

PostgreSQL Schema with Columns, Data Types, and Constraints

Table: suppliers

Column	Data Type
supplier_id	SERIAL
supplier_name	VARCHAR(150)
contact_person	VARCHAR(100)
phone_number	VARCHAR(20)
email	VARCHAR(150)
country	VARCHAR(100)
created_at	TIMESTAMP

Constraints:

- Primary Key: supplier_id
- NOT NULL: supplier_name, email, country, created_at
- UNIQUE: email
- DEFAULT: created_at = CURRENT_TIMESTAMP

Table: warehouses

Column	Data Type
warehouse_id	SERIAL
warehouse_name	VARCHAR(150)
city	VARCHAR(100)
state	VARCHAR(100)
country	VARCHAR(100)
capacity_units	INT
created_at	TIMESTAMP

Constraints:

- Primary Key: warehouse_id
- NOT NULL: warehouse_name, city, country, capacity_units
- DEFAULT: created_at = CURRENT_TIMESTAMP
- CHECK: capacity_units >= 0

Table: customers

Column	Data Type
customer_id	SERIAL
customer_name	VARCHAR(150)
phone_number	VARCHAR(20)

email	VARCHAR(150)
city	VARCHAR(100)
country	VARCHAR(100)
created_at	TIMESTAMP

Constraints:

- Primary Key: customer_id
- NOT NULL: customer_name, email, country
- UNIQUE: email
- DEFAULT: created_at = CURRENT_TIMESTAMP

Table: purchase_orders

Column	Data Type
po_id	SERIAL
supplier_id	INT
po_date	DATE
expected_date	DATE
status	VARCHAR(50)
total_amount	NUMERIC(12,2)
created_at	TIMESTAMP

Constraints:

- Primary Key: po_id
- NOT NULL: supplier_id, po_date, status, total_amount
- DEFAULT: status='Pending', total_amount=0.00, created_at=CURRENT_TIMESTAMP
- CHECK: total_amount >= 0
- CHECK: expected_date IS NULL OR expected_date >= po_date
- Foreign Key: supplier_id -> suppliers(supplier_id)

Table: purchase_order_items

Column	Data Type
po_item_id	SERIAL
po_id	INT
product_id	INT
quantity	INT
unit_price	NUMERIC(10,2)
created_at	TIMESTAMP

Constraints:

- Primary Key: po_item_id
- NOT NULL: po_id, product_id, quantity, unit_price
- DEFAULT: quantity=1, created_at=CURRENT_TIMESTAMP

- UNIQUE (composite): (po_id, product_id)
- CHECK: quantity > 0, unit_price >= 0
- Foreign Key: po_id -> purchase_orders(po_id)

Table: inventory

Column	Data Type
inventory_id	SERIAL
warehouse_id	INT
product_id	INT
quantity_on_hand	INT
reorder_level	INT
last_updated	TIMESTAMP

Constraints:

- Primary Key: inventory_id
- NOT NULL: warehouse_id, product_id, quantity_on_hand, reorder_level
- DEFAULT: quantity_on_hand=0, reorder_level=10
- UNIQUE (composite): (warehouse_id, product_id)
- CHECK: quantity_on_hand >= 0, reorder_level >= 0
- Foreign Key: warehouse_id -> warehouses(warehouse_id)

Table: sales_orders

Column	Data Type
sales_order_id	SERIAL
customer_id	INT
order_date	DATE
status	VARCHAR(50)
total_amount	NUMERIC(12,2)
created_at	TIMESTAMP

Constraints:

- Primary Key: sales_order_id
- NOT NULL: customer_id, order_date, status, total_amount
- DEFAULT: status='Pending', total_amount=0.00, created_at=CURRENT_TIMESTAMP
- CHECK: total_amount >= 0
- Foreign Key: customer_id -> customers(customer_id)

Table: sales_order_items

Column	Data Type
so_item_id	SERIAL
sales_order_id	INT

product_id	INT
quantity	INT
unit_price	NUMERIC(10,2)
created_at	TIMESTAMP

Constraints:

- Primary Key: so_item_id
- NOT NULL: sales_order_id, product_id, quantity, unit_price
- DEFAULT: created_at=CURRENT_TIMESTAMP
- UNIQUE (composite): (sales_order_id, product_id)
- CHECK: quantity > 0, unit_price >= 0
- Foreign Key: sales_order_id -> sales_orders(sales_order_id)

Table: shipments

Column	Data Type
shipment_id	SERIAL
sales_order_id	INT
warehouse_id	INT
shipment_date	DATE
delivery_date	DATE
shipment_status	VARCHAR(50)
tracking_number	VARCHAR(100)
created_at	TIMESTAMP

Constraints:

- Primary Key: shipment_id
- NOT NULL: sales_order_id, warehouse_id, shipment_date, shipment_status
- UNIQUE: tracking_number
- DEFAULT: shipment_status='Created', created_at=CURRENT_TIMESTAMP
- CHECK: delivery_date IS NULL OR delivery_date >= shipment_date
- Foreign Keys: sales_order_id -> sales_orders(sales_order_id), warehouse_id -> warehouses(warehouse_id)