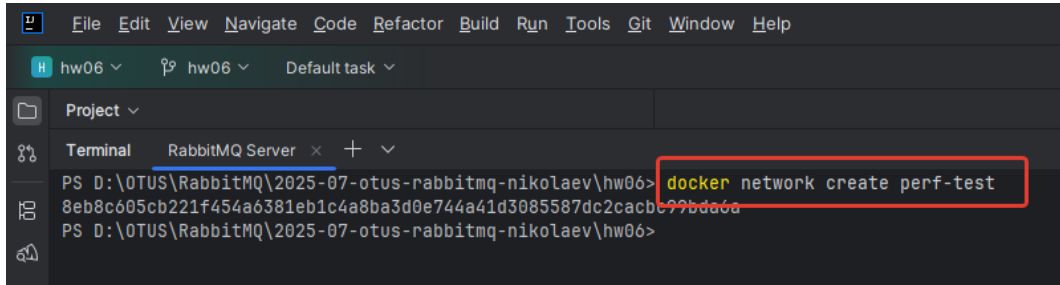


1. Тестирование классических очередей.

1.1. Создаем отдельную сеть в Docker для связи RabbitMQ сервера и stream-perf-test.

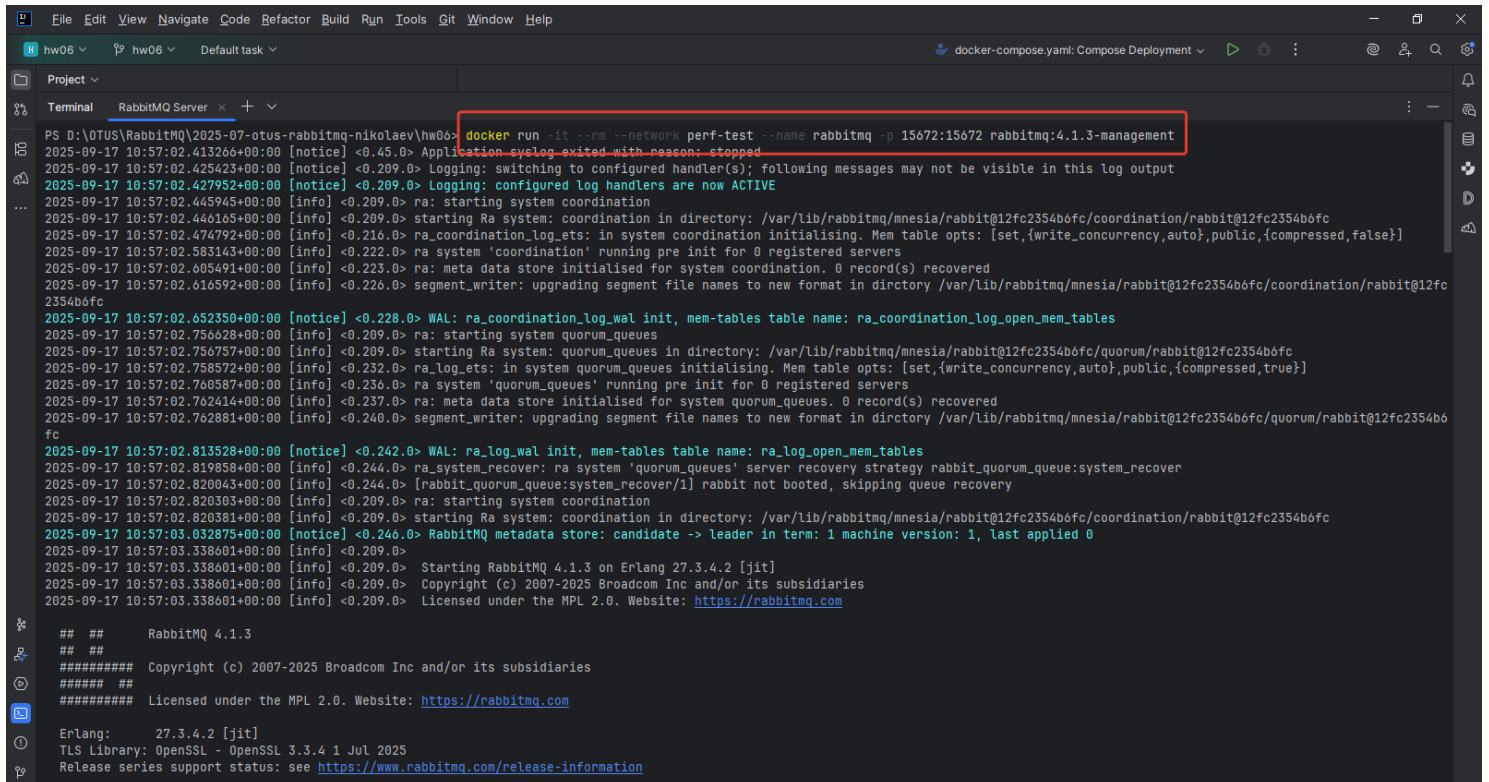
```
docker network create stream-perf-test
```



```
PS D:\OTUS\RabbitMQ\2025-07-otus-rabbitmq-nikolaev\hw06> docker network create perf-test
8eb8c605cb221f454a6381eb1c4a8ba3d0e744a41d3085587dc2cacbc77bda6da
PS D:\OTUS\RabbitMQ\2025-07-otus-rabbitmq-nikolaev\hw06>
```

1.2. Создаем и запускаем докер контейнер с сервером RabbitMQ в созданной на предыдущем шаге сети.

```
docker run -it --rm --network perf-test --name rabbitmq rabbitmq:4.1.3-management
```



```
PS D:\OTUS\RabbitMQ\2025-07-otus-rabbitmq-nikolaev\hw06> docker run -it --rm --network perf-test --name rabbitmq -p 15672:15672 rabbitmq:4.1.3-management
2025-09-17 10:57:02.413266+00:00 [notice] <0.45.0> Application syslog exited with reason: stopped
2025-09-17 10:57:02.425423+00:00 [notice] <0.209.0> Logging: switching to configured handler(s); following messages may not be visible in this log output
2025-09-17 10:57:02.427952+00:00 [notice] <0.209.0> Logging: configured log handlers are now ACTIVE
2025-09-17 10:57:02.445945+00:00 [info] <0.209.0> ra: starting system coordination
2025-09-17 10:57:02.446165+00:00 [info] <0.209.0> starting Ra system: coordination in directory: /var/lib/rabbitmq/mnesia/rabbit@12fc2354b6fc/coordination/rabbit@12fc2354b6fc
2025-09-17 10:57:02.474792+00:00 [info] <0.216.0> ra_coordination_log_ets: in system coordination initialising. Mem table opts: [set,{write_concurrency,auto},public,{compressed,false}]
2025-09-17 10:57:02.583143+00:00 [info] <0.222.0> ra system 'coordination' running pre init for 0 registered servers
2025-09-17 10:57:02.605491+00:00 [info] <0.223.0> ra: meta data store initialised for system coordination. 0 record(s) recovered
2025-09-17 10:57:02.616592+00:00 [info] <0.226.0> segment_writer: upgrading segment file names to new format in directory /var/lib/rabbitmq/mnesia/rabbit@12fc2354b6fc/coordination/rabbit@12fc2354b6fc
2025-09-17 10:57:02.652350+00:00 [notice] <0.228.0> WAL: ra_coordination_log_wal_init, mem-tables table name: ra_coordination_log_open_mem_tables
2025-09-17 10:57:02.756628+00:00 [info] <0.209.0> ra: starting system quorum_queues
2025-09-17 10:57:02.756757+00:00 [info] <0.209.0> starting Ra system: quorum_queues in directory: /var/lib/rabbitmq/mnesia/rabbit@12fc2354b6fc/quorum/rabbit@12fc2354b6fc
2025-09-17 10:57:02.758572+00:00 [info] <0.232.0> ra_log_ets: in system quorum_queues initialising. Mem table opts: [set,{write_concurrency,auto},public,{compressed,true}]
2025-09-17 10:57:02.760587+00:00 [info] <0.236.0> ra system 'quorum_queues' running pre init for 0 registered servers
2025-09-17 10:57:02.762414+00:00 [info] <0.237.0> ra: meta data store initialised for system quorum_queues. 0 record(s) recovered
2025-09-17 10:57:02.762881+00:00 [info] <0.240.0> segment_writer: upgrading segment file names to new format in directory /var/lib/rabbitmq/mnesia/rabbit@12fc2354b6fc/quorum/rabbit@12fc2354b6fc
2025-09-17 10:57:02.813528+00:00 [notice] <0.242.0> WAL: ra_log_wal_init, mem-tables table name: ra_log_open_mem_tables
2025-09-17 10:57:02.819858+00:00 [info] <0.244.0> ra_system_recover: ra system 'quorum_queues' server recovery strategy rabbit_quorum_queue:system_recover
2025-09-17 10:57:02.820043+00:00 [info] <0.244.0> [rabbit_quorum_queue:system_recover/1] rabbit not booted, skipping queue recovery
2025-09-17 10:57:02.820303+00:00 [info] <0.209.0> ra: starting system coordination
2025-09-17 10:57:02.820381+00:00 [info] <0.209.0> starting Ra system: coordination in directory: /var/lib/rabbitmq/mnesia/rabbit@12fc2354b6fc/coordination/rabbit@12fc2354b6fc
2025-09-17 10:57:03.032875+00:00 [notice] <0.246.0> RabbitMQ metadata store: candidate -> leader in term: 1 machine version: 1, last applied 0
2025-09-17 10:57:03.338001+00:00 [info] <0.209.0>
2025-09-17 10:57:03.338001+00:00 [info] <0.209.0> Starting RabbitMQ 4.1.3 on Erlang 27.3.4.2 [jit]
2025-09-17 10:57:03.338001+00:00 [info] <0.209.0> Copyright (c) 2007-2025 Broadcom Inc and/or its subsidiaries
2025-09-17 10:57:03.338001+00:00 [info] <0.209.0> Licensed under the MPL 2.0. Website: https://rabbitmq.com

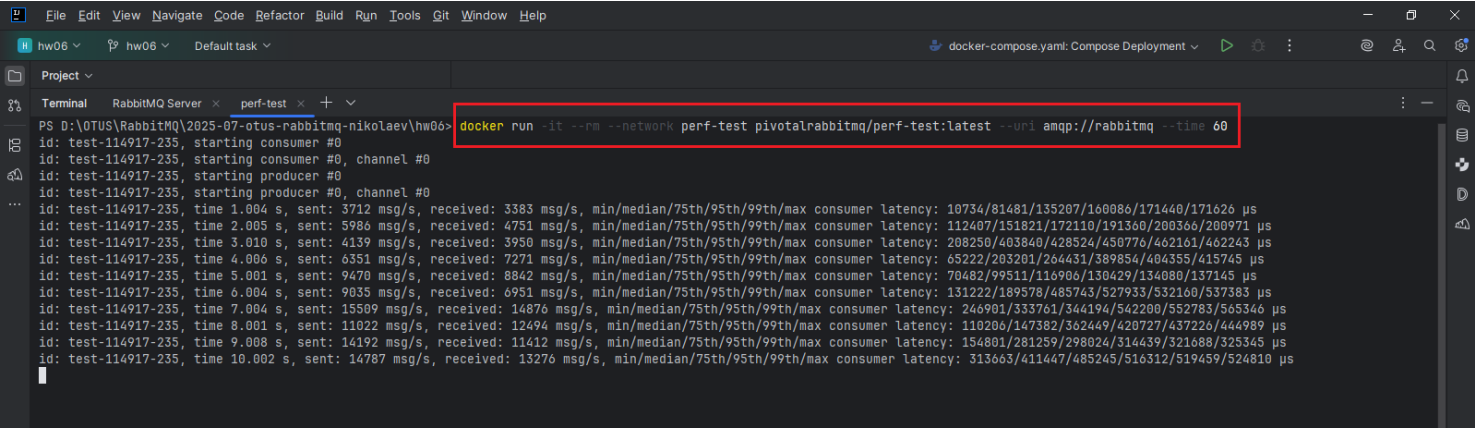
## ##      RabbitMQ 4.1.3
## ##
##### Copyright (c) 2007-2025 Broadcom Inc and/or its subsidiaries
##### ##
##### Licensed under the MPL 2.0. Website: https://rabbitmq.com

Erlang:      27.3.4.2 [jit]
TLS Library: OpenSSL - OpenSSL 3.3.4 1 Jul 2025
Release series support status: see https://www.rabbitmq.com/release-information
```

