Docker 应用部署-RocketMQ

1 安装前准备

1.1 准备安装目录

```
mkdir /home/rocketmq
cd /home/rocketmq
```

1.2 下载rocketmq

下载 rocketmq-all-4.9.3-bin-release.zip 文件， 用于复制里面的 conf 目录文件。

可以手动下载后上传到服务器，然后使用unzip指令解压；

也可以wget命令下载后再解压，参考命令如下所示。

```
# 下载文件，如果服务器上下载缓慢建议手动下载后上传到服务器
wget http://archive.apache.org/dist/rocketmq/4.9.3/rocketmq-all-4.9.3-bin-release.zip
# 解压
unzip rocketmq-all-4.9.3-bin-release.zip
```

1.3 准备Broker服务配置

```
# 创建broker目录
mkdir broker
# 复制配置到broker
cp -r rocketmq-4.9.3/conf/ broker/conf/
```

```
[root@localhost rocketmq]# mkdir broker
[root@localhost rocketmq]# cp -r rocketmq-4.9.3/conf/ broker/conf/
[root@localhost rocketmq]# ls broker/conf/
2m-2s-async  2m-2s-sync  2m-noslave  acl  broker.conf  dledger  lo
[root@localhost rocketmq]#
```

修改`broker/conf`中的`broker.conf`文件，修改参考如下：

```
# 所属集群名称，如果节点较多可以配置多个
brokerClusterName = DefaultCluster
# broker名称，master和slave使用相同的名称，表明他们的主从关系
brokerName = broker-a
# 0表示Master，大于0表示不同的slave
brokerId = 0
# 表示几点做消息删除动作，默认是凌晨4点
deleteWhen = 04
# 在磁盘上保留消息的时长，单位是小时
fileReservedTime = 48
# 有三个值：SYNC_MASTER，ASYNC_MASTER，SLAVE；同步和异步表示Master和Slave之间同步数据的机制
brokerRole = ASYNC_MASTER
```

```
# 刷盘策略，取值为：ASYNC_FLUSH，SYNC_FLUSH表示同步刷盘和异步刷盘
# SYNC_FLUSH消息写入磁盘后才返回成功状态，ASYNC_FLUSH不需要
flushDiskType = ASYNC_FLUSH

# 设置broker节点所在服务器的ip地址（非常重要）
# 主从模式下，从节点会根据主节点的brokerIP2来同步数据，如果不配置，主从无法同步，
# brokerIP1设置为自己外网能访问的ip，服务器双网卡情况下必须配置，
# 比如阿里云这种，主节点需要配置ip1和ip2，从节点只需要配置ip1即可
brokerIP1 = 192.168.220.128
# nameServer地址，分号分割
namesrvAddr = 192.168.220.128:9876
# Broker对外服务的监听端口
listenPort = 10911
# 是否允许Broker自动创建Topic，建议线下开启，线上关闭
autoCreateTopicEnable = true
# 是否允许Broker自动创建订阅组，建议线下开启，线上关闭
autoCreateSubscriptionGroup = true
# linux开启epoll
useEpollNativeSelector = true
# 更多配置说明可参考
# https://blog.csdn.net/guyue35/article/details/105439325
```

```
[root@localhost rocketmq]# vi broker/conf/broker.conf
[root@localhost rocketmq]# cat broker/conf/broker.conf
# Licensed to the Apache Software Foundation (ASF) under one or more
# contributor license agreements.  See the NOTICE file distributed with
# this work for additional information regarding copyright ownership.
# The ASF licenses this file to You under the Apache License, Version 2.0
# (the "License"); you may not use this file except in compliance with
# the License.  You may obtain a copy of the License at
#
#     http://www.apache.org/licenses/LICENSE-2.0
#
#  Unless required by applicable law or agreed to in writing, software
#  distributed under the License is distributed on an "AS IS" BASIS,
#  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
#  See the License for the specific language governing permissions and
#  limitations under the License.

brokerClusterName = DefaultCluster
brokerName = broker-a
brokerId = 0
deleteWhen = 04
fileReservedTime = 48
brokerRole = ASYNC_MASTER
flushDiskType = ASYNC_FLUSH
brokerIP1 = 192.168.220.128
namesrvAddr = 192.168.220.128:9876
listenPort = 10911
autoCreateTopicEnable = true
autoCreateSubscriptionGroup = true
useEpollNativeSelector = true
[root@localhost rocketmq]#
```

