

Apache Zookeeper Configurations

This is a simple configurations file for running Docker (Run on Mac os) with the image built.

```
version: '3.8'

services:
  zoo1:
    image: zookeeper
    restart: always
    hostname: zoo1
    ports:
      - 2181:2181
    environment:
      ZOO_MY_ID: 1
      ZOO_SERVERS: server.1=zoo1:2888:3888;2181 server.2=zoo2:2888:3888;2181
server.3=zoo3:2888:3888;2181

  zoo2:
    image: zookeeper
    restart: always
    hostname: zoo2
    ports:
      - 2182:2181
    environment:
      ZOO_MY_ID: 2
      ZOO_SERVERS: server.1=zoo1:2888:3888;2181 server.2=zoo2:2888:3888;2181
server.3=zoo3:2888:3888;2181
```

To start the Zookeeper in replicated mode. Please Run `docker-compose -f stack.yml up`

This an example file of the zoo.cfg file (with the default value)

```
# The number of milliseconds of each tick
tickTime=2000
# The number of ticks that the initial
# synchronization phase can take
initLimit=10
# The number of ticks that can pass between
# sending a request and getting an acknowledgement
syncLimit=5
# the directory where the snapshot is stored.
# do not use /tmp for storage, /tmp here is just
# example sakes.
dataDir=/tmp/zookeeper
# the port at which the clients will connect
clientPort=2181
# the maximum number of client connections.
# increase this if you need to handle more clients
#maxClientCnxns=60
#
# Be sure to read the maintenance section of the
# administrator guide before turning on autopurge.
#
# http://zookeeper.apache.org/doc/current/zookeeperAdmin.html#sc\_maintenance
#
# The number of snapshots to retain in dataDir
#autopurge.snapRetainCount=3
# Purge task interval in hours
# Set to "0" to disable auto purge feature
#autopurge.purgeInterval=1

## Metrics Providers
#
# https://prometheus.io Met
```

Configurations

The Zookeeper configuration is located in /conf file. It can be modified by using this docker command:

```
$ docker run --name first-zookeeper --restart always -d -  
(pwd) /zoo.cfg:/conf/zoo.cfg zookeeper
```

1. **tickTime (defaults=2000)**: The length of a single tick, which is the basic time unit used by ZooKeeper, as measured in milliseconds. It is used to regulate heartbeats, and timeouts. For example, the minimum session timeout will be two ticks
2. **syncLimit (defaults=2)**: Amount of time, in ticks (see tickTime), to allow followers to sync with ZooKeeper. If followers fall too far behind a leader, they will be dropped.
3. **initLimit (defaults=5)**: Amount of time, in ticks (see tickTime), to allow followers to connect and sync to a leader. Increased this value as needed, if the amount of data managed by ZooKeeper is large.
4. **maxClientCnxns (defaults=60)**: Limits the number of concurrent connections (at the socket level) that a single client, identified by IP address, may make to a single member of the ZooKeeper ensemble.
5. **standaloneEnabled(defaults=true)**: Prior to 3.5.0, one could run ZooKeeper in Standalone mode or in a Distributed mode. These are separate implementation stacks, and switching between them during run time is not possible. By default (for backward compatibility) standaloneEnabled is set to true. The consequence of using this default is that if started with a single server the ensemble will not be allowed to grow, and if started with more than one server it will not be allowed to shrink to contain fewer than two participants.
6. **admin.enableServer(defaults=true)**: The AdminServer is an embedded Jetty server that provides an HTTP interface to the four letter word commands. By default, the server is started on port 8080, and commands are issued by going to the URL `"/commands/[command name]"`, e.g., `http://localhost:8080/commands/stat`.
7. **autoPurge.purgeInterval (defaults=0)**: The time interval in hours for which the purge task has to be triggered. Set to a positive integer (1 and above) to enable the auto purging. Defaults to 0.

8. **autoPurge.snapRetainCount (defaults=3):** When enabled, ZooKeeper auto purge feature retains the autopurge.snapRetainCount most recent snapshots and the corresponding transaction logs in the dataDir and dataLogDir respectively and deletes the rest. Defaults to 3. Minimum value is 3.
9. **4lw.commands.whitelist (defaults=svr):** A list of comma separated Four Letter Words commands that user wants to use. A valid Four Letter Words command must be put in this list else ZooKeeper server will not enable the command. By default the whitelist only contains "svr" command which zkServer.sh uses. The rest of four letter word commands are disabled by default.

References:

- <https://zookeeper.apache.org/doc/r3.8.0/index.html>
- <https://sookocheff.com/post/docker/containerizing-zookeeper-a-guided-tour/>
- <https://farid-baharuddin.medium.com/setting-up-an-apache-zookeeper-cluster-in-docker-8960d5c23f5c>