1. Топология с 3 шардами и фактором репликации 2

В этой конфигурации у нас будет 3 шарда, каждый из которых реплицируется на два сервера. Всего будет использоваться 6 серверов.

```
<clickhouse>
    <remote_servers>
        <sharded_cluster>
            <shard>
                <internal_replication>true</internal_replication>
                <replica>
                    <host>clickhouse4</host>
                    <port>9000</port>
                </replica>
                <replica>
                    <host>clickhouse5</host>
                    <port>9000</port>
                </replica>
            </shard>
            <shard>
                <internal_replication>true</internal_replication>
                <replica>
                    <host>clickhouse6</host>
                    <port>9000</port>
                </replica>
                <replica>
                    <host>clickhouse7</host>
                    <port>9000</port>
                </replica>
            </shard>
            <shard>
                <internal_replication>true</internal_replication>
                <replica>
                    <host>clickhouse8</host>
                    <port>9000</port>
                </replica>
                <replica>
                    <host>clickhouse9</host>
                    <port>9000</port>
                </replica>
            </shard>
        </sharded_cluster>
    </remote_servers>
       <zookeeper>
              <node index="1">
                     <host>zookeeper</host>
                     <port>2181</port>
              </node>
       </zookeeper>
       <macros>
              <cluster>sharded_cluster</cluster>
              <shard>01</shard>
              <replica>01</replica>
       </macros>
</clickhouse>
```

Содержимое macros для каждого узла:

1. Для clickhouse4:

```
<macros>
       <cluster>sharded_cluster</cluster>
       <shard>01</shard>
       <replica>01</replica>
</macros>
```

2. Для clickhouse5:

```
<macros>
       <cluster>sharded_cluster</cluster>
       <shard>01</shard>
       <replica>02</replica>
</macros>
```

3. Для clickhouse6:

```
<macros>
	<cluster>sharded_cluster</cluster>
	<shard>02</shard>
	<replica>01</replica>
</macros>
```

4. Для clickhouse7:

```
<macros>
	<cluster>sharded_cluster</cluster>
	<shard>02</shard>
	<replica>02</replica>
</macros>
```

5. Для clickhouse8:

```
<macros>
	<cluster>sharded_cluster</cluster>
	<shard>03</shard>
	<replica>01</replica>
</macros>
```

6. Для clickhouse9:

```
<macros>
	<cluster>sharded_cluster</cluster>
	<shard>03</shard>
	<replica>02</replica>
</macros>
```

Создание таблицы «default.trips_local» с табличным движком «ReplicatedMergeTree»

```
CREATE TABLE default.trips_local ON CLUSTER 'sharded_cluster'
(
	`trip_id` UInt32,
	`pickup_datetime` DateTime,
	`dropoff_datetime` DateTime,
	`pickup_longitude` Nullable(Float64),
	`pickup_latitude` Nullable(Float64),
	`dropoff_longitude` Nullable(Float64),
	`dropoff_latitude` Nullable(Float64),
	`passenger_count` UInt8,
	`trip_distance` Float32,
	`fare_amount` Float32,
	`extra` Float32,
	`tip_amount` Float32,
	`tolls_amount` Float32,
	`total_amount` Float32,
	`payment_type` Enum8('CSH' = 1,
	'CRE' = 2,
	'NOC' = 3,
	'DIS' = 4,
	'UNK' = 5),
	`pickup_ntaname` LowCardinality(String),
	`dropoff_ntaname` LowCardinality(String)
)
ENGINE = ReplicatedMergeTree('/clickhouse/tables/{shard}/{database}/{table}', '{replica}')
ORDER BY (pickup_datetime, dropoff_datetime);
```

```
CREATE TABLE default.trips_local ON CLUSTER 'sharded_cluster'
(
    `trip_id` UInt32,
    `pickup_datetime` DateTime,
    `dropoff_datetime` DateTime,
    `pickup_longitude` Nullable(Float64),
    `pickup_latitude` Nullable(Float64),
    `dropoff_longitude` Nullable(Float64),
    `dropoff_latitude` Nullable(Float64),
    `passenger_count` UInt8,
    `trip_distance` Float32,
    `fare_amount` Float32,
    `extra` Float32,
    `tip_amount` Float32,
    `tolls_amount` Float32,
    `total_amount` Float32,
    `payment_type` Enum8('CSH' = 1,
    'CRE' = 2,
    'NOC' = 3,
    'DIS' = 4,
    'UNK' = 5),
    `pickup_ntaname` LowCardinality(String),
    `dropoff_ntaname` LowCardinality(String)
)
ENGINE = ReplicatedMergeTree('/clickhouse/tables/{shard}/{database}/{table}', '{replica}')
ORDER BY (pickup_datetime, dropoff_datetime);
```

unknown 1

CREATE TABLE default.trips_local ON CLUSTER 'sharded_cluster' (`trip_ Enter a SQL expression to filter results (use Ctrl+Space)