1 换成自己的IP

1.4 修改目录权限

修改权限前，先创建服务器需要的目录

```
mkdir -p broker/store broker/logs
mkdir -p namesrv/store namesrv/logs
```

容器中的用户ID和组ID分别是 3000 和 3000，如果不给宿主机目录授权限那么容器将会运行不成功的

```
chown -R 3000:3000 ./
```

```
[root@localhost rocketmq]# chown -R 3000:3000 ./
[root@localhost rocketmq]# ll
总用量 26264
drwxr-xr-x. 3 3000 3000       18 7月  30 21:54 broker
drwxr-xr-x. 6 3000 3000      103 2月  22 01:25 rocketmq-4.9.3
-rw-r--r--. 1 3000 3000 26892203 7月  30 21:28 rocketmq-all-4.9.3-bin-release.zip
[root@localhost rocketmq]#
```

1.5 了解将要安装服务

Name Server：

> 名称服务充当路由消息的提供者。生产者或消费者能够通过名字服务查找各主题相应的Broker IP列表。

Broker Server：

> 代理服务器：消息中转角色，负责存储消息、转发消息。
>
> 代理服务器在RocketMQ系统中负责接收从生产者发送来的消息并存储、同时为消费者的拉取请求作准备。
>
> 代理服务器也存储消息相关的元数据，包括消费者组、消费进度偏移和主题和队列消息等。
>
> Broker 启动时，（默认）实际上会监听3个端口：10909、10911、10912，这三个端口由Broker内部不同的组件使用，作用分别如下：
>
> http://www.tianshouzhi.com/api/tutorials/rocketmq/417
>
> - **remotingServer**：监听 listenPort 配置项指定的监听端口，默认为 10911
> - **fastRemotingServer**：监听端口值 listenPort - 2，即默认为 10909
> - **HAService**：监听端口为值为 listenPort + 1，即默认为 10912，该端口用于 Broker 的主从同步

Console Server：

> 方便以图形化的方式运维MQ服务器情况，同时可以通过控制台对MQ服务器执行一些操作，如：创建主题、发布消息。

2 配置防火墙

注意：如果是云服务器端口放行需要到控制台页面去开放，一般情况操作的系统的防火墙是关闭的，不需要通过下面的命令行开放防火墙。

```
#开放端口
firewall-cmd --add-port 9876/tcp --add-port 10911/tcp --add-port 8280/tcp --permanent
#重新加载防火墙
firewall-cmd --reload
```

