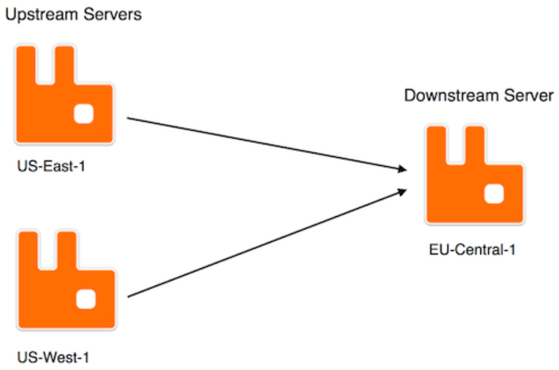
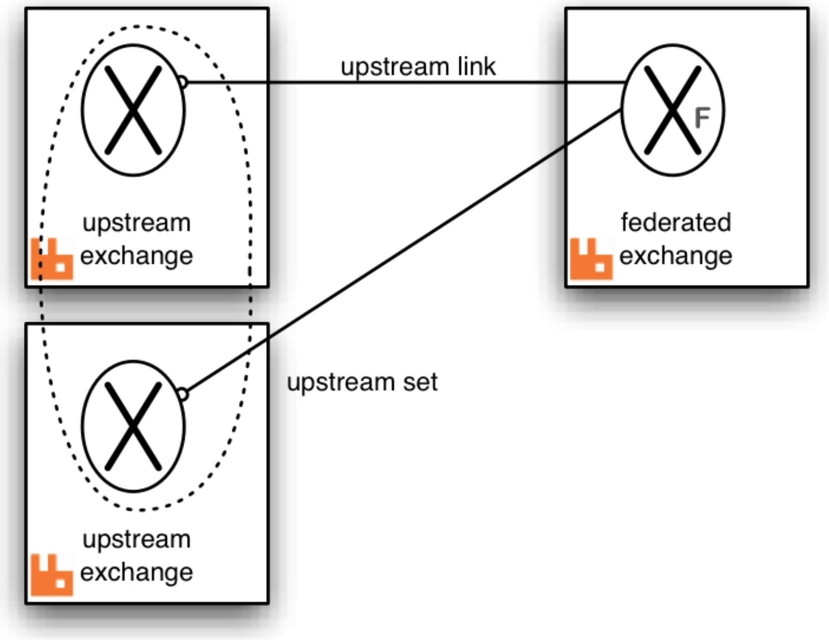
Rabbitmq Federation



Federated Exchanges

What does a federated exchange do?
A federated exchange links to other exchanges (called upstream exchanges). Logically (see next item), messages published to the upstream exchanges are copied to the federated exchange, as though they were published directly to it. The upstream exchanges do not need to be reconfigured and they do not have to be on the same broker or in the same cluster.

Here is a diagram showing a single federated exchange in one broker linking to a set of two upstream exchanges in other brokers.



Reference: https://www.rabbitmq.com/federated-exchanges.html

Glossary

Upstreams: each upstream defines how to connect to another broker.
Upstream sets: each upstream set groups together a set of upstreams to use for federation.
Policies: each policy selects a set of exchanges, queues or both, and applies a single upstream or an upstream set to those objects.
Reference: https://www.rabbitmq.com/federation.html

Enable Federation plugins

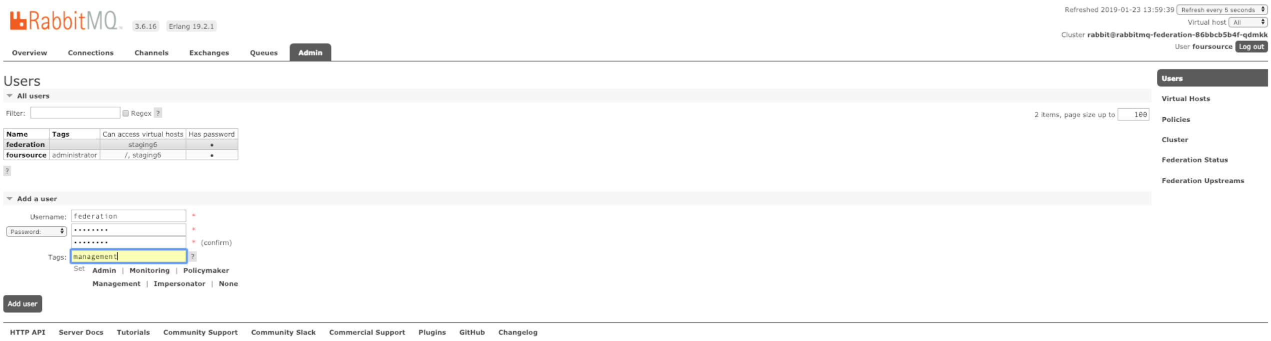
Commands:

```
rabbitmq-plugins enable rabbitmq_federation

rabbitmq-plugins enable rabbitmq_federation_management
```

