



CHAPTER

5

Syntax for Remote SQL Pass-Through (RSPT)

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Introduction

The REMOTE engine supports the SQL procedure's Pass-Through Facility. *Remote SQL Pass-Through (RSPT)* allows you to pass SQL statements to a remote SAS SQL processor or to a DBMS through a SAS/SHARE server or to a SAS/CONNECT single-user server.

Compute Services and RSPT

You can use RSPT to reduce network traffic and to shift CPU load by sending queries for remote data to a remote server. (If the server is a SAS/CONNECT single-user server you can also RSUBMIT queries to achieve the same goals.) For example, if you specify

```
select employee_title as title, avg(employee_years),
       freq(employee_id)
       from sql.employee
       group by title
       order by title;
```

where SQL is the libref for a remote SAS library accessed through a SAS/CONNECT or a SAS/SHARE server, each row of the table EMPLOYEE must be returned to your local SAS session for the summary functions AVG() and FREQ() to be applied to them.

But, if you specify

```
select * from connection to remote
       (select employee_title as title,
          avg(employee_years),
          freq(employee_id)
          from sql.employee
          group by title
          order by title);
```

the query is passed through the SAS server to the SAS SQL processor, which processes each row of the table and returns only the summary rows to your local SAS session.

You can also use RSPT to join remote data with local data. For example, if you specify

```

libname mylib 'c:\sales';

proc sql;
  connect to remote
    (server=tso.shr1 dbms=db2
     dbmsarg=(ssid=db2p));

  select * from mylib.sales97,
    connection to remote
      (select qtr, division,
        sales, pct
        from revenue.all97
        where region='Southeast')
  where sales97.div=division;

```

the subquery against the DB2 data is sent through the SAS server to the DB2 server and the rows for the divisions in the southeast region are returned to your local SAS session, where they are joined with the corresponding rows from the local data set MYLIB.SALES97.

If your server is a SAS/CONNECT single-user server, you can also use RSPT to send non-query SQL statements to a remote DBMS. For example,

```

proc sql;
  connect to remote
    (server=sunserv dbms=oracle);

  execute (delete from parts.inventory
    where part_bin_number='093A6')
  by remote;

```

sends the SQL DELETE statement through the SAS server to the remote ORACLE server.

RSPT Statements

Statements used for Remote SQL Pass-Through.

Local

Syntax

❶

CONNECT TO *dbms-name* <AS *alias*> <(dbms-argument-1=value ...
<dbms-argument-n=value>)>;

SELECT . . . FROM CONNECTION TO *dbms-name* | *alias* (*dbms-query*);

EXECUTE (*SQL-statement*) **BY** *dbms-name* | *alias*;

DISCONNECT FROM *dbms-name* | *alias*;

❷

CONNECT TO REMOTE <AS *alias*>

```
(SERVER=serverid <SAPW=server-access-password>
<DBMS=dbms-name>
  <PT2DBPW=passthrough-to-DBMS-password>
<DBMSARG=(dbms-argument-1=value ... <dbms-argument-n=value>)>);
```

SELECT . . . FROM CONNECTION TO REMOTE | *alias* (*dbms-query*);

EXECUTE (*SQL-statement*) **BY REMOTE** | *alias*;

DISCONNECT FROM REMOTE | *alias*;

Syntax Description

- ❶ The SQL syntax for the SQL procedure Pass-Through (SPT) facility consists of three statements and a FROM-clause component.
- ❷ The SQL syntax for the Remote SQL Pass-Through (RSPT) facility is similar to the SPT but must also include the name of the remote SAS server.

Details

CONNECT TO REMOTE <AS *alias*>

establishes a connection to a remote DBMS or to remote SAS data through a SAS server. This statement is required (RSPT does not support implicit connection). You can establish multiple connections to the same server by specifying different DBMS= values. You can also connect to more than one server at a time.

SERVER= *serverid*

specifies the name of the remote SAS server. If the server is a multi-user server, *serverid* is the name specified for the ID= option in the PROC SERVER statement. If the server is a single-user server running in a SAS/CONNECT remote session, *serverid* is the name of the SAS/CONNECT remote session. In either case, *serverid* should be the same name that is specified for the SERVER= option in a LIBNAME statement.

SAPW=*server-access-password*

is the password for controlling user access to a multi-user server as specified for the UAPW= option in the PROC SERVER statement. If UAPW= is specified when the server is started, you must specify SAPW= in a CONNECT TO REMOTE statement that specifies that server.

DBMS=*dbms-name*

is the name of the remote DBMS you want to connect to. This is the same name you would specify in a CONNECT TO statement if you were connecting directly to the DBMS. This option is used if you want to connect to a remote DBMS instead of the remote SAS SQL processor.

PT2DBPW=*passthrough-to-DBMS-password*

is the password for controlling pass-through access to remote DBMS databases that are specified by using the PT2DBPW= option in the PROC SERVER statement. If PT2DBPW= is specified when the server is started, you must specify PT2DBPW= in a CONNECT TO REMOTE statement that specifies the same server and specifies DBMS=.

DBMSARG=(*dbms-argument-1=value* ... <*dbms-argument-n=value*>)

are the arguments required by the remote DBMS to establish the connection. These are the same arguments you would specify in a CONNECT TO statement if you were connecting directly to the DBMS.

FROM CONNECTION TO REMOTE |*alias (dbms-query);*

specifies the connection to the remote SAS SQL processor or the remote DBMS as the source of data for the SELECT statement and the recipient of the *dbms-query*. For remote SAS data accessed through the PROC SQL view engine, *dbms-query* is any valid PROC SQL SELECT statement. For a remote DBMS, *dbms-query* is the same SQL query you would specify if you were connected directly to the DBMS

EXECUTE (SQL-statement) BY REMOTE | *alias;*

specifies an SQL statement to be executed by the SAS SQL processor or by the remote DBMS in the server SAS session. For remote SAS data that is accessed through the PROC SQL view engine, *SQL-statement* is any valid PROC SQL statement except SELECT. For a remote DBMS that is accessed through a single-user server in a SAS/CONNECT session, *SQL-statement* is the same SQL statement that you would specify if you were connected directly to the DBMS. For a remote DBMS, this statement may not be used if the DBMS is accessed through a remote multi-user server.

DISCONNECT FROM REMOTE | *alias;*

ends the connection to the remote DBMS or to the SAS SQL processor in the server SAS session.

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