

Create and Manage Declarative Partitions:

Create the measurement table as a partitioned table by specifying the PARTITION BY clause, which includes the partitioning method (**RANGE in this case**).

```
CREATE TABLE measurement (  
    city_id      int not null,  
    logdate      date not null,  
    peaktemp     int,  
    unitsales    int  
) PARTITION BY RANGE (logdate);
```

```
[postgres@ip-172-31-17-128 ~]$ psql  
psql (15.7)  
Type "help" for help.  
  
postgres=# CREATE TABLE measurement (  
    city_id      int not null,  
    logdate      date not null,  
    peaktemp     int,  
    unitsales    int  
) PARTITION BY RANGE (logdate);  
CREATE TABLE  
postgres=# \d+ measurement  
Partitioned table "public.measurement"  
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+  
| Column | Type | Collation | Nullable | Default | Storage | Compression | Stats target | Description |  
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+  
| city_id | integer |          | not null |         | plain   |             |             |             |  
| logdate | date    |          | not null |         | plain   |             |             |             |  
| peaktemp | integer |          |         |         | plain   |             |             |             |  
| unitsales | integer |          |         |         | plain   |             |             |             |  
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+  
Partition key: RANGE (logdate)  
Number of partitions: 0  
postgres=#
```

Create partitions for each month from January 2024 to July 2024:

```
CREATE TABLE measurement_jan2024 PARTITION OF measurement FOR VALUES FROM ('2024-01-01') TO ('2024-02-01');
```

```
CREATE TABLE measurement_feb2024 PARTITION OF measurement FOR VALUES FROM ('2024-02-01') TO ('2024-03-01');
```

```
CREATE TABLE measurement_mar2024 PARTITION OF measurement FOR VALUES FROM ('2024-03-01') TO ('2024-04-01');
```

```
CREATE TABLE measurement_apr2024 PARTITION OF measurement FOR VALUES FROM ('2024-04-01') TO ('2024-05-01');
```

```
CREATE TABLE measurement_may2024 PARTITION OF measurement FOR VALUES FROM ('2024-05-01') TO ('2024-06-01');
```

```
[postgres@ip-172-31-17-128 ~]$ psql  
psql (15.7)  
Type "help" for help.  
  
postgres=# CREATE TABLE measurement_jan2024 PARTITION OF measurement FOR VALUES FROM ('2024-01-01') TO ('2024-02-01');  
CREATE TABLE measurement_feb2024 PARTITION OF measurement FOR VALUES FROM ('2024-02-01') TO ('2024-03-01');  
CREATE TABLE measurement_mar2024 PARTITION OF measurement FOR VALUES FROM ('2024-03-01') TO ('2024-04-01');  
CREATE TABLE measurement_apr2024 PARTITION OF measurement FOR VALUES FROM ('2024-04-01') TO ('2024-05-01');  
CREATE TABLE measurement_may2024 PARTITION OF measurement FOR VALUES FROM ('2024-05-01') TO ('2024-06-01');  
CREATE TABLE  
CREATE TABLE  
CREATE TABLE  
CREATE TABLE  
postgres=# \d+ measurement  
Partitioned table "public.measurement"  
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+  
| Column | Type | Collation | Nullable | Default | Storage | Compression | Stats target | Description |  
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+  
| city_id | integer |          | not null |         | plain   |             |             |             |  
| logdate | date    |          | not null |         | plain   |             |             |             |  
| peaktemp | integer |          |         |         | plain   |             |             |             |  
| unitsales | integer |          |         |         | plain   |             |             |             |  
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+  
Partition key: RANGE (logdate)  
Partitions: measurement_apr2024 FOR VALUES FROM ('2024-04-01') TO ('2024-05-01'),  
measurement_feb2024 FOR VALUES FROM ('2024-02-01') TO ('2024-03-01'),  
measurement_jan2024 FOR VALUES FROM ('2024-01-01') TO ('2024-02-01'),  
measurement_mar2024 FOR VALUES FROM ('2024-03-01') TO ('2024-04-01'),  
measurement_may2024 FOR VALUES FROM ('2024-05-01') TO ('2024-06-01')  
postgres=#
```

It is possible to specify a tablespace for each partition separately:

