

- Установка последней версии Altinity clickhouse-backup

- Скачивание последней версии

wget <https://github.com/Altinity/clickhouse-backup/releases/download/v2.6.4/clickhouse-backup-linux-amd64.tar.gz>

```
rsolanov@Main:~$ wget https://github.com/Altinity/clickhouse-backup/releases/download/v2.6.4/clickhouse-backup-linux-amd64.tar.gz
--2024-12-14 23:52:33-- https://github.com/Altinity/clickhouse-backup/releases/download/v2.6.4/clickhouse-backup-linux-amd64.tar.gz
Resolving github.com (github.com)... 140.82.121.3
Connecting to github.com (github.com)|140.82.121.3|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://objects.githubusercontent.com/github-production-release-asset-2e65be/150444746/ba5f9a92-1b54-436e-b9c8-c218198e4c94?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20241214%2Fus-east-1%2Fs3%2Faws4_request&X-Amz-Date=20241214T205233Z&X-Amz-Expires=300&X-Amz-Signature=6ec18c23e42ce2bf84cfccf9eda255b87c71e3915dd84c123607b4dbbd83681f&X-Amz-SignedHeaders=host&response-content-disposition=attachment%3B%20filename%3Dclickhouse-backup-linux-amd64.tar.gz&response-content-type=application%2Foctet-stream [following]
--2024-12-14 23:52:33-- https://objects.githubusercontent.com/github-production-release-asset-2e65be/150444746/ba5f9a92-1b54-436e-b9c8-c218198e4c94?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20241214%2Fus-east-1%2Fs3%2Faws4_request&X-Amz-Date=20241214T205233Z&X-Amz-Expires=300&X-Amz-Signature=6ec18c23e42ce2bf84cfccf9eda255b87c71e3915dd84c123607b4dbbd83681f&X-Amz-SignedHeaders=host&response-content-disposition=attachment%3B%20filename%3Dclickhouse-backup-linux-amd64.tar.gz&response-content-type=application%2Foctet-stream
Resolving objects.githubusercontent.com (objects.githubusercontent.com)... 185.199.109.133, 185.199.111.133, 185.199.108.133, ...
Connecting to objects.githubusercontent.com (objects.githubusercontent.com)|185.199.109.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 33035705 (32M) [application/octet-stream]
Saving to: 'clickhouse-backup-linux-amd64.tar.gz'

clickhouse-backup-linux-amd64.tar.gz          100%[=====] 31.50M  25.9MB/s   in 1.2s

2024-12-14 23:52:35 (25.9 MB/s) - 'clickhouse-backup-linux-amd64.tar.gz' saved [33035705/33035705]
```

- Распаковка архива

tar -xvf clickhouse-backup-linux-amd64.tar.gz

```
rsolanov@Main:~$ tar -xvf clickhouse-backup-linux-amd64.tar.gz
build/linux/amd64/clickhouse-backup
```

- Установка

sudo install -o root -g root -m 0755 ./build/linux/amd64/clickhouse-backup /usr/local/bin/

```
rsolanov@Main:~$ find . -name clickhouse-backup
./build/linux/amd64/clickhouse-backup
rsolanov@Main:~$ sudo install -o root -g root -m 0755 ./build/linux/amd64/clickhouse-backup /usr/local/bin/
rsolanov@Main:~$ which clickhouse-backup
/usr/local/bin/clickhouse-backup
```

- Проверка установки

/usr/local/bin/clickhouse-backup -v

```
rsolanov@Main:~$ /usr/local/bin/clickhouse-backup -v
Version:          2.6.4
Git Commit:       5b686c323017bd81a3334e3b5bfff98c21cd3a6d3
Build Date:      2024-12-09
```

- Подготовка конфигурационных файлов

```

/etc/clickhouse-server/config.d/storage_config.xml [----] 8 L: [ 1+20 21/ 29] *(600 / 734b) 0009 0x009
<clickhouse>
<-----><storage_configuration>
<-----><-----><disks>
<-----><-----><-----><s3_disk>
<-----><-----><-----><-----><type>s3</type>
<-----><-----><-----><-----><endpoint>https://storage.yandexcloud.net/clickhouse-rsolanov/</endpoint>
<-----><-----><-----><-----><access_key_id>[REDACTED]</access_key_id>
<-----><-----><-----><-----><secret_access_key>[REDACTED]</secret_access_key>
<-----><-----><-----><-----><metadata_path>/var/lib/clickhouse/disks/s3_disk/</metadata_path>
<-----><-----><-----><-----></s3_disk>
<-----><-----><-----><-----><s3_cache>
<-----><-----><-----><-----><type>cache</type>
<-----><-----><-----><-----><disk>s3_disk</disk>
<-----><-----><-----><-----><path>/var/lib/clickhouse/disks/s3_cache/</path>
<-----><-----><-----><-----><max_size>10Gi</max_size>
<-----><-----><-----><-----></s3_cache>
<-----><-----><-----><-----></disks>
<-----><-----><-----><-----><policies>
<-----><-----><-----><-----><-----><s3_main>
<-----><-----><-----><-----><-----><volumes>
<-----><-----><-----><-----><-----><-----><main>
<-----><-----><-----><-----><-----><-----><-----><disk>s3_disk</disk>
<-----><-----><-----><-----><-----><-----></main>
<-----><-----><-----><-----><-----></volumes>
<-----><-----><-----><-----></s3_main>
<-----><-----><-----><-----></policies>
<-----></storage_configuration>
</clickhouse>