Upstream and Downstream configuration

Add a new user, example“federation” with “management” tag



Refreshed 2019-01-23 13:59:39 Refresh every 5 seconds
Virtual host All
Cluster **rabbit@rabbitmq-federation-86bbcb5b4f-qdmkk**
User **foursource** Log out

Users

All users

Filter: □ Regex ?

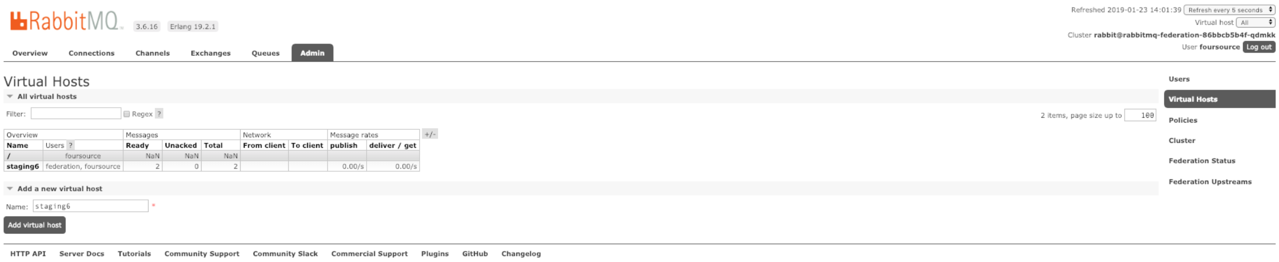
2 items, page size up to 100

Name	Tags	Can access virtual hosts	Has password
federation		staging6	•
foursource	administrator	/, staging6	•

Add a user

Username: federation *
Password: •••••••• *
•••••••• * (confirm)
Tags: management ?
Set Admin | Monitoring | Policymaker
Management | Impersonator | None

Add a virtual host, example “staging6”



Refreshed 2019-01-23 14:01:39 Refresh every 5 seconds
Virtual host All
Cluster **rabbit@rabbitmq-federation-86bbcb5b4f-qdmkk**
User **foursource** Log out

Virtual Hosts

All virtual hosts

Filter: □ Regex ?

