K8s-Install

> https://blog.csdn.net/m0_51720581/article/details/131153894

环境规划

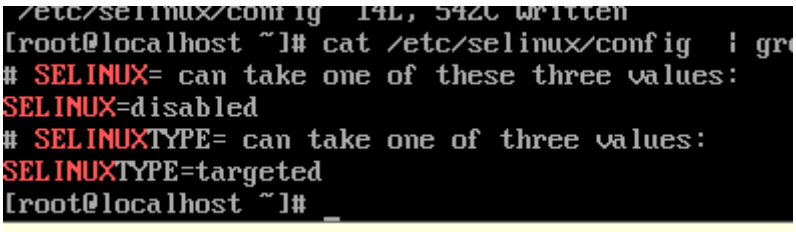
K8s 版本：1.23.6

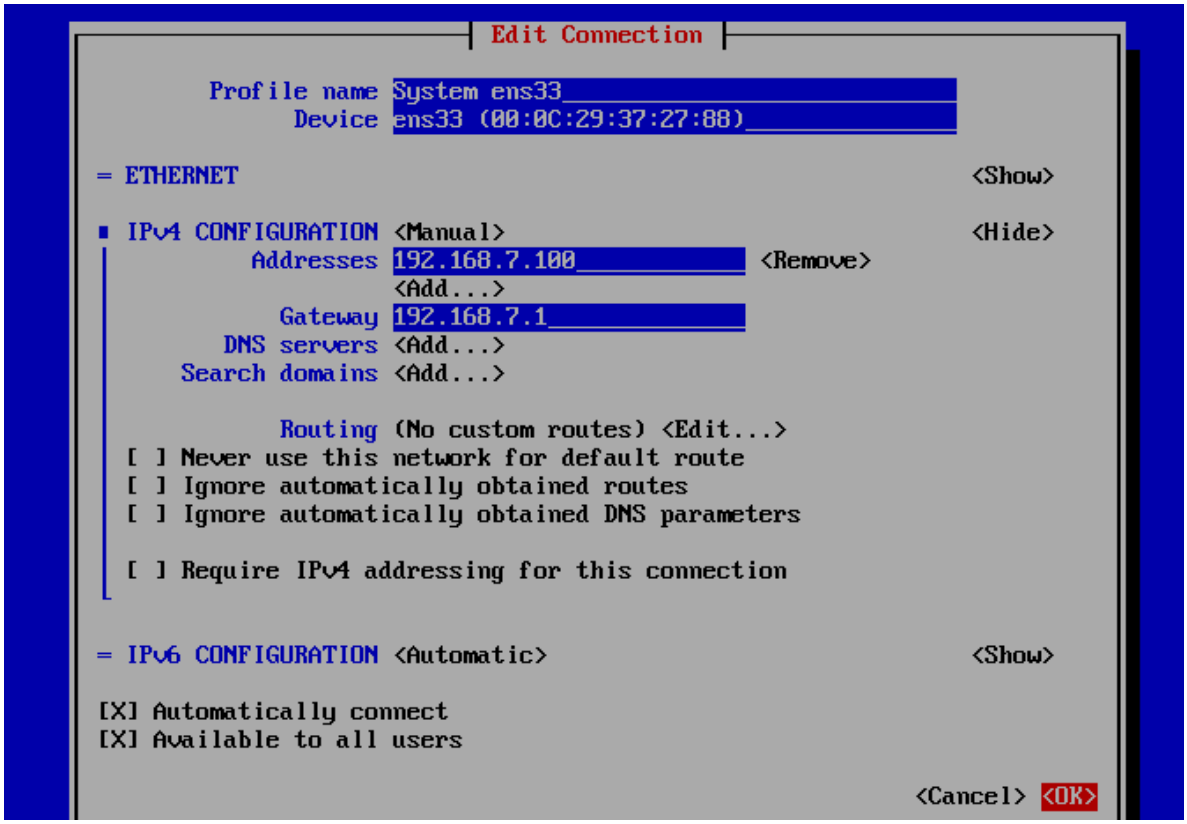
docker 版本：20.10.0

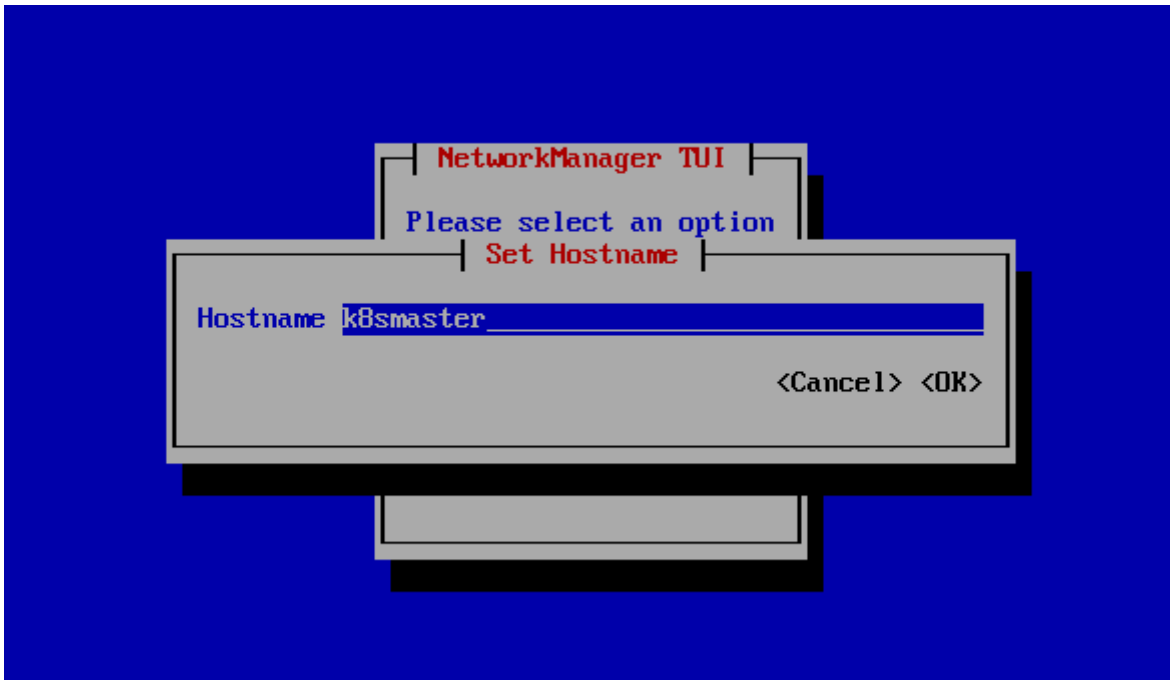
容器运行时：docker

主机名	IP地址	机器参数
k8smaster	192.168.7.100	2C 2G
k8snode01	192.168.7.101	2C 2G
k8snode02	192.168.7.102	2C 2G

主机初始化



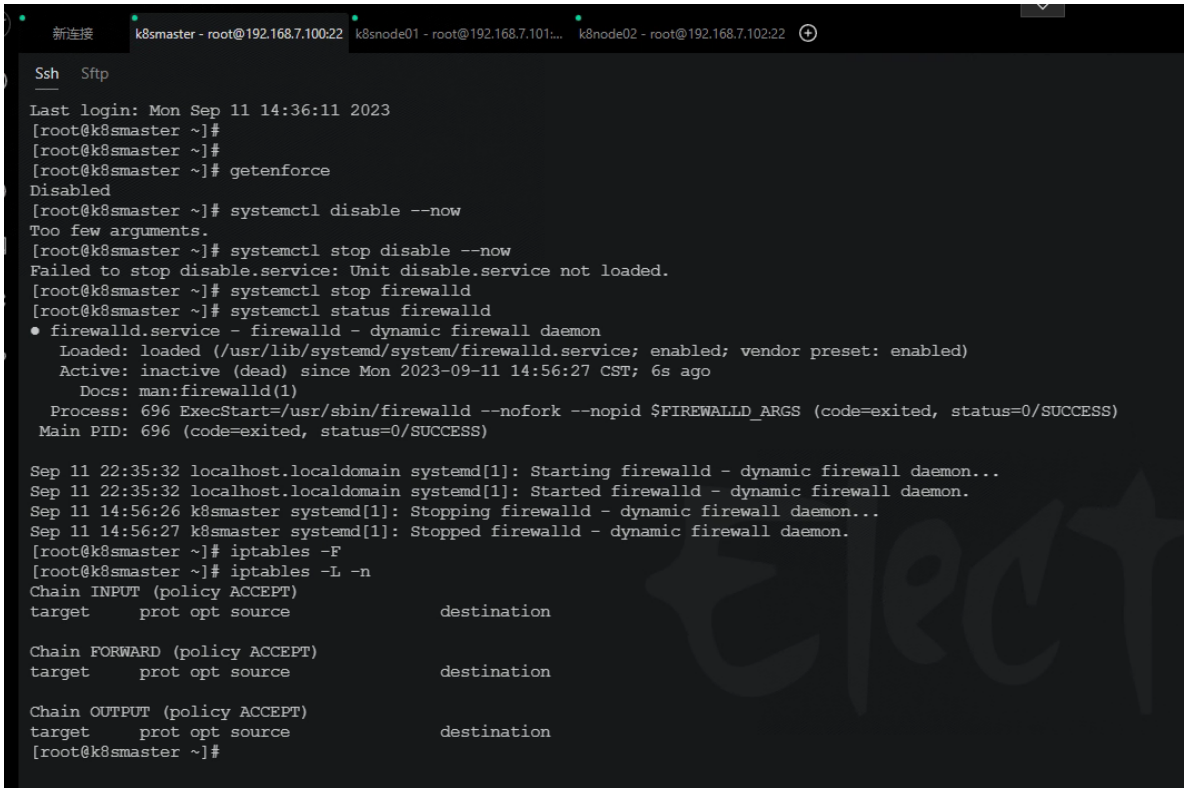

Edit Connection
Profile name System ens33
Device ens33 (00:0C:29:37:27:88)
= ETHERNET <Show>
▪ IPv4 CONFIGURATION <Manual> <Hide>
Addresses 192.168.7.100 <Remove>
<Add...>
Gateway 192.168.7.1
DNS servers <Add...>
Search domains <Add...>
Routing (No custom routes) <Edit...>
[ ] Never use this network for default route
[ ] Ignore automatically obtained routes
[ ] Ignore automatically obtained DNS parameters
[ ] Require IPv4 addressing for this connection
= IPv6 CONFIGURATION <Automatic> <Show>
[X] Automatically connect
[X] Available to all users
<Cancel> <OK>

