

Joining Tables - Linking Tables in an MySql statement



In this example, two tables are described, they have a common column which will need to be joined when they are both used in an SQL statement ...

Tablename: section_details

Columnname

<i>SD_SECTION_NUMBER</i>	<i>int(5) NO PRI</i>
<i>SD_SECTION_NAME</i>	<i>tinytext YES</i>
<i>SD_SECTION_TYPE</i>	<i>tinytext YES</i>

Tablename: stock_information

Columnname

<i>SI_STOCK_NUMBER</i>	<i>int(5) NO PRI</i>
<i>SI_SECTION_NUMBER</i>	<i>int(5) NO MUL</i>
<i>SI_STOCK_DESCRIPTION</i>	<i>tinytext NO</i>
<i>SI_UNIT_PRICE</i>	<i>decimal(6,2) YES</i>
<i>SI_NO_IN_STOCK</i>	<i>int(8) YES</i>

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To select from both tables, the SQL query will need to include both tables in the *'from'* statement, separated by commas, and join the columns together in the *'where'* statement, the following slide shows the SQL and a selection of the data retrieved.

```
select sd_section_name  
      ,si_stock_number  
      ,si_stock_description  
from stock_information  
      ,section_details  
where si_section_number = sd_section_number
```

```
DOORS AND LOCKS 1 BRASS HANDLE  
DOORS AND LOCKS 9 YALE LOCK  
DOORS AND LOCKS 10 BRASS KNOCKER  
DOORS AND LOCKS 25 HINGE PACK (LH)
```

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The previous SQL correctly retrieved 26 rows, which is the total number of records in the Stock Information table, the value displayed in the Section Details table is merely giving the Section name for the number held in the Stock Information table.

If the where clause had not been included 234 rows would have been selected because a Cartesian product had occurred, 26 rows in the Stock_Information table multiplied by 9 in the Section_Details table. Cartesian products occur when two or more tables are selected and no join is made between them, the resultant output links all records in one table with all records in the other giving a lot of output hardly any of which is correct. Make sure that when selecting more than one table that they are joined together correctly.

Joining Tables - Theta style of SQL



So far in all of the examples of SQL table joining, the Developer has been using the 'theta' style, this allows the creation of table joins in the where clause, however the use of theta in MySQL is limited as the new Ansi style was introduced before MySQL was created, therefore the theta style works as a legacy style but from this moment on the examples will all use the Ansi style for joining tables.

The next page illustrated the Ansi style of joining for comparison with the previous Theta style ...

Joining Tables - Ansi style of SQL



Theta

```
select sd_section_name  
      ,si_stock_number  
      ,si_stock_description  
from stock_information  
      ,section_details  
where si_section_number = sd_section_number
```

Ansi

```
select sd_section_name  
      ,si_stock_number  
      ,si_stock_description  
from stock_information  
join on section_details using si_section_number = sd_section_number
```

Joining Tables - Problems with Data matching



Aside from Cartesian products another problem with joining tables together is literally because only data which matches in both tables is displayed, some data could be lost, in the previous example if a section had no stock then it would not have displayed any information, when this might be a problem an 'outer join' needs to be used, this tells SQL that if a record exists in one table but not in the other to display it anyway (with no detail from the other table).

Creating outer joins is dealt with soon, however the data output would look something like this based on the previous example ...

Joining Tables - Problems with Joining Tables in MySql



<i>SD_SECTION_NAME</i>	<i>SI_STOCK_NUMBER</i>	<i>SI_STOCK_DESCRIPTION</i>
-----	-----	-----
<i>DOORS AND LOCKS</i>	<i>9</i>	<i>YALE LOCK</i>
<i>DOORS AND LOCKS</i>	<i>10</i>	<i>BRASS KNOCKER</i>
<i>CEMENT AND SAND</i>	<i>11</i>	<i>THISTLE PLASTER</i>
<i>CEMENT AND SAND</i>	<i>5</i>	<i>COARSE SAND</i>
<i>CEMENT AND SAND</i>	<i>6</i>	<i>FINE SAND</i>
<i>CEMENT AND SAND</i>	<i>7</i>	<i>BLUE CIRCLE CEMENT</i>
<i>HARDWARE</i>		
<i>BATHROOMS AND KITCHENS</i>		
<i>GARDENING</i>		

Note that values from the 'other' table (Stock_Information) remain blank or 'null' (because there are no values).

The following pages break down the Ansi SQL style including outer joins ...