

## SQL Foreign Key Constraints

by Sudheer Sharma - Wednesday, November 26, 2008

<http://dwhnotes.com/data-base/sql-constraints/sql-foreign-key-constraints>

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### SQL FOREIGN KEY Constraint

A FOREIGN KEY in one table points to a PRIMARY KEY in another table.

Let's illustrate the foreign key with an example. Look at the following two tables:

The "Persons" table:

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

The "Orders" table:

O_Id	OrderNo	P_Id
1	77895	3
2	44678	3
3	22456	2
4	24562	1

Note that the "P\_Id" column in the "Orders" table points to the "P\_Id" column in the "Persons" table.

The "P\_Id" column in the "Persons" table is the PRIMARY KEY in the "Persons" table.

The "P\_Id" column in the "Orders" table is a FOREIGN KEY in the "Orders" table.

The FOREIGN KEY constraint is used to prevent actions that would destroy links between tables.

The FOREIGN KEY constraint also prevents that invalid data form being inserted into the foreign key column, because it has to be one of the values contained in the table it points to.

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## **SQL FOREIGN KEY Constraint on CREATE TABLE**

The following SQL creates a FOREIGN KEY on the “P\_Id” column when the “Orders” table is created:

### **MySQL:**

```
CREATE TABLE Orders
(
O_Id int NOT NULL,
OrderNo int NOT NULL,
P_Id int,
PRIMARY KEY (O_Id),
FOREIGN KEY (P_Id) REFERENCES Persons(P_Id)
)
```

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

```
CREATE TABLE Orders
(
O_Id int NOT NULL PRIMARY KEY,
OrderNo int NOT NULL,
P_Id int FOREIGN KEY REFERENCES Persons(P_Id)
)
```

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

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

```
CREATE TABLE Orders
(
O_Id int NOT NULL,
OrderNo int NOT NULL,
P_Id int,
PRIMARY KEY (O_Id),
CONSTRAINT fk_PerOrders FOREIGN KEY (P_Id)
REFERENCES Persons(P_Id)
)
```

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## **SQL FOREIGN KEY Constraint on ALTER TABLE**

To create a FOREIGN KEY constraint on the “P\_Id” column when the “Orders” table is already created, use the following SQL:

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

```
ALTER TABLE Orders  
ADD FOREIGN KEY (P_Id)  
REFERENCES Persons(P_Id)
```

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

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

```
ALTER TABLE Orders  
ADD CONSTRAINT fk_PerOrders  
FOREIGN KEY (P_Id)  
REFERENCES Persons(P_Id)
```

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## To DROP a FOREIGN KEY Constraint

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

**MySQL:**

```
ALTER TABLE Orders  
DROP FOREIGN KEY fk_PerOrders
```

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

```
ALTER TABLE Orders  
DROP CONSTRAINT fk_PerOrders
```

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