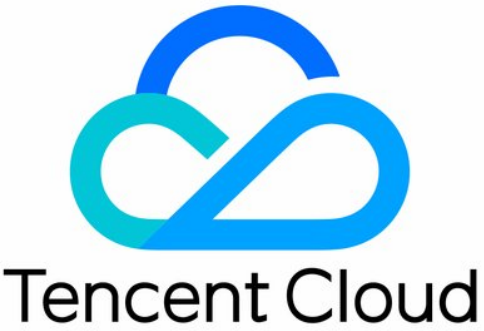
TencentDB for TcaplusDB

TcaplusDB Client



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Contents

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 data operation statements must include a WHERE condition. The WHERE condition must contain the primary key field. If there are multiple primary keys, use AND to concatenate them.

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 TcaplusServiceAPI release package for the Linux x86_64 platform includes the 64-bit Linux version of the tcaplus_client tool:

Version	Operating System	Client
3.46.0.200178	Linux x86_64	Download
3.55.0.208149	Linux x86_64	Download

Note
The relevant operations need to be performed on the CVM instance in the same VPC and subnet under your Tencent Cloud account as your TcaplusDB instance.

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 uploading, execute the following commands to decompress the installation package.

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

2. After decompression, navigate to the bin directory of tcaplus and grant executable permission:

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

3. 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 example below, app_id represents the cluster access ID, App represents the cluster, and zone represents 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)

Use the command to connect to TcaplusDB as shown in the example below. The access point information is as follows, and a table named tb_online has been created in the table group with ID 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>
```

After the prompt, enter help to see further help information. You can view specific usage methods by entering `> help command` .

```
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

Parameters	Description	Required or Not
-a	Access ID	Yes
-z	Table group ID	Yes
-s	Cluster password	Yes
-d	Cluster IP and port	Yes
-t	Table name	No
-l	Log file output settings. The file name must be client_log.xml	No
-T	TDR file path	No
-e	The SQL statements to execute	No
-v	Querying the version	No
<	Redirect SQL statements to client for execution	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 metadata databases into binary format. If there are dependencies between multiple XML files, the dependent XML file must be placed in front of the parameter list.
Usage Example:

```
[root@test-PC0 /opt]# ./tcaplus_client -a 2 -z 3 -s C12901752D0D3347 -d
8.x.x.8:9999 -T /mnt/e/tdr/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/tdr/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). This tool is available in the tools directory of the tbase package in the SDK package.
Usage Example:

```
tdr -B -o ov_res.tdr ov_res.xml
        #Generate .tdr binary database from XML format metadata database
tdr -C -o ov_res.c --old_xml_tagset  ov_res.xml
        #Generate .c file from XML format metadata database using old
tag set
tdr -H -O "include" --add_custom_prefix="m_" --no_type_prefix
        #Generate .h file from XML metadata database. The generated file
is saved in the include directory
        #Prefix structure (struct)/union (union) member names with "m_",
but do not add type prefixes
tdr -G -m Pkg -x ATTR -o Pkg.xml net_protocol.xml
        #Generate XML configuration file for Pkg. The cut version is the
maximum version of Pkg, and the file name is Pkg.xml
tdr -T -u prefixfile
        #Export the prefix table of data members used when generating .h
files to the file prefixfile
tdr -A --indent-size=8 net_protocol.xml
        #Generate ActionScript3 class file according to the protocol
described in net_protocol.xml, with an indentation size of 8 spaces
tdr -P --indent-size=8 net_protocol.xml
```

```
        #Generate C++ class file according to the protocol described in
net_protocol.xml, with an indentation size of 8 spaces
tdr -S --indent-size=8 net_protocol.xml
        #Generate C# class file according to the protocol described in
net_protocol.xml, with an indentation size of 8 spaces
tdr -E 0x83010404
        #Query the error information corresponding to error number
0x83010404
```

tdr2xml tool

The tdr2xml tool can decompile the binary metadata file to an XML metadata file. This tool is available in the tools directory of the tbase package in the SDK package.
Usage:

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

Usage Example:

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

Convert the binary metadata description saved in the net_cs.tdr file from Definition format to XML format.

Client Tool Commands
help

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Introduction

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];
```

