

TencentDB for TcaplusDB

TcaplusDB Client

Product Documentation



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TcaplusDB Client

Accessing by Client Tool

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This document describes how to use the client tool `tcaplus_client` to access data.

All DML statements must use the `WHERE` clause which should contain at least a primary key field. If there are multiple primary keys, separate them with `and` .

Accessing TcaplusDB through Client Tool

`tcaplus_client` is a client tool used to access TcaplusDB tables and can be obtained at the download address in the table below.

The release package of TcaplusServiceAPI for Linux x86_64 contains the `tcaplus_client` tool for Linux 64-bit.

| Version | Release Date | OS | Package Download Address |
|---------------|--------------|--------------|--------------------------|
| 3.46.0.199033 | 2020/12/28 | Linux x86_64 | Download |

Note :

- The following operations need to be performed on the CVM instance in the same VPC and subnet under your Tencent Cloud account as your TcaplusDB cluster.
- You can download TcaplusServiceAPI v3.36.0.192960 [here](#).

Installing client

After downloading the TcaplusServiceAPI installation package, you can [use the upload tool](#) to upload it onto the CVM instance in the same VPC and subnet as the TcaplusDB cluster.

1. After the upload, run the following command to decompress the installation package:

```
tar -xf TcaplusPbApi3.46.0.199033.x86_64_release_20201210.tar.gz -C tcaplus
```

2. After the decompression, enter the `bin` directory in `tcaplus` and grant the tool executable permission:

```
cd tcaplus/release/x86_64/bin
chmod +x tcaplus_client
```

- Run the `./tcaplus_client` command, and the system will prompt you to enter the parameter information required for database connection. You can enter it based on your cluster information.

Note :

In the sample below, `app_id` indicates the cluster access ID, `App` indicates the cluster, and `zone` indicates the table group.

```
## ./tcaplus_client
```

invalid parameters, please start the `client` as following:

```
./tcaplus_client -a app_id -z zone_id -s signature -d dir_server_url [-t table_name] [-l log_file.xml] [-T tdr_file.tdr] [-e execute_command]
```

the params in [] are optional, and their order is not important.

```
-a(--ap_id) APP ID
```

```
-z(--zone_id) ZONE ID
```

```
-s(--signature) PASSWORD
```

```
-d(--dir) dir server addr
```

```
-t(--table) table to add
```

```
-l(--log) log file name that must be client_log.xml, and log class name be client
```

```
-T(--tdr) tdr filename
```

```
-e(--execute) SQL command need to execute, the content should be in quotes.
```

```
e.g. ./tcaplus_client -a 2 -z 3 -s "FE6533875C8385C3" -d 172.25.40.181:9999 -T table_test.tdr -e "select a, b from table where key = 1;"
```

Connecting to TcaplusDB (default scenario)

Run the corresponding command to connect to TcaplusDB. The access point information in the sample below is as follows, and the table `tb_online` has been created in the table group whose ID is

1:

- Cluster access ID: 2
- Connection password: test@Password1
- Private address:private port: 10.125.32.21:9999
- Table group ID: 1

```
./tcaplus_client -a 2 -z 1 -s "test@Password1" -d 10.125.32.21:9999
```

```
+-----+
| tcaplus_client x86_64 build at Wed Jan 18 22:08:38 CST 2017 |
| |
| Welcome! |
+-----+

tcaplus>
```

Enter `help` after the prompt, and you can see detailed help information. Enter `> help` to view how to use related commands.

```
tcaplus>help
```

```
-----
help: show usage of commands, example: "help select;".
show: get server status related information. executing "help show;" for details.
exit/quit: exit the client.
count: print record number in the database.

desc: print table field name and type.
select: query records from database.
insert: insert a new record into database.
replace: replace a record into the database.
update: update a record in the database.
delete: delete record(s) from database.

dump: dump records from database.
load: load records into the database.
-----
```

Parameter description

| Parameter | Description | Required |
|-----------|----------------|----------|
| -a | Access ID | Yes |
| -z | Table group ID | Yes |
| | | |

| | | |
|----|--|-----|
| -s | Cluster password | Yes |
| -d | Cluster IP and port | Yes |
| -t | Table name | No |
| -l | The output setting of log files. The file name must be "client_log.xml". | No |
| -T | TDR file path | No |
| -e | The SQL statements to execute | No |
| -v | The version to query | No |
| < | Redirect SQL statements to client to execute. | No |

Connecting to TcaplusDB (using TDR)

To connect to TcaplusDB via TDR, you must use the client launch parameters to specify the TDR file path. You can use the [TDR tool](#) to convert multiple XML metadatabases into binary format. If there are dependencies between multiple XML files, the dependent XML file must be placed in front of the parameter list.

Sample:

```
[root@test-PC0 /opt]# ./tcaplus_client -a 2 -z 3 -s C12901752D0D3347 -d 8.x.x.8:9999 -T /mnt/e/td
r/2.3.table_list.tdr

===== Welcome to use tcaplus_client, use "help" to show usage =====
tcaplus > exit

[root@test-PC0 /opt]# ./tcaplus_client -a 2 -z 3 -s C12901752D0D3347 -d 8.x.x.8:9999 -T /mnt/e/td
r/2.3.table_list.tdr -e "show tables;"
-----
| Table Name Type |
-----
| MTownRoleInfo GENERIC |
| table_generic GENERIC |
| table_generic_xiahuaxian GENERIC |
| table_list LIST |
| test_table GENERIC |
-----
```

TDR tool

You need to use the TDR tool to generate a TDR file, which is mainly generated by the data definition file (TDR structure in XML format). Download the tool [here](#).