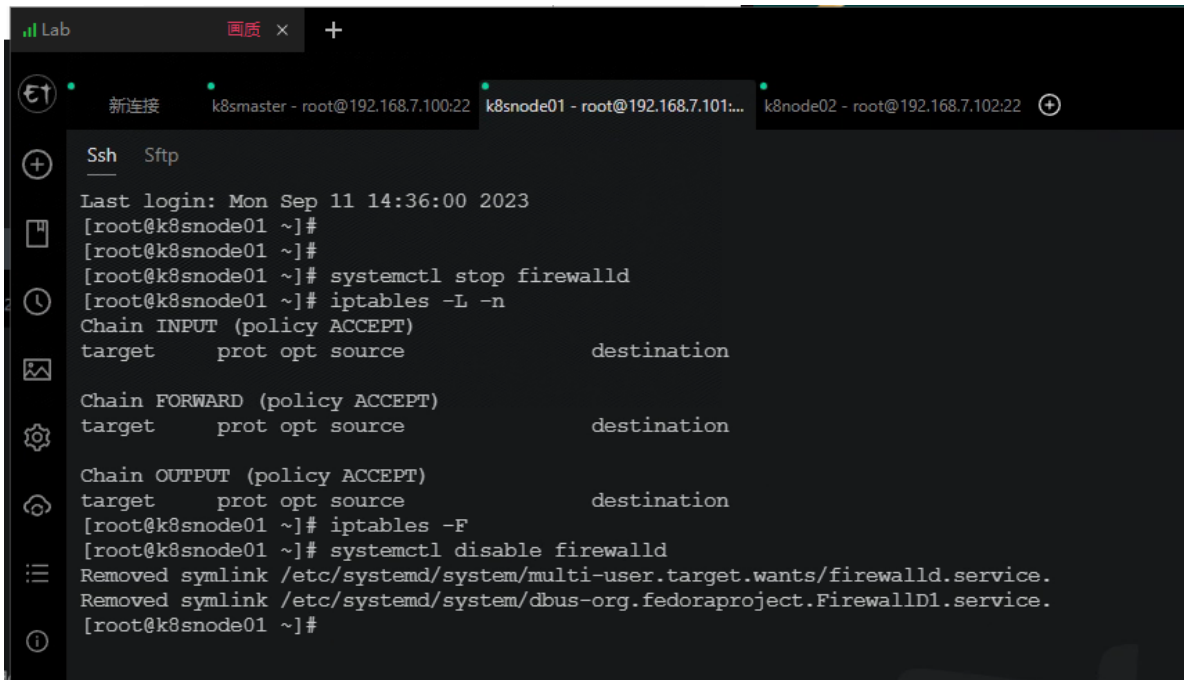

NetworkManager TUI
Please select an option
Set Hostname
Hostname k8smaster
<Cancel> <OK>

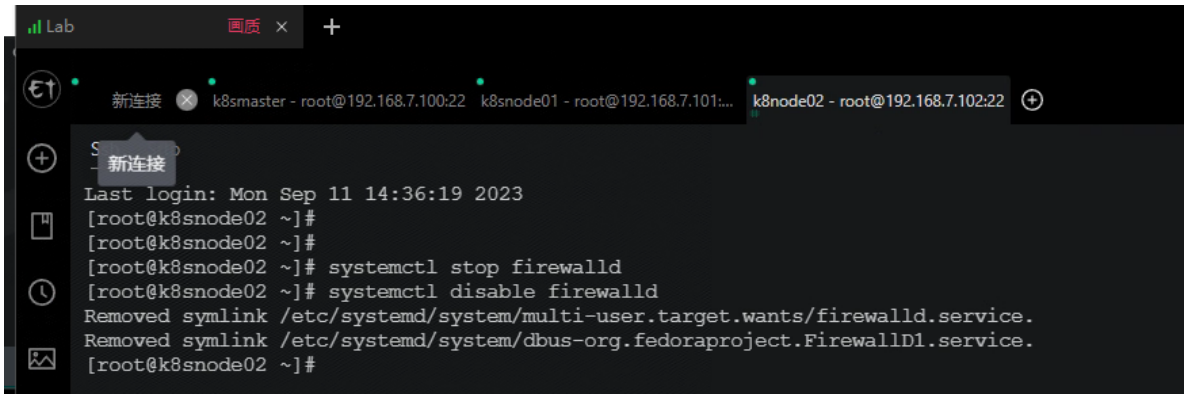
```
[root@localhost ~]#
[root@localhost ~]# ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: ens33: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 10
00
    link/ether 00:0c:29:37:27:88 brd ff:ff:ff:ff:ff:ff
    inet 192.168.7.100/24 brd 192.168.7.255 scope global noprefixroute ens33
       valid_lft forever preferred_lft forever
    inet6 fe80::20c:29ff:fe37:2788/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
3: ens36: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 10
00
    link/ether 00:0c:29:37:27:92 brd ff:ff:ff:ff:ff:ff
    inet 192.168.157.149/24 brd 192.168.157.255 scope global noprefixroute dynamic ens36
       valid_lft 1525sec preferred_lft 1525sec
    inet6 fe80::bdcf:3ffc:b6f6:f1ed/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
[root@localhost ~]# _
```

```
[root@localhost ~]# cat /etc/sysconfig/network-scripts/ifcfg-ens33
# Generated by parse-kickstart
IPV6INIT=yes
IPV6_AUTOCONF=yes
BOOTPROTO=none
DEVICE=ens33
ONBOOT=yes
UUID=37b2a1ab-5757-462d-a5cf-19107edf7420
TYPE=Ethernet
PROXY_METHOD=none
BROWSER_ONLY=no
DEFROUTE=yes
IPV4_FAILURE_FATAL=no
IPV6_DEFROUTE=yes
IPV6_FAILURE_FATAL=no
NAME="System ens33"
IPADDR=192.168.7.100
PREFIX=24
GATEWAY=192.168.7.1
[root@localhost ~]# _
```