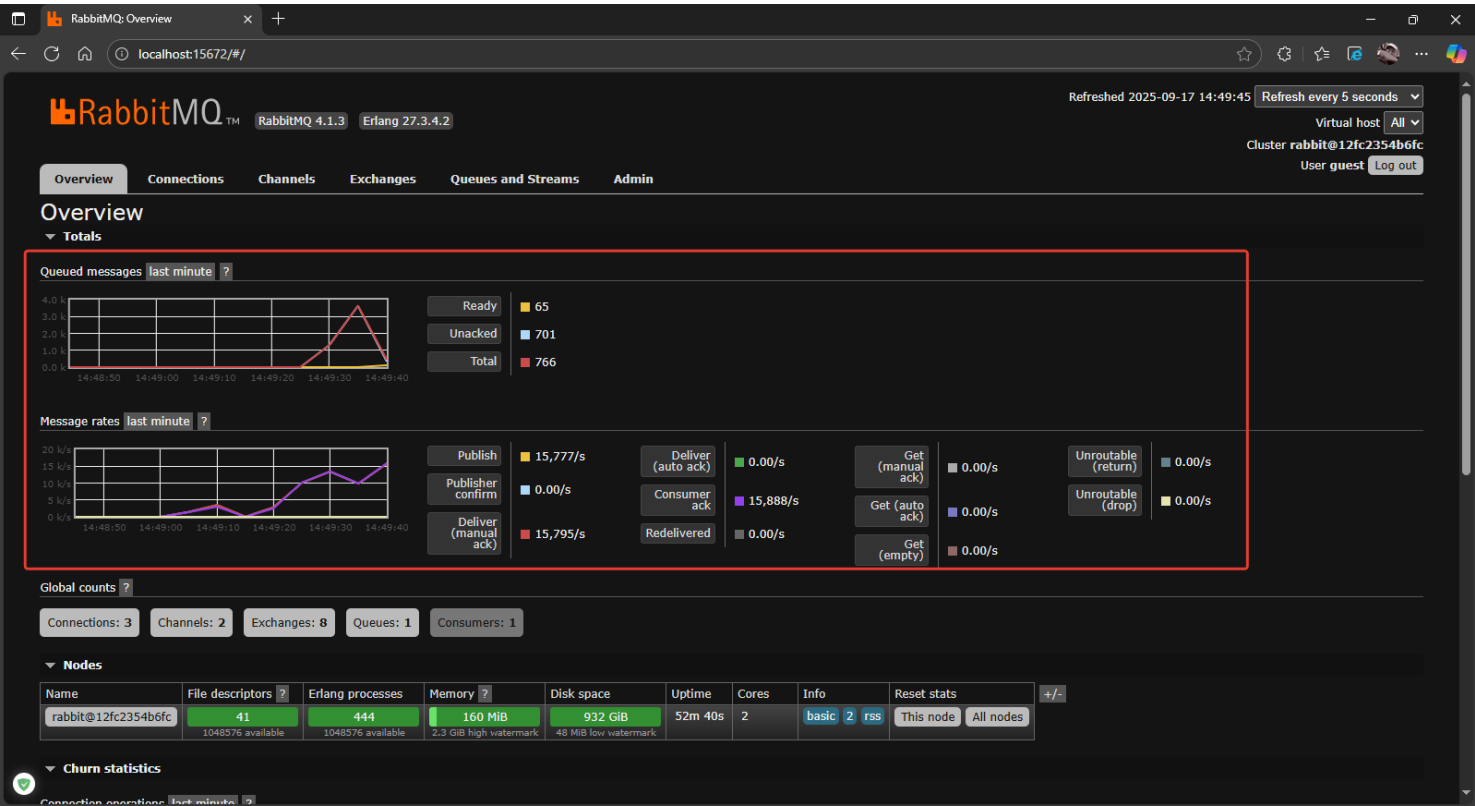
1.3. Создаем и запускаем докер контейнер с утилитой perf-test.jar для тестирования классических очередей (60 сек).

```
docker run -it --rm --network perf-test pivotalrabbitmq/perf-test:latest --uri amqp://rabbitmq --time 60
```

Тестирование проводим с 1 продюсером и 1 консьюмером. Размер сообщения по умолчанию – 12 байт.



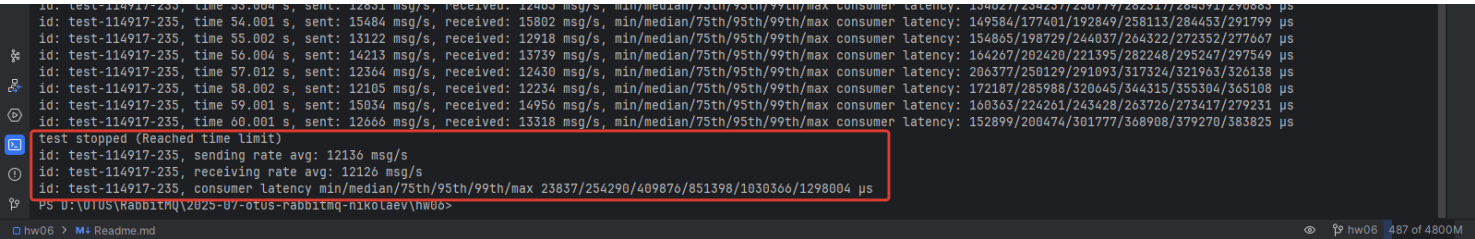
1.4. Проверяем в management-ui, что нагрузка на сервер пошла.



1.5. Результат выполнения теста.

