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Aula Prática 3 - Relatório

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2020

1.1) Inicializando o cliente.

```
PS C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\bin> .\zkCli.cmd
Connecting to localhost:2181
2020-11-24 10:43:59,980 [myid:] - INFO [main:Environment@100] - Client environment:zookeeper.version=3.4.14-4c25d480e66aa
dd371de8bd2fd8da255ac140bcf, built on 03/06/2019 16:18 GMT
2020-11-24 10:43:59,982 [myid:] - INFO [main:Environment@100] - Client environment:host.name=FabaoPC
2020-11-24 10:43:59,982 [myid:] - INFO [main:Environment@100] - Client environment:java.version=13.0.1
2020-11-24 10:43:59,984 [myid:] - INFO [main:Environment@100] - Client environment:java.vendor=Oracle Corporation
2020-11-24 10:43:59,984 [myid:] - INFO [main:Environment@100] - Client environment:java.home=D:\Programs\Java\jdk-13.0.1
2020-11-24 10:43:59,984 [myid:] - INFO [main:Environment@100] - Client environment:java.class.path=C:\Users\PC\Desktop\zo
ookeeper\zookeeper-3.4.14\bin\..\build\classes;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\bin\..\build\lib\*;C:\Users\PC
\Desktop\zookeeper\zookeeper-3.4.14\bin\..\zookeeper-3.4.14.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\bin\..\lib
\audience-annotations-0.5.0.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\bin\..\lib\jline-0.9.94.jar;C:\Users\PC\Des
ktop\zookeeper\zookeeper-3.4.14\bin\..\lib\log4j-1.2.17.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\bin\..\lib\nett
y-3.10.6.Final.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\bin\..\lib\slf4j-api-1.7.25.jar;C:\Users\PC\Desktop\zook
eeper\zookeeper-3.4.14\bin\..\lib\slf4j-log4j12-1.7.25.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\bin\..\conf
2020-11-24 10:43:59,985 [myid:] - INFO [main:Environment@100] - Client environment:java.library.path=D:\Programs\Java\jdk
-13.0.1\bin;C:\Windows\Sun\Java\bin;C:\Windows\system32;C:\Windows;C:\Program Files (x86)\Common Files\Intel\Shared Librar
ies\redist\intel64\compiler;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\iCLS;C:\Program Files\Inte
l\Intel(R) Management Engine Components\iCLS;C:\Windows\system32;C:\Windows;C:\Windows\System32\Wbem;C:\Windows\System32\
WindowsPowerShell\v1.0;C:\Windows\System32\OpenSSH;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\DA
L;C:\Program Files\Intel\Intel(R) Management Engine Components\DAL;C:\Program Files (x86)\Intel\Intel(R) Management Engine
Components\IPT;C:\Program Files\Intel\Intel(R) Management Engine Components\IPT;C:\Program Files (x86)\NVIDIA Corporation
\PhysX\Common;C:\Program Files\NVIDIA Corporation\NVIDIA NvDLISR;D:\Programs\Java\jdk-13.0.1\bin;C:\Users\PC\AppData\Local
\Microsoft\WindowsApps;C:\Users\PC\AppData\Local\Programs\Microsoft VS Code\bin;C:\Users\PC\AppData\Local\atom\bin;C:\User
s\PC\AppData\Local\GitHubDesktop\bin;.
2020-11-24 10:43:59,985 [myid:] - INFO [main:Environment@100] - Client environment:java.io.tmpdir=C:\Users\PC\AppData\Loc
al\Temp\
2020-11-24 10:43:59,985 [myid:] - INFO [main:Environment@100] - Client environment:java.compiler=<NA>
2020-11-24 10:43:59,985 [myid:] - INFO [main:Environment@100] - Client environment:os.name=Windows 10
2020-11-24 10:43:59,986 [myid:] - INFO [main:Environment@100] - Client environment:os.arch=amd64
2020-11-24 10:43:59,986 [myid:] - INFO [main:Environment@100] - Client environment:os.version=10.0
2020-11-24 10:43:59,986 [myid:] - INFO [main:Environment@100] - Client environment:user.name=PC
2020-11-24 10:43:59,986 [myid:] - INFO [main:Environment@100] - Client environment:user.home=C:\Users\PC
2020-11-24 10:43:59,987 [myid:] - INFO [main:Environment@100] - Client environment:user.dir=C:\Users\PC\Desktop\zookeeper
\zookeeper-3.4.14\bin
2020-11-24 10:43:59,987 [myid:] - INFO [main:ZooKeeper@442] - Initiating client connection, connectString=localhost:2181
sessionTimeout=30000 watcher=org.apache.zookeeper.ZooKeeperMain$MyWatcher@23223dd8
Welcome to ZooKeeper!
2020-11-24 10:44:00,278 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@1025] - Opening socket conn
ection to server localhost/0:0:0:0:0:0:0:1:2181. Will not attempt to authenticate using SASL (unknown error)
2020-11-24 10:44:00,280 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@879] - Socket connection es
tablished to localhost/0:0:0:0:0:0:0:1:2181, initiating session
JLine support is enabled
2020-11-24 10:44:00,363 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@1299] - Session establishme
nt complete on server localhost/0:0:0:0:0:0:0:1:2181, sessionId = 0x1001e4cbaf60000, negotiated timeout = 30000

WATCHER::

WatchedEvent state:SyncConnected type:None path:null
```