集群初始化


新连接
k8smaster - root@192.168.7.100:22
k8snode01 - root@192.168.7.101:...
k8node02 - root@192.168.7.102:22
Ssh
Sftp
Last login: Mon Sep 11 14:36:11 2023
[root@k8smaster ~]#
[root@k8smaster ~]#
[root@k8smaster ~]# getenforce
Disabled
[root@k8smaster ~]# systemctl disable --now
Too few arguments.
[root@k8smaster ~]# systemctl stop disable --now
Failed to stop disable.service: Unit disable.service not loaded.
[root@k8smaster ~]# systemctl stop firewalld
[root@k8smaster ~]# systemctl status firewalld
● firewalld.service - firewalld - dynamic firewall daemon
Loaded: loaded (/usr/lib/systemd/system/firewalld.service; enabled; vendor preset: enabled)
Active: inactive (dead) since Mon 2023-09-11 14:56:27 CST; 6s ago
Docs: man:firewalld(1)
Process: 696 ExecStart=/usr/sbin/firewalld --nofork --nopid $FIREWALLD_ARGS (code=exited, status=0/SUCCESS)
Main PID: 696 (code=exited, status=0/SUCCESS)
Sep 11 22:35:32 localhost.localdomain systemd[1]: Starting firewalld - dynamic firewall daemon...
Sep 11 22:35:32 localhost.localdomain systemd[1]: Started firewalld - dynamic firewall daemon.
Sep 11 14:56:26 k8smaster systemd[1]: Stopping firewalld - dynamic firewall daemon...
Sep 11 14:56:27 k8smaster systemd[1]: Stopped firewalld - dynamic firewall daemon.
[root@k8smaster ~]# iptables -F
[root@k8smaster ~]# iptables -L -n
Chain INPUT (policy ACCEPT)
target prot opt source destination
Chain FORWARD (policy ACCEPT)
target prot opt source destination
Chain OUTPUT (policy ACCEPT)
target prot opt source destination
[root@k8smaster ~]#


Lab
画质
新连接
k8smaster - root@192.168.7.100:22
k8snode01 - root@192.168.7.101:...
k8node02 - root@192.168.7.102:22
Ssh
Sftp
Last login: Mon Sep 11 14:36:00 2023
[root@k8snode01 ~]#
[root@k8snode01 ~]#
[root@k8snode01 ~]# systemctl stop firewalld
[root@k8snode01 ~]# iptables -L -n
Chain INPUT (policy ACCEPT)
target prot opt source destination
Chain FORWARD (policy ACCEPT)
target prot opt source destination
Chain OUTPUT (policy ACCEPT)
target prot opt source destination
[root@k8snode01 ~]# iptables -F
[root@k8snode01 ~]# systemctl disable firewalld
Removed symlink /etc/systemd/system/multi-user.target.wants/firewalld.service.
Removed symlink /etc/systemd/system/dbus-org.fedoraproject.FirewallD1.service.
[root@k8snode01 ~]#