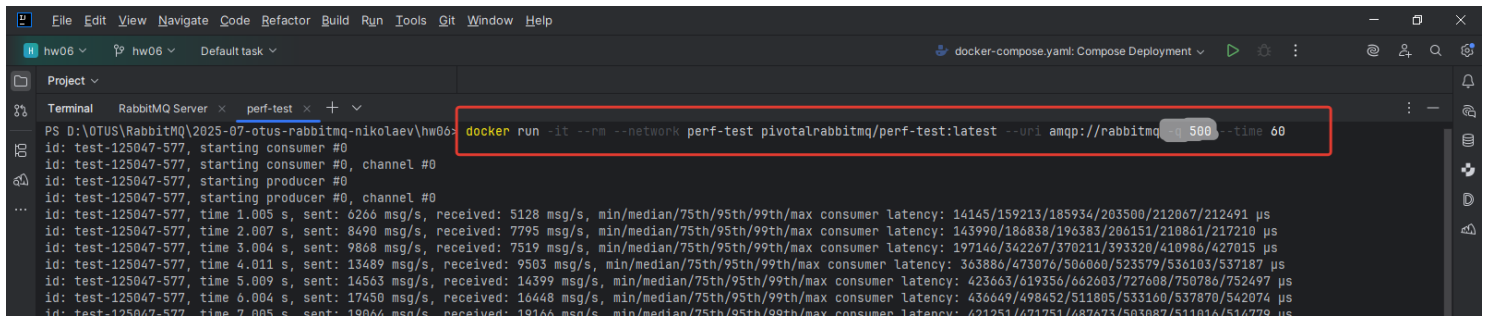
Зафиксируем результат – классические очереди, 1 продюсер, 1 консьюмер, размер сообщения – 12 байт.

Sending rate avg: 12136 msg/s, Receiving rate avg: 12126 msg/s



1.6. Произведем такое же тестирование, но введем для консьюмера prefetch (QoS) 500 сообщений.

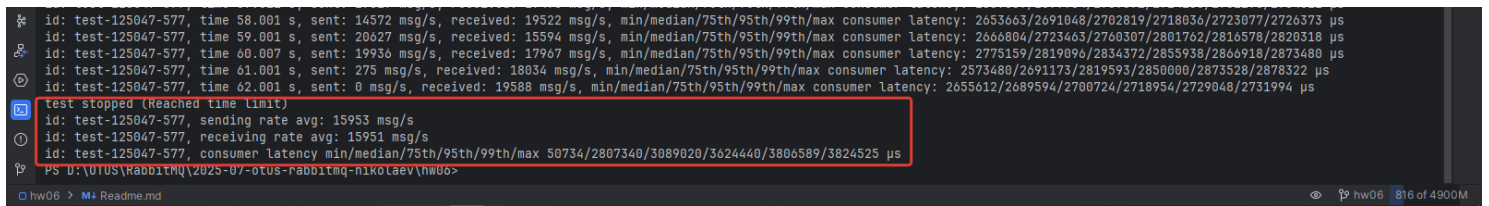
```
docker run -it --rm --network perf-test pivotalrabbitmq/perf-test:latest --uri amqp://rabbitmq -q 500 --time 60
```



1.7. Результат выполнения теста после 60 секунд.

Зафиксируем результат – классические очереди, 1 продюсер, 1 консьюмер, размер сообщения – 12 байт, prefetch - 500

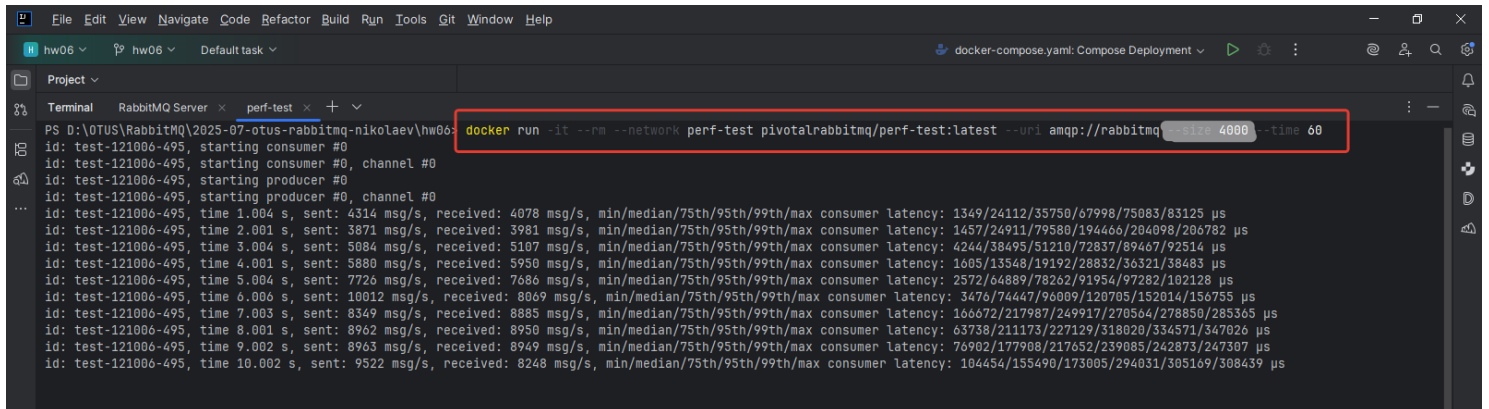
Sending rate avg: 15953 msg/s, Receiving rate avg: 15951 msg/s



1.8. Произведем тестирование без prefetch, но увеличим размер сообщения до 4 кб.

```
docker run -it --rm --network perf-test pivotalrabbitmq/perf-test:latest --uri amqp://rabbitmq
```

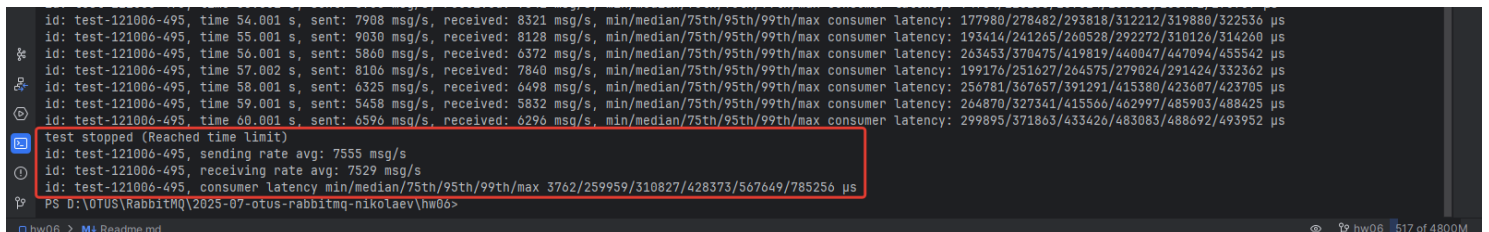
```
--size 4000 --time 60
```



1.9. Результат выполнения теста.

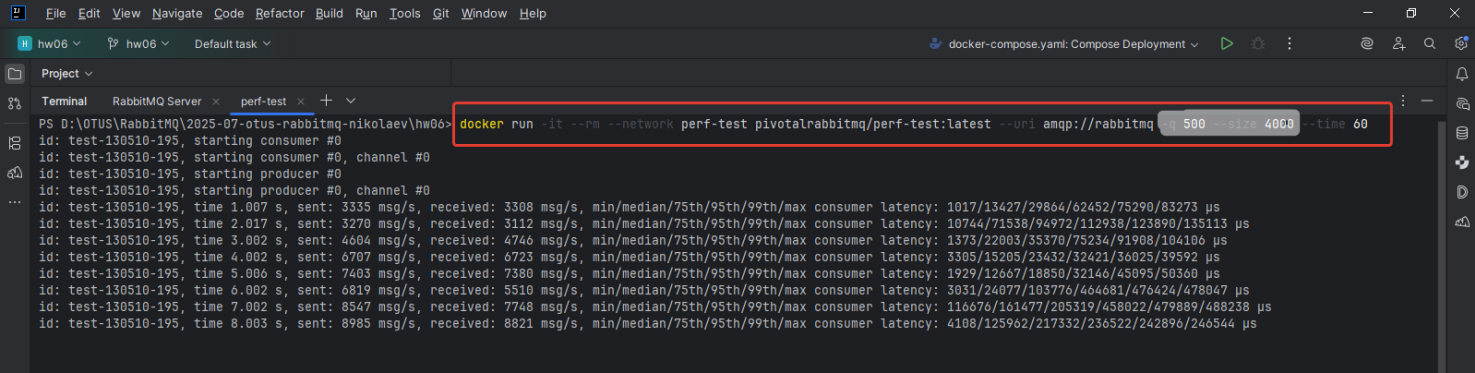
Зафиксируем результат – классические очереди, 1 продюсер, 1 консьюмер, размер сообщения – 4000 байт.

Sending rate avg: 7555 msg/s, Receiving rate avg: 7529 msg/s



1.10. Произведем тестирование, увеличим размер сообщения до 4 кб и добавим prefetch для консьюмера 500.

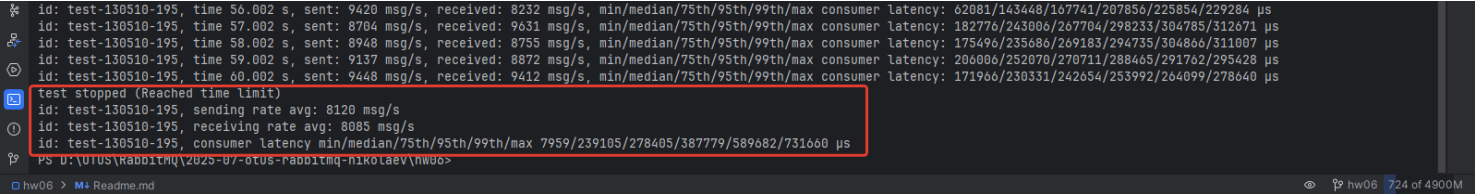
```
docker run -it --rm --network perf-test pivotalrabbitmq/perf-test:latest --uri amqp://rabbitmq -q 500
--size 4000 --time 60
```



1.11. Результат выполнения теста.