#Create tablespace

mkdir -p /db_tables/data

chown -R postgres:postgres /db_tables/

CREATE TABLESPACE db_tables LOCATION '/db_tables/data';

```
[root@ip-172-31-17-128 ec2-user]# mkdir -p /db_tables/data
[root@ip-172-31-17-128 ec2-user]# chown -R postgres:postgres /db_tables/
[root@ip-172-31-17-128 ec2-user]# su - postgres
Last login: Thu Jul 11 05:49:41 UTC 2024 on pts/0
[postgres@ip-172-31-17-128 ~]$ psql
psql (15.7)
Type "help" for help.

postgres=# CREATE TABLESPACE db_tables LOCATION '/db_tables/data';
CREATE TABLESPACE
postgres=# \db+
          List of tablespaces
          -
Name      | Owner  | Location  | Access privileges | Options | Size  | Description
-----
db_tables | postgres | /db_tables/data |                   |         | 0 bytes |
pg_default | postgres |          |                   |         | 22 MB  |
pg_global | postgres |          |                   |         | 531 kB |
(3 rows)

postgres=#
```

#Create partition tables with tablespace

CREATE TABLE measurement_jun2024 PARTITION OF measurement FOR VALUES FROM ('2024-06-01') TO ('2024-07-01') TABLESPACE db_tables;

CREATE TABLE measurement_jul2024 PARTITION OF measurement FOR VALUES FROM ('2024-07-01') TO ('2024-08-01') TABLESPACE db_tables;

SELECT * FROM pg_tables WHERE tablespace = 'db_tables';

```
[postgres@ip-172-31-17-128 ~]$ psql
psql (15.7)
Type "help" for help.

postgres=# CREATE TABLE measurement_jun2024 PARTITION OF measurement FOR VALUES FROM ('2024-06-01') TO ('2024-07-01') TABLESPACE db_tables;
CREATE TABLE
postgres=# CREATE TABLE measurement_jul2024 PARTITION OF measurement FOR VALUES FROM ('2024-07-01') TO ('2024-08-01') TABLESPACE db_tables;
CREATE TABLE
postgres=# \d+ measurement
          Partitioned table "public.measurement"
          -
Column  | Type   | Collation | Nullable | Default | Storage | Compression | Stats target | Description
-----
city_id | integer |           | not null |         | plain   |              |              |
logdate | date   |           | not null |         | plain   |              |              |
peaktemp | integer |           |          |         | plain   |              |              |
unitsales | integer |           |          |         | plain   |              |              |
Partition key: RANGE (logdate)
Partitions: measurement_apr2024 FOR VALUES FROM ('2024-04-01') TO ('2024-05-01'),
measurement_feb2024 FOR VALUES FROM ('2024-02-01') TO ('2024-03-01'),
measurement_jan2024 FOR VALUES FROM ('2024-01-01') TO ('2024-02-01'),
measurement_jul2024 FOR VALUES FROM ('2024-07-01') TO ('2024-08-01'),
measurement_jun2024 FOR VALUES FROM ('2024-06-01') TO ('2024-07-01'),
measurement_mar2024 FOR VALUES FROM ('2024-03-01') TO ('2024-04-01'),
measurement_may2024 FOR VALUES FROM ('2024-05-01') TO ('2024-06-01')

postgres=# SELECT * FROM pg_tables WHERE tablespace = 'db_tables';
          schemaname |      tablename      | tableowner | tablespace | hasindexes | hasrules | hastriggers | rowsecurity
-----
public | measurement_jun2024 | postgres  | db_tables  | f          | f        | f          | f
public | measurement_jul2024 | postgres  | db_tables  | f          | f        | f          | f
(2 rows)

postgres=#
```

Create an index on the key column:

CREATE INDEX ON measurement (logdate);

#This automatically creates a matching index on each partition, and any partitions you create or attach later will also have such an index.