Lab
画质
新连接
k8smaster - root@192.168.7.100:22
k8snode01 - root@192.168.7.101:...
k8node02 - root@192.168.7.102:22
新连接
Last login: Mon Sep 11 14:36:19 2023
[root@k8snode02 ~]#
[root@k8snode02 ~]#
[root@k8snode02 ~]# systemctl stop firewalld
[root@k8snode02 ~]# systemctl disable firewalld
Removed symlink /etc/systemd/system/multi-user.target.wants/firewalld.service.
Removed symlink /etc/systemd/system/dbus-org.fedoraproject.FirewallD1.service.
[root@k8snode02 ~]#

```
[root@k8smaster ~]# vi /etc/fstab
[root@k8smaster ~]# free -h
              total        used        free      shared  buff/cache   available
Mem:           1.8G        134M        1.5G        9.5M        133M        1.5G
Swap:          2.0G          0B        2.0G
[root@k8smaster ~]# swapoff -a
[root@k8smaster ~]# free -h
              total        used        free      shared  buff/cache   available
Mem:           1.8G        134M        1.5G        9.5M        133M        1.5G
Swap:            0B          0B          0B
[root@k8smaster ~]# cat /etc/fstab

#
# /etc/fstab
# Created by anaconda on Mon Sep 11 22:19:06 2023
#
# Accessible filesystems, by reference, are maintained under '/dev/disk'
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info
#
/dev/mapper/centos-root /                       xfs     defaults        0 0
UUID=4bb29f43-0623-4c79-a29d-da295c1242c4 /boot                   xfs     defaults        0 0
#/dev/mapper/centos-swap swap                    swap    defaults        0 0
[root@k8smaster ~]#
```

```
[root@k8smaster ~]# sudo sed -e 's|^mirrorlist=|#mirrorlist=|g' \
>          -e 's|^#baseurl=http://mirror.centos.org/centos|baseurl=https://mirrors.ustc.edu.cn/centos|g' \
>          -i.bak \
>          /etc/yum.repos.d/CentOS-Base.repo
[root@k8smaster ~]# yum makecache
Loaded plugins: fastestmirror
Determining fastest mirrors
base
extras
updates
(1/10): base/7/x86_64/group_gz
(2/10): base/7/x86_64/filelists_db
(3/10): base/7/x86_64/other_db
(4/10): base/7/x86_64/primary_db
(5/10): extras/7/x86_64/filelists_db
(6/10): extras/7/x86_64/primary_db
(7/10): extras/7/x86_64/other_db
(8/10): updates/7/x86_64/filelists_db
(9/10): updates/7/x86_64/other_db
(10/10): updates/7/x86_64/primary_db
Metadata Cache Created
[root@k8smaster ~]#
```

```
[root@k8smaster ~]# cat /etc/host
cat: /etc/host: No such file or directory
[root@k8smaster ~]# cat /etc/hosts
127.0.0.1   localhost localhost.localdomain localhost4 localhost4.localdomain4
::1         localhost localhost.localdomain localhost6 localhost6.localdomain6

# k8s
192.168.7.100 k8smaster
192.168.7.101 k8snode01
192.168.7.102 k8snode02
[root@k8smaster ~]#
```

```
            [-W timeout] destination
[root@k8smaster ~]# ping -c 2 k8smaster
PING k8smaster (192.168.7.100) 56(84) bytes of data.
64 bytes from k8smaster (192.168.7.100): icmp_seq=1 ttl=64 time=0.011 ms
64 bytes from k8smaster (192.168.7.100): icmp_seq=2 ttl=64 time=0.056 ms

--- k8smaster ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1000ms
rtt min/avg/max/mdev = 0.011/0.033/0.056/0.023 ms
[root@k8smaster ~]# ping -c 2 k8snode01
PING k8snode01 (192.168.7.101) 56(84) bytes of data.
64 bytes from k8snode01 (192.168.7.101): icmp_seq=1 ttl=64 time=0.112 ms
64 bytes from k8snode01 (192.168.7.101): icmp_seq=2 ttl=64 time=0.131 ms

--- k8snode01 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 999ms
rtt min/avg/max/mdev = 0.112/0.121/0.131/0.014 ms
[root@k8smaster ~]# ping -c 2 k8snode02
PING k8snode02 (192.168.7.102) 56(84) bytes of data.
64 bytes from k8snode02 (192.168.7.102): icmp_seq=1 ttl=64 time=14.9 ms
64 bytes from k8snode02 (192.168.7.102): icmp_seq=2 ttl=64 time=0.182 ms

--- k8snode02 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1001ms
rtt min/avg/max/mdev = 0.182/7.561/14.940/7.379 ms
[root@k8smaster ~]#
```

```
[root@k8smaster ~]# scp /etc/modules-load.d/k8s.conf root@k8snode01:/etc/mo
modprobe.d/     modules-load.d/ motd
[root@k8smaster ~]# scp /etc/modules-load.d/k8s.conf root@k8snode01:/etc/mo
modprobe.d/     modules-load.d/ motd
[root@k8smaster ~]# scp /etc/modules-load.d/k8s.conf root@k8snode01:/etc/modules-load.d/k8s.conf
The authenticity of host 'k8snode01 (192.168.7.101)' can't be established.
ECDSA key fingerprint is SHA256:PeMwAfvdyJmAcF1VwM6Y9XZ7GNxl0a/mTzVyAXAX6fY.
ECDSA key fingerprint is MD5:54:63:38:be:0b:45:25:c1:72:34:a5:7c:dd:c0:1b:08.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'k8snode01,192.168.7.101' (ECDSA) to the list of known hosts.
root@k8snode01's password:
k8s.conf
[root@k8smaster ~]# scp /etc/modules-load.d/k8s.conf root@k8snode02:/etc/modules-load.d/k8s.conf
The authenticity of host 'k8snode02 (192.168.7.102)' can't be established.
ECDSA key fingerprint is SHA256:pFbuvNYuWu9pnetjVZVpBrcN0Q1/sXpI7gRgIpe3+yo.
ECDSA key fingerprint is MD5:b0:17:e2:01:f2:e2:5d:97:70:b8:d4:57:74:75:35:31.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'k8snode02,192.168.7.102' (ECDSA) to the list of known hosts.
root@k8snode02's password:
k8s.conf
[root@k8smaster ~]#
```

```
sysctl: /etc/sysctl.conf(17): invalid syntax, continuing...
[root@k8snode02 ~]# vim /etc/sysctl.conf
[root@k8snode02 ~]# sysctl -p
net.bridge.bridge-nf-call-ip6tables = 1
net.bridge.bridge-nf-call-iptables = 1
net.ipv4.ip_nonlocal_bind = 1
net.ipv4.ip_forward = 1
vm.swappiness = 0
[root@k8snode02 ~]#
```

安装docker

```
   49  sudo yum install -y yum-utils device-mapper-persistent-data lvm2
   50  sudo yum-config-manager --add-repo https://mirrors.aliyun.com/docker-ce/linux/centos/docker-ce.repo
   51  sudo sed -i 's+download.docker.com+mirrors.aliyun.com/docker-ce+' /etc/yum.repos.d/docker-ce.repo
   52  yum makecache fast
   53  yum install -y docker-ce-20.10.0 docker-ce-cli-20.10.0 containerd.io
   54  history
```