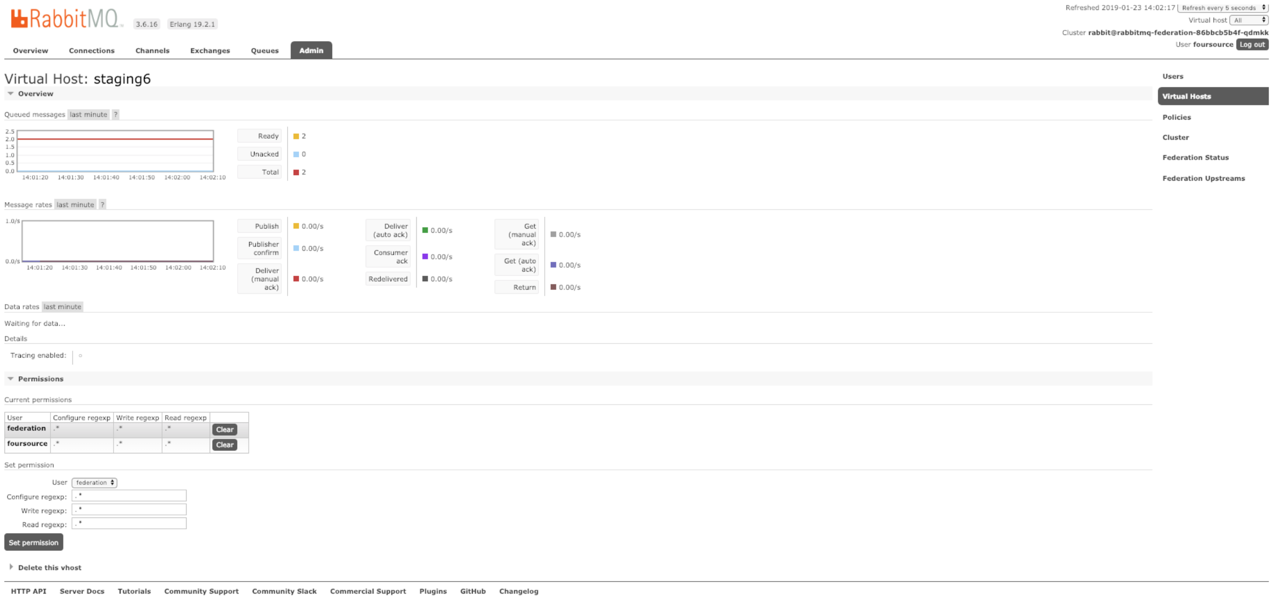
2 items, page size up to 100

Overview		Messages			Network		Message rates	
Name	Users ?	Ready	Unacked	Total	From client	To client	publish	deliver / get
/	foursource	NaN	NaN	NaN				
staging6	federation, foursource	2	0	2			0.00/s	0.00/s

Add a new virtual host

Name: staging6 *

Add permissions on the virtual host “staging6” for the user “federation”



Refreshed 2019-01-23 14:02:17 Refresh every 5 seconds
Virtual host All
Cluster **rabbit@rabbitmq-federation-86bbcb5b4f-qdmkk**
User **foursource** Log out

Virtual Host: staging6

Overview

Queued messages last minute ?

Ready 2
Unacked 0
Total 2

Message rates last minute ?

Publish 0.00/s
Publisher confirm 0.00/s
Deliver (manual ack) 0.00/s
Deliver (auto ack) 0.00/s
Consumer ack 0.00/s
Redelivered 0.00/s
Get (manual ack) 0.00/s
Get (auto ack) 0.00/s
Return 0.00/s

Data rates last minute

Waiting for data...

Details

Tracing enabled: ○

Permissions

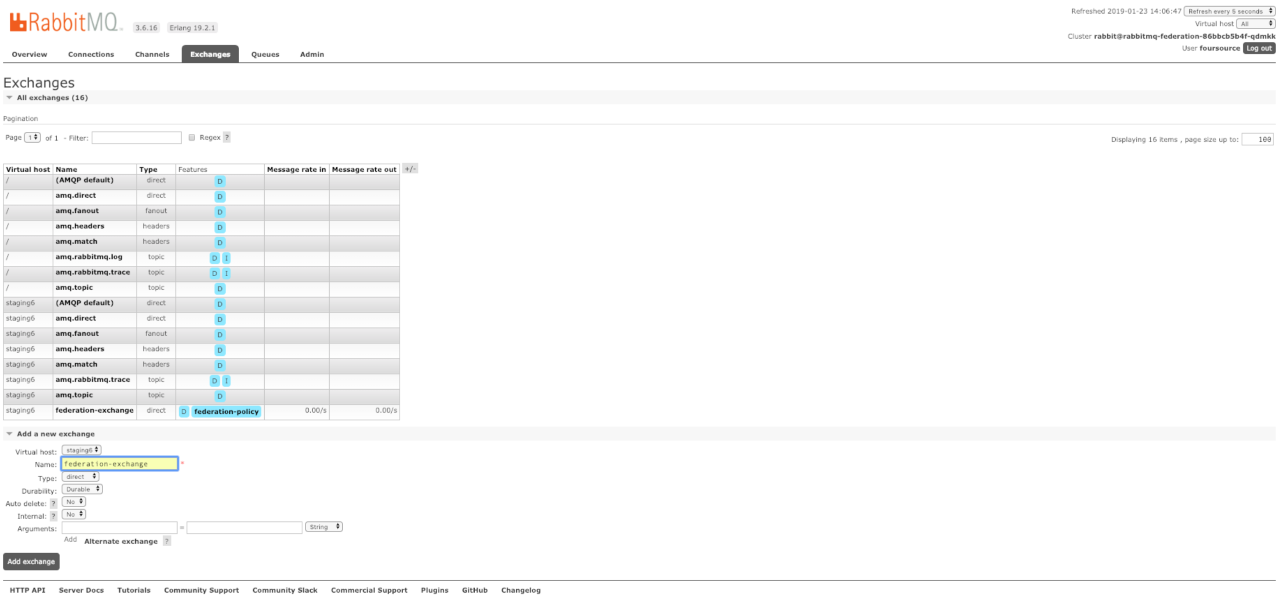
Current permissions

User	Configure regexp	Write regexp	Read regexp	
federation	.*	.*	.*	Clear
foursource	.*	.*	.*	Clear

