

# RabbitMQ Cluster

- [Clustering Guide — RabbitMQ](#)
- [RabbitMQ Learning III: RabbitMQ Clustering and Load Balancing](#)
- [How to Set Up the RabbitMQ Cluster on Ubuntu/Debian Linux](#)
- [Clustering Guide \(vmware.com\)](#)
- [RabbitMQ ???? \(with HAProxy\)](#)
- [RabbitMQ?????? | guaosi???](#)

For Windows only

- [??? Windwos ??? RabbitMQ Cluster](#)

## A few things to RabbitMQ Cluster

- Classic Queues ????? Cluster ???? node???????????? node ??????? Queues  
?????? nodes?????? [Quorum Queues](#)?
- Cluster ???? node ?????? peer????????????????
- Cluster ??? node ???? cookie ?????cookie ???? `/var/lib/rabbitmq/.erlang.cookie` ?
- ?? Cluster ?? ? Node ??????????? 3?5?7???????????? node ??????? Cluster  
????????????
- ?? Node ????????????? 1 ? Node ????????????????????? 2 ?Node  
????????????
- Cluster ??????? LAN?????? WAN?????? Cluster ??? Node  
???????????????????? Node ??????? 60 ??Cluster ???? Network Partition ??????  
split-brain (??) ?? ????????? Cluster ??????????????[Clustering and Network Partitions](#)
- ?? Cluster ?????????????????Queues?Exchanges?Routing Key????????????
- Node Plugin ???????

????

1. tpeeaprmq98 (node01)
2. tpeeaprmq981 (node02)
3. tpeeaprmq982 (node03)

/etc/hosts:

```
10.14.2.51    tpeeaprmq98
10.4.1.33     tpeeaprmq981
10.4.1.34     tpeeaprmq982
```

## ?? RabbitMQ

?????????? RabbitMQ ??????

## ?? Cookie ???

?? node ??????? Erlang cookie ?????

???? RabbitMQ ???cookie ????????????????????????????????????? 0600 ???? Cluster ???  
node ??????? cookit ??

```
scp /var/lib/rabbitmq/.erlang.cookie root@tpeeaprmq981:/var/lib/rabbitmq/
scp /var/lib/rabbitmq/.erlang.cookie root@tpeeaprmq982:/var/lib/rabbitmq/
```

cookie ???

“ ?????? /var/lib/rabbitmq/.erlang.cookie ?

```
rabbitmq-diagnostics erlang_cookie_sources
```

## ?? Cluster

Detach the service of all nodes

???? Cluster ?????? node ??????? Cluster?

```
# On Node01
rabbitmq-server -detached

# On Node02
rabbitmq-server -detached

# On Node03
```

## Verify the cluster status

```
[root@tpeeaprmq98 ~]# rabbitmqctl cluster_status
```

Cluster status of node rabbit@tpeeaprmq98 ...

Basics

Cluster name: rabbit@tpeeaprmq98

Disk Nodes

rabbit@tpeeaprmq98

Running Nodes

rabbit@tpeeaprmq98

Versions

rabbit@tpeeaprmq98: RabbitMQ 3.10.7 on Erlang 25.0.4

Maintenance status

Node: rabbit@tpeeaprmq98, status: not under maintenance

Alarms

(none)

Network Partitions

(none)

Listeners

Node: rabbit@tpeeaprmq98, interface: [::], port: 15672, protocol: http, purpose: HTTP API

Node: rabbit@tpeeaprmq98, interface: [::], port: 1883, protocol: mqtt, purpose: MQTT

Node: rabbit@tpeeaprmq98, interface: [::], port: 25672, protocol: clustering, purpose: inter-node and CLI tool communication

Node: rabbit@tpeeaprmq98, interface: [::], port: 15690, protocol: amqp, purpose: AMQP 0-9-1 and AMQP 1.0

#### Feature flags

Flag: classic\_mirrored\_queue\_version, state: enabled

Flag: drop\_unroutable\_metric, state: disabled

Flag: empty\_basic\_get\_metric, state: disabled

Flag: implicit\_default\_bindings, state: enabled

Flag: maintenance\_mode\_status, state: enabled

Flag: quorum\_queue, state: enabled

Flag: stream\_queue, state: enabled

Flag: user\_limits, state: enabled

Flag: virtual\_host\_metadata, state: enabled

```
[root@tpeeaprmq981 ~]# rabbitmqctl cluster_status
```

Cluster status of node rabbit@tpeeaprmq981 ...