Зафиксируем результат – классические очереди, 1 продюсер, 1 консьюмер, размер сообщения – 4000 байт, prefetch - 500.

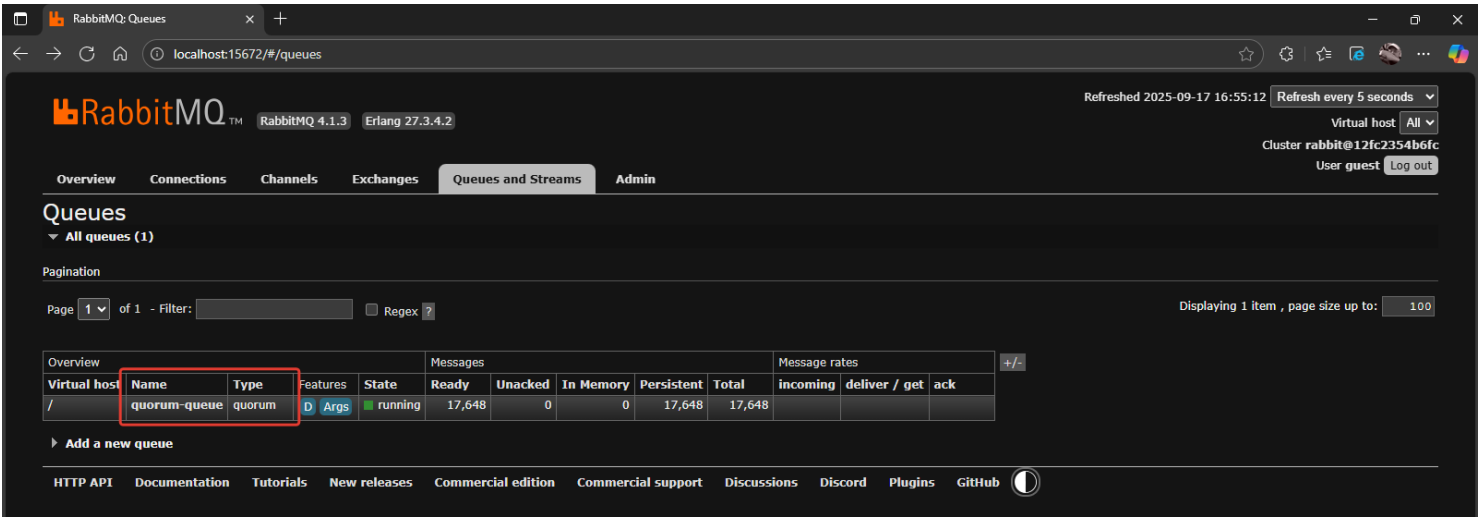
Sending rate avg: 8120 msg/s, Receiving rate avg: 8085 msg/s



1.12. Общий результат тестирования классических очередей

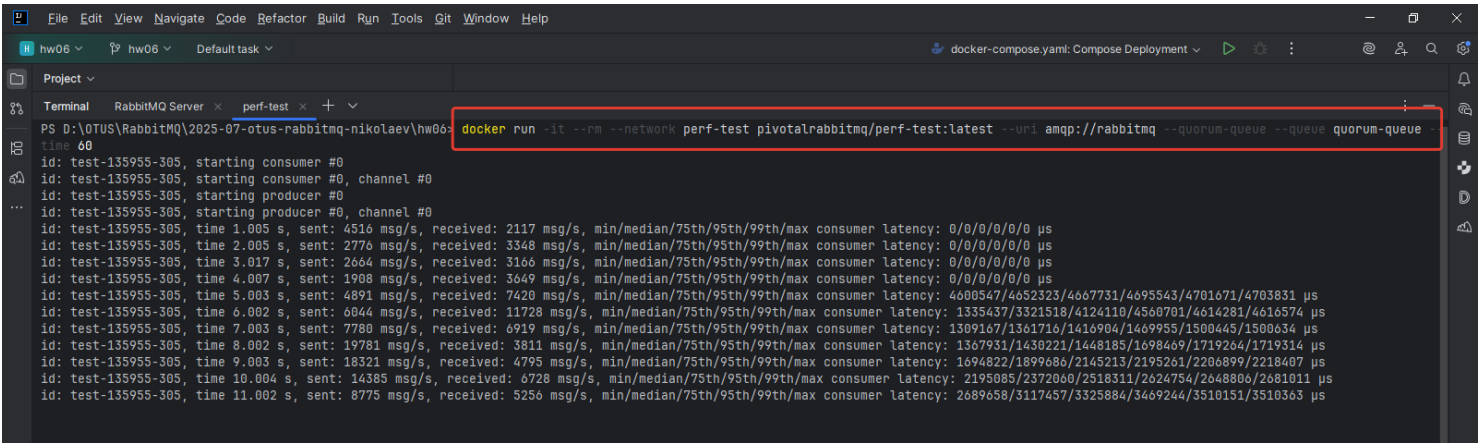
Номер, п/п	Параметры теста, classic queue	Sending rate avg., msg/s	Receiving rate avg., msg/s
1	msg size – 12 bytes, no prefetch	12136	12126
2	msg size – 12 bytes, prefetch - 500	15953	15951
3	msg size – 4000 bytes, no prefetch	7555	7529
4	msg size – 4000 bytes, prefetch - 500	8120	8085

2. Тестирование кворумных очередей.
- 2.1. Для тестирования кворумных очередей создадим такую очередь.

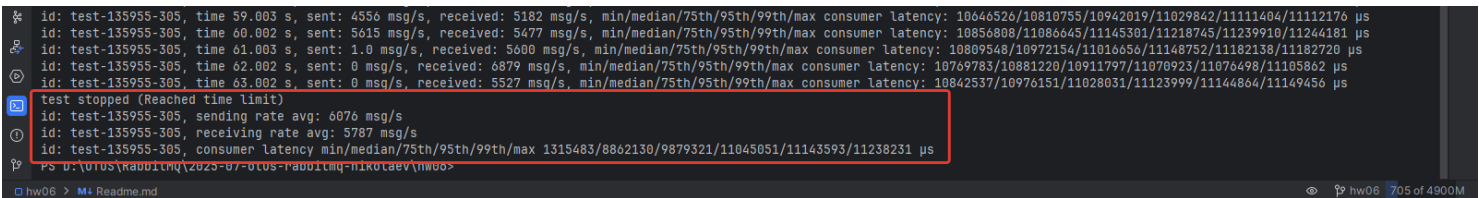


- 2.2. Произведем тестирование кворумной очереди. Параметры теста дефолтные – 1 продюсер, 1 консьюмер, размер сообщения – 12 байт, время тестирования – 60 секунд.

```
docker run -it --rm --network perf-test pivotalrabbitmq/perf-test:latest --uri amqp://rabbitmq
--quorum-queue --queue quorum-queue --time 60
```



- 2.3. Результат выполнения теста.
- Зафиксируем результат – кворумные очереди, 1 продюсер, 1 консьюмер, размер сообщения – 12 байт.
- Sending rate avg: 8120 msg/s, Receiving rate avg: 8085 msg/s



2.4. Произведем такое же тестирование, кворумные очереди, дефолтные значения, но введем для консьюмера prefetch (QoS) 500 сообщений.

```
File Edit View Navigate Code Refactor Build Run Tools Git Window Help
hw06 hw06 Default task docker-compose.yaml: Compose Deployment
Project
Terminal RabbitMQ Server perf-test
PS D:\OTUS\RabbitMQ\2025-07-otus-rabbitmq-nikolaev\hw06> docker run -it --rm --network perf-test pivotalrabbitmq/perf-test:latest --uri amqp://rabbitmq --quorum-queue -s 500 --time 60
id: test-162931-721, starting consumer #0
id: test-162931-721, starting consumer #0, channel #0
id: test-162931-721, starting producer #0
id: test-162931-721, starting producer #0, channel #0
id: test-162931-721, time 1.006 s, sent: 8381 msg/s, received: 2839 msg/s, min/median/75th/95th/99th/max consumer latency: 31092/338672/479943/514936/545851/554373 µs
id: test-162931-721, time 2.001 s, sent: 6938 msg/s, received: 6738 msg/s, min/median/75th/95th/99th/max consumer latency: 556126/698832/812508/861231/986221/913701 µs
id: test-162931-721, time 3.001 s, sent: 10352 msg/s, received: 6219 msg/s, min/median/75th/95th/99th/max consumer latency: 699585/889183/926019/951459/961233/977927 µs
id: test-162931-721, time 4.001 s, sent: 14834 msg/s, received: 6407 msg/s, min/median/75th/95th/99th/max consumer latency: 775074/891032/1026681/1158490/1178547/1179775 µs
id: test-162931-721, time 5.001 s, sent: 8417 msg/s, received: 6387 msg/s, min/median/75th/95th/99th/max consumer latency: 1206697/1551783/1645473/1741043/1841203/1842252 µs
id: test-162931-721, time 6.001 s, sent: 6091 msg/s, received: 6474 msg/s, min/median/75th/95th/99th/max consumer latency: 1865656/2284382/2399620/2527850/2532723/2533482 µs
id: test-162931-721, time 7.003 s, sent: 4388 msg/s, received: 5358 msg/s, min/median/75th/95th/99th/max consumer latency: 2617905/2824085/3047172/3205359/322898/3224208 µs
id: test-162931-721, time 8.001 s, sent: 6780 msg/s, received: 4465 msg/s, min/median/75th/95th/99th/max consumer latency: 3016119/3286498/3380885/3635364/3653065/3654116 µs
id: test-162931-721, time 9.001 s, sent: 8760 msg/s, received: 6348 msg/s, min/median/75th/95th/99th/max consumer latency: 3331563/3597748/3658310/3710844/3738549/3739384 µs
id: test-162931-721, time 10.002 s, sent: 8320 msg/s, received: 7042 msg/s, min/median/75th/95th/99th/max consumer latency: 3275756/3473391/3526911/3608859/3653227/3608294 µs
id: test-162931-721, time 11.002 s, sent: 4172 msg/s, received: 6971 msg/s, min/median/75th/95th/99th/max consumer latency: 3044853/3374305/3455742/3564303/3595925/3610080 µs
```

2.5. Результат выполнения теста.

