**SQL ALTER TABLE Statement**

## ALTER TABLE - ADD Column

To add a column in a table, use the following syntax:

ALTER TABLE table\_name  
ADD column\_name datatype;

The following SQL adds an "Email" column to the "Customers" table:

### Example

ALTER TABLE Customers  
ADD Email varchar(255);

## ALTER TABLE - DROP COLUMN

To delete a column in a table, use the following syntax (notice that some database systems don't allow deleting a column):

ALTER TABLE table\_name  
DROP COLUMN column\_name;

The following SQL deletes the "Email" column from the "Customers" table:

### Example

ALTER TABLE Customers  
DROP COLUMN Email;

**ALTER TABLE - ALTER/MODIFY COLUMN**

To change the **data type** of a column in a table, use the following syntax:

**SQL Server / MS Access:**

ALTER TABLE *table\_name*  
ALTER COLUMN *column\_name datatype*;

**My SQL / Oracle (prior version 10G):**

ALTER TABLE *table\_name*  
MODIFY COLUMN *column\_name datatype*;

**Oracle 10G and later:**

ALTER TABLE *table\_name*  
MODIFY *column\_name datatype*;

**SQL ALTER TABLE Example**

Look at the "Persons" table:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ID** | **LastName** | **FirstName** | **Address** | **City** |
| 1 | Hansen | Ola | Timoteivn 10 | Sandnes |
| 2 | Svendson | Tove | Borgvn 23 | Sandnes |
| 3 | Pettersen | Kari | Storgt 20 | Stavanger |

Now we want to add a column named "DateOfBirth" in the "Persons" table.

We use the following SQL statement:

ALTER TABLE Persons  
ADD DateOfBirth date;

Notice that the new column, "DateOfBirth", is of type date and is going to hold a date. The data type specifies what type of data the column can hold. For a complete reference of all the data types available in MS Access, MySQL, and SQL Server, go to our complete [Data Types reference](https://www.w3schools.com/sql/sql_datatypes.asp).

The "Persons" table will now look like this:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ID** | **LastName** | **FirstName** | **Address** | **City** | **DateOfBirth** |
| 1 | Hansen | Ola | Timoteivn 10 | Sandnes |  |
| 2 | Svendson | Tove | Borgvn 23 | Sandnes |  |
| 3 | Pettersen | Kari | Storgt 20 | Stavanger |  |

**Change Data Type Example**

Now we want to change the data type of the column named "DateOfBirth" in the "Persons" table.

We use the following SQL statement:

ALTER TABLE Persons  
ALTER COLUMN DateOfBirth year;

Notice that the "DateOfBirth" column is now of type year and is going to hold a year in a two- or four-digit format.

**DROP COLUMN Example**

Next, we want to delete the column named "DateOfBirth" in the "Persons" table.

We use the following SQL statement:

ALTER TABLE Persons  
DROP COLUMN DateOfBirth;

The "Persons" table will now look like this:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ID** | **LastName** | **FirstName** | **Address** | **City** |
| 1 | Hansen | Ola | Timoteivn 10 | Sandnes |
| 2 | Svendson | Tove | Borgvn 23 | Sandnes |
| 3 | Pettersen | Kari | Storgt 20 | Stavanger |

**SQL PRIMARY KEY Constraint**

The PRIMARY KEY constraint uniquely identifies each record in a table.

Primary keys must contain UNIQUE values, and cannot contain NULL values.

A table can have only ONE primary key; and in the table, this primary key can consist of single or multiple columns (fields).

**SQL PRIMARY KEY on CREATE TABLE**

The following SQL creates a PRIMARY KEY on the "ID" column when the "Persons" table is created:

**MySQL:**

CREATE TABLE Persons (  
    ID int NOT NULL auro\_increament,  
    LastName varchar(255) NOT NULL,  
    FirstName varchar(255),  
    Age int,  
    PRIMARY KEY (ID)  
);

**SQL PRIMARY KEY on ALTER TABLE**

To create a PRIMARY KEY constraint on the "ID" column when the table is already created, use the following SQL:

**MySQL / SQL Server / Oracle / MS Access:**

ALTER TABLE Persons  
ADD PRIMARY KEY (ID);

To allow naming of a PRIMARY KEY constraint, and for defining a PRIMARY KEY constraint on multiple columns, use the following SQL syntax:

**MySQL / SQL Server / Oracle / MS Access:**

ALTER TABLE Persons  
ADD CONSTRAINT PK\_Person PRIMARY KEY (ID,LastName);

**Note:** If you use the ALTER TABLE statement to add a primary key, the primary key column(s) must already have been declared to not contain NULL values (when the table was first created).

**DROP a PRIMARY KEY Constraint**

To drop a PRIMARY KEY constraint, use the following SQL:

**MySQL:**

ALTER TABLE Persons  
DROP PRIMARY KEY;

**SQL Server / Oracle / MS Access:**

ALTER TABLE Persons  
DROP CONSTRAINT PK\_Person;

# Change Column Details

ALTER TABLE `mydb`.`customers`

CHANGE COLUMN `CustomerID` `CustomerID` VARCHAR(3) CHARACTER SET 'utf8' NOT NULL ,

ADD PRIMARY KEY (`CustomerID`);

;