Sample:

```
tdr -B -o ov_res.tdr ov_res.xml
# Convert XML metadatabases to TDR binary databases.
tdr -C -o ov_res.c --old_xml_tagset ov_res.xml
# Convert metadatabases in old XML format (using the old tag set) to .c files.
tdr -H -O "include" --add_custom_prefix="m_" --no_type_prefix
# Convert XML metadatabases to .h files which are saved in the "include" directory.
# Add the prefix "m_" to the member name of struct/union, but not add a type prefix.
tdr -G -m Pkg -x ATTR -o Pkg.xml net_protocol.xml
# Generate a configuration file in XML format through package (a data structure package customized by user).
tdr -T -u prefixfile
# Export the prefix table of the data member used when generating the .h file to the file "prefix file".
tdr -A --indent-size=8 net_protocol.xml
# Generate ActionScript3 class files according to the protocol described in "net_protocol.xml". The generated class files are all indented with 8 spaces.
tdr -P --indent-size=8 net_protocol.xml
# Generate C++ class files according to the protocol described in "net_protocol.xml". The generated class files are all indented with 8 spaces.
tdr -S --indent-size=8 net_protocol.xml
# Generate C# class files according to the protocol described in "net_protocol.xml". The generated class files are all indented with 8 spaces.
tdr -E 0x83010404
# Query the error information of error code 0x83010404.
```

tdr2xml tool

The tdr2xml tool can decompile the binary metadata file to an XML metadata file. Download the tool [here](#).

Syntax:

```
tdr2xml [-o --out_file=FILE] [-h --help] [-v --version] DRFILE
The description of each parameter is as follows:
-o, --out_file=FILE: specify the name of the output file. Default value: a.xml.
-h, --help: output help.
-v, --version: output the version information.
```

Sample:

```
tdr2xml -o net_cs.xml net_cs.tdr
```


Convert the metadata description file in binary custom format saved in the "net_cs.tdr" file into a description file in XML format.

Client Tool Commands

help

Last updated : 2020-12-22 10:44:53

Overview

This command is used to learn about command usage.

Syntax

```
## Obtaining All Commands and Their Usage  
help;
```

```
## Obtaining the Detailed Instruction of a Specific Command  
help [command];
```

Sample

```
tcaplus> help;  
-----  
help: show usage of commands, example: "help select";  
show: get server status related information. executing "help show;" for details.  
exit/quit: exit the client.  
count: print record number in the database.  
  
desc: print table field name and type.  
select: query records from database.  
insert: insert a new record into database.  
replace: replace a record into the database.  
update: update a record in the database.  
delete: delete record(s) from database.  
  
dump: dump records from database.  
load: load records into the database.  
  
setttl: set ttl for a record  
getttl: get ttl for a record
```

 tcaplus> **help** select;

 example: select key1, key2, key3, value1, value2 [into result.csv] from **table** where key1 = 1 and key2 = "abc" [and -index = 1] [¥P] [¥G];

query records from database, you can specify part of the fields or whole fields (select *), and you can write the result to a **file**, which can be used by "insert" and "load"

for generic table, if the key in where clause is not complete, then it will send "GetByPartkey"

for list table, if "-index" is not specified in where clause, then it will send "ListGetAll", otherwise it will send "ListGet"

¥P: **print** time usage in detail

¥G: **print** fields in column

Note: "-index" only used for list table

example: select * [into result.xml] from **table** where key1 = 1 and key2 = "abc" [and -index = 1] using tdr [¥P];

if you specify "using tdr", then the records will be parsed by tdr file and print in xml format.

you can write the result into a **file**, which can be used by "load"

it only support "select *" instead of select part of the fields when specify "using tdr"

Note: "-index" only used for list table

globe index **query**:

example: select * from **table** where key1 > 1 and value1 > 100;

example: select * from **table** where value1 like "test";

example: select field1, field2 from **table** where key1 > 1 or value1 > 100;

example: select * from **table** where value1 between 100 and 200;

example: select * from **table** where value1 > 100 limit 100 offset 0;

example: select sum(value2), max(value2), min(value2), avg(value2), count(*) from **table** where value1 > 100;

Note: globe index **query** is only support generic **table**;

Note: current support: =, !=, >, >=, <, <=, like, not like, between, in, not in, and, or, limit offset;

Note: current support aggregation: count, sum, max, min, avg;

Note: for protobuf **table**, it support: "select field1.field2 from test where value1 > 100";

Note: limit must be used with offset, lack offset will **query** failed;

Note: the fields in where condition and in aggregation must had already created index;

Note: it not support: store the result to a **file**, such as "select * into file XXX" is not support;

Note: it not support: "select * from table"; which means to traverse **table**, you can used api traverse method to traverse **table**;

Note: it not support: order by, group by, having, join, union and so on;

Note: it not support: select a+b XXX; select * from **table** where a+b>0; select sum(XX),field1 from XXX; select *,field1 from XXX;

exit/quit

Last updated : 2020-12-25 16:40:13

Overview

This command is used to exit the client.

Syntax

```
`exit` or `quit`.
```

Samples

```
tcaplus> exit  
tcaplus> quit
```

show

Last updated : 2020-12-25 15:18:12

Overview

This command is used to query the basic information of the server or table. `show tables` can query table type and protocol type, and `show status` can query the current connection status, directory server information, and access layer information.