SELECT tablename,indexname FROM pg_indexes WHERE tablename LIKE 'measurement%';

```

[postgres@ip-172-31-17-128 ~]$ psql
psql (15.7)
Type "help" for help.

postgres=# CREATE INDEX ON measurement (logdate);
CREATE INDEX
postgres=# \d+ measurement
          Partitioned table "public.measurement"
  Column | Type   | Collation | Nullable | Default | Storage | Compression | Stats target | Description
-----+-----+-----+-----+-----+-----+-----+-----+-----
city_id  | integer |           | not null |         | plain   |              |              | 
logdate  | date    |           | not null |         | plain   |              |              | 
peaktemp | integer |           |          |         | plain   |              |              | 
unitsales | integer |           |          |         | plain   |              |              | 
Partition key: RANGE (logdate)
Indexes:
    "measurement_logdate_idx" btree (logdate)
Partitions: measurement_apr2024 FOR VALUES FROM ('2024-04-01') TO ('2024-05-01'),
             measurement_feb2024 FOR VALUES FROM ('2024-02-01') TO ('2024-03-01'),
             measurement_jan2024 FOR VALUES FROM ('2024-01-01') TO ('2024-02-01'),
             measurement_jul2024 FOR VALUES FROM ('2024-07-01') TO ('2024-08-01'),
             measurement_jun2024 FOR VALUES FROM ('2024-06-01') TO ('2024-07-01'),
             measurement_mar2024 FOR VALUES FROM ('2024-03-01') TO ('2024-04-01'),
             measurement_may2024 FOR VALUES FROM ('2024-05-01') TO ('2024-06-01')

postgres=# SELECT tablename, indexname FROM pg_indexes WHERE tablename LIKE 'measurement%';
   tablename   |      indexname      |
-----+-----+
measurement    | measurement_logdate_idx
measurement_jan2024 | measurement_jan2024_logdate_idx
measurement_feb2024 | measurement_feb2024_logdate_idx
measurement_mar2024 | measurement_mar2024_logdate_idx
measurement_apr2024 | measurement_apr2024_logdate_idx
measurement_may2024 | measurement_may2024_logdate_idx
measurement_jun2024 | measurement_jun2024_logdate_idx
measurement_jul2024 | measurement_jul2024_logdate_idx
(8 rows)

postgres=#

```

Insert Data into Each Partition:

#Generate data for each partition

INSERT INTO measurement (city_id, logdate, peaktemp, unitsales) VALUES (1, '2024-01-05', 32, 100),(2, '2024-01-12', 30, 150),(3, '2024-01-19', 28, 200),(4, '2024-01-24', 27, 250),(5, '2024-01-30', 29, 300);

INSERT INTO measurement (city_id, logdate, peaktemp, unitsales) VALUES (1, '2024-02-05', 31, 110),(2, '2024-02-12', 29, 140),(3, '2024-02-19', 28, 190),(4, '2024-02-24', 27, 240),(5, '2024-02-28', 30, 310);

INSERT INTO measurement (city_id, logdate, peaktemp, unitsales) VALUES (1, '2024-03-05', 35, 120),(2, '2024-03-12', 33, 130),(3, '2024-03-19', 34, 220),(4, '2024-03-24', 32, 260),(5, '2024-03-30', 31, 280);

INSERT INTO measurement (city_id, logdate, peaktemp, unitsales) VALUES (1, '2024-04-05', 36, 130),(2, '2024-04-12', 34, 150),(3, '2024-04-19', 32, 170),(4, '2024-04-24', 31, 180),(5, '2024-04-30', 30, 190);

INSERT INTO measurement (city_id, logdate, peaktemp, unitsales) VALUES (1, '2024-05-05', 38, 140),(2, '2024-05-12', 36, 160),(3, '2024-05-19', 35, 200),(4, '2024-05-24', 34, 230),(5, '2024-05-30', 33, 250);

INSERT INTO measurement (city_id, logdate, peaktemp, unitsales) VALUES (1, '2024-06-05', 40, 150),(2, '2024-06-12', 39, 170),(3, '2024-06-19', 38, 180),(4, '2024-06-24', 37, 210),(5, '2024-06-30', 36, 220);

