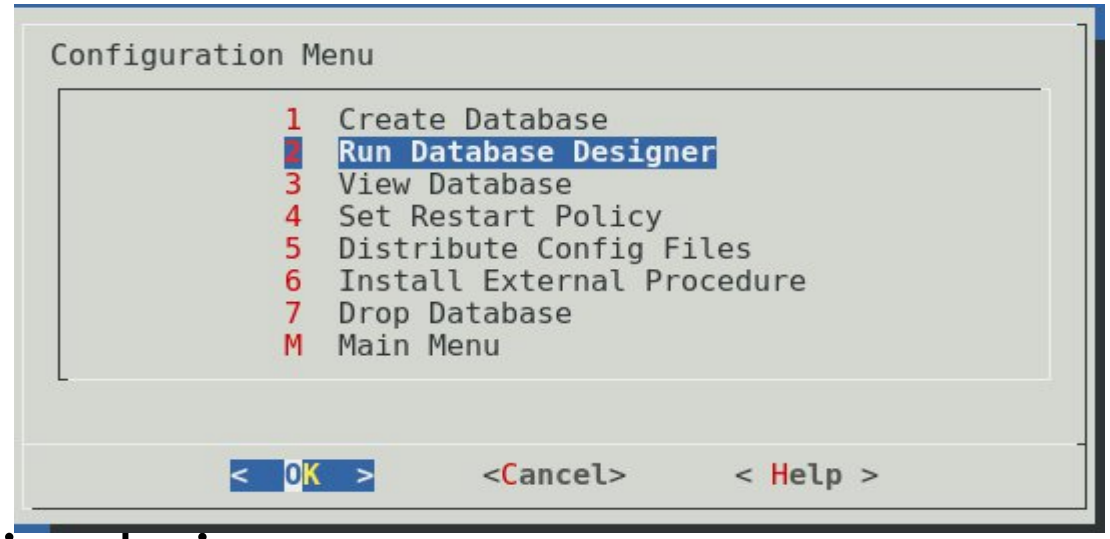
VERTICA
by opentext™

Optimizing the Database : Create a Comprehensive Database Design using DBD.

The Database Designer

- Run through adminTools > Configuration Menu



- Comprehensive design
  - Get the best overall design for a set of tables and queries
- Query-specific design
  - Get the best performing projections for an individual query or set of queries

The Database Designer

- Prepare to run the Database Designer
  - Create the database tables
  - Load sample data
  - Gather sample queries into a single SQL file
- Run the Database Designer
  - Comprehensive mode – to get superprojections for all tables and possible query-specific projections

    or
  - Query-specific mode – to get the best possible projections for an individual query or set of queries
- Deploy optimized projections
  - Review DBD projections in output SQL file and deploy manually

    or
  - Have the DBD automatically deploy

Sample Data

- Run DBD on a representative sample of the data
  - 10 GB maximum per table recommended
  - The bigger the data set the longer the DBD runs
  - DBD uses lots of temp space during deployment
    - For each projection, a replacement projection is created and populated with data, then original projections are dropped

Sample Data

- Sample data included for DBD should accurately represent the following characteristics:
  - Cardinality
  - Proportionality (relative size of tables)
  - Min
  - Max
- Avoid using only the first chunk of data, one month of data, one customer, etc.

Sample Queries

- Include various types of statements:
  - Select
  - Delete
- Queries will be parsed for syntax errors
- Provide up to 100 queries for a comprehensive run; 10 for query-specific
- Weight important queries/predicates

Database Designer

- Optimize for query performance
  - Generates a set of candidate projections for each table
  - Invokes the Optimizer to determine query costs of candidate projections and picks the projection with the lowest query costs
- Optimize storage footprint
  - Tries every possible encoding and compression type on every column
  - For each column, selects the encoding and compression type that most reduces the data size
- Balanced design

How Many Projections per Table?

- More projections or fewer projections?
  - More projections – optimal query performance
  - Fewer projections – faster load rates
  - Fewer projections – smaller storage footprint
- Where is the balance?
  - 2 – 4 projections per table is most common
    - 1 or 2 super projections
    - 1 or 2 query-specific projections
  - Some have many more – up to 50 per table

DBD Advantages

- Minimizes manual tuning
- Generated script is a recommendation; alter as necessary and then deploy
- Same Optimizer that runs queries generates the projections

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Thank you