#### Basics

Cluster name: rabbit@tpeeaprmq981

#### Disk Nodes

rabbit@tpeeaprmq981

#### Running Nodes

rabbit@tpeeaprmq981

#### Versions

rabbit@tpeeaprmq981: RabbitMQ 3.10.7 on Erlang 25.0.4

#### Maintenance status

Node: rabbit@tpeeaprmq981, status: not under maintenance

#### Alarms

(none)

## Network Partitions

(none)

## Listeners

Node: rabbit@tpeeaprmq981, interface: [::], port: 15672, protocol: http, purpose: HTTP API

Node: rabbit@tpeeaprmq981, interface: [::], port: 1883, protocol: mqtt, purpose: MQTT

Node: rabbit@tpeeaprmq981, interface: [::], port: 25672, protocol: clustering, purpose: inter-node and CLI tool communication

Node: rabbit@tpeeaprmq981, interface: [::], port: 15690, protocol: amqp, purpose: AMQP 0-9-1 and AMQP 1.0

## Feature flags

Flag: classic\_mirrored\_queue\_version, state: enabled

Flag: drop\_unroutable\_metric, state: enabled

Flag: empty\_basic\_get\_metric, state: enabled

Flag: implicit\_default\_bindings, state: enabled

Flag: maintenance\_mode\_status, state: enabled

Flag: quorum\_queue, state: enabled

Flag: stream\_queue, state: enabled

Flag: user\_limits, state: enabled

Flag: virtual\_host\_metadata, state: enabled

```
[root@tpeeaprmq982 ~]# rabbitmqctl cluster_status
```

Cluster status of node rabbit@tpeeaprmq982 ...

## Basics

Cluster name: rabbit@tpeeaprmq982

## Disk Nodes

rabbit@tpeeaprmq982

## Running Nodes

rabbit@tpeeaprmq982

## Versions

rabbit@tpeeaprmq982: RabbitMQ 3.10.7 on Erlang 25.0.4

#### Maintenance status

Node: rabbit@tpeeaprmq982, status: not under maintenance

#### Alarms

(none)

#### Network Partitions

(none)

#### Listeners

Node: rabbit@tpeeaprmq982, interface: [::], port: 15672, protocol: http, purpose: HTTP API

Node: rabbit@tpeeaprmq982, interface: [::], port: 1883, protocol: mqtt, purpose: MQTT

Node: rabbit@tpeeaprmq982, interface: [::], port: 25672, protocol: clustering, purpose: inter-node and CLI tool communication

Node: rabbit@tpeeaprmq982, interface: [::], port: 15690, protocol: amqp, purpose: AMQP 0-9-1 and AMQP 1.0

#### Feature flags

Flag: classic\_mirrored\_queue\_version, state: enabled

Flag: drop\_unroutable\_metric, state: enabled

Flag: empty\_basic\_get\_metric, state: enabled

Flag: implicit\_default\_bindings, state: enabled

Flag: maintenance\_mode\_status, state: enabled

Flag: quorum\_queue, state: enabled

Flag: stream\_queue, state: enabled

Flag: user\_limits, state: enabled

Flag: virtual\_host\_metadata, state: enabled

## Creating a Cluster

? node02 ? node03 ??? node01?