Set permission

User federation
Configure regexp: .*
Write regexp: .*
Read regexp: .*

Create a new exchange, for example "federation-exchange”



Refreshed 2019-01-23 14:06:47 Refresh every 5 seconds
Virtual host All
Cluster **rabbit@rabbitmq-federation-86bbcb5b4f-qdmkk**
User **foursource** Log out

Exchanges

▾ **All exchanges (16)**

Pagination

Page 1 of 1 - Filter: □ Regex ?

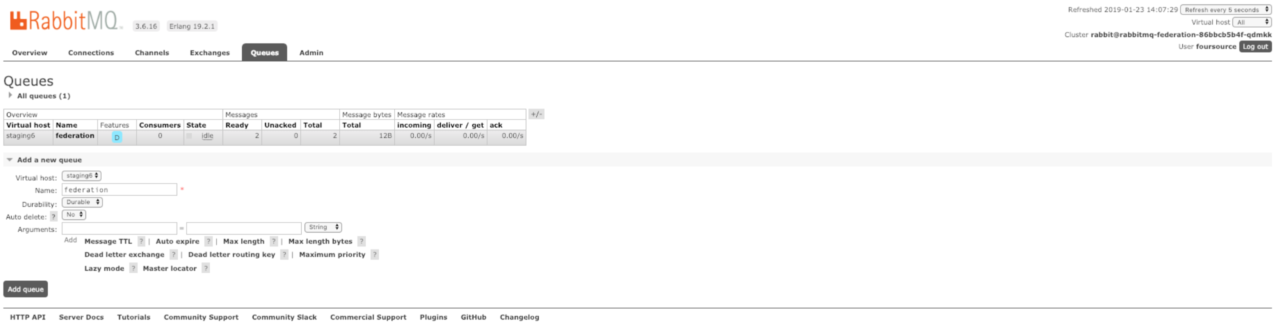
Displaying 16 items , page size up to: 100

Virtual host	Name	Type	Features	Message rate in	Message rate out
/	**(AMQP default)**	direct	D		
/	**amq.direct**	direct	D		
/	**amq.fanout**	fanout	D		
/	**amq.headers**	headers	D		
/	**amq.match**	headers	D		
/	**amq.rabbitmq.log**	topic	D I		
/	**amq.rabbitmq.trace**	topic	D I		
/	**amq.topic**	topic	D		
staging6	**(AMQP default)**	direct	D		
staging6	**amq.direct**	direct	D		
staging6	**amq.fanout**	fanout	D		
staging6	**amq.headers**	headers	D		
staging6	**amq.match**	headers	D		
staging6	**amq.rabbitmq.trace**	topic	D I		
staging6	**amq.topic**	topic	D		
staging6	**federation-exchange**	direct	D **federation-policy**	0.00/s	0.00/s

▾ **Add a new exchange**

Virtual host: staging6
Name: federation-exchange *
Type: direct
Durability: Durable
Auto delete: ? No
Internal: ? No
Arguments: = String
Add **Alternate exchange** ?

Add a new queue, for example "federation”



Refreshed 2019-01-23 14:07:29 Refresh every 5 seconds
Virtual host All
Cluster **rabbit@rabbitmq-federation-86bbcb5b4f-qdmkk**
User **foursource** Log out

