

# Database Performance Tuning Guide

## Table Fragmentation Analysis

Table fragmentation occurs when the physical storage of table data becomes scattered across multiple blocks or cylinders. This can significantly impact query performance, especially for sequential scans.

To check fragmentation on Teradata:

```
SELECT DatabaseName, TableName, CurrentPerm, PeakPerm,  
       (CurrentPerm - PeakPerm) / NULLIFZERO(PeakPerm) as FragmentationRatio  
FROM DBC.TableSize  
WHERE (CurrentPerm - PeakPerm) / NULLIFZERO(PeakPerm) > 0.20  
ORDER BY FragmentationRatio DESC;
```

Tables showing more than 20% fragmentation should be considered for reorganization using COLLECT STATISTICS or table recreation.

### Best Practices:

- Monitor fragmentation weekly in production databases
- Schedule reorganization during maintenance windows
- Consider partitioning for very large tables
- Use appropriate primary index selection