

Assignment 6 - Introduction to ETCD

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Screenshots:

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```
(base) sirigowrih@PES1UG21CS599 etcd-download-test % cd ...
(base) sirigowrih@PES1UG21CS599 /tmp % etcd-download-test/etcd
{"level":"warn","ts":"2024-04-10T12:45:26.656049+0530","caller":"embed/config.go:679","msg":"Running http and grpc server on single port. This is not recommended for production."}
{"level":"info","ts":"2024-04-10T12:45:26.657455+0530","caller":"etcdmain/etcd.go:79","msg":"Running: ", "args":["etcd-download-test/etcd"]}
{"level":"info","ts":"2024-04-10T12:45:26.657647+0530","caller":"etcdmain/etcd.go:100","msg":"failed to detect default host","error":"default host not supported on darwin_and64"}
{"level":"warn","ts":"2024-04-10T12:45:26.657677+0530","caller":"etcdmain/etcd.go:105","msg":"data-dir was empty; using default","data-dir":"default.etcd"}
{"level":"warn","ts":"2024-04-10T12:45:26.657729+0530","caller":"embed/config.go:679","msg":"Running http and grpc server on single port. This is not recommended for production."}
{"level":"info","ts":"2024-04-10T12:45:26.657731+0530","caller":"embed/etcd.go:127","msg":"configuring peer listeners","listen-peer-urls":["http://localhost:2380"]}
{"level":"info","ts":"2024-04-10T12:45:26.661133+0530","caller":"embed/etcd.go:135","msg":"configuring client listeners","listen-client-urls":["http://localhost:2379"]}
{"level":"info","ts":"2024-04-10T12:45:26.661921+0530","caller":"embed/etcd.go:308","msg":"starting an etcd server","etcd-version":"3.5.13","git-sha":"c9e63a0dc","go-version":"go1.21.0","go-os":"darwin","go-arch":"amd64","max-cpu-usage":"8","member-initialized":false,"name":"default","data-dir":"default.etcd","wal-dir":"","wal-dir-dedicated":"","member-dir":"default.etcd/member","force-new-cluster":false,"heartbeat-interval":"100ms","election-timeout":"1s","initial-election-tick-advance":true,"snapshot-count":"100000","max-wals":"5","max-snapshots":"5","snapshot-catchup-entries":"5000","initial-advertise-peer-urls":["http://localhost:2380"],"listen-peer-urls":["http://localhost:2380"],"advertise-client-urls":["http://localhost:2379"],"listen-client-urls":["http://localhost:2379"],"listen-metrics-urls":[""],"cors":["*"],"host-whitelist":["*"],"initial-cluster":"default=http://localhost:2380","initial-cluster-state":"new","initial-cluster-token":"etcd-cluster","quota-backend-bytes":"2147483648","max-request-bytes":"1073741824","max-concurrent-streams":"4294967295","pre-vote":true,"initial-corrupt-check":false,"corrupt-check-time-interval":"0s","compact-check-time-enabled":false,"compact-check-time-interval":"10m","auto-compaction-mode":"periodic","auto-compaction-retention":"0s","auto-compaction-interval":"0s","discovery-url":"","discovery-proxy":"","downgrade-check-interval":"5s"}
{"level":"info","ts":"2024-04-10T12:45:26.671852+0530","caller":"etcdserver/backend.go:81","msg":"opened backend db","path":"default.etcd/member/snap/db","took":"9.213375ms"}
{"level":"info","ts":"2024-04-10T12:45:26.71283+0530","caller":"etcdserver/raft.go:495","msg":"starting local member","local-member-id":"8e9e05c52164694d","cluster-id":"cdf818194e3a8c32"}
{"level":"info","ts":"2024-04-10T12:45:26.713134+0530","logger":"raft","caller":"etcdserver/zap_raft.go:77","msg":"8e9e05c52164694d switched to configuration voters={1}" }
{"level":"info","ts":"2024-04-10T12:45:26.713484+0530","logger":"raft","caller":"etcdserver/zap_raft.go:77","msg":"8e9e05c52164694d became follower at term 0"}
{"level":"info","ts":"2024-04-10T12:45:26.713498+0530","logger":"raft","caller":"etcdserver/zap_raft.go:77","msg":"newRaft 8e9e05c52164694d [peers: [], term: 0, commit: 0, applied: 0, lastindex: 0, laststms: 0]}"}
{"level":"info","ts":"2024-04-10T12:45:26.713508+0530","logger":"raft","caller":"etcdserver/zap_raft.go:77","msg":"8e9e05c52164694d became follower at term 1"}
{"level":"info","ts":"2024-04-10T12:45:26.713789+0530","logger":"raft","caller":"etcdserver/zap_raft.go:77","msg":"8e9e05c52164694d switched to configuration voters={10276657743932975437}" }
{"level":"warn","ts":"2024-04-10T12:45:26.71875+0530","caller":"auth/store.go:1241","msg":"simple token is not cryptographically signed"}
{"level":"info","ts":"2024-04-10T12:45:26.746809+0530","caller":"mvcc/avstore.go:407","msg":"kvstore restored","current-rev":"1"}
{"level":"info","ts":"2024-04-10T12:45:26.748063+0530","caller":"etcdserver/quota.go:94","msg":"enabled backend quota with default value","quota-name":"v3-applier","quota-size-bytes":"2147483648","quota-size":"2.1 GB"}
{"level":"info","ts":"2024-04-10T12:45:26.755592+0530","caller":"etcdserver/server.go:867","msg":"starting etcd server","local-member-id":"8e9e05c52164694d","local-server-version":"3.5.13","cluster-version":"v3.5 to be decided"}
{"level":"warn","ts":"2024-04-10T12:45:26.757208+0530","caller":"etcdserver/metrics.go:224","msg":"failed to get file descriptor usage","error":"cannot get FDUsage on darwin"}
