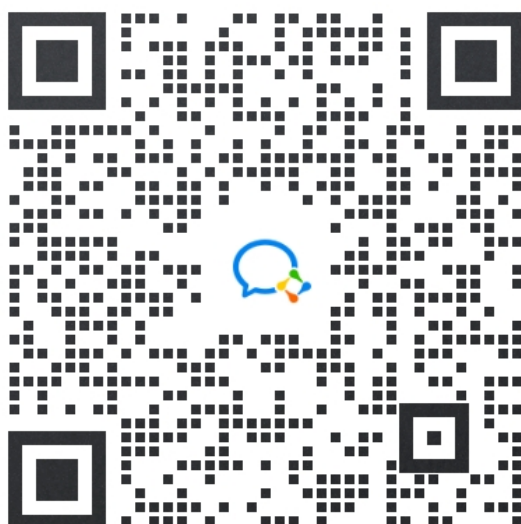


6.1 多机多节点搭建集群

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1. 安装RabbitMQ

在3台机器上, 分别安装RabbitMQ, 安装步骤参考 [图2.1 RabbitMQ安装](#)

安装后确认每个服务器节点都是可用的

```
1 root@iZ2vc7a1n9gvhfp589oav7Z:~# rabbitmqctl status #确认节点状态
2 Status of node rabbit@iZ2vc7a1n9gvhfp589oav7Z ... #节点名称
3 Runtime
```

```
4
5 OS PID: 691019
6 OS: Linux
7 Uptime (seconds): 363321
8 Is under maintenance?: false
9 RabbitMQ version: 3.9.13
10 Node name: rabbit@iZ2vc7a1n9gvhfp589oav7Z
11 Erlang configuration: Erlang/OTP 24 [erts-12.2.1] [source] [64-bit] [smp:2:2]
    [ds:2:2:10] [async-threads:1] [jit]
12 Erlang processes: 374 used, 1048576 limit
13 Scheduler run queue: 1
14 Cluster heartbeat timeout (net_ticktime): 60
15
```

安装后, 节点信息如下:

服务器	IP	开放端口	节点名称
节点1	10.0.0.232	5672,15672	rabbit@iZ2vc7a1n9gvhfp589oav8Z
节点2	10.0.0.233	5672,15672	rabbit@iZ2vc7a1n9gvhfp589oav6Z
节点3	10.0.0.234	5672,15672	rabbit@iZ2vc7a1n9gvhfp589oav7Z

2. 配置hosts文件

配置每个节点的hosts文件, 让各个节点都能互相识别对方

```
1 vim /etc/hosts
```

格式为: IP 主机名称

比如我的集群配置如下:

```
1 #rabbitmq
2 10.0.0.232 iZ2vc7a1n9gvhfp589oav8Z
3 10.0.0.233 iZ2vc7a1n9gvhfp589oav6Z
4 10.0.0.234 iZ2vc7a1n9gvhfp589oav7Z
```

注意, 这里的主机名称不是随便写的, 需要查看3台服务器的主机名是什么

查看方式:

```
1 root@iZ2vc7a1n9gvhfp589oav6Z:~# more /etc/hostname #查看主机名
2 iZ2vc7a1n9gvhfp589oav6Z
3
```

也可以通过修改该文件, 修改主机名, 修改之后需要reboot重启虚拟机

谨慎修改主机名: 如果是刚初始化的服务器, 可以修改主机名, 如果服务器上已经装了很多东西, 就没有必要修改主机名了.

3. 配置Erlang Cookie

RabbitMQ 节点和 CLI 工具(如rabbitmqctl) 使用Cookie来进行身份验证, 确认它们之间是否被允许相互通信. 为了使两个节点可以通信, 它们必须具有相同的共享密钥, 称为 `Erlang Cookie`. Cookie是一个字符串, 通常存储在本地文件中. 每个集群节点必须具有相同的Cookie.