1.2) Criando o zNode persistente /mtca025 data.

```
[zk: localhost:2181(CONNECTED) 0] create /mcta025 data
Created /mcta025
[zk: localhost:2181(CONNECTED) 1] |
```

1.3) Criando o zNode persistente /mtca025/ex1 data.

```
[zk: localhost:2181(CONNECTED) 1] create /mcta025/ex1 data
Created /mcta025/ex1
[zk: localhost:2181(CONNECTED) 2] |
```

1.4) Criando zNode efemero /mtca025/ex1/ephemeral data.

```
[zk: localhost:2181(CONNECTED) 2] create -e /mcta025/ex1/ephemeral data
Created /mcta025/ex1/ephemeral
[zk: localhost:2181(CONNECTED) 3] |
```

1.5) Listando os arquivos do sistema filho.

```
[zk: localhost:2181(CONNECTED) 3] ls /
[zookeeper, mcta025]
[zk: localhost:2181(CONNECTED) 4] ls /mcta025
[ex1]
[zk: localhost:2181(CONNECTED) 5] ls /mcta025/ex1
[ephemeral]
[zk: localhost:2181(CONNECTED) 6] |
```

1.6) Saindo do cliente com o comando quit.

```
[zk: localhost:2181(CONNECTED) 6] quit
Quitting...
2020-11-24 10:54:11,524 [myid:] - INFO [main:ZooKeeper@693] - Session: 0x1001e4cbaf60000 closed
```

1.7) Listando os arquivos do sistema filho após sair do cliente. O node efêmero criado desapareceu.

```
[zk: localhost:2181(CONNECTED) 0] ls /
[zookeeper, mcta025]
[zk: localhost:2181(CONNECTED) 1] ls /mcta025
[ex1]
[zk: localhost:2181(CONNECTED) 2] ls /mcta025/ex1
[]
[zk: localhost:2181(CONNECTED) 3] |
```

1.8) Tentando criar um filho de um node efêmero. Nodes efêmeros não podem ter filhos, pois caso dê algum erro, ele precisa ser deletado.

```
[zk: localhost:2181(CONNECTED) 3] create -e /mcta025/ex1/ephemeral1 data
Created /mcta025/ex1/ephemeral1
[zk: localhost:2181(CONNECTED) 4] create /mcta025/ex1/ephemeral1/sibling data
Ephemerals cannot have children: /mcta025/ex1/ephemeral1/sibling
[zk: localhost:2181(CONNECTED) 5] |
```

2.1) Criando outro zNode.

```
[zk: localhost:2181(CONNECTED) 5] create /mcta025/ex2 data
Created /mcta025/ex2
[zk: localhost:2181(CONNECTED) 6] ls /mcta025
[ex2, ex1]
[zk: localhost:2181(CONNECTED) 7] |
```

2.2) Criando vários zNodes sequenciais. Conforme vamos criando novos nodes, o sufixo de cada um vai aumentando de um em um.

```
[zk: localhost:2181(CONNECTED) 7] create -s /mcta025/ex2/child data
Created /mcta025/ex2/child0000000000
[zk: localhost:2181(CONNECTED) 8] create -s /mcta025/ex2/child data
Created /mcta025/ex2/child0000000001
[zk: localhost:2181(CONNECTED) 9] create -s /mcta025/ex2/child data
Created /mcta025/ex2/child0000000002
[zk: localhost:2181(CONNECTED) 10] create -s /mcta025/ex2/child data
Created /mcta025/ex2/child0000000003
[zk: localhost:2181(CONNECTED) 11] create -s /mcta025/ex2/child data
Created /mcta025/ex2/child0000000004
[zk: localhost:2181(CONNECTED) 12] create -s /mcta025/ex2/child data
Created /mcta025/ex2/child0000000005
[zk: localhost:2181(CONNECTED) 13] create -s /mcta025/ex2/child data
Created /mcta025/ex2/child0000000006
[zk: localhost:2181(CONNECTED) 14] |
```

