CloudTable Service

Getting Started

Issue 01

Date 2025-07-17

HUAWEI CLOUD COMPUTING TECHNOLOGIES CO., LTD.

Trademarks and Permissions


and other Huawei trademarks are the property of Huawei Technologies Co., Ltd.
All other trademarks and trade names mentioned in this document are the property of their respective holders.

Notice

The purchased products, services and features are stipulated by the contract made between Huawei Cloud and the customer. All or part of the products, services and features described in this document may not be within the purchase scope or the usage scope. Unless otherwise specified in the contract, all statements, information, and recommendations in this document are provided "AS IS" without warranties, guarantees or representations of any kind, either express or implied.

The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

Huawei Cloud Computing Technologies Co., Ltd.

Address: Huawei Cloud Data Center Jiaoxinggong Road
Qianzhong Avenue
Gui'an New District
Gui Zhou 550029
People's Republic of China

Website: https://www.huaweicloud.com/intl/en-us/

Contents

1 Quickly Creating an HBase Cluster and Querying Offline Data

HBase is a column-based distributed storage system that features high reliability, performance, and scalability. This section describes how to use HBase from scratch. For example, how to run the HBase shell command to create tables, insert data into tables, modify tables, read and delete table data, and delete tables.

Background Information

Suppose a user develops an application to manage users who use service A in an enterprise. The procedure of operating service A on the HBase client is as follows:

- Create the **user_info** table.
- Add users' educational backgrounds and professional titles to the table.
- Query usernames and addresses by user ID.
- Query information by username.
- Deregister users and delete user data from the user information table.
- Delete the user information table after service A ends.

Table 1-1 User information

ID	Name	Gender	Age	Address
12005000201	A	Male	19	IPA, IPB
12005000202	B	Female	23	IPC, IPD
12005000203	C	Male	26	IPE, IPF
12005000204	D	Male	18	IPG, IPH
12005000205	E	Female	21	IPI, IPJ
12005000206	F	Male	32	IPK, IPL
12005000207	G	Female	29	IPM, IPN
12005000208	H	Female	30	IPO, IPP

ID	Name	Gender	Age	Address
12005000209	I	Male	26	IPQ, IPR
12005000210	J	Male	25	IPS, IPT

Preparations

- Sign up for a HUAWEI ID and enable Huawei Cloud services. For details, see **Signing Up for a HUAWEI ID and Enabling Huawei Cloud Services**. The account cannot be in arrears or frozen.
- Create a VPC and subnet. For details, see **Creating a VPC and Subnet**.

Step 1: Buying an HBase Cluster

1. Log in to the CloudTable console.
2. Select a region in the upper left corner.
3. Click **Cluster Management**.
4. Click **Buy Cluster** in the upper right corner of the **Cluster Management** page and set related parameters. For details about how to configure ports for security group rules, see **HBase security group rules**.
5. Click **Buy Now**. On the displayed page, confirm the specifications and click **Finish**.
6. Return to the cluster list to view the cluster creation progress. If the cluster status is **Running**, the cluster is successfully created. For details, see **Creating an HBase Cluster**.

Table 1-2 HBase security group rules

Direction	Protocol	Port/Range	Source/Security Group	Usage
Outbound	All	All	0.0.0.0/0	Permit in the outbound direction
Inbound	TCP	16000	Security group of the CloudTable HBase cluster	HMaster RPC port
	TCP	16020		RegionServer RPC port
	TCP	2181		ZooKeeper client connection monitoring port
	TCP	2888		Follower connection monitoring port
	TCP	3888		ZooKeeper election port
	TCP	2000		HAgent access port

Step 2: Preparing an ECS

1. Purchase an ECS and log in to the ECS console.
2. Select a region in the upper left corner.
3. In the service list on the left, choose **Computing** > **Elastic Cloud Server**. The **Elastic Cloud Server** page is displayed.
4. Click **Buy ECS** in the upper right corner. The parameter configuration page is displayed.
5. Configure ECS parameters, including basic settings, instance, OS, storage replica, network, security group, public access, ECS management, advanced settings, and quantity.
6. Check the configurations, select the agreement, and click **Submit**. After the ECS is created, it will be started by default.

   For details, see **Purchasing an ECS**.