INSERT INTO measurement (city_id, logdate, peaktemp, unitsales) VALUES (1, '2024-07-05', 42, 160),(2, '2024-07-12', 41, 180),(3, '2024-07-19', 40, 190),(4, '2024-07-24', 39, 200),(5, '2024-07-30', 38, 220);

```
[postgres@ip-172-31-17-128 ~]$ psql
psql (15.7)
Type "help" for help.

postgres=# INSERT INTO measurement (city_id, logdate, peaktemp, unitsales) VALUES
(1, '2024-01-05', 32, 100),
(2, '2024-01-12', 30, 150),
(3, '2024-01-19', 28, 200),
(4, '2024-01-24', 27, 250),
(5, '2024-01-30', 29, 300);

INSERT INTO measurement (city_id, logdate, peaktemp, unitsales) VALUES
(1, '2024-02-05', 31, 110),
(2, '2024-02-12', 29, 140),
(3, '2024-02-19', 28, 190),
(4, '2024-02-24', 27, 240),
(5, '2024-02-28', 30, 310);

INSERT INTO measurement (city_id, logdate, peaktemp, unitsales) VALUES
(1, '2024-03-05', 35, 120),
(2, '2024-03-12', 33, 130),
(3, '2024-03-19', 34, 220),
(4, '2024-03-24', 32, 260),
(5, '2024-03-30', 31, 280);

INSERT INTO measurement (city_id, logdate, peaktemp, unitsales) VALUES
(1, '2024-04-05', 36, 130),
(2, '2024-04-12', 34, 150),
(3, '2024-04-19', 32, 170),
(4, '2024-04-24', 31, 180),
(5, '2024-04-30', 30, 190);
INSERT 0 5
INSERT 0 5
INSERT 0 5
INSERT 0 5
postgres=#
```

```
[postgres@ip-172-31-17-128 ~]$ psql
psql (15.7)
Type "help" for help.

postgres=# INSERT INTO measurement (city_id, logdate, peaktemp, unitsales) VALUES
(1, '2024-05-05', 38, 140),
(2, '2024-05-12', 36, 160),
(3, '2024-05-19', 35, 200),
(4, '2024-05-24', 34, 230),
(5, '2024-05-30', 33, 250);

INSERT INTO measurement (city_id, logdate, peaktemp, unitsales) VALUES
(1, '2024-06-05', 40, 150),
(2, '2024-06-12', 39, 170),
(3, '2024-06-19', 38, 180),
(4, '2024-06-24', 37, 210),
(5, '2024-06-30', 36, 220);

INSERT INTO measurement (city_id, logdate, peaktemp, unitsales) VALUES
(1, '2024-07-05', 42, 160),
(2, '2024-07-12', 41, 180),
(3, '2024-07-19', 40, 190),
(4, '2024-07-24', 39, 200),
(5, '2024-07-30', 38, 220);
INSERT 0 5
INSERT 0 5
INSERT 0 5
INSERT 0 5
postgres=#
```

#Verify tables data

```
postgres=# SELECT * FROM measurement WHERE logdate >= '2024-01-01' AND logdate < '2024-02-01';
 city_id | logdate       | peaktemp | unitsales
-----+-----+-----+-----
      1 | 2024-01-05   |       32 |        100
      2 | 2024-01-12   |       30 |        150
      3 | 2024-01-19   |       28 |        200
      4 | 2024-01-24   |       27 |        250
      5 | 2024-01-30   |       29 |        300
(5 rows)

postgres=# SELECT * FROM measurement_jan2024;
 city_id | logdate       | peaktemp | unitsales
-----+-----+-----+-----
      1 | 2024-01-05   |       32 |        100
      2 | 2024-01-12   |       30 |        150
      3 | 2024-01-19   |       28 |        200
      4 | 2024-01-24   |       27 |        250
      5 | 2024-01-30   |       29 |        300
(5 rows)

postgres=# SELECT * FROM measurement WHERE logdate >= '2024-02-01' AND logdate < '2024-03-01';
 city_id | logdate       | peaktemp | unitsales
-----+-----+-----+-----
      1 | 2024-02-05   |       31 |        110
      2 | 2024-02-12   |       29 |        140
      3 | 2024-02-19   |       28 |        190
      4 | 2024-02-24   |       27 |        240
      5 | 2024-02-28   |       30 |        310
(5 rows)

postgres=# SELECT * FROM measurement_feb2024;
 city_id | logdate       | peaktemp | unitsales
-----+-----+-----+-----
      1 | 2024-02-05   |       31 |        110
      2 | 2024-02-12   |       29 |        140
      3 | 2024-02-19   |       28 |        190
      4 | 2024-02-24   |       27 |        240
      5 | 2024-02-28   |       30 |        310
(5 rows)

postgres=#
```