2.3) Criando vários zNodes efêmeros com sufixo, note que o sufixo continua do número que tinha parado.

```
[zk: localhost:2181(CONNECTED) 14] create -e -s /mcta025/ex2/child data
Created /mcta025/ex2/child0000000007
[zk: localhost:2181(CONNECTED) 15] create -e -s /mcta025/ex2/child data
Created /mcta025/ex2/child0000000008
[zk: localhost:2181(CONNECTED) 16] create -e -s /mcta025/ex2/child data
Created /mcta025/ex2/child0000000009
[zk: localhost:2181(CONNECTED) 17] create -e -s /mcta025/ex2/child data
Created /mcta025/ex2/child0000000010
[zk: localhost:2181(CONNECTED) 18] create -e -s /mcta025/ex2/child data
Created /mcta025/ex2/child0000000011
[zk: localhost:2181(CONNECTED) 19] |
```

2.4) Removendo os zNodes 1 e 4.

```
[zk: localhost:2181(CONNECTED) 19] delete /mcta025/ex2/child00000001
Node does not exist: /mcta025/ex2/child00000001
[zk: localhost:2181(CONNECTED) 20] delete /mcta025/ex2/child00000004
Node does not exist: /mcta025/ex2/child00000004
[zk: localhost:2181(CONNECTED) 21] ls /mcta025/ex2
[child000000010, child000000002, child000000003, child000000000, child000000011, child000000001, child000000006, child000000007, child000000004, child000000005, child000000008, child000000009]
[zk: localhost:2181(CONNECTED) 22] |
```

2.5) Criando mais zNodes sequenciais. Note que sua numeração continua de onde tinha parado, ignorando números que foram deletados.

```
[zk: localhost:2181(CONNECTED) 22] create -e -s /mcta025/ex2/child data
Created /mcta025/ex2/child000000012
[zk: localhost:2181(CONNECTED) 23] create -e -s /mcta025/ex2/child data
Created /mcta025/ex2/child000000013
[zk: localhost:2181(CONNECTED) 24] create -e -s /mcta025/ex2/child data
Created /mcta025/ex2/child000000014
[zk: localhost:2181(CONNECTED) 25] |
```

2.6) Criando zNodes com um prefixo diferente, note que que o sufixo continua da numeração de onde parou, independente do prefixo.

```
[zk: localhost:2181(CONNECTED) 25] create -e -s /mcta025/ex2/filho data
Created /mcta025/ex2/filho000000015
[zk: localhost:2181(CONNECTED) 26] create -e -s /mcta025/ex2/filho data
Created /mcta025/ex2/filho000000016
[zk: localhost:2181(CONNECTED) 27] |
```

2.7) Criando zNodes sequenciais em um novo pai. Note que a numeração não é compartilhada entre o pai e o filho. (A numeração começou do 5, pois antes eu criei outros zNodes acidentalmente no pai).

```
[zk: localhost:2181(CONNECTED) 0] create -s /mcta025/child data
Created /mcta025/child000000005
[zk: localhost:2181(CONNECTED) 1] create -s /mcta025/child data
Created /mcta025/child000000006
[zk: localhost:2181(CONNECTED) 2] create -s /mcta025/child data
Created /mcta025/child000000007
[zk: localhost:2181(CONNECTED) 3] create -s /mcta025/child data
Created /mcta025/child000000008
[zk: localhost:2181(CONNECTED) 4] |
```