3 服务编排

在rocketmq目录下面创建`docker-compose.yml`文件，并写入下面内容。

```
version: '3'
services:
```

```
  rocketmq-namesrv:
    image: apache/rocketmq:4.9.3
    container_name: rocketmq-namesrv
    ports:
      - "9876:9876"
    environment:
      - JAVA_OPT_EXT=-server -Xms128m -Xmx128m -Xmn64m
    volumes:
      - /home/rocketmq/namesrv/logs:/home/rocketmq/logs
      - /home/rocketmq/namesrv/store:/home/rocketmq/store
    command: sh mqnamesrv
  rocketmq-broker:
    image: apache/rocketmq:4.9.3
    container_name: rocketmq-broker
    ports:
      - "10909:10909"
      - "10911:10911"
      - "10912:10912"
    environment:
      - JAVA_OPT_EXT=-server -Xms128m -Xmx128m -Xmn64m
    volumes:
      - /home/rocketmq/broker/logs:/home/rocketmq/logs
      - /home/rocketmq/broker/store:/home/rocketmq/store
      - /home/rocketmq/broker/conf:/home/rocketmq/rocketmq-4.9.3/conf
    command: sh mqbroker -c /home/rocketmq/rocketmq-4.9.3/conf/broker.conf
    depends_on:
      - rocketmq-namesrv
    restart: on-failure
  rocketmq-console:
    image: apacherocketmq/rocketmq-dashboard:latest
    container_name: rocketmq-console
    ports:
      - "8280:8080"
    environment:
      - JAVA_OPTS=-Drocketmq.namesrv.addr=rocketmq-namesrv:9876 -
Dlogging.level.root=info -Dcom.rocketmq.sendMessageWithVIPChannel=false
    depends_on:
      - rocketmq-namesrv
      - rocketmq-broker
    restart: on-failure
```

4 启动与测试

前台启动服务

```
docker-compose up
```

```
[root@localhost rocketmq]# ls
broker  docker-compose.yml  rocketmq-4.9.3  rocketmq-all-4.9.3-bin-release.zip
[root@localhost rocketmq]# docker-compose up
```