Syntax

```
show [status/tables];
```

Parameter

| Parameter | Description |
|-----------|-------------|
| table | Table name |

Sample

Query the information of tables in the current table group:

```
tcaplus> show tables;

-----
| Table Name Type Protocol |
-----
| test_table GENERIC TDR |
| tbMailTest LIST PROTOBUF |
| pb_generic_index_shardingkey GENERIC PROTOBUF |
| pb_generic_index_noshardkey GENERIC PROTOBUF |
| pb_generic_noindex_noshardkey GENERIC PROTOBUF |
| pb_list LIST PROTOBUF |
| pb_list2 LIST PROTOBUF |
```

```
| pb_sortedlist LIST PROTOBUF |  
| aes_info GENERIC TDR |  
| auth_info GENERIC TDR |  
| depend_me_services GENERIC TDR |  
| host_info GENERIC TDR |  
| instance_info GENERIC TDR |  
| node_info GENERIC TDR |  
| service_depends GENERIC TDR |  
| service_info GENERIC TDR |  
| token_info GENERIC TDR |  
| cl_list LIST PROTOBUF |  
| cl_generic GENERIC PROTOBUF |  
| table_generic GENERIC TDR |  
-----
```

desc

Last updated : 2020-12-25 16:40:13

Overview

This command is used to view the table definition information. For a nested field, you can only see that its attribute is nested type, but you cannot view the nested structure definition.

Syntax

```
desc [table]/[table.field] [using tdr];
```

Parameters

| Parameter | Protobuf | TDR |
|-------------|---------------|---|
| table | Table name | Table name |
| table.field | Not supported | To show the structure of a nested field, <code>using tdr</code> needs to be used along with this parameter. |
| using tdr | Not supported | This parameter is used to query the table structure from a TDR file which must be provided when the client is launched. |

Errors

For more information, please see [Error Codes](#).

Sample

```
tcaplus> desc table_list;
```

Table Structure From: Tcaplus System

TableName: table_list

TableType: LIST, IdlType: TDRXML

SvrTdrCurrentVersion: 5

```

+-----+-----+-----+-----+-----+-----+-----+-----+
-----+-----+
|Field |Type |Key |Index|Size |Version|DefaultValue|Count|Select |Desc |
+-----+-----+-----+-----+-----+-----+-----+-----+
-----+-----+
|uin |unsigned long long |PRI,SPLT|- |8 |1 |- |1 |- |QQ |
+-----+-----+-----+-----+-----+-----+-----+-----+
-----+-----+
|name |string |PRI |- |640 |1 |- |1 |- |Name |
+-----+-----+-----+-----+-----+-----+-----+-----+
-----+-----+
|key1 |unsigned char |PRI |- |1 |1 |- |1 |- |key4 |
+-----+-----+-----+-----+-----+-----+-----+-----+
-----+-----+
|level |int |- |- |4 |1 |1 |1 |- |- |
+-----+-----+-----+-----+-----+-----+-----+-----+
-----+-----+
|count |unsigned char |- |- |1 |1 |0 |1 |- |- |
+-----+-----+-----+-----+-----+-----+-----+-----+
-----+-----+
|array_count |unsigned int |- |- |4 |1 |1 |1 |- |- |
+-----+-----+-----+-----+-----+-----+-----+-----+
-----+-----+
|items |unsigned long long[]|- |- |8 |1 |- |10 |- |- |
+-----+-----+-----+-----+-----+-----+-----+-----+
-----+-----+
|c_int8 |char |- |- |1 |1 |-1 |1 |- |- |
+-----+-----+-----+-----+-----+-----+-----+-----+
-----+-----+
|c_uint8 |unsigned char |- |- |1 |1 |2 |1 |- |- |
+-----+-----+-----+-----+-----+-----+-----+-----+
-----+-----+
|c_int16 |short |- |- |2 |1 |-3 |1 |- |- |
+-----+-----+-----+-----+-----+-----+-----+-----+
-----+-----+
|c_uint16 |unsigned short |- |- |2 |1 |4 |1 |- |- |
+-----+-----+-----+-----+-----+-----+-----+-----+
-----+-----+
|c_int32 |int |- |- |4 |1 |-5 |1 |- |- |
+-----+-----+-----+-----+-----+-----+-----+-----+
-----+-----+
|c_uint32 |unsigned int |- |- |4 |1 |6 |1 |- |- |
+-----+-----+-----+-----+-----+-----+-----+-----+
-----+-----+

```



```

|c_int64 | long long | - | - | 8 | 1 | -7 | 1 | - | - |
+-----+-----+-----+-----+-----+-----+-----+-----+
|c_uint64 | unsigned long long | - | - | 8 | 1 | - | 1 | - | - |
+-----+-----+-----+-----+-----+-----+-----+-----+
|c_float | float | - | - | 4 | 2 | 1.234568 | 1 | - | - |
+-----+-----+-----+-----+-----+-----+-----+-----+
|c_double | double | - | - | 8 | 3 | 9.876543 | 1 | - | - |
+-----+-----+-----+-----+-----+-----+-----+-----+
|c_string | string | - | - | 200 | 3 | - | 1 | - | - |
+-----+-----+-----+-----+-----+-----+-----+-----+
|c_string_128K | string | - | - | 131072 | 1 | 123456789 | 1 | - | - |
+-----+-----+-----+-----+-----+-----+-----+-----+
|c_string_256K | string | - | - | 262144 | 1 | 123456789 | 1 | - | - |
+-----+-----+-----+-----+-----+-----+-----+-----+
|c_binary | char[] | - | - | 1 | 1 | - | 10 | - | - |
+-----+-----+-----+-----+-----+-----+-----+-----+
|binary | char | - | - | 1 | 5 | - | 1 | - | - |
+-----+-----+-----+-----+-----+-----+-----+-----+
|selector | short | - | - | 2 | 1 | - | 1 | - | - |
+-----+-----+-----+-----+-----+-----+-----+-----+
|single_struct | struct_type | - | - | 119 | 1 | - | 1 | - | - |
+-----+-----+-----+-----+-----+-----+-----+-----+
|simple_struct | simple_struct | - | - | 30 | 4 | - | 1 | - | - |
+-----+-----+-----+-----+-----+-----+-----+-----+
|single_union_selector | char | - | - | 1 | 1 | 0 | 1 | - | - |
+-----+-----+-----+-----+-----+-----+-----+-----+
|single_union | union_type | - | - | 64 | 1 | - | 1 | single_union_selector | - |
+-----+-----+-----+-----+-----+-----+-----+-----+
|array | TableInfo[] | - | - | 125 | 1 | - | 3 | - | three lyaer struct |
+-----+-----+-----+-----+-----+-----+-----+-----+
|c_union | union_type | - | - | 64 | 1 | - | 1 | selector | - |
+-----+-----+-----+-----+-----+-----+-----+-----+