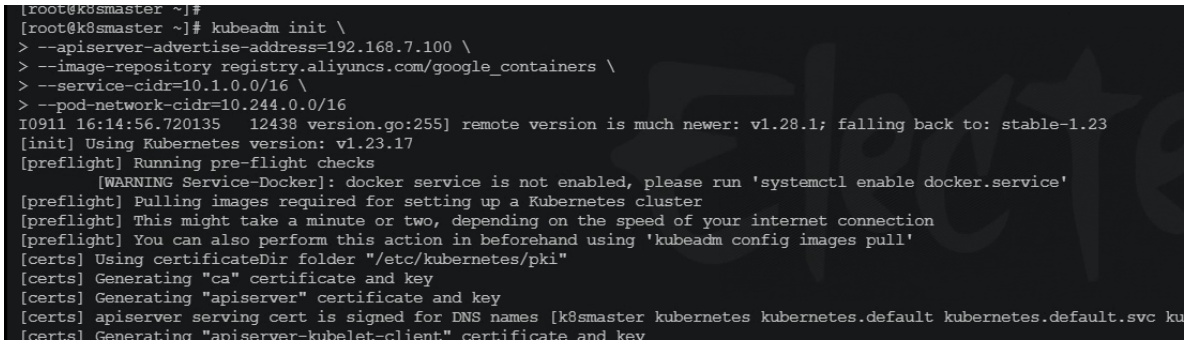
```
RETURN     all  --  0.0.0.0/0            0.0.0.0/0
[root@k8smaster ~]# vim /etc/docker/daemon.json
[root@k8smaster ~]# cat /etc/docker/daemon.json
{
        "registry-mirrors": [
        "http://hub-mirror.c.163.com",
        "https://docker.mirrors.ustc.edu.cn",
        "https://registry.docker-cn.com"
    ],
        "exec-opts": ["native.cgroupdriver=systemd"]
}
[root@k8smaster ~]# systemctl restart docker
[root@k8smaster ~]# systemctl status docker
● docker.service - Docker Application Container Engine
   Loaded: loaded (/usr/lib/systemd/system/docker.service; disabled; vendor preset: disabled)
   Active: active (running) since Mon 2023-09-11 15:42:29 CST; 4s ago
     Docs: https://docs.docker.com
 Main PID: 12094 (dockerd)
    Tasks: 9
   Memory: 42.6M
   CGroup: /system.slice/docker.service
           └─12094 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock

Sep 11 15:42:29 k8smaster dockerd[12094]: time="2023-09-11T15:42:29.673042854+08:00" level=info msg="ccResolverWrap
Sep 11 15:42:29 k8smaster dockerd[12094]: time="2023-09-11T15:42:29.673047750+08:00" level=info msg="ClientConn swi
Sep 11 15:42:29 k8smaster dockerd[12094]: time="2023-09-11T15:42:29.678961424+08:00" level=info msg="[graphdriver]
Sep 11 15:42:29 k8smaster dockerd[12094]: time="2023-09-11T15:42:29.679911597+08:00" level=info msg="Loading conta
Sep 11 15:42:29 k8smaster dockerd[12094]: time="2023-09-11T15:42:29.732205969+08:00" level=info msg="Default bridge
Sep 11 15:42:29 k8smaster dockerd[12094]: time="2023-09-11T15:42:29.754387197+08:00" level=info msg="Loading conta
Sep 11 15:42:29 k8smaster dockerd[12094]: time="2023-09-11T15:42:29.763031393+08:00" level=info msg="Docker daemon"
Sep 11 15:42:29 k8smaster dockerd[12094]: time="2023-09-11T15:42:29.763062672+08:00" level=info msg="Daemon has com
Sep 11 15:42:29 k8smaster systemd[1]: Started Docker Application Container Engine.
Sep 11 15:42:29 k8smaster dockerd[12094]: time="2023-09-11T15:42:29.775331002+08:00" level=info msg="API listen on
Hint: Some lines were ellipsized, use -l to show in full.
[root@k8smaster ~]#
```

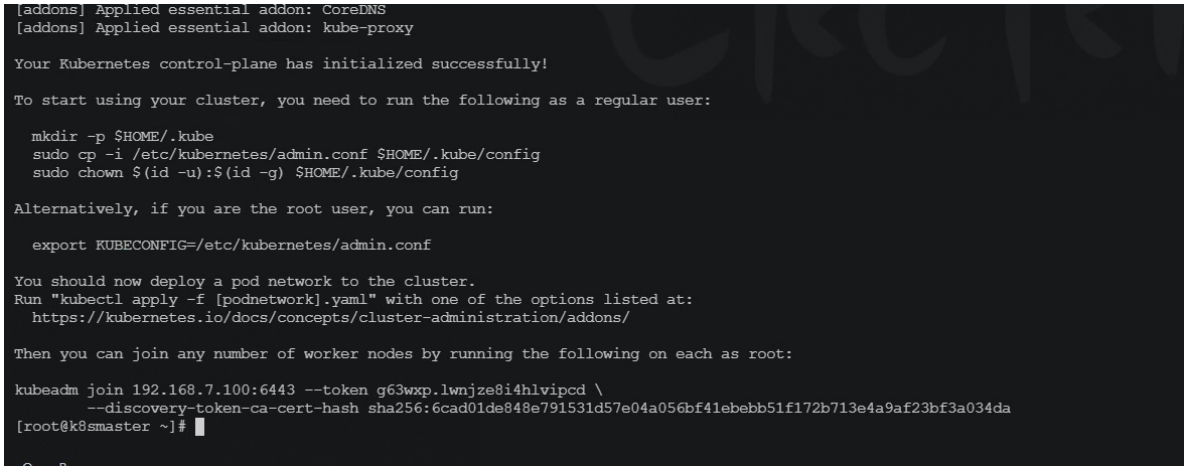
K8S instll

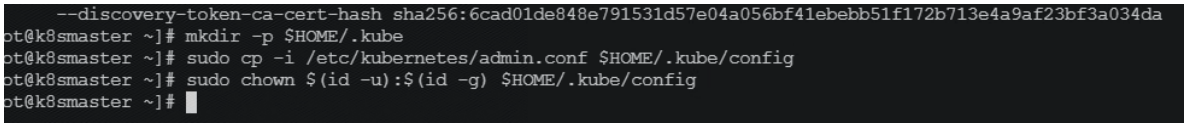
```
cat <<EOF > /etc/yum.repos.d/kubernetes.repo
[kubernetes]
name=Kubernetes
baseurl=https://mirrors.aliyun.com/kubernetes/yum/repos/kubernetes-el7-x86_64/
enabled=1
gpgcheck=1
repo_gpgcheck=1
gpgkey=https://mirrors.aliyun.com/kubernetes/yum/doc/yum-key.gpg
https://mirrors.aliyun.com/kubernetes/yum/doc/rpm-package-key.gpg
EOF

yum install -y kubelet-1.23.6 kubeadm-1.23.6 kubectl-1.23.6


# 拉取镜像
docker pull coredns/coredns:1.8.4

# 将镜像改名
docker tag coredns/coredns:1.8.4
registry.aliyuncs.com/google_containers/coredns:v1.8.4
```