   NOTE

   To ensure successful connection of the cluster to the VPC, the security group configurations must align with those of the ECS.

Step 3: Adding a Security Group

Add the IP address of the local host to the ECS security group.

1. Obtain the IP address of the local host. Press Win+R. The **Run** dialog box is displayed.
2. Enter **cmd** in the text box and click **OK**. The cmd window is displayed.
3. Enter **ipconfig** in the command window and press Enter to query the IP address of the local host.
4. Log in to the ECS console.
5. On the ECS list page, click the ECS name. On the **Basic Information** tab page, click the **Security Group** tab. On the displayed page, click **Inbound Rules**.
6. Click **Add Rule** in the upper right corner of the page.
7. Enter the local IP address obtained in **3** as the source IP address. Click **OK**. The security group is added.

Step 4: Installing the Client and Verifying the Client

This part introduces how to **manually install** the client. You can also choose the one-click client deployment method.

1. Download the one-click client deployment tool. Use the SSH login tool (such as PuTTY) to log in to the Linux ECS through the EIP.

   For details about how to log in to the ECS, see "Remotely Logging In to a Linux ECS (Using an SSH Password)" in **Logging In to a Linux ECS** of the *Elastic Cloud Server User Guide*.

   Then run the following command to obtain the one-click client deployment tool:

   ```
   curl -O -k "https://cloudtable-publish.obs.myhuaweicloud.com/quick_start_hbase_shell.sh"
   ```


> **NOTE**
>
> This command applies to HBase 1.*x*.

```
curl -O -k "https://cloudtable-publish.obs.myhuaweicloud.com/cloudtable-client/
quick_start_hbase_shell.sh"
```

> **NOTE**
>
> - This command applies to HBase 2.*x*.
> - The verification file is contained in the one-click deployment package.

2. Obtain the cluster access address.
   a. Log in to the CloudTable console and go to the **Cluster Management** page.
   b. Click the cluster name. On the displayed page, click **Details**.
   c. Obtain the value of **ZK Link (Intranet)**, which is the cluster access address.
3. Use the tool to deploy the client. Replace **$zookeeper_address** in the following command with the ZK link you obtained in **2**. Then, run the command on the CLI of the ECS to deploy the client in one click.
   - Commands for one-click client deployment of a common cluster:
     ```
     source quick_start_hbase_shell.sh $zookeeper_address
     ```
   - Commands for one-click deployment of a security cluster:
     ```
     source quick_start_hbase_shell $zookeeper_address enable
     ```
4. Start the shell to access the cluster.

   After you run the source command to automatically deploy the client, the HBase shell is automatically started. You can also run the **bin/hbase shell** command to start the HBase shell to access the cluster.

Step 5: Running the HBase Client Command to Implement Service A

1. Create the **user_info** table according to **Table 1-1** and add related data to it.
   ```
   create 'user_info',{NAME => 'i'}
   ```
   For example, to add information about the user whose ID is **12005000201**, run the following commands:
   ```
   put 'user_info','12005000201','i:name','A'
   put 'user_info','12005000201','i:gender','Male'
   put 'user_info','12005000201','i:age','19'
   put 'user_info','12005000201','i:address','IPA, IPB'
   ```
2. Add users' educational backgrounds and titles to the **user_info** table.

   For example, to add educational background and title information about user **12005000201**, run the following commands:
   ```
   put 'user_info','12005000201','i:degree','master'
   put 'user_info','12005000201','i:pose','manager'
   ```
3. Query usernames and addresses by user ID.

   For example, to query the name and address of user **12005000201**, run the following command:
   ```
   scan 'user_info',
   {STARTROW=>'12005000201',STOPROW=>'12005000201',COLUMNS=>['i:name','i:address']}
   ```
4. Query information by username.

   For example, to query information about user A, run the following command:
   ```
   scan 'user_info',{FILTER=>"SingleColumnValueFilter('i','name',=,'binary:A')"}
   ```


5. Delete user data from the user information table.

   All user data needs to be deleted. For example, to delete data of user **12005000201**, run the following command:

   ```
   delete 'user_info','12005000201','i'
   ```

6. Delete the user information table.

   ```
   disable 'user_info';drop 'user_info'
   ```


2 Quickly Creating a Doris Cluster and Performing Report Analysis

Doris is a high-performance, real-time analytical database based on MPP architecture, known for its extreme speed and ease of use. It can return query results of mass data in sub-seconds and can support high-concurrency point queries and high-throughput complex analysis. This section describes how to use Doris from scratch. For example, how to run the MySQL command to create tables, insert data into tables, modify tables, read and delete table data, and delete tables.

