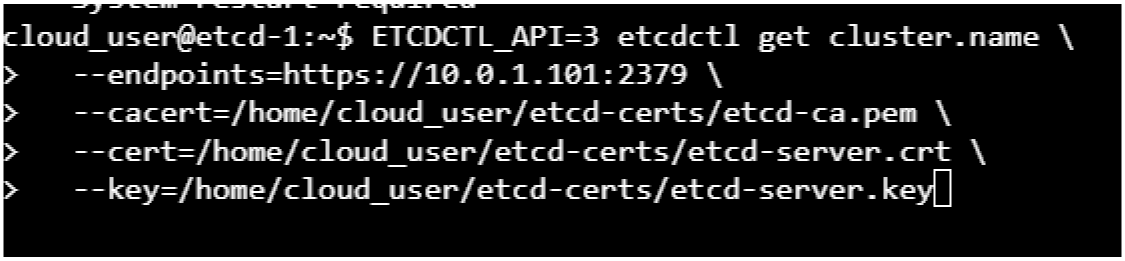
Backing up and Restoring Kubernetes Data in etcd

Back Up the etcd Data

1. Look up the value for the key cluster.name in the etcd cluster:

```
ETCDCTL_API=3 etcdctl get cluster.name \
 --endpoints=https://10.0.1.101:2379 \
 --cacert=/home/cloud_user/etcd-certs/etcd-ca.pem \
 --cert=/home/cloud_user/etcd-certs/etcd-server.crt \
 --key=/home/cloud_user/etcd-certs/etcd-server.key
```

Figure 1-1



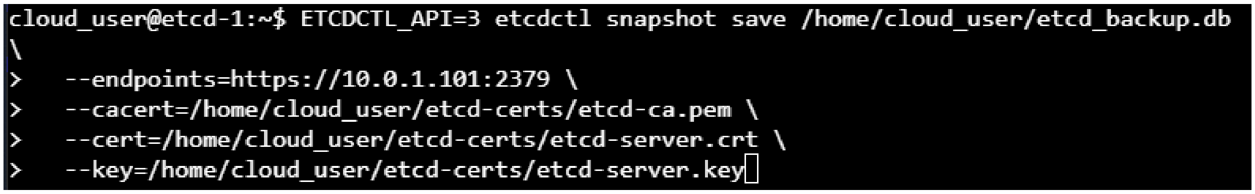
```
cloud_user@etcd-1:~$ ETCDCTL_API=3 etcdctl get cluster.name \
>   --endpoints=https://10.0.1.101:2379 \
>   --cacert=/home/cloud_user/etcd-certs/etcd-ca.pem \
>   --cert=/home/cloud_user/etcd-certs/etcd-server.crt \
>   --key=/home/cloud_user/etcd-certs/etcd-server.key
```

- --endpoints=
  - So this is how you instruct etcdctl how to reach out and contact to the etc server
- --cacert
  - The public cert for my certificate authority
- --cert
  - Client certificate
- --key
  - Certificate key

2. Back up etcd using etcdctl and the provided etcd certificates

```
ETCDCTL_API=3 etcdctl snapshot save /home/cloud_user/etcd_backup.db \
 --endpoints=https://10.0.1.101:2379 \
 --cacert=/home/cloud_user/etcd-certs/etcd-ca.pem \
 --cert=/home/cloud_user/etcd-certs/etcd-server.crt \
 --key=/home/cloud_user/etcd-certs/etcd-server.key
```

Figure 1-2



```
cloud_user@etcd-1:~$ ETCDCTL_API=3 etcdctl snapshot save /home/cloud_user/etcd_backup.db
\
>   --endpoints=https://10.0.1.101:2379 \
>   --cacert=/home/cloud_user/etcd-certs/etcd-ca.pem \
>   --cert=/home/cloud_user/etcd-certs/etcd-server.crt \
>   --key=/home/cloud_user/etcd-certs/etcd-server.key
```

3. Reset etcd by removing all existing etcd data

```
sudo systemctl stop etcd
sudo rm -rf /var/lib/etcd
```

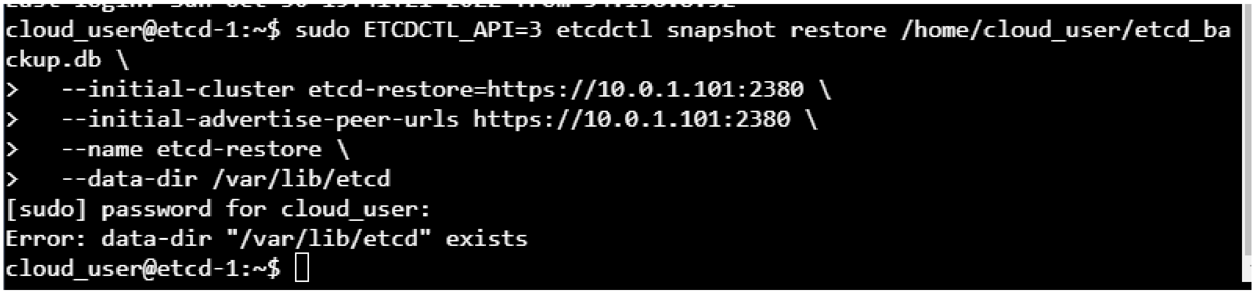
Restore the etcd Data from the Backup

In order to restore from the backup. We need to restore the backup. So delete all the existing data