```

- Перезапуск сервера

```
rslanov@Main:~$ sudo service clickhouse-server restart
[sudo] password for rslanov:
rslanov@Main:~$ sudo systemctl status clickhouse-server.service
● clickhouse-server.service - ClickHouse Server (analytic DBMS for big data)
   Loaded: loaded (/lib/systemd/system/clickhouse-server.service; enabled; vendor preset: enabled)
   Active: active (running) since Sun 2024-12-15 02:06:37 MSK; 11s ago
     Main PID: 45790 (clickhouse-serv)
        Tasks: 737 (limit: 14999)
       Memory: 662.9M
         CGroup: /system.slice/clickhouse-server.service
                 └─45789 clickhouse-watchdog " " " " " " " " --config=/etc/clickhouse-server/config.xml --pid-file=/run/clickhouse-server/clickhouse-server.pid
                   45790 /usr/bin/clickhouse-server --config=/etc/clickhouse-server/config.xml --pid-file=/run/clickhouse-server/clickhouse-server.pid

Dec 15 02:06:36 Main systemd[1]: Starting ClickHouse Server (analytic DBMS for big data)...
Dec 15 02:06:36 Main clickhouse-server[45789]: Processing configuration file '/etc/clickhouse-server/config.xml'.
Dec 15 02:06:36 Main clickhouse-server[45789]: Merging configuration file '/etc/clickhouse-server/config.d/storage_config.xml'.
Dec 15 02:06:36 Main clickhouse-server[45789]: Logging trace to /var/log/clickhouse-server/clickhouse-server.log
Dec 15 02:06:36 Main clickhouse-server[45789]: Logging errors to /var/log/clickhouse-server/clickhouse-server.err.log
Dec 15 02:06:36 Main systemd[1]: clickhouse-server.service: Supervising process 45790 which is not our child. We'll most likely not notice when it exits.
Dec 15 02:06:37 Main systemd[1]: Started ClickHouse Server (analytic DBMS for big data).
```

- Создание таблицы

```
CREATE TABLE my_s3_table
(
    `id` UInt64,
    `column1` String
)
ENGINE = MergeTree
ORDER BY id
SETTINGS storage_policy = 's3_main'
```

```
rsolanov@Main:~$ clickhouse-client
ClickHouse client version 24.3.5.47.altinitystable (altinity build).
Connecting to localhost:9000 as user default.
Password for user (default):
Connecting to localhost:9000 as user default.
Connected to ClickHouse server version 24.3.5.

Warnings:
* Linux transparent hugepages are set to "always". Check /sys/kernel/mm/transparent_hugepage/enabled
* Delay accounting is not enabled, OSIOWaitMicroseconds will not be gathered. You can enable it using 'echo 1 > /proc/sys/kernel/task_delayacct' or by using sysctl.

Main. :) CREATE TABLE my_s3_table
(
    `id` UInt64,
    `column1` String
)
ENGINE = MergeTree
ORDER BY id
SETTINGS storage_policy = 's3_main';

CREATE TABLE my_s3_table
(
    `id` UInt64,
    `column1` String
)
ENGINE = MergeTree
ORDER BY id
SETTINGS storage_policy = 's3_main'

Query id: 748110bd-b21c-4a73-a878-b043f2341ac8
Ok.

0 rows in set. Elapsed: 0.123 sec.

Main. :)
```

- Заполнение таблицы тестовыми данными

```
INSERT INTO my_s3_table (id, column1) SELECT
    number AS id,
    concat('Value ', toString(number)) AS column1
FROM numbers(1000000)
```

```
Main. :) INSERT INTO my_s3_table (id, column1)
SELECT
    number AS id,
    concat('Value ', toString(number)) AS column1
FROM numbers(1000000)

INSERT INTO my_s3_table (id, column1) SELECT
    number AS id,
    concat('Value ', toString(number)) AS column1
FROM numbers(1000000)

Query id: 6a4801ac-8108-47e4-a8dc-85099bb76610
Ok.

0 rows in set. Elapsed: 0.431 sec. Processed 1.00 million rows, 8.00 MB (2.32 million rows/s., 18.58 MB/s.)
Peak memory usage: 55.64 MiB.
```

