

## Basic User Guide

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# Abstract

Demo App made with Spring Boot (Java), Keycloak and MySQL.

Purpose of the app:

- Shows the security token details being used for HTTP restful services.
- Has AI features to explain data interactions between microservices (e.g., clicking the "Test Token" button).
- Debug and Inspect the Spring Boot application and Security context
- Sharing and getting constructive feedback
- Redis as stateful services with Spring Boot (Work in Progress)
- It uses Ionic framework to handle multi browser platforms and can be build as android or IOS App

# User Installation Guide

## Start Keycloak and MYSQL as docker service

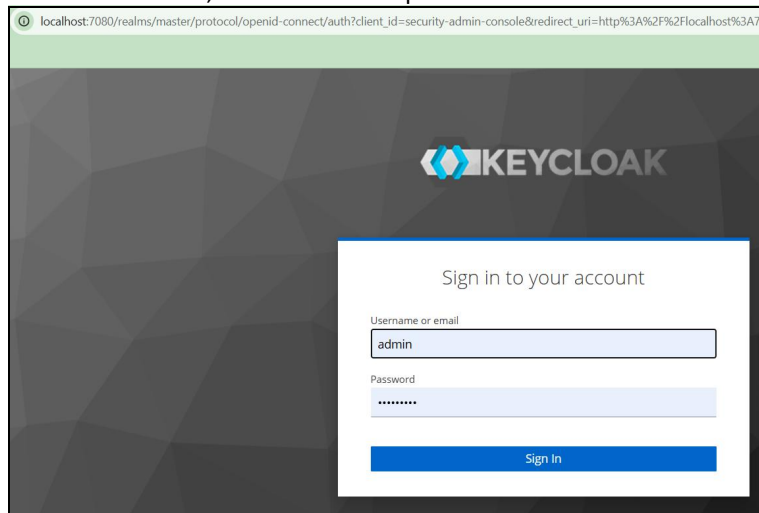
Run this command

```
[spring-boot-keycloak-mysql-demo]$ sudo docker compose up
```

```
on: '8.0.30' socket: '/var/run/mysqld/mysqld.sock' port: 3306 MySQL Community Server - GPL.
keycloak-1 | 2025-05-27 03:40:44,327 INFO [org.keycloak.common.Profile] (main) Preview feature enabled: token_exchange
keycloak-1 | 2025-05-27 03:40:44,416 INFO [org.keycloak.quarkus.runtime.hostname.DefaultHostnameProvider] (main) Hostn
ame settings: FrontEnd: localhost, Strict HTTPS: false, Path: <request>, Strict BackChannel: false, Admin: <request>, Po
rt: -1, Proxied: false
keycloak-1 | 2025-05-27 03:40:45,151 WARN [org.infinispan.PERSISTENCE] (keycloak-cache-init) ISPN000554: jboss-marshal
ling is deprecated and planned for removal
keycloak-1 | 2025-05-27 03:40:45,257 WARN [org.infinispan.CONFIG] (keycloak-cache-init) ISPN000569: Unable to persist
Infinispan internal caches as no global state enabled
keycloak-1 | 2025-05-27 03:40:45,278 INFO [org.infinispan.CONTAINER] (keycloak-cache-init) ISPN000556: Starting user m
arshaller 'org.infinispan.jboss.marshalling.core.JBossUserMarshaller'
keycloak-1 | 2025-05-27 03:40:45,474 INFO [org.infinispan.CONTAINER] (keycloak-cache-init) ISPN000128: Infinispan vers
ions: Infinispan 'Triskaldieka' 13.0.9.Final
keycloak-1 | 2025-05-27 03:40:45,924 INFO [org.keycloak.connections.infinispan.DefaultInfinispanConnectionProviderFact
ory] (main) Node name: node.581271, Site name: null
keycloak-1 | 2025-05-27 03:40:46,400 INFO [org.keycloak.services] (main) KC-SERVICES0003: Not importing realm keycloak
from file /opt/keycloak/bin/.data/import/realms-export.json. It already exists.
keycloak-1 | 2025-05-27 03:40:46,472 ERROR [org.keycloak.services] (main) KC-SERVICES0010: Failed to add user 'admin' t
o realm 'master': user with username exists
keycloak-1 | 2025-05-27 03:40:46,843 INFO [io.quarkus] (main) Keycloak 18.0.2 on JVM (powered by Quarkus 2.7.5.Final)
started in 4.485s. Listening on: http://0.0.0.0:8080 and https://0.0.0.0:8443
keycloak-1 | 2025-05-27 03:40:46,843 INFO [io.quarkus] (main) Profile dev activated.
keycloak-1 | 2025-05-27 03:40:46,843 INFO [io.quarkus] (main) Installed features: [agroal, cdi, hibernate-orm, jdbc-h2
, jdbc-mariadb, jdbc-mssql, jdbc-mysql, jdbc-oracle, jdbc-postgresql, keycloak, narayana-jta, reactive-routes, resteasy
, resteasy-jackson, smallrye-context-propagation, smallrye-health, smallrye-metrics, vault, vertx]
keycloak-1 | 2025-05-27 03:40:46,847 WARN [org.keycloak.quarkus.runtime.KeycloakMain] (main) Running the server in dev
elopment mode. DO NOT use this configuration in production.
```

