

# General syntax and SQL functions available




Table Transformer is powered by the [AlaSQL](#) library. Find the list of SQL functions available in the macro below.

## Autocompletion

Use **autocompletion** for correct reference to column names, SQL functions and quick writing of SQL queries: start typing, e.g., `T1.` and choose the column; or a function name to pick from the dropdown.

General SQL syntax

Syntax type	Definition	Character (s)	Example
Table name	A title given to (a) table(s) placed inside Table Transformer in the order of placement	<b>T*</b> - for all the tables in the macro body, <b>T1</b> - for the first table, <b>T2</b> - for the second one, etc.	SELECT 'Column' FROM T*  SELECT 'Column name' FROM T1  SELECT 'Column Name' FROM T2
Column name	The title of a column from the source table utilized in the SQL query  Can be paired with Table name as a direct reference for a number of purposes: e.g. if column names in T1 and T2 match	' ' - Single quotes,  [ ] - Square brackets	'Column name'  [Column name]  T1.'Same Column name'  T2.'Same Column name' <div> If a column name contains a <i>single quote</i> as its part: e.g. <i>D'column</i>, type \ before it to avoid the single quote becoming syntax markup: e.g. <i>'D\'column'</i>, <i>[D\'column]</i> or <i>T1.'D\'column'</i> - in the SQL query</div>
String constant	Encloses some text between double quotes further utilized in the SQL query	" " - Double quotes	"Some constant"  "Free text"
Number constant	Encloses a number further utilized in the SQL query	No additional markup	2077
Date constant	Encloses a date between double quotes further utilized in the SQL query	" " - Double quotes	"25.05.2022"

Multi-line comments	The text included directly in the SQL query as clarification, new info, etc., but not displayed in the macro output	<code>/* */</code> - Slash + Asterisk	<code>/*</code> Such comment is present directly in the SQL query but not included in the output <code>*/</code>
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## Functions and keywords

Function / Keyword	Type	Description
ABS	MATH	Returns the absolute (positive) value of a number
ALL	LOGIC	Returns true if all of the subquery values meet the condition
AND	LOGIC	Includes rows where all the conditions separated by AND are TRUE
ANY	LOGIC	Returns true if any of the subquery values meet the condition
ARRAY	DATA_MANIPULATING	Creates an array
AS	DATA_MANIPULATING	Renames a column or table with an alias
ASC	MATH ORDERING	Ascending sorting order
AT	TIME	
AVG	MATH AGGREGATION	Returns the average value of a group
BEGIN	LOGIC LOOP	Starts code block for WHILE and IF statements
BETWEEN	MATH	Selects values within a given range
BY	AGGREGATION ORDERING	Used with ORDER BY, GROUP BY
CASE	DATA_MANIPULATING LOGIC	Creates different outputs based on conditions ( <a href="#">see an example</a> )
CAST	DATA_MANIPULATING CONVERTING	Converts a value (of any type) into a specified datatype
CEIL	MATH	Gets the smallest integer which is greater than, or equal to, the specified numeric expression
CHAR	STRING_OPERATORS	Returns the character with the specified integer unicode
CHECK	LOGIC	Limits the value that can be placed in a column
COALESCE	LOGIC	Returns the first non-null value in a list
CONCAT	MERGING	Concatenates values
CONCAT_VIEW	MERGING	Concatenates values, preserving their original HTML format
CONCAT_VIEW_AGGR	MERGING AGGREGATION	Concatenates and aggregates values, preserving their original HTML format
CORRESPONDING	MERGING	Matches the columns in table-expressions by name and not by ordinal position

