- `ALTER`: Used only to change a column default value.

`CHANGE` is a MySQL extension to standard SQL. `MODIFY` and `RENAME COLUMN` are MySQL extensions for Oracle compatibility.

To alter a column to change both its name and definition, use `CHANGE`, specifying the old and new names and the new definition. For example, to rename an `INT NOT NULL` column from `a` to `b` and change its definition to use the `BIGINT` data type while retaining the `NOT NULL` attribute, do this:

```
ALTER TABLE t1 CHANGE a b BIGINT NOT NULL;
```

To change a column definition but not its name, use `CHANGE` or `MODIFY`. With `CHANGE`, the syntax requires two column names, so you must specify the same name twice to leave the name unchanged. For example, to change the definition of column `b`, do this:

```
ALTER TABLE t1 CHANGE b b INT NOT NULL;
```

`MODIFY` is more convenient to change the definition without changing the name because it requires the column name only once:

```
ALTER TABLE t1 MODIFY b INT NOT NULL;
```

To change a column name but not its definition, use `CHANGE` or `RENAME COLUMN`. With `CHANGE`, the syntax requires a column definition, so to leave the definition unchanged, you must respecify the definition the column currently has. For example, to rename an `INT NOT NULL` column from `b` to `a`, do this:

```
ALTER TABLE t1 CHANGE b a INT NOT NULL;
```

`RENAME COLUMN` is more convenient to change the name without changing the definition because it requires only the old and new names:

```
ALTER TABLE t1 RENAME COLUMN b TO a;
```

In general, you cannot rename a column to a name that already exists in the table. However, this is sometimes not the case, such as when you swap names or move them through a cycle. If a table has columns named `a`, `b`, and `c`, these are valid operations:

```
-- swap a and b
ALTER TABLE t1 RENAME COLUMN a TO b,
               RENAME COLUMN b TO a;
-- "rotate" a, b, c through a cycle
ALTER TABLE t1 RENAME COLUMN a TO b,
               RENAME COLUMN b TO c,
               RENAME COLUMN c TO a;
```

For column definition changes using `CHANGE` or `MODIFY`, the definition must include the data type and all attributes that should apply to the new column, other than index attributes such as `PRIMARY KEY` or `UNIQUE`. Attributes present in the original definition but not specified for the new definition are not carried forward. Suppose that a column `col1` is defined as `INT UNSIGNED DEFAULT 1 COMMENT 'my column'` and you modify the column as follows, intending to change only `INT` to `BIGINT`:

```
ALTER TABLE t1 MODIFY col1 BIGINT;
```

That statement changes the data type from `INT` to `BIGINT`, but it also drops the `UNSIGNED`, `DEFAULT`, and `COMMENT` attributes. To retain them, the statement must include them explicitly:

```
ALTER TABLE t1 MODIFY col1 BIGINT UNSIGNED DEFAULT 1 COMMENT 'my column';
```

For data type changes using `CHANGE` or `MODIFY`, MySQL tries to convert existing column values to the new type as well as possible.