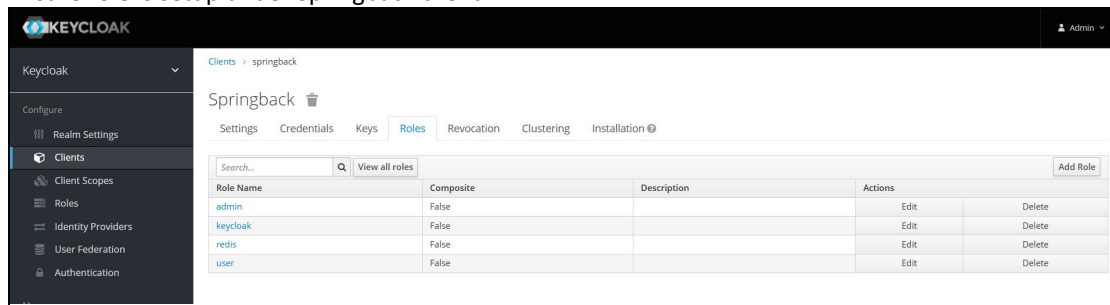
Login to keycloak on <http://localhost:7080/>

Username: admin , Password: adminpass



## Setup Keycloak Roles

Ensure role is setup under Springback client



The screenshot shows the Keycloak Admin Console interface. The left sidebar contains navigation options: Keycloak, Configure, Realm Settings, Clients, Client Scopes, Roles, Identity Providers, User Federation, and Authentication. The main content area is titled 'Springback' and has tabs for Settings, Credentials, Keys, Roles (selected), Revocation, Clustering, and Installation. Below the tabs is a table of roles for the Springback client.

Role Name	Composite	Description	Actions
admin	False		Edit Delete
keycloak	False		Edit Delete
redis	False		Edit Delete
user	False		Edit Delete

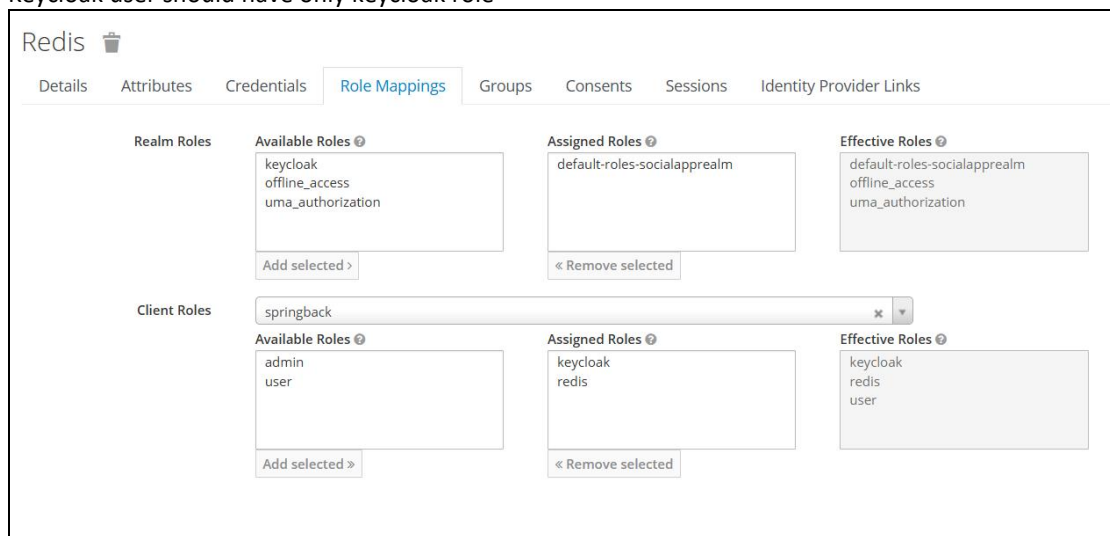
Add keycloak and redis role if not exist

## Setup Users

Create both user and keycloak then assign under role mapping.

Redis user should have both keycloak and redis role

Keycloak user should have only keycloak role



The screenshot shows the Keycloak Admin Console interface for the 'Redis' client. The 'Role Mappings' tab is selected. It displays three sections: Realm Roles, Client Roles, and Effective Roles. The 'Realm Roles' section shows available roles (keycloak, offline\_access, uma\_authorization) and assigned roles (default-roles-socialapprealm). The 'Client Roles' section shows available roles (admin, user) and assigned roles (keycloak, redis). The 'Effective Roles' section shows the resulting roles for the client.