Background Information

Assume that this is a table that records users' behavior of accessing a product web page. The procedure of implementing service operations on the MySQL client is as follows:

- Create the **example_tbl** table.
- Add the visit date, city, gender, residence time, and consumption to the table.
- Query basic user information by user ID.
- Delete the user information table after the service ends.

Table 2-1 User information table

user_id	date	city	age	sex	last_visit_date	cost	max_dwell_time	min_dwell_time
10000	2017-10-01	A	20	0	2017-10-01 06:00:00	20	10	10
10000	2017-10-01	A	20	0	2017-10-01 07:00:00	15	2	2

user_id	date	city	age	sex	last_visit_date	cost	max_dwell_time	min_dwell_time
10001	2017-10-01	A	30	1	2017-10-01 17:05:45	2	22	22
10002	2017-10-02	B	20	1	2017-10-02 12:59:12	200	5	5
10003	2017-10-02	C	32	0	2017-10-02 11:20:00	30	11	11
10004	2017-10-01	D	35	0	2017-10-01 10:00:15	100	3	3
10004	2017-10-03	D	35	0	2017-10-03 10:20:22	11	6	6

- The following table describes the parameter values listed in the previous table.

Table 2-2 Parameter description

Parameter	Value	Description
user_id	10000	User ID, which uniquely identifies a user.
date	2017-10-01	Time when data is imported to the database. The value is accurate to date.
city	A	City where a user is located
age	20	Age of a user
sex	0	Gender male (**1** indicates female)
last_visit_date	2017-10-01 06:00:00	Time when a user visits the page. The value is accurate to second.
cost	20	Consumption generated by the current visit

Parameter	Value	Description
max_dwell_time	10	Time spent on the page during the current visit
min_dwell_time	10	Time spent on the page during the current visit (redundancy)

Preparations

- Sign up for a HUAWEI ID and enable Huawei Cloud services. For details, see **Signing Up for a HUAWEI ID and Enabling Huawei Cloud Services**. The account cannot be in arrears or frozen.
- Create a VPC and subnet. For details, see **Creating a VPC and Subnet**.

Step 1: Buying a Doris Cluster

1. Log in to the CloudTable console.
2. Select a region in the upper left corner.
3. Click **Cluster Management**.
4. Click **Buy Cluster** in the upper right corner of the **Cluster Management** page and set related parameters. For details about how to configure ports for security group rules, see **Doris security group rules**.
5. Click **Buy Now**. On the displayed page, confirm the specifications and click **Finish**.
6. Return to the cluster list to view the cluster creation progress. If the cluster status is **In service**, the cluster is created. For details, see **Creating a Doris Cluster**.

Table 2-3 Doris security group rules

Direction	Action	Port/Range	Type	Destination/Source Address	Usage
Outbound	Allow	All	IPv4/IPv6	0.0.0.0/0	Permit in the outbound direction
Inbound	Allow	9030		Security group of the CloudTable Doris cluster	MySQL server port on the FE node
	Allow	8030			HTTP server port on the FE node
	Allow	8040			HTTP server port on the BE node
	Allow	8050			HTTPS server port on the FE node

Step 2: Preparing an ECS

1. Purchase an ECS and log in to the ECS console.
2. Select a region in the upper left corner.
3. In the service list on the left, choose **Computing** > **Elastic Cloud Server**. The **Elastic Cloud Server** page is displayed.
4. Click **Buy ECS** in the upper right corner. The parameter configuration page is displayed.
5. Configure ECS parameters, including basic settings, instance, OS, storage replica, network, security group, public access, ECS management, advanced settings, and quantity.
6. Check the configurations, select the agreement, and click **Submit**. After the ECS is created, it will be started by default.

   For details, see **Purchasing an ECS**.

Step 3: Adding a Security Group

Add the IP address of the local host to the ECS security group.

