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
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_tabls/data

chown -R postgres:postgres /db_tabls/

CREATE TABLESPACE db_tabls LOCATION '/db_tabls/data';

```
[root@ip-172-31-17-128 ec2-user]# mkdir -p /db_tbls/data
[root@ip-172-31-17-128 ec2-user]# chown -R postgres:postgres /db_tbls/
[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_tabls LOCATION '/db_tbls/data';
CREATE TABLESPACE
postgres=# \db+
                                    List of tablespaces
    Name    |  Owner   |   Location    | Access privileges | Options |  Size   | Description
------------+----------+---------------+-------------------+---------+---------+-------------
 db_tabls   | postgres | /db_tbls/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_tabls;

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

SELECT * FROM pg_tables WHERE tablespace ='db_tabls';

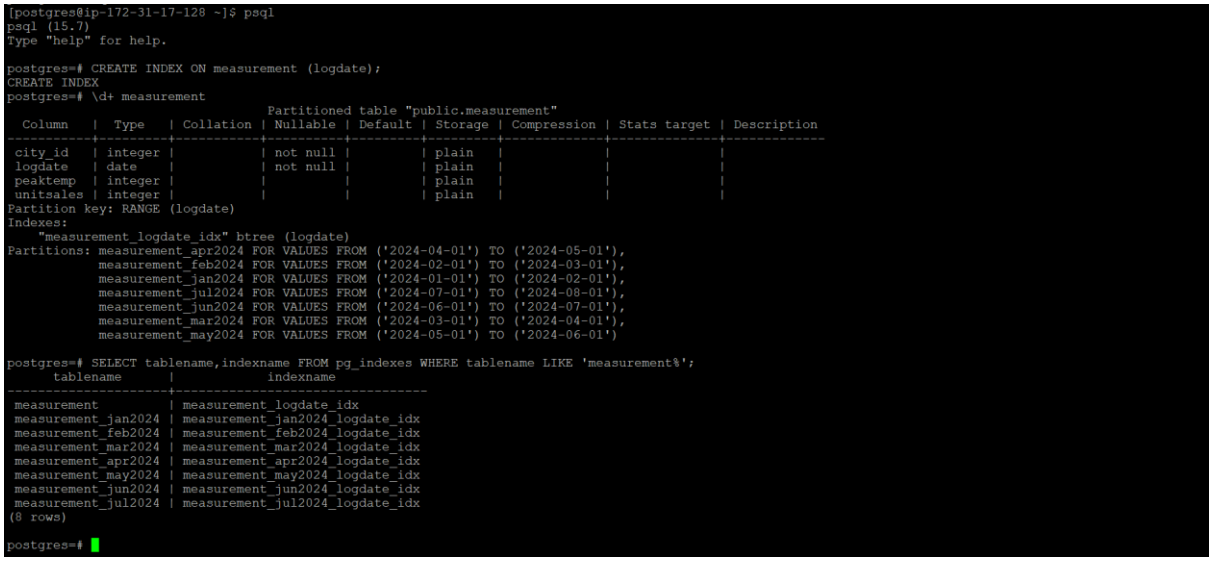
```
[postgres@ip-172-31-17-128 ~]$ psql
psql (15.7)
Type "help" for help.

postgres=# CREATE TABLE measurement_jun2024 PARTITION OF measurement FOR VALUES FROM ('2024-06-01') TO ('2024-07-01') TABLESPACE db_tabls;
CREATE TABLE measurement_jul2024 PARTITION OF measurement FOR VALUES FROM ('2024-07-01') TO ('2024-08-01') TABLESPACE db_tabls;
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_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_tabls';
 schemaname |       tablename       | tableowner | tablespace | hasindexes | hasrules | hastriggers | rowsecurity
------------+-----------------------+------------+------------+------------+----------+-------------+-------------
 public     | measurement_jun2024 | postgres   | db_tabls   | f          | f        | f           | f
 public     | measurement_jul2024 | postgres   | db_tabls   | 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
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*
                                          List of relations
 Schema |        Name          |       Type        |  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.

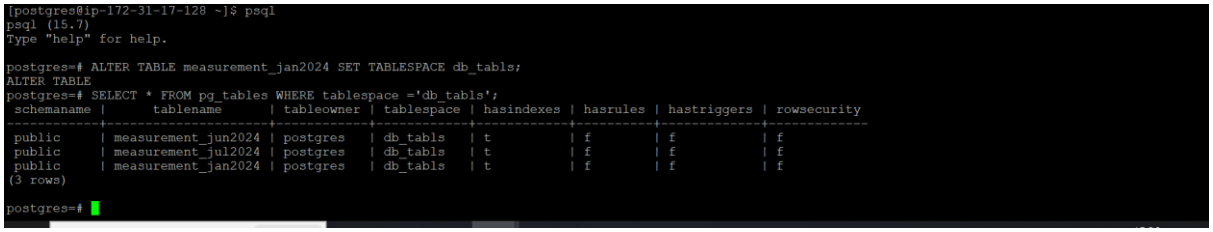
SHOW enable_partition_pruning;

```
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_tabls;



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=#
```