# On Node02

rabbitmqctl stop\_app

```
rabbitmqctl reset
rabbitmqctl join_cluster rabbit@tpeeaprmq98
rabbitmqctl start_app
```

```
# On Node03
rabbitmqctl stop_app
rabbitmqctl reset
rabbitmqctl join_cluster rabbit@tpeeaprmq98
rabbitmqctl start_app
```

?? cluster ??????????????????

```
[root@tpeeaprmq981 ~]# rabbitmqctl join_cluster rabbit@tpeeaprmq98
Clustering node rabbit@tpeeaprmq981 with rabbit@tpeeaprmq98
```

```
15:10:18.438 [warning] Feature flags: the previous instance of this node must have failed to write the
`feature_flags` file at `/var/lib/rabbitmq/mnesia/rabbit@tpeeaprmq981-feature_flags`:
```

```
15:10:18.438 [warning] Feature flags: - list of previously disabled feature flags now marked as such:
[:maintenance_mode_status]
```

```
15:10:18.561 [warning] Feature flags: the previous instance of this node must have failed to write the
`feature_flags` file at `/var/lib/rabbitmq/mnesia/rabbit@tpeeaprmq981-feature_flags`:
```

```
15:10:18.561 [warning] Feature flags: - list of previously enabled feature flags now marked as such:
[:maintenance_mode_status]
```

```
15:10:18.598 [error] Failed to create a tracked connection table for node :rabbit@tpeeaprmq981:
{:node_not_running, :rabbit@tpeeaprmq981}
```

```
15:10:18.598 [error] Failed to create a per-vhost tracked connection table for node :rabbit@tpeeaprmq981:
{:node_not_running, :rabbit@tpeeaprmq981}
```

```
15:10:18.599 [error] Failed to create a per-user tracked connection table for node :rabbit@tpeeaprmq981:
{:node_not_running, :rabbit@tpeeaprmq981}
```

Verify the cluster status

?? node ? Cluster ?????????????? Cluster name ?????????? node name?

```
[root@tpeeaprmq98 ~]# rabbitmqctl cluster_status
```

```
Cluster status of node rabbit@tpeeaprmq98 ...
```

#### Basics

```
Cluster name: rabbit@tpeeaprmq98
```

#### Disk Nodes

```
rabbit@tpeeaprmq98
```

```
rabbit@tpeeaprmq981
```

```
rabbit@tpeeaprmq982
```

#### Running Nodes

```
rabbit@tpeeaprmq98
```

```
rabbit@tpeeaprmq981
```

```
rabbit@tpeeaprmq982
```

#### Versions

```
rabbit@tpeeaprmq98: RabbitMQ 3.10.7 on Erlang 25.0.4
```

```
rabbit@tpeeaprmq981: RabbitMQ 3.10.7 on Erlang 25.0.4
```

```
rabbit@tpeeaprmq982: RabbitMQ 3.10.7 on Erlang 25.0.4
```

#### Maintenance status

```
Node: rabbit@tpeeaprmq98, status: not under maintenance
```

```
Node: rabbit@tpeeaprmq981, status: not under maintenance
```

```
Node: rabbit@tpeeaprmq982, status: not under maintenance
```

