Data types (Transact-SQL)

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Applies to: SQL Server Azure SQL Database Azure SQL Managed Instance

✓ Azure Synapse Analytics Analytics Platform System (PDW) Warehouse in

Microsoft Fabric

In SQL Server, each column, local variable, expression, and parameter has a related data type. A data type is an attribute that specifies the type of data that the object can hold: integer data, character data, monetary data, date and time data, binary strings, and so on.

SQL Server supplies a set of system data types that define all the types of data that can be used with SQL Server. You can also define your own data types in Transact-SQL or the Microsoft .NET Framework. Alias data types are based on the system-supplied data types. For more information about alias data types, see CREATE TYPE (Transact-SQL). User-defined types obtain their characteristics from the methods and operators of a class that you create by using one of the programming languages supported by the .NET Framework.

When two expressions that have different data types, collations, precision, scale, or length are combined by an operator, the characteristics of result are determined by the following:

- The data type of the result is determined by applying the rules of data type precedence to the data types of the input expressions. For more information, see Data Type Precedence (Transact-SQL).
- The collation of the result is determined by the rules of collation precedence when the result data type is **char**, **varchar**, **text**, **nchar**, **nvarchar**, or **ntext**. For more information, see Collation Precedence (Transact-SQL).
- The precision, scale, and length of the result depend on the precision, scale, and length of the input expressions. For more information, see Precision, Scale, and Length (Transact-SQL).

SQL Server provides data type synonyms for ISO compatibility. For more information, see Data Type Synonyms (Transact-SQL).

① Note

For more specific information on data types in Azure Synapse Analytics, see <u>Table</u> <u>data types in Synapse SQL</u>. For more specific information on data types in

Data type categories

bit

smallint

Data types in SQL Server are organized into the following categories: **Exact numerics** Unicode character strings Approximate numerics Binary strings Date and time Other data types Character strings In SQL Server, based on their storage characteristics, some data types are designated as belonging to the following groups: • Large value data types: varchar(max), and nvarchar(max) • Large object data types: text, ntext, image, varbinary(max), and xml ① Note sp_help returns -1 as the length for the large-value and xml data types. **Exact numerics** bigint numeric

money
Approximate numerics
float
real
Date and time
date
datetimeoffset
datetime2
smalldatetime
datetime
time
Character strings
char
varchar
text

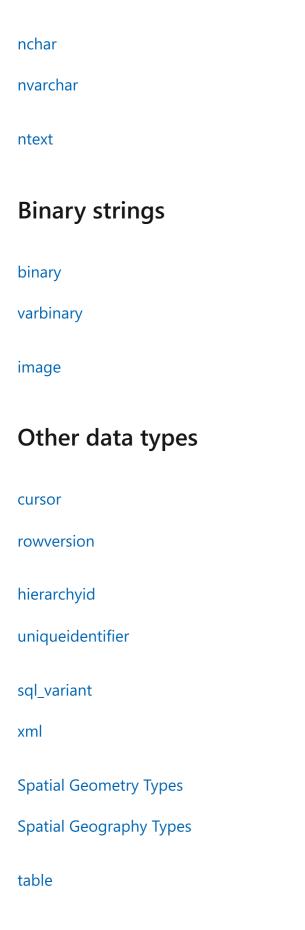
decimal

int

tinyint

smallmoney

Unicode character strings



See also

```
CREATE PROCEDURE (Transact-SQL)

CREATE TABLE (Transact-SQL)

DECLARE @local_variable (Transact-SQL) EXECUTE (Transact-SQL)

Expressions (Transact-SQL)

Functions (Transact-SQL)

LIKE (Transact-SQL)

sp_droptype (Transact-SQL)

sp_help (Transact-SQL)

sp_rename (Transact-SQL)
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