1. Obtain the IP address of the local host. Press Win+R. The **Run** dialog box is displayed.
2. Enter **cmd** in the text box and click **OK**. The cmd window is displayed.
3. Enter **ipconfig** in the command window and press Enter to query the IP address of the local host.
4. Log in to the ECS console.
5. On the ECS list page, click the ECS name. On the **Basic Information** tab page, click the **Security Group** tab. On the displayed page, click **Inbound Rules**.
6. Click **Add Rule** in the upper right corner of the page.
7. Enter the local IP address obtained in **3** as the source IP address. Click **OK**. The security group is added.

Step 4: Installing the Doris Client

You can manually install the client on an ECS.

1. Use the SSH login tool (such as PuTTY) to log in to the Linux ECS through the EIP.

   For details about how to log in to the ECS, see "Remotely Logging In to a Linux ECS (Using an SSH Password)" in **Logging In to a Linux ECS** of the *Elastic Cloud Server User Guide*.
2. Upload the Doris client to the ECS created in **Step 2**.
3. Decompress the installation package.

   ```
   cd <Path of the client installation package>
   tar xzvf Name of the client package
   ```

   NOTE

   Replace *<Path of the client installation package>* mentioned in **3** with the actual path.
4. Go to the **bin** directory.

   ```
   cd mysql-5.7.22-linux-glibc2.12-x86_64/bin/
   ```


5. Connect to the Doris cluster. For details, see **Enabling HTTPS for a Doris Cluster**.

```
./mysql -uadmin -pPassword -hInternal IP address of the cluster -P9030
```

NOTE

- *Internal IP address of the cluster*: Enter the cluster access address on the cluster details page. Replace it with the access address of the cluster you purchased. (All access addresses of the FE node can be used to access the cluster.)
- *Password* is the password set when you purchase the cluster. If there are special characters, use backslashes (\) to escape them. If the password is enclosed in single quotation marks ('), the special characters do not need to be escaped.
- **Port**: MySQL server port 9030 on the FE node

Step 5: Running the MySQL Command to Insert Data

1. Create a database.

```
CREATE DATABASE demo;
```

2. Create a data table.
   - Use the database.

     ```
     USE demo;
     ```

   - Create a table.

     ```
     CREATE TABLE IF NOT EXISTS demo.example_tbl
     (
         `user_id` LARGEINT NOT NULL COMMENT "User ID",
         `date` DATE NOT NULL COMMENT "Data import date and time",
         `city` VARCHAR(20) COMMENT "City where the user locates",
         `age` SMALLINT COMMENT "User age",
         `sex` TINYINT COMMENT "User gender",
         `last_visit_date` DATETIME REPLACE DEFAULT "1970-01-01 00:00:00" COMMENT "Last visit
     date of the user",
         `cost` BIGINT SUM DEFAULT "0" COMMENT "Total consumption",
         `max_dwell_time` INT MAX DEFAULT "0" COMMENT "Maximum residence time",
         `min_dwell_time` INT MIN DEFAULT "99999" COMMENT "Minimum residence time",
     )
     AGGREGATE KEY(`user_id`, `date`, `city`, `age`, `sex`)
     DISTRIBUTED BY HASH(`user_id`) BUCKETS 1
     PROPERTIES (
         "replication_allocation" = "tag.location.default: 3"
     );
     ```

3. Insert data.

```
INSERT INTO demo.example_tbl
(user_id,date,city,age,sex,last_visit_date,cost,max_dwell_time,min_dwell_time)
VALUES('10000','2017-10-01','A','20','0','2017-10-01 07:00:00','35','10','2'),
('10001','2017-10-01','A','30','1','2017-10-01 17:05:45','2','22','22'),
('10002','2017-10-02','B','20','1','2017-10-02 12:59:12','200','5','5'),
('10003','2017-10-02','C','32','0','2017-10-02 11:20:12','30','11','11'),
('10004','2017-10-01','D','35','0','2017-10-01 10:00:15','100','3','3'),
('10004','2017-10-03','D','35','0','2017-10-03 10:20:22','11','6','6');
```