Зафиксируем результат – кворумные очереди, 1 продюсер, 1 консьюмер, размер сообщения – 12 байт, prefetch - 500.

Sending rate avg: 6138 msg/s, Receiving rate avg: 5775 msg/s

```
id: test-162931-721, time 58.001 s, sent: 7322 msg/s, received: 6400 msg/s, min/median/75th/95th/99th/max consumer latency: 7650134/7994430/7944547/8073785/8105371/8100312 µs
id: test-162931-721, time 59.001 s, sent: 5456 msg/s, received: 6412 msg/s, min/median/75th/95th/99th/max consumer latency: 6506564/7479413/7660457/7908379/7932052/7943113 µs
id: test-162931-721, time 60.001 s, sent: 2060 msg/s, received: 4726 msg/s, min/median/75th/95th/99th/max consumer latency: 5845947/6257376/6684330/6827340/6861509/6881628 µs
id: test-162931-721, time 61.001 s, sent: 1.0 msg/s, received: 5069 msg/s, min/median/75th/95th/99th/max consumer latency: 5973240/6130540/6213660/6338838/6411000/6412185 µs
id: test-162931-721, time 62.002 s, sent: 0 msg/s, received: 5002 msg/s, min/median/75th/95th/99th/max consumer latency: 5964009/6273971/6345506/6453341/6497732/6498288 µs
id: test-162931-721, time 63.001 s, sent: 0 msg/s, received: 4836 msg/s, min/median/75th/95th/99th/max consumer latency: 6456978/6717025/6849219/6995586/7068321/7068533 µs
test stopped (Reached time limit)
id: test-162931-721, sending rate avg: 6138 msg/s
id: test-162931-721, receiving rate avg: 5775 msg/s
id: test-162931-721, consumer latency min/median/75th/95th/99th/max 104240/7453503/8158636/8985565/9112406/9236013 µs
PS D:\OTUS\RabbitMQ\2025-07-otus-rabbitmq-nikolaev\hw06>
```

2.6. Произведем тестирование кворумной очереди изменив параметры теста. 1 продюсер, 1 консьюмер, размер сообщения – 4000 байт, prefetch – отсутствует, время тестирования – 60 секунд.

```
docker run -it --rm --network perf-test pivotalrabbitmq/perf-test:latest --uri amqp://rabbitmq
--quorum-queue --queue quorum-queue -size 4000 --time 60
```

```
File Edit View Navigate Code Refactor Build Run Tools Git Window Help
hw06 hw06 Default task docker-compose.yaml: Compose Deployment
Project
Terminal RabbitMQ Server perf-test
PS D:\OTUS\RabbitMQ\2025-07-otus-rabbitmq-nikolaev\hw06> docker run -it --rm --network perf-test pivotalrabbitmq/perf-test:latest --uri amqp://rabbitmq --quorum-queue --queue quorum-queue -size 4000 --time 60
id: test-161647-147, starting consumer #0
id: test-161647-147, starting consumer #0, channel #0
id: test-161647-147, starting producer #0
id: test-161647-147, starting producer #0, channel #0
id: test-161647-147, time 1.009 s, sent: 1939 msg/s, received: 6711 msg/s, min/median/75th/95th/99th/max consumer latency: 0/0/0/0/0 µs
id: test-161647-147, time 2.002 s, sent: 2760 msg/s, received: 10297 msg/s, min/median/75th/95th/99th/max consumer latency: 0/0/0/0/0 µs
id: test-161647-147, time 3.003 s, sent: 2586 msg/s, received: 9330 msg/s, min/median/75th/95th/99th/max consumer latency: 0/0/0/0/0 µs
id: test-161647-147, time 4.004 s, sent: 2509 msg/s, received: 12226 msg/s, min/median/75th/95th/99th/max consumer latency: 2739489/3093977/3300726/3510818/3564784/3564886 µs
id: test-161647-147, time 5.002 s, sent: 2294 msg/s, received: 8181 msg/s, min/median/75th/95th/99th/max consumer latency: 387231/1611868/2170015/2596177/2667265/2684969 µs
id: test-161647-147, time 6.002 s, sent: 3118 msg/s, received: 2982 msg/s, min/median/75th/95th/99th/max consumer latency: 206016/338548/369483/406594/439772/459270 µs
id: test-161647-147, time 7.005 s, sent: 3378 msg/s, received: 3528 msg/s, min/median/75th/95th/99th/max consumer latency: 208849/310655/404863/450382/507532/514551 µs
id: test-161647-147, time 8.002 s, sent: 3491 msg/s, received: 3468 msg/s, min/median/75th/95th/99th/max consumer latency: 190018/248482/315445/376547/389186/391096 µs
id: test-161647-147, time 9.002 s, sent: 3869 msg/s, received: 3742 msg/s, min/median/75th/95th/99th/max consumer latency: 201469/257598/276015/293356/323363/328208 µs
id: test-161647-147, time 10.002 s, sent: 3507 msg/s, received: 3603 msg/s, min/median/75th/95th/99th/max consumer latency: 186259/290671/317295/343774/352318/359344 µs
```

2.7. Результат выполнения теста.

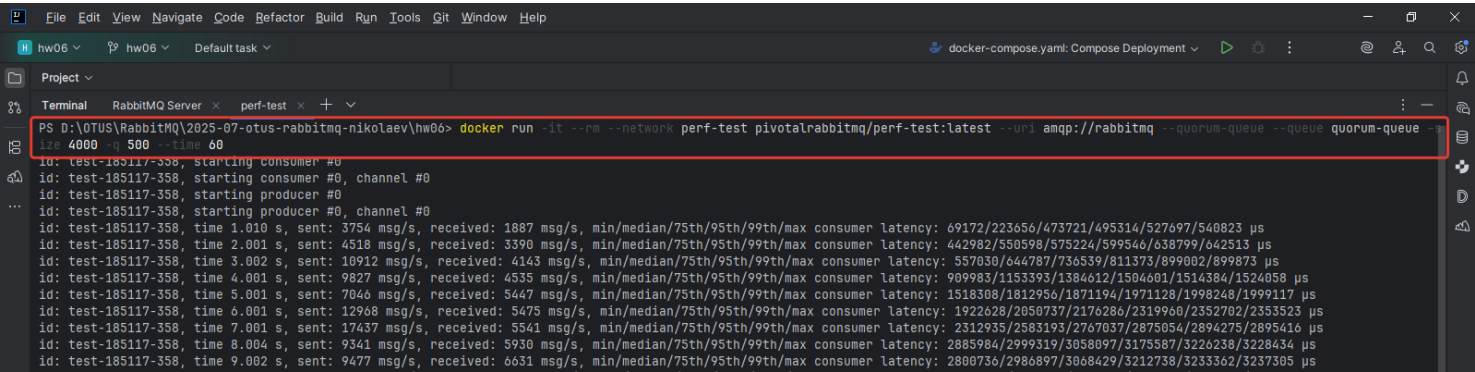
Зафиксируем результат – кворумные очереди, 1 продюсер, 1 консьюмер, размер сообщения – 4000 байт.

Sending rate avg: 3027 msg/s, Receiving rate avg: 3612 msg/s

```
id: test-161647-147, time 56.002 s, sent: 4161 msg/s, received: 4124 msg/s, min/median/75th/95th/99th/max consumer latency: 170170/241465/260558/295087/304298/312448 µs
id: test-161647-147, time 57.002 s, sent: 3895 msg/s, received: 3816 msg/s, min/median/75th/95th/99th/max consumer latency: 197521/256221/270755/298096/315112/320789 µs
id: test-161647-147, time 58.002 s, sent: 2644 msg/s, received: 2520 msg/s, min/median/75th/95th/99th/max consumer latency: 196808/265592/340868/402319/426869/427986 µs
id: test-161647-147, time 59.002 s, sent: 2579 msg/s, received: 2747 msg/s, min/median/75th/95th/99th/max consumer latency: 227948/389032/685092/793163/803886/806056 µs
id: test-161647-147, time 60.002 s, sent: 3042 msg/s, received: 3135 msg/s, min/median/75th/95th/99th/max consumer latency: 198859/283457/323657/371742/395331/395521 µs
test stopped (Reached time limit)
id: test-161647-147, sending rate avg: 3027 msg/s
id: test-161647-147, receiving rate avg: 3612 msg/s
id: test-161647-147, consumer latency min/median/75th/95th/99th/max 178262/285449/350739/726892/2234862/3546972 µs
PS D:\OTUS\RabbitMQ\2025-07-otus-rabbitmq-nikolaev\hw06>
```

2.8. Произведем тестирование кворумной очереди изменив параметры теста. 1 продюсер, 1 консьюмер, размер сообщения – 4000 байт, prefetch – 500, время тестирования – 60 секунд.