首次启动需要下载镜像文件，耐心等待即可，启动成功示意效果如下图

```
[root@localhost rocketmq]# docker-compose up
[+] Running 3/0
 ⠿ Container rocketmq-namesrv  Created
 ⠿ Container rocketmq-broker   Created
 ⠿ Container rocketmq-console  Created
Attaching to rocketmq-broker, rocketmq-console, rocketmq-namesrv
rocketmq-namesrv  | OpenJDK 64-Bit Server VM warning: Using the DefNew young collector wit
ture release
rocketmq-namesrv  | OpenJDK 64-Bit Server VM warning: UseCMSCompactAtFullCollection is dep
rocketmq-console  | 02:10:53,681 |-INFO in ch.qos.logback.classic.LoggerContext[default] -
rocketmq-console  | 02:10:53,683 |-INFO in ch.qos.logback.classic.LoggerContext[default] -
rocketmq-console  | 02:10:53,683 |-INFO in ch.qos.logback.classic.LoggerContext[default] -
BOOT-INF/classes!/logback.xml]
rocketmq-console  | 02:10:53,739 |-INFO in ch.qos.logback.core.joran.spi.ConfigurationWatc
sses!/logback.xml] is not of type file
rocketmq-console  | 02:10:53,883 |-INFO in ch.qos.logback.classic.joran.action.Configurati
rocketmq-console  | 02:10:53,891 |-INFO in ch.qos.logback.core.joran.action.AppenderActior
eAppender]
rocketmq-console  | 02:10:53,920 |-INFO in ch.qos.logback.core.joran.action.AppenderActior
rocketmq-console  | 02:10:53,941 |-INFO in ch.qos.logback.core.joran.action.NestedComplexP
tternLayoutEncoder] for [encoder] property
rocketmq-console  | 02:10:54,093 |-INFO in ch.qos.logback.core.joran.action.AppenderActior
g.RollingFileAppender]
rocketmq-console  | 02:10:54,115 |-INFO in ch.qos.logback.core.joran.action.AppenderActior
rocketmq-console  | 02:10:54,193 |-INFO in c.q.l.core.rolling.TimeBasedRollingPolicy@1177(
rocketmq-console  | 02:10:54,204 |-INFO in c.q.l.core.rolling.TimeBasedRollingPolicy@1177(
-%d{yyyy-MM-dd}.%i.log for the active file
rocketmq-console  | 02:10:54,217 |-INFO in ch.qos.logback.core.rolling.SizeAndTimeBasedFNA
n '/root/logs/consolelogs/rocketmq-console-%d{yyyy-MM-dd}.%i.log'.
rocketmq-console  | 02:10:54,217 |-INFO in ch.qos.logback.core.rolling.SizeAndTimeBasedFNA
rocketmq-console  | 02:10:54,220 |-INFO in ch.qos.logback.core.rolling.SizeAndTimeBasedFNA
rocketmq-console  | 02:10:54,225 |-WARN in ch.qos.logback.core.rolling.SizeAndTimeBasedFNA
sedRollingPolicy instead
rocketmq-console  | 02:10:54,225 |-WARN in ch.qos.logback.core.rolling.SizeAndTimeBasedFNA
appenders.html#SizeAndTimeBasedRollingPolicy
rocketmq-console  | 02:10:54,227 |-INFO in ch.qos.logback.core.joran.action.NestedComplexP
tternLayoutEncoder] for [encoder] property
rocketmq-console  | 02:10:54,241 |-INFO in ch.qos.logback.core.rolling.RollingFileAppender
le.log
rocketmq-console  | 02:10:54,241 |-INFO in ch.qos.logback.core.rolling.RollingFileAppender
nsole.log]
rocketmq-console  | 02:10:54,254 |-INFO in ch.qos.logback.classic.joran.action.RootLoggerA
rocketmq-console  | 02:10:54,254 |-INFO in ch.qos.logback.core.joran.action.AppenderRefAct
rocketmq-console  | 02:10:54,256 |-INFO in ch.qos.logback.core.joran.action.AppenderRefAct
rocketmq-console  | 02:10:54,256 |-INFO in ch.qos.logback.classic.joran.action.Configurati
rocketmq-console  | 02:10:54,257 |-INFO in ch.qos.logback.classic.joran.JoranConfigurator@
rocketmq-console  |
rocketmq-namesrv  | The Name Server boot success. serializeType=JSON
rocketmq-console  |
rocketmq-console  |   .   ____          _            __ _ _
rocketmq-console  |  /\\ / ___'_ __ _ _(_)_ __  __ _ \ \ \ \
rocketmq-console  | ( ( )\___ | '_ | '_| | '_ \/ _` | \ \ \ \
rocketmq-console  |  \\/  ___)| |_)| | | | | || (_| |  ) ) ) )
rocketmq-console  |   '  |____| .__|_| |_|_| |_\__, | / / / /
rocketmq-console  |  =========|_|==============|___/=/_/_/_/
rocketmq-console  |  :: Spring Boot ::        (v2.2.2.RELEASE)
rocketmq-console  |
rocketmq-console  | [2022-07-31 02:10:55.857]  INFO Starting App v1.0.0 on fe8b49d03947 wi
rocketmq-console  | [2022-07-31 02:10:55.860]  INFO No active profile set, falling back to
rocketmq-broker   | The broker[broker-a, 192.168.220.128:10911] boot success. serializeTyp
rocketmq-console  | [2022-07-31 02:10:58.743]  INFO Tomcat initialized with port(s): 8080
rocketmq-console  | [2022-07-31 02:10:58.758]  INFO Initializing ProtocolHandler ["http-ni
rocketmq-console  | [2022-07-31 02:10:58.760]  INFO Starting service [Tomcat]
rocketmq-console  | [2022-07-31 02:10:58.760]  INFO Starting Servlet engine: [Apache Tomca
rocketmq-console  | [2022-07-31 02:10:58.877]  INFO Initializing Spring embedded WebApplic
rocketmq-console  | [2022-07-31 02:10:58.878]  INFO Root WebApplicationContext: initializa
rocketmq-console  | [2022-07-31 02:11:00.033]  INFO Initializing ExecutorService 'applicat
rocketmq-console  | [2022-07-31 02:11:00.188]  INFO Adding welcome page: class path resour
rocketmq-console  | [2022-07-31 02:11:00.439]  INFO Initializing ExecutorService 'taskSche
rocketmq-console  | [2022-07-31 02:11:00.459]  INFO Exposing 2 endpoint(s) beneath base pa
rocketmq-console  | [2022-07-31 02:11:00.524]  INFO Starting ProtocolHandler ["http-nio-0.
rocketmq-console  | [2022-07-31 02:11:00.551]  INFO Tomcat started on port(s): 8080 (http)
rocketmq-console  | [2022-07-31 02:11:00.561]  INFO Started App in 5.991 seconds (JVM runn
rocketmq-console  | RocketMQLog:WARN No appenders could be found for logger (io.netty.util
rocketmq-console  | RocketMQLog:WARN Please initialize the logger system properly.
rocketmq-console  | [2022-07-31 02:11:30.351]  INFO create MQAdmin instance ClientConfig [
=1659233490033, clientCallbackExecutorThreads=2, pollNameServerInterval=30000, heartbeatBr
yMillsWhenException=1000, unitMode=false, unitName=null, vipChannelEnabled=false, useTLS=f
rocketmq-console  | [2022-07-31 02:11:30.616]  INFO start time: 24.43 μs
rocketmq-console  | [2022-07-31 02:11:30.630]  WARN Exception caught: mqAdminExt get broke
rocketmq-console  | [2022-07-31 02:11:30.631]  WARN Response [CODE: 1  DESC: The stats <TC
```