The partitioned table itself is a “virtual” table having no storage of its own. Instead, the storage belongs to partitions

```
[postgres@ip-172-31-17-128 ~]$ psql
psql (15.7)
Type "help" for help.

postgres=# \dt+ measurement+

```

Schema	Name	Type	List of relations	Owner	Persistence	Access method	Size	Description
public	measurement	partitioned table		postgres	permanent		0 bytes	
public	measurement_apr2024	table		postgres	permanent	heap	8192 bytes	
public	measurement_feb2024	table		postgres	permanent	heap	8192 bytes	
public	measurement_jan2024	table		postgres	permanent	heap	8192 bytes	
public	measurement_jul2024	table		postgres	permanent	heap	8192 bytes	
public	measurement_jun2024	table		postgres	permanent	heap	8192 bytes	
public	measurement_mar2024	table		postgres	permanent	heap	8192 bytes	
public	measurement_may2024	table		postgres	permanent	heap	8192 bytes	

```
(8 rows)

postgres=#
```

SELECT * FROM measurement WHERE logdate >= '2024-01-01' AND logdate < '2024-02-01';

SELECT * FROM measurement_jan2024;

SELECT * FROM measurement WHERE logdate >= '2024-02-01' AND logdate < '2024-03-01';

SELECT * FROM measurement_feb2024;

```
postgres=# SELECT * FROM measurement WHERE logdate >= '2024-01-01' AND logdate < '2024-02-01';

```

city_id	logdate	peaktemp	unitsales
1	2024-01-05	32	100
2	2024-01-12	30	150
3	2024-01-19	28	200
4	2024-01-24	27	250
5	2024-01-30	29	300

```
(5 rows)

postgres=# SELECT * FROM measurement_jan2024;

```

city_id	logdate	peaktemp	unitsales
1	2024-01-05	32	100
2	2024-01-12	30	150
3	2024-01-19	28	200
4	2024-01-24	27	250
5	2024-01-30	29	300

```
(5 rows)

postgres=# SELECT * FROM measurement WHERE logdate >= '2024-02-01' AND logdate < '2024-03-01';

```

city_id	logdate	peaktemp	unitsales
1	2024-02-05	31	110
2	2024-02-12	29	140
3	2024-02-19	28	190
4	2024-02-24	27	240
5	2024-02-28	30	310

```
(5 rows)

postgres=# SELECT * FROM measurement_feb2024;

```

city_id	logdate	peaktemp	unitsales
1	2024-02-05	31	110
2	2024-02-12	29	140
3	2024-02-19	28	190
4	2024-02-24	27	240
5	2024-02-28	30	310

```
(5 rows)

postgres=#
```

Ensure that the enable_partition_pruning configuration parameter is not disabled in postgresql.conf. If it is, queries will not be optimized as desired.

SHOW enable_partition_pruning;

```
postgres=# SHOW enable_partition_pruning;

```

enable_partition_pruning
on

```
(1 row)

postgres=#
```

Partition Maintenance:

Alter the tablespace of partition table:

ALTER TABLE measurement_jan2024 SET TABLESPACE db_tabs;

```
[postgres@ip-172-31-17-128 ~]$ psql
psql (15.7)
Type "help" for help.

postgres=# ALTER TABLE measurement_jan2024 SET TABLESPACE db_tabs;
ALTER TABLE
postgres=# SELECT * FROM pg_tables WHERE tablespace = 'db_tabs';

```

schemaname	tablename	tableowner	tablespace	hasindexes	hasrules	hastriggers	rowsecurity
public	measurement_jun2024	postgres	db_tabs	t	f	f	f
public	measurement_jul2024	postgres	db_tabs	t	f	f	f
public	measurement_jan2024	postgres	db_tabs	t	f	f	f

```
(3 rows)

postgres=#
```

Archive the data as per the company data retention policy (example: archive partition tables for data older than 2 months)

#Create backups directory

```
mkdir -p /Backup/Partition_bkp/
```

```
chown -R postgres:postgres /Backup/
```