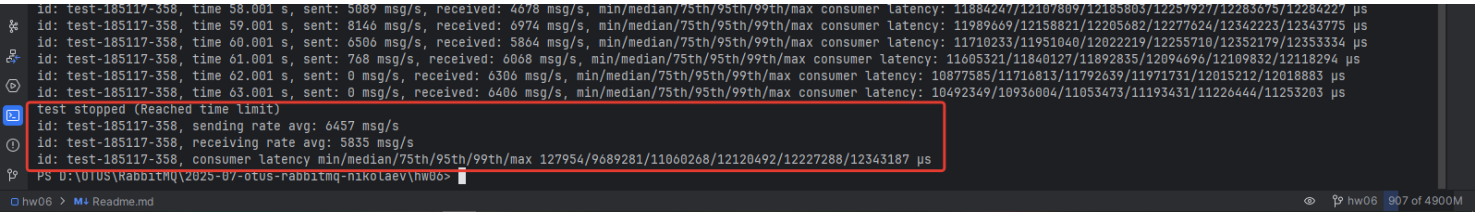
```
docker run -it --rm --network perf-test pivotalrabbitmq/perf-test:latest --uri amqp://rabbitmq
--quorum-queue --queue quorum-queue -size 4000 -q 500 --time 60
```



2.9. Результат выполнения теста.

Зафиксируем результат – кворумные очереди, 1 продюсер, 1 консьюмер, размер сообщения – 4000 байт, prefetch - 500.

Sending rate avg: 6457 msg/s, Receiving rate avg: 5835 msg/s



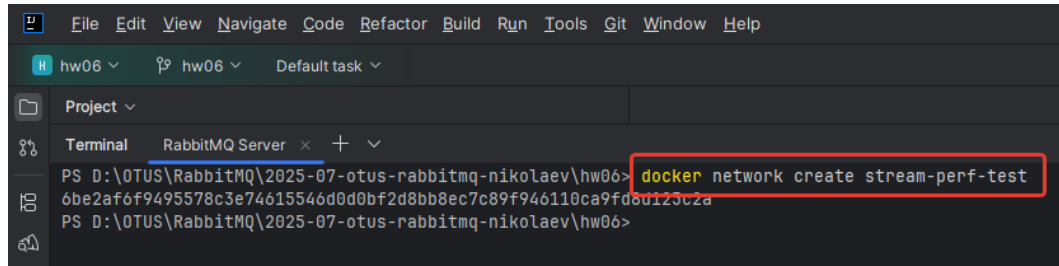
2.10. Общий результат тестирования кворумных очередей

Номер, п/п	Параметры теста, quorum queue	Sending rate avg., msg/s	Receiving rate avg., msg/s
1	msg size – 12 bytes, no prefetch	6076	5787
2	msg size – 12 bytes, prefetch - 500	6138	5775
3	msg size – 4000 bytes, no prefetch	3027	3612
4	msg size – 4000 bytes, prefetch - 500	6457	5835

3. Тестирование стримов.

3.1. Создаем отдельную сеть в Docker для связи RabbitMQ сервера и stream-perf-test.

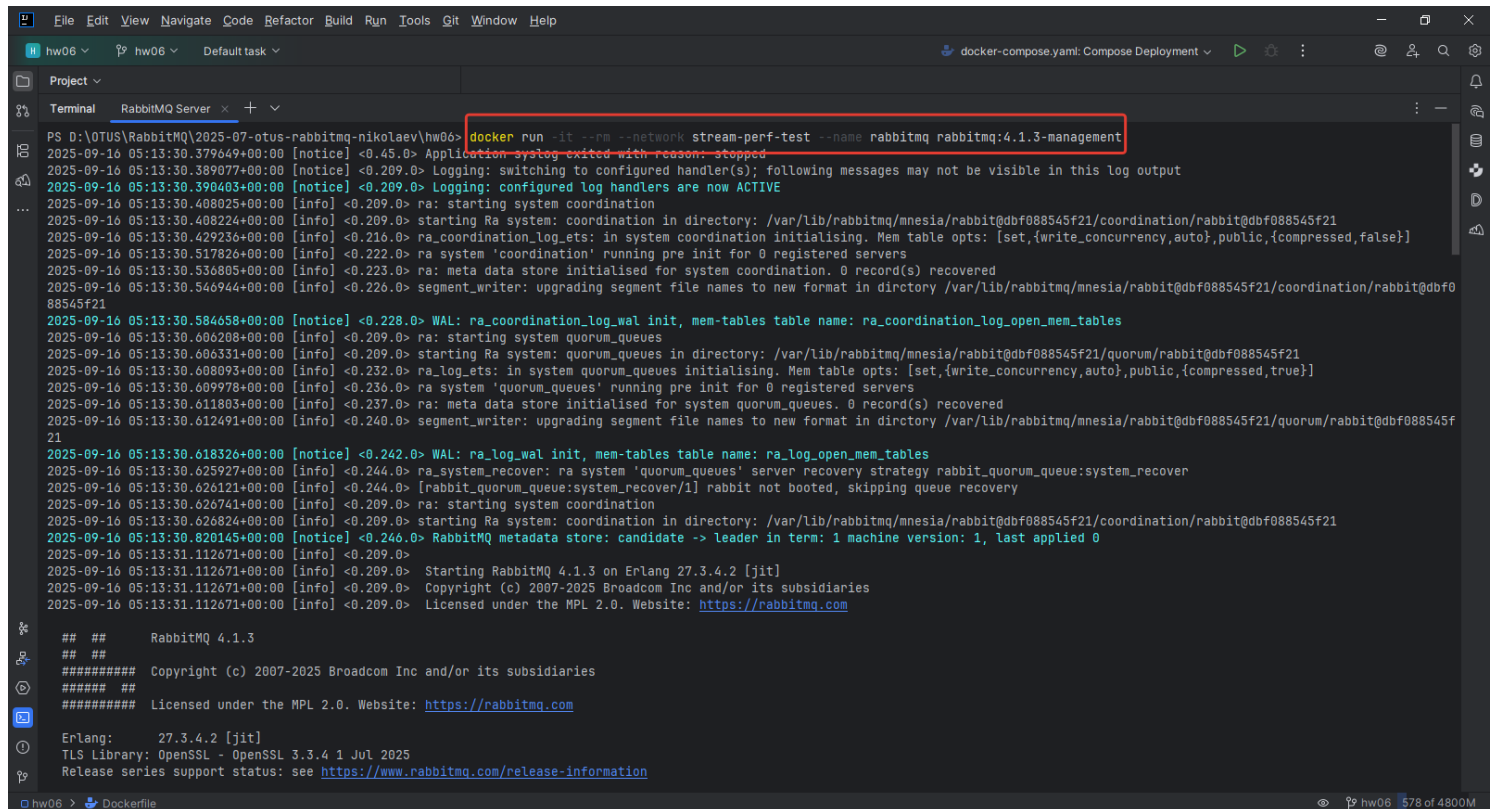
```
docker network create stream-perf-test
```



```
PS D:\OTUS\RabbitMQ\2025-07-otus-rabbitmq-nikolaev\hw06> docker network create stream-perf-test
6be2af6f9495578c3e74615546d0d0bf2d8bb8ec7c89f946110ca9f08d123c2a
PS D:\OTUS\RabbitMQ\2025-07-otus-rabbitmq-nikolaev\hw06>
```

3.2. Создаем и запускаем новый докер контейнер с сервером RabbitMQ в созданной на предыдущем шаге сети.

```
docker run -it --rm --network stream-perf-test --name rabbitmq -p 15672:15672 rabbitmq:4.1.3-management
```



