

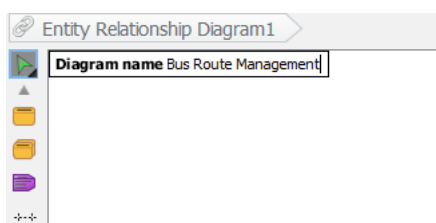


Draw Entity Relationship Diagram (ERD)

Written Date : May 19, 2010

[Entity relationship diagram \(ERD\)](#) is a kind of diagram for presenting visually the structure of relational database. In this tutorial we will make use of ERD to model the database structure of a simple bus route management system.

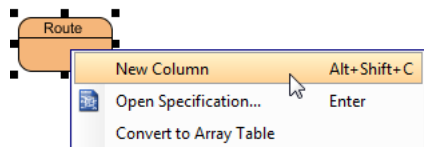
1. Start [Visual Paradigm](#). Select a new workspace folder for this tutorial.
2. Select **Project > New** from the toolbar to create a project. Name the project as Bus Route Management and confirm.
3. To create an Entity Relationship Diagram, select **Diagram > New** from the toolbar. In the **New Diagram** window, select **Database Modeling > Entity Relationship Diagram**. Click **OK** to confirm.
4. This creates an ERD. Name the diagram *Bus Route Management* at the top left corner of the diagram, and press **Enter**.



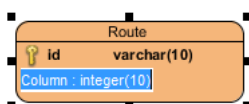
5. Let's start by creating the first entity *Route*. Select **Entity** in diagram toolbar and click on the diagram to create an entity. Name the entity *Route* and press **Enter** to confirm.



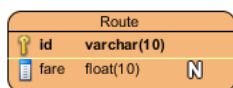
6. Create columns in *Route*. Let's start with a primary key. Right click on entity *Route* and select **New Column** from popup menu.



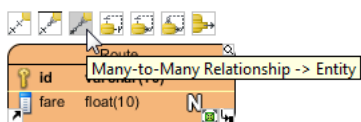
7. Enter `+id : varchar(10)` and press **Enter**. Note that the + sign means that the column is a primary key. Varchar is the column type and 10 is the length.



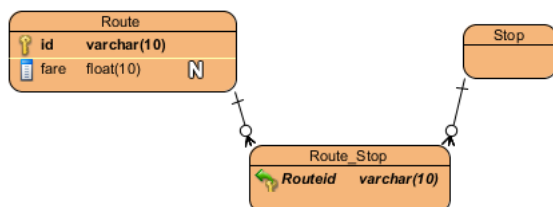
8. Enter `fare : float` and press **Enter**, then **Esc** to create another column.



9. Create entity *Stop*. A bus route has many bus stops, while a stop can be shared by many routes. Therefore, there is a many-to-many relationship between *Route* and *Stop*. Move the mouse pointer over *Route* and press on the resource icon **Many-to-Many Relationship**.



10. Drag it out and release the mouse button. Name the new entity *Stop*, You can see that a linked entity *Route_Stop* is automatically created in between *Route* and *Stop*, with foreign key added.

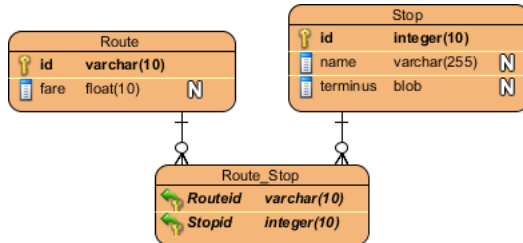


11. Create the following columns in *Stop*:

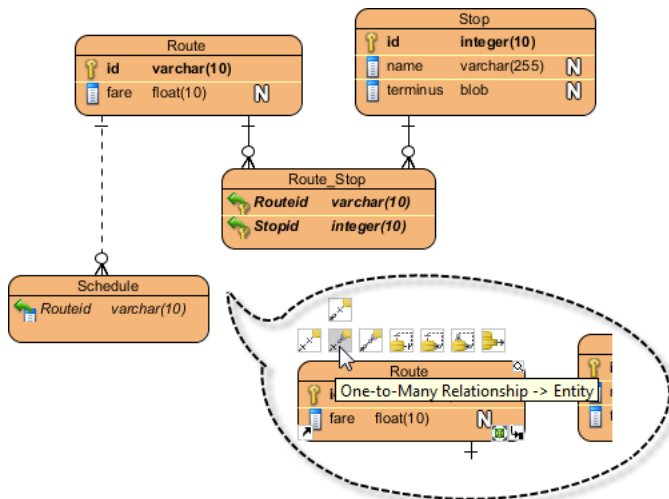
Key	Name	Type
PK	id	int(10)

	name	varchar(255)
	terminus	blob

The diagram should now become:



12. A route has multiple bus schedules. Create an entity *Schedule* from *Route* with a one-to-many relationship. Move the mouse pointer to *Route*, Make use of the resource icon **One-to-Many Relationship** to create entity *Schedule*.



13. Create the following columns in *Schedule*:

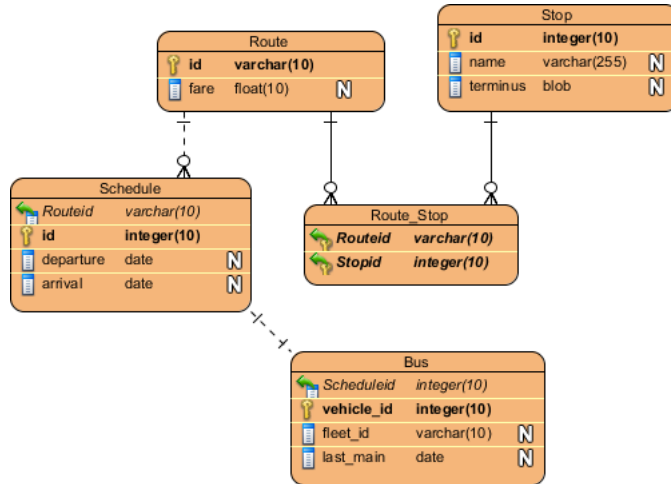
Key	Name	Type
PK	id	int(10)
	departure	date
	arrive	date

14. A schedule is handled by a bus. Create an entity *Bus* from *Schedule*, with an one-to-one relationship. Create the following columns in *Bus*:

Key	Name	Type
PK	vehicle_id	int(10)

	fleet_id	varchar(10)
	last_main	date

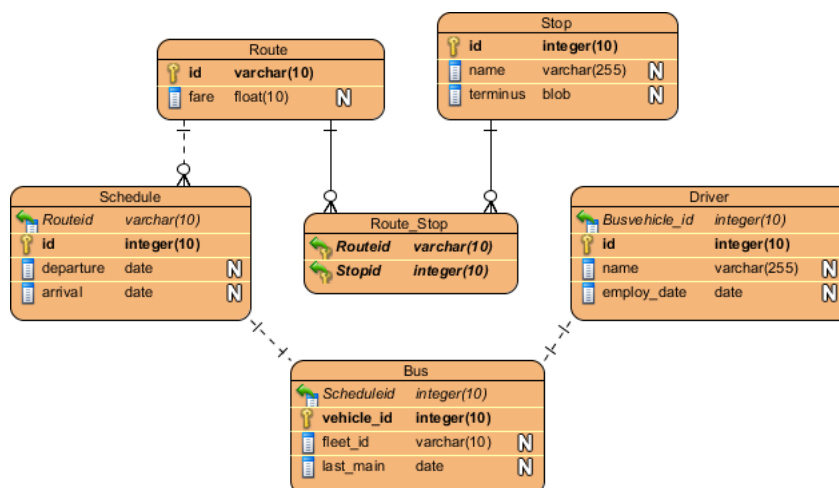
The diagram should become:



15. A bus is driven by a bus driver. Create entity *Driver* from *Bus* with a one-to-one relationship. Add the following columns to *Driver*:

Key	Name	Type
PK	id	int(10)
	name	varchar(255)
	employ_date	date

This is the final ERD.



Related Links

1. [YouTube Video: How to Generate DDL from Your ERD](#)
2. [YouTube Video: Generate EJB Diagram from ERD](#)
3. [YouTube Video: Draw Many to Many Relationship](#)
4. [YouTube Video: Compare Logical and Physical Data Model Using Visual Diff](#)
5. [Visual Paradigm Tutorial: From Data Modeling to Data Dictionary](#)



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