4. Query the data.
   - The following is an example of using Doris to perform quick data query and analysis.

```
mysql> SELECT * FROM
demo.example_tbl;
                                        +---------+------------+------+------+------+---------------------
+------+----------------+----------------+
| user_id | date       | city | age  | sex  | last_visit_date     | cost | max_dwell_time | min_dwell_time
|
+---------+------------+------+------+------+---------------------+------+----------------+----------------+
| 10000   | 2017-10-01 | A    |   20 |    0 | 2017-10-01 07:00:00 |   35 |             10 |              2 |
| 10001   | 2017-10-01 | A    |   30 |    1 | 2017-10-01 17:05:45 |    2 |             22 |             22 |
| 10002   | 2017-10-02 | B    |   20 |    1 | 2017-10-02 12:59:12 |  200 |              5 |              5 |
```



```
| 10003   | 2017-10-02 | C    |   32 |    0 | 2017-10-02 11:20:12 |   30 |            11 |            11 |
| 10004   | 2017-10-01 | D    |   35 |    0 | 2017-10-01 10:00:15 |  100 |             3 |             3 |
| 10004   | 2017-10-03 | D    |   35 |    0 | 2017-10-03 10:20:22 |   11 |             6 |             6 |
+---------+------------+------+------+------+---------------------+------+---------------+---------------+
6 rows in set (0.02 sec)
```

- View information about a specified city.

```
mysql> SELECT * FROM demo.example_tbl where city='B';
+---------+------------+------+------+------+---------------------+------+---------------+---------------+
| user_id | date       | city | age  | sex  | last_visit_date     | cost | max_dwell_time | min_dwell_time
|
+---------+------------+------+------+------+---------------------+------+---------------+---------------+
| 10002   | 2017-10-02 | B    |   20 |    1 | 2017-10-02 12:59:12 |  200 |             5 |             5 |
+---------+------------+------+------+------+---------------------+------+---------------+---------------+
1 row in set (0.10 sec)
```

5. Delete data.

   a. Delete a specified row of data.

   ```
   mysql> DELETE FROM demo.example_tbl WHERE user_id = 10003;
   Query OK, 0 rows affected (0.04 sec)
   {'label':'delete_77ed273a-a052-4d64-bac0-23916b698003', 'status':'VISIBLE', 'txnId':'39'}
   ```

   b. Delete the table.

   ```
   mysql> DROP TABLE demo.example_tbl;
   Query OK, 0 rows affected (0.01 sec)
   ```


3 Quickly Creating a ClickHouse Cluster and Performing Statistical Analysis

ClickHouse offers easy-to-use, flexible, and stable hosting services in the cloud. A data warehouse can be created in minutes for massive real-time data query and analysis, improving the overall efficiency of data value mining. By leveraging the massively parallel processing (MPP) architecture, ClickHouse can query data several times faster than conventional data warehouses.

Background Information

Assume that there is a student score table and you need to use ClickHouse to perform the following operations:

- Create the user information table **demo_t**.
- Add the user gender and subject to the user information.
- Query basic user information by user ID.
- Delete the user information table after the service ends.

Table 3-1 Score table

user_id	name	sex	subject	score	time
10000	A	1	Chinese	89	2023-07-01 09:00:00
10001	B	0	Math	132	2023-07-01 09:00:00
10002	C	0	Math	90	2023-07-02 09:00:00
10003	D	0	English	120	2023-07-01 14:00:00
10004	E	1	Chinese	101	2023-07-01 09:00:00

user_id	name	sex	subject	score	time
10005	F	1	Chinese	110	2023-07-01 09:00:00

Table 3-2 Description

Parameter	Value	Description
user_id	10000	User ID, which uniquely identifies a user.
name	2023-07-01 09:00:00	Data import time
sex	A	Student name
subject	1	Gender female (**0** indicates male).
score	Chinese	Discipline
time	89	Score

Preparations

- Sign up for a HUAWEI ID and enable Huawei Cloud services. For details, see **Signing Up for a HUAWEI ID and Enabling Huawei Cloud Services**. The account cannot be in arrears or frozen.
- Create a VPC and subnet. For details, see **Creating a VPC and Subnet**.