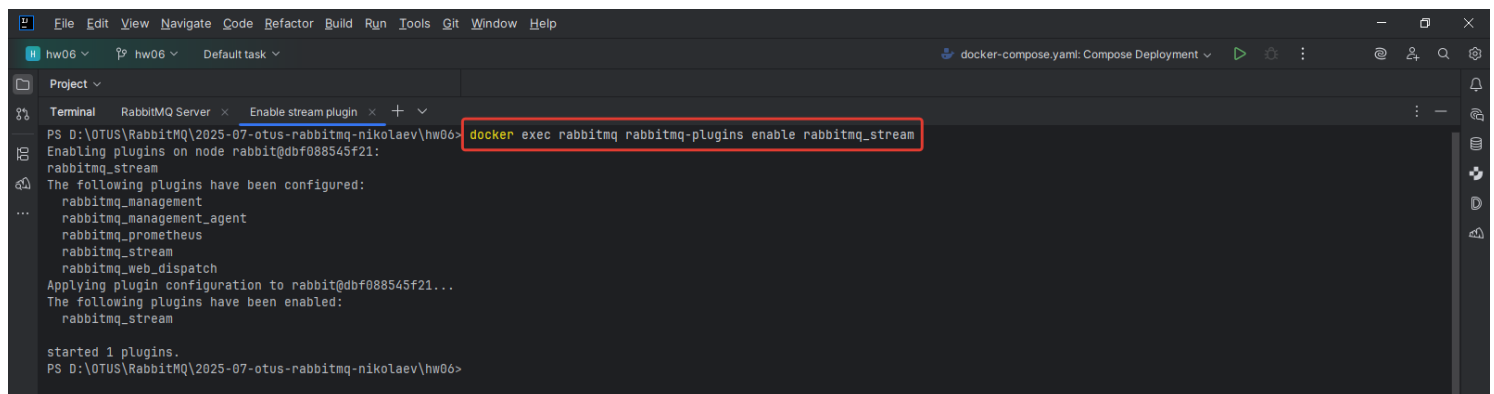
```
PS D:\OTUS\RabbitMQ\2025-07-otus-rabbitmq-nikolaev\hw06> docker run -it --rm --network stream-perf-test --name rabbitmq rabbitmq:4.1.3-management
2025-09-16 05:13:30.379649+00:00 [notice] <0.45.0> Application system exited with reason: stopped
2025-09-16 05:13:30.389877+00:00 [notice] <0.209.0> Logging: switching to configured handler(s); following messages may not be visible in this log output
2025-09-16 05:13:30.390803+00:00 [notice] <0.209.0> Logging: configured log handlers are now ACTIVE
2025-09-16 05:13:30.408025+00:00 [info] <0.209.0> ra: starting system coordination
2025-09-16 05:13:30.408224+00:00 [info] <0.209.0> starting Ra system: coordination in directory: /var/lib/rabbitmq/mnesia/rabbit@dbf088545f21/coordination/rabbit@dbf088545f21
2025-09-16 05:13:30.429236+00:00 [info] <0.216.0> ra_coordination_log_ets: in system coordination initialising. Mem table opts: [set,{write_concurrency,auto},public,{compressed,false}]
2025-09-16 05:13:30.517826+00:00 [info] <0.222.0> ra system 'coordination' running pre init for 0 registered servers
2025-09-16 05:13:30.536805+00:00 [info] <0.223.0> ra: meta data store initialised for system coordination. 0 record(s) recovered
2025-09-16 05:13:30.546944+00:00 [info] <0.226.0> segment_writer: upgrading segment file names to new format in directory /var/lib/rabbitmq/mnesia/rabbit@dbf088545f21/coordination/rabbit@dbf088545f21
2025-09-16 05:13:30.584658+00:00 [notice] <0.228.0> WAL: ra_coordination_log_wal init, mem-tables table name: ra_coordination_log_open_mem_tables
2025-09-16 05:13:30.606208+00:00 [info] <0.209.0> ra: starting system quorum_queues
2025-09-16 05:13:30.606331+00:00 [info] <0.209.0> starting Ra system: quorum_queues in directory: /var/lib/rabbitmq/mnesia/rabbit@dbf088545f21/quorum/rabbit@dbf088545f21
2025-09-16 05:13:30.608093+00:00 [info] <0.232.0> ra_log_ets: in system quorum_queues initialising. Mem table opts: [set,{write_concurrency,auto},public,{compressed,true}]
2025-09-16 05:13:30.609978+00:00 [info] <0.236.0> ra system 'quorum_queues' running pre init for 0 registered servers
2025-09-16 05:13:30.611893+00:00 [info] <0.237.0> ra: meta data store initialised for system quorum_queues. 0 record(s) recovered
2025-09-16 05:13:30.62491+00:00 [info] <0.240.0> segment_writer: upgrading segment file names to new format in directory /var/lib/rabbitmq/mnesia/rabbit@dbf088545f21/quorum/rabbit@dbf088545f21
2025-09-16 05:13:30.618326+00:00 [notice] <0.242.0> WAL: ra_log_wal init, mem-tables table name: ra_log_open_mem_tables
2025-09-16 05:13:30.625927+00:00 [info] <0.244.0> ra_system_recover: ra system 'quorum_queues' server recovery strategy rabbit_quorum_queue:system_recover
2025-09-16 05:13:30.626121+00:00 [info] <0.244.0> [rabbit_quorum_queue:system_recover/1] rabbit not booted, skipping queue recovery
2025-09-16 05:13:30.626741+00:00 [info] <0.209.0> ra: starting system coordination
2025-09-16 05:13:30.626824+00:00 [info] <0.209.0> starting Ra system: coordination in directory: /var/lib/rabbitmq/mnesia/rabbit@dbf088545f21/coordination/rabbit@dbf088545f21
2025-09-16 05:13:30.820145+00:00 [notice] <0.246.0> RabbitMQ metadata store: candidate -> leader in term: 1 machine version: 1, last applied 0
2025-09-16 05:13:31.112671+00:00 [info] <0.209.0>
2025-09-16 05:13:31.112671+00:00 [info] <0.209.0> Starting RabbitMQ 4.1.3 on Erlang 27.3.4.2 [jit]
2025-09-16 05:13:31.112671+00:00 [info] <0.209.0> Copyright (c) 2007-2025 Broadcom Inc and/or its subsidiaries
2025-09-16 05:13:31.112671+00:00 [info] <0.209.0> Licensed under the MPL 2.0. Website: https://rabbitmq.com

## ##      RabbitMQ 4.1.3
## ##
##### Copyright (c) 2007-2025 Broadcom Inc and/or its subsidiaries
#####
##### Licensed under the MPL 2.0. Website: https://rabbitmq.com

Erlang:      27.3.4.2 [jit]
TLS Library: OpenSSL - OpenSSL 3.3.4 1 Jul 2025
Release series support status: see https://www.rabbitmq.com/release-information
```

3.3. Включаем плагин rabbitmq_stream.

```
docker exec rabbitmq rabbitmq-plugins enable rabbitmq_stream
```

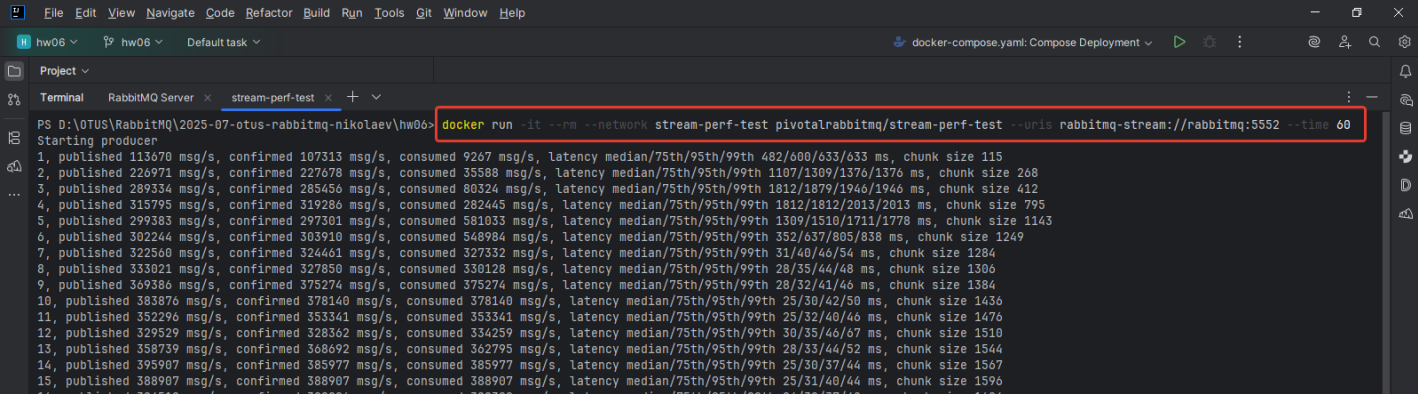


```
PS D:\OTUS\RabbitMQ\2025-07-otus-rabbitmq-nikolaev\hw06> docker exec rabbitmq rabbitmq-plugins enable rabbitmq_stream
Enabling plugins on node rabbit@dbf088545f21:
rabbitmq_stream
The following plugins have been configured:
  rabbitmq_management
  rabbitmq_management_agent
  rabbitmq_prometheus
  rabbitmq_stream
  rabbitmq_web_dispatch
Applying plugin configuration to rabbit@dbf088545f21...
The following plugins have been enabled:
  rabbitmq_stream

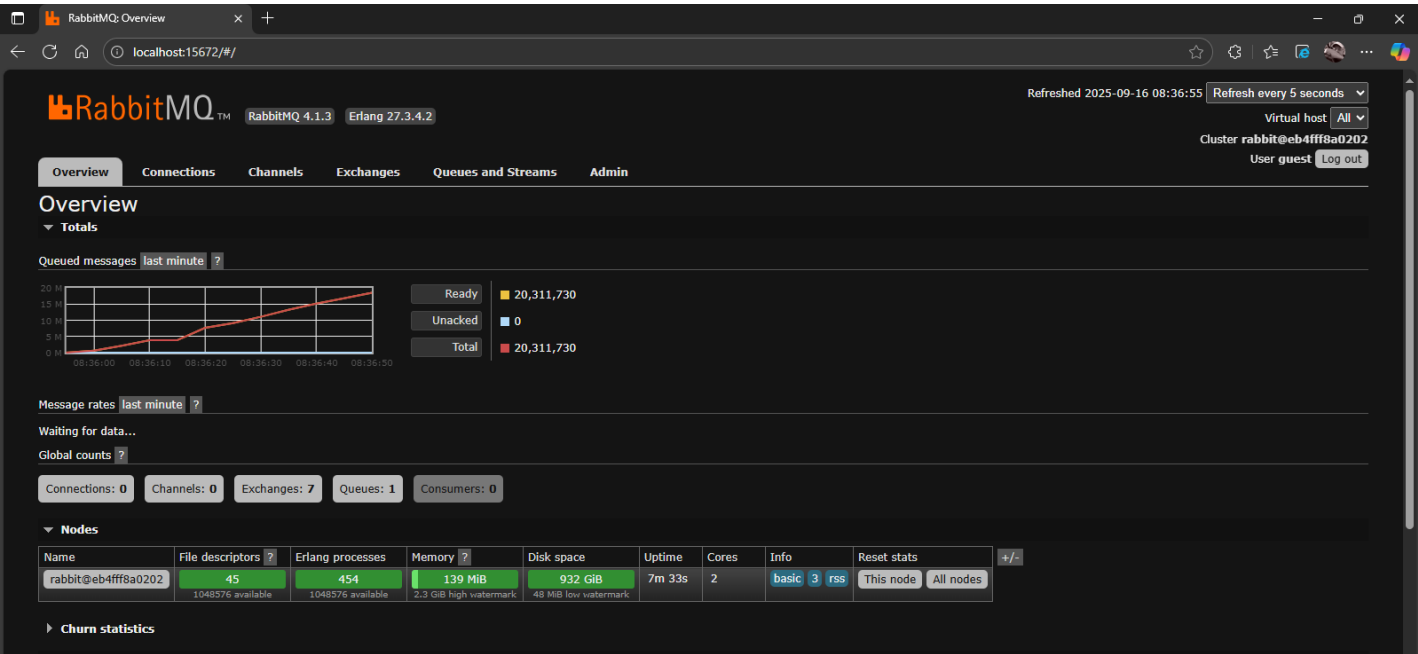
started 1 plugins.
PS D:\OTUS\RabbitMQ\2025-07-otus-rabbitmq-nikolaev\hw06>
```


