Transact-SQL Reference (SQL Server 2000)

**Data Types**

In Microsoft® SQL Server™, each column, local variable, expression, and parameter has a related data type, which is an attribute that specifies the type of data (integer, character, **money**, and so on) that the object can hold. SQL Server supplies a set of system data types that define all of the types of data that can be used with SQL Server. The set of system-supplied data types is shown below.

User-defined data types, which are aliases for system-supplied data types, can also be defined. For more information about user-defined data types, see [sp\_addtype](http://msdn.microsoft.com/en-us/library/aa259606(SQL.80).aspx) and [Creating User-defined Data Types](http://msdn.microsoft.com/en-us/library/aa933121(SQL.80).aspx).

When two expressions that have different data types, collations, precision, scale, or length are combined by an operator:

* The data type of the resulting value 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](http://msdn.microsoft.com/en-us/library/aa258264(SQL.80).aspx).
* If the result data type is **char**, **varchar**, **text**, **nchar**, **nvarchar**, or **ntext**, the collation of the result value is determined by the rules of collation precedence. For more information, see [Collation Precedence](http://msdn.microsoft.com/en-us/library/aa258272(SQL.80).aspx).
* 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](http://msdn.microsoft.com/en-us/library/aa258274(SQL.80).aspx).

SQL Server provides data type synonyms for SQL-92 compatibility. For more information, see [Data Type Synonyms](http://msdn.microsoft.com/en-us/library/aa258273(SQL.80).aspx).

**Exact Numerics**

**Integers**

[bigint](http://msdn.microsoft.com/en-us/library/aa933198(SQL.80).aspx)

Integer (whole number) data from -2^63 (-9,223,372,036,854,775,808) through 2^63-1 (9,223,372,036,854,775,807).

[int](http://msdn.microsoft.com/en-us/library/aa933198(SQL.80).aspx)

Integer (whole number) data from -2^31 (-2,147,483,648) through 2^31 - 1 (2,147,483,647).

[smallint](http://msdn.microsoft.com/en-us/library/aa933198(SQL.80).aspx)

Integer data from -2^15 (-32,768) through 2^15 - 1 (32,767).

[tinyint](http://msdn.microsoft.com/en-us/library/aa933198(SQL.80).aspx)

Integer data from 0 through 255.

**bit**

[bit](http://msdn.microsoft.com/en-us/library/aa225961(SQL.80).aspx)

Integer data with either a 1 or 0 value.

**decimal and numeric**

[decimal](http://msdn.microsoft.com/en-us/library/aa258832(SQL.80).aspx)

Fixed precision and scale numeric data from -10^38 +1 through 10^38 –1.

[numeric](http://msdn.microsoft.com/en-us/library/aa258832(SQL.80).aspx)

Functionally equivalent to **decimal.**

**money and smallmoney**

[money](http://msdn.microsoft.com/en-us/library/aa933242(SQL.80).aspx)

Monetary data values from -2^63 (-922,337,203,685,477.5808) through 2^63 - 1 (+922,337,203,685,477.5807), with accuracy to a ten-thousandth of a monetary unit.

[smallmoney](http://msdn.microsoft.com/en-us/library/aa933242(SQL.80).aspx)

Monetary data values from -214,748.3648 through +214,748.3647, with accuracy to a ten-thousandth of a monetary unit.

**Approximate Numerics**

[float](http://msdn.microsoft.com/en-us/library/aa258876(SQL.80).aspx)

Floating precision number data with the following valid values: -1.79E + 308 through -2.23E - 308, 0 and 2.23E + 308 through 1.79E + 308.

[real](http://msdn.microsoft.com/en-us/library/aa258876(SQL.80).aspx)

Floating precision number data with the following valid values: -3.40E + 38 through -1.18E - 38, 0 and 1.18E - 38 through 3.40E + 38.

**datetime and smalldatetime**

[datetime](http://msdn.microsoft.com/en-us/library/aa258277(SQL.80).aspx)

Date and time data from January 1, 1753, through December 31, 9999, with an accuracy of three-hundredths of a second, or 3.33 milliseconds.

[smalldatetime](http://msdn.microsoft.com/en-us/library/aa258277(SQL.80).aspx)

Date and time data from January 1, 1900, through June 6, 2079, with an accuracy of one minute.

**Character Strings**

[char](http://msdn.microsoft.com/en-us/library/aa258242(SQL.80).aspx)

Fixed-length non-Unicode character data with a maximum length of 8,000 characters.

[varchar](http://msdn.microsoft.com/en-us/library/aa258242(SQL.80).aspx)

Variable-length non-Unicode data with a maximum of 8,000 characters.

[text](http://msdn.microsoft.com/en-us/library/aa260619(SQL.80).aspx)

Variable-length non-Unicode data with a maximum length of 2^31 - 1 (2,147,483,647) characters.

**Unicode Character Strings**

[nchar](http://msdn.microsoft.com/en-us/library/aa276823(SQL.80).aspx)

Fixed-length Unicode data with a maximum length of 4,000 characters.

[nvarchar](http://msdn.microsoft.com/en-us/library/aa276823(SQL.80).aspx)

Variable-length Unicode data with a maximum length of 4,000 characters. **sysname** is a system-supplied user-defined data type that is functionally equivalent to **nvarchar(128)** and is used to reference database object names.

[ntext](http://msdn.microsoft.com/en-us/library/aa276838(SQL.80).aspx)

Variable-length Unicode data with a maximum length of 2^30 - 1 (1,073,741,823) characters.

**Binary Strings**

[binary](http://msdn.microsoft.com/en-us/library/aa225972(SQL.80).aspx)

Fixed-length binary data with a maximum length of 8,000 bytes.

[varbinary](http://msdn.microsoft.com/en-us/library/aa225972(SQL.80).aspx)

Variable-length binary data with a maximum length of 8,000 bytes.

[image](http://msdn.microsoft.com/en-us/library/aa933226(SQL.80).aspx)

Variable-length binary data with a maximum length of 2^31 - 1 (2,147,483,647) bytes.

**Other Data Types**

[cursor](http://msdn.microsoft.com/en-us/library/aa258247(SQL.80).aspx)

A reference to a cursor.

[sql\_variant](http://msdn.microsoft.com/en-us/library/aa259247(SQL.80).aspx)

A data type that stores values of various SQL Server-supported data types, except **text**, **ntext**, **timestamp**, and **sql\_variant**.

[table](http://msdn.microsoft.com/en-us/library/aa260638(SQL.80).aspx)

A special data type used to store a result set for later processing .

[timestamp](http://msdn.microsoft.com/en-us/library/aa260631(SQL.80).aspx)

A database-wide unique number that gets updated every time a row gets updated.

[uniqueidentifier](http://msdn.microsoft.com/en-us/library/aa260656(SQL.80).aspx)

A globally unique identifier (GUID).