Cookie 文件的位置:

RabbitMQ启动时, erlang 虚拟机会自动创建该文件, 通常位于 `/var/lib/rabbitmq/.erlang.cookie` 和 `$HOME/.erlang.cookie`.

3.1 停止所有节点的服务

```
1 systemctl stop rabbitmq-server
```

3.2 配置 Erlang Cookie

只需将一个节点上的 `.erlang.cookie` 文件分别拷贝到另外两个节点上就可以

比如把node3节点的文件, 分别拷贝到node1和node2对应的机器上

在node3上进行如下操作:

```
1 #拷贝node3节点的文件到node1
2 scp /var/lib/rabbitmq/.erlang.cookie
  root@iZ2vc7a1n9gvhfp589oav8Z:/var/lib/rabbitmq/
3
4 #拷贝node3节点的文件到node2
5 scp /var/lib/rabbitmq/.erlang.cookie
  root@iZ2vc7a1n9gvhfp589oav6Z:/var/lib/rabbitmq/
```

执行结果:

```
1 root@iz2vc7a1n9gvhfp589oav7Z:~# scp /var/lib/rabbitmq/.erlang.cookie
  root@iz2vc7a1n9gvhfp589oav8Z:/var/lib/rabbitmq/
2 The authenticity of host 'iz2vc7a1n9gvhfp589oav8z (10.0.0.232)' can't be
  established.
3 ED25519 key fingerprint is SHA256:YGEG3FjpDUxHuGMy/GPviQZXftaGaNrLcWQyP0QLPE.
4 This key is not known by any other names
5 Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
6 Warning: Permanently added 'iz2vc7a1n9gvhfp589oav8z' (ED25519) to the list of
  known hosts.
7 root@iz2vc7a1n9gvhfp589oav8z's password: #输入密码
8 .erlang.cookie
                                     100%  57   108.5KB/s   00:00
9 root@iz2vc7a1n9gvhfp589oav7Z:~# scp /var/lib/rabbitmq/.erlang.cookie
  root@iz2vc7a1n9gvhfp589oav6Z:/var/lib/rabbitmq/
10 root@iz2vc7a1n9gvhfp589oav6Z's password: #输入密码
11 .erlang.cookie
                                     100%  57   117.8KB/s   00:00
12 root@iz2vc7a1n9gvhfp589oav7Z:~#
13
```

3.3 启动节点

以后端的方式启动三台RabbitMQ, 启动命令:

```
1 rabbitmq-server -detached
```

- `rabbitmq-server` 是启动RabbitMQ服务的命令。
- `-detached` 或者 `--detached` 参数表示在后台作为服务运行

4. 构建集群

为了将集群中的三个节点连接起来, 需要告诉另外两个节点加入另一个节点, 比如node1和node2加入node3节点.

加入node3之前, 必须重置两个新加入的成员, 也就是node1和node2

分别要在要加入的两个机器上, 执行下面的操作命令:

```
1 #1. 关闭RabbitMQ服务
2 rabbitmqctl stop_app
3
4 #2. 重置当前节点
5 rabbitmqctl reset
6
7 #3.加入节点 后面跟的是node3节点
8 rabbitmqctl join_cluster rabbit@iZ2vc7a1n9gvhfp589oav7Z
9
10 #4. 启动服务
11 rabbitmqctl start_app
12
```