Step 1: Buying a ClickHouse Cluster

1. Log in to the CloudTable console.
2. Select a region in the upper left corner.
3. Click **Cluster Management**.
4. Click **Buy Cluster** in the upper right corner of the **Cluster Management** page and set related parameters. For details about how to configure ports for security group rules, see **ClickHouse security group rules**.
5. Click **Buy Now**. On the displayed page, confirm the specifications and click **Finish**.
6. Return to the cluster list to view the cluster creation progress. If the cluster status is **Running**, the cluster is successfully created. For details, see **Creating a ClickHouse Cluster**.

Table 3-3 ClickHouse security group rules

Direction	Action	Port/Range	Type	Destination/Source Address	Description
Outbound	Allow	All	IPv4/IPv6	0.0.0.0/0	Permit in the outbound direction
Inbound	Allow	8123		Security group of the CloudTable ClickHouse cluster	ClickHouse HTTP port number
	Allow	9000			ClickHouse TCP port number
	Allow	8443			ClickHouse HTTPS port number
	Allow	9440			Secure TCP security port of ClickHouse
	Allow	2181			ZooKeeper client connection monitoring port

Step 2: Downloading the ClickHouse Client and Verification File.

1. Log in to the CloudTable console.
2. Select a region in the upper left corner.
3. Click **Help** in the navigation pane.
4. Choose **Download the ClickHouse Client** under **Helpful Links** on the right of the help page to download the client installation package.
5. Click **Download Client Verification File** to download the verification file.

Step 3: Preparing an ECS

1. Purchase an ECS and log in to the ECS console.
2. Select a region in the upper left corner.
3. In the service list on the left, choose **Computing** > **Elastic Cloud Server**. The **Elastic Cloud Server** page is displayed.
4. Click **Buy ECS** in the upper right corner. The parameter configuration page is displayed.
5. Configure ECS parameters, including basic settings, instance, OS, storage replica, network, security group, public access, ECS management, advanced settings, and quantity.
6. Check the configurations, select the agreement, and click **Submit**. After the ECS is created, it will be started by default.

   For details, see **Purchasing an ECS**.

> **NOTE**
>
> To ensure successful connection of the cluster to the VPC, the security group configurations must align with those of the ECS.

Step 4: Adding a Security Group

Add the IP address of the local host to the ECS security group.

1. Obtain the IP address of the local host. Press Win+R. The **Run** dialog box is displayed.
2. Enter **cmd** in the text box and click **OK**. The cmd window is displayed.
3. Enter **ipconfig** in the command window and press Enter to query the IP address of the local host.
4. Log in to the ECS console.
5. On the ECS list page, click the ECS name. On the **Basic Information** tab page, click the **Security Group** tab. On the displayed page, click **Inbound Rules**.
6. Click **Add Rule** in the upper right corner of the page.
7. Enter the local IP address obtained in **3** as the source IP address. Click **OK**. The security group is added.

Step 5: Installing and Verifying the ClickHouse Client

You can manually install the client on an ECS.

1. Use the SSH login tool (such as PuTTY) to log in to the Linux ECS through the EIP.

   For details about how to log in to the ECS, see "Remotely Logging In to a Linux ECS (Using an SSH Password)" in **Logging In to a Linux ECS** of the *Elastic Cloud Server User Guide*.
2. Upload the client downloaded in **2** to the Linux ECS.
3. Install the client and connect to the cluster.
   a. Use the SSH login tool to remotely log in to the Linux ECS through the EIP.

      For details, see **Login Using an SSH Password** in the *Elastic Cloud Server User Guide*.
   b. Go to the root directory of the SSH login tool.
      ```
      cd /
      ```
   c. Create a folder in the root directory.
      ```
      mkdir Folder name
      ```
   d. Go to the directory of the created folder.
      ```
      cd /Folder name/
      ```
   e. Place the client in the directory.
   f. Decompress the client package.
      ```
      tar -zxf Client package name
      ```
   g. Decompress the client verification file to the same directory as the client.
      i. Decompress the client verification file.
         ```
         cd <Path for storing the client verification file>
         tar xzvf Client_sha256.tar.gz
         ```


ii. Obtain the client verification code.
```
sha256sum ClickHouse_Client_23.3.tar.gz
```

iii. Check the verification code in the client verification file and compare it with the client verification code. A match indicates no tampering, while a mismatch suggests tampering.
```
less ClickHouse_Client_23.3.tar.gz.sha256
```

h. Load the **.so** file.
```
sh install.sh
```

i. Go to the **bin** directory.
```
cd bin/
```

Grant the 700 permission to the directory.
```
chmod 700 clickhouse
```

j. Connect to the port of the ClickHouse cluster.