3.1) Criando o cliente 2.

```
PS C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\bin> .\zkCli.cmd
Connecting to localhost:2181
2020-11-24 11:21:13,157 [myid:] - INFO [main:Environment@100] - Client environment:zookeeper.version=3.4.14-4c25d480e66aadd371de8bd2fd8da255ac140bcf, built on 03/06/2019 16:18 GMT
2020-11-24 11:21:13,159 [myid:] - INFO [main:Environment@100] - Client environment:host.name=FabaoPC
2020-11-24 11:21:13,159 [myid:] - INFO [main:Environment@100] - Client environment:java.version=13.0.1
2020-11-24 11:21:13,161 [myid:] - INFO [main:Environment@100] - Client environment:java.vendor=Oracle Corporation
2020-11-24 11:21:13,161 [myid:] - INFO [main:Environment@100] - Client environment:java.home=D:\Programs\Java\jdk-13.0.1
2020-11-24 11:21:13,161 [myid:] - INFO [main:Environment@100] - Client environment:java.class.path=C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\bin\..\build\classes;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\bin\..\build\lib\*;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\bin\..\zookeeper-3.4.14.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\bin\..\lib\audience-annotations-0.5.0.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\bin\..\lib\jline-0.9.94.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\bin\..\lib\log4j-1.2.17.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\bin\..\lib\netty-3.10.6.Final.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\bin\..\lib\slf4j-api-1.7.25.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\bin\..\lib\slf4j-log4j12-1.7.25.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\bin\..\conf
2020-11-24 11:21:13,162 [myid:] - INFO [main:Environment@100] - Client environment:java.library.path=D:\Programs\Java\jdk-13.0.1\bin;C:\Windows\Sun\Java\bin;C:\Windows\system32;C:\Windows;C:\Program Files (x86)\Common Files\Intel\Shared Libraries\redist\intel64\compiler;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\iCLS;C:\Program Files\Intel\Intel(R) Management Engine Components\iCLS;C:\Windows\system32;C:\Windows;C:\Windows\System32\Wbem;C:\Windows\System32\WindowsPowerShell\v1.0;C:\Windows\System32\OpenSSH;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\DAL;C:\Program Files\Intel\Intel(R) Management Engine Components\DAL;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\IPT;C:\Program Files\Intel\Intel(R) Management Engine Components\IPT;C:\Program Files (x86)\NVIDIA Corporation\PhysX\Common;C:\Program Files\NVIDIA Corporation\NVIDIA NvDLISR;D:\Programs\Java\jdk-13.0.1\bin;C:\Users\PC\AppData\Local\Microsoft\WindowsApps;C:\Users\PC\AppData\Local\Programs\Microsoft VS Code\bin;C:\Users\PC\AppData\Local\atom\bin;C:\Users\PC\AppData\Local\GitHubDesktop\bin;
2020-11-24 11:21:13,162 [myid:] - INFO [main:Environment@100] - Client environment:java.io.tmpdir=C:\Users\PC\AppData\Local\Temp\
2020-11-24 11:21:13,162 [myid:] - INFO [main:Environment@100] - Client environment:java.compiler=<NA>
2020-11-24 11:21:13,163 [myid:] - INFO [main:Environment@100] - Client environment:os.name=Windows 10
2020-11-24 11:21:13,163 [myid:] - INFO [main:Environment@100] - Client environment:os.arch=amd64
2020-11-24 11:21:13,163 [myid:] - INFO [main:Environment@100] - Client environment:os.version=10.0
2020-11-24 11:21:13,163 [myid:] - INFO [main:Environment@100] - Client environment:user.name=PC
2020-11-24 11:21:13,163 [myid:] - INFO [main:Environment@100] - Client environment:user.home=C:\Users\PC
2020-11-24 11:21:13,164 [myid:] - INFO [main:Environment@100] - Client environment:user.dir=C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\bin
2020-11-24 11:21:13,165 [myid:] - INFO [main:ZooKeeper@442] - Initiating client connection, connectString=localhost:2181 sessionTimeout=30000 watcher=org.apache.zookeeper.ZooKeeperMain$MyWatcher@23223dd8
Welcome to ZooKeeper!
2020-11-24 11:21:13,426 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@1025] - Opening socket connection to server localhost/0:0:0:0:0:0:0:1:2181. Will not attempt to authenticate using SASL (unknown error)
2020-11-24 11:21:13,429 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@879] - Socket connection established to localhost/0:0:0:0:0:0:0:1:2181, initiating session
JLine support is enabled
2020-11-24 11:21:13,438 [myid:] - INFO [main-SendThread(localhost:2181):ClientCnxn$SendThread@1299] - Session establishment complete on server localhost/0:0:0:0:0:0:0:1:2181, sessionId = 0x1001e4cbaf60003, negotiated timeout = 30000

WATCHER::

WatchedEvent state:SyncConnected type:None path:null
```

