

# Assignment 4 - Introduction to Apache Zookeeper

SRN: PES2UG20CS045

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1a: Screenshot of Zookeeper Server having started.

```
pes2ug20cs045@ananya-VirtualBox: /opt/zookeeper$ sudo bin/zkServer.sh start
/usr/bin/java
Zookeeper JMX enabled by default
Using config: /opt/zookeeper/bin/../conf/zoo.cfg
Starting zookeeper ... STARTED
pes2ug20cs045@ananya-VirtualBox: /opt/zookeeper$
```

2a: Screenshot of Listing of the created ZNodes

```
[zk: localhost:2181(CONNECTED) 2] create -e /pes2ug20cs045_eph "an ephemeral node"
Created /pes2ug20cs045_eph
[zk: localhost:2181(CONNECTED) 3] ls /
[0000000000, pes2ug20cs045_eph, zookeeper]
```

2b: Screenshot of Listing of the deleted ephemeral node

```
WATCHER::
WatchedEvent state:SyncConnected type:None path:null
[zk: localhost:2181(CONNECTED) 0] ls /
[0000000000, zookeeper]
[zk: localhost:2181(CONNECTED) 1]
```

2c: Screenshot of Data and Metadata associated with the created sequential znode.

```
[zk: localhost:2181(CONNECTED) 11] get -s /zookeeper/pes2ug20cs045_seq
a sequential node
cZxid = 0x7
ctime = Sun Mar 26 12:22:30 IST 2023
mZxid = 0x7
mtime = Sun Mar 26 12:22:30 IST 2023
pZxid = 0x7
cversion = 0
dataVersion = 0
aclVersion = 0
ephemeralOwner = 0x0
dataLength = 17
numChildren = 0
[zk: localhost:2181(CONNECTED) 12]
```