重置节点会删除该节点上以前存在的所有资源和数据

执行结果:

```
1 root@iZ2vc7a1n9gvhfp589oav6Z:~# rabbitmqctl stop_app    #关闭RabbitMQ服务
2 Stopping rabbit application on node rabbit@iZ2vc7a1n9gvhfp589oav6Z ...
3 root@iZ2vc7a1n9gvhfp589oav6Z:~# rabbitmqctl reset    #重置当前节点
4 Resetting node rabbit@iZ2vc7a1n9gvhfp589oav6Z ...
5 root@iZ2vc7a1n9gvhfp589oav6Z:~# rabbitmqctl join_cluster
  rabbit@iZ2vc7a1n9gvhfp589oav7Z    #加入节点
6 Clustering node rabbit@iZ2vc7a1n9gvhfp589oav6Z with
  rabbit@iZ2vc7a1n9gvhfp589oav7Z
7
8 19:10:00.839 [warn] Feature flags: the previous instance of this node must
  have failed to write the `feature_flags` file at
  `/var/lib/rabbitmq/mnesia/rabbit@iZ2vc7a1n9gvhfp589oav6Z-feature_flags`:
9
10 19:10:00.839 [warn] Feature flags:    - list of previously disabled feature
  flags now marked as such: [:maintenance_mode_status]
11
12 19:10:01.146 [error] Failed to create a tracked connection table for node
  :rabbit@iZ2vc7a1n9gvhfp589oav6Z: {:node_not_running,
  :rabbit@iZ2vc7a1n9gvhfp589oav6Z}
13
14 19:10:01.146 [error] Failed to create a per-vhost tracked connection table for
  node :rabbit@iZ2vc7a1n9gvhfp589oav6Z: {:node_not_running,
  :rabbit@iZ2vc7a1n9gvhfp589oav6Z}
15
16 19:10:01.147 [error] Failed to create a per-user tracked connection table for
  node :rabbit@iZ2vc7a1n9gvhfp589oav6Z: {:node_not_running,
  :rabbit@iZ2vc7a1n9gvhfp589oav6Z}
```

```
17 root@iZ2vc7a1n9gvhfp589oav6Z:~# rabbitmqctl start_app #启动服务
18 Starting node rabbit@iZ2vc7a1n9gvhfp589oav6Z ...
19 root@iZ2vc7a1n9gvhfp589oav6Z:
```

5. 查看集群状态

查看集群状态

```
1 rabbitmqctl cluster_status
```

执行结果:

```
1 root@iZ2vc7a1n9gvhfp589oav7Z:~# rabbitmqctl cluster_status #查看集群状态
2 Cluster status of node rabbit@iZ2vc7a1n9gvhfp589oav7Z ...
3 Basics
4
5 Cluster name: rabbit@iZ2vc7a1n9gvhfp589oav7Z
6
7 Disk Nodes
8
9 rabbit@iZ2vc7a1n9gvhfp589oav6Z
10 rabbit@iZ2vc7a1n9gvhfp589oav7Z
11 rabbit@iZ2vc7a1n9gvhfp589oav8Z
12
13 Running Nodes
14
15 rabbit@iZ2vc7a1n9gvhfp589oav6Z
16 rabbit@iZ2vc7a1n9gvhfp589oav7Z
17 rabbit@iZ2vc7a1n9gvhfp589oav8Z
18
19 Versions
20
21 rabbit@iZ2vc7a1n9gvhfp589oav6Z: RabbitMQ 3.9.13 on Erlang 24.2.1
22 rabbit@iZ2vc7a1n9gvhfp589oav7Z: RabbitMQ 3.9.13 on Erlang 24.2.1
23 rabbit@iZ2vc7a1n9gvhfp589oav8Z: RabbitMQ 3.9.13 on Erlang 24.2.1
24
25 Maintenance status
26
27 Node: rabbit@iZ2vc7a1n9gvhfp589oav6Z, status: not under maintenance
28 Node: rabbit@iZ2vc7a1n9gvhfp589oav7Z, status: not under maintenance
29 Node: rabbit@iZ2vc7a1n9gvhfp589oav8Z, status: not under maintenance
30
```

```
31 Alarms
32
33 (none)
34
35 Network Partitions
36
37 (none)
38
39 Listeners
40
41 Node: rabbit@iZ2vc7a1n9gvhfp589oav6Z, interface: [::], port: 25672, protocol:
    clustering, purpose: inter-node and CLI tool communication
42 Node: rabbit@iZ2vc7a1n9gvhfp589oav6Z, interface: [::], port: 5672, protocol:
    amqp, purpose: AMQP 0-9-1 and AMQP 1.0
43 Node: rabbit@iZ2vc7a1n9gvhfp589oav7Z, interface: [::], port: 15672, protocol:
    http, purpose: HTTP API
44 Node: rabbit@iZ2vc7a1n9gvhfp589oav7Z, interface: [::], port: 25672, protocol:
    clustering, purpose: inter-node and CLI tool communication
45 Node: rabbit@iZ2vc7a1n9gvhfp589oav7Z, interface: [::], port: 5672, protocol:
    amqp, purpose: AMQP 0-9-1 and AMQP 1.0
46 Node: rabbit@iZ2vc7a1n9gvhfp589oav8Z, interface: [::], port: 25672, protocol:
    clustering, purpose: inter-node and CLI tool communication
47 Node: rabbit@iZ2vc7a1n9gvhfp589oav8Z, interface: [::], port: 5672, protocol:
    amqp, purpose: AMQP 0-9-1 and AMQP 1.0
48
49 Feature flags
50
51 Flag: drop_unroutable_metric, state: enabled
52 Flag: empty_basic_get_metric, state: enabled
53 Flag: implicit_default_bindings, state: enabled
54 Flag: maintenance_mode_status, state: enabled
55 Flag: quorum_queue, state: enabled
56 Flag: stream_queue, state: enabled
57 Flag: user_limits, state: enabled
58 Flag: virtual_host_metadata, state: enabled
59 root@iZ2vc7a1n9gvhfp589oav7Z:~#
```