Grid | Text

	host	port	status	error	num_hosts_remaining	num_hosts_active
1	clickhouse6	9,000	0		5	0
2	clickhouse9	9,000	0		4	0
3	clickhouse5	9,000	0		3	0
4	clickhouse4	9,000	0		2	0
5	clickhouse7	9,000	0		1	0
6	clickhouse8	9,000	0		0	0

Создание таблицы «default.trips» с табличным движком «Distributed»

```
CREATE TABLE IF NOT EXISTS default.trips ON CLUSTER 'sharded_cluster'
(
    `trip_id` UInt32,
    `pickup_datetime` DateTime,
    `dropoff_datetime` DateTime,
    `pickup_longitude` Nullable(Float64),
    `pickup_latitude` Nullable(Float64),
    `dropoff_longitude` Nullable(Float64),
    `dropoff_latitude` Nullable(Float64),
    `passenger_count` UInt8,
    `trip_distance` Float32,
    `fare_amount` Float32,
    `extra` Float32,
    `tip_amount` Float32,
    `tolls_amount` Float32,
    `total_amount` Float32,
    `payment_type` Enum8('CSH' = 1, 'CRE' = 2, 'NOC' = 3, 'DIS' = 4, 'UNK' = 5),
    `pickup_ntaname` LowCardinality(String),
    `dropoff_ntaname` LowCardinality(String)
)
ENGINE = Distributed('sharded_cluster', 'default', 'trips_local', rand());
```

```
CREATE TABLE IF NOT EXISTS default.trips ON CLUSTER 'sharded_cluster'
(
    `trip_id` UInt32,
    `pickup_datetime` DateTime,
    `dropoff_datetime` DateTime,
    `pickup_longitude` Nullable(Float64),
    `pickup_latitude` Nullable(Float64),
    `dropoff_longitude` Nullable(Float64),
    `dropoff_latitude` Nullable(Float64),
    `passenger_count` UInt8,
    `trip_distance` Float32,
    `fare_amount` Float32,
    `extra` Float32,
    `tip_amount` Float32,
    `tolls_amount` Float32,
    `total_amount` Float32,
    `payment_type` Enum8('CSH' = 1, 'CRE' = 2, 'NOC' = 3, 'DIS' = 4, 'UNK' = 5),
    `pickup_ntaname` LowCardinality(String),
    `dropoff_ntaname` LowCardinality(String)
)
ENGINE = Distributed('sharded_cluster', 'default', 'trips_local', rand());
```

unknown 1

CREATE TABLE IF NOT EXISTS default.trips ON CLUSTER 'sharded_cluste | Enter a SQL expression to filter results (use Ctrl+Sp

Grid | Text

	host	port	status	error	num_hosts_remaining	num_hosts_active
1	clickhouse5	9,000	0		5	0
2	clickhouse6	9,000	0		4	0
3	clickhouse9	9,000	0		3	0
4	clickhouse4	9,000	0		2	0
5	clickhouse7	9,000	0		1	0
6	clickhouse8	9,000	0		0	0

Вставка данных в таблицу «default.trips»

```
INSERT INTO default.trips
SELECT
       trip_id,
       pickup_datetime,
       dropoff_datetime,
       pickup_longitude,
       pickup_latitude,
       dropoff_longitude,
       dropoff_latitude,
       passenger_count,
       trip_distance,
       fare_amount,
       extra,
       tip_amount,
       tolls_amount,
       total_amount,
       payment_type,
       pickup_ntaname,
       dropoff_ntaname
FROM
       gcs('https://storage.googleapis.com/clickhouse-public-datasets/nyc-taxi/trips_{0..2}.gz',
       'TabSeparatedWithNames'
       );
```

```
INSERT INTO default.trips
SELECT
    trip_id,
    pickup_datetime,
    dropoff_datetime,
    pickup_longitude,
    pickup_latitude,
    dropoff_longitude,
    dropoff_latitude,
    passenger_count,
    trip_distance,
    fare_amount,
    extra,
    tip_amount,
    tolls_amount,
    total_amount,
    payment_type,
    pickup_ntaname,
    dropoff_ntaname
FROM
    gcs('https://storage.googleapis.com/clickhouse-public-datasets/nyc-taxi/trips_{0..2}.gz',
    'TabSeparatedWithNames'
    );
```