#### Alarms

```
(none)
```

#### Network Partitions

```
(none)
```

#### Listeners

Node: rabbit@tpeeaprmq98, interface: [::], port: 15672, protocol: http, purpose: HTTP API  
Node: rabbit@tpeeaprmq98, interface: [::], port: 1883, protocol: mqtt, purpose: MQTT  
Node: rabbit@tpeeaprmq98, interface: [::], port: 25672, protocol: clustering, purpose: inter-node and CLI tool communication  
Node: rabbit@tpeeaprmq98, interface: [::], port: 15690, protocol: amqp, purpose: AMQP 0-9-1 and AMQP 1.0  
Node: rabbit@tpeeaprmq981, interface: [::], port: 15672, protocol: http, purpose: HTTP API  
Node: rabbit@tpeeaprmq981, interface: [::], port: 1883, protocol: mqtt, purpose: MQTT  
Node: rabbit@tpeeaprmq981, interface: [::], port: 25672, protocol: clustering, purpose: inter-node and CLI tool communication  
Node: rabbit@tpeeaprmq981, interface: [::], port: 15690, protocol: amqp, purpose: AMQP 0-9-1 and AMQP 1.0  
Node: rabbit@tpeeaprmq982, interface: [::], port: 15672, protocol: http, purpose: HTTP API  
Node: rabbit@tpeeaprmq982, interface: [::], port: 1883, protocol: mqtt, purpose: MQTT  
Node: rabbit@tpeeaprmq982, interface: [::], port: 25672, protocol: clustering, purpose: inter-node and CLI tool communication  
Node: rabbit@tpeeaprmq982, interface: [::], port: 15690, protocol: amqp, purpose: AMQP 0-9-1 and AMQP 1.0

#### Feature flags

Flag: classic\_mirrored\_queue\_version, state: enabled  
Flag: drop\_unroutable\_metric, state: enabled  
Flag: empty\_basic\_get\_metric, state: enabled  
Flag: implicit\_default\_bindings, state: enabled  
Flag: maintenance\_mode\_status, state: enabled  
Flag: quorum\_queue, state: enabled  
Flag: stream\_queue, state: enabled  
Flag: user\_limits, state: enabled  
Flag: virtual\_host\_metadata, state: enabled

## Node ??

?? Cluster???? Cluster ??????????

```
systemctl disable rabbitmq-server
```

## ?? Node

```
# Recommend using systemd  
systemctl stop rabbitmq-server  
systemctl start rabbitmq-server
```

```
# Using rabbitmqctl + systemd
rabbitmqctl stop
systemctl start rabbitmq-server
```

```
# Using rabbitmqctl
# Stop the node
rabbitmqctl stop
# Start the node
rabbitmq-server -detached
# Verify if the node is awaiting schema table sync
rabbitmq-diagnostics check_running

# Forcing node boot
rabbitmqctl force_boot
```

## ??? Node

“ NOTE: ??? Cluster ????????Queues?Exchange ?????????????? Node?

```
# Find out the path of Erlang Cookie file
rabbitmq-diagnostics erlang_cookie_sources
# Copy Cookie from one node of the cluster
scp /var/lib/rabbitmq/.erlang.cookie root@<new-node>:/var/lib/rabbitmq/

# Join a new node into the cluster rabbit@tpeeaprmq98
rabbitmqctl stop_app
rabbitmqctl reset
rabbitmqctl join_cluster <cluster-name>
rabbitmqctl start_app
# Alternatively, you can join it as RAM node by following command
rabbitmqctl join_cluster <cluster-name> --ram
```

## ?? Node

NOTE: Node ?? Cluster ??? Node ?????Queues?Exchange  
????????????

```
# [ ] node
# [ ] node [ ]
rabbitmqctl stop_app
rabbitmqctl reset
rabbitmqctl start_app
rabbitmqctl cluster_status

# [ ] node
# [ ] Cluster [ ] node [ ]
rabbitmqctl forget_cluster_node <node-name>
```

## Rebalance the queues across node

??? quorum queue ??? node ?????????????????? node????????????? **Leader node**?????  
**Follower node**?

Queue ????? Leader node ????? Leader node ????? Follower nodes  
???? Leader node?

??? quorum queue ? Leader node ????? node ?????????????????? node?

- After restarting a node
- After joining a node

“ NOTE: ?? queue ??? Leader node ??? Web-UI ???

queue ? Leader Node ? Channel Node ??????????????

```
rabbitmq-queues rebalance all
rabbitmq-queues rebalance "all" --vhost-pattern "itp_server" --queue-pattern ".*"
```

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Revision #41

Created 26 September 2022 13:28:29 by Admin

Updated 11 April 2023 15:46:31 by Admin