**SQL Server: Data Types**

The following is a list of datatypes available in SQL Server (Transact-SQL), which includes string, numeric, and date/time datatypes.

**String Datatypes**

The following are the **String Datatypes** in SQL Server (Transact-SQL):

| Data Type Syntax | Maximum Size | Explanation |
| --- | --- | --- |
| CHAR(*size*) | Maximum size of 8,000 characters. | Where ***size*** is the number of characters to store. Fixed-length. Space padded on right to equal ***size*** characters. Non-Unicode data. |
| VARCHAR(*size*) or VARCHAR(max) | Maximum size of 8,000 or max characters. | Where ***size*** is the number of characters to store. Variable-length. If *max* is specified, the maximum number of characters is 2GB. Non-Unicode data. |
| TEXT | Maximum size of 2GB. | Variable-length. Non-Unicode data. |
| NCHAR(*size*) | Maximum size of 4,000 characters. | Fixed-length. Unicode data. |
| NVARCHAR(*size*) or NVARCHAR(max) | Maximum size of 4,000 or max characters. | Where ***size*** is the number of characters to store. Variable-length. If *max* is specified, the maximum number of characters is 2GB. Unicode data. |
| NTEXT | Maximum size of 1,073,741,823 bytes. | Variable length. Unicode data. |
| BINARY(*size*) | Maximum size of 8,000 characters. | Where ***size*** is the number of characters to store. Fixed-length. Space padded on right to equal ***size*** characters. Binary data. |
| VARBINARY(*size*) or VARBINARY(max) | Maximum size of 8,000 or max characters. | Where ***size*** is the number of characters to store. Variable-length. If *max* is specified, the maximum number of characters is 2GB. Non-Binary data. |
| IMAGE | Maximum size of 2GB. | Variable length . Binary data. |

**Numeric Datatypes**

The following are the **Numeric Datatypes** in SQL Server (Transact-SQL):

| Data Type Syntax | Maximum Size | Explanation |
| --- | --- | --- |
| BIT | Integer that can be 0, 1, or NULL. |  |
| TINYINT | 0 to 255 |  |
| SMALLINT | -32768 to 32767 |  |
| INT | -2,147,483,648 to 2,147,483,647 |  |
| BIGINT | -9,223,372,036,854,775,808 to 9,223,372,036,854,775,807 |  |
| DECIMAL(*m*,*d*) | ***m*** defaults to 18, if not specified. ***d*** defaults to 0, if not specified. | Where ***m*** is the total digits and ***d*** is the number of digits after the decimal. |
| DEC(*m*,*d*) | ***m*** defaults to 18, if not specified. ***d*** defaults to 0, if not specified. | Where ***m*** is the total digits and ***d*** is the number of digits after the decimal.  This is a synonym for the DECIMAL datatype. |
| NUMERIC(*m*,*d*) | ***m*** defaults to 18, if not specified. ***d*** defaults to 0, if not specified. | Where ***m*** is the total digits and ***d*** is the number of digits after the decimal.  This is a synonym for the DECIMAL datatype. |
| FLOAT(*n*) | Floating point number. ***n*** defaults to 53, if not specified. | Where ***n*** is the number of number of bits to store in scientific notation. |
| REAL | Equivalent to FLOAT(24) |  |
| SMALLMONEY | - 214,748.3648 to 214,748.3647 |  |
| MONEY | -922,337,203,685,477.5808 to 922,337,203,685,477.5807 |  |

**Date/Time Datatypes**

The following are the **Date/Time Datatypes** in SQL Server (Transact-SQL):

| Data Type Syntax | Maximum Size | Explanation (if applicable) |
| --- | --- | --- |
| DATE | Values range from '0001-01-01' to '9999-12-31'. | Displayed as 'YYYY-MM-DD' |
| DATETIME | Date values range from '1753-01-01 00:00:00' to '9999-12-31 23:59:59'. Time values range from '00:00:00' to '23:59:59:997' | Displayed as 'YYYY-MM-DD hh:mm:ss[.mmm]' |
| DATETIME2(*fractional seconds precision*) | Date values range from '0001-01-01' to '9999-12-31'. Time values range from '00:00:00' to '23:59:59:9999999'. | Displayed as 'YYYY-MM-DD hh:mm:ss[.fractional seconds]' |
| SMALLDATETIME | Date values range from '1900-01-01' to '2079-06-06'. Time values range from '00:00:00' to '23:59:59'. | Displayed as 'YYYY-MM-DD hh:mm:ss' |
| TIME | Values range from '00:00:00.0000000' to '23:59:59.9999999' | Displayed as 'YYYY-MM-DD hh:mm:ss[.nnnnnnn]' |
| DATETIMEOFFSET(*fractional seconds precision*) | Date values range from '0001-01-01' to '9999-12-31'. Time values range from '00:00:00' to '23:59:59:9999999'. Time zone offset range from -14:00 to +14:00. | Displayed as 'YYYY-MM-DD hh:mm:ss[.nnnnnnn]' [{+|-}hh:mm] |