```

```

|union_array |union_type[] |- |- |64 |1 |- |3 |selector |- |
+-----+-----+-----+-----+-----+-----+-----+-----+
+-----+-----+
|c_struct |struct_type |- |- |119 |1 |- |1 |- |- |
+-----+-----+-----+-----+-----+-----+-----+-----+
+-----+-----+
|struct_array |struct_type[] |- |- |119 |1 |- |3 |- |- |
+-----+-----+-----+-----+-----+-----+-----+-----+
+-----+-----+

```

32 rows in set (36252 us)

```
tcaplus> desc table_list.single_struct using tdr;
```

Table Structure From: Local tdr file(/mnt/e/tdr/2.3.table_list.tdr)

```

table_list.single_struct
|---single_struct(struct)
| |---x(int)
| |---y(int)
| |---score(double)
| |---rank(uchar)
| |---title(string)
| |---level2_struct(struct)
| | |---uin(int)
| | |---name(string)

```

count

Last updated : 2020-12-25 16:40:13

Overview

This command is used to query the total number of records in a table.

Syntax

```
count [tableName];
```

Errors

For more information, please see [Error Codes](#).

Sample

Query the total number of records in a table:

```
tcaplus> count game_player;
```

```
-----  
| TableName Count |  
-----
```

```
| table_list 16 |  
-----
```

insert

Last updated : 2020-12-22 10:44:54

Overview

This command is used to insert a data entry into a table by explicitly declaring parameters or importing files.

Syntax

```
## Explicitly Declaring Parameters to Insert Data
```

```
insert into table (key1, key2, value1, vlaue2) values (1, "abc", 2, "def") [after -1] [shift none /head/tail];
```

```
## Importing a CSV File to Insert Data
```

```
insert into table infile result.csv [after -1] [shift none/head/tail];
```

```
## Importing an XML File to Insert Data Provided that the TDR File Is Provided at the Client' s S  
tartup
```

```
insert into table infile result.xml [after -1] [shift none/head/tail] using tdr;
```

Parameters

| Parameter | Protobuf and TDR | Required |
|-----------|--|-------------------|
| table | Table name | Yes |
| key | Primary key field name | Yes |
| value | Non-primary key field name | Yes, at least one |
| after | LIST table: n>0 indicates that the data will be inserted after the first n data n=-2 indicates that the data will be inserted at the head of the queue n=-1 indicates that the data will be inserted at the tail of the queue | No |

| | | |
|-----------|---|----|
| | n<-2: unsupported GENERIC table: this field is unsupported. | |
| shift | If the table size exceeds the maximum value, you can specify how to clear data automatically. Valid values: none : no data will be cleared head : data at the head of the queue will be cleared tail: data at the tail of the queue will be cleared. | No |
| using tdr | The Protobuf table does not support this parameter. To insert data into the TDR table, import an XML file whose structure must strictly comply with the XML syntax. In addition, a TDR file must be provided when the client is started. | No |
| infile | Read data from the file | No |

Errors

For more information, see [Error Codes](#).

Sample

Download the sample file [result.xml](#) and [result.csv](#).

```
tcaplus>insert into game_players (player_id,player_name,player_email,game_server_id) values (2,na
me,email,2);
insert success

insert time: 45322 us

tcaplus> Insert into table_list (uin, name, key1) values (99,99,99) after -1 shift tail;

insert success

insert time: 22464 us

tcaplus> Insert into table_list infile result.xml using tdr;

insert success

insert time: 9493 us
```

```
tcaplus> Insert into table_list infile result.csv;
```

```
insert success
```

```
insert time: 22368 us
```

update

Last updated : 2020-12-17 12:07:17

Overview

This command is used to update a record in a table by explicitly declaring parameters or importing files.