Statistics 1

Name	Value
Updated Rows	4001423
Query	INSERT INTO default.trips
	SELECT
	trip_id,
	pickup_datetime,
	dropoff_datetime,
	pickup_longitude,
	pickup_latitude,
	dropoff_longitude,
	dropoff_latitude,
	passenger_count,
	trip_distance,
	fare_amount,
	extra,
	tip_amount,
	tolls_amount,
	total_amount,
	payment_type,
	pickup_ntaname,
	dropoff_ntaname
	FROM
	gcs('https://storage.googleapis.com/clickhouse-public-datasets/nyc-taxi/trips_{0..2}.gz',
	'TabSeparatedWithNames'
	)
Start time	Mon Nov 25 00:53:56 MSK 2024
Finish time	Mon Nov 25 00:54:05 MSK 2024

Проверка выполнения

```
SELECT * FROM system.clusters;
```

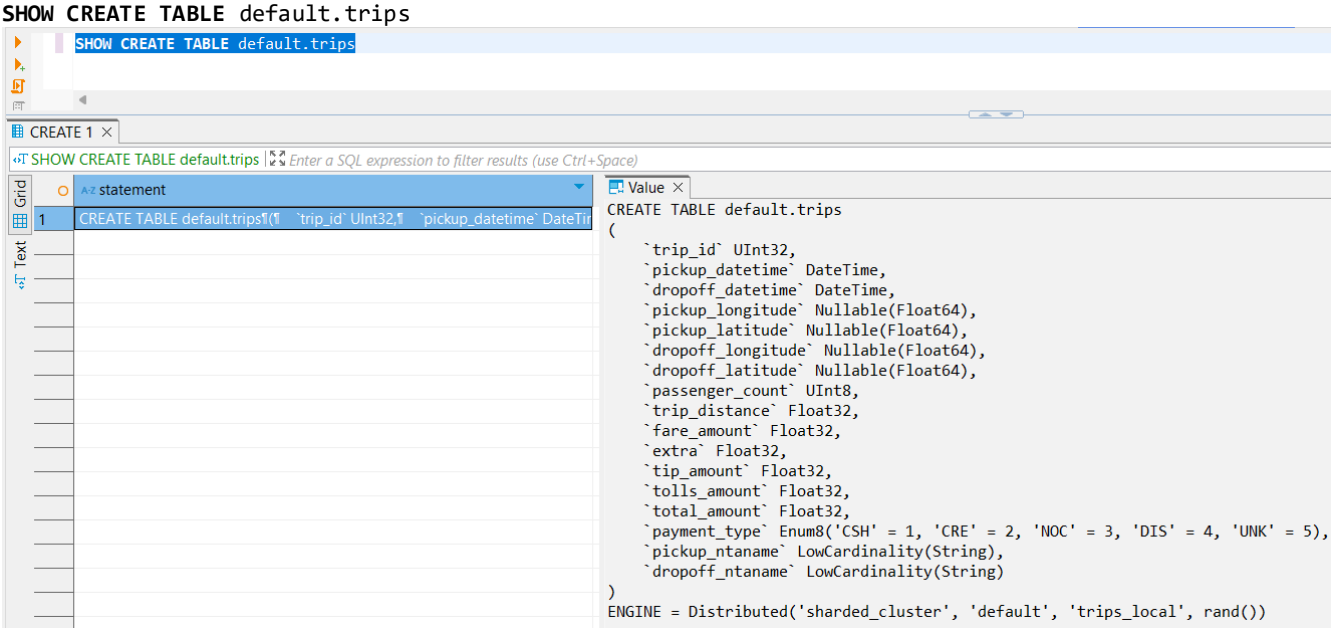
```
SELECT * FROM system.clusters;
```

clusters 1

SELECT * FROM system.clusters | Enter a SQL expression to filter results (use Ctrl+Space)

	cluster	shard_num	shard_weight	internal_replication	replica_num	host_name	host_address	port	is_local	user
1	default	1	1	0	1	localhost	127.0.0.1	9,000	1	default
2	sharded_cluster	1	1	1	1	clickhouse4	172.20.0.8	9,000	1	default
3	sharded_cluster	1	1	1	2	clickhouse5	172.20.0.7	9,000	0	default
4	sharded_cluster	2	1	1	1	clickhouse6	172.20.0.5	9,000	0	default
5	sharded_cluster	2	1	1	2	clickhouse7	172.20.0.6	9,000	0	default
6	sharded_cluster	3	1	1	1	clickhouse8	172.20.0.4	9,000	0	default
7	sharded_cluster	3	1	1	2	clickhouse9	172.20.0.3	9,000	0	default

```
SHOW CREATE TABLE default.trips
```