COUNT	<div>MATH</div> <div>AGGREGATION</div>	Returns the number of rows that matches a specified criteria
CROSS	<div>MERGING</div>	One of the Join types. Returns all rows for all possible combinations of two tables
CUBE	<div>MATH</div> <div>AGGREGATION</div>	Generates subtotals for all combinations of grouping columns specified in the GROUP BY clause
CURRENT_TIMESTAMP	<div>VARIABLES</div> <div>TIME</div>	Returns the current timestamp of the operating system of the server on which the SQL Server Database runs
DATE	<div>DATA_MANIPULATING</div> <div>CONVERTING</div>	A data type for storing a date (string like 'YYYYMMDD')
DATE_ADD	<div>MATH</div> <div>TIME</div>	Adds time values (as intervals) to a date value
DATE_SUB	<div>MATH</div> <div>TIME</div>	Subtracts a time/date interval from a date and then returns the date
DATEADD	<div>MATH</div> <div>TIME</div>	Adds time values (as intervals) to a date value
DATEDIFF	<div>MATH</div> <div>TIME</div>	Returns the difference between two dates
DAY	<div>DATA_MANIPULATING</div> <div>TIME</div> <div>CONVERTING</div>	Returns the day of the month for a date
DAYOFWEEK	<div>DATA_MANIPULATING</div> <div>TIME</div>	Returns the weekday index for a date
DEFAULT	<div>DATA_MANIPULATING</div> <div>LOGIC</div>	Provides a default value for a column
DESC	<div>MATH</div> <div>ORDERING</div>	Descending sorting order
DISTINCT	<div>LOGIC</div> <div>AGGREGATION</div>	Selects only distinct (different) values
ELSE	<div>LOGIC</div>	Introduces another statement that is executed when the IF condition is not satisfied
END	<div>LOGIC</div>	Completes code block for WHILE and IF statements
ESCAPE	<div>LOGIC</div> <div>SEARCHING</div>	Equals to LIKE
ESCAPEMARKUP	<div>STRING_OPERATORS</div>	Escapes special characters for wiki markup
EXCEPT	<div>MERGING</div>	Combine two SELECT statements and returns rows from the first SELECT statement that are not returned by the second SELECT statement

EXISTS	LOGIC	Tests for the existence of any record in a subquery
EXP	MATH	Returns $e$ raised to the power of the specified number
FALSE	LOGIC	Logical false value
FIRST	AGGREGATION	Returns the first value in the group
FLOOR	MATH	Returns the largest integer value that is smaller than or equal to a number
FORMATDATE	DATA_MANIPULATING TIME	Converts dates to <a href="#">the specified in the Table Transformer macro settings date format</a> : FORMATDATE (calculated_date, date_format_to_specify <- optional argument)
FORMATMARKDOWN	FORMATTING	Applies <a href="#">Markdown syntax</a> to table cells
FORMATNUMBER	DATA_MANIPULATING FORMATTING	Format numbers according to <a href="#">the settings in the Table Transformer macro</a> : FORMATNUMBER (calculated_number, decimal_separator, thousands_separator, decimal_places <- optional arguments used simultaneously)
FORMATTIME	DATA_MANIPULATING TIME	Converts time to <a href="#">the specified in the Table Transformer macro settings time format</a> to the calculated time: FORMATTIME (calculated_time)
FORMATWIKI	FORMATTING	Applies <a href="#">Confluence Wiki Markup</a> to table cells
FORMATWORKLOG	DATA_MANIPULATING TIME	Converts worklogs to <a href="#">the specified in the Table Transformer macro worklog settings</a> : FORMATWORK LOG (calculated_worklog)
FROM	KEYWORD	Specifies which table to select or delete data from
FULL	MERGING	FULL OUTER JOIN: returns all rows when there is a match in either left table or right table
GETDATE	DATA_MANIPULATING TIME	Returns the current system date and time
GREATEST	MATH AGGREGATION	Returns the greatest value of the list of arguments
GROUP	AGGREGATION	Groups the result set (used with aggregate functions: COUNT, MAX, MIN, SUM, AVG)
GROUPING	LOGIC AGGREGATION	Indicates whether the specified column in a GROUP BY Clause aggregated or not
HAVING	LOGIC AGGREGATION	Used instead of WHERE with aggregate functions
HOUR	DATA_MANIPULATING TIME	Returns the hour part of a datetime
IF	LOGIC	Conditional statement
IFNULL	LOGIC	Returns a specified value if the expression is NULL
IIF	LOGIC	Accepts three arguments. It evaluates the first argument and returns the second argument if the first argument is true; otherwise, it returns the second argument
IN	LOGIC	Allows you to specify multiple values in a WHERE clause
INNER	MERGING	INNER JOIN: returns rows that have matching values in both tables
INSERT	DATA_MANIPULATING	Inserts new records into a table ( <a href="#">see an example</a> )