管理平台,也可以看到集群的信息

Overview

Totals

Queued messages last minute ?



Ready 0
Unacked 0
Total 0

Message rates last minute ?



Disk read 0.00/s
Disk write 0.00/s

Global counts ?

Connections: 0 Channels: 0 Exchanges: 14 Queues: 1 Consumers: 0

Nodes

Name	File descriptors ?	Socket descriptors ?	Erlang processes	Memory ?	Disk space	Uptime	Info	Reset stats	+/-
rabbit@iZ2vc7a1n9gvhfp589oav6Z	39 65535 available	0 58892 available	368 1048576 available	131 MiB 2.8 GiB high watermark	7.8 GiB 48 MiB low watermark	1h 14m	basic disc 1 rss	This node All nodes	
rabbit@iZ2vc7a1n9gvhfp589oav7Z	40 65535 available	0 58892 available	371 1048576 available	131 MiB 2.8 GiB high watermark	24 GiB 48 MiB low watermark	1h 14m	basic disc 1 rss	This node All nodes	
rabbit@iZ2vc7a1n9gvhfp589oav8Z	39 65535 available	0 58892 available	368 1048576 available	131 MiB 2.8 GiB high watermark	20 GiB 48 MiB low watermark	43m 42s	basic disc 1 rss	This node All nodes	

6. 常见问题

6.1 Node statistics not available

cluster搭建起来后, 如果在管理界面中, Nodes部分看到"Node statistics not available", 说明在该节点上web管理插件还未启用.

界面如下所示:

Nodes										+/-
Name	File descriptors ?	Socket descriptors ?	Erlang processes	Memory ?	Disk space	Uptime	Info	Reset stats		
rabbit@iZ2vc7a1n9gvhfp589oav6Z	Node statistics not available									
rabbit@iZ2vc7a1n9gvhfp589oav7Z	40 65535 available	0 58892 available	371 1048576 available	129 MiB 2.8 GiB high watermark	24 GiB 48 MiB low watermark	34m 45s	basic disc 1 rss	This node All nodes		
rabbit@iZ2vc7a1n9gvhfp589oav8Z	Node statistics not available									

解决办法:

启动 rabbitmq_management 插件即可

在显示提示信息的节点上运行 rabbitmq-plugins enable rabbitmq_management

```
1 rabbitmq-plugins enable rabbitmq_management
```