3.2) Criando zNode através do Cliente 1.

```
[zk: localhost:2181(CONNECTED) 8] create /mcta025/ex3 data
Created /mcta025/ex3
```

3.3) Configurando um watch de dados no nó pelo Cliente 1.

```
[zk: localhost:2181(CONNECTED) 9] get /mcta025/ex3 true
data
cZxid = 0x27
ctime = Tue Nov 24 11:26:51 BRT 2020
mZxid = 0x27
mtime = Tue Nov 24 11:26:51 BRT 2020
pZxid = 0x27
cversion = 0
dataVersion = 0
aclVersion = 0
ephemeralOwner = 0x0
dataLength = 4
numChildren = 0
[zk: localhost:2181(CONNECTED) 10] |
```

3.4) Modificando os dados no cliente 2.

```
[zk: localhost:2181(CONNECTED) 3] set /mcta025/ex3 newData
cZxid = 0x27
ctime = Tue Nov 24 11:26:51 BRT 2020
mZxid = 0x28
mtime = Tue Nov 24 11:30:15 BRT 2020
pZxid = 0x27
cversion = 0
dataVersion = 1
aclVersion = 0
ephemeralOwner = 0x0
dataLength = 7
numChildren = 0
```

Note que o cliente 1 foi avisado pelo watch da modificação feita pelo cliente 2.

```
WATCHER::

WatchedEvent state:SyncConnected type:NodeDataChanged path:/mcta025/ex3
```

3.5) Uma nova alteração foi feita no Cliente 2, porém nada aconteceu no cliente 1, pois um watch só notifica uma vez. Caso o cliente 1 quisesse mais notificações sobre alterações nos dados, ele teria que criar um novo watch de dados.

```
[zk: localhost:2181(CONNECTED) 4] set /mcta025/ex3 newData  
cZxid = 0x27  
ctime = Tue Nov 24 11:26:51 BRT 2020  
mZxid = 0x29  
mtime = Tue Nov 24 11:32:15 BRT 2020  
pZxid = 0x27  
cversion = 0  
dataVersion = 2  
aclVersion = 0  
ephemeralOwner = 0x0  
dataLength = 7  
numChildren = 0  
[zk: localhost:2181(CONNECTED) 5] |
```

3.6) Criando watch de filhos pelo cliente 1.

```
ls /mcta025/ex3 true  
[]  
[zk: localhost:2181(CONNECTED) 11]  
WATCHER:
```

Criando um filho pelo cliente 2.

```
[zk: localhost:2181(CONNECTED) 5] create /mcta025/ex3/child data  
Created /mcta025/ex3/child
```

Watch do cliente 1 disparou.

```
WATCHER: :  
  
WatchedEvent state:SyncConnected type:NodeChildrenChanged path:/mcta025/ex3  
|
```


3.7) Criando watch de dados no cliente 1.

```
[zk: localhost:2181(CONNECTED) 11] get /mcta025/ex3 true
newData
cZxid = 0x27
ctime = Tue Nov 24 11:26:51 BRT 2020
mZxid = 0x29
mtime = Tue Nov 24 11:32:15 BRT 2020
pZxid = 0x2a
cversion = 1
dataVersion = 2
aclVersion = 0
ephemeralOwner = 0x0
dataLength = 7
numChildren = 1
```

Criando um filho no cliente 2.

```
[zk: localhost:2181(CONNECTED) 6] create /mcta025/ex3/newChild data
Created /mcta025/ex3/newChild
```

No cliente 1, nada acontece, pois o watch de dados só dispara quando ocorrem modificações nos dados.

3.8) Criando um watch de filhos para o nó e um watch de filhos para o filho desse nó.

```
[zk: localhost:2181(CONNECTED) 12] ls /mcta025/ex3 true
[newChild, child]
[zk: localhost:2181(CONNECTED) 13] ls /mcta025/ex3/child true
[]
[zk: localhost:2181(CONNECTED) 14] |
```

Criando filho dentro do /mcta025/ex3/child pelo cliente 2.

```
[zk: localhost:2181(CONNECTED) 7] create /mcta025/ex3/child/neto data
Created /mcta025/ex3/child/neto
[zk: localhost:2181(CONNECTED) 8] |
```