Example

```
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

globle 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: globle index query is only support generic table;
   Note: current support: =,!=,>,>=,<,<=, like, not like, betwwen, 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

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Introduction

This command is used to exit the client.

Syntax

```
exit or quit
```

Example

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

show

Last updated: 2024-10-15 17:37:38

Introduction

Query server-side, table basic information. 'show tables' queries table type, protocol type. 'show status' queries current connection status, directory server information, and access layer information.

Syntax

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

Parameters

Parameter Name	Description
table	Table Name

Example

Query table information under 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

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Introduction

View the table's Definition Information. Nested fields can only see their attributes as nested types, but cannot view the nested structure's Definition.

Syntax

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

Parameters

Parameters	Protobuf	TDR
table	Table name	Table name
table.field	Not supported.	To display the structure of nested fields, using tdr is required
using tdr	Not supported.	Read the table structure from a tdr file. This operation must provide the tdr file when starting the client

Errors

Please refer to the error code list.

Example

```
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: 2024-10-15 17:38:17

Introduction

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

Syntax

```
count [tableName];
```

Errors

Please refer to the error code list.

Example

Get the record count of the table.

```
tcaplus> count game_player;
--------------------------------------------------------------------------------
--------
| TableName                                Count
|
--------------------------------------------------------------------------------
--------
| table_list                               16
|
--------------------------------------------------------------------------------
--------
```

insert

Last updated: 2024-10-15 17:38:36

Introduction

To insert a data entry into the table, you can use either the display declaration parameters or the input file methods.

Syntax

```
## Insert a data entry using display declaration parameters
insert into table (key1, key2, value1, vlaue2) values (1, "abc", 2,
"def") [after -1] [shift none/head/tail];

## Read and insert a data entry from a CSV file
insert into table infile result.csv [after -1] [shift none/head/tail];

## Read and insert a data entry from an XML file. This operation
requires a TDR file when starting the client
insert into table infile result.xml [after -1] [shift none/head/tail]
using tdr;
```

Parameters

Parameters	Protobuf and TDR	Required
table	Table name	Yes
key	Primary key field name	Yes
val	Non-primary key field name	At least

ue		one or*
after	LIST Table: n > 0 indicates inserting data from the n-th entry n = -2 indicates inserting data from the head n = -1 indicates inserting data from the tail n < -2 Not supported GENERIC Table: 'after' field not supported	No
shift	If the table size exceeds the threshold (i.e., the table's maximum size), you can choose: none: No data elimination head: Eliminate from the head tail: Eliminate data from the tail	No
usingtdr	Protobuf tables do not support this parameter; TDR tables require data to be inserted in XML format. The file structure must strictly adhere to XML syntax. This operation must provide the TDR file at client startup	No
infile	Read data from file	No

Errors

Please refer to the error code list.

Example

Example file download: result.xml result.csv

```
tcaplus>insert into game_players
(player_id,player_name,player_email,game_server_id) values
(2,name,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: 2024-10-15 17:38:58

Introduction

Update a record in the table. You can operate by using display declaration parameters or passing in a file.

Syntax

```
## Display the declared field value to update the corresponding record
update table set value1 = 1, value2 = "abc", value3 = 0x123456 where
key1 = 1 and key2 = "abc" and [-index = 1];

## Import a CSV file to replace the corresponding record
update table infile filename [where -index = 0];

## Import an XML file to replace the corresponding record
update table infile filename [where -index = 0] using tdr;
```

Parameters

Parameters	Protobuf	TDR	Required
table	Table name	Table name	Yes
key	Primary key column name. All key values must be filled in	Primary key column name. All key values must be filled in	Yes
value	Non-primary key field name	Non-primary key field name	At least one or*

-index	LIST Table: Must specify "-index" to replace the specified record GENERIC Table: Not supported	LIST Table: If "-index" is specified, it will return the record at the specified index for the same key. If not specified, it will return all records GENERIC Table: Not supported	No
usingtdr	Not supported.	Output data in XML format. The file structure must strictly comply with XML syntax. This operation requires providing a TDR file when starting the client	No
infile	Read data from file	Read data from file	No

Errors

Please refer to the error code list.

Example

```
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: 2024-10-15 17:39:19

Introduction

Delete a record from the table based on the specified key. If -index is not specified, then all records matching the criteria will be deleted.