Master 集群初始化

```
# 记得改变IP，只要改第一行的IP地址，一般改为master节点地址
kubeadm init \
--apiserver-advertise-address=192.168.7.100 \
--image-repository registry.aliyuncs.com/google_containers \
--service-cidr=10.1.0.0/16 \
--pod-network-cidr=10.244.0.0/16
#--pod-network-cidr=192.168.0.0/16
```



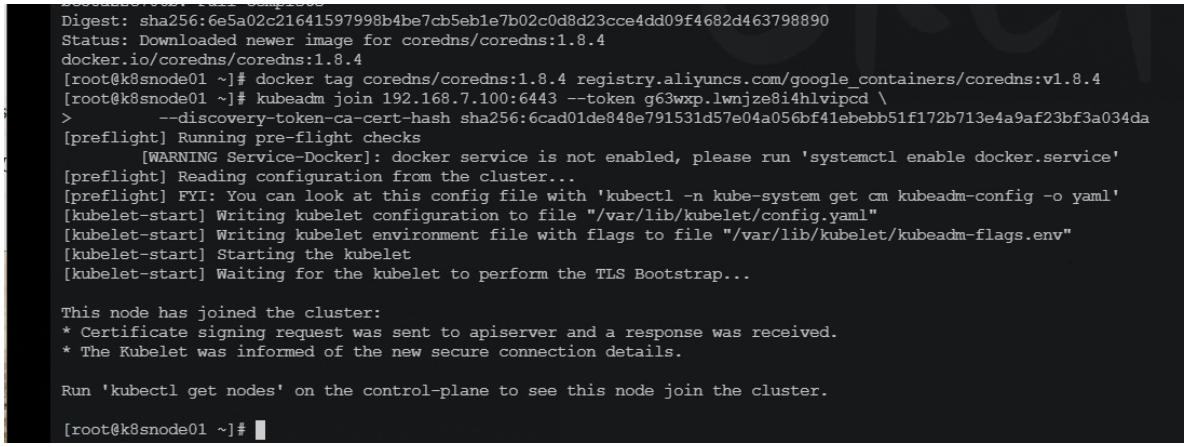




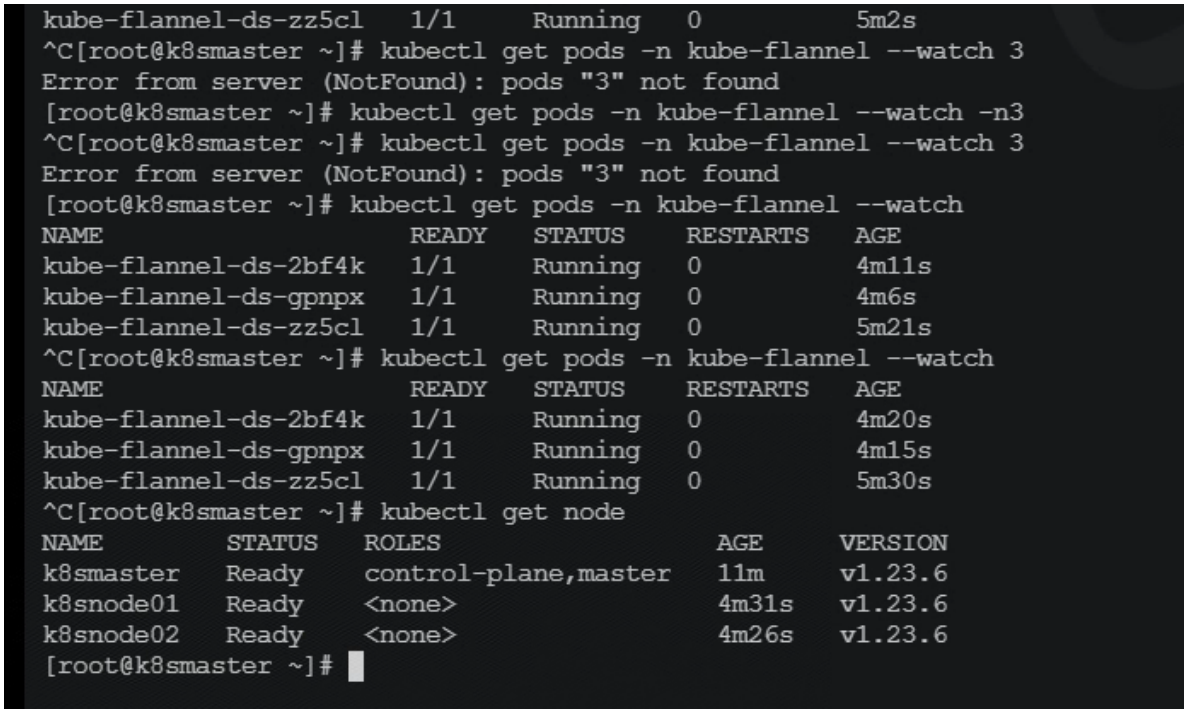

```
Your Kubernetes control-plane has initialized successfully!

To start using your cluster, you need to run the following as a regular user:

  mkdir -p $HOME/.kube
  sudo cp -i /etc/kubernetes/admin.conf $HOME/.kube/config
  sudo chown $(id -u):$(id -g) $HOME/.kube/config

Alternatively, if you are the root user, you can run:

  export KUBECONFIG=/etc/kubernetes/admin.conf

You should now deploy a pod network to the cluster.
Run "kubectl apply -f [podnetwork].yaml" with one of the options listed at:
  https://kubernetes.io/docs/concepts/cluster-administration/addons/

Then you can join any number of worker nodes by running the following on each as
root:
```