2. Топология с 4 шардами и фактором репликации 3

В этой конфигурации у нас будет 4 шарда, каждый из которых реплицируется на три сервера. Всего будет использоваться 12 серверов.

```
<clickhouse>
    <remote_servers>
        <sharded_cluster_sh4r3>
            <shard>
                <internal_replication>true</internal_replication>
                <replica>
                    <host>clickhouse10</host>
                    <port>9000</port>
                </replica>
                <replica>
                    <host>clickhouse11</host>
                    <port>9000</port>
                </replica>
                <replica>
                    <host>clickhouse12</host>
                    <port>9000</port>
                </replica>
            </shard>
            <shard>
                <internal_replication>true</internal_replication>
                <replica>
                    <host>clickhouse13</host>
                    <port>9000</port>
                </replica>
                <replica>
                    <host>clickhouse14</host>
                    <port>9000</port>
                </replica>
                <replica>
                    <host>clickhouse15</host>
                    <port>9000</port>
                </replica>
            </shard>
            <shard>
                <internal_replication>true</internal_replication>
                <replica>
                    <host>clickhouse16</host>
                    <port>9000</port>
                </replica>
                <replica>
                    <host>clickhouse17</host>
                    <port>9000</port>
                </replica>
                <replica>
                    <host>clickhouse18</host>
                    <port>9000</port>
                </replica>
            </shard>
            <shard>
                <internal_replication>true</internal_replication>
                <replica>
                    <host>clickhouse19</host>
                    <port>9000</port>
                </replica>
                <replica>
                    <host>clickhouse20</host>
                    <port>9000</port>
                </replica>
                <replica>
                    <host>clickhouse21</host>
                    <port>9000</port>
                </replica>
            </shard>
        </sharded_cluster_sh4r3>
    </remote_servers>
       <zookeeper>
              <node index="1">
                     <host>zookeeper</host>
```

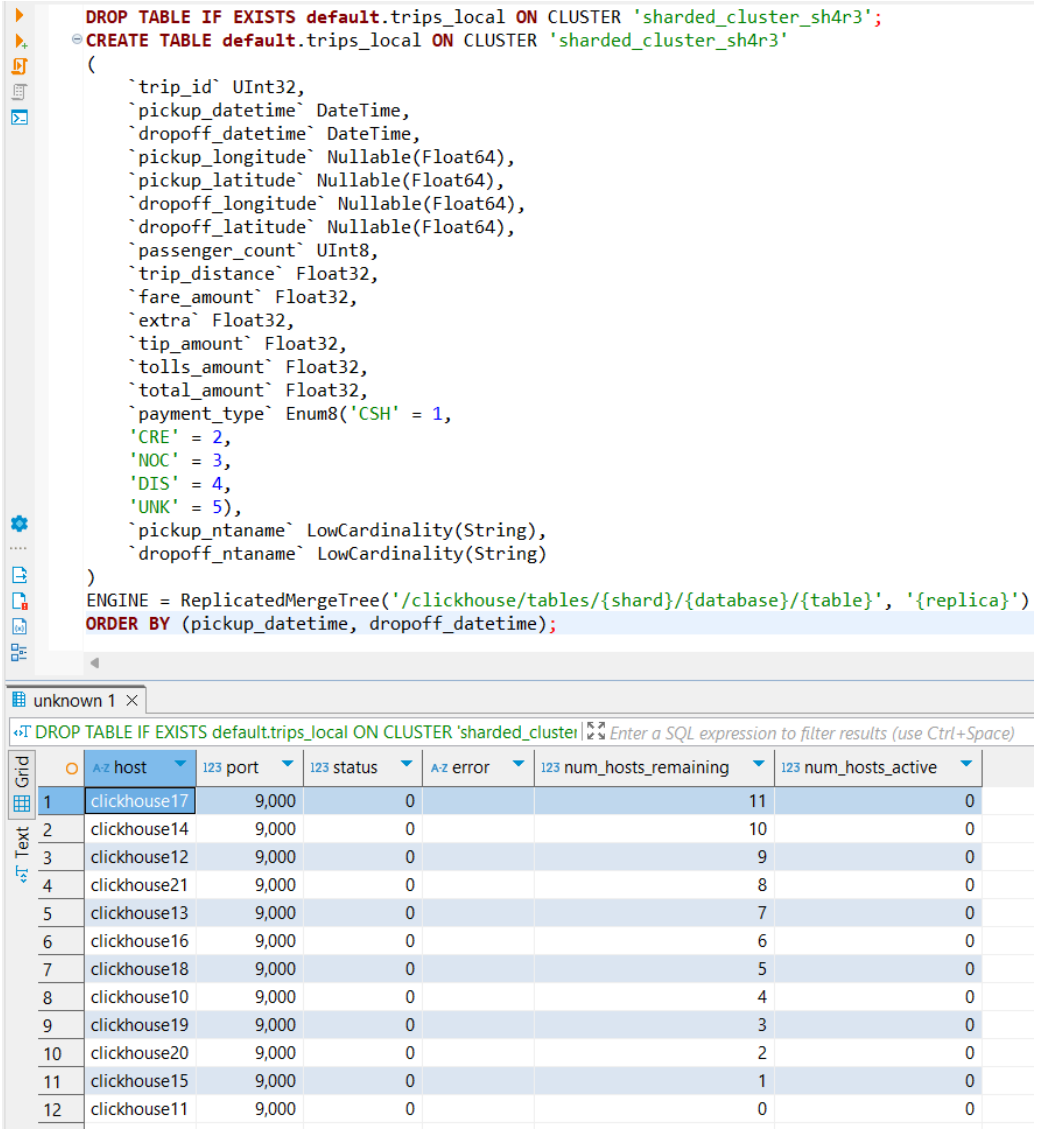
```
                <port>2181</port>
            </node>
        </zookeeper>
        <macros>
            <cluster>sharded_cluster_sh4r3</cluster>
            <shard>01</shard>
            <replica>01</replica>
        </macros>
</clickhouse>
```