#Use COPY command to Back up the partition tables data

```
\COPY (SELECT * FROM measurement_jan2024) TO
```

```
'/Backup/Partition_bkp/measurement_jan2024.csv' WITH DELIMITER ',' CSV HEADER;
```

```
\COPY (SELECT * FROM measurement_feb2024) TO
```

```
'/Backup/Partition_bkp/measurement_feb2024.csv' WITH DELIMITER ',' CSV HEADER;
```

```
\COPY (SELECT * FROM measurement_mar2024) TO
```

```
'/Backup/Partition_bkp/measurement_mar2024.csv' WITH DELIMITER ',' CSV HEADER;
```

```
\COPY (SELECT * FROM measurement_apr2024) TO
```

```
'/Backup/Partition_bkp/measurement_apr2024.csv' WITH DELIMITER ',' CSV HEADER;
```

```
\COPY (SELECT * FROM measurement_may2024) TO
```

```
'/Backup/Partition_bkp/measurement_may2024.csv' WITH DELIMITER ',' CSV HEADER;
```

#Compress the data

```
cd /Backup/Partition_bkp/
```

```
gzip *.csv
```

```
[root@ip-172-31-17-128 ec2-user]# mkdir -p /Backup/Partition_bkp/
[root@ip-172-31-17-128 ec2-user]# chown -R postgres:postgres /Backup/
[root@ip-172-31-17-128 ec2-user]# su - postgres
Last login: Thu Jul 11 10:01:51 UTC 2024 on pts/2
[postgres@ip-172-31-17-128 ~]$ psql
psql (15.7)
Type "help" for help.

postgres=# \COPY (SELECT * FROM measurement_jan2024) TO '/Backup/Partition_bkp/measurement_jan2024.csv' WITH DELIMITER ',' CSV HEADER;
COPY 5
postgres=# \COPY (SELECT * FROM measurement_feb2024) TO '/Backup/Partition_bkp/measurement_feb2024.csv' WITH DELIMITER ',' CSV HEADER;
COPY 5
postgres=# \COPY (SELECT * FROM measurement_mar2024) TO '/Backup/Partition_bkp/measurement_mar2024.csv' WITH DELIMITER ',' CSV HEADER;
COPY 5
postgres=# \COPY (SELECT * FROM measurement_apr2024) TO '/Backup/Partition_bkp/measurement_apr2024.csv' WITH DELIMITER ',' CSV HEADER;
COPY 5
postgres=# \COPY (SELECT * FROM measurement_may2024) TO '/Backup/Partition_bkp/measurement_may2024.csv' WITH DELIMITER ',' CSV HEADER;
COPY 5
postgres=# \q
[postgres@ip-172-31-17-128 ~]$ cat /Backup/Partition_bkp/measurement_may2024.csv
city_id,logdate,peaktemp,unitsales
1,2024-05-05,38,140
2,2024-05-12,36,160
3,2024-05-19,35,200
4,2024-05-24,34,230
5,2024-05-30,33,250
[postgres@ip-172-31-17-128 ~]$ cd /Backup/Partition_bkp/
[postgres@ip-172-31-17-128 Partition_bkp]$ ls -ltrh
total 20K
-rw-r--r-- 1 postgres postgres 135 Jul 11 10:05 measurement_jan2024.csv
-rw-r--r-- 1 postgres postgres 135 Jul 11 10:05 measurement_feb2024.csv
-rw-r--r-- 1 postgres postgres 135 Jul 11 10:06 measurement_mar2024.csv
-rw-r--r-- 1 postgres postgres 135 Jul 11 10:06 measurement_apr2024.csv
-rw-r--r-- 1 postgres postgres 135 Jul 11 10:06 measurement_may2024.csv
[postgres@ip-172-31-17-128 Partition_bkp]$ gzip *.csv
[postgres@ip-172-31-17-128 Partition_bkp]$ ls -ltrh
total 20K
-rw-r--r-- 1 postgres postgres 136 Jul 11 10:05 measurement_jan2024.csv.gz
-rw-r--r-- 1 postgres postgres 135 Jul 11 10:05 measurement_feb2024.csv.gz
-rw-r--r-- 1 postgres postgres 137 Jul 11 10:06 measurement_mar2024.csv.gz
-rw-r--r-- 1 postgres postgres 132 Jul 11 10:06 measurement_apr2024.csv.gz
-rw-r--r-- 1 postgres postgres 135 Jul 11 10:06 measurement_may2024.csv.gz
[postgres@ip-172-31-17-128 Partition_bkp]$
```