2d: Screenshot of Listing of all the children nodes





```
pes2ug20cs045@ananya-VirtualBox: ~/Downloads/apache-zookeeper-3.8.0-bin
2023-03-26 23:25:24,135 [myid:] - INFO [main:o.a.z.s.ServerCnxfactory@169] - Using org.apache.zookeeper.server.NIOServerCnxfactory as
server connection factory
2023-03-26 23:25:24,142 [myid:] - WARN [main:o.a.z.s.ServerCnxfactory@309] - maxCnxns is not configured, using default value 0.
2023-03-26 23:25:24,146 [myid:] - INFO [main:o.a.z.s.NIOServerCnxfactory@652] - Configuring NIO connection handler with 10s sessionless
connection timeout, 1 selector thread(s), 4 worker threads, and 64 kB direct buffers.
2023-03-26 23:25:24,150 [myid:] - INFO [main:o.a.z.s.NIOServerCnxfactory@660] - binding to port 0.0.0.0/0.0.0.0:2181
2023-03-26 23:25:24,217 [myid:] - INFO [main:o.a.z.s.w.WatchManagerFactory@42] - Using org.apache.zookeeper.server.watch.WatchManager as
watch manager
2023-03-26 23:25:24,218 [myid:] - INFO [main:o.a.z.s.w.WatchManagerFactory@42] - Using org.apache.zookeeper.server.watch.WatchManager as
watch manager
2023-03-26 23:25:24,218 [myid:] - INFO [main:o.a.z.s.ZKDatabase@132] - zookeeper.snapshotSizeFactor = 0.33
2023-03-26 23:25:24,221 [myid:] - INFO [main:o.a.z.s.ZKDatabase@152] - zookeeper.commitlogCount=500
2023-03-26 23:25:24,271 [myid:] - INFO [main:o.a.z.s.p.SnapStream@61] - zookeeper.snapshot.compression.method = CHECKED
2023-03-26 23:25:24,287 [myid:] - INFO [main:o.a.z.s.p.FileTxnSnapLog@479] - Snapshotting: 0x0 to /opt/apache-zookeeper-3.8.0-bin/data/v
ersion-2/snapshot.0
2023-03-26 23:25:24,302 [myid:] - INFO [main:o.a.z.s.ZKDatabase@289] - Snapshot loaded in 80 ns, highest zxid is 0x0, digest is 13719855
04
2023-03-26 23:25:24,307 [myid:] - INFO [main:o.a.z.s.p.FileTxnSnapLog@479] - Snapshotting: 0x0 to /opt/apache-zookeeper-3.8.0-bin/data/v
ersion-2/snapshot.0
2023-03-26 23:25:24,309 [myid:] - INFO [main:o.a.z.s.ZooKeeperServer@547] - Snapshot taken in 3 ns
2023-03-26 23:25:24,360 [myid:] - INFO [main:o.a.z.s.RequestThrottler@75] - zookeeper.request_throttler.shutdownTimeout = 10000 ms
2023-03-26 23:25:24,371 [myid:] - INFO [ProcessThread(sid:0 cport:2181)::o.a.z.s.PrepareRequestProcessor@138] - PrepareRequestProcessor (sid:0
) started, reconfigEnabled=false
2023-03-26 23:25:24,477 [myid:] - INFO [main:o.a.z.s.ContainerManager@84] - Using checkIntervalMs=60000 maxPerMinute=10000 maxNeverUsedI
ntervalMs=0
2023-03-26 23:25:24,479 [myid:] - INFO [main:o.a.z.a.ZKAuditProvider@42] - ZooKeeper audit is disabled.
2023-03-26 23:27:47,200 [myid:] - INFO [SyncThread@0:o.a.z.s.p.FileTxnLog@285] - Creating new log file: log.1

ent: /127.0.0.1:40526, server: localhost/127.0.0.1:2181
2023-03-26 23:28:35,068 [myid:localhost:2181] - INFO [main
-SendThread(localhost:2181):o.a.z.ClientCnxfactory@144
4] - Session establishment complete on server localhost/127
.0.0.1:2181, session id = 0x1000032810c0002, negotiated tim
eout = 30000

WATCHER::

WatchedEvent state:SyncConnected type:None path:null
[zk: localhost:2181(CONNECTED) 0] create /pes2ug20cs045
Created /pes2ug20cs045
[zk: localhost:2181(CONNECTED) 1] ls /pes2ug20cs045
[candidate0000000000, candidate0000000001]
[zk: localhost:2181(CONNECTED) 2]
[zk: localhost:2181(CONNECTED) 3] get -s -w /pes2ug20cs045/candidate0000000000
null
cZxid = 0x5
ctime = Sun Mar 26 23:32:59 IST 2023
mZxid = 0x5
mtime = Sun Mar 26 23:32:59 IST 2023
pZxid = 0x5
cversion = 0
dataVersion = 0
aclVersion = 0
ephemeralOwner = 0x1000032810c0000
dataLength = 0
numChildren = 0
[zk: localhost:2181(CONNECTED) 3]
create -s -e /pes2ug20cs045/candidate
```

3c: Screenshot of the old leader coming back and having a new sequence number.

```
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2023-03-26 23:27:47,200 [myid:] - INFO [SyncThread@0:o.a.z.s.p.FileTxnLog@285] - Creating new log file: log.1
2023-03-26 23:46:32,499 [myid:] - INFO [SessionTracker@0:o.a.z.s.ZooKeeperServer@632] - Expiring session 0x1000032810c0002, timeout of 300
00ms exceeded

[zk: localhost:2181(CONNECTED) 2] create /pes2ug20cs045
Node already exists: /pes2ug20cs045
[zk: localhost:2181(CONNECTED) 3] create -e /pes2ug20cs045/
candidate_new_eph "candidate"
Created /pes2ug20cs045/candidate_new_eph
[zk: localhost:2181(CONNECTED) 4] ls /pes2ug20cs045
[candidate0000000000, candidate0000000001, candidate_new_eph]
[zk: localhost:2181(CONNECTED) 5] create -s -e /pes2ug20cs045/candidate
Node already exists: /pes2ug20cs045/candidate
[zk: localhost:2181(CONNECTED) 6] get -s -w /pes2ug20cs045/candidate0000000000
null
cZxid = 0x5
ctime = Sun Mar 26 23:32:59 IST 2023
mZxid = 0x5
mtime = Sun Mar 26 23:32:59 IST 2023
pZxid = 0x5
cversion = 0
dataVersion = 0
aclVersion = 0
```