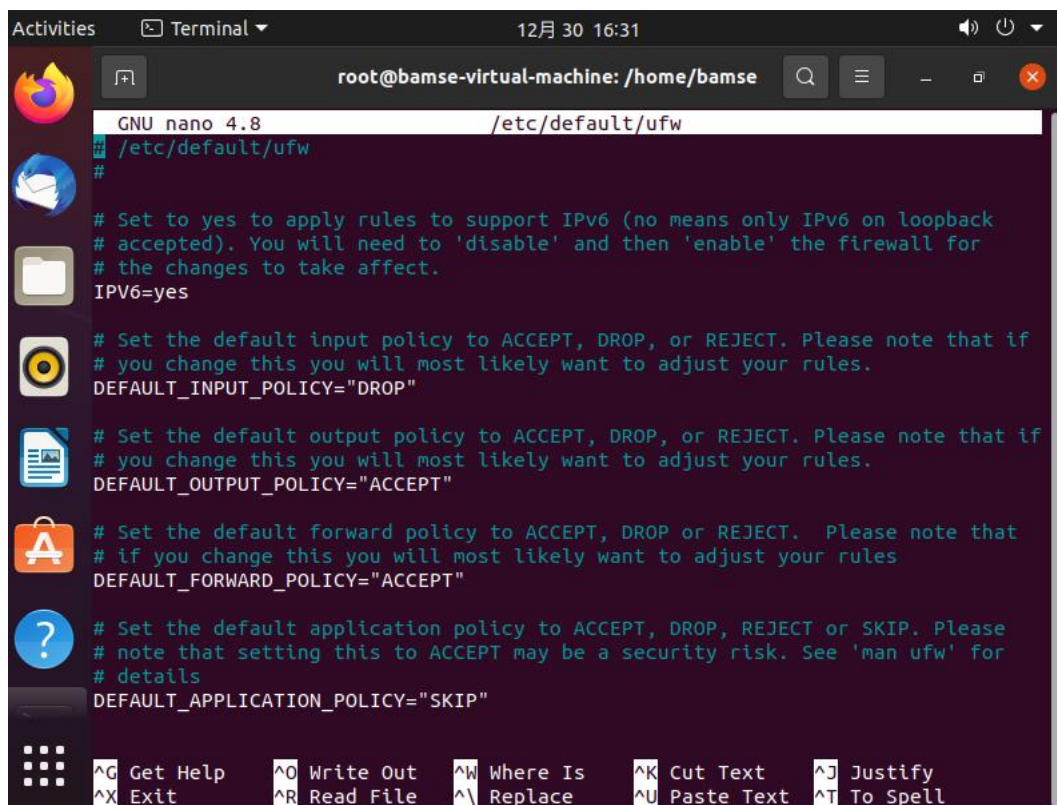
7、/etc/bind/db.192.168.48



```
GNU nano 4.8 /etc/bind/db.192.168.48
;
; BIND reverse data file for local 192.168.48.XXX net
;
$TTL      604800
@         IN      SOA      ns.liningtest.com. root.liningtest.com. (
        2020122801      ; Serial
        604800          ; Refresh
        86400           ; Retry
        2419200         ; Expire
        604800 )        ; Negative Cache TTL
;
@         IN      NS       ns.
1         IN      PTR      ns.liningtest.com.
150       IN      PTR      mail.liningtest.com.

^G Get Help      ^O Write Out    ^W Where Is     ^K Cut Text     ^J Justify
^X Exit          ^R Read File    ^_ Replace      ^U Paste Text   ^T To Spell
```

8、/etc/default/ufw



```
GNU nano 4.8 /etc/default/ufw
#
# Set to yes to apply rules to support IPv6 (no means only IPv6 on loopback
# accepted). You will need to 'disable' and then 'enable' the firewall for
# the changes to take affect.
IPv6=yes
# Set the default input policy to ACCEPT, DROP, or REJECT. Please note that if
# you change this you will most likely want to adjust your rules.
DEFAULT_INPUT_POLICY="DROP"
# Set the default output policy to ACCEPT, DROP, or REJECT. Please note that if
# you change this you will most likely want to adjust your rules.
DEFAULT_OUTPUT_POLICY="ACCEPT"
# Set the default forward policy to ACCEPT, DROP or REJECT. Please note that
# if you change this you will most likely want to adjust your rules
DEFAULT_FORWARD_POLICY="ACCEPT"
# Set the default application policy to ACCEPT, DROP, REJECT or SKIP. Please
# note that setting this to ACCEPT may be a security risk. See 'man ufw' for
# details
DEFAULT_APPLICATION_POLICY="SKIP"

^G Get Help      ^O Write Out    ^W Where Is     ^K Cut Text     ^J Justify
^X Exit          ^R Read File    ^_ Replace      ^U Paste Text   ^T To Spell
```