Queues

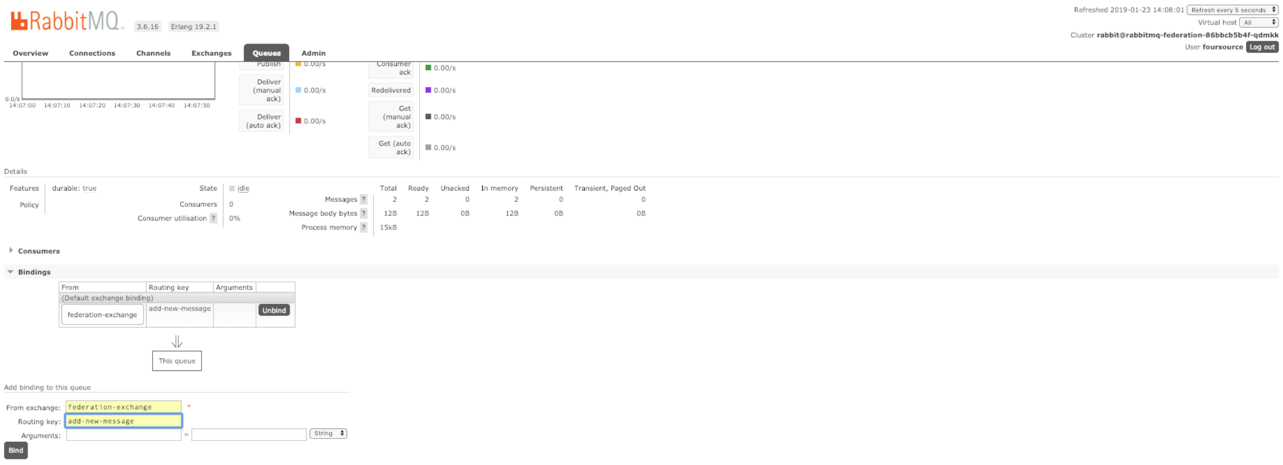
▸ **All queues (1)**

Overview					Messages			Message bytes	Message rates		
Virtual host	**Name**	Features	**Consumers**	**State**	**Ready**	**Unacked**	**Total**	**Total**	**incoming**	**deliver / get**	**ack**
staging6	**federation**	D	0	idle	2	0	2	12B	0.00/s	0.00/s	0.00/s

▾ **Add a new queue**

Virtual host: staging6
Name: federation *
Durability: Durable
Auto delete: ? No
Arguments: = String
Add **Message TTL** ? | **Auto expire** ? | **Max length** ? | **Max length bytes** ?
Dead letter exchange ? | **Dead letter routing key** ? | **Maximum priority** ?
Lazy mode ? **Master locator** ?

Add new binding for the queue “federation”, from exchange “federation-exchange” routing key “add-new-message”



Refreshed 2019-01-23 14:08:01 Refresh every 5 seconds
Virtual host All
Cluster **rabbit@rabbitmq-federation-86bbcb5b4f-qdmkk**
User **foursource** Log out

Details

Features durable: true
Policy

State idle
Consumers 0
Consumer utilisation ? 0%

	Total	Ready	Unacked	In memory	Persistent	Transient, Paged Out
Messages ?	2	2	0	2	0	0
Message body bytes ?	12B	12B	0B	12B	0B	0B
Process memory ?	15kB					

▸ **Consumers**

▾ **Bindings**

From	Routing key	Arguments	
(Default exchange binding)			
federation-exchange	add-new-message		Unbind

⇓

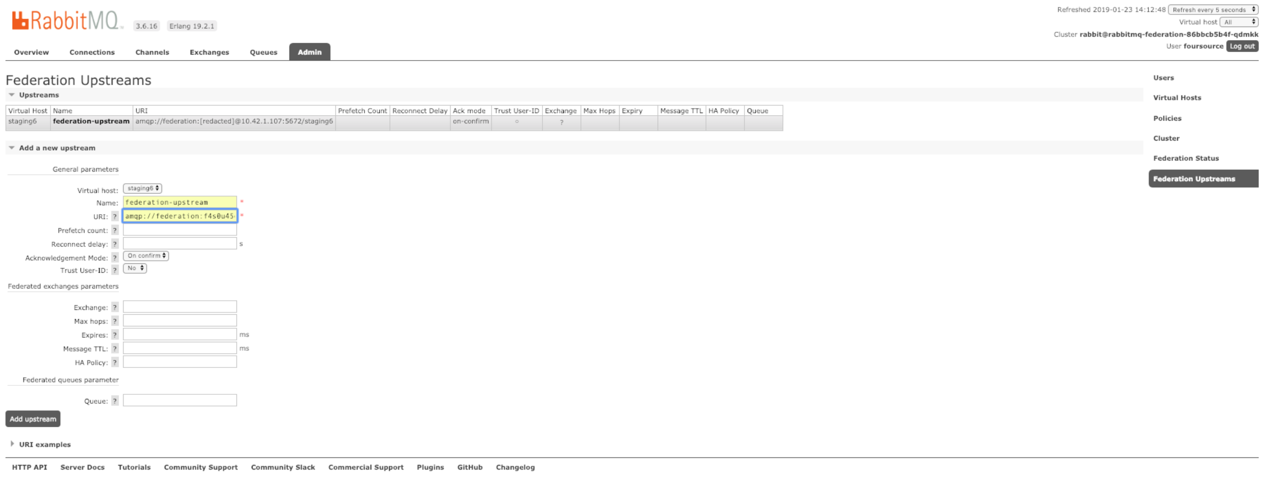
This queue

Add binding to this queue

From exchange: federation-exchange *
Routing key: add-new-message
Arguments: = String