Содержимое macros для каждого узла:

1. Для clickhouse10:
```
<macros>
    <cluster>sharded_cluster</cluster>
    <shard>01</shard>
    <replica>01</replica>
</macros>
```
2. Для clickhouse11:
```
<macros>
    <cluster>sharded_cluster</cluster>
    <shard>01</shard>
    <replica>02</replica>
</macros>
```
3. Для clickhouse12:
```
<macros>
    <cluster>sharded_cluster</cluster>
    <shard>01</shard>
    <replica>03</replica>
</macros>
```
4. Для clickhouse13:
```
<macros>
    <cluster>sharded_cluster</cluster>
    <shard>02</shard>
    <replica>01</replica>
</macros>
```
5. Для clickhouse14:
```
<macros>
    <cluster>sharded_cluster</cluster>
    <shard>02</shard>
    <replica>02</replica>
</macros>
```
6. Для clickhouse15:
```
<macros>
    <cluster>sharded_cluster</cluster>
    <shard>02</shard>
    <replica>03</replica>
</macros>
```
7. Для clickhouse16:
```
<macros>
    <cluster>sharded_cluster</cluster>
    <shard>03</shard>
    <replica>01</replica>
</macros>
```
8. Для clickhouse17:
```
<macros>
    <cluster>sharded_cluster</cluster>
    <shard>03</shard>
    <replica>02</replica>
</macros>
```
9. Для clickhouse18:
```
<macros>
    <cluster>sharded_cluster</cluster>
    <shard>03</shard>
    <replica>03</replica>
</macros>
```

Создание таблицы «default.trips_local» с табличным движком «ReplicatedMergeTree»

```
CREATE TABLE default.trips_local ON CLUSTER 'sharded_cluster'
(
	`trip_id` UInt32,
	`pickup_datetime` DateTime,
	`dropoff_datetime` DateTime,
	`pickup_longitude` Nullable(Float64),
	`pickup_latitude` Nullable(Float64),
	`dropoff_longitude` Nullable(Float64),
	`dropoff_latitude` Nullable(Float64),
	`passenger_count` UInt8,
	`trip_distance` Float32,
	`fare_amount` Float32,
	`extra` Float32,
	`tip_amount` Float32,
	`tolls_amount` Float32,
	`total_amount` Float32,
	`payment_type` Enum8('CSH' = 1,
	'CRE' = 2,
	'NOC' = 3,
	'DIS' = 4,
	'UNK' = 5),
	`pickup_ntaname` LowCardinality(String),
	`dropoff_ntaname` LowCardinality(String)
)
ENGINE = ReplicatedMergeTree('/clickhouse/tables/{shard}/{database}/{table}', '{replica}')
ORDER BY (pickup_datetime, dropoff_datetime);
```



```
DROP TABLE IF EXISTS default.trips_local ON CLUSTER 'sharded_cluster_sh4r3';
CREATE TABLE default.trips_local ON CLUSTER 'sharded_cluster_sh4r3'
(
    `trip_id` UInt32,
    `pickup_datetime` DateTime,
    `dropoff_datetime` DateTime,
    `pickup_longitude` Nullable(Float64),
    `pickup_latitude` Nullable(Float64),
    `dropoff_longitude` Nullable(Float64),
    `dropoff_latitude` Nullable(Float64),
    `passenger_count` UInt8,
    `trip_distance` Float32,
    `fare_amount` Float32,
    `extra` Float32,
    `tip_amount` Float32,
    `tolls_amount` Float32,
    `total_amount` Float32,
    `payment_type` Enum8('CSH' = 1,
    'CRE' = 2,
    'NOC' = 3,
    'DIS' = 4,
    'UNK' = 5),
    `pickup_ntaname` LowCardinality(String),
    `dropoff_ntaname` LowCardinality(String)
)
ENGINE = ReplicatedMergeTree('/clickhouse/tables/{shard}/{database}/{table}', '{replica}')
ORDER BY (pickup_datetime, dropoff_datetime);
```