#Drop the partition tables

DROP measurement_jan2024;

DROP measurement_feb2024;

DROP measurement_mar2024;

```
[postgres@ip-172-31-17-128 Partition_bkp]$ psql
psql (15.7)
Type "help" for help.

postgres=# \d+ measurement
          Partitioned table "public.measurement"
  Column | Type | Collation | Nullable | Default | Storage | Compression | Stats target | Description
-----|-----|-----|-----|-----|-----|-----|-----|-----
city_id | integer |          | not null |         | plain   |              |              | 
logdate | date   |          | not null |         | plain   |              |              | 
peaktemp | integer |          |          |         | plain   |              |              | 
unitsales | integer |          |          |         | plain   |              |              | 
Partition key: RANGE (logdate)
Indexes:
    "measurement_logdate_idx" btree (logdate)
Partitions: measurement_apr2024 FOR VALUES FROM ('2024-04-01') TO ('2024-05-01'),
             measurement_feb2024 FOR VALUES FROM ('2024-02-01') TO ('2024-03-01'),
             measurement_jan2024 FOR VALUES FROM ('2024-01-01') TO ('2024-02-01'),
             measurement_jul2024 FOR VALUES FROM ('2024-07-01') TO ('2024-08-01'),
             measurement_jun2024 FOR VALUES FROM ('2024-06-01') TO ('2024-07-01'),
             measurement_mar2024 FOR VALUES FROM ('2024-03-01') TO ('2024-04-01'),
             measurement_may2024 FOR VALUES FROM ('2024-05-01') TO ('2024-06-01')

postgres=# DROP TABLE measurement_jan2024;
DROP TABLE
postgres=# DROP TABLE measurement_feb2024;
DROP TABLE
postgres=# DROP TABLE measurement_mar2024;
DROP TABLE
postgres=#
```

```
[postgres@ip-172-31-17-128 Partition_bkp]$ psql
psql (15.7)
Type "help" for help.

postgres=# SELECT * FROM measurement;
 city_id | logdate | peaktemp | unitsales
-----|-----|-----|-----
 1 | 2024-04-05 | 36 | 130
 2 | 2024-04-12 | 34 | 150
 3 | 2024-04-19 | 32 | 170
 4 | 2024-04-24 | 31 | 180
 5 | 2024-04-30 | 30 | 190
 1 | 2024-05-05 | 38 | 140
 2 | 2024-05-12 | 36 | 160
 3 | 2024-05-19 | 35 | 200
 4 | 2024-05-24 | 34 | 230
 5 | 2024-05-30 | 33 | 250
 1 | 2024-06-05 | 40 | 150
 2 | 2024-06-12 | 39 | 170
 3 | 2024-06-19 | 38 | 180
 4 | 2024-06-24 | 37 | 210
 5 | 2024-06-30 | 36 | 220
 1 | 2024-07-05 | 42 | 160
 2 | 2024-07-12 | 41 | 180
 3 | 2024-07-19 | 40 | 190
 4 | 2024-07-24 | 39 | 200
 5 | 2024-07-30 | 38 | 220
(20 rows)

postgres=#
```


#Another option that is often preferable is to remove the partition

ALTER TABLE measurement DETACH PARTITION measurement_apr2024;

ALTER TABLE measurement DETACH PARTITION measurement_may2024 CONCURRENTLY;

DROP TABLE measurement_apr2024;