Downstream configuration

Create a new federation upstream, example "federation-upstream", uri "amqp://federation:f4s0u45e@10.42.1.107:5672/staging6"



Refreshed 2019-01-23 14:12:48

Virtual host All

Cluster **rabbit@rabbitmq-federation-86bbcb5b4f-qdmkk**

User **foursource**

Federation Upstreams

Upstreams

Virtual Host	Name	URI	Prefetch Count	Reconnect Delay	Ack mode	Trust User-ID	Exchange	Max Hops	Expiry	Message TTL	HA Policy	Queue
staging6	**federation-upstream**	amqp://federation:[redacted]@10.42.1.107:5672/staging6			on-confirm	○	?					

Add a new upstream

General parameters

Virtual host: staging6
Name: federation-upstream *
URI: ? amqp://federation:f4s0u45 *
Prefetch count: ?
Reconnect delay: ? s
Acknowledgement Mode: ? On confirm
Trust User-ID: ? No

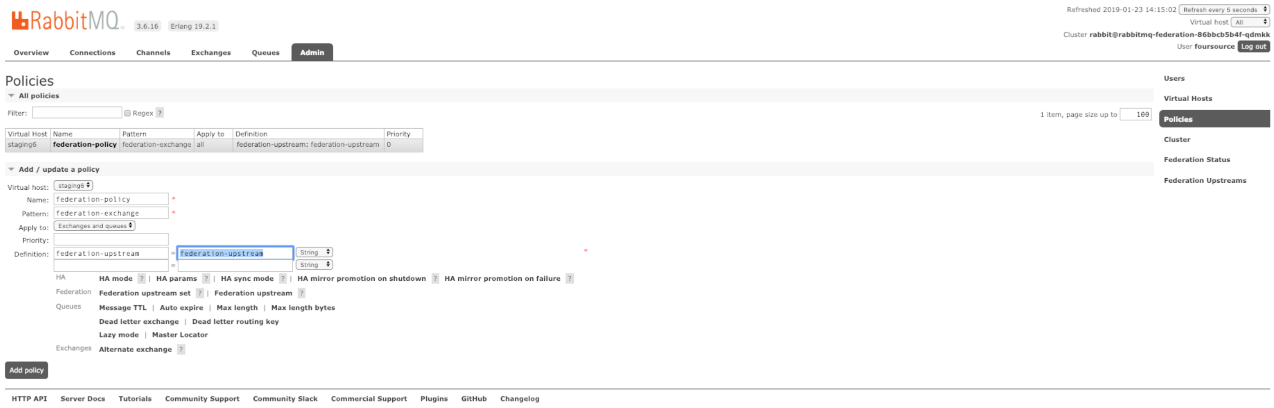
Federated exchanges parameters

Exchange: ?
Max hops: ?
Expires: ? ms
Message TTL: ? ms
HA Policy: ?

Federated queues parameter

Queue: ?

Create a new policy, example "federation-policy", pattern "federation-exchange", definition "federation-upstream" = "federation-upstream"



Refreshed 2019-01-23 14:15:02

Virtual host All

Cluster **rabbit@rabbitmq-federation-86bbcb5b4f-qdmkk**

User **foursource**

Policies

All policies

Filter: □ Regex ?

