
Command Reference: ReadTableFromDataStore()

Read a table from a datastore

Version 10.12.00, 2012-09-30

The `ReadTableFromDataStore()` command executes a database query for a datastore that is associated with a database, and places the result in a TSTool table, which can subsequently be processed with other TSTool commands. This command cannot be used with web service datastores because the underlying software relies on a database to perform the query. If database datastore support is not specifically provided by TSTool, a generic datastore can be used (see the **Generic Database DataStore** appendix). This command is useful when the database can provide results with a simple query and tight integration with TSTool is not required or has not been implemented. The query can be specified in three ways:

- Specify a single table/view to query:
 - the list of tables is filtered to remove internal database tables; however, this capability varies by database product and in some cases internal tables will be listed
 - the query is constructed from the provided database table/view name and column names
 - the output can be sorted by specifying column names
 - “where” clauses currently are not supported but may be added in the future
- Specify a SQL select statement:
 - SQL must be valid for the database (syntax may vary based on database software)
 - SQL syntax is not checked for validity and therefore error messages from the database may be more difficult to interpret
- Specify an SQL select statement in a file
 - Similar to the above option; however, the SQL statement is read from a file
 - Useful if the SQL statement is also used by other tools

General constraints on the query are as follows:

- the table or views being queried must be readable (some databases restrict direct access to data and require using stored procedures)
- the resulting table in TSTool will have columns with names that match the database
- data types for columns will closely match the database:
 - data will be treated as strings if unable to match the database column type
 - the precision of floating point numbers for displays is defaulted to 6 digits
 - null values in the database will transfer to null values in the TSTool table and will display as blank table cells
 - date/time columns in the database will be represented as such in the TSTool table; however, it may not be possible to limit the precision of the date/time (i.e., hours, minutes, and seconds may be shown with default zero values in output)

Future enhancements will add additional features to intelligently map database results to TSTool tables.

The following dialog is used to edit the command and illustrates the syntax for the command, in this case reading a small table from the State of Colorado's HydroBase.

Edit ReadTableFromDataStore() Command

This command reads a table from a database datastore table or view.
 The query can be specified in one of three ways:

- 1) Specify a single table or view, related columns, and order (allows for more up-front checks).
- 2) Specify a free form SQL select statement (allows joins and other SQL constructs supported by the database software, but few up-front checks).
- 3) Similar to 2; however, the SQL statement is read from a file, which can be specified relative to the working directory.

The working directory is: C:\Develop\TSTool_SourceBuild\TSTool\test\regression\commands\general\ReadTableFromDataStore
 The resulting table columns will have data types based on the query results.

Data store: **HydroBase2012** Required - data store containing data to read.

Specify query using table and column choices

Data store table: **vw_CDSS_Cropchar** Required - database table/view to read.

Data store columns: Optional - database table/view columns, separated by commas (default=all).

Order by: Optional - columns to sort by, separated by commas (default=no sort).

-OR... Specify query using SQL

SQL String:

SQL file to read: Browse

Table ID: **CropChar** Required - unique identifier for the output table.

Command:

```
ReadTableFromDataStore (DataStore="HydroBase2012", DataStoreTable="vw_CDSS_Cropchar", TableID="CropChar")
```

Remove Working Directory Cancel OK

ReadTableFromDataStore

ReadTableFromDataStore() Command Editor When Querying a Single Table

The corresponding table is as shown below:

CROPNUM	METHOD_DESC	CROPNAME	TEMPEARLYMOISTURE	TEMPLATEMOISTURE	INITIALROOT	M
1	BLANEY-CRIDDLE_TR-21	ALFALFA.TR21	50.000000	28.000000	4.900000	
8	BLANEY-CRIDDLE_TR-21	GRASS_PASTURE.TR21	45.000000	45.000000	3.300000	
9	BLANEY-CRIDDLE_TR-21	ORCHARD_WITH_COVER.TR21	50.000000	45.000000	5.000000	
10	BLANEY-CRIDDLE_TR-21	ORCHARD_WO_COVER.TR21	50.000000	45.000000	5.000000	
7	BLANEY-CRIDDLE_TR-21	GRAPES.TR21	55.000000	50.000000	4.100000	
6	BLANEY-CRIDDLE_TR-21	DRY_BEANS.TR21	60.000000	32.000000	2.500000	
15	BLANEY-CRIDDLE_TR-21	SPRING_CORN.TR21	45.000000	22.000000	2.500000	

Displaying 39 rows, 20 columns. Ready

ReadTableFromDataStore_Table

Example ReadTableFromDataStore() Output Table

The following example illustrates using an SQL query string, in this case to read diversion records for a specific structure in HydroBase:

Edit ReadTableFromDataStore() Command

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 The query can be specified in one of three ways:

- 1) Specify a single table or view, related columns, and order (allows for more up-front checks).
- 2) Specify a free form SQL select statement (allows joins and other SQL constructs supported by the database software, but few up-front checks).
- 3) Similar to 2; however, the SQL statement is read from a file, which can be specified relative to the working directory.

The working directory is: C:\Develop\TSTool_SourceBuild\TSTool\test\regression\commands\general\ReadTableFromDataStore
 The resulting table columns will have data types based on the query results.

Data store: **HydroBase2012** Required - data store containing data to read.

Specify query using table and column choices

Data store table: Required - database table/view to read.
 Data store columns: Optional - database table/view columns, separated by commas (default=all).
 Order by: Optional - columns to sort by, separated by commas (default=no sort).

-OR... Specify query using SQL

SQL String:

```
select * from vw_CDSS_AnnualAmt where meas_num = (select meas_num from
vw_CDSS_StructureStructMeasType where wd = 1 and id = 501 and meas_type = 'DivTotal'
and time_step='Annual') and irr_year >= 1970 and irr_year < 1980 order by irr_year
```

SQL file to read:

Table ID: **DivTotal** Required - unique identifier for the output table.

Command:

```
ReadTableFromDataStore (DataStore="HydroBase2012",Sql="select * from vw_CDSS_AnnualAmt
where meas_num(select meas_num from vw_CDSS_StructureStructMeasType where wd1 and
id501 and meas_typeDivTotal and time_stepAnnual) and irr_year >1970 and irr_year <
1980 order by irr_year",TableID="DivTotal")
```

ReadTableFromDataStore_SQL

ReadTableFromDataStore() Command Editor When Specifying a SQL Query String

The command syntax is as follows:

```
ReadTableFromDataStore (Parameter=Value, ...)
```

Command Parameters

Parameter	Description	Default
DataStore	The name of a database datastore to read.	None – must be specified.
DataStoreTable	The name of the database table or view to read when querying a single table or view.	None – must be specified unless Sql is specified.
DataStoreColumns	When reading a single table/view, the names of the columns to read, separated by commas.	All columns from DataStoreTable are read.
OrderBy	When reading a single table/view, a list of column names separated by commas to control the order of output.	Default database sort order will be used.
Sql	The SQL string that will be used to query the database. If specified, do not specify DataStoreTable or SqlFile.	None.
SqlFile	The name of the file containing an SQL string to execute. If specified, do not specify DataStoreTable or Sql.	None.
TableID	Identifier to assign to the output table in TSTool, which allows the table data to be used with other commands. A new table will be created.	None – must be specified.