etcd常见两种部署方式（文档为第①种部署方式）：

1. 同master节点部署
2. 独立于master节点部署

节点IP地址：192.168.30.141

节点主机名：k8s-master-01

证书存放目录：/etc/kubernetes/etcd/ssl/

配置文件目录：/etc/kubernetes/etcd/conf/

etcd数据目录：/var/lib/etcd/

创建所需目录

mkdir -p /etc/kubernetes/etcd/{ssl,conf} /var/lib/etcd/

创建证书签名请求

cd /usr/local/src/ssl/

cat > etcd-csr.json <<EOF

{

"CN": "etcd",

"hosts": ["192.168.30.139",

"192.168.30.140",

"192.168.30.141",

"192.168.30.142",

"192.168.30.143",

"192.168.30.144",

"192.168.30.145"],

"key": {

"algo": "rsa",

"size": 2048

},

"names": [{

"C": "CN",

"ST": "BeiJing",

"L": "BeiJing",

"OU": "System"

}]

}

EOF

注：hosts字段指定授权使用该证书的etcd节点IP地址或域名列表，可以多写几个预留的IP地址，非hosts字段中的IP地址无法使用该证书

生成证书和私钥

cd /usr/local/src/ssl/

cfssl gencert -ca=/etc/kubernetes/ssl/ca.pem \

-ca-key=/etc/kubernetes/ssl/ca-key.pem \

-config=/etc/kubernetes/ssl/ca-config.json \

-profile=kubernetes etcd-csr.json | cfssljson -bare etcd

cp etcd-key.pem etcd.pem /etc/kubernetes/etcd/ssl/

下载二进制文件

cd /usr/local/src/

wget https://github.com/etcd-io/etcd/releases/download/v3.4.9/etcd-v3.4.9-linux-amd64.tar.gz

tar xf etcd-v3.4.9-linux-amd64.tar.gz && cd etcd-v3.4.9-linux-amd64/

cp etcd etcdctl /usr/bin/

创建配置文件

cat > /etc/kubernetes/etcd/conf/etcd.conf <<EOF

#[member]

ETCD\_NAME="etcd01"

ETCD\_DATA\_DIR="/var/lib/etcd/default.etcd"

ETCD\_LISTEN\_PEER\_URLS="https://192.168.30.141:2380"

ETCD\_LISTEN\_CLIENT\_URLS="https://127.0.0.1:2379,https://192.168.30.141:2379"

#[cluster]

ETCD\_INITIAL\_ADVERTISE\_PEER\_URLS="https://192.168.30.141:2380"

ETCD\_INITIAL\_CLUSTER="etcd01=https://192.168.30.141:2380,etcd02=https://192.168.30.142:2380,etcd03=https://192.168.30.142:2380"

ETCD\_INITIAL\_CLUSTER\_STATE="new"

ETCD\_INITIAL\_CLUSTER\_TOKEN="k8s-etcd-cluster"

ETCD\_ADVERTISE\_CLIENT\_URLS="https://192.168.30.141:2379"

#[security]

CLIENT\_CERT\_AUTH="true"

ETCD\_CA\_FILE="/etc/kubernetes/ssl/ca.pem"

ETCD\_CERT\_FILE="/etc/kubernetes/etcd/ssl/etcd.pem"

ETCD\_KEY\_FILE="/etc/kubernetes/etcd/ssl/etcd-key.pem"

PEER\_CLIENT\_CERT\_AUTH="true"

ETCD\_PEER\_CA\_FILE="/etc/kubernetes/ssl/ca.pem"

ETCD\_PEER\_CERT\_FILE="/etc/kubernetes/etcd/ssl/etcd.pem"

ETCD\_PEER\_KEY\_FILE="/etc/kubernetes/etcd/ssl/etcd-key.pem"

EOF

创建服务文件

cat > /usr/lib/systemd/system/etcd.service <<EOF

[Unit]

Description=Etcd Server

After=network.target

[Service]

Type=simple

WorkingDirectory=/var/lib/etcd

EnvironmentFile=-/etc/kubernetes/etcd/conf/etcd.conf

ExecStart=/usr/bin/bash -c "GOMAXPROCS=$(nproc) /usr/bin/etcd --enable-v2"

Type=notify

[Install]

WantedBy=multi-user.target

EOF

注：etcd 3.4.9默认使用v3语法，而flannel-v0.12.0当前依旧使用etcd v2语法，彼此不兼容，所以启动etcd时加上--enable-v2参数；命令etcd --help | grep enable-v2查询当前etcd默认语法

启动服务并设置为开机自启动

systemctl daemon-reload

systemctl enable etcd

systemctl start etcd

systemctl status etcd

检查集群状态

ETCDCTL\_API=3 etcdctl --endpoints=https://192.168.30.141:2379 \

--cacert=/etc/kubernetes/ssl/ca.pem \

--cert=/etc/kubernetes/etcd/ssl/etcd.pem \

--key=/etc/kubernetes/etcd/ssl/etcd-key.pem \

endpoint health