unknown 1

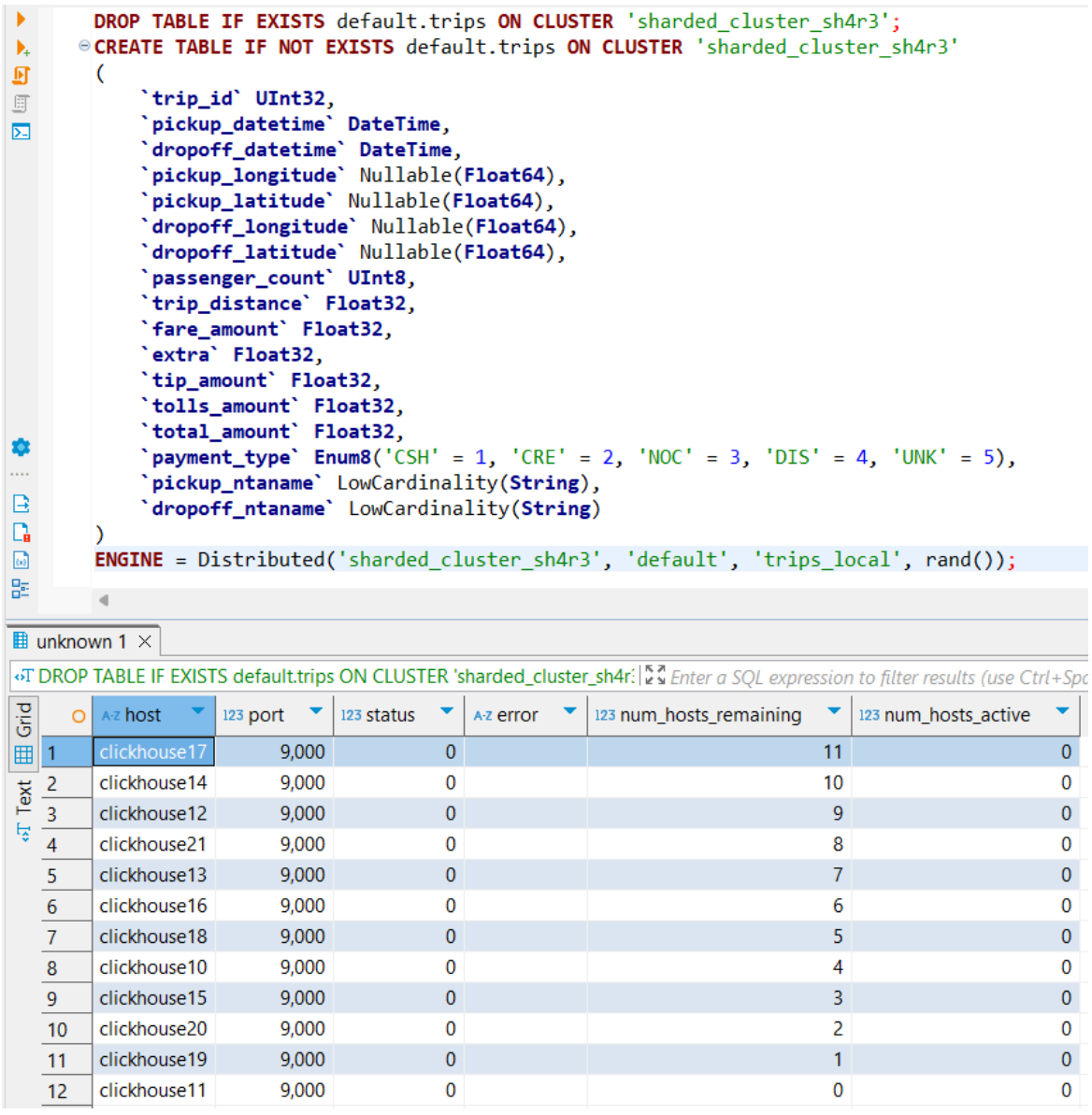
DROP TABLE IF EXISTS default.trips_local ON CLUSTER 'sharded_cluster Enter a SQL expression to filter results (use Ctrl+Space)