Syntax

```
## Explicitly Declaring Fields to Update Records
```

```
update table set value1 = 1, value2 = "abc", value3 = 0x123456 where key1 = 1 and key2 = "abc" and [-index = 1];
```

```
## Importing CSV Files to Replace Records
```

```
update table infile file name [where -index = 0];
```

```
## Importing XML Files to Replace Records
```

```
update table infile file name [where -index = 0] using tdr;
```

Parameters

| Parameter | ProtoBuf | TDR | Required |
|-----------|---|---|-------------------|
| table | Table name | Table name | Yes |
| key | Primary key field name. All key values are required. | Primary key field name. All key values are required. | Yes |
| value | Non-primary key field name | Non-primary key field name | At least one or * |
| -index | LIST table: you must specify <code>¥-index</code> . Only the specified record will be replaced. | LIST table: if <code>¥-index</code> is specified, the index-th record with the same key will be returned; if <code>¥-index</code> is not specified, all records will be returned. GENERIC table: not supported | No |

| | | | |
|-----------|------------------------------|--|----|
| | GENERIC table: not supported | | |
| using tdr | Not supported | When data is output in XML format, the file structure must strictly comply with the XML syntax. A TDR file must be provided when client is launched. | No |
| infile | Read data from the file. | Read data from the file. | No |

Errors

Please refer to [Error Codes](#).

Sample

```
tcaplus> update table_list set level=99 and count= 88 where uin=99 and name = "99" and key1=99 and -index=0;

update success

update time: 117086 us
```


delete

Last updated : 2020-12-25 16:40:13

Overview

This command is used to delete a record from a table by the specified key. If the `-index` parameter is not specified, all records that meet the condition will be deleted from the table.

Syntax

```
delete from table where key1 = 1 and key2 = "abc" [and -index = 1] [by partkey];
```

Parameters

| Parameter | Protobuf | TDR | Required |
|------------|---|---|---|
| table | Table name | Table name | Yes |
| key | Primary key field name. All key values are required. | Primary key field name. All key values are required. | Yes |
| value | Non-primary key field name | Non-primary key field name | Yes, at least one field name is required. |
| -index | LIST table: you must specify <code>¥-index</code> . Only the specified record will be replaced. GENERIC table: not supported | LIST table: if <code>¥-index</code> is specified, the index-th record with the same key will be returned; if <code>¥-index</code> is not specified, all records will be returned. GENERIC table: not supported | No |
| by partkey | Not supported | LIST table: not supported GENERIC table: delete records by partial keys | No |

Errors

For more information, please see [Error Codes](#).

Sample

```
tcaplus> delete from table_list where uin=99 and name = "99" and key1=99 and -index=0;
```

```
delete success
```

```
delete time: 10263 us
```

```
tcaplus> delete from table_generic_xiahuaxian where _uin=99 and name = "danmi_test_1" and _key3=4  
by partkey;
```

```
delete success
```

```
delete time: 14405 us
```

select

Last updated : 2020-12-22 10:44:54

Overview

This command is used to query the entire record or several fields included in the record. If no record is matched, an error will be returned.

Syntax

```
select key1, key2, key3, value1, value2 [into result.csv] from table where key1 = 1 and key2 = "abc" [and -index = 1] [¥P] [¥G] [using tdr]
select * [into result.xml] from table where key1 = 1 and key2 = "abc" [and -index = 1] using tdr [¥P];
```

Parameters

| Parameter | Protobuf | TDR | Required |
|-----------|---|---|-------------------|
| table | Table name | Table name | Yes |
| key | Primary key field name. The global index query is supported. You can enter some key values. | Primary key field name. All key values are required. | Yes |
| value | Non-primary key field name | Non-primary key field name | Yes, at least one |
| -index | LIST table: if ¥-index is specified, the index record under the same key will be returned; if ¥-index is not specified, all records will be returned. GENERIC table: not supported | LIST table: if ¥-index is specified, the index record under the same key will be returned; if ¥-index is not specified, all records will be returned. GENERIC table: not supported | No |
| \P | Printing latency | Printing latency | No |

| \G | Vertical printing | Vertical printing | No |
|-----------|-------------------------|---|----|
| using tdr | Not supported | When data is output in XML format, the file structure must strictly comply with the XML syntax. A TDR file must be provided when the client is started. | No |
| into | Output data to the file | Output data to the file | No |

Errors

For more information, see [Error Codes](#).

Sample

```
tcaplus> select * from test_table where gameid=1234 and itemid=12323 and name='testname';
```

```
+-----+-----+-----+-----+-----+
|gameid|itemid|name |typeid|Data|uname|
+-----+-----+-----+-----+-----+
|1234 |12323 |"testname"|0 |9 |"ab" |
+-----+-----+-----+-----+-----+
```

```
1 records selectd, select time: 9802 us
```

```
tcaplus> select uname from test_table where gameid=1234 and itemid=12323 and name='testname';
```

```
+-----+-----+-----+-----+
|gameid|itemid|name |uname|
+-----+-----+-----+-----+
|1234 |12323 |"testname"|"ab" |
+-----+-----+-----+-----+
```

```
1 records selectd, select time: 9457 us
```

```
tcaplus> select * into test.txt from test_table where gameid=1234 and itemid=12323 and name='testname';
```

```
1 records are stored to test.csv, select time: 10198 us
```

```
tcaplus> select * from test_table where gameid=1234 and itemid=12323 and name='testname' #P #G;
```

```
gameid: 1234
itemid: 12323
name: "testname"
typeid: 0
```