Use the following command to connect to a normal cluster.
./clickhouse client --host *Private IP address of the cluster* **--port 9000 --user admin --password** *Password*

For details about the security cluster connection commands, see **Configuring Secure Channel Encryption for ClickHouse Clusters**.
./clickhouse client --host *Private IP address of the cluster* --port 9440 --user admin --password *Password* --secure --config-file /root/config.xml

NOTE

- Private IP Address: cluster access address on the cluster details page. Replace it with the access address of the cluster you purchased.
- *Password*: the password set when you purchase the cluster. If there are special characters, use backslashes (\) to escape them. If the password is enclosed in single quotation marks ('), the special characters do not need to be escaped.

Step 6: Inserting Data

In the command window in **Step 5**, run the following commands to create a data table using the ClickHouse cluster and query the table data.

1. Create a database.
```
create database DB_demo;
```
2. Use the database.
```
use DB_demo;
```
3. Create a table.
```
create table DB_demo_t(user_id Int32,name String,sex Tinyint ,subject String,score Int32,time datetime)engine=TinyLog;
```
4. Insert data.
```
insert into DB_demo_t(user_id,name,sex,subject,score,time)
values('10000','A','1','Chinese','89','2023-07-01 09:00:00');
insert into DB_demo_t(user_id,name,sex,subject,score,time)
values('10001','B','0','Math','132','2023-07-01 09:00:00');
insert into DB_demo_t(user_id,name,sex,subject,score,time)
values('10002','C','0','Math','90','2023-07-02 09:00:00');
insert into DB_demo_t(user_id,name,sex,subject,score,time)
values('10003','D','0','English','120','2023-07-01 14:00:00');
insert into DB_demo_t(user_id,name,sex,subject,score,time)
values('10004','E','1','Chinese','101','2023-07-01 09:00:00');
insert into DB_demo_t(user_id,name,sex,subject,score,time)
values('10005','F','1','Chinese','110','2023-07-01 09:00:00');
```
5. Query the data.
   - Query the imported data.


```
host-172-16-13-95 :) select * from DB_demo_t;
SELECT *
FROM DB_demo_t
Query id: 4e119f77-0592-4131-bbe2-31f42bc069a1
┌─user_id─┬─name─┬─sex─┬─subject─┬─score─┬────────────time─┐
│   10000 │ A    │   1 │ Chinese │    89 │ 2023-07-01 09:00:00 │
│   10001 │ B    │   0 │ Math    │   132 │ 2023-07-01 09:00:00 │
│   10002 │ C    │   0 │ Math    │    90 │ 2023-07-02 09:00:00 │
│   10003 │ D    │   0 │ English │   120 │ 2023-07-01 14:00:00 │
│   10004 │ E    │   1 │ Chinese │   101 │ 2023-07-01 09:00:00 │
│   10005 │ F    │   1 │ Chinese │   110 │ 2023-07-01 09:00:00 │
└─────────┴──────┴─────┴─────────┴───────┴─────────────────────┘
6 rows in set. Elapsed: 0.004 sec.
```

6. Delete data.
   - Delete the table.
     ```
     drop table DB_demo_t;
     ```
   - Delete the database.
     ```
     drop database DB_demo;
     ```


4 Best Practices for Beginners

Once you have purchased an aforementioned cluster and connected it to your CloudTable cluster, you can leverage the common best practices recommended by CloudTable, tailored to your specific service requirements.

Table 4-1 Common best practices

Practice		Description
Importing Data	**Using a DLI Flink Job to Synchronize MRS Kafka Data to a CloudTable HBase Cluster in Real Time**	This practice demonstrates how to use DLI Flink jobs to synchronize consumption data from Kafka to CloudTable HBase in real time.
	Using a DLI Flink Job to Synchronize MRS Kafka Data to a CloudTable ClickHouse Cluster in Real Time	This practice demonstrates how to use DLI Flink jobs to synchronize consumption data from Kafka to CloudTable ClickHouse in real time.

