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## Assignment 2

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## 1. EPHEMERAL VS PERSISTENT (REGULAR) ZNODES

### 1.1 CREATE A ZNODE

```
[zk: 127.0.0.1:2181(CONNECTED) 8] ls /  
[zookeeper]  
[zk: 127.0.0.1:2181(CONNECTED) 9] create /1/ex1 data  
Node does not exist: /1/ex1  
[zk: 127.0.0.1:2181(CONNECTED) 10] create /1 data  
Created /1  
[zk: 127.0.0.1:2181(CONNECTED) 11] ls /  
[1, zookeeper]  
[zk: 127.0.0.1:2181(CONNECTED) 12] create /1/ex1 data  
Created /1/ex1
```

### 1.2 CREATE ANOTHER PERSISTENT NODE

```
[zk: 127.0.0.1:2181(CONNECTED) 15] create /1/ex1/persistent data  
Created /1/ex1/persistent
```

### 1.3 CREATE NODE EPHEMERAL

```
[zk: 127.0.0.1:2181(CONNECTED) 0] create -e /1/ex1/ephemeral data  
Created /1/ex1/ephemeral
```

### 1.4 LIST THE CHILDREN

```
[zk: 127.0.0.1:2181(CONNECTED) 17] ls /1/ex1  
[ephemeral, persistent]
```

### 1.5 NOW QUIT THE CLIENT BY

```
[zk: 127.0.0.1:2181(CONNECTED) 18] quit  
Quitting...  
2017-10-19 19:29:21,885 [myid:] - INFO [main:ZooKeeper@684] - Session: 0x15f359930020000 closed  
2017-10-19 19:29:21,886 [myid:] - INFO [main-EventThread:ClientCnxn$EventThread@519] - EventThread shut down for session: 0x15f359930020000
```

```
WATCHER::  
WatchedEvent state:SyncConnected type:None path:null  
[zk: 127.0.0.1:2181(CONNECTED) 0] ls /1/ex1  
[persistent]
```

The ephemeral is gone :( , the session who create the node has gone so the node as disappear too. A ephemeral node (create cy -e) is dependent on a session. By quitting the session this node disappear.

### 1.6 CREATE A NEW EPHEMERAL ZNODE

```
[zk: 127.0.0.1:2181(CONNECTED) 0] create -e /1/ex1/ephemeral1 data  
Created /1/ex1/ephemeral1  
[zk: 127.0.0.1:2181(CONNECTED) 1] create /1/ex1/ephemeral1/child data  
Ephemerals cannot have children: /1/ex1/ephemeral1/child  
[zk: 127.0.0.1:2181(CONNECTED) 2] create -e /1/ex1/ephemeral1/child data  
Ephemerals cannot have children: /1/ex1/ephemeral1/child
```

Because of if ephemeral behavior, this node cannot have children.

## 2. SEQUENTIAL SUFFIX

### 2.1 CREATE THE ZNODE FOR THIS EXERCISE

```
[zk: 127.0.0.1:2181(CONNECTED) 4] create /1/ex2 data
Created /1/ex2
```

### 2.2 CREATE A FEW ZNODES WITH SEQUENTIAL SUFFIX

```
Created /1/ex2
[zk: 127.0.0.1:2181(CONNECTED) 5] create -s /1/ex2/child someData
Created /1/ex2/child0000000000
[zk: 127.0.0.1:2181(CONNECTED) 6] create -s /1/ex2/child1 someOtherData
Created /1/ex2/child10000000001
[zk: 127.0.0.1:2181(CONNECTED) 7] create -s /1/ex2/child2 someData
Created /1/ex2/child20000000002
```

#### Q1

```
[zk: 127.0.0.1:2181(CONNECTED) 10] ls /1/ex2
[child10000000001, child20000000002, child0000000000]
```

The sequential mode add an increasing counter at the end of the name. This counter value is unique for this parentZNode. The counter have a 10 digits formats starting at 0. With a 0 padding.

#### Q2

```
WATCHER::
WatchedEvent state:SyncConnected type:None path:null
[zk: 127.0.0.1:2181(CONNECTED) 0] ls /1
[ex2, ex1]
[zk: 127.0.0.1:2181(CONNECTED) 1] ls /1/ex2
[child10000000001, childtoto, childn00000000003, child20000000002, child0000000000]
```

Yes, after restarting the session, we still have our node

#### Q3

```
[zk: 127.0.0.1:2181(CONNECTED) 16] create -s -e /1/ex2/child3 data
Created /1/ex2/child30000000019
[zk: 127.0.0.1:2181(CONNECTED) 17] create -s -e /1/ex2/child3 data
Created /1/ex2/child30000000020
```