连接控制台访问测试，访问地址http://ip:8280/，在集群查看是否可以看到Broker服务，如下图所示。

到此可以看到一切正常，下一步可以切换到后台启动了`Ctrl + c`结束前台启动，使用下面命令进行后台启动

```
docker-compose up -d
```

```
rocketmq-console  | For more information, please visit the url, http://rocketmq.apache.org/docs/faq/]
^CGracefully stopping... (press Ctrl+C again to force)
[+] Running 3/3
 ⠿ Container rocketmq-console  Stopped
 ⠿ Container rocketmq-broker   Stopped
 ⠿ Container rocketmq-namesrv  Stopped
canceled
[root@localhost rocketmq]# docker-compose up -d
[+] Running 3/3
 ⠿ Container rocketmq-namesrv  Started
 ⠿ Container rocketmq-broker   Started
 ⠿ Container rocketmq-console  Started
[root@localhost rocketmq]#
```

使用docker ps指令查看后台启动情况

```
[root@localhost rocketmq]# docker ps | grep rocketmq
fe8b49d03947   apacherocketmq/rocketmq-dashboard:latest   "sh -c 'java $JAVA_O…"   21 minutes ago   Up About a minute
tcp                                                                                    rocketmq-console
aeecc4e7e81e   apache/rocketmq:4.9.3                     "sh mqbroker -c /hom…"   22 minutes ago   Up About a minute
909/tcp, 9876/tcp, 0.0.0.0:10911-10912->10911-10912/tcp, :::10911-10912->10911-10912/tcp   rocketmq-broker
26d70a9f18a7   apache/rocketmq:4.9.3                     "sh mqnamesrv"           22 minutes ago   Up About a minute
9876->9876/tcp, 10911-10912/tcp                                                        rocketmq-namesrv
```

因为容器已经创建，后续可以使用stop和start命令来控制容器的停止与启动。

```
[root@localhost rocketmq]# docker-compose stop
[+] Running 3/3
 ⠿ Container rocketmq-console  Stopped
 ⠿ Container rocketmq-broker   Stopped
 ⠿ Container rocketmq-namesrv  Stopped
[root@localhost rocketmq]# docker-compose start
[+] Running 3/3
 ⠿ Container rocketmq-namesrv  Started
 ⠿ Container rocketmq-broker   Started
 ⠿ Container rocketmq-console  Started
```

5 扩展阅读

docker安装常见问题解决参考

https://blog.csdn.net/apple_csdn/article/details/125321157

集群搭建参考

https://blog.csdn.net/apple_csdn/article/details/125296236

https://blog.csdn.net/apple_csdn/article/details/125284438