Apos isso, o watch do filho do nó dispara.

```
WATCHER::

WatchedEvent state:SyncConnected type:NodeChildrenChanged path:/mcta025/ex3/child
```

Agora, o cliente 2 criou um outro filho para ex3.

```
[zk: localhost:2181(CONNECTED) 8] create /mcta025/ex3/anotherchild data
Created /mcta025/ex3/anotherchild
[zk: localhost:2181(CONNECTED) 9] |
```

Note que o watch desse nó dispara normalmente, ou seja, um watch do pai não se propaga para o filho e vice versa.

```
WATCHER::

WatchedEvent state:SyncConnected type:NodeChildrenChanged path:/mcta025/ex3
|
```

3.9) Criando um watch de dados para um filho de /mcta025/ex3.

```
[zk: localhost:2181(CONNECTED) 17] get /mcta025/ex3/newChild true
data
cZxid = 0x2b
ctime = Tue Nov 24 11:38:34 BRT 2020
mZxid = 0x2b
mtime = Tue Nov 24 11:38:34 BRT 2020
pZxid = 0x2b
cversion = 0
dataVersion = 0
aclVersion = 0
ephemeralOwner = 0x0
dataLength = 4
numChildren = 0
[zk: localhost:2181(CONNECTED) 18] |
```

Criando um watch de filhos para /mcta025/ex3.

```
[zk: localhost:2181(CONNECTED) 18] ls /mcta025/ex3 true
[anotherchild, newChild, child]
```

Removendo o nó /mcta025/ex3/newChild pelo cliente 2. Note que ambos os watches disparam.

```
[zk: localhost:2181(CONNECTED) 19] delete /mcta025/ex3/newChild
[zk: localhost:2181(CONNECTED) 20]
WATCHER::

WatchedEvent state:SyncConnected type:NodeDeleted path:/mcta025/ex3/newChild

WATCHER::

WatchedEvent state:SyncConnected type:NodeChildrenChanged path:/mcta025/ex3
|
```