Syntax

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

Parameters

Parameters	Protobuf	TDR	Required
table	Table name	Table name	Yes
key	Primary key column name. All key values must be filled in	Primary key column name. All key values must be filled in	Yes
value	Non-primary key field name	Non-primary key field name	At least one or*
-index	LIST Table: Must specify "-index" to replace the specified record GENERIC Table: Not supported	LIST Table: If "-index" is specified, the record at the specified index under the same key will be returned. If "-index" is not specified, all records will be returned GENERIC Table: Not supported	No
bypartkey	Not supported.	LIST Table: Not supported GENERIC Table: Delete records by partial key of the table	No

Errors

Please refer to the error code list.

Example

```
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: 2024-10-15 17:39:40

Introduction

Users can use the select command to retrieve specified full or partial field values of records from the database. If no matching records are found, 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

Parameters	Protobuf	TDR	Required
table	Table name	Table name	Yes
key	Primary key column name. Supports distributed index queries. Partial key values can be filled in	Primary key column name. All key values must be filled in	Yes
value	Non-primary key field name	Non-primary key field name	At least one or*
-index	LIST Table: If "-index" is specified, it will return the record at the specified index for the same key. If not specified, it will return all records GENERIC Table: Not supported	LIST Table: If "-index" is specified, it will return the record at the specified index for the same key. If not specified, it will return all records GENERIC Table: Not supported	No
\P	Print latency data	Print latency data	No

\G	Vertical arrangement printing	Vertical arrangement printing	No
using tdr	Not supported.	Output data in XML format. The file structure must strictly comply with XML syntax. This operation requires providing a TDR file when starting the client	No
into	Output data to file	Output data to file	No

Errors

Please refer to the error code list.

Example

```
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  |" "     |
+---+----+----+--------+
|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: 2024-10-15 17:40:04

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

Conditional query

Supports `=, >, >=, <, <=, !=, between, in, not in, like, not like, and, or`, such as:

> **Note**
> - For between queries, between a and b, the corresponding query range is [a, b]. For example, between 1 and 100 includes both 1 and 100, meaning the query range is [1, 100].
> - For like queries, fuzzy matching is supported. The wildcard "%" matches zero or more characters; 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
```

Paging Query

Supports limit offset Paging queries, such as:

> **Note**
> The current limit must be used with offset, meaning limit 1 or limit 0,1 is not supported.

```
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       |
+------+---------+--------+-------+-----------+-------------------------
----------------+-----+---------+---+---------+--------+
```

Aggregation Query

The currently supported aggregate queries include: `sum, count, max, min, avg`, such as:

> **Note**
>
> - Aggregate queries do not support limit offset, meaning limit offset does not take effect.
> - Currently, only count supports distinct, as in select count(distinct(a)) from table where a > 1000. Other cases do not support distinct.

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

Specified field query

Supports querying specific field values, such as:

> **Note**

> For Protobuf tables, querying nested field values is also supported, similar to: 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<1000;
+------+---------+--------+-------+-----------+
|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;
```

Order by queries are not supported

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

Group by queries are not supported

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

Having queries are not supported

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

Multi-table join queries are not supported

```
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);
```

Aliases are not supported

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

Other queries not supported

- Join queries are not supported.
- Union queries are not supported.
- Queries like 'SELECT a+b FROM table WHERE a > 1000' are not supported.
- Queries like 'SELECT * FROM table WHERE a+b > 1000' are not supported.
- Queries like 'SELECT * FROM table WHERE a >= b' are not supported.
- Other unspecified queries are not supported.

getttl

Last updated: 2024-10-15 17:40:26

Introduction

Users can call the getttl command to retrieve the Time To Live (TTL) of a record. After setting a TTL for a record, users can use the getttl command to check the remaining TTL (in milliseconds), which indicates how long it will be before the key is removed due to expiration. The getttl command only applies to a single record and does not support multiple records.