Grid | Text

	host	port	status	error	num_hosts_remaining	num_hosts_active
1	clickhouse17	9,000	0		11	0
2	clickhouse14	9,000	0		10	0
3	clickhouse12	9,000	0		9	0
4	clickhouse21	9,000	0		8	0
5	clickhouse13	9,000	0		7	0
6	clickhouse16	9,000	0		6	0
7	clickhouse18	9,000	0		5	0
8	clickhouse10	9,000	0		4	0
9	clickhouse19	9,000	0		3	0
10	clickhouse20	9,000	0		2	0
11	clickhouse15	9,000	0		1	0
12	clickhouse11	9,000	0		0	0

Создание таблицы «default.trips» с табличным движком «Distributed»

```
DROP TABLE IF EXISTS default.trips ON CLUSTER 'sharded_cluster_sh4r3';
CREATE TABLE IF NOT EXISTS default.trips ON CLUSTER 'sharded_cluster_sh4r3'
(
    `trip_id` UInt32,
    `pickup_datetime` DateTime,
    `dropoff_datetime` DateTime,
    `pickup_longitude` Nullable(Float64),
    `pickup_latitude` Nullable(Float64),
    `dropoff_longitude` Nullable(Float64),
    `dropoff_latitude` Nullable(Float64),
    `passenger_count` UInt8,
    `trip_distance` Float32,
    `fare_amount` Float32,
    `extra` Float32,
    `tip_amount` Float32,
    `tolls_amount` Float32,
    `total_amount` Float32,
    `payment_type` Enum8('CSH' = 1, 'CRE' = 2, 'NOC' = 3, 'DIS' = 4, 'UNK' = 5),
    `pickup_ntaname` LowCardinality(String),
    `dropoff_ntaname` LowCardinality(String)
)
ENGINE = Distributed('sharded_cluster_sh4r3', 'default', 'trips_local', rand());
```



```
DROP TABLE IF EXISTS default.trips ON CLUSTER 'sharded_cluster_sh4r3';
CREATE TABLE IF NOT EXISTS default.trips ON CLUSTER 'sharded_cluster_sh4r3'
(
    `trip_id` UInt32,
    `pickup_datetime` DateTime,
    `dropoff_datetime` DateTime,
    `pickup_longitude` Nullable(Float64),
    `pickup_latitude` Nullable(Float64),
    `dropoff_longitude` Nullable(Float64),
    `dropoff_latitude` Nullable(Float64),
    `passenger_count` UInt8,
    `trip_distance` Float32,
    `fare_amount` Float32,
    `extra` Float32,
    `tip_amount` Float32,
    `tolls_amount` Float32,
    `total_amount` Float32,
    `payment_type` Enum8('CSH' = 1, 'CRE' = 2, 'NOC' = 3, 'DIS' = 4, 'UNK' = 5),
    `pickup_ntaname` LowCardinality(String),
    `dropoff_ntaname` LowCardinality(String)
)
ENGINE = Distributed('sharded_cluster_sh4r3', 'default', 'trips_local', rand());
```

unknown 1

DROP TABLE IF EXISTS default.trips ON CLUSTER 'sharded_cluster_sh4r: Enter a SQL expression to filter results (use Ctrl+Spc

Grid | Text

	host	port	status	error	num_hosts_remaining	num_hosts_active
1	clickhouse17	9,000	0		11	0
2	clickhouse14	9,000	0		10	0
3	clickhouse12	9,000	0		9	0
4	clickhouse21	9,000	0		8	0
5	clickhouse13	9,000	0		7	0
6	clickhouse16	9,000	0		6	0
7	clickhouse18	9,000	0		5	0
8	clickhouse10	9,000	0		4	0
9	clickhouse15	9,000	0		3	0
10	clickhouse20	9,000	0		2	0
11	clickhouse19	9,000	0		1	0
12	clickhouse11	9,000	0		0	0