4.1) Rodando o run.bat.

```
PS C:\Users\PC\Desktop\zookeeper\Codigos> ./run.bat

C:\Users\PC\Desktop\zookeeper\Codigos>set ZK=C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14"

C:\Users\PC\Desktop\zookeeper\Codigos>set CP_ZK=.;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\zookeeper-3.4.14.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\slf4j-log4j12-1.7.25.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\slf4j-api-1.7.25.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\log4j-1.2.17.jar

C:\Users\PC\Desktop\zookeeper\Codigos>java -cp .;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\zookeeper-3.4.14.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\slf4j-log4j12-1.7.25.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\slf4j-api-1.7.25.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\log4j-1.2.17.jar -Dlog4j.configuration=file:C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\conf\log4j.properties Executor localhost /mcta025/ex4 out.txt lista.bat

2020-11-24 12:57:11,122 [myid:] - INFO [main:Environment@100] - Client environment:zookeeper.version=3.4.14-4c25d480e66aadd371de8bd2fd8da255ac140bcbf, built on 03/06/2019 16:18 GMT
2020-11-24 12:57:11,126 [myid:] - INFO [main:Environment@100] - Client environment:host.name=FabaoPC
2020-11-24 12:57:11,126 [myid:] - INFO [main:Environment@100] - Client environment:java.version=13.0.1
2020-11-24 12:57:11,126 [myid:] - INFO [main:Environment@100] - Client environment:java.vendor=Oracle Corporation
2020-11-24 12:57:11,128 [myid:] - INFO [main:Environment@100] - Client environment:java.home=D:\Programs\Java\jdk-13.0.1
2020-11-24 12:57:11,128 [myid:] - INFO [main:Environment@100] - Client environment:java.class.path=.;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\zookeeper-3.4.14.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\slf4j-log4j12-1.7.25.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\slf4j-api-1.7.25.jar;C:\Users\PC\Desktop\zookeeper\zookeeper-3.4.14\lib\log4j-1.2.17.jar
2020-11-24 12:57:11,128 [myid:] - INFO [main:Environment@100] - Client environment:java.library.path=D:\Programs\Java\jdk-13.0.1\bin;C:\Windows\Sun\Java\bin;C:\Windows\system32;C:\Windows;C:\Program Files (x86)\Common Files\Intel\Shared Libraries\redist\intel64\compiler;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\iCLS;C:\Program Files\Intel\Intel(R) Management Engine Components\iCLS;C:\Windows\system32;C:\Windows;C:\Windows\System32\Wbem;C:\Windows\System32\WindowsPowerShell\v1.0;C:\Windows\System32\OpenSSH;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\DAL;C:\Program Files\Intel\Intel(R) Management Engine Components\DAL;C:\Program Files (x86)\Intel\Intel(R) Management Engine Components\IPT;C:\Program Files\Intel\Intel(R) Management Engine Components\IPT;C:\Program Files (x86)\NVIDIA Corporation\PhysX\Common;C:\Program Files\NVIDIA Corporation\NVIDIA NVDisSR;D:\Programs\Java\jdk-13.0.1\bin;C:\Users\PC\AppData\Local\Microsoft\WindowsApps;C:\Users\PC\AppData\Local\Programs\Microsoft VS Code\bin;C:\Users\PC\AppData\Local\atom\bin;C:\Users\PC\AppData\Local\Git\bin;C:\Users\PC\AppData\Local\Git\bin
2020-11-24 12:57:11,129 [myid:] - INFO [main:Environment@100] - Client environment:java.io.tmpdir=C:\Users\PC\AppData\Local\Temp\
2020-11-24 12:57:11,129 [myid:] - INFO [main:Environment@100] - Client environment:java.compiler=NA
2020-11-24 12:57:11,129 [myid:] - INFO [main:Environment@100] - Client environment:os.name=Windows 10
2020-11-24 12:57:11,130 [myid:] - INFO [main:Environment@100] - Client environment:os.arch=amd64
2020-11-24 12:57:11,130 [myid:] - INFO [main:Environment@100] - Client environment:os.version=10.0
2020-11-24 12:57:11,130 [myid:] - INFO [main:Environment@100] - Client environment:user.name=PC
2020-11-24 12:57:11,130 [myid:] - INFO [main:Environment@100] - Client environment:user.home=C:\Users\PC
2020-11-24 12:57:11,130 [myid:] - INFO [main:Environment@100] - Client environment:user.dir=C:\Users\PC\Desktop\zookeeper\Codigos
2020-11-24 12:57:11,131 [myid:] - INFO [main:ZooKeeper@442] - Initiating client connection, connectString=localhost sessionTimeout=3000 watcher=Executor@71f2a7d5
2020-11-24 12:57:11,414 [myid:] - INFO [main:SendThread(localhost:2181):ClientCnxn$SendThread@1025] - Opening socket connection to server localhost/127.0.0.1:2181. Will not attempt to authenticate using SASL (unknown error)
2020-11-24 12:57:11,417 [myid:] - INFO [main:SendThread(localhost:2181):ClientCnxn$SendThread@879] - Socket connection established to localhost/127.0.0.1:2181, initiating session
2020-11-24 12:57:11,426 [myid:] - INFO [main:SendThread(localhost:2181):ClientCnxn$SendThread@1299] - Session establishment complete on server localhost/127.0.0.1:2181, sessionId = 0x1001e4cbaf60004, negotiated timeout = 4000
```

4.2) Criando um node com aData.

```
[zk: localhost:2181(CONNECTED) 20] create /mcta025/ex4 aData
Created /mcta025/ex4
```

O run.bat listou o conteúdo armazenado no nó criado.

```
C:\Users\PC\Desktop\zookeeper\Codigos>type out.txt
aData
```

4.3) Mudando o valor armazenado no nó.

```
[zk: localhost:2181(CONNECTED) 21] set /mcta025/ex4 newData
cZxid = 0x31
ctime = Tue Nov 24 12:58:52 BRT 2020
mZxid = 0x32
mtime = Tue Nov 24 13:00:26 BRT 2020
pZxid = 0x31
cversion = 0
dataVersion = 1
aclVersion = 0
ephemeralOwner = 0x0
dataLength = 7
numChildren = 0
[zk: localhost:2181(CONNECTED) 22] |
```

O run.bat listou o novo conteúdo armazenado no nó.

```
List content of file out.txt  
  
C:\Users\PC\Desktop\zookeeper\Codigos>type out.txt  
newData  
|
```

4.4) Deletando o zNode.

```
[zk: localhost:2181(CONNECTED) 22] delete /mcta025/ex4  
[zk: localhost:2181(CONNECTED) 23] |
```

Após deletar o nó, o run.bat mata o processo referente àquele nó.

```
C:\Users\PC\Desktop\zookeeper\Codigos>type out.txt  
newData  
Killing process  
|
```