Yes it's possible, they disappear after restart

#### Q4

```
[zk: 127.0.0.1:2181(CONNECTED) 19] create -s /1/ex2/seq data
Created /1/ex2/seq0000000027
[zk: 127.0.0.1:2181(CONNECTED) 20] create /1/ex2/nosequ3 data
Created /1/ex2/nosequ3
[zk: 127.0.0.1:2181(CONNECTED) 21] delete /1/ex2/nosequ3
[zk: 127.0.0.1:2181(CONNECTED) 22] create -s /1/ex2/seq data
Created /1/ex2/seq0000000029
```

The counter is incremented at each node creation whatever the properties of node

The counter does not decrease when node delete

## Q5

The suffix is 0000000025 (start at 0000000000)

## 2.3 SCOPE OF SEQUENCE NUMBERS

```
[zk: 127.0.0.1:2181(CONNECTED) 23] create -s /1/ex2/child data
Created /1/ex2/child0000000030
[zk: 127.0.0.1:2181(CONNECTED) 24] create -s /1/ex2/child/toto data
Node does not exist: /1/ex2/child/toto
[zk: 127.0.0.1:2181(CONNECTED) 25] create /1/ex2/child data
Created /1/ex2/child
[zk: 127.0.0.1:2181(CONNECTED) 26] create -s /1/ex2/child/toto data
Created /1/ex2/child/toto0000000000
[zk: 127.0.0.1:2181(CONNECTED) 27] create -s /1/ex2/child/toto data
Created /1/ex2/child/toto0000000001
[zk: 127.0.0.1:2181(CONNECTED) 28] create -s /1/ex2/child/toto data
Created /1/ex2/child/toto0000000002
[zk: 127.0.0.1:2181(CONNECTED) 29] create -s /1/ex2/child/toto data
Created /1/ex2/child/toto0000000003
```

No, they are not related

## 2.4 SEQUENCE NUMBERS ACROSS MULTIPLE CLIENTS)

```
Created /1/ex2/child/toto0000000000
[zk: 127.0.0.1:2181(CONNECTED) 27] create -s /1/ex2/child/toto data
Created /1/ex2/child/toto0000000001
[zk: 127.0.0.1:2181(CONNECTED) 28] create -s /1/ex2/child/toto data
Created /1/ex2/child/toto0000000002
[zk: 127.0.0.1:2181(CONNECTED) 29] create -s /1/ex2/child/toto data
Created /1/ex2/child/toto0000000003
[zk: 127.0.0.1:2181(CONNECTED) 30]

WatchedEvent state:SyncConnected type:None path:null
[zk: 127.0.0.1:2181(CONNECTED) 0] ls /1/ex2/child
[toto0000000002, toto0000000003, toto0000000000, toto0000000001]
[zk: 127.0.0.1:2181(CONNECTED) 1] create -s /1/ex2/child toto
Created /1/ex2/child00000000032
[zk: 127.0.0.1:2181(CONNECTED) 2] create -s /1/ex2/child/toto data
Created /1/ex2/child/toto0000000004
[zk: 127.0.0.1:2181(CONNECTED) 3]
```

Yes are related, the counter remain across the session

## 3. WATCHES

### 3.1 CREATE THE ROOT ZNODE FOR THIS EXERCISE WITH PATH

```
[zk: 127.0.0.1:2181(CONNECTED) 33] create /1/ex3 data
Created /1/ex3
```

### 3.2 FIRST WATCH

After setting the watch, client 1 receive an event telling that the data has been modified.

```
[zk: 127.0.0.1:2181(CONNECTED) 11] get /1/ex3 true
data
cZxid = 0x57
ctime = Thu Oct 19 20:26:06 CEST 2017
mZxid = 0x57
mtime = Thu Oct 19 20:26:06 CEST 2017
pZxid = 0x57
cversion = 0
dataVersion = 0
aclVersion = 0
ephemeralOwner = 0x0
dataLength = 4
numChildren = 0
[zk: 127.0.0.1:2181(CONNECTED) 12]
WATCHER::
WatchedEvent state:SyncConnected type:NodeDataChanged path:/1/ex3

[zk: 127.0.0.1:2181(CONNECTED) 1] create set/1/ex3 newdata
Command failed: java.lang.IllegalArgumentException: Path must start with / character
[zk: 127.0.0.1:2181(CONNECTED) 2] set /1/ex3 newdata
cZxid = 0x57
ctime = Thu Oct 19 20:26:06 CEST 2017
mZxid = 0x5c
mtime = Mon Oct 23 15:02:45 CEST 2017
pZxid = 0x57
cversion = 0
dataVersion = 1
aclVersion = 0
ephemeralOwner = 0x0
dataLength = 7
numChildren = 0
[zk: 127.0.0.1:2181(CONNECTED) 3]
[zk: 127.0.0.1:2181(CONNECTED) 3]
[zk: 127.0.0.1:2181(CONNECTED) 3]
```



