# Practical Guide to Installing and Operating `zkCli` with Zookeeper on macOS

This module will guide you through the installation of Zookeeper on macOS, the basic setup of Zookeeper configuration, and an overview of essential `zkCli` operations.

## Part 1: Installing Zookeeper on macOS

### 1. Prerequisites: Install Homebrew

If Homebrew is not installed on your macOS, you can install it with:

/bin/bash -c "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/HEAD/install.sh)"

### 2. Install Zookeeper Using Homebrew

With Homebrew installed, Zookeeper can be set up with:

brew install zookeeper

### 3. Configure Zookeeper

Zookeeper requires a configuration file called `zoo.cfg` to operate. Create it in the Zookeeper configuration directory, usually located at `/usr/local/etc/zookeeper`:

mkdir -p /usr/local/etc/zookeeper  
echo "tickTime=2000  
dataDir=/usr/local/var/lib/zookeeper  
clientPort=2181  
initLimit=5  
syncLimit=2" > /usr/local/etc/zookeeper/zoo.cfg

### 4. Start Zookeeper Server

Use the following command to start the Zookeeper server:

zkServer start

To check the server status:

zkServer status

To stop the server:

zkServer stop

### 5. Managing Zookeeper with Brew Services

To keep Zookeeper running in the background, you can manage it as a service with:

brew services start zookeeper

And to stop the service:

brew services stop zookeeper

### 6. Testing Zookeeper Connection

Once Zookeeper is running, test the connection with the Zookeeper client (`zkCli`):

zkCli -server 127.0.0.1:2181

## Part 2: Operating with `zkCli`

With Zookeeper installed, the following operations in `zkCli` allow you to manage nodes.

### Create a Node

To create a new node, use the `create` command. For example, to create `/my-node` with data "my-data":

create /my-node "my-data"

### Read Data from a Node

To retrieve data from a specific node:

get /my-node

### Update Node Data

Use the `set` command to update node data:

set /my-node "new-data"

### Delete a Node

To delete a node:

delete /my-node

### List Child Nodes

To view a list of child nodes in a node:

ls /

### Watch a Node

To set a "watch" on a node to receive notifications upon changes:

get /my-node true

### View Node Status

Retrieve node status information using:

stat /my-node

### Check Zookeeper Server Status

To verify the status of the Zookeeper server itself:

srvr

### Exit `zkCli`

To exit the `zkCli` interface:

quit

## Sample `zkCli` Workflow

A sample workflow with `zkCli` commands:

create /test-node "test-data" # Create node  
get /test-node # Read data from node  
set /test-node "new-data" # Update data  
ls / # List nodes at root  
delete /test-node # Delete node  
quit # Exit CLI