4. Restore the etcd data from the backup (this command spins up a temporary etcd cluster, saving the data from the backup file to a new data directory in the same location where the previous data directory was)

```
sudo ETCDCTL_API=3 etcdctl snapshot restore /home/cloud_user/etcd_backup.db \
 --initial-cluster etcd-restore=https://10.0.1.101:2380 \
 --initial-advertise-peer-urls https://10.0.1.101:2380 \
 --name etcd-restore \
 --data-dir /var/lib/etcd
```

Figure 1-3



```
cloud_user@etcd-1:~$ sudo ETCDCTL_API=3 etcdctl snapshot restore /home/cloud_user/etcd_ba
ckup.db \
>   --initial-cluster etcd-restore=https://10.0.1.101:2380 \
>   --initial-advertise-peer-urls https://10.0.1.101:2380 \
>   --name etcd-restore \
>   --data-dir /var/lib/etcd
[sudo] password for cloud_user:
Error: data-dir "/var/lib/etcd" exists
cloud_user@etcd-1:~$ 
```

5. Set ownership on the new data directory

```
sudo chown -R etcd:etcd /var/lib/etcd
```

*Now in order to restore from that backup. We need to reset the etc cluster. Won't be a good test to leave it alone and the existing data is still there. So we need to delete all the existing data and then perform the restoration and see if it is back in place.

6. Stop etcd

```
sudo systemctl stop etcd
```

7. So now we will delete the etcd directory

```
sudo rm -rf /var/lib/etcd
```

8. Now restore the etcd from the backup

```
sudo ETCDCTL_API=3 etcdctl snapshot restore /home/cloud_user/etcd_backup.db \
 --initial-cluster etcd-restore=https://10.0.1.101:2380 \
 --initial-advertise-peer-urls https://10.0.1.101:2380 \
 --name etcd-restore \
 --data-dir /var/lib/etcd
```

9. So now we verify the var etcd directory

```
sudo ls /var/lib/etcd
```

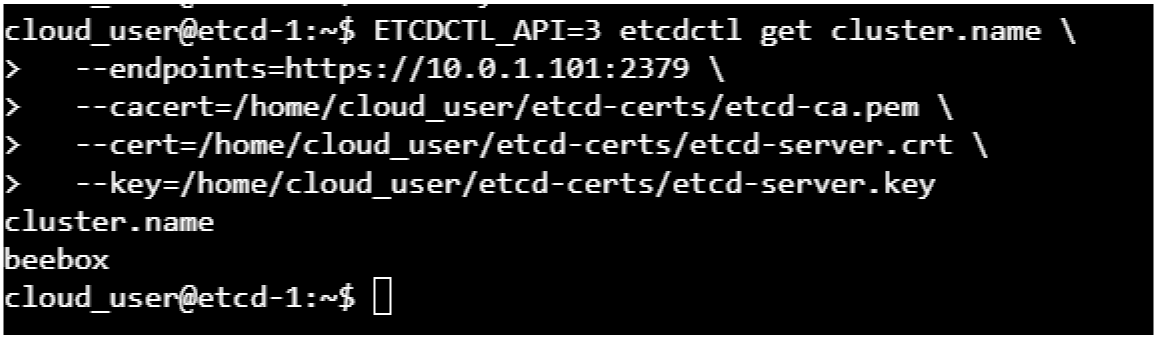
10. Set ownership on the new data directory

```
sudo chown -R etcd:etcd /var/lib/etcd
```

11. Since we stopped the etcd on step 6. We need to start it again

```
sudo systemctl start etcd
```

12. Verify the restored data is present by looking up the value for the key cluster.name again:



```
cloud_user@etcd-1:~$ ETCDCTL_API=3 etcdctl get cluster.name \
>   --endpoints=https://10.0.1.101:2379 \
>   --cacert=/home/cloud_user/etcd-certs/etcd-ca.pem \
>   --cert=/home/cloud_user/etcd-certs/etcd-server.crt \
>   --key=/home/cloud_user/etcd-certs/etcd-server.key
cluster.name
beebox
cloud_user@etcd-1:~$
```