Data: 9
 uname: "ab"

```
API ---- -1us --->ProxyFront---- 10us --->ProxyEnd--- 364us --->SvrMainStart
| | | |381us
|11380us |4138us |4104us SvrWorkerStart
| | | |61us
API <--- 34197us ----ProxyFront<--- 24us ----ProxyEnd<-- 3298us ----SvrWorkerEnd
1 records selectd, select time: 11380 us
```

```
tcaplus> select * into table_list.xml from table_list where uin=99 and name = "99" and key1=99 using tdr;
11 records are stored to table_list.xml, select time: 135299 us
```

```
tcaplus> select c_string from table_list where uin=99 and name = "99" and key1=99;
```

```
+--+-----+-----+-----+
|uin|name|key1|c_string|
+--+-----+-----+
|99|"99"|99|" "|
+--+-----+-----+
|99|"99"|99|" "|
+--+-----+-----+
|99|"99"|99|" "|
+--+-----+-----+
|99|"99"|99|" "|
+--+-----+-----+
|99|"99"|99|" "|
+--+-----+-----+
|99|"99"|99|" "|
+--+-----+-----+
|99|"99"|99|" "|
+--+-----+-----+
|99|"99"|99|" "|
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|99|"99"|99|" "|
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|99|"99"|99|" "|
+--+-----+-----+
|99|"99"|99|" "|
+--+-----+-----+
|99|"99"|99|" "|
+--+-----+-----+
|99|"99"|99|" "|
+--+-----+-----+
|99|"99"|99|" "|
+--+-----+-----+
|99|"99"|99|" "|
+--+-----+-----+
|99|"99"|99|" "|
```

11 records selectd, select time: 102572 us

```
tcaplus> select c_string from table_list where uin=99 and name = "99" and key1=99 and -index=9;
```

```
+--+-----+-----+-----+
|uin|name|key1|c_string|
+--+-----+-----+
|99|"99"|99|" "|
```

+--+--+--+--+

1 records selectd, select time: 9886 us

select with global index

Last updated : 2020-12-22 10:44:54

Index-based Query

After the global index feature is enabled, TcaplusDB supports the field query, provided that the field in the query condition must have global index created.

The fields in an aggregate query also require global index.

An index-based query returns up to 3,000 results.

Supported statements

Query conditions

The following query conditions are supported, including `=`, `>`, `>=`, `<`, `<=`, `!=`, `between`, `in`, `not in`, `like`, `not like`, `and`, or `.`

Note :

- The two values of `between` are included in the range. For example, if you use `between 1 and 100`, both 1 and 100 are inclusive. In other words, the query range should be `[1,100]`.
- The `like` query supports fuzzy matching. The wildcard `%` matches zero or multiple characters, while the wildcard `_` matches one character.

```
tcaplus> select * from pb_generic_index_shardingkey where openid>10 and tconndid<1000;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
-----+---+-----+-----+
|openid|timekey |tconndid|svrid |gamesvrid |other_property |items|lockid |pay|id_uint32|id_int32|
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
-----+---+-----+-----+
|201 |"timekey"|201 |"svrid"|"gamesvrid"| [{"key":1,"value":1}, {"key":2,"value":2}]|- |[1,2,3,4]|-
|1 |1 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
-----+---+-----+-----+
|200 |"timekey"|200 |"svrid"|"gamesvrid"| [{"key":1,"value":1}, {"key":2,"value":2}]|- |[1,2,3,4]|-
|1 |1 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
-----+---+-----+-----+
|203 |"timekey"|203 |"svrid"|"gamesvrid"| [{"key":1,"value":1}, {"key":2,"value":2}]|- |[1,2,3,4]|-
|1 |1 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
```

```

-----+-----+-----+-----+
|204 |"timekey"|204 |"svrid"|"gamesvrid"|["key":1,"value":1},{key":2,"value":2}]|-[1,2,3,4]|-
|1 |1 |
-----+-----+-----+-----+
-----+-----+-----+-----+
|202 |"timekey"|202 |"svrid"|"gamesvrid"|["key":1,"value":1},{key":2,"value":2}]|-[1,2,3,4]|-
|1 |1 |
-----+-----+-----+-----+
-----+-----+-----+-----+

```

total 5 records

```
tcaplus> select * from pb_generic_index_shardingkey where openid between 1 and 300 and tconndid<1000;
```

```

-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|openid|timekey |tconndid|svrid |gamesvrid |other_property |items|lockid |pay|id_uint32|id_int32|
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|203 |"timekey"|203 |"svrid"|"gamesvrid"|["key":1,"value":1},{key":2,"value":2}]|-[1,2,3,4]|-
|1 |1 |
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|204 |"timekey"|204 |"svrid"|"gamesvrid"|["key":1,"value":1},{key":2,"value":2}]|-[1,2,3,4]|-
|1 |1 |
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|201 |"timekey"|201 |"svrid"|"gamesvrid"|["key":1,"value":1},{key":2,"value":2}]|-[1,2,3,4]|-
|1 |1 |
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|200 |"timekey"|200 |"svrid"|"gamesvrid"|["key":1,"value":1},{key":2,"value":2}]|-[1,2,3,4]|-
|1 |1 |
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|202 |"timekey"|202 |"svrid"|"gamesvrid"|["key":1,"value":1},{key":2,"value":2}]|-[1,2,3,4]|-
|1 |1 |
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+

```

total 5 records

```
tcaplus> select * from pb_generic_index_shardingkey where openid>10 or tconndid<1000;
```

```

-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|openid|timekey |tconndid|svrid |gamesvrid |other_property |items|lockid |pay|id_uint32|id_int32|

```



```

+-----+-----+-----+-----+-----+-----+-----+-----+-----+
-----+---+-----+-----+
|202 |"timekey"|202 |"svrid"|"gamesvrid"| [{"key":1,"value":1}, {"key":2,"value":2}]|- |[1,2,3,4]|-
|1 |1 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
-----+---+-----+-----+
|203 |"timekey"|203 |"svrid"|"gamesvrid"| [{"key":1,"value":1}, {"key":2,"value":2}]|- |[1,2,3,4]|-
|1 |1 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
-----+---+-----+-----+
|201 |"timekey"|201 |"svrid"|"gamesvrid"| [{"key":1,"value":1}, {"key":2,"value":2}]|- |[1,2,3,4]|-
|1 |1 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
-----+---+-----+-----+
|200 |"timekey"|200 |"svrid"|"gamesvrid"| [{"key":1,"value":1}, {"key":2,"value":2}]|- |[1,2,3,4]|-
|1 |1 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
-----+---+-----+-----+
|204 |"timekey"|204 |"svrid"|"gamesvrid"| [{"key":1,"value":1}, {"key":2,"value":2}]|- |[1,2,3,4]|-
|1 |1 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
-----+---+-----+-----+

```

total 5 records

Paginated query

The paginated query `limit offset` is supported.

