# ArkNet Transit Database Manual

This document explains the purpose of each table in the ArkNet Transit schema, how they are related, and provides example records to show how they link together.

## 00\_vehicle\_status.sql

**Purpose:** Defines the enumeration of allowed vehicle states.

**Values:** - available - in\_service - maintenance - retired

**Example:**

-- Enum is created once; no rows to insert manually

## 01\_routes.sql

**Purpose:** Stores the business identity of each transit route (e.g., Route 1, Route 1A).

**Example:**

INSERT INTO routes (short\_name, long\_name, parishes)  
VALUES ('1', 'Route 1', 'St. Lucy, St. Peter');

## 02\_shapes.sql

**Purpose:** Stores the geometric representation of each route as a linestring.

**Example:**

INSERT INTO shapes (geom)  
VALUES (ST\_GeomFromText('LINESTRING(0 0, 1 1, 2 2)', 32620));

## 03\_route\_shapes.sql

**Purpose:** Links a route to one or more shapes. Allows multiple variants (e.g., detours).

**Example:**

INSERT INTO route\_shapes (route\_id, shape\_id, variant\_code, is\_default)  
SELECT r.route\_id, s.shape\_id, 'default', true  
FROM routes r, shapes s  
LIMIT 1;

## 04\_services.sql

**Purpose:** Defines day-type patterns (Weekday, Saturday, Sunday) with valid date ranges.

**Example:**

INSERT INTO services (name, mon, tue, wed, thu, fri, sat, sun, date\_start, date\_end)  
VALUES ('Weekday', true, true, true, true, true, false, false, '2025-01-01', '2025-12-31');

## 05\_frequencies.sql

**Purpose:** Defines headways (time between departures) for a route within a service.

**Example:**

INSERT INTO frequencies (service\_id, route\_id, start\_time, end\_time, headway\_s)  
SELECT s.service\_id, r.route\_id, '07:00', '09:00', 600  
FROM services s, routes r  
WHERE s.name = 'Weekday' AND r.short\_name = '1';

## 06\_trips.sql

**Purpose:** Stores individual trips (concrete departures) generated from frequencies.

**Example:**

INSERT INTO trips (route\_id, service\_id, shape\_id, start\_time, runtime\_s, recovery\_s)  
SELECT r.route\_id, s.service\_id, sh.shape\_id, '07:10', 3600, 300  
FROM routes r, services s, shapes sh  
LIMIT 1;

## 07\_blocks.sql

**Purpose:** Groups trips into driver/vehicle shifts.

**Example:**

INSERT INTO blocks (route\_id, service\_id, start\_time, end\_time, break\_minutes)  
SELECT r.route\_id, s.service\_id, '06:00', '12:00', 15  
FROM routes r, services s  
WHERE r.short\_name = '1' AND s.name = 'Weekday';

## 08\_depots.sql

**Purpose:** Stores depot information for vehicle home bases.

**Example:**

INSERT INTO depots (name)  
VALUES ('Bridgetown Depot');

## 09\_vehicles.sql

**Purpose:** Stores vehicle fleet (e.g., ZR vans) with registration codes and status.

**Example:**

INSERT INTO vehicles (reg\_code, home\_depot\_id, status)  
SELECT 'ZR101', d.depot\_id, 'available'  
FROM depots d WHERE d.name = 'Bridgetown Depot';

## 10\_vehicle\_assignments.sql

**Purpose:** Records which vehicle is assigned to which block (shift) on a specific date.

**Example:**

INSERT INTO vehicle\_assignments (duty\_date, vehicle\_id, block\_id, assigned\_by)  
SELECT '2025-09-01', v.vehicle\_id, b.block\_id, 'dispatcher'  
FROM vehicles v, blocks b  
LIMIT 1;

## 11\_vehicle\_status\_events.sql

**Purpose:** Logs status changes for vehicles (e.g., moved to maintenance).

**Example:**

INSERT INTO vehicle\_status\_events (vehicle\_id, status, reason)  
SELECT v.vehicle\_id, 'maintenance', 'Routine check-up'  
FROM vehicles v  
WHERE v.reg\_code = 'ZR101';

# Relationships Overview

* **routes** ⇄ **shapes** via **route\_shapes**.
* **services** define availability of **frequencies**, which generate **trips**.
* **blocks** group trips; vehicles are assigned to blocks daily via **vehicle\_assignments**.
* **depots** provide home bases for vehicles.
* **vehicle\_status\_events** track operational history.

This layered model ensures flexibility: - Routes and shapes define the map. - Services and frequencies define the timetable. - Blocks and assignments define daily operations. - Vehicles and depots manage physical resources.