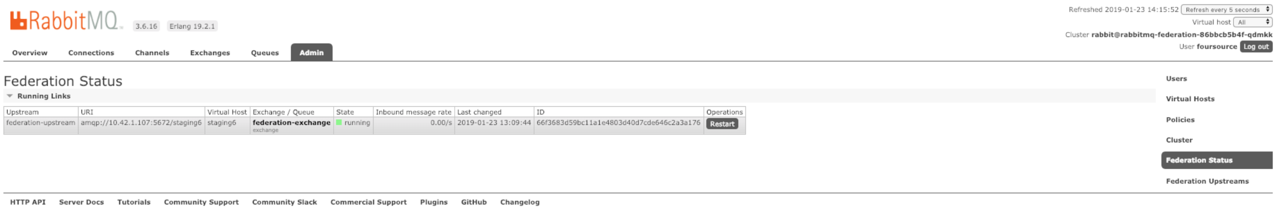
1 item, page size up to 100

Virtual Host	Name	Pattern	Apply to	Definition	Priority
staging6	**federation-policy**	federation-exchange	all	federation-upstream: federation-upstream	0

Add / update a policy

Virtual host: staging6
Name: federation-policy *
Pattern: federation-exchange *
Apply to: Exchanges and queues
Priority:
Definition: federation-upstream = federation-upstream String *
= String

Check the federation status



Refreshed 2019-01-23 14:15:52

Virtual host All

Cluster **rabbit@rabbitmq-federation-86bbcb5b4f-qdmkk**

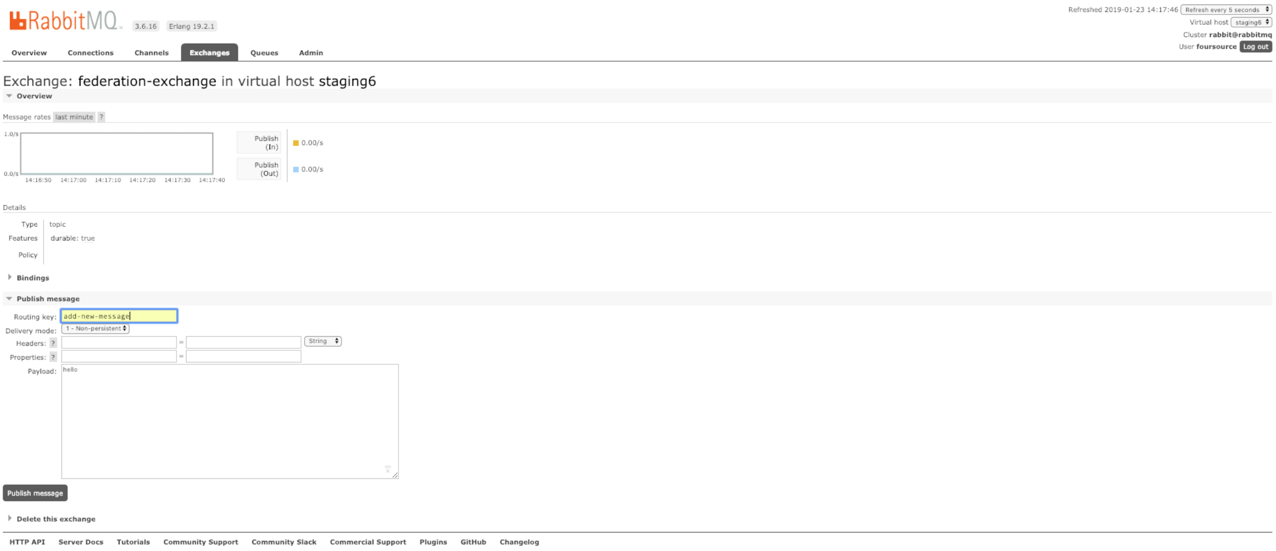
User **foursource**

Federation Status

Running Links

Upstream	URI	Virtual Host	Exchange / Queue	State	Inbound message rate	Last changed	ID	Operations
federation-upstream	amqp://10.42.1.107:5672/staging6	staging6	**federation-exchange** exchange	🟩 running	0.00/s	2019-01-23 13:09:44	66f3683d59bc11a1e4803d40d7cde646c2a3a176	Restart

Try to send a message from the upstream exchange “federation-exchange” with routing key “add-new-message” to the downstream



Refreshed 2019-01-23 14:17:46 Refresh every 5 seconds

Virtual host staging6

Cluster **rabbit@rabbitmq**

User **foursource**

Exchange: federation-exchange in virtual host staging6

Overview

Message rates last minute ?