Syntax

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

Parameters

Parameters	Required or Not	limitation factor	Description
table	Yes	No	Table Name
where clause's key	Yes	For TDR tables, all key values must be provided	Declare the key value. Use 'and' to connect multiple key values

Errors

Please refer to the error code list.

Returning Message

Situation Description	Returning Message
keys do not exist or have expired	Record does not exist or has expired.
keys exist and do not have an expiration time (Permanent Validity)	Record exists and no expiration time is set (permanent).
Retrieve Failed	Failed to get time to live. The error code is [error code] and the error message is [Error message].

Retrieve Success	The time to live is [TTL] milliseconds.

Example

Retrieve the TTL of a specific record:

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

setttl

Last updated: 2024-10-15 17:40:48

Introduction

Users can set a Time To Live (TTL) for a record by calling the setttl command. The record's lifetime (measured in milliseconds) will continuously decrease over time after setting. When a record's lifetime is exhausted, TcaplusDB will remove the record. The setttl command only takes effect on a single record and does not support operations on multiple records.

Syntax

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

Parameters

Parameters	Required or Not	limitation factor	Description
table	Yes	No	Table Name
TTL	Yes	The maximum TTL cannot exceed half of the uint64_t maximum value, i.e., the maximum TTL is ULONG_MAX/2. Exceeding this value will result in the interface forcibly setting it to this value	Lifetime, in milliseconds
where clause's key	Yes	For TDR tables, all key values must be filled in	Declare the key value. Use 'and' to connect multiple key values

Errors

Please refer to the error code list.

Returning Message

Situation Description	Returning Message
Record does not exist or has expired	Record does not exist or has expired.
Failed to configure	Failed to set time to live. The error code is [error code] and the error message is [Error message].
Success	Set time to live successfully.

Example

Set a lifetime of 2000 milliseconds:

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

dump

Last updated: 2024-10-15 17:41:08

Introduction

Full export of table data provides two methods: print to console or output to file.

Syntax

```
## Export specific fields
dump key1, key2, value1, value2 [into result.csv] from table limit 10;

## Export in XML format
dump * [into filename] from table limit 10 using tdr;

## Export in CSV format
dump * [into filename] from table limit 10;
```

Parameters

Parameters	Protobuf	TDR	Required
table	Table name	Table name	Yes
key	Primary key column name. All key values must be filled in	Primary key column name. All key values must be filled in	Yes
value	Non-primary key field name	Non-primary key field name	No
lim	LIST table: Export the number of keys, with one key corresponding	LIST table: Export the number of keys, with one key corresponding	No

it	to multiple records GENERIC table: Export the number of records, with one key corresponding to one record	to multiple records GENERIC table: Export the number of records, with one key corresponding to one record	
using	Not supported.	Export data in XML format. The file structure must strictly adhere to XML syntax. This operation requires providing a TDR file when starting the client	No
into	Export data to a file	Export data to a file	No

Errors

Please refer to the error code list.

Example

```
tcaplus> dump * from table_list limit 0;
uin,name,key1,level,count,array_count,items,c_int8,c_uint8,c_int16,c_uin
t16,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,s
truct_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: 2024-10-15 17:41:32

Introduction

Import data, supports two formats: csv and xml. If the record exists, update it; if the record does not exist, add a new record.

Syntax

```
##Import in xml format
load table infile filename using tdr;

##Import in csv format
load table infile filename;
```

Parameters

Parameters	Protobuf	TDR	Required
table	Table name	Table name	Yes
using tdr	Not supported.	Export data in XML format. The file structure must strictly adhere to XML syntax. This operation requires providing a TDR file when starting the client	No
infile	Reading data from file	Reading data from file	Yes

Errors

Please refer to the error code list.

Example

```
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 Code List

Last updated: 2024-10-15 17:41:50

Error Return	Description
tcapsvr_fail_record_exist	The current record already exists
table("table_name")registration failed	Table with the name table_name not found
proxy_err_query_for_convert_tcaplus_req_to_index_server_req_failed	Indexing Service is not set
cannot find value field	Field name not recognized
cannot find key field	Primary key is missing or primary key column name is not recognized