{"level":"info","ts":"2024-04-10T12:45:26.76584+0530","caller":"etcdserver/server.go:751","msg":"started as single-node; fast-forwarding election ticks","local-member-id":"8e9e05c52164694d","forward-ticks":"9","forward-duration":"900ms","election-ticks":"10","election-timeout":"1s"}
{"level":"info","ts":"2024-04-10T12:45:26.767302+0530","caller":"fileutil/purge.go:50","msg":"started to purge file","dir":"default.etcd/member/snap","suffix":"snap.db","max":"5","interval":"30s"}
{"level":"info","ts":"2024-04-10T12:45:26.767891+0530","caller":"fileutil/purge.go:50","msg":"started to purge file","dir":"default.etcd/member/snap","suffix":"snap","max":"5","interval":"30s"}
{"level":"info","ts":"2024-04-10T12:45:26.768998+0530","caller":"fileutil/purge.go:50","msg":"started to purge file","dir":"default.etcd/member/wal","suffix":"wal","max":"5","interval":"30s"}
{"level":"info","ts":"2024-04-10T12:45:26.764863+0530","logger":"raft","caller":"etcdserver/zap_raft.go:77","msg":"8e9e05c52164694d switched to configuration voters={10276657743932975437}" }
{"level":"info","ts":"2024-04-10T12:45:26.766009+0530","caller":"embed/etcd.go:597","msg":"serving peer traffic","address":"127.0.0.1:2380"}
{"level":"info","ts":"2024-04-10T12:45:26.766083+0530","caller":"embed/etcd.go:569","msg":"cmux:serve","address":"127.0.0.1:2380"}
{"level":"info","ts":"2024-04-10T12:45:26.76624+0530","caller":"embed/etcd.go:277","msg":"now serving peer/client/metrics","local-member-id":"8e9e05c52164694d","initial-advertise-peer-urls":["http://localhost:2380"],"listen-peer-urls":["http://localhost:2380"],"advertise-client-urls":["http://localhost:2379"],"listen-client-urls":["http://localhost:2379"],"listen-metrics-urls":[""]}
{"level":"info","ts":"2024-04-10T12:45:26.766256+0530","caller":"membership/cluster.go:421","msg":"added member","cluster-id":"cdf818194e3a8c32","local-member-id":"8e9e05c52164694d","added-peer-id":"8e9e05c52164694d","added-peer-peer-urls":["http://localhost:2380"]}
{"level":"info","ts":"2024-04-10T12:45:27.315857+0530","logger":"raft","caller":"etcdserver/zap_raft.go:77","msg":"8e9e05c52164694d is starting a new election at term 1"}
{"level":"info","ts":"2024-04-10T12:45:27.318492+0530","logger":"raft","caller":"etcdserver/zap_raft.go:77","msg":"8e9e05c52164694d became pre-candidate at term 1"}
{"level":"info","ts":"2024-04-10T12:45:27.318695+0530","logger":"raft","caller":"etcdserver/zap_raft.go:77","msg":"8e9e05c52164694d received MsgPreVoteResp from 8e9e05c52164694d at term 1"}
{"level":"info","ts":"2024-04-10T12:45:27.319181+0530","logger":"raft","caller":"etcdserver/zap_raft.go:77","msg":"8e9e05c52164694d became candidate at term 2"}
{"level":"info","ts":"2024-04-10T12:45:27.319219+0530","logger":"raft","caller":"etcdserver/zap_raft.go:77","msg":"8e9e05c52164694d received MsgVoteResp from 8e9e05c52164694d at term 2"}
{"level":"info","ts":"2024-04-10T12:45:27.319257+0530","logger":"raft","caller":"etcdserver/zap_raft.go:77","msg":"8e9e05c52164694d became leader at term 2"}
{"level":"info","ts":"2024-04-10T12:45:27.319481+0530","logger":"raft","caller":"etcdserver/zap_raft.go:77","msg":"raft.node: 8e9e05c52164694d elected leader 8e9e05c52164694d at term 2"}
{"level":"info","ts":"2024-04-10T12:45:27.32657+0530","caller":"etcdserver/server.go:2628","msg":"setting up initial cluster version using v2 API","cluster-version":"3.5"}
{"level":"info","ts":"2024-04-10T12:45:27.330809+0530","caller":"membership/cluster.go:584","msg":"set initial cluster version","cluster-id":"cdf818194e3a8c32","local-member-id":"8e9e05c52164694d","cluster-version":"3.5"}
{"level":"info","ts":"2024-04-10T12:45:27.333178+0530","caller":"api/capability.go:75","msg":"enabled capabilities for version","cluster-version":"3.5"}
{"level":"info","ts":"2024-04-10T12:45:27.333276+0530","caller":"etcdserver/server.go:2644","msg":"cluster version is updated","cluster-version":"3.5"}
{"level":"info","ts":"2024-04-10T12:45:27.333726+0530","caller":"etcdserver/server.go:2119","msg":"published local member to cluster through raft","local-member-id":"8e9e05c52164694d","local-member-attributes":{"Name":"default","ClientURLs":["http://localhost:2379"],"Request-path":"/0/members/8e9e05c52164694d/attributes","cluster-id":"cdf818194e3a8c32","publish-timeout":"7s"}}
{"level":"info","ts":"2024-04-10T12:45:27.333869+0530","caller":"embed/serve.go:183","msg":"ready to serve client requests"}
{"level":"info","ts":"2024-04-10T12:45:27.336104+0530","caller":"etcdmain/main.go:44","msg":"notifying init daemon"}
{"level":"info","ts":"2024-04-10T12:45:27.336138+0530","caller":"etcdmain/main.go:58","msg":"successfully notified init daemon"}
{"level":"info","ts":"2024-04-10T12:45:27.342132+0530","caller":"embed/serve.go:187","msg":"serving client traffic insecurely; this is strongly discouraged","traffic":"grpc+http","address":"127.0.0.1:2379"}

```

2a