Section	Available Roles	Assigned Roles	Effective Roles
Realm Roles	keycloak offline_access uma_authorization	default-roles-socialapprealm	default-roles-socialapprealm offline_access uma_authorization
Client Roles	admin user	keycloak redis	keycloak redis user

# Start Spring Boot

**Prerequisite:** Java 17 JRE setup

Run the command below

```
[spring-boot-keycloak-mysql-demo]$ java -jar Backend/App_api-0.0.1-SNAPSHOT.jar
```

```
ing dialect: org.hibernate.dialect.MySQL8Dialect
2025-05-27T13:15:01.396+08:00 WARN 27668 --- [main] org.hibernate.orm.deprecation : HHH90000026: MySQL8Dialect has been deprecated; use org.hibernate.dialect.MySQLDialect instead
2025-05-27T13:15:03.838+08:00 INFO 27668 --- [main] o.h.e.t.j.p.i.JtaPlatformInitiator : HHH000490: Using JtaPlatform implementation: [org.hibernate.engine.transaction.jta.platform.internal.NoJtaPlatform]
2025-05-27T13:15:03.855+08:00 INFO 27668 --- [main] j.LocalContainerEntityManagerFactoryBean : Initialized JPA EntityManagerFactory for persistence unit 'default'
2025-05-27T13:15:05.093+08:00 WARN 27668 --- [main] JpaBaseConfiguration$JpaWebConfiguration : spring.jpa.open-in-view is enabled by default. Therefore, database queries may be performed during view rendering. Explicitly configure spring.jpa.open-in-view to disable this warning
2025-05-27T13:15:05.122+08:00 TRACE 27668 --- [main] eGlobalAuthenticationAutowiredConfigurer : Eagerly initializing {securityConfiguration=com.demo.keycloak.config.SecurityConfiguration$$SpringCGLIB$$033899f7a}
2025-05-27T13:15:05.125+08:00 DEBUG 27668 --- [main] swordEncoderAuthenticationManagerBuilder : No authenticationProviders and no parentAuthenticationManager defined. Returning null.
2025-05-27T13:15:06.509+08:00 INFO 27668 --- [main] o.s.s.web.DefaultSecurityFilterChain : Will secure any request with [org.springframework.security.web.session.DisableEncodeUrlFilter@267cde2e, org.springframework.security.web.context.request.async.WebAsyncManagerIntegrationFilter@609e57da, org.springframework.security.web.context.SecurityContextHolderFilter@3f598450, org.springframework.security.web.header.HeaderWriterFilter@3ba348ca, org.springframework.security.web.filter.CorsFilter@56dd6efa, org.springframework.security.web.csrf.CsrfFilter@37e69c43, org.springframework.security.web.authentication.logout.LogoutFilter@1acb74ad, org.springframework.security.oauth2.server.resource.web.authentication.BearerTokenAuthenticationFilter@4364863, org.springframework.security.web.savedrequest.RequestCacheAwareFilter@695c938d, org.springframework.security.web.servletapi.SecurityContextHolderAwareRequestFilter@7ed3df3b, org.springframework.security.web.authentication.AnonymousAuthenticationFilter@4d634127, org.springframework.security.web.session.SessionManagementFilter@772caabe, org.springframework.security.web.access.ExceptionTranslationFilter@497b560e, org.springframework.security.web.access.intercept.AuthorizationFilter@33a55bd8]
2025-05-27T13:15:06.984+08:00 INFO 27668 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port(s): 7090 (http) with context path ''
2025-05-27T13:15:07.038+08:00 INFO 27668 --- [main] c.demo.keycloak.HTTPSessionApplication : Started HTTPSessionApplication in 10.602 seconds (process running for 11.23)
==== Beans from 'com.demo' package ====
```

# Start Angular

Go to Frontend folder then run the command below

```
[Frontend]$ npm install v18.19
```

v18.19.1 is already installed.

Now using node v18.19.1 (npm v10.2.4)

```
[Frontend]$ npm i
```

added 135 packages, removed 155 packages, changed 201 packages, and audited 1286 packages in 36s

```
[Frontend]$ npm start
```

```
** Angular Live Development Server is listening on localhost:4200, open your browser on http://localhost:4200/ **

✔Compiled successfully.
✔Browser application bundle generation complete.

Initial chunk files | Names | Raw size
runtime.js | runtime | 14.58 kB |

71 unchanged chunks

Build at: 2025-05-27T05:11:24.603Z - Hash: 317a30ee98e77a88 - Time: 991ms

✔Compiled successfully.
```

## Finish setup and test the app

Go to <http://localhost:4200/>