3.4. Произведем тестирование стрим очереди. Параметры теста дефолтные – 1 продюсер, размер сообщения – 12 байт, время тестирования – 60 секунд.

```
docker run -it --rm --network stream-perf-test pivotalrabbitmq/stream-perf-test:latest --uris rabbitmq-stream://rabbitmq:5552 --time 60
```



3.5. Проверяем в management-ui, что нагрузка на сервер пошла.



3.6. Результат выполнения теста.

Зафиксируем результат – стрим очереди, 1 продюсер, размер сообщения – 12 байт.

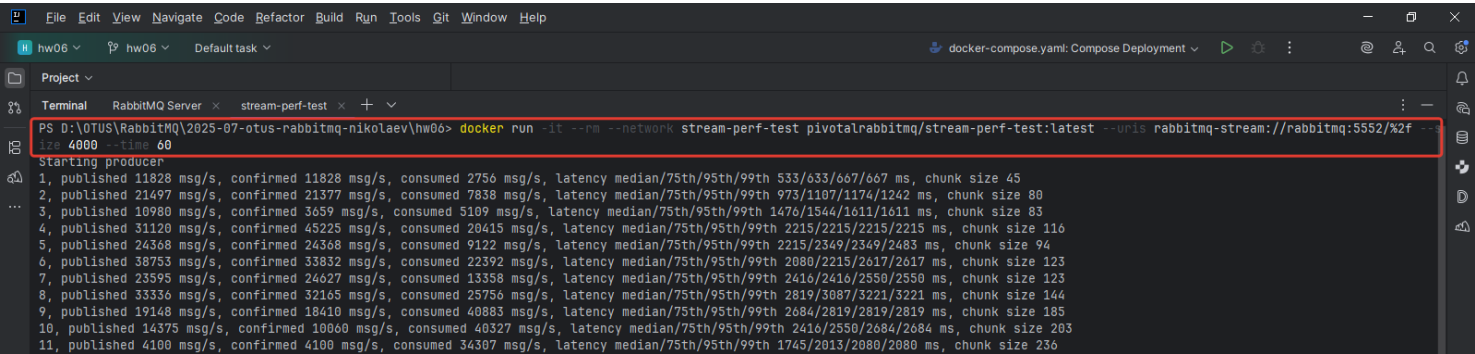
Published 418091 msg/s, confirmed 417925 msg/s, consumed 417857 msg/s

```
48, published 499033 msg/s, confirmed 493359 msg/s, consumed 493359 msg/s, latency median/75th/95th/99th 19/22/26/35 ms, chunk size 2233
49, published 486212 msg/s, confirmed 486225 msg/s, consumed 486225 msg/s, latency median/75th/95th/99th 19/24/29/33 ms, chunk size 2238
50, published 412667 msg/s, confirmed 413959 msg/s, consumed 413687 msg/s, latency median/75th/95th/99th 23/30/42/52 ms, chunk size 2246
51, published 438839 msg/s, confirmed 437365 msg/s, consumed 437638 msg/s, latency median/75th/95th/99th 22/24/33/37 ms, chunk size 2258
52, published 453715 msg/s, confirmed 456686 msg/s, consumed 456686 msg/s, latency median/75th/95th/99th 21/24/31/35 ms, chunk size 2271
53, published 469471 msg/s, confirmed 468164 msg/s, consumed 468164 msg/s, latency median/75th/95th/99th 21/25/33/37 ms, chunk size 2280
54, published 477629 msg/s, confirmed 481685 msg/s, consumed 481077 msg/s, latency median/75th/95th/99th 21/25/31/37 ms, chunk size 2291
55, published 469339 msg/s, confirmed 463600 msg/s, consumed 464207 msg/s, latency median/75th/95th/99th 21/24/37/52 ms, chunk size 2301
56, published 498137 msg/s, confirmed 498754 msg/s, consumed 498754 msg/s, latency median/75th/95th/99th 20/24/31/35 ms, chunk size 2308
57, published 489129 msg/s, confirmed 492723 msg/s, consumed 492065 msg/s, latency median/75th/95th/99th 21/23/29/37 ms, chunk size 2317
58, published 475901 msg/s, confirmed 475785 msg/s, consumed 476442 msg/s, latency median/75th/95th/99th 21/23/33/42 ms, chunk size 2327
59, published 477819 msg/s, confirmed 478326 msg/s, consumed 477790 msg/s, latency median/75th/95th/99th 21/24/29/32 ms, chunk size 2341
60, published 477249 msg/s, confirmed 472654 msg/s, consumed 473187 msg/s, latency median/75th/95th/99th 20/22/30/33 ms, chunk size 2347

Summary: published 418091 msg/s, confirmed 417925 msg/s, consumed 417857 msg/s, latency 95th 30 ms, chunk size 2347
PS D:\OTUS\RabbitMQ\2025-07-otus-rabbitmq-nikolaev\hw06>
```

3.7. Произведем тестирование стрим очереди изменив параметры теста. Параметры теста дефолтные – 1 продюсер, размер сообщения – 4000 байт, время тестирования – 60 секунд.

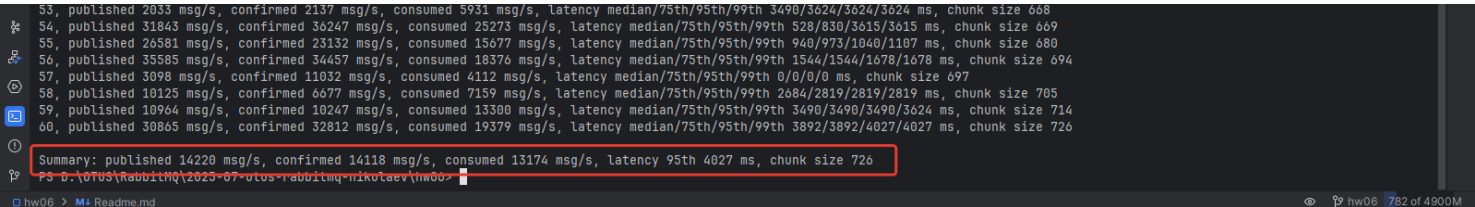
```
docker run -it --rm --network stream-perf-test pivotalrabbitmq/stream-perf-test:latest --uris rabbitmq-stream://rabbitmq:5552 -size 4000 --time 60
```



3.8. Результат выполнения теста.

Зафиксируем результат – стрим очереди, 1 продюсер, размер сообщения – 4000 байт.

Published 14220 msg/s, confirmed 14118 msg/s, consumed 13174 msg/s



3.9. Общий результат тестирования кворумных очередей

Номер, п/п	Параметры теста, stream queue	Published, msg/s	Confirmed, msg/s	Consumed, msg/s
1	msg size – 12 bytes	418091	417925	417857
2	msg size – 4000 bytes	14220	14118	13174

Выводы:

- 1. Размер сообщения сильно влияет на скорость передачи сообщения от продюсера к консьюмеру.
- 2. Кворумные очереди медленнее, чем классические, и тем более, чем стримы.
- 3. Стрим очереди самые быстрые, но надо заботится о количестве unconfirmed сообщений.
- 4. В общем случае предел предварительной выборки prefetch увеличивает скорость передачи, но этот параметр надо подбирать отдельно.