

SQL Server Data types

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Data types can be divided in three types:

- String Types
- Number Types
- Date Types

String Types

Data Type	Description
char(n)	It is a fixed width character string. It can store maximum 8,000 characters.
varchar(n)	It is a variable width character string. It can store maximum 8,000 characters.
varchar(max)	It is a variable width character string. It can store maximum 1,073,741,824 characters.
text	It is a variable width character string. It can store maximum 2GB of text data.
nchar	It is a fixed width unicode string. It can store maximum 4,000 characters.
nvarchar	It is a variable width unicode string. It can store maximum 4,000 characters.
nvarchar(max)	It is a variable width unicode string. It can store maximum 536,870,912 characters.
ntext	It is a variable width unicode string. It can store maximum 2GB of text data.
bit	It allows 0, 1, or NULL values.
binary(n)	It is a fixed width binary string. It can store maximum 8,000 bytes
varbinary	It is a variable width binary string. It can store maximum 8,000 bytes
varbinary(max)	It is a variable width binary string. It can store maximum 2GB.
image	It is a variable width binary string. It can store maximum 2GB.

Number Types

data type	description	storage
tinyint	allows whole numbers from 0 to 255	1 byte
smallint	allows whole numbers between -32,768 and 32,767	2 bytes
int	allows whole numbers between -2,147,483,648 and 2,147,483,647	4 bytes
bigint	allows whole numbers between -9,223,372,036,854,775,808 and 9,223,372,036,854,775,807	8 bytes
decimal(p,s)	fixed precision and scale numbers.allows numbers from $-10^{38} + 1$ to $10^{38} - 1$.the p parameter indicates the maximum total number of digits that can be stored (both to the left and to the right of the decimal point). p must be a value from 1 to 38. default is 18.the s parameter indicates the maximum number of digits stored to the right of the decimal point. s must be a value from 0 to p. default value is 0	5-17 bytes
numeric(p,s)	fixed precision and scale numbers.allows numbers from $-10^{38} + 1$ to $10^{38} - 1$.the p parameter indicates the maximum total number of digits that can be stored (both to the left and to the right of the decimal point). p must be a value from 1 to 38. default is 18.the s parameter indicates the maximum number of digits stored to the right of the decimal point. s must be a value from 0 to p. default value is 0	5-17 bytes

smallmoney	monetary data from -214,748.3648 to 214,748.3647	4 bytes
money	monetary data from -922,337,203,685,477.5808 to 922,337,203,685,477.5807	8 bytes
float(n)	floating precision number data from $-1.79e + 308$ to $1.79e + 308$. the n parameter indicates whether the field should hold 4 or 8 bytes. float(24) holds a 4-byte field and float(53) holds an 8-byte field. default value of n is 53.	4 or 8 bytes
real	floating precision number data from $-3.40e + 38$ to $3.40e + 38$	4 bytes

Date Types

Data Type	Description	Storage
datetime	It specifies a date and time from january 1, 1753 to december 31, 9999 with an accuracy of 3.33 milliseconds.	8 bytes
datetime2	It specifies a date and time from january 1, 0001 to december 31, 9999 with an accuracy of 100 nanoseconds.	6-8 bytes
smalldatetime	It specifies a date and time from january 1, 1900 to june 6, 2079 with an accuracy of 1 minute.	4 bytes
date	It is used to store a date only. It specifies a date from january 1, 0001 to december 31, 9999.	3 bytes
time	It is used to store a time only to an accuracy of 100 nanoseconds.	3-5 bytes
datetimeoffset	It is the same as datetime2 with the addition of a time zone offset.	8-10 bytes
timestamp	It stores a unique number that gets updated every time a row gets created or modified. the timestamp value is based upon an internal clock and does not correspond to real time. each table may have only one timestamp variable.	