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| “Index Maintenance Guidelines”  Jeff Moden/Ed Wagner - Rev 00 – 11 Jan 2019 | | | |
| Fill Factor to Assign | Index “Type” | When to Check | When to Rebuild and Notes (Never Reorganize) |
| 100 | **Static or nearly static** Read Only, Reference tables, almost never written to. Sys.dm\_db\_index\_usage\_stats can really help find these. If you have no “user updates” for 30 days, usually a shoe-in. | Month, Quarter, or Year | **>1% Logical Fragmentation** |
| 99 | **Append Only / Ever Increasing** Lead column is Identity, NewSequentialID, some dates/times, Sequences, etc, with near zero logical fragmentation and very high page density. Again, sys.dm\_db\_index\_usage\_stats will separate these from 100% because there will be “user updates”. | Month, Quarter, or Year | **>1% Logical Fragmentation** |
| 98 | **Sequential Silos** Usually single column NCI where related CI is Ever Increasing. High logical fragmentation but also has very high page density (usually >95%). Use sys.dm\_db\_index\_physical\_stats to find. | Daily | **>XX% Logical Fragmentation** May have to analyze the daily workload for what XX% should be but a good place to start is 10%. |
| 97 | **Append Only with “ExpAnsive” Updates** Usually Ever Increasing CI with fragmentation but could be an NCI, as well. Try to fix these but, if you can’t, keep at 97 so you know what they are. Never label as “Hopeless” even if they are. | Daily | **>XX% Logical Fragmentation OR Page Density < (Fill Factor – XX)** May have to analyze the daily workload for what XX% should be but a good place to start is 10%. Remember, we’re usually trying to save on memory here because the page splits cannot be prevented. |
| Ends with “2” (Usually 82 or 92) | **Unknown but needed to recover disk space** The “2” stands for “TO DO” and you need to analyze these someday. If BIG, analyze ASAP! | Daily | **>XX% Logical Fragmentation OR Page Density < (Fill Factor – XX)** May have to analyze the daily workload for what XX should be but a good place to start is 10 for both types of fragmentation. |
| Ends with “1” (usually 71, 81, or 91) | **Evenly Distributed** Typically, the leading column is a Random GUID. Very little else is truly “Evenly Distributed”. Note that NEWSEQUENTIALID is NOT “Evenly Distributed”. It’s actually a “Sequential Silo” (98%). | Daily | **>1% Logical Fragmentation** May have to analyze which Fill Factor to use (all end with “1”) to achieve prolonged periods with zero fragmentation but should always rebuild when logical fragmentation is greater than 1%, which is where bad page splits start in earnest. |
| Ends with “0” (except for 100 and 0. Usually 80 or 90.) | **Random Silos and Hopeless (permanently fragmented)** Manually assigned as “Hopeless” such as random or “Out of Order Silos” and unfixable ExpAnsive Updates where rampant logical and physical fragmentation can’t be slowed down and fits none of the other Fill Factors. Make sure these don’t fit other Fill Factor requirements, especially 97%. | Daily | **>XX% Logical Fragmentation OR Page Density < (Fill Factor – XX)** May have to analyze the daily workload for what XX should be but a good place to start is 10 for both types of fragmentation. Need to analyze what the Fill Factor should be to minimize splits if possible and save memory if can’t minimize splits. |
| 0 | **Default/Unknown**  Never defrag as “0”. If need to recover space but haven’t figured out the type of index required, use a Fill Factor that ends with “2” to mark it as “To Do”. | Once Each | **Assign a Fill Factor to these or leave them alone.** |