INSTR	STRING_OPERATORS	Returns the position of the first occurrence of a string in another string
INTERSECT	MERGING	Intersects two SELECT results
INTERVAL	TIME	Defines a date/time interval
IS	LOGIC	
ISNULL	LOGIC	Returns TRUE or FALSE depending on whether an expression is NULL
JOIN	MERGING	Joins tables ( <a href="#">see an example</a> )
LAST	DATA_MANIPULATING	Returns the last value of the selected column
LCASE	STRING_OPERATORS	Converts a string to lower-case
LEAST	MATH	Returns the smallest value of the list of arguments
	AGGREGATION	
LEFT	MERGING	LEFT JOIN: returns all rows from the left table, and the matching rows from the right table
LENGTH	STRING_OPERATORS	Returns the length of a string (in bytes)
LIKE	LOGIC	Searches for a specified pattern in a column
	SEARCHING	
LIMIT	SEARCHING	Limit the number of records from the result set
LOG	MATH	Returns the natural logarithm
MATCH_REGEXP	DATA_MANIPULATING	Allows to add flags (i.e. <i>g</i> (global), <i>i</i> (insensitive), etc.) to regular expressions: MATCH_REGEXP ('Column1', "[a-f]{6}", "g")
	LOGIC	
MAX	MATH	Takes the name of a column as an argument and returns the largest value in that column
	AGGREGATION	
MEDIAN	MATH	Returns the median value of a group ( <a href="#">see an example</a> )
	AGGREGATION	
MID	STRING_OPERATORS	Extracts a substring from a string (starting at any position)
MIN	MATH	Takes the name of a column as an argument and returns the smallest value in that column
	AGGREGATION	
MINUTE	DATA_MANIPULATING	Returns the minute part of a datetime value
	TIME	
MONTH	DATA_MANIPULATING	Returns the month part of a date
	TIME	
MULT	MATH	Takes the name of a column as an argument and returns multiplying of all the values in that column
	AGGREGATION	
NATURAL	MERGING	NATURAL JOIN: analyzes columns in two joined tables and makes a join by columns with similar names
NOT	LOGIC	Includes rows where a condition is not TRUE
NOW	VARIABLES	Returns current date and time

NULL	LOGIC	A field with no value
NULLIF	LOGIC	Compares two expressions and returns NULL if they are equal. Otherwise, the first expression is returned
OF	LOGIC	Allows you to specify multiple values in a WHERE clause
OFFSET	SEARCHING	Skips the first N rows in a result set before starting to return any rows
ON	MERGING	
OR	LOGIC	Includes rows where either condition is TRUE
ORDER	ORDERING	Sorts the result set in ascending or descending order
OUT	LOGIC	Opposite to IN
OUTER	MERGING	OUTER JOIN: returns all rows when there is a match in either left table or right table
PERCENT	SEARCHING	Indicates that the query returns N percentage of rows
PIVOT	AGGREGATION	Converts data from row level to column level
POWER	MATH	Returns the value of a number raised to the power of another number
QUART	MATH	Returns the first quartile of a group
	AGGREGATION	
QUART2	MATH	Returns the second quartile of a group
	AGGREGATION	
QUART3	MATH	Returns the third quartile of a group
	AGGREGATION	
RANDOM	VARIABLES	
REGEXP_LIKE	LOGIC	Returns rows that match a regular expression pattern
	STRING_OPERATORS	
	SEARCHING	
REPLACE	STRING_OPERATORS	Replaces all occurrences of a substring within a string, with a new substring
REPLACE_VIEW	STRING_OPERATORS	Replaces all occurrences of a substring within a string, with a new substring, preserving its original HTML format
RIGHT	MERGING	RIGHT JOIN: returns all rows from the right table, and the matching rows from the left table
ROLLUP	MATH	Creates subtotals and grand totals for a set of columns (GROUP BY ROLLUP)
	AGGREGATION	
ROUND	MATH	Rounds a number to a specified number of decimal places
ROWNUM	DATA_MANIPULATING	Adds row numbering to a table
SEARCH	DATA_MANIPULATING	Searches for a specified pattern ( <a href="#">see an example</a> )
SECOND	DATA_MANIPULATING	Return the seconds part of a datetime value
	TIME	
SELECT	DATA_MANIPULATING	Selects data from a database