Вставка данных в таблицу «default.trips»

```
INSERT INTO default.trips
SELECT
	trip_id,
	pickup_datetime,
	dropoff_datetime,
	pickup_longitude,
	pickup_latitude,
	dropoff_longitude,
	dropoff_latitude,
	passenger_count,
	trip_distance,
	fare_amount,
	extra,
	tip_amount,
	tolls_amount,
	total_amount,
	payment_type,
	pickup_ntaname,
	dropoff_ntaname
FROM
	gcs('https://storage.googleapis.com/clickhouse-public-datasets/nyc-taxi/trips_{0..2}.gz',
	'TabSeparatedWithNames'
	);
```

Statistics 1

Name	Value
Updated Rows	3751098
Query	INSERT INTO default.trips
	SELECT
	trip_id,
	pickup_datetime,
	dropoff_datetime,
	pickup_longitude,
	pickup_latitude,
	dropoff_longitude,
	dropoff_latitude,
	passenger_count,
	trip_distance,
	fare_amount,
	extra,
	tip_amount,
	tolls_amount,
	total_amount,
	payment_type,
	pickup_ntaname,
	dropoff_ntaname
	FROM
	gcs('https://storage.googleapis.com/clickhouse-public-datasets/nyc-taxi/trips_{0..2}.gz',
	'TabSeparatedWithNames'
	)
Start time	Mon Nov 25 21:59:17 MSK 2024
Finish time	Mon Nov 25 21:59:27 MSK 2024

Проверка выполнения

SELECT * FROM system.clusters;

```
SELECT * FROM system.clusters;
```

clusters 1

SELECT * FROM system.clusters | Enter a SQL expression to filter results (use Ctrl+Space)

	cluster	shard_num	shard_weight	internal_replication	replica_num	host_name	host_address	port
1	default	1	1	0	1	localhost	127.0.0.1	9,000
2	sharded_cluster_sh4r3	1	1	1	1	clickhouse10	172.21.0.9	9,000
3	sharded_cluster_sh4r3	1	1	1	2	clickhouse11	172.21.0.8	9,000
4	sharded_cluster_sh4r3	1	1	1	3	clickhouse12	172.21.0.11	9,000
5	sharded_cluster_sh4r3	2	1	1	1	clickhouse13	172.21.0.7	9,000
6	sharded_cluster_sh4r3	2	1	1	2	clickhouse14	172.21.0.10	9,000
7	sharded_cluster_sh4r3	2	1	1	3	clickhouse15	172.21.0.6	9,000
8	sharded_cluster_sh4r3	3	1	1	1	clickhouse16	172.21.0.13	9,000
9	sharded_cluster_sh4r3	3	1	1	2	clickhouse17	172.21.0.3	9,000
10	sharded_cluster_sh4r3	3	1	1	3	clickhouse18	172.21.0.4	9,000
11	sharded_cluster_sh4r3	4	1	1	1	clickhouse19	172.21.0.12	9,000
12	sharded_cluster_sh4r3	4	1	1	2	clickhouse20	172.21.0.14	9,000
13	sharded_cluster_sh4r3	4	1	1	3	clickhouse21	172.21.0.5	9,000

SHOW CREATE TABLE default.trips

```
SHOW CREATE TABLE default.trips
```

CREATE 1

SHOW CREATE TABLE default.trips | Enter a SQL expression to filter results (use Ctrl+Space)

	statement
1	CREATE TABLE default.trips¶(¶ `trip_id` UInt32,¶ `pickup_datetime` DateTi

Value

```
CREATE TABLE default.trips
(
    `trip_id` UInt32,
    `pickup_datetime` DateTime,
    `dropoff_datetime` DateTime,
    `pickup_longitude` Nullable(Float64),
    `pickup_latitude` Nullable(Float64),
    `dropoff_longitude` Nullable(Float64),
    `dropoff_latitude` Nullable(Float64),
    `passenger_count` UInt8,
    `trip_distance` Float32,
    `fare_amount` Float32,
    `extra` Float32,
    `tip_amount` Float32,
    `tolls_amount` Float32,
    `total_amount` Float32,
    `payment_type` Enum8('CSH' = 1, 'CRE' = 2, 'NOC' = 3, 'DIS' = 4, 'UNK' = 5),
    `pickup_ntaname` LowCardinality(String),
    `dropoff_ntaname` LowCardinality(String)
)
ENGINE = Distributed('sharded_cluster_sh4r3', 'default', 'trips_local', rand())
```