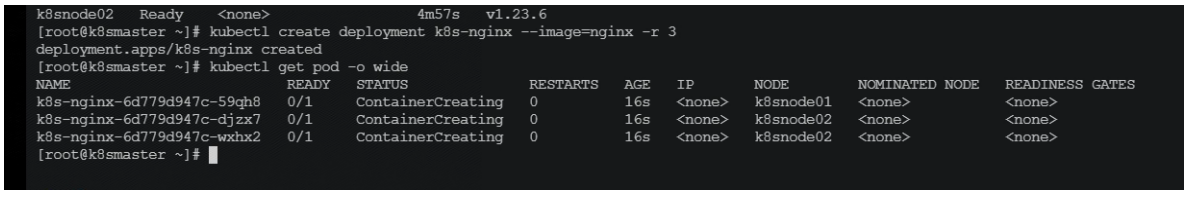
```
kubeadm join 192.168.7.100:6443 --token g63wxp.lwnjze8i4hlvipcd \
        --discovery-token-ca-cert-hash
sha256:6cad01de848e791531d57e04a056bf41ebebb51f172b713e4a9af23bf3a034da
```

node 主机设置



完成





其他

命令补全

```
yum -y install bash-completion
source /usr/share/bash-completion/bash_completion
source <(kubectl completion bash)
echo "source <(kubectl completion bash)" >> ~/.bashrc
```

NGINX 主机设置 VPN设置

```
    1  vi /etc/selinux/config
    2  init 0
    3  nmtui
    4  exit
    5  ip a
    6  cd /opt/
    7  ls
    8  mkdir pritunl-client
    9  cd pritunl-client/
   10  yum install -y wget
   11  wget https://note.heike07.cn/key/445bc78904f944ea8326527ed9b88424.tar
   12  ls
   13  sudo tee -a /etc/yum.repos.d/pritunl.repo << EOF
[pritunl]
name=Pritunl Stable Repository
baseurl=https://repo.pritunl.com/stable/yum/centos/8/
gpgcheck=1
enabled=1
EOF

   14  cd /etc/yum.repos.d/
   15  ls
   16  ll
   17  cd pritunl.repo
   18  yum install -y vim
   19  vi pritunl.repo
   20  yum install -y vim
   21  gpg --keyserver hkp://keyserver.ubuntu.com --recv-keys
7568D9BB55FF9E5287D586017AE645C0CF8E292A
   22  gpg --armor --export 7568D9BB55FF9E5287D586017AE645C0CF8E292A > key.tmp;
sudo rpm --import key.tmp; rm -f key.tmp
   23  yum install pritunl-client
   24  yum install pritunl-client Error: Package: pritunl-openvpn-2.5.8-
1.el7.centos.x86_64 (pritunl)
   25             Requires: libpkcs11-helper.so.1()(64bit)
   26   You could try using --skip-broken to work around the problem
   27   You could try running: rpm -Va --nofiles --nodigest
   28  yum install libpkcs11-helper
   29  yum install libpkcs11
   30  yum install openssl
   31  yum install pritunl-client
   32  yum install libp11
   33  yum remove openssl
   34  yum install -y epel-release
   35  yum install -y openssl-devel openssl11 openssl1-devel
   36  yum install pritunl-client
   37  cd /opt/pritunl-client/
   38  ls
   39  pritunl-client add 445bc78904f944ea8326527ed9b88424.tar
```

```
  40  pritunl-client list
  41  pritunl-client start cj9gz4mb5jxjpkwx
  42  pritunl-client list
  43  firewall-cmd --list-all
  44  systemctl stop firewalld
  45  systemctl disabled firewalld
  46  systemctl disable firewalld
  47  iptables -L -n
  48  pritunl-client list
  49  pritunl-client stop cj9gz4mb5jxjpkw
  50  pritunl-client list
  51  curl heike07.cn
  52  curl note.heike07.cn
  53  pritunl-client list
  54  pritunl-client start cj9gz4mb5jxjpkwx
  55  pritunl-client list
  56  cd /var/log/
  57  ls
  58  ll
  59  date
  60  tail pritunl-client.log
  61  tail pritunl-client.log.1
  62  ls
  63  ll
  64  vim pritunl-client.log
  65  tail pritunl-client.log
  66  ss -lnpt | grep openvpn
  67  top
  68* ss -
  69  pritunl-client list
  70  ls
  71  ll
  72  cd /opt/pritunl-client/
  73  ls
  74  ll
  75  vim 445bc78904f944ea8326527ed9b88424.tar
  76  pritunl-client list
  77  rpm -qa | grep openvpn
  78  rpm -qa | grep pritunl
  79  yum remove pritunl-openvpn-2.5.8-1.el7.centos.x86_64
  80  yum install openvpn
  81  yum install pritunl-openvpn
  82  yum install pritunl-client-1.3.3484
  83  yum install pritunl-client
  84  rpm -qa | grep pritunl
  85  pritunl-client list
  86  ping 192.168.239.10
  87  ip a
  88  history
```

nginx steam 模块加载代理

```
  142  history |grep configure
  143  ./configure --with-http_v2_module --with-http_ssl_module --with-
http_sub_module --with-http_stub_status_module --with-http_gzip_static_module --
with-pcre --with-stream --with-stream=dynamic --with-stream_ssl_module --with-
stream_realip_module
```

```
 [root@nginx conf]# cat nginx.conf |grep load
load_module /usr/local/nginx/modules/ngx_stream_module.so;
[root@nginx conf]#

[root@nginx sbin]# ./nginx -V
nginx version: nginx/1.24.0
built by gcc 4.8.5 20150623 (Red Hat 4.8.5-44) (GCC)
built with OpenSSL 1.0.2k-fips  26 Jan 2017
TLS SNI support enabled
configure arguments: --with-http_v2_module --with-http_ssl_module --with-
http_sub_module --with-http_stub_status_module --with-http_gzip_static_module --
with-pcre --with-stream --with-stream=dynamic --with-stream_ssl_module --with-
stream_realip_module
[root@nginx sbin]#
```