SOME	LOGIC	Compares a value to each value in a list or results from a query and evaluates to TRUE if the result of an inner query contains at least one row
SQRT	MATH	Returns the square root of a number
STDDEV	MATH AGGREGATION	Returns the population standard deviation of expression ( <a href="#">see an example</a> )
STDEV	MATH AGGREGATION	Returns the sample standard deviation of expression ( <a href="#">see an example</a> )
SUBDATE	MATH TIME	Subtracts a time/date interval from a date and then returns the date
SUBSTR	STRING_OPERATORS	Extracts a substring from a string (starting at any position)
SUBSTRING	STRING_OPERATORS	Allows to extract a substring from a string
SUBSTRING_VIEW	STRING_OPERATORS	Allows to extract a substring from a string, preserving its original HTML format
SUM	MATH AGGREGATION	Takes the name of a column as an argument and returns the sum of all the values in that column ( <a href="#">see an example</a> )
THEN	LOGIC	A result expression in a search condition
TIME	DATA_MANIPULATING TIME	Extracts the time part from a given time/datetime
TIMESTAMP	CONVERTING	Returns a datetime value based on a date or datetime value
TO	KEYWORD	
TRIM	STRING_OPERATORS	Removes the space character or other specified characters from the start or end of a string
TRUE	LOGIC	Logical true value
UCASE	STRING_OPERATORS	Converts a string to upper-case
UNION	MERGING	Combines the result set of two or more SELECT statements (only distinct values)
UPDATE	DATA_MANIPULATING	Modifies the existing records in a table ( <a href="#">see an example</a> )
UPPER	STRING_OPERATORS	Converts a string to upper-case
USING	LOGIC	Matches only one column when more than one column matches
VAR	MATH AGGREGATION	Returns the statistical variance of all values in the specified expression
VAR_POP	AGGREGATION	Population variance. Returns 0 if all of the values in the data set have the same value (no variability). Returns 0 if the data set consists of only one value (no possible variability). Returns NULL if the data set has no values
VAR_SAMP	AGGREGATION	Sample variance. Returns 0 if all of the values in the data set have the same value (no variability). Returns NULL if the data set consists of only one value (no possible variability). Returns NULL if the data set has no values
VARCHAR	KEYWORD	Accepts character strings of a variable length is up to the maximum length specified in the data type declaration
VARP	AGGREGATION	Returns the Variance for the population of the total number of records present in the specified column



WEEKDAY	DATA_MANIPULATING	Returns the weekday number for a given date
	TIME	
WHEN	LOGIC	A condition expression in a search condition
WHERE	LOGIC	Filters a result set to include only records that fulfill a specified condition
	SEARCHING	
WHILE	LOOP	Sets a condition for the repeated execution of an SQL statement or statement block
YEAR	DATA_MANIPULATING	Returns an integer value which represents the year of the specified date
	TIME	
TIMESTAMPDIFF	MATH	Returns the difference between two dates
	TIME	
TEXT	STRING_OPERATORS	Returns the source string without additional formatting
HTML_DECODE	STRING_OPERATORS	Converts the displayed string into HTML markup and extracts text content from it

## Conversion types

- ::Date
- ::string
- ::number



For date conversion see also the `FORMATDATE`, `FORMATTIME`, `FORMATWORKLOG` functions.

## JavaScript methods

After converting to date you can use [JavaScript date functions](#), for example:

```
'Column with dates'::DatetoDateString()
```

Find an example [here](#).

After converting to string you can use [JavaScript string functions](#), for example:

```
'Column with strings'::string->split("The delimiter")->0
'Column with strings'::stringlength
```

After converting to number you can use [JavaScript number functions](#), for example:

```
'Column with numbers'::numbertoFixed(1)
```






You need to convert only values with a different or indefinite type. In other cases, it's is not necessary:

```
'Column with numbers'->toFixed(1)
```

## Example

The source table:

String	Number	Date
abc	123	 16 Sep 2022
bbac	1.2	 18 Sep 2022
daac	5.75	 27 Sep 2022

The result

Length	Splitting	Rounding to tenth	Full year
3	a	123.0	2022
4		1.2	2022
4	daac	5.8	2022

SQL query:

```
SELECT
Tl.'String'->length AS 'Length',
Tl.'String'->split("b")->0 AS 'Splitting',
Tl.'Number'->toFixed(1) AS 'Rounding to tenth',
Tl.'Date'::Date->getFullYear() AS 'Full year'
FROM T*
```