```

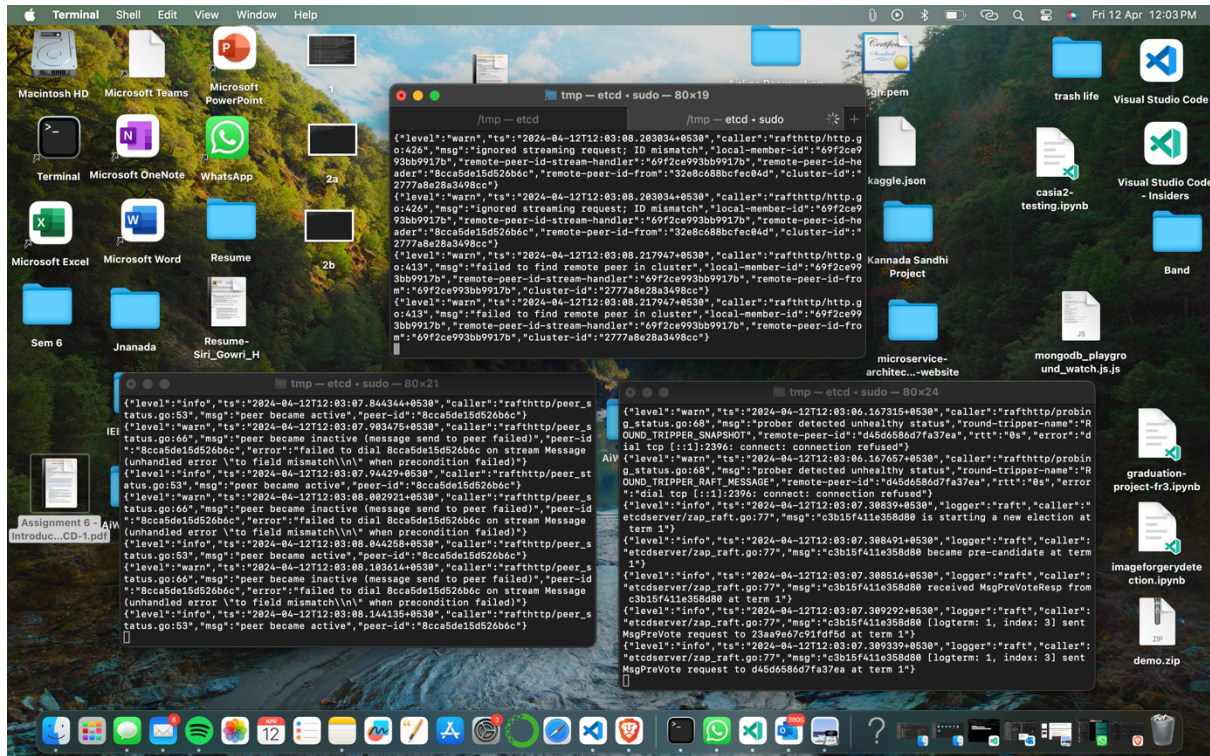
/tmp -- etcd
/tmp -- etcdctl watch srn
/tmp -- -zsh
+
Last login: Wed Apr 10 12:45:46 on ttys022
(base) sirigowrih@PES1UG21CS599 /tmp % etcdctl --endpoints=localhost:2379 put srn PES1UG21CS599
zsh: command not found: etcdctl
(base) sirigowrih@PES1UG21CS599 /tmp % etcd-download-test/etcdctl --endpoints=localhost:2379 put srn PES1UG21CS599
OK
(base) sirigowrih@PES1UG21CS599 /tmp % etcd-download-test/etcdctl --endpoints=localhost:2379 get srn
srn
PES1UG21CS599
(base) sirigowrih@PES1UG21CS599 /tmp % etcd-download-test/etcdctl watch srn
PUT
srn
PES1UG21CS599_SiriGowriH
DELETE
srn
█
```

2b

