

MySQL ALTER TABLE Command Details and Examples

1. Adding a Column

To add a new column to an existing table:

```
ALTER TABLE table_name  
ADD column_name column_type;
```

Example:

```
ALTER TABLE employees  
ADD date_of_birth DATE;
```

This adds a date_of_birth column of type DATE to the employees table.

2. Dropping a Column

To remove an existing column from a table:

```
ALTER TABLE table_name  
DROP COLUMN column_name;
```

Example:

```
ALTER TABLE employees  
DROP COLUMN date_of_birth;
```

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This removes the `date_of_birth` column from the `employees` table.

3. Modifying a Column

To change the data type or attributes of an existing column:

```
ALTER TABLE table_name  
MODIFY COLUMN column_name new_data_type;
```

Example:

```
ALTER TABLE employees  
MODIFY COLUMN last_name VARCHAR(100);
```

This changes the `last_name` column to a `VARCHAR` type with a maximum length of 100 characters.

4. Renaming a Column

To rename an existing column:

```
ALTER TABLE table_name  
CHANGE old_column_name new_column_name column_type;
```

Example:

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```
ALTER TABLE employees
```

```
CHANGE COLUMN last_name surname VARCHAR(100);
```

This renames the last_name column to surname and sets its type to VARCHAR(100).

5. Renaming a Table

To rename an existing table:

```
ALTER TABLE old_table_name
```

```
RENAME TO new_table_name;
```

Example:

```
ALTER TABLE employees
```

```
RENAME TO staff;
```

This renames the employees table to staff.

6. Adding an Index

To add an index to a column or a set of columns:

```
ALTER TABLE table_name
```

```
ADD INDEX index_name (column_name);
```

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Example:

```
ALTER TABLE employees  
  
ADD INDEX idx_last_name (last_name);
```

This adds an index named `idx_last_name` to the `last_name` column in the `employees` table.

7. Dropping an Index

To remove an index:

```
ALTER TABLE table_name  
  
DROP INDEX index_name;
```

Example:

```
ALTER TABLE employees  
  
DROP INDEX idx_last_name;
```

This removes the index `idx_last_name` from the `employees` table.

8. Adding a Primary Key

To add a primary key constraint:

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```
ALTER TABLE table_name  
  
ADD PRIMARY KEY (column_name);
```

Example:

```
ALTER TABLE employees  
  
ADD PRIMARY KEY (employee_id);
```

This adds a primary key constraint to the employee_id column.

9. Dropping a Primary Key

To remove a primary key constraint:

```
ALTER TABLE table_name  
  
DROP PRIMARY KEY;
```

Example:

```
ALTER TABLE employees  
  
DROP PRIMARY KEY;
```

This removes the primary key constraint from the employees table.

10. Adding a Foreign Key

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To add a foreign key constraint:

```
ALTER TABLE table_name  
  
ADD CONSTRAINT fk_name FOREIGN KEY (column_name) REFERENCES  
other_table(other_column);
```

Example:

```
ALTER TABLE employees  
  
ADD CONSTRAINT fk_department FOREIGN KEY (department_id) REFERENCES  
departments(department_id);
```

This adds a foreign key constraint named `fk_department` to the `department_id` column, referencing the `department_id` column in the `departments` table.

11. Dropping a Foreign Key

To remove a foreign key constraint:

```
ALTER TABLE table_name  
  
DROP FOREIGN KEY fk_name;
```

Example:

```
ALTER TABLE employees
```

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```
DROP FOREIGN KEY fk_department;
```

This removes the foreign key constraint `fk_department` from the `employees` table.

12. Setting a Default Value for a Column

To set a default value for a column:

```
ALTER TABLE table_name
```

```
ALTER COLUMN column_name SET DEFAULT default_value;
```

Example:

```
ALTER TABLE employees
```

```
ALTER COLUMN status SET DEFAULT 'active';
```

This sets the default value of the `status` column to `'active'`.

13. Dropping a Default Value

To remove the default value of a column:

```
ALTER TABLE table_name
```

```
ALTER COLUMN column_name DROP DEFAULT;
```

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Example:

```
ALTER TABLE employees  
  
ALTER COLUMN status DROP DEFAULT;
```

This removes the default value of the status column.

Combining Multiple Alterations

You can combine multiple ALTER TABLE operations in a single statement, separated by commas:

```
ALTER TABLE table_name  
  
ADD column_name column_type,  
  
MODIFY COLUMN column_name new_data_type,  
  
DROP COLUMN column_name;
```

Example:

```
ALTER TABLE employees  
  
ADD middle_name VARCHAR(50),  
  
MODIFY COLUMN surname VARCHAR(100),  
  
DROP COLUMN nickname;
```

This adds a middle_name column, changes the surname column to VARCHAR(100), and drops the nickname column in the employees table.