

# DATA PLACEMENT IN COCKROACHDB

# DATA PLACEMENT

- `PLACEMENT` is locality feature that enables you to restrict or unrestrict your data's geographic placement
  - Accomplished by opting in or out to non-voting replicas
- Has two options: `default` or `restricted`



# PLACEMENT RESTRICTED

- Using the `restricted` option for table data placement creates a geographic placement constraint on your data.
- When using `restricted`, table data will only be present in the home regions associated with those tables.



# PLACEMENT RESTRICTED LIMITATIONS

- Only available for tables in a database with a [ZONE](#) survival goal.
- Global tables are exempt from any placement restrictions.



# PLACEMENT RESTRICTED USE CASES

- As part of an overall data domiciling strategy.
- Cost and latency reduction by limiting replication when you have a large number of regions and a heavy write load.
- As part of data stewardship strategy to implement best practices for data use and replication.



# USING PLACEMENT RESTRICTED



- CockroachDB user must have membership to the *admin role* for cluster.
- CockroachDB user must own or have `CREATE` privilege for the database and all its tables.



# PREREQUISITE: ENABLE DATA PLACEMENT SYNTAX

There are two options for enabling placement syntax.

- To enable during a single user session, use a session variable:

```
SET enable_multiregion_placement_policy = on;
```

- To enable for all cluster users, use the cluster setting:

```
SET CLUSTER SETTING sql.defaults.multiregion_placement_policy.enabled = on;
```

- If you think multiple cluster users need this feature, consider using the **cluster setting**



# CREATE DB WITH PLACEMENT POLICY

- The default policy is unrestricted.
- To create a database with a restricted placement policy:

```
CREATE DATABASE {database} PRIMARY REGION "us-east" REGIONS "us-west",  
"us-central" PLACEMENT RESTRICTED;
```

- To alter an existing database:

```
ALTER DATABASE {database} PLACEMENT RESTRICTED;
```

- To set back to the default:

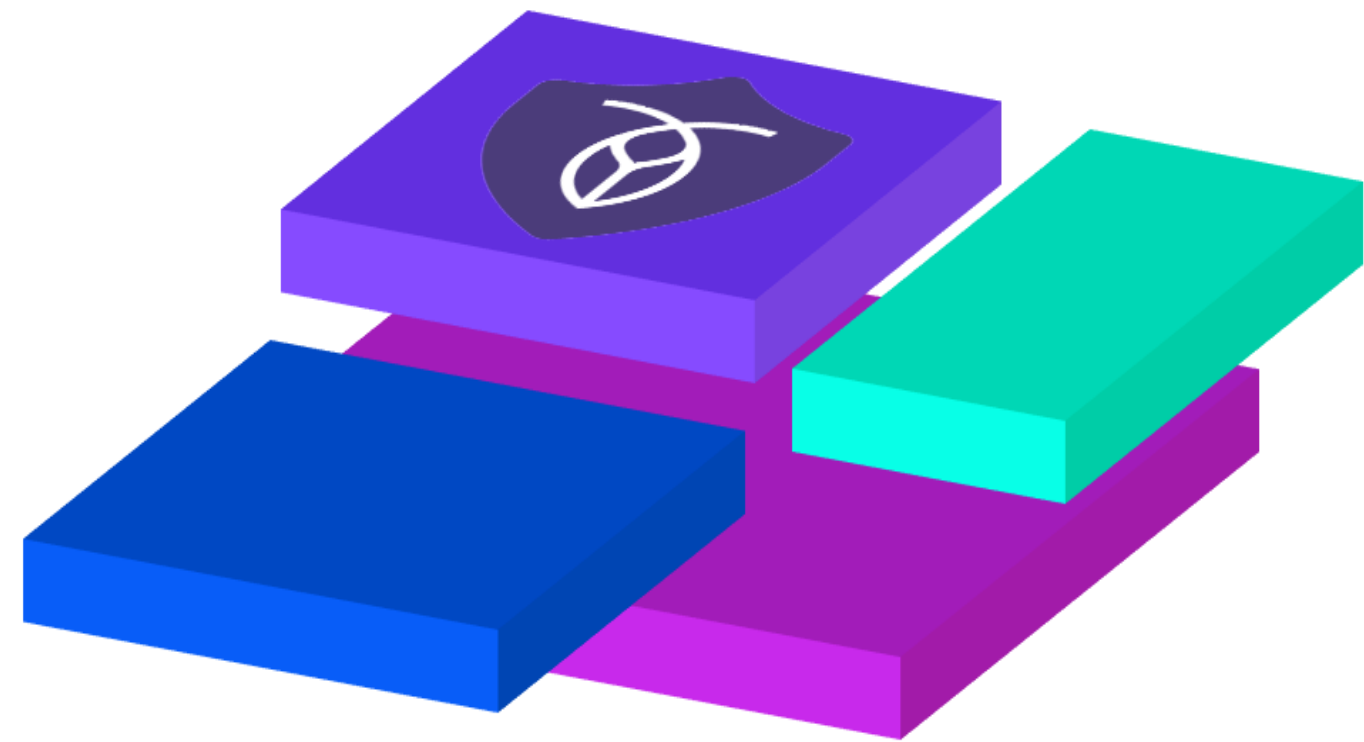
```
ALTER DATABASE {database} PLACEMENT DEFAULT;
```



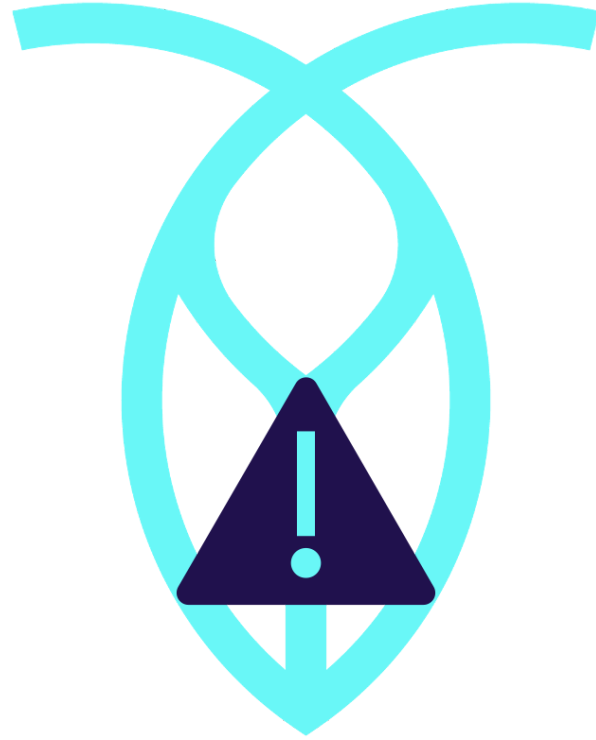


# FITTING INTO YOUR DATA DOMICILING STRATEGY

- Restricting data placement is a key *building block* of domiciling.
- Use CockroachDB *replication report* to gain visibility into non-compliant replicas.
- `PLACEMENT RESTRICTED` is not a replacement or drop in solution for an entire data domiciling strategy.



# DATA DOMICILING LIMITATIONS TO CONSIDER



- A subset of data from indexed columns or logs may appear in meta ranges or other system tables outside of the restricted geography.
- It's possible to mislabel a node's `locality` and unknowingly be uncompliant to a geo-restriction.