```

/tmp -- etcd
/tmp -- etcdctl watch srn
/tmp -- -zsh
+
Last login: Wed Apr 10 12:45:58 on ttys022
(base) sirigowrih@PES1UG21CS599 /tmp % etcd-download-test/etcdctl put srn PES1UG21CS599_SiriGowriH
OK
(base) sirigowrih@PES1UG21CS599 /tmp % etcd-download-test/etcdctl del srn
1
(base) sirigowrih@PES1UG21CS599 /tmp % █
```

3a



4a

```
(base) sirigowrih@PES1UG21CS599 /tmp % etcdctl --endpoints=http://localhost:2389 endpoint status --write-out=table
```

ENDPOINT	ID	VERSION	DB SIZE	IS LEADER	IS LEARNER	RAFT TERM	RAFT INDEX	RAFT APPLIED INDEX	ERRORS
http://localhost:2389	32e8c688bfc04d	3.5.13	25 kB	true	false	8	20	20	

```
(base) sirigowrih@PES1UG21CS599 /tmp % etcdctl --endpoints=http://localhost:2391 endpoint status --write-out=table
```

ENDPOINT	ID	VERSION	DB SIZE	IS LEADER	IS LEARNER	RAFT TERM	RAFT INDEX	RAFT APPLIED INDEX	ERRORS
http://localhost:2391	69f2ce993bb9917b	3.5.13	25 kB	false	false	8	20	20	

```
(base) sirigowrih@PES1UG21CS599 /tmp %
```

4b

```
(base) sirigwer@NPSU10215099 / $ etcd-download-test/etcdctl --endpoint=http://localhost:2389 endpoint status --write-out=table
      ENDPOINT      ID      VERSION  DB SIZE  IS LEADER  IS LEARNER  RAFT TERM  RAFT INDEX  RAFT APPLIED INDEX  ERRORS
http://localhost:2389 32e0868bfc6ed4d 3.6.13   25 MB    false     false      6          17          17                17
(base) sirigwer@NPSU10215099 / $ /bin/m etcd-download-test/etcdctl --endpoint=http://localhost:2398 endpoint status --write-out=table
      ENDPOINT      ID      VERSION  DB SIZE  IS LEADER  IS LEARNER  RAFT TERM  RAFT INDEX  RAFT APPLIED INDEX  ERRORS
http://localhost:2398 32e0868bfc6ed4d 3.6.13   25 MB    false     false      6          17          17                17
(base) sirigwer@NPSU10215099 / $ /bin/m etcd-download-test/etcdctl --endpoint=http://localhost:2391 endpoint status --write-out=table
      ENDPOINT      ID      VERSION  DB SIZE  IS LEADER  IS LEARNER  RAFT TERM  RAFT INDEX  RAFT APPLIED INDEX  ERRORS
http://localhost:2391 40f2c492308a9917d 3.6.13   25 MB    true      false      6          17          17                17
(base) sirigwer@NPSU10215099 / $ /bin/m
```