9、/etc/ufw/sysctl.conf

Activities Terminal 12月 30 16:32

root@bamse-virtual-machine: /home/bamse

GNU nano 4.8 /etc/ufw/sysctl.conf

```
# file for setting network variables. Please note these settings
# /etc/sysctl.conf and /etc/sysctl.d. If you prefer to use
# /etc/sysctl.conf, please adjust IPT_SYSCTL in /etc/default/ufw. See
# Documentation/networking/ip-sysctl.txt in the kernel source code for more
# information.

# Uncomment this to allow this host to route packets between interfaces
net/ipv4/ip_forward=1
#net/ipv6/conf/default/forwarding=1
#net/ipv6/conf/all/forwarding=1

# Disable ICMP redirects. ICMP redirects are rarely used but can be used in
# MITM (man-in-the-middle) attacks. Disabling ICMP may disrupt legitimate
# traffic to those sites.
net/ipv4/conf/all/accept_redirects=0
net/ipv4/conf/default/accept_redirects=0
net/ipv6/conf/all/accept_redirects=0
net/ipv6/conf/default/accept_redirects=0

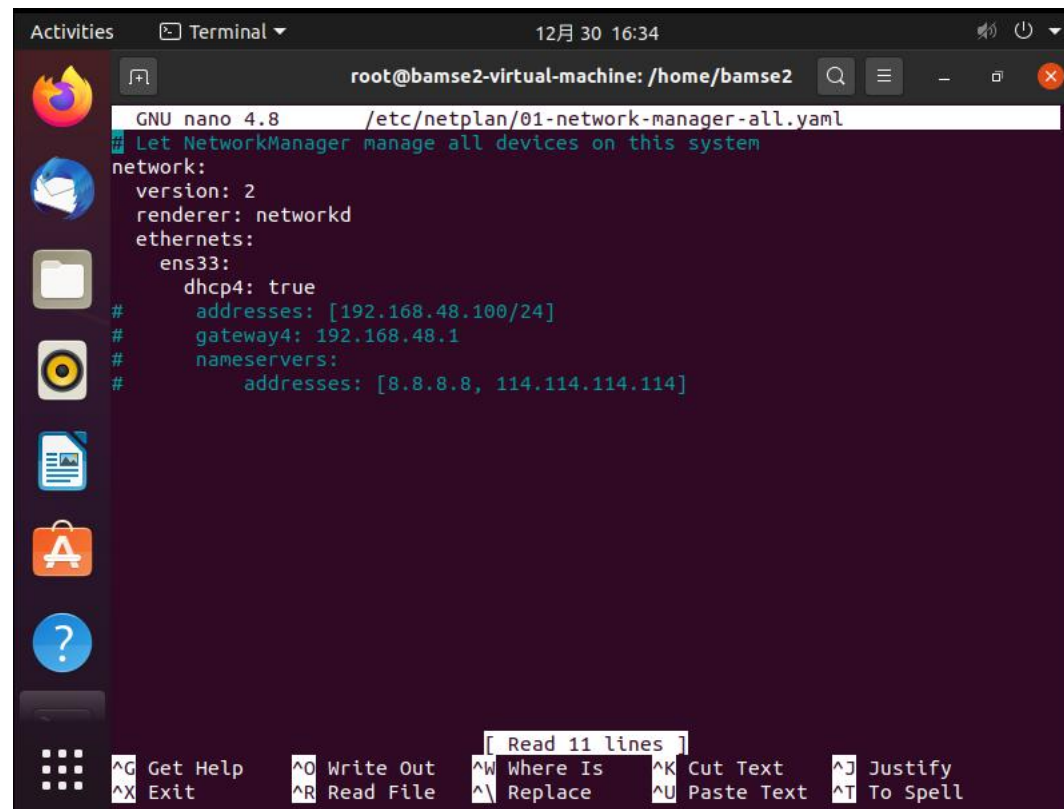
# Ignore bogus ICMP errors
net/ipv4/icmp_echo_ignore_broadcasts=1
net/ipv4/icmp_ignore_bogus_error_responses=1
net/ipv4/icmp_echo_ignore_all=0
```

[Read 41 lines]

^G Get Help	^O Write Out	^W Where Is	^K Cut Text	^J Justify
^X Exit	^R Read File	^_ Replace	^U Paste Text	^T To Spell

附录二：Ubuntu_LN_2 配置文件内容

1、/etc/netplan/01-network-manager-all.yaml



```
GNU nano 4.8 /etc/netplan/01-network-manager-all.yaml
# Let NetworkManager manage all devices on this system
network:
  version: 2
  renderer: networkd
  ethernets:
    ens33:
      dhcp4: true
#       addresses: [192.168.48.100/24]
#       gateway4: 192.168.48.1
#       nameservers:
#           addresses: [8.8.8.8, 114.114.114.114]
```

[Read 11 lines]

^G Get Help **^O Write Out** **^W Where Is** **^K Cut Text** **^J Justify**
^X Exit **^R Read File** **^_ Replace** **^U Paste Text** **^T To Spell**