Note :

The paginated query must use `limit offset`. Neither `limit 1` or `limit 0,1` can be used.

```

tcaplus> select * from pb_generic_index_shardingkey where openid>10 limit 3 offset 0;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
-----+---+-----+-----+
|openid|timekey |tconndid|svrid |gamesvrid |other_property |items|lockid |pay|id_uint32|id_int32|
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
-----+---+-----+-----+
|200 |"timekey"|200 |"svrid"|"gamesvrid"| [{"key":1,"value":1}, {"key":2,"value":2}]|- |[1,2,3,4]|-
|1 |1 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
-----+---+-----+-----+
|201 |"timekey"|201 |"svrid"|"gamesvrid"| [{"key":1,"value":1}, {"key":2,"value":2}]|- |[1,2,3,4]|-
|1 |1 |

```

```

+-----+-----+-----+-----+-----+-----+-----+-----+
-----+--+-----+-----+
|202 |"timekey"|202 |"svrid"|"gamesvrid"| [{"key":1,"value":1}, {"key":2,"value":2}]|- |[1,2,3,4]|-
|1 |1 |
+-----+-----+-----+-----+-----+-----+-----+-----+
-----+--+-----+-----+

```

Aggregate query

The following aggregate query functions are supported, including `sum`, `count`, `max`, `min`, `avg`.

Note :

- The aggregate query does not support `limit offset`.
- Currently, only the `count` function can be used with `distinct`. For example, `select count(distinct(a)) from table where a > 1000`.

```

tcaplus> select sum(openid), count(*), max(openid), avg(openid) from pb_generic_index_shardingkey
where openid>10 ;
1010,5,204,202

```

Specified field query

The values of specified fields can be queried.

Note :

You can also query nested fields in the Protobuf table. For example, `select field1.field2.field3, a, b from table where a > 1000`.

```

tcaplus> select svrid,gamesvrid from pb_generic_index_shardingkey where openid>10 or tconndid<100
0;
+-----+-----+-----+-----+-----+
|openid|timekey |tconndid|svrid |gamesvrid |
+-----+-----+-----+-----+-----+
|204 |"timekey"|204 |"svrid"|"gamesvrid"|
+-----+-----+-----+-----+-----+
|203 |"timekey"|203 |"svrid"|"gamesvrid"|
+-----+-----+-----+-----+-----+
|202 |"timekey"|202 |"svrid"|"gamesvrid"|
+-----+-----+-----+-----+-----+
|200 |"timekey"|200 |"svrid"|"gamesvrid"|
+-----+-----+-----+-----+-----+

```

```
|201 |"timekey"|201 |"svrid"|"gamesvrid"|  
+-----+-----+-----+-----+-----+
```

total 5 records

Unsupported SQL statements

Using an aggregate query with non-aggregate query

```
select *, a, b from table where a > 1000;
```

```
select sum(a), a, b from table where a > 1000;
```

```
select count(*), * from table where a > 1000;
```

Query by `order by`

```
select * from table where a > 1000 limit 100 offset 0;
```

Query by `group by`

```
select * from table where a > 1000 group by a;
```

Query by `having`

```
select sum(a) from table where a > 1000 group by a having sum(a) > 10000;
```

Multi-table query

```
select * from table1 where table1.a > 1000 and table1.a = table2.b;
```

Nested SELECT query

```
select * from table where a > 1000 and b in (select b from table where b < 5000);
```

AS query

```
select sum(a) as sum_a from table where a > 1000;
```

Other queries not supported

- JOIN
- UNION
- Queries like `select a+b from table where a > 1000`
- Queries like `select * from table where a+b > 1000`
- Queries like `select * from table where a >= b`
- Others

getttl

Last updated : 2020-12-25 16:40:13

Overview

This command is used to query the Time to Live (TTL) in millisecond of a record. After a record is configured with TTL, you can use `getttl` to query the TTL of its key, that is, how long it is until the key is removed due to expiration. This command can query the TTL of only one record.

Syntax

```
getttl from [table] where key1 = 1 and key2 = "abc";
```

Parameters

| Parameter | Required | Use Limits | Description |
|-------------------------|----------|--|---|
| table | Yes | None | Table name |
| key in the WHERE clause | Yes | TDR table: all key values are required | Specify the value of a key. Multiple values are separated with <code>and</code> . |

Errors

For more information, please see [Error Codes](#).

Return Messages

| Situation | Return Message |
|--|--|
| The key does not exist or has expired. | Record does not exist or has expired. |
| The key exists but its TTL | Record exists and no expiration time is set (permanent). |

| | |
|-------------------------------|--|
| is not specified. | |
| Failed to query the TTL. | Failed to get time to live. The error code is [error code] and the error message is [Error message]. |
| Queried the TTL successfully. | The time to live is [TTL] milliseconds. |

Sample

Query the TTL of a record:

```
tcaplus> getttl from mails where key1 = 1 and key2 = "abc";  
The time to live is 2000 milliseconds.
```

setttl

Last updated : 2020-12-22 10:44:53

Overview

This command is used to set a time to live (TTL) in millisecond for a record. The set value will be reduced by the elapsed time. When the TTL value of a record is equal to 0, TcaplusDB will remove it. This command only takes effect on a single record.