Publish (In)	0.00/s
Publish (Out)	0.00/s

Details

Type	topic
Features	durable: true
Policy	

Bindings

Publish message

Routing key: add-new-message

Delivery mode: 1 - Non-persistent

Headers: ? = String

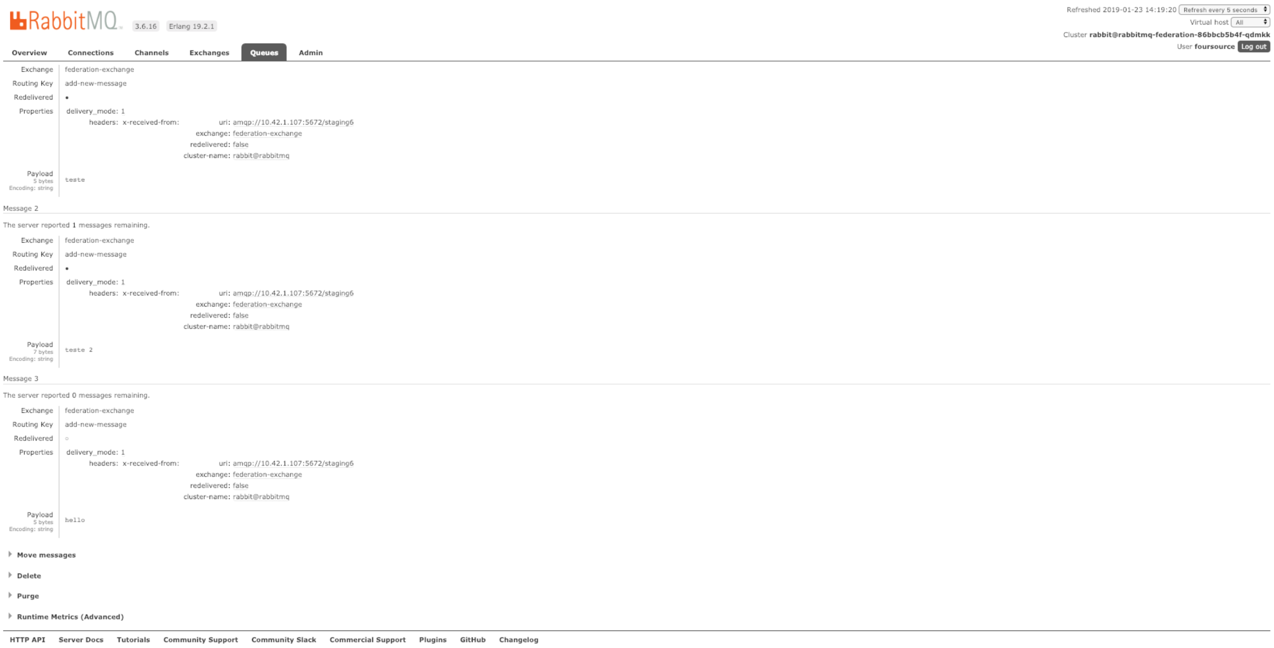
Properties: ? =

Payload: hello

Publish message

Delete this exchange

Check if the downstream received the message



Refreshed 2019-01-23 14:19:20 Refresh every 5 seconds

Virtual host All

Cluster **rabbit@rabbitmq-federation-86bbcb5b4f-qdmkk**

User **foursource**

```
    Exchange  federation-exchange
 Routing Key  add-new-message
 Redelivered  •
  Properties  delivery_mode: 1
                    headers:  x-received-from:          uri: amqp://10.42.1.107:5672/staging6
                                                   exchange: federation-exchange
                                                redelivered: false
                                               cluster-name: rabbit@rabbitmq

     Payload
     5 bytes  teste
Encoding: string

Message 2

The server reported 1 messages remaining.

    Exchange  federation-exchange
 Routing Key  add-new-message
 Redelivered  •
  Properties  delivery_mode: 1
                    headers:  x-received-from:          uri: amqp://10.42.1.107:5672/staging6
                                                   exchange: federation-exchange
                                                redelivered: false
                                               cluster-name: rabbit@rabbitmq

     Payload
     7 bytes  teste 2
Encoding: string

Message 3

The server reported 0 messages remaining.

    Exchange  federation-exchange
 Routing Key  add-new-message
 Redelivered  ○
  Properties  delivery_mode: 1
                    headers:  x-received-from:          uri: amqp://10.42.1.107:5672/staging6
                                                   exchange: federation-exchange
                                                redelivered: false
                                               cluster-name: rabbit@rabbitmq

     Payload
     5 bytes  hello
Encoding: string
```

Move messages

Delete

Purge

Runtime Metrics (Advanced)