DROP TABLE measurement_may2024;

```
[postgres@ip-172-31-17-128 Partition_bkp]$ psql
psql (15.7)
Type "help" for help.

postgres=# \d+ measurement
          Partitioned table "public.measurement"
  Column | Type   | Collation | Nullable | Default | Storage  | Compression | Stats target | Description
-----|-----|-----|-----|-----|-----|-----|-----|-----
city_id | integer |           | not null |         | plain   |             |             | 
logdate | date    |           | not null |         | plain   |             |             | 
peaktemp | integer |           |          |         | plain   |             |             | 
unitsales | integer |           |          |         | plain   |             |             | 
Partition key: RANGE (logdate)
Indexes:
    "measurement_logdate_idx" btree (logdate)
Partitions: measurement_apr2024 FOR VALUES FROM ('2024-04-01') TO ('2024-05-01'),
             measurement_jul2024 FOR VALUES FROM ('2024-07-01') TO ('2024-08-01'),
             measurement_jun2024 FOR VALUES FROM ('2024-06-01') TO ('2024-07-01'),
             measurement_may2024 FOR VALUES FROM ('2024-05-01') TO ('2024-06-01')

postgres=# ALTER TABLE measurement DETACH PARTITION measurement_apr2024;
ALTER TABLE
postgres=# ALTER TABLE measurement DETACH PARTITION measurement_may2024 CONCURRENTLY;
ALTER TABLE
```

```
[postgres@ip-172-31-17-128 Partition_bkp]$ psql
psql (15.7)
Type "help" for help.

postgres=# \d+ measurement
          Partitioned table "public.measurement"
  Column | Type   | Collation | Nullable | Default | Storage  | Compression | Stats target | Description
-----|-----|-----|-----|-----|-----|-----|-----|-----
city_id | integer |           | not null |         | plain   |             |             | 
logdate | date    |           | not null |         | plain   |             |             | 
peaktemp | integer |           |          |         | plain   |             |             | 
unitsales | integer |           |          |         | plain   |             |             | 
Partition key: RANGE (logdate)
Indexes:
    "measurement_logdate_idx" btree (logdate)
Partitions: measurement_jul2024 FOR VALUES FROM ('2024-07-01') TO ('2024-08-01'),
             measurement_jun2024 FOR VALUES FROM ('2024-06-01') TO ('2024-07-01')

postgres=# SELECT * FROM measurement;
 city_id | logdate | peaktemp | unitsales
-----|-----|-----|-----
1 | 2024-06-05 | 40 | 150
2 | 2024-06-12 | 39 | 170
3 | 2024-06-19 | 38 | 180
4 | 2024-06-24 | 37 | 210
5 | 2024-06-30 | 36 | 220
1 | 2024-07-05 | 42 | 160
2 | 2024-07-12 | 41 | 180
3 | 2024-07-19 | 40 | 190
4 | 2024-07-24 | 39 | 200
5 | 2024-07-30 | 38 | 220
(10 rows)

postgres=#
```

We can add a new partition to handle new data

#Add aug2024 partition table

CREATE TABLE measurement_aug2024 PARTITION OF measurement FOR VALUES FROM ('2024-08-01') TO ('2024-09-01');

```
[postgres@ip-172-31-17-128 Partition_bkp]$ psql
psql (15.7)
Type "help" for help.

postgres=# CREATE TABLE measurement_aug2024 PARTITION OF measurement FOR VALUES FROM ('2024-08-01') TO ('2024-09-01');
CREATE TABLE
postgres=# \d+ measurement
          Partitioned table "public.measurement"
  Column | Type   | Collation | Nullable | Default | Storage  | Compression | Stats target | Description
-----|-----|-----|-----|-----|-----|-----|-----|-----
city_id | integer |           | not null |         | plain   |             |             | 
logdate | date    |           | not null |         | plain   |             |             | 
peaktemp | integer |           |          |         | plain   |             |             | 
unitsales | integer |           |          |         | plain   |             |             | 
Partition key: RANGE (logdate)
Indexes:
    "measurement_logdate_idx" btree (logdate)
Partitions: measurement_aug2024 FOR VALUES FROM ('2024-08-01') TO ('2024-09-01'),
             measurement_jul2024 FOR VALUES FROM ('2024-07-01') TO ('2024-08-01'),
             measurement_jun2024 FOR VALUES FROM ('2024-06-01') TO ('2024-07-01')

postgres=# SELECT tablename,indexname FROM pg_indexes WHERE tablename LIKE 'measurement%';
  tablename | indexname
-----|-----
measurement | measurement_logdate_idx
measurement_jun2024 | measurement_jun2024_logdate_idx
measurement_jul2024 | measurement_jul2024_logdate_idx
measurement_aug2024 | measurement_aug2024_logdate_idx
(4 rows)

postgres=#
```