**🔹 1. Rebuild Index for a Specific Partition (Efficient)**

If you only need to **rebuild one partition**, specify the partition number.

ALTER INDEX [IndexName] ON [TableName]

REBUILD PARTITION = [PartitionNumber];

🔹 **Example: Rebuilding Partition 5**

ALTER INDEX IX\_SalesDate ON Note\_tran

REBUILD PARTITION = 5;

✔ **Best for:** Large tables where rebuilding all partitions is too slow.

**🔹 2. Rebuild All Partitions (Full Optimization)**

If fragmentation is high across all partitions, rebuild the entire index.

ALTER INDEX ALL ON Note\_tran

REBUILD;

✔ **Best for:** Tables where most partitions are fragmented.

**🔹 3. Reorganizing vs. Rebuilding Indexes**

* **REBUILD**: Fully recreates the index (**locks table** unless ONLINE mode is used).
* **REORGANIZE**: Incrementally defragments index (**no table lock**).

🔹 **Example: Reorganizing Instead of Rebuilding**

ALTER INDEX IX\_SalesDate ON Note\_tran

REORGANIZE PARTITION = 5;

✔ **Use REORGANIZE when minimizing locks is important.**

**🔹 4. Rebuilding Indexes Online (Enterprise Edition Only)**

If your table is large and in **Enterprise Edition**, you can rebuild **without locking** queries.

ALTER INDEX IX\_SalesDate ON Note\_tran

REBUILD PARTITION = 5 WITH (ONLINE = ON);

✔ **Best for:** Reducing downtime in production.

**🔹 5. Checking Fragmentation Before Rebuilding**

To find which partitions are fragmented, use:

SELECT index\_id, partition\_number, avg\_fragmentation\_in\_percent

FROM sys.dm\_db\_index\_physical\_stats(DB\_ID(), OBJECT\_ID('Note\_tran'), NULL, NULL, 'LIMITED')

WHERE avg\_fragmentation\_in\_percent > 30;

✔ **If fragmentation is > 30%, use REBUILD**  
✔ **If fragmentation is 10-30%, use REORGANIZE**