- Создание резервной копии

```
Main. :) BACKUP TABLE my_s3_table
TO S3('https://storage.yandexcloud.net/clickhouse-rsolanov/backups/my_s3_table_backup', '[REDACTED]', '[REDACTED]')
BACKUP TABLE my_s3_table TO S3('https://storage.yandexcloud.net/clickhouse-rsolanov/backups/my_s3_table_backup', '[REDACTED]', '[REDACTED]')
Query id: e51bef58-e2d9-46b9-9f92-b0eafb5b180d
1.  | id | status |
   |---|---|
   | e0936e46-ddac-4f74-a3b5-6bf80d410957 | BACKUP_CREATED |













1 row in set. Elapsed: 0.924 sec.

Main. :)
```

Object Storage / Бакеты / clickhouse-rsolanov / backups / my\_s3\_table\_backup / data / default / my\_s3\_table / all\_1\_1\_0

Поиск по началу имени объекта, включая префикс

☐ Показать версии

<input type="checkbox"/>	Имя	Размер	Класс хранилища	Последнее изменение	
<input type="checkbox"/>	 checksums.txt	364 Б	Стандартное	15.12.2024, в 02:22	...
<input type="checkbox"/>	 column1.bin	3.99 МБ	Стандартное	15.12.2024, в 02:22	...
<input type="checkbox"/>	 column1.cmrk2	416 Б	Стандартное	15.12.2024, в 02:22	...
<input type="checkbox"/>	 columns.txt	66 Б	Стандартное	15.12.2024, в 02:22	...
<input type="checkbox"/>	 count.txt	7 Б	Стандартное	15.12.2024, в 02:22	...
<input type="checkbox"/>	 default_compression_codec.txt	10 Б	Стандартное	15.12.2024, в 02:22	...
<input type="checkbox"/>	 id.bin	3.82 МБ	Стандартное	15.12.2024, в 02:22	...
<input type="checkbox"/>	 id.cmrk2	415 Б	Стандартное	15.12.2024, в 02:22	...
<input type="checkbox"/>	 metadata_version.txt	1 Б	Стандартное	15.12.2024, в 02:22	...
<input type="checkbox"/>	 primary.cidx	173 Б	Стандартное	15.12.2024, в 02:22	...
<input type="checkbox"/>	 serialization.json	165 Б	Стандартное	15.12.2024, в 02:22	...

- Удаление части записей из таблицы

```
ALTER TABLE my_s3_table
  (DELETE WHERE id IN (
    SELECT id
    FROM my_s3_table
    ORDER BY rand() ASC
    LIMIT 100000
  ))
```

```
Main. :) ALTER TABLE my_s3_table DELETE WHERE id IN (
        SELECT id FROM my_s3_table ORDER BY rand() LIMIT 100000
    )

ALTER TABLE my_s3_table
    (DELETE WHERE id IN (
        SELECT id
        FROM my_s3_table
        ORDER BY rand() ASC
        LIMIT 100000
    ))

Query id: c7a8be87-e73f-4506-8f0a-3e2c8cb9071e

Ok.

0 rows in set. Elapsed: 0.109 sec.
```

- Проверка удаления

```
Main. :) select count() from my_s3_table

SELECT count()
FROM my_s3_table

Query id: 9f1460dd-9e00-4ba7-acf4-01445f0c41e3

1.  ┌count()┐
    │ 900000 │
    └──────┘

1 row in set. Elapsed: 0.008 sec.
```

После удаления вместо 1 млн записей осталось только 900 тыс. записей

- Восстановление данных таблицы из резервной копии

```
Main. :) DROP TABLE IF EXISTS my_s3_table;
DROP TABLE IF EXISTS my_s3_table
Query id: 728f17c6-60e0-460a-8103-f4d12a9eec10
Ok.
0 rows in set. Elapsed: 0.005 sec.

Main. :) RESTORE TABLE my_s3_table
FROM S3('https://storage.yandexcloud.net/clickhouse-rsolanov/backups/my_s3_table_backup', '[REDACTED]', '[REDACTED]')
RESTORE TABLE my_s3_table FROM S3('https://storage.yandexcloud.net/clickhouse-rsolanov/backups/my_s3_table_backup', '[REDACTED]', '[REDACTED]')
Query id: 77da6d09-92ce-4744-84de-365eaf69f3b8

1.  ┌id┐ ┌status┐
    │ 8223c4d0-7357-4282-947f-c5771f75cb76 │ RESTORED │
    └───┴───┘

1 row in set. Elapsed: 1.975 sec.
```

- Проверка восстановления данных

```
Main. :) SELECT COUNT() FROM my_s3_table

SELECT COUNT()
FROM my_s3_table

Query id: e09c9ffe-edab-45b9-ac4b-1b2ff57c4e81

1.  ┌COUNT()┐
    │ 1000000 │
    └──────┘

1 row in set. Elapsed: 0.005 sec.
```