Syntax

```
setttl [table] ttl=[TTL] where key1 = 1 and key2 = "abc";
```

Parameters

| Parameter | Required | Limit | Description |
|-------------------------|----------|--|--|
| table | Yes | No | Table name |
| TTL | Yes | The value cannot exceed half of the maximum value of <code>uint64_t</code> . In other words, the maximum TTL value is <code>ULONG_MAX/2</code> . A value exceeded this limit will be set to the maximum value. | Time to live in millisecond |
| Key in the WHERE clause | Yes | All key values are required for TDR table. | Key values need to be declared. Multiple key values are joined with <code>and</code> . |

Errors

For more information, see [Error Codes](#).

Return Messages

| Situation | Return Message |
|---|--|
| The record does not exist or has expired. | Record does not exist or has expired. |
| Failed to set time to live. | Failed to set time to live. The error code is [error code] and the error message is [Error message]. |
| Set time to live successfully. | Set time to live successfully. |

Sample

Set TTL to 2,000 milliseconds:

```
tcaplus> setttl mails ttl=2000 where key1 = 1 and key2 = "abc";  
Set time to live successfully.
```


dump

Last updated : 2020-12-25 16:40:13

Overview

This command is used to export all data from a table to the console or to a file.

Syntax

```
## Exporting Partial Fields
dump key1, key2, value1, value2 [into result.csv] from table limit 10;

## Exporting as an XML File
dump * [into filename] from table limit 10 using tdr;

## Exporting as a CSV File
dump * [into filename] from table limit 10;
```

Parameters

| Parameter | Protobuf | TDR | Required |
|-----------|--|--|----------|
| table | Table name | Table name | Yes |
| key | Primary key field name. All key values are required. | Primary key field name. All key values are required. | Yes |
| value | Non-primary key field name | Non-primary key field name | No |
| limit | LIST table: the number of exported keys. One key to multiple records. GENERIC table: the number of exported | LIST table: the number of exported keys. One key to multiple records. GENERIC table: the number of exported records. One key to one record. | No |

| | | | |
|-------|---------------------------------|--|----|
| | records. One key to one record. | | |
| using | Not supported | When data is output in XML format, the file structure must strictly comply with the XML syntax. A TDR file must be provided when the client is launched. | No |
| into | Export as a file. | Export as a file. | No |

Errors

For more information, please see [Error Codes](#).

Sample

```

tcaplus> dump * from table_list limit 0;
uin,name,key1,level,count,array_count,items,c_int8,c_uint8,c_int16,c_uint16,c_int32,c_uint32,c_int64,c_uint64,c_float,c_double,c_string,c_string_128K,c_string_256K,c_binary,binary,selector,single_struct,simple_struct,single_union_selector,single_union,array,c_union,union_array,c_struct,struct_array
99,"99",99,1,0,1,0x,-1,2,-3,4,-5,6,-7,0,1.234568,9.876543,"","123456789","123456789",0x,0,0,0x,0x,0,0x,0x,0x,0x,0x,0x
99,"99",99,1,0,1,0x,-1,2,-3,4,-5,6,-7,0,1.234568,9.876543,"","123456789","123456789",0x,0,0,0x,0x,0,0x,0x,0x,0x,0x,0x
99,"99",99,1,0,1,0x,-1,2,-3,4,-5,6,-7,0,1.234568,9.876543,"","123456789","123456789",0x,0,0,0x,0x,0,0x,0x,0x,0x,0x,0x
99,"99",99,1,0,1,0x,-1,2,-3,4,-5,6,-7,0,1.234568,9.876543,"","123456789","123456789",0x,0,0,0x,0x,0,0x,0x,0x,0x,0x,0x

dump 4 records successful

dump time: 121671 us

tcaplus> dump * into table_list.txt from table_list limit 0;

dumped 4 records successful

tcaplus> dump * into table_list.xml from table_list limit 0 using tdr;

dumped 4 records successful

```

load

Last updated : 2020-12-22 10:44:53

Overview

This command is used to import data in CSV or XML format to update or add records.

Syntax

```
## Importing an XML File
load table infile filename using tdr;

## Importing a CSV File
load table infile filename;
```

Parameters

| Parameter | Protobuf | TDR | Required |
|-----------|--------------------------|---|----------|
| table | Table name | Table name | Yes |
| using tdr | Not supported | When data in XML format is imported, the file structure must strictly comply with the XML syntax. A TDR file must be provided when the client is started. | No |
| infile | Read data from the file. | Read data from the file. | Yes |

Errors

For more information, see [Error Codes](#).

Sample

```
tcaplus> load table_list infile table_list_dump.xml using tdr;  
loaded 49 records successful
```

```
tcaplus> load table_list infile table_list-dump.txt;  
loaded 98 records successful
```

Error Codes

Last updated : 2020-12-17 12:07:17

| Error Response | Description |
|--|--|
| tcapsvr_fail_record_exist | The record already exists. |
| table("table_name")registration failed | The table named "table_name" cannot be found. |
| proxy_err_query_for_convert_tcaplus_req_to_index_server_req_failed | The index service is not set. |
| cannot find value field | The field name cannot be recognized. |
| cannot find key